

IMPORTANT NOTICE

THIS OFFERING IS AVAILABLE ONLY TO INVESTORS WHO ARE EITHER (1) A QUALIFIED INSTITUTIONAL BUYER (a “QIB”) WITHIN THE MEANING OF RULE 144A UNDER THE U.S. SECURITIES ACT OF 1933 (THE “SECURITIES ACT”) OR (2) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH REGULATION S UNDER THE SECURITIES ACT.

IMPORTANT: You must read the following disclaimer before continuing. The following disclaimer applies to the attached offering memorandum and consent solicitation statement (the “**Offering Memorandum**”). You are advised to read this disclaimer carefully before accessing, reading or making any other use of the attached Offering Memorandum. In accessing the attached Offering Memorandum, you agree to be bound by the following terms and conditions, including any modifications to them from time to time, each time you receive any information from Mongolian Mining Corporation (the “Company”) and/or Energy Resources LLC (“ER LLC”, and together with the Company, the “Issuers”) as a result of such access.

Confirmation of Your Representation: You have accessed the attached Offering Memorandum on the basis that you have confirmed your representation to the Issuers and to J.P. Morgan Securities plc and Morgan Stanley & Co. International plc (the “Initial Purchasers”) that (1) you consent to delivery of the attached Offering Memorandum and any amendments or supplements thereto by electronic transmission and agree to the terms set forth herein, (2) either (A) you are a QIB (within the meaning of Rule 144A under the Securities Act) or (B) (i) you are outside the United States and, to the extent you purchase the securities described in the attached Offering Memorandum, you will be doing so pursuant to Regulation S under the Securities Act, and (ii) the e-mail address to which the attached Offering Memorandum has been delivered is not located in the United States of America (including the States and the District of Columbia), its territories, its possessions and other areas subject to its jurisdiction and (3) you acknowledge that you will make your own assessment regarding any legal, taxation or other economic conditions with respect to your decision to subscribe for or purchase any securities.

The attached Offering Memorandum has been made available to you in electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of transmission and consequently none of the Issuers, the Subsidiary Guarantors (as defined in the attached Offering Memorandum), the Initial Purchasers or any of their respective affiliates, directors, officers, employees, representatives and agents, nor any other person controlling any of the Issuers, any Subsidiary Guarantor, the Initial Purchasers or any of their respective affiliates accepts any liability or responsibility with respect to any discrepancies between the Offering Memorandum distributed to you in electronic format and the hard copy version. The Issuers will provide a hard copy version of the Offering Memorandum to you upon request.

Restrictions: The attached Offering Memorandum is being furnished in connection with an offering exempt from registration under the U.S. Securities Act solely for the purpose of enabling prospective investors an opportunity to consider the purchase of the securities described therein.

The Notes and the Subsidiary Guarantees (each as defined in the attached Offering Memorandum) have not been, and will not be, registered under the U.S. Securities Act, or the securities laws of any other jurisdiction, and may not be offered or sold within the United States unless registered under the U.S. Securities Act or offered or sold pursuant to an exemption from such registration.

You are not authorized to and you may not forward or deliver the attached Offering Memorandum, electronically or otherwise, to any other person or reproduce such Offering Memorandum in any manner whatsoever. Any forwarding, distribution or reproduction of this document and the attached Offering Memorandum in whole or in part is unauthorized. Failure to comply with this directive may result in a violation of the U.S. Securities Act or the applicable laws of other jurisdictions.

The materials relating to this offering of the Notes and Subsidiary Guarantees do not constitute, and may not be used in connection with, an offer or solicitation in any jurisdiction where offers or solicitations are not permitted by law. No action has been or will be taken in any jurisdiction by the Initial Purchasers or the Issuers that would, or is intended to, permit a public offering of the Notes, or possession or distribution of the Offering Memorandum (in preliminary, proof or final form) or any other offering or publicity material relating to the Notes, in any jurisdiction where action for that purpose is required. If a jurisdiction requires that this offering be made by a licensed broker or dealer, and any Initial Purchaser or an affiliate of the Initial Purchasers is a licensed broker or dealer in that jurisdiction, this offering shall be deemed to be made by such Initial Purchaser or such affiliate on behalf of the Issuers and the Subsidiary Guarantors in such jurisdiction.

Under no circumstances shall this Offering Memorandum constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful.

You are reminded that you have accessed the attached Offering Memorandum on the basis that you are a person into whose possession this Offering Memorandum may be lawfully delivered in accordance with the laws of the jurisdiction in which you are located and you may not nor are you authorized to deliver this Offering Memorandum, electronically or otherwise, to any other person. If you have gained access to this transmission contrary to the foregoing restrictions, you will be unable to purchase any of the Notes and Subsidiary Guarantees described therein.

If you receive this Offering Memorandum by e-mail, you should not reply by e-mail to this announcement, and you may not purchase any of the Notes and Subsidiary Guarantees by doing so. Any reply e-mail communications, including those you generate by using the “Reply” function on your e-mail software, will be ignored or rejected. If you receive this Offering Memorandum by e-mail, your use of this e-mail is at your own risk and it is your responsibility to take precautions to ensure that it is free from viruses and other items of a destructive nature.



MONGOLIAN MINING CORPORATION

(Incorporated in the Cayman Islands with limited liability)

and

ENERGY RESOURCES LLC

(Incorporated in Mongolia with limited liability)

US\$440,000,000

9.25% Guaranteed Senior Notes due 2024

Our 9.25% Guaranteed Senior Notes due 2024 (the “Notes”) will bear interest from April 15, 2019 at 9.25% per annum payable semiannually in arrears on April 15 and October 15 of each year, beginning October 15, 2019. The Notes will mature on April 15, 2024.

The Notes are general obligations of Mongolian Mining Corporation (the “Company”) and Energy Resources LLC (“ER LLC”, and together with the Company, the “Issuers”), guaranteed by certain of our existing subsidiaries (the “Subsidiary Guarantors”). The guarantees by the Subsidiary Guarantors are referred to herein as Subsidiary Guarantees.

The Issuers may at their option redeem the Notes, in whole or in part, at any time and from time to time on or after April 15, 2022, at the redemption prices set forth in this Offering Memorandum plus accrued and unpaid interest, if any, to (but not including) the redemption date.

At any time and from time to time prior to April 15, 2022, the Issuers may at their option redeem the Notes, in whole or in part, at a redemption price equal to 100% of the principal amount of the Notes plus the Applicable Premium (as defined herein) as of, plus accrued and unpaid interest, if any, to (but not including) the redemption date. At any time and from time to time prior to April 15, 2022, the Issuers may redeem up to 35% of the Notes, at a redemption price of 109.25% of the principal amount, plus accrued and unpaid interest, if any, in each case, using the net cash proceeds from certain equity offerings.

Upon the occurrence of a Change of Control Triggering Event (as defined herein), the Issuers must make an offer to repurchase all Notes outstanding at a purchase price equal to 101% of their principal amount, plus accrued and unpaid interest, if any, to (but not including) the date of repurchase.

The Notes will be (1) general obligations of the Issuers; (2) effectively subordinated to secured obligations of the Issuers, to the extent of the value of the assets serving as security therefor; (3) senior in right of payment to any existing and future obligations of the Issuers expressly subordinated in right of payment to the Notes; (4) at least *pari passu* in right of payment with all other unsecured, unsubordinated Indebtedness of the Issuers (subject to any priority rights of such unsubordinated Indebtedness pursuant to applicable law); (5) guaranteed by the Subsidiary Guarantors on a senior basis, subject to the limitations described in “Description of the Notes – The Subsidiary Guarantees” and in “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantee”; and (6) effectively subordinated to all existing and future obligations of any subsidiary of the Company other than ER LLC and the Subsidiary Guarantors. In addition, applicable law may limit the enforceability of the Subsidiary Guarantees. See “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantees”.

For a more detailed description of the Notes, see the section entitled “Description of the Notes” beginning on page 167.

Issue Price: 100.0%

Investing in the Notes involves risks. See the section entitled “Risk Factors” beginning on page 25.

Approval in-principle has been received for the listing and quotation of the Notes on the Official List of the Singapore Exchange Securities Trading Limited (the “SGX-ST”). The SGX-ST assumes no responsibility for the correctness of any of the statements made or opinions expressed or reports contained herein. Approval in-principle for the listing and quotation of the Notes and admission of the Notes to the Official List of the SGX-ST are not to be taken as an indication of the merits of the Issuers, the Subsidiary Guarantors (if any), any of their respective subsidiaries and/or associated companies, the Notes or the Subsidiary Guarantees.

Notification pursuant to Section 309B of the Securities and Futures Act, Chapter 289 of Singapore-The Notes are prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore).

The Notes and the Subsidiary Guarantees have not been and will not be registered under the United States Securities Act of 1933, as amended (the “Securities Act”), and may not be offered or sold within the United States, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes are being offered and sold by the Initial Purchasers only (1) to qualified institutional buyers in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A (“Rule 144A”), and (2) outside the United States in compliance with Regulation S under the Securities Act. For a description of certain restrictions on resale or transfer, see the section entitled “Transfer Restrictions” beginning on page 226.

It is expected that the delivery of the Notes will be made through the facilities of The Depository Trust Company (the “DTC”), on or about April 15, 2019 in New York, New York against payment therefor in immediately available funds.

The Notes are expected to be rated “B” by Fitch Ratings (“Fitch”) and “B-” by Standard & Poor’s Ratings Services (“S&P”). A rating is not a recommendation to buy, sell or hold securities, and may be subject to revision, suspension or withdrawal at any time by the assigning rating agency.

Joint Bookrunners and Joint Lead Managers

J.P. Morgan

Morgan Stanley

Offering Memorandum dated April 3, 2019



MONGOLIAN
MINING
CORPORATION

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IMPORTANT INFORMATION

You should rely only on the information contained in this Offering Memorandum. The Issuers have not, and J.P. Morgan Securities plc and Morgan Stanley & Co. International plc (the “Initial Purchasers”) have not, authorized any other person to provide you with information that is different. The information in this Offering Memorandum is accurate only as of the date on the front cover of this Offering Memorandum or otherwise as of the date specifically referred to in connection with the particular information. Our business, prospects, financial condition and results of operations may have changed since that date. Neither the delivery of this Offering Memorandum nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in our affairs since the date hereof or that the information contained herein is correct as of any time subsequent to its date.

This Offering Memorandum does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities to which it relates or an offer to sell or the solicitation of an offer to buy such securities by any person in any circumstances in which such offer or solicitation is unlawful. In addition, there may be legal restrictions on the distribution of this Offering Memorandum, this offering and the sale of the Notes in certain jurisdictions. If you come into possession of this Offering Memorandum, the Issuers and the Initial Purchasers require that you inform yourself about and observe any such restrictions. For a further description of certain restrictions on the offering, and the offer, sale or resale of the Notes, see the sections headed “Plan of Distribution” and “Transfer Restrictions” in this Offering Memorandum.

Neither the U.S. Securities and Exchange Commission (the “SEC”), nor any state securities commission in the United States has approved or disapproved of these securities or determined if this Offering Memorandum is truthful, complete or adequate. Any representation to the contrary is a criminal offense.

The Notes and the Subsidiary Guarantees have not been and will not be registered under the Securities Act and may not be offered or sold in the United States, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. The Notes are not transferable except in accordance with the restrictions described herein. See the sections headed “Plan of Distribution” and “Transfer Restrictions” in this Offering Memorandum.

Each person receiving this Offering Memorandum acknowledges that: (i) such person has been afforded an opportunity to request from us and to review, and has received, all additional information considered by it to be necessary to verify the accuracy of, or to supplement, the information contained herein; (ii) such person has not relied on the Initial Purchasers, the Trustee or the Agents or any person affiliated with the Initial Purchasers, the Trustee or the Agents in connection with any investigation of the accuracy of such information or its investment decision; and (iii) no person has been authorized to give any information or to make any representation concerning us, our subsidiaries and affiliates, the Notes or the Subsidiary Guarantees (other than as contained herein and information given by our duly authorized officers and employees in connection with investors’ examination of us and the terms of the offering of the Notes) and, if given or made, any such other information or representation should not be relied upon as having been authorized by us, the Initial Purchasers, the Trustee or the Agents. This Offering Memorandum summarizes certain material documents and other information, and we refer you to them for a more complete understanding of what we discuss in this Offering Memorandum.

You are hereby notified that sellers of the securities, including the Notes and the Subsidiary Guarantees, may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A.

This Offering Memorandum is confidential. You should not reproduce or distribute this Offering Memorandum, in whole or in part, and should not disclose any contents or use any information in this Offering Memorandum for any purpose other than considering an investment in the Notes.

The Issuers are furnishing this Offering Memorandum solely for the purpose of enabling you to consider the purchase of the Notes. You should not consider this Offering Memorandum to be legal, business or tax advice. In making an investment decision, you must rely on your own examination of us and the terms of the offering, including the merits and risks involved. If you are in any doubt about this Offering Memorandum, you should consult your legal counsel, professional accountant or other professional advisors. We have provided information contained in this Offering Memorandum and have also relied on other identified sources. The Initial Purchasers make no representation or warranty, express or implied, as to the accuracy or completeness of such information, and you should not rely on anything contained in this Offering Memorandum as a promise or representation by the Initial Purchasers. By accepting delivery of this Offering Memorandum, you agree to these terms. In making an investment decision, you should rely on your own examination of us and the terms of this offering, including the merits and risks involved. You are responsible for making your own examination of us and your own assessment of the merits and risks of investing in the Notes.

The Issuers reserve the right to withdraw the offering of the Notes at any time, and the Initial Purchasers reserve the right to reject any commitment to subscribe for or purchase the Notes in whole or in part and to allot to any prospective purchaser less than the full amount of purchase of the Notes sought by such purchaser. The Initial Purchasers and certain related entities may acquire for their own account a portion of the Notes.

IN CONNECTION WITH THIS OFFERING, J.P. MORGAN SECURITIES PLC, AS STABILIZING MANAGER (THE “STABILIZING MANAGER”), OR ANY PERSON ACTING FOR THE STABILIZING MANAGER, MAY, SUBJECT TO ALL APPLICABLE LAWS AND REGULATIONS, PURCHASE AND SELL THE NOTES IN THE OPEN MARKET WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL. THESE TRANSACTIONS MAY, TO THE EXTENT PERMITTED BY APPLICABLE LAWS AND REGULATIONS, INCLUDE SHORT SALES, STABILIZING TRANSACTIONS AND PURCHASES TO COVER POSITIONS CREATED BY SHORT SALES. HOWEVER, NEITHER THE STABILIZING MANAGER NOR ANY PERSON ACTING ON BEHALF OF THE STABILIZING MANAGER IS OBLIGATED TO COMMENCE SUCH TRANSACTIONS. IF THESE ACTIVITIES ARE COMMENCED, THEY MAY BE DISCONTINUED AT ANY TIME AND MUST IN ANY EVENT BE BROUGHT TO AN END AFTER A LIMITED TIME THAT IS NO LATER THAN THE EARLIER OF 30 DAYS AFTER THE ISSUE DATE OF THE NOTES AND 60 DAYS AFTER THE DATE OF ALLOTMENT OF THE NOTES.

NOTICE TO INVESTORS IN THE EUROPEAN ECONOMIC AREA

Solely for the purposes of each manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturers' target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturers' target market assessment) and determining appropriate distribution channels.

The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area ("EEA"). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; or (ii) a customer within the meaning of Directive 2002/92/EC (as amended, the "Insurance Mediation Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Directive 2003/71/EC (as amended, the "Prospectus Directive"). No key information document required by Regulation (EU) No 1286/2014 (as amended, the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared. Offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

This Offering Memorandum has been prepared on the basis that any offer of the Notes in any Member State of the EEA will be made pursuant to an exemption under the Prospectus Directive from a requirement to publish a prospectus for offers of Notes. This Offering Memorandum is not a prospectus for the purpose of the Prospectus Directive.

CERTAIN DEFINITIONS, CONVENTIONS AND CURRENCY PRESENTATION

Certain financial numerical figures, including financial information and percentages, contained in this Offering Memorandum have been rounded for convenience. As a result, discrepancies may exist in the numerical figures shown as total in some tables as they may not be exact arithmetic aggregations of the figures that precede them.

PRESENTATION OF FINANCIAL INFORMATION

Our financial results are reported in U.S. dollars. For convenience only and unless otherwise noted, all translations from Togrogs into U.S. dollars in this Offering Memorandum were made at the rate of MNT2,638.00 to US\$1.00, which translation represents the basic exchange rate published by Bloomberg on December 31, 2018. On March 15, 2019 the translation of Togrogs into U.S. dollars published by Bloomberg was MNT2,631.68 to US\$1.00. Further information on exchange rates is set forth in "Exchange Rates and Exchange Controls" in this Offering Memorandum. These are provided by way of illustration only and no representation is made that the Togrog amounts could have been, or could be, converted into any U.S. dollar amounts, at the rates indicated or at all. Certain financial amounts presented in this Offering Memorandum may not correspond directly to our financial statements included elsewhere in this Offering Memorandum or may not add up due to rounding.

Our financial information is prepared and presented in accordance with International Financial Reporting Standards, or IFRS, which differ in certain respects from accounting principles generally accepted in the United States, or U.S. GAAP, which might be material to the financial information herein. We have made no attempt to quantify the impact of those differences. In making an investment decision, investors must rely upon their own examination of us, the terms of this offering and the financial information. Potential investors should consult their own professional advisors for an understanding of the differences between IFRS and U.S. GAAP, and how those differences might affect the financial information herein.

NON-IFRS FINANCIAL MEASURE

Earnings before interest, tax, depreciation and amortization and certain other items (“Adjusted EBITDA”) and the related ratios presented in this Offering Memorandum are supplemental measures of our performance and liquidity that are not required by, or presented in accordance with, IFRS. Adjusted EBITDA is not a measurement of financial performance or liquidity under IFRS and should not be considered as an alternative to net income, operating income or any other performance measures derived in accordance with IFRS or as an alternative to cash flows from operating activities as a measure of liquidity. In addition, Adjusted EBITDA is not a standardized term; hence, a direct comparison of Adjusted EBITDA as reported by different companies may not be possible or meaningful.

We believe that Adjusted EBITDA facilitates comparisons of operating performance from period to period and company to company by eliminating potential differences caused by variations in capital structures (affecting interest and finance charges), tax positions (such as the impact on periods or companies of changes in effective tax rates or net operating losses), the age and booked depreciation and amortization of assets (affecting relative depreciation and amortization expenses), foreign exchange gains or losses, allowance for doubtful debts and other related non-cash expenses. Adjusted EBITDA has been presented because we believe that it is frequently used by securities analysts, investors and other interested parties in evaluating similar companies, many of whom present such non-IFRS financial measures when reporting their results. Finally, Adjusted EBITDA is presented as a supplemental measure of our ability to service our debt. Nevertheless, Adjusted EBITDA has limitations as an analytical tool, and you should not consider it in isolation from, or as a substitute for, analysis of our financial condition or results of operations, as reported under IFRS. Because of these limitations, Adjusted EBITDA should not be considered as a measure of discretionary cash available to us to invest in the growth of our businesses. The term “Consolidated EBITDA,” as used in the section titled “Description of the Notes” summarizing certain provisions of the Indenture, the Notes and the Subsidiary Guarantees, is calculated differently from Adjusted EBITDA and is not a measurement of financial performance or liquidity under IFRS.

INDUSTRY AND MARKET DATA

We have commissioned Shanxi Fenwei Energy Information Services Co., Ltd, or Fenwei, as our industry consultant, to prepare an independent expert report on the energy sector in Mongolia and China, or the Fenwei Report, for use in whole or in part in the Industry Overview section of this Offering Memorandum. Fenwei prepared its report based on Fenwei’s in-house database, independent third-party reports and publicly available data from reputable industry organizations. Fenwei has assumed that the information and data which it relied on are complete and accurate. The definition of the terms used in the Fenwei Report may be different than the definition of the terms used in this Offering Memorandum. The information contained in the Industry Overview has been obtained from sources believed by Fenwei to be reliable, but there can be no assurance as to the accuracy or completeness of included information. Unless otherwise specified, all of the data presented in this section with respect to the Mongolian and Chinese coal industries has been extracted from the Fenwei Report.

This Offering Memorandum includes market share and industry data and forecasts that we have obtained from industry publications and surveys, reports of governmental agencies, publicly available corporate information and internal company surveys or estimates. Industry publications and surveys and forecasts generally state that the information contained therein has been obtained from sources believed to be reliable, but there can be no assurance as to the accuracy or completeness of the information. While we have taken reasonable care to ensure that the information is extracted accurately and in its proper context, we have not independently verified any of the data from third-party sources or ascertained the underlying economic assumptions relied upon therein. None of us or the Initial Purchasers makes any representation as to the accuracy and reliability of such information. Due to possible inconsistent data collection and consolidation methods and other associated data collection difficulties, the statistics and estimates herein may be inaccurate and should not be unduly relied upon.

ENFORCEABILITY OF CIVIL LIABILITIES

The Company is an exempted company incorporated under the laws of the Cayman Islands with limited liability. All or a substantial portion of its assets are located in Mongolia. In addition, most of the Company's directors and officers are residents of Mongolia or Hong Kong, and all or a substantial portion of their assets are or may be located in Mongolia or Hong Kong. As a result, it may be difficult for you to effect service of process upon the Company or such persons, or to enforce against the Company or them judgments obtained in courts or arbitral tribunals outside Mongolia, Hong Kong or the Cayman Islands predicated upon the laws of jurisdictions other than Mongolia, Hong Kong or the Cayman Islands, including the civil liability provisions of the United States federal or state securities laws.

We have been advised by our Mongolian legal counsel, ELC LLP Advocates, that there is uncertainty as to whether the courts of Mongolia would enforce judgments in original actions brought in Mongolia, of liabilities against ER LLC, its directors or officers predicated upon the U.S. federal or state securities laws. Mongolian courts will not enforce judgments of U.S. courts obtained against ER LLC, its directors or officers predicated upon the civil liability provisions of the U.S. federal or state securities laws in the absence of a bilateral treaty between Mongolia and the United States or the mutual recognition of court judgments between the two countries. As of the date of this Offering Memorandum, no such treaty exists.

We have been advised by our Cayman Islands legal adviser, Walkers (Hong Kong), that a judgment obtained in a foreign court (other than certain judgments of a superior court of any state of the Commonwealth of Australia) will be recognized and enforced in the courts of the Cayman Islands without any re-examination of the merits at common law, by an action commenced on the foreign judgment in the Grand Court of the Cayman Islands, where the judgment: (a) is final and conclusive; (b) is one in respect of which the foreign court had jurisdiction over the defendant according to Cayman Islands conflict of law rules; (c) is either for a liquidated sum not in respect of penalties or taxes or a fine or similar fiscal or revenue obligations or, in certain circumstances, for in person and non-money relief; and (d) was neither obtained in a manner, nor is of a kind enforcement of which is contrary to natural justice or the public policy of the Cayman Islands

We have been advised by our Hong Kong legal adviser, Davis Polk & Wardwell, that Hong Kong has no statutory or other arrangement for the reciprocal enforcement of judgments between Hong Kong and the United States. A judgment obtained in the courts of New York cannot be enforced by registration in Hong Kong. Subject to the Foreign Judgments (Restriction on Recognition and Enforcement) Ordinance (Cap 46 of the Laws of Hong Kong), a judgment given by the courts of New York could form the basis of a claim in the Hong Kong courts in respect of the judgment debt if: (a) the judgment was not obtained by fraud, misrepresentation or mistake nor obtained in proceedings which contravene the rules of natural justice; (b) enforcement of the judgment would not be contrary to public policy in Hong Kong; (c) the relevant court of United States had jurisdiction in accordance with the Hong Kong rules on the conflict of laws; (d) the judgment is for a definite sum of money which is not payable in respect of taxes or other charges of a similar nature or in respect of a fine or other penalty; and (e) the judgment is final and conclusive between the parties, but if it is capable of being appealed or an appeal is pending, the proceedings in Hong Kong are likely to be stayed by the courts of Hong Kong pending any such appeal being heard.

We have been advised by our Luxembourg counsel, Loyens & Loeff Luxembourg S.à r.l., that the United States and the Grand Duchy of Luxembourg ("Luxembourg") are not currently bound by a treaty providing for reciprocal recognition and enforcement of judgments, other than arbitral awards rendered in civil and commercial matters. According to such counsel, an enforceable judgment for the payment of monies rendered by any U.S. federal or state court based on civil liability would not directly be enforceable in Luxembourg. However, a party who received such favorable judgment in a U.S. court may initiate enforcement proceedings in Luxembourg by requesting enforcement of the U.S. judgment rendered in civil or commercial matters by the Luxembourg District Court pursuant to the relevant provisions of the New Luxembourg Code of Civil Procedure and in Luxembourg case law. The Luxembourg District Court will authorize the enforcement in Luxembourg of the U.S. judgment if it is satisfied that the following conditions are met:

- the U.S. court awarding the judgment has jurisdiction to adjudicate the respective matter according to its applicable laws, and Luxembourg private international and local law;
- the judgment is enforceable in the U.S.;

- the U.S. court has applied the law which is designated by Luxembourg conflict of law rules, or, at least, the order must not contravene the principles underlying these rules (based on case law and legal doctrine, it is not certain that this condition would still be required for an exequatur to be granted by a Luxembourg court);
- the principles of natural justice have been complied with and the judgment was granted following proceedings where the counterparty had the opportunity to appear, and it appeared to present a defense;
- the U.S. court has acted in accordance with its own procedural laws;
- the judgment must not have been obtained by fraud; and
- the judgment does not contravene the Luxembourg public policy as understood under Luxembourg law or has been given in proceedings of a criminal or tax nature.

If an original action is brought in Luxembourg, Luxembourg courts may refuse to apply the designated law among others and notably if its application contravenes Luxembourg public policy. In an action brought in Luxembourg on the basis of U.S. Federal or state securities laws, Luxembourg courts may not have the requisite power to grant the remedies sought. Also, an enforcement proceeding may be refused in respect of punitive damages.

Further, in the event of any proceedings being brought in a Luxembourg court in respect of a monetary obligation expressed to be payable in a currency other than Euro, a Luxembourg court would have power to give judgment expressed as an order to pay a currency other than Euro. However, enforcement of the judgment against any party in Luxembourg would be available only in Euro and for such purposes all claims or debts would be converted into Euro.

Subject to the foregoing, purchasers of the Notes may be able to enforce judgments in civil and commercial matters obtained from U.S. federal or state courts in Luxembourg. We cannot, however, assure you that attempts to enforce judgments in Luxembourg will be successful.

FORWARD-LOOKING STATEMENTS

This Offering Memorandum contains forward-looking statements that are, by their nature, subject to significant risks and uncertainties. Statements that are not historical facts, including statements about our intentions, beliefs, expectations or predictions for the future, are forward-looking statements. These forward-looking statements include, without limitation, statements relating to:

- our business strategies;
- our capital expenditure plans;
- our future production targets;
- our operations and business prospects;
- our financial performance;
- our dividend policy;
- the regulatory environment as well as the industry outlook generally;
- the changes in the amount of recoverable resources and reserves;
- fluctuations in the market prices of our products;
- future developments in our industry, including but not limited to the statements in the “Industry” section of this Offering Memorandum; and
- general economic trends in China and Mongolia.

This Offering Memorandum contains certain statements that are “forward-looking” and uses forward-looking terminology such as “anticipate”, “believe”, “expect”, “estimate”, “may”, “ought to”, “should”, “will”, “can”, “could”, “continue”, “going forward”, “intend”, “plan”, “potential”, “seek” and similar expressions. Those statements include, among other things, the discussion of our growth strategy and expectations concerning our future operations, liquidity and capital resources. Purchasers of the Notes are cautioned that reliance on any forward-looking statement involves risks and uncertainties and that, although we believe the assumptions on which the forward-looking statements are based are reasonable, any or all of those assumptions could prove to be inaccurate and as a result, the forward-looking statements based on those assumptions could also be incorrect. The risks and uncertainties in this regard include those identified in the “Risk Factors” section in this Offering Memorandum. Actual results may differ materially from information contained in forward-looking statements as a result of numerous factors, including, without limitation, those described in the “Risk Factors” section in this Offering Memorandum and the following:

- our ability to service our substantial indebtedness;
- our ability to obtain financing to fund our operational needs and re-finance our existing debt on satisfactory terms, if at all;
- our ability to comply with the financial tests and other covenants in our existing and future debt instruments, including limitations on our flexibility in operating our business;
- our history of losses and uncertainty regarding our profitability in the future;
- further deterioration in the market prices of our products;
- our production capabilities;
- our plans and objectives for future operations;
- our relationship with, and other conditions affecting, our customers;
- risks inherent to our mining and production;
- export transportation inefficiency and delays in railway and cross border infrastructure development programs; competition;
- inflationary trends and interest rate changes;
- the effects of changes in currency exchange rates;
- environmental laws and regulations;
- regulatory and court decisions;
- future legislation, including regulations and rules as well as changes in enforcement policies;
- changes in political, economic, legal and social conditions in Mongolia and China, including their respective governments’ specific policies with respects to the coal industry, economic growth, inflation, foreign exchanges and the availability of credit;
- economic conditions in Asia, the United States, Europe and elsewhere in the world;
- weather conditions or catastrophic weather-related damage; and
- our liquidity and financial condition.

We do not undertake and are under no obligation to publicly update or revise any forward-looking statements contained in this Offering Memorandum, whether as a result of new information, future events or otherwise, except as required by applicable laws, rules and regulations. All forward-looking statements contained in this Offering Memorandum are qualified by reference to this cautionary statement.

In light of these and other risks and uncertainties, the inclusion of forward-looking statements should not be regarded as representations by us that our plans and objectives will be achieved.

CAUTIONARY NOTE REGARDING RESOURCES AND RESERVES

We have estimated the coal resources and reserves reported in this Offering Memorandum in accordance with the JORC Code which governs such disclosures by companies listed on the Australian Stock Exchange.

The JORC Code recognizes two types of classification, mineral resources and ore reserves, based on the nature of the technical and economic evaluation carried out.

- Mineral resources are based on mineral occurrences quantified on the basis of geological data and quality, and are divided into measured, indicated and inferred categories reflecting decreasing confidence in geological and quality continuity. No allowances are included for dilution and losses during mining, but the reporting of mineral resource estimates carries the implication that there are reasonable prospects for eventual economic exploitation. Mineral resources may therefore be viewed as the estimation stage prior to the application of more stringent economic criteria for ore reserve definition, such as a rigorously defined cut-off grade and mine design outlines, along with allowances for dilution and losses during mining. Under this system of reporting, it is common practice for companies to include in the mineral resource category material with a high expectation of conversion to ore reserves, but for which final technical and economic viability has not been determined.
- Ore reserves as defined by the JORC Code are the economically mineable part of measured or indicated resources. Ore reserves are designated within proved and probable categories, and are derived from the corresponding measured and indicated mineral resource estimates after inclusion of allowances for mining and recovery factors. In addition to geological considerations, other modifying economic, mining, metallurgical, marketing, legal, environmental, social and governmental factors are taken into account in determining the extent to which mineral resources could be converted to ore reserves.

The resource and reserve estimates provided in this Offering Memorandum comply with the resource and reserve definitions of the JORC Code. The resource estimates are presented as measured, indicated and inferred, and the reserve estimates are presented as proved and probable.

Cautionary Note to U.S. Investors Concerning Estimates of Reserves

There are differences between reporting regimes for reserve estimates in the United States and in Australia. A key difference between the reporting regimes in Australia under the JORC Code and in the United States under the requirements as adopted by the SEC in its Industry Guide 7-Description of Property by Issuers Engaged or to be Engaged in Significant Mining Operations (“Industry Guide 7”) is the absence in the United States of any provision for the reporting of estimates other than proved (measured) or probable (indicated) reserves. There is, therefore, no equivalent for “resources” under the SEC’s Industry Guide 7.

The SEC has applied the following reporting definitions to reserves under Industry Guide 7:

- A “reserve” is “that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination. Reserves are customarily stated in terms of “ore” when dealing with metalliferous minerals; when other materials such as coal, oil, shale, tar, sands, limestone, etc. are involved, an appropriate term such as “recoverable coal” may be substituted.”
- “Proven (measured) reserves” are defined as reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings or drill holes; grade and/or quality are computed from the results of detailed sampling; and (b) the sites for inspection, sampling and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well-established.

- “Probable (indicated) reserves” are defined as reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.

This Offering Memorandum uses the terms “measured,” “indicated” and “inferred” resources. United States investors are advised that while some investors recognize such terms, the SEC does not recognize them. “Inferred resources” have a higher degree of uncertainty as to their existence and economic feasibility. It cannot be assumed that all or any part of an inferred resource will ever be upgraded to a higher category. Under SEC rules, estimates of inferred mineral resources may not form the basis of feasibility or other economic studies. **You should not assume that all or any part of measured or indicated resources will ever be converted into reserves. You are also cautioned not to assume that all or any part of an inferred resource exists or is economically or legally mineable.**

Coal Resource and Reserve Statement

Information contained in this Offering Memorandum relating to estimates of (i) coal resources at our UHG deposit as of December 31, 2018 was prepared by Mr. Said (Competent Person as defined by JORC code 2012 edition, ID #316005, member of Australasian Institute of Mining and Metallurgy), who was employed by Mongolian Mining Corporation, (ii) coal resources at our BN deposit (excluding the THG deposit) as of December 31, 2018 was prepared by Mr. Said (Competent Person as defined by JORC code 2012 edition, ID #316005, member of Australasian Institute of Mining and Metallurgy), who was employed by Mongolian Mining Corporation, (iii) coal resources at our THG deposit as of December 31, 2018 was prepared by Mr. Said (Competent Person as defined by JORC code 2012 edition, ID #316005, member of Australasian Institute of Mining and Metallurgy), who was employed by Mongolian Mining Corporation, (iv) coal reserves at our UHG deposit as of January 1, 2019 was prepared by Mr. Lundeg (Competent Person as defined by JORC code 2012 edition, ID #326646, member of Australasian Institute of Mining and Metallurgy), who was employed by Glogex Consulting LLC and (v) coal reserves at our BN and THG deposits as of January 1, 2019 was prepared by Mr. Lundeg (Competent Person as defined by JORC code 2012 edition, ID #326646, member of Australasian Institute of Mining and Metallurgy), who was employed by Glogex Consulting LLC, each according to the requirements of the JORC Code effective as of the date of the respective report. All Competent Persons provided written consent statement according to Clause 9 of the JORC code 2012 edition.

You should be aware that the coal reserves we state are estimates of the material we believe we will be able to profitably mine taking into account the economic, legal and technical factors in its extraction and sale, while the coal resources stated is primarily based on geological factors (although such a declaration implies that there are reasonable prospects for the eventual economic extraction of the resource). Accordingly, you should not assume that we will be able to profitably extract the mineral resources estimated in this Offering Memorandum, particularly that portion of the estimated mineral resources identified as “inferred resources”. When coal resources and reserves are reported under the JORC Code, the mineral reserve figures (tonnage and coal quality) are included within the mineral resource figures (tonnage and coal quality). In addition, Industry Guide 7 differs from the JORC Code in that it requires reserves to be calculated on the basis of current legal and economic conditions at the time of the reserve determination, whereas the JORC Code permits reporting companies to make “realistic” assumptions about such matters within the judgment of the Competent Person ultimately responsible for the statement of the quantities.

Estimates of coal resources and reserves depend significantly on the interpretation of geological data obtained from drill holes and other exploration techniques, which is extrapolated to produce estimates of the location, volume and qualities of coal deposits. In addition, to calculate our coal reserves, we make estimates and assumptions regarding a number of technical factors such as recoverability and process efficiency, as well as economic factors such as forecast costs and revenues. These economic and technical estimates and assumptions may change in future in ways that affect the quantity of our stated coal reserves. We generate additional geological data as we mine, which may not be consistent with the data on which we based our coal resource and reserve estimates, resulting in changes to such estimates. No assurance can be given that the coal resources and reserves presented in this Offering Memorandum will be recovered at the quality or quantity presented. Estimates of coal resources of our UHG deposit and BN deposits disclosed herein have not been adjusted to reflect production after December 31, 2018. Estimates of coal reserves of our UHG and BN deposits disclosed herein have not been adjusted to reflect production after January 1, 2019.

Assumptions Underlying Our Coal Reserve Estimates

We estimate our coal reserves using various assumptions regarding our mining costs and the price of coal. For more information regarding the cost and revenue factors used to estimate our coal reserves presented in this Offering Memorandum, see the coal reserve statement under the heading “Cost and Revenue Factors”.

AVAILABLE INFORMATION

During any period in which the Issuers are not subject to Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended, or the Exchange Act, or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act, the Issuers will furnish, upon request, to each noteholder, or any prospective purchaser designated by any such noteholder, information satisfying the requirements of Rule 144A(d)(4) under the Securities Act to permit compliance with Rule 144A in connection with resales of the Notes for so long as any such Notes are “restricted securities” within the meaning of Rule 144(a)(3) under the Securities Act.

DEFINITIONS

In this Offering Memorandum, unless the context otherwise requires, the following terms shall have the meanings set forth below. Certain other terms are explained in the section headed “Glossary” in this Offering Memorandum.

“2006 Minerals Law”	the Minerals Law of Mongolia, enacted on July 8, 2006, and effective from August 26, 2006, and as amended and supplemented from time to time
“2017 Notes”	the US\$600,000,000 8.875% senior notes due 2017 issued by the Company
“2022 Notes”	the US\$412,465,892 senior notes due 2022 issued by the Company bearing interest ranging from 5% – 8% per annum based on the benchmark coal price index
“ADB”	Asian Development Bank
“affiliate(s)”	any other person, directly or indirectly, controlling or controlled by or under direct or indirect common control with a specified person
“aimag”	the highest level of Mongolian administrative subdivision (essentially equivalent to a province), of which there are 21 in Mongolia
“Audit Committee”	the audit committee of the Board
“Auto Road Use Agreement”	the toll fee arrangement for the UHG-GS paved road, owned by Erdenes MGL, entered into with Gashuun Sukhait Auto Road LLC in 2018
“BN”	Baruun Naran
“BN deposit”	our BN deposit located in South Gobi Province which includes coal resources and reserves identified for surface (<300m depth of cover) and underground (>300m depth of cover) mining, including both the BN mining license and the THG mining license
“BN mine”	the surface mining applicable (<300m depth of cover) portion of our BN deposit
“BN mining license”	the Mining License MV-014493 of 4,482 hectares area obtained through acquisition of Baruun Naran Limited on June 1, 2011
“BNP and ICBC Facility Agreement”	a coal pre-export loan facility of US\$150 million entered into with BNP Paribas Singapore Branch and Industrial and Commercial Bank of China Limited dated March 5, 2014
“Board”	the board of directors of the Company
“BOT”	Build-Operate-Transfer agreement, a type of contract arrangement in which a private sector entity builds an infrastructure project, operates it and eventually transfers ownership of the project to the government

“BOT Agreement”	Build-Operate-Transfer Agreement executed by and between Gobi Road LLC, formerly a direct subsidiary of ER LLC and has been merged into ER LLC, and the Ministry of Road, Transportation and Urban Development of Mongolia on June 9, 2010
“C&F”	Cost-and-Freight, meaning the seller must pay the cost and freight to bring the goods to the port of destination. The risk is transferred to the buyer once the goods are loaded on the vessel
“China”	the People’s Republic of China, and for the purposes of this Offering Memorandum, excluding Hong Kong, Macau and Taiwan
“CHPP”	coal handling and preparation plant
“Company”, “our Company”, “Group”, “our Group”, “we”, “us”, “our” or “Mongolian Mining Corporation”	Mongolian Mining Corporation, an exempted company incorporated in the Cayman Islands with limited liability on May 18, 2010 and except where the context indicates otherwise (i) our subsidiaries; and (ii) with respect to the period before our Company became the holding company of our present subsidiaries, the business operated by our present subsidiaries or (as the case may be) their predecessors
“DAP”	Delivered-at-Place, the seller delivers the goods to the buyer on the arriving means of transport, ready for unloading at the named place of destination, pays for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer
“DGMC”	the Department of Geological and Mining Cadaster, a subordinate agency of MRAM responsible for registration of exploration licenses and mining license rights in Mongolia
“Director(s)”	director(s) of our Company
“ER LLC”	Energy Resources LLC, a limited liability company organized under Mongolian law on April 22, 2005
“Erdenes MGL”	Erdenes MGL LLC, a state-owned enterprise
“Erdenes Tavan Tolgoi”	Erdenes Tavan Tolgoi Joint Stock Company, which was established on October 20, 2010 by the Government by Resolution No. 272
“Exchange Act”	the U.S. Securities and Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder
“FOB”	Free-on-Board, meaning the risk passes to the buyer, including payment of all transportation and insurance costs, once goods are delivered on board of the ship by the seller
“FOR”	Free-on-Rail, meaning the risk passes to the buyer, including payment of all transportation and insurance costs, once goods are delivered on the wagon of rail by the seller

“FOT”	Free-on-Transport, meaning the risk passes to the buyer, including payment of all transportation and insurance costs, once goods are delivered on a truck at a named loading point
“GDP”	gross domestic product
“Glogex”	Glogex Consulting LLC, a company incorporated under the laws of Mongolia with limited liability
“GM”	Ganqimaodu or Gants Mod, the Chinese side of the Sino-Mongolian border crossing, where the Company currently exports its coal products
“Gobi Road LLC”	Gobi Road LLC was formerly our indirect subsidiary and it has been merged into Energy Resources LLC on April 20, 2017
“Government of Mongolia” or “Government”	the Government of Mongolia
“Group”	the Company and its subsidiaries
“GS”	Gashuun Sukhait, the Mongolia side of the Sino-Mongolian border crossing, where the Company currently exports its coal products
“Hong Kong” or “HK”	the Hong Kong Special Administrative Region of China
“Hong Kong Stock Exchange”	The Stock Exchange of Hong Kong Limited
“Huanghua”	located in the Bohai Gulf coastal regions of Hebei province in northeastern China, and home to the Huanghua Port
“IFRS”	International Financial Reporting Standards
“IMF”	International Monetary Fund
“Initial Purchasers”	J.P. Morgan Securities plc and Morgan Stanley & Co. International plc
“Investment Agreement”	an agreement that a mining license holder may, at its option, enter into with the Government of Mongolia concerning stability of tax rates, the right to sell products at international market prices, a guarantee that the license holder may receive and dispose of income from such sales, and provisions with respect to the amount and term of the license holder’s investment
“Law on VAT”	Law on Value-Added Tax
“Listing Rules”	Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited
“MCS Group”	MCS Mongolia and its subsidiaries (other than our Group)
“MCS Holding”	MCS Holding LLC, a wholly owned subsidiary of MCS Mongolia, a limited liability company organized under Mongolian law on March 29, 2001

“MCS International”	MCS International LLC, a wholly owned subsidiary of MCS Holding, principally engaged in project management, engineering, operation and maintenance of power plant, electricity and thermal energy distribution facilities, and supply of electricity and thermal energy
“MCS Mongolia”	MCS (Mongolia) LLC, a limited liability company organized under Mongolian law
“Mineral Deposit of Strategic Importance”	under the 2006 Minerals Law, a deposit that may have the potential to impact national security, or the economic and social development of Mongolia, or that is generating, or has the potential to generate, more than 5% of Mongolia’s GDP in any given year
“Minerals License Transfer Agreement”	the minerals license transfer agreement entered into between ER LLC and the Government of Mongolia on March 21, 2008, pursuant to which ER LLC agreed to transfer all of the mining licenses held by it at the time, except for the one covering our UHG deposit, to a state owned enterprise at nil consideration
“MMHI”	the Ministry of Mining and Heavy Industry, a cabinet-level ministry of the Government of Mongolia
“MNT” or “togrog”	the lawful currency of Mongolia
“MPP”	Mongolian People’s Party
“MPRP”	Mongolian People’s Revolutionary Party
“MRPAM”	the Mineral Resources and Petroleum Authority of Mongolia, a subordinate agency of the MMHI, under which the DGMC operates (former Mineral Resources Authority of Mongolia or MRAM)
“NIC”	NIC LLC, an oil import and distribution company in Mongolia
“Nomination Committee”	the nomination committee of the Board
“Non-Guarantor Restricted Subsidiaries”	any Restricted Subsidiary that is not a Subsidiary Guarantor
“Notes”	US\$440,000,000 9.25% Guaranteed Senior Notes due 2024
“Parliament” or “State Great Hural”	the legislature in Mongolia
“Perpetual Securities”	the US\$194,999,827 perpetual securities issued by Mongolian Mining Corporation
“Perpetual Securities Indenture”	an indenture entered into by the Company and The Bank of New York Mellon as trustee on May 4, 2017, pursuant to which the Perpetual Securities were issued
“Proved Coal Reserve”	the economically mineable part of a mineral measured resource
“QGX”	QGX Holdings Ltd.

“QGX Promissory Notes”	the two promissory notes issued by the Company to QGX, each in the amount of US\$52,500,000, and bearing interest at a rate of 3.0% per annum commencing on the issue date to the maturity date. The original maturity date was November 22, 2013. On February 8, 2013, an amendment agreement was signed by the Company and QGX to extend the maturity date of two promissory notes from November 22, 2013 to March 31, 2014 and December 31, 2014, respectively. On December 31, 2015, the maturity date of two promissory notes was extended to March 31, 2016, with a rate of 8.0% per annum to the maturity date
“QIB”	“qualified institutional buyer” within the meaning contained in Rule 144A
“Regulation S”	Regulation S under the Securities Act
“Remuneration Committee”	the remuneration committee of the Board
“Risun Group”	Risun Coal Chemicals Group
“RMB”	Renminbi, the lawful currency of China
“Rule 144A”	Rule 144A under the Securities Act
“S&P”	Standard & Poor’s Rating Services
“SDR”	the Special Drawing Right
“SEC”	the U.S. Securities and Exchange Commission
“Securities Act”	the U.S. Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder
“Sedgman”	Sedgman Consulting (China) and Sedgman Limited, a provider of multi-disciplinary engineering, project delivery and operations services
“Senior Loan”	a loan facility of US\$31.2 million entered into with BNP Paribas Singapore Branch and Industrial, Commercial Bank of China Limited and ICBC London Plc dated May 4, 2017
“SGX-ST”	the Singapore Exchange Securities Trading Limited
“Shared Collateral”	the Company’s debt reserve account, CHPP modules 1 and 2, the UHG Power Plant and certain water facilities and shares of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l, Enreotechnology LLC, Ukhuaa Khudag Water Supply LLC and United Power LLC
“Shenhua Bayannaoer”	Shenhua Bayannaoer Energy Co., Ltd.
“Shunkhlai”	Shunkhlai LLC, an oil import and distribution company in Mongolia
“soum”	the second level of Mongolian administrative subdivisions (essentially equivalent to a sub-province or district)

“South Gobi Province”	Umnugobi Aimag, a province located in southern Mongolia
“State Professional Inspection Agency”	an agency of the Government of Mongolia that is in charge of laws and regulations of the State, including labor, safety and health
“Strategic Deposits List”	a list of 16 deposits designated by the Parliament to be Mineral Deposits of Strategic Importance by Resolution No. 27, adopted on February 6, 2007 and amended on January 23, 2015 and June 29, 2018, respectively (Tier 1 Deposits List)
“Subsidiary Guarantors”	Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, Baruun Naran S.à.r.l., Khangad Exploration LLC, Enrestechology LLC, United Power LLC, Ukhaa Khudag Water Supply LLC, Tavan Tolgoi Airport LLC and Energy Resources Rail LLC
“Tavan Tolgoi” or “TT”	means the coal formation located in South Gobi, Mongolia, which includes our UHG deposit per Parliament Resolution No. 27, adopted on February 6, 2007
“THG deposit”	our THG deposit located in South Gobi Province which includes coal resources and reserves identified for surface (<300m depth of cover) and underground (>300m depth of cover) mining covering the THG mining license
“THG mining license”	the Mining License MV-017336 of 8,340 hectares area granted to us on June 24, 2013, contiguous with the BN mining license
“Thiess”	Thiess Mongolia LLC, formerly Leighton LLC, a global mining services provider
“Tier 2 Deposits List”	a list of 39 deposits designated in Resolution No. 27, adopted on February 6, 2007, to be further evaluated and determined if one or more of such deposits should be recommended by the Government of Mongolia to Parliament for designation as a Mineral Deposit of Strategic Importance
“TKH”	Tsagaan Khad, located in Khanbogd soum of South Gobi Province, approximately 21 km from GM
“TMR”	target market region, including Inner Mongolia, Hebei, Tianjin, Gansu, Xinjiang, Shandong and Jiangsu provinces
“Tsogttsetsii”	Tsogttsetsii soum is the location where Tavan Tolgoi sits
“UHG”	Ukhaa Khudag, located in Tsogttsetsii soum of South Gobi Province
“UHG deposit”	means our Ukhaa Khudag deposit located in the Tavan Tolgoi coalfield which includes coal resources and reserves identified for surface (<300m depth of cover) and underground (>300m depth of cover) mining
“UHG mine”	means the surface mining applicable (<300m depth of cover) portion of our UHG deposit and its related infrastructure

“UHG mining license”	the Mining License MV-011952 of 2,960 hectares area granted to us on August 29, 2006
“UK”	the United Kingdom
“Uniservice Solution”	a wholly owned subsidiary of MCS Holding that provides ancillary services, such as cleaning and camp supporting services
“United States” or “U.S.”	the United States of America
“US\$” or “U.S. dollar”	United States dollar, the lawful currency of the United States
“VAT”	value added tax
“Wholly Owned Restricted Subsidiaries”	Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, Energy Resources Rail LLC, Tavan Tolgoi Airport LLC, United Power LLC, Enrestechology LLC, Ukhaa Khudag Water Supply LLC, Baruun Naran S.à.r.l. and Khangad Exploration LLC

GLOSSARY

The glossary of technical terms contains explanation of certain terms used in this Offering Memorandum as they relate to our Company and as they are used in this Offering Memorandum in connection with our Group and our business. These terms and their given meanings may not correspond to standard industry definitions.

“bcm”	bank cubic meter
“coke”	bituminous coal from which the volatile components have been removed
“coking coal”	coal used as a raw material in the process of manufacturing steel and iron. It is also known as metallurgical coal
“Competent Person”	as defined by the JORC Code, a minerals industry professional who is a Member or Fellow of the Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a ‘Recognised Professional Organisation’ (RPO), as included in a list available on the JORC and ASX websites A Competent Person must have a minimum of five years relevant experience in the style of mineralization or type of deposit under consideration and in the activity which that person is undertaking. If the Competent Person is preparing documentation on exploration results, the relevant experience must be in exploration. If the Competent Person is estimating or supervising the estimation of mineral resources, the relevant experience must be in the estimation, assessment and evaluation of mineral resources. If the Competent Person is estimating or supervising the estimation of ore reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of ore reserves
“CSN”	Crucible Swelling Number. This number is used to compare the shape and the coking volume increase of a finely ground coal sample when 1 gram is heated in a closed crucible quickly over a brief time period. Results are only used as a comparative indication of the coking potential of the coal and not a measure of strength. Values for CSN range from 1 through 9 in increments of 0.5
“CSR”	Coke Strength after Reaction, a quantitative measurement of the strength of the coke produced by a particular coking coal. This strength rating is evaluated in a laboratory setting, with a high CSR value being highly regarded in the market, primarily because this measurement is related to blast furnace performance
“Environmental Impact Assessment” or “EIA”	a feasibility study by international standards which assesses in detail the environmental impact of an undeveloped mining project
“feasibility study”	a feasibility study by international standards which assesses in detail the technical soundness and economic viability of an undeveloped mining project, and serves as the basis for the investment decision and as a bankable document for project financing. The study is based on a detailed mine plan and constitutes an audit of all geological, engineering, environmental, legal and economic information accumulated on the project. Generally, a separate environmental impact study is required

“G Index”	a measure of caking or cohesive behavior of bituminous coal. The caking behavior is critical to making coke strong and not powdery
“HCC”	hard coking coal; see “Business – Coal Products”
“indicated mineral resource”	<p>as defined under the JORC Code, that part of a mineral resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit</p> <p>Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered</p> <p>An indicated mineral resource has a lower level of confidence than that applying to a measured mineral resource and may only be converted to a probable ore reserve</p>
“inferred mineral resource”	<p>as defined under the JORC Code, that part of a mineral resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes</p> <p>An inferred mineral resource has a lower level of confidence than that applying to an indicated mineral resource and must not be converted to an ore reserve. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration</p>
“JORC”	<p>the Australasian Joint Ore Reserves Committee, which produces the JORC Code. JORC was established in 1971 and is sponsored by the Australian mining industry and its professional organizations</p> <p>The JORC comprises representatives of each of the three parent institutions: The Minerals Council of Australia (MCA), The Australasian Institute of Mining and Metallurgy (The AusIMM), and the Australian Institute of Geoscientists (AIG); as well as representatives of the Australian Securities Exchange (ASX), the Financial Services Institute of Australasia (FinSIA) and the accounting profession</p>
“JORC Code”	<p>the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, a professional code of practice that sets minimum standards for public reporting of minerals exploration results, mineral resources and ore reserves</p> <p>The JORC Code provides a mandatory system for the classification of minerals exploration results, mineral resources and ore reserves according to the levels of confidence in geological knowledge and technical and economic considerations in public reports</p>

“km”	kilometer
“lignite”	the lowest rank of coal with the lowest energy content, typically containing 25-35% carbon. Lignite tends to be found in relatively young coal deposits that were not subjected to extreme heat or pressure, is crumbly, has high moisture content and is mainly used as fuel at power plants to generate electricity
“m”	meter
“measured mineral resource”	<p>as defined by the JORC Code, that part of a mineral resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit</p> <p>Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered</p> <p>A measured mineral resource has a higher level of confidence than that applying to either an indicated mineral resource or an inferred mineral resource. It may be converted to a proved ore reserve or under certain circumstances to a probable ore reserve</p>
“metallurgical coal”	see “coking coal”
“metric tonne”	1,000 kilograms
“mineral resource”	as defined by the JORC Code, a concentration or occurrence of solid material of economic interest in or on the earth’s crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral resources are sub-divided, in order of increasing geological confidence, into inferred, indicated and measured categories
“mining rights”	the rights to exploit minerals in areas where mining activities are licensed
“Modifying Factors”	as defined by the JORC Code, considerations used to convert mineral resources to ore reserves. These include but are not limited to mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors
“Mt”	million tonnes
“Mtpa”	million tonnes per annum
“MW”	megawatt

“open-pit”	mine designed to extract minerals close to the surface; also known as “open cut”
“ore reserve”	the economically mineable part of a measured or indicated mineral resource demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A mineral reserve includes diluting materials and allowances for losses that may occur when the material is mined
“overburden”	barren rock material, either loose or consolidated, overlying a mineral deposit, which must usually be removed prior to mining of ore reserves
“PCI coal”	the term refers to coal that is used for Pulverized Coal Injection. PCI coal is characterized by its high rank, low volatile matter and generally has ash levels of less than 10.5%. PCI coal is fired directly into the lower level of the blast furnace as an effective means of injecting carbon, thereby reducing the quantity of coke required per tonne of hot metal produced. The higher the volume of PCI coal that can be utilized, the lower the volume of coke required. A wide range of coal is suitable for PCI, including thermal and semi-soft coking coal and as such it is cheaper than most coal purchased for producing coke
“Permian”	a geological period from around 299 million years ago to around 251 million years ago
“probable reserve”	as defined by the JORC Code, the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. The confidence in the Modifying Factors applying to a probable ore reserve is lower than that applying to a proved ore reserve
“proven reserve”	as defined by the JORC Code, the economically mineable part of a measured mineral resource. A proved ore reserve implies a high degree of confidence in the Modifying Factors
“PS”	meager lean coal
“qualified person/qualified personnel”	an individual who: (a) is an engineer or geoscientist with at least five years of experience in mineral exploration, mine development or operation, or mineral project assessment, or any combination of these; (b) has experience relevant to the subject matter of the mineral project and the technical report; and (c) is a member or licensee in good standing of a professional association
“raw coal”	generally means coal that has not been washed and processed
“ROM”	run-of-mine, the as-mined coal, that includes out-of-seam dilution material which is processed through our CHPP
“seam”	a stratum or bed of coal; generally applied to large deposits of coal
“SSCC”	semi-soft coking coal; see “Business – Coal Products”
“standard gauge”	1,435 mm rail track gauge

“steel industry supply chain”	industries involved in the steel producing process (including iron ore and coking coal)
“strip ratio” or “stripping ratio”	the ratio of the amount of waste removed (in bcm) to the amount of coal (in ROM tonnes) extracted by open-pit mining methods
“thermal coal”	also referred to as “steam coal” or “steaming coal,” thermal coal is used in combustion processes by power generation plants and industrial users to produce steam for power and heat. Thermal coal tends not to have the carbonization properties possessed by coking coal and generally has lower heat value and higher volatility than coking coal
“tonne”	metric tonne
“tpa”	tonnes per annum
“transshipment”	transfer of shipment from one carrier to another
“underground mining”	refers to a group of underground mining techniques used to extract coal
“washed coal”	hard coking coal that has been washed and processed to reduce its ash content
“washed thermal coal”	secondary thermal product resulting from the processing of raw coal primarily to produce coking coal
“yield”	the percentage of saleable portion of product coal recovered from proposed raw coal

SUMMARY

This summary highlights information contained elsewhere in this Offering Memorandum and does not contain all the information that may be important to you in deciding to invest in the Notes. You should read the entire Offering Memorandum, including the section entitled “Risk Factors” and financial statements and related Notes thereto included elsewhere in this Offering Memorandum, before making an investment decision. This Offering Memorandum includes forward-looking statements that involve risks and uncertainties. See “Forward-looking Statements”.

Overview

We are a leading Asian coking coal producer engaged in the open-pit mining and processing of coking coal sourced from our UHG and BN deposits, located in the South Gobi Province of Mongolia. These deposits are adjacent to each other and strategically located approximately 250 km from the Sino-Mongolian border and approximately 600 km from Baotou, China, an important railway transportation hub providing access from Mongolia to the largest steel producing provinces in China, including Inner Mongolia, Hebei, Shandong and Jiangsu provinces. We have worked closely with a number of industry-leading experts, including Thiess and Sedgman, throughout the planning, development and operation of our business to develop integrated mining, processing, supporting infrastructure, transportation and logistics operations.

Our UHG mining license permits us to engage in coal mining activities on 2,960 hectares of land for an initial period of 30 years commencing from August 29, 2006. As of December 31, 2018 and January 1, 2019, 663 Mt of JORC-compliant coal resources and 324 Mt of JORC-compliant coal reserves have been identified within such area, respectively. Our BN mining license, comprising the BN mining license area of 4,482 hectares and the contiguous THG mining license area of 8,340 hectares, permits coal mining for an initial period of 30 years commencing from December 1, 2008 and June 24, 2013, respectively. Within the BN and THG mining license areas combined, a total of 399 Mt of JORC-compliant coal resources have been identified as of December 31, 2018. Within the BN mining license area, a total of 175 Mt of JORC-compliant coal reserves have been identified as of January 1, 2019. Our BN mine is located approximately 32 km by paved road southwest of our UHG mine, and its development, in integration with existing facilities at UHG, is yielding benefits through synergies achievable in terms of shared mining, processing and transportation infrastructure and marketing resources. BN mine produced 1.4 Mt ROM coal for 2018. For the years ended December 31, 2016, 2017 and 2018, we produced an aggregate of 3.0 Mt, 8.3 Mt and 10.9 Mt of ROM coal, respectively.

With a view to consistently produce high quality products, reduce product transportation costs and generate improved margins, we constructed and commissioned 15.0 Mtpa of ROM coal processing capacity onsite at the UHG mine. The coal handling and preparation plant (“CHPP”), designed and constructed by Sedgman, comprises three near identical modules of ROM coal processing nameplate capacity of 5.0 Mtpa each. These modules have been in operation since June 2011, February 2012 and June 2013, respectively. Since the commencement of the CHPP operation, we have shifted our sales strategy from raw coal to washed coal, having sold only washed coal products from the beginning of the second quarter of 2012. We are currently in the process of constructing our third ROM coal infeed facility affiliated with the CHPP, which will provide higher raw-coal-crushing capacity compared to the two existing ROM handling facilities. Upon completion of such facility, our large-size-rock processing capacity will be significantly improved, and our total ROM coal feeding capacity will increase from 15 Mtpa to 25 Mtpa.

In October 2011, we completed the construction of a paved road, from UHG to GS under BOT arrangements, which has since been transferred to the Government of Mongolia for compensation in 2014. We continue to use the road under a toll fee arrangement. In January 2012, in collaboration with Erdenes MGL, we expanded the border crossing facilities to allow for 25.0 – 30.0 Mtpa transit through GS, which has also been transferred to the Government of Mongolia with compensation. As a result, we are well placed to deliver all washed coal products to GM.

We have our own fleet of over 430 double-trailer trucks and also have support facilities to flexibly conduct shipments either (i) from UHG to GM directly by our trucks or (ii) from UHG to TKH and further from TKH to GM. Currently, we conduct shipments using the approximately 240 km long UHG-TKH (“long haul”) section solely with our own double-trailer trucks, while cross border shipments for exports using the approximately 20 km long TKH-GM (“short haul”) section are undertaken by our own double-trailer trucks supplemented by third-party Chinese trucking contractors.

We are one of the largest coal producers and exporters in Mongolia. We sell most of our coking coals to end users in China under coal sales and purchase arrangements with iron and steel mills, and coke and others under DAP GM, FOT GM, C&F and FOB end-user destination sales terms. In the years ended December 31, 2016, 2017 and 2018, we sold our hard coking coal at an average selling price of US\$77.2 per tonne, US\$130.3 per tonne and US\$139.7 per tonne, respectively.

We have won the Top 10 Enterprise in Mongolia award from the Mongolian National Chamber of Commerce eight times from 2009 to 2018.

Our revenue for the years ended December 31, 2016, 2017 and 2018 was US\$120.0 million, US\$476.4 million and US\$590.7 million, respectively. We recorded (loss)/profit for the years ended December 31, 2016, 2017 and 2018 of US\$(154.0) million, US\$310.3 million and US\$82.4 million, respectively.

Our Competitive Strengths

We believe that we have the following competitive strengths:

- High-quality coking coal producer with a strong operating platform
- Competitive cost structure underpinning cash flow generation
- Higher profitability driven by washed coal sales and integrated infrastructure
- Strategic location with proximate access and direct sales to Chinese end users
- Integrated business platform with minimal future capital expenditure requirements
- Strong business outlook supported by industry dynamics
- Experienced management team with proven execution track record

See “Business – Our Competitive Strengths” for a detailed description of these strengths.

Our Strategy

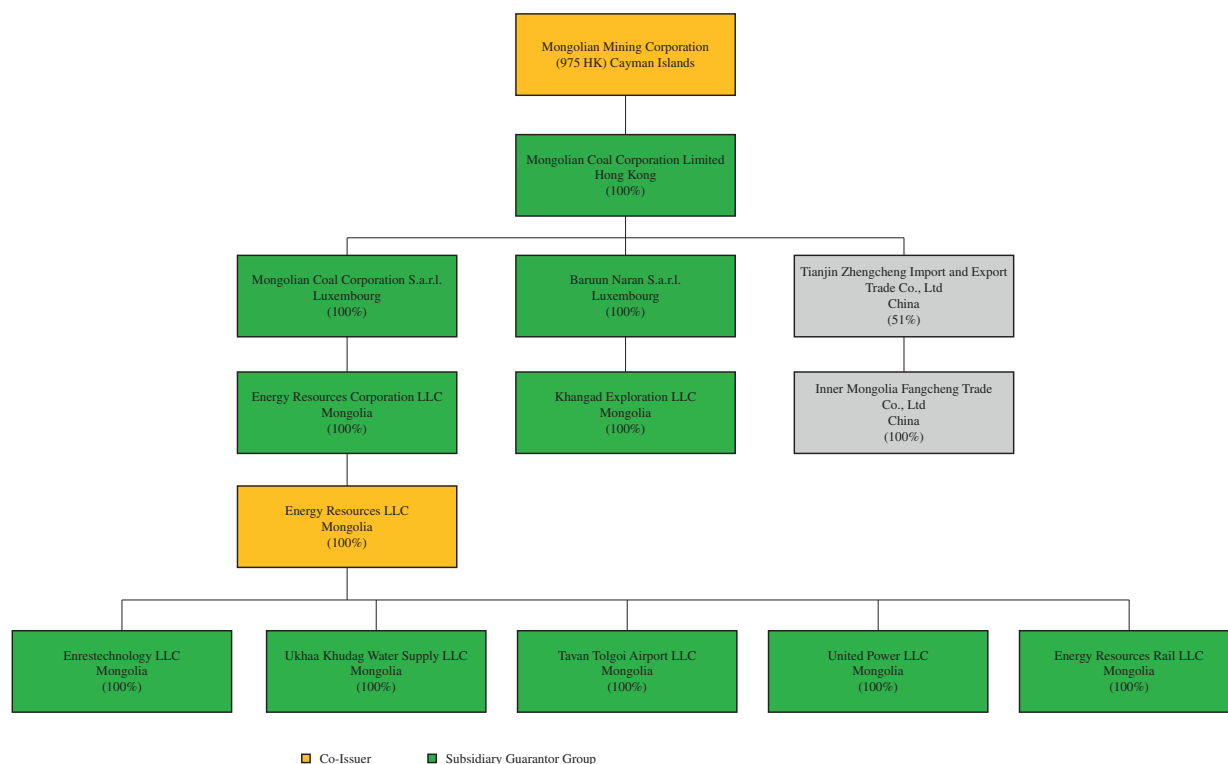
We intend to pursue the following key strategies to maintain and enhance our position as a leading Asian coking coal mining company.

- Minimize operating cost and improve operating efficiency
- Continue to develop and diversify our long-term customer base and promote our own brand
- Expand and diversify our business operations through acquisitions, investments and joint ventures
- Continued strong commitment to safety, the environment and social responsibility

See “Business – Our Strategy” for a detailed description of these strategies.

Corporate Structure

As of December 31, 2018, our corporate structure is as follows:



Corporate Information

We were incorporated in the Cayman Islands on May 18, 2010 as an exempted company with limited liability under the Companies Law (as amended) of the Cayman Islands. Our principal place of business in Mongolia is at 16th Floor, Central Tower, Sukhbaatar District 8, Ulaanbaatar 14200, Mongolia. Our place of business in Hong Kong is at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong. Our registered office is located at Cricket Square, Hutchins Drive, P.O. Box 2681, Grand Cayman, KY1-1111, Cayman Islands. Our shares have been listed for trading on the Hong Kong Stock Exchange since October 13, 2010. Our website is www.mmc.mn. Information contained on our website does not constitute part of this Offering Memorandum.

Concurrent Transactions

Concurrently with this offering, we commenced (i) a tender offer ("2022 Notes Tender Offer") for cash for any and all of the outstanding 2022 Notes subject to a Maximum Offer Amount (as defined in the Offer to Purchase Memorandum for the 2022 Notes Tender Offer); (ii) a consent solicitation ("Consent Solicitation") to amend the indenture entered into on May 4, 2017, between, among others, Energy Resources LLC as issuer, MMC as parent guarantor, certain subsidiary guarantors named therein and The Bank of New York Mellon as trustee, pursuant to which the 2022 Notes were issued, in order to eliminate certain of the covenants, restrictive provisions and events of defaults; and (iii) a tender offer for cash up to US\$50,000,000 (as such amount may be increased, decreased or otherwise modified by MMC in its sole discretion, the "Tender Cap") in principal amount of Perpetual Securities ("Perpetual Securities Tender Offer" and, together with the 2022 Notes Tender Offer, the "Tender Offers"). On March 25, 2019, we announced the amendment of certain terms of the Offer to Purchase Memorandum for the Tender Offers and the Consent Solicitation ("Update Announcement").

As per the Update Announcement, the total consideration payable to holders for each US\$1,000 principal amount of 2022 Notes validly tendered and accepted for purchase in the 2022 Notes Tender Offer before the Early Tender Deadline for the Senior Notes of April 8, 2019 will receive US\$1,050.00 (“Total Offer Consideration”), which includes an Early Tender Premium of US\$70.00. For each US\$1,000 principal amount of the outstanding 2022 Notes validly tendered after the Early Tender Date for the Senior Notes and at or before the Expiration Time (defined below), holders will be eligible to receive the Total Offer Consideration less the Early Tender Premium. ER LLC reserves the right, at its option, not to accept any additional 2022 Notes tendered by holders after the Early Tender Deadline for the Senior Notes.

The total consideration payable to holders for each US\$1,000 principal amount of Perpetual Securities validly tendered and accepted for purchase in the Perpetual Securities Tender Offer before the Early Tender Deadline for the Perpetual Securities of April 1, 2019 will receive an amount determined by a modified Dutch auction (the “Repurchase Price”) which includes an Early Tender Premium of US\$50.00. The minimum and maximum offer (which includes the Early Tender Premium) must be US\$450.00 and US\$510.00, respectively, per US\$1,000 principal amount of Perpetual Securities. For each US\$1,000 principal amount of the outstanding Perpetual Securities validly tendered after the Early Tender Date for the Perpetual Securities and at or before the Expiration Time (defined below), holders will be eligible to receive the Repurchase Price less the Early Tender Premium. The Company reserves the right, at its option, not to accept any additional Perpetual Securities tendered by Holders after the Early Tender Deadline for the Perpetual Securities.

As per the Update Announcement, the Tenders Offers are scheduled to expire at 11:00 am (Central European time) on April 25, 2019, unless extended by us or earlier terminated (such date and time, as the same may be modified, the “Expiration Time”). We intend to fund the purchase of the 2022 Notes and Perpetual Securities tendered pursuant to the Tender Offers with the net proceeds from this offering. We cannot assure you that the Tender Offers and/or Consent Solicitation will be consummated.

This Offering Memorandum is neither an offer to purchase nor a solicitation of an offer to sell or buy the 2022 Notes or Perpetual Securities. Any offer to purchase the 2022 Notes or Perpetual Securities will be made solely on the terms and subject to the conditions set forth in a separate offer to purchase memorandum that will be directed to holders of the 2022 Notes and Perpetual Securities.

SUMMARY OF THE NOTES

The following is a brief summary of the term of this offering and is qualified in its entirety by the remainder of this Offering Memorandum. Terms used in this summary and not otherwise defined shall have the meanings given to them in “Description of the Notes.”

Issuers	Mongolian Mining Corporation (the “Company”) and Energy Resources LLC (the “Co-Issuer,” and together with the Company, the “Issuers”)
Notes Offered	US\$440,000,000 aggregate principal amount of 9.25% Guaranteed Senior Notes due 2024 (the “Notes”).
Maturity Date	April 15, 2024
Interest	The Notes will bear interest from and including April 15, 2019 at the rate of 9.25% per annum, payable semi-annually in arrears.
Interest Payment Dates	April 15 and October 15 of each year, commencing October 15, 2019.
Ranking of the Notes	<p>The Notes are:</p> <ul style="list-style-type: none">• general obligations of the Issuers;• effectively subordinated to secured obligations of the Issuers, to the extent of the value of the assets serving as security therefor;• senior in right of payment to any existing and future obligations of the Issuers expressly subordinated in right of payment to the Notes;• at least <i>pari passu</i> in right of payment with all other unsecured, unsubordinated Indebtedness of the Issuers (subject to any priority rights of such unsecured, unsubordinated Indebtedness pursuant to applicable law);• guaranteed by the Subsidiary Guarantors on a senior basis, subject to the limitations described in “Description of the Notes – The Subsidiary Guarantees” and in “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantee”; and• effectively subordinated to all existing and future obligations of any subsidiaries of the Company other than the Co-Issuer and the Subsidiary Guarantors.

Subsidiary Guarantees Each of the Subsidiary Guarantors will jointly and severally guarantee the due and punctual payment of the principal of, premium, if any, and interest on, and all other amounts payable under, the Notes. On the Original Issue Date, all of the Company's subsidiaries will be restricted subsidiaries, and the initial Subsidiary Guarantors will consist of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, Energy Resources Rail LLC, Tavan Tolgoi Airport LLC, United Power LLC. Enreotechnology LLC, Ukhaa Khudag Water Supply LLC, Baruun Naran S.à.r.l. and Khangad Exploration LLC. Tianjin Zhengcheng Import and Export Trade Co., Ltd. and Inner Mongolia Fangcheng Trade Co., Ltd. will not guarantee the Notes, and accordingly, such entities and any future Restricted Subsidiaries of the Company that do not become Subsidiary Guarantors are collectively referred to herein as the "Non-Guarantor Restricted Subsidiaries."

A Subsidiary Guarantee given by a Subsidiary Guarantor may be released in certain circumstances. See "Description of the Notes – The Subsidiary Guarantees – Release of the Subsidiary Guarantees."

The Company will cause each of its future Wholly Owned Restricted Subsidiaries which, directly or indirectly, own any mining deposits or reserves or any mining license, as soon as practicable but in any event within five days after becoming a Restricted Subsidiary, to execute and deliver to the Trustee a supplemental indenture to the Indenture pursuant to which such Restricted Subsidiary will guarantee the payment of the Notes.

Notwithstanding the foregoing, the Company will not be obligated to cause any Restricted Subsidiary to guarantee the Notes to the extent such guarantee could reasonably be expected to give rise to or result in any conflict with or violation of applicable law (or risk of personal or criminal liability for the officers, directors, managers or shareholders of such Restricted Subsidiary).

Ranking of the Subsidiary
Guarantees

The Subsidiary Guarantee of each Subsidiary Guarantor:

- is a general obligation of such Subsidiary Guarantor;
- is effectively subordinated to secured obligations of such Subsidiary Guarantor (if any, to the extent of the value of the assets serving as security therefor;
- is senior in right of payment to all future obligations of such Subsidiary Guarantor expressly subordinated in right of payment to such Subsidiary Guarantee;
- ranks at least *pari passu* with all other unsecured, unsubordinated Indebtedness of such Subsidiary Guarantor (subject to any priority rights of such unsecured, unsubordinated Indebtedness pursuant to applicable law); and
- is effectively subordinated to all existing and future obligations of any subsidiaries of the Company other than the Co-Issuer and the Subsidiary Guarantors.

Optional Redemption	<p>At any time and from time to time on or after April 15, 2022, the Issuers may at their option redeem the Notes, in whole or in part, at redemption prices specified under “Description of the Notes – Optional Redemption.” At any time and from time to time prior to April 15, 2022, the Issuers may at their option redeem the Notes, in whole or in part, at a redemption price equal to 100% of the principal amount of the Notes plus the Applicable Premium as of, plus accrued and unpaid interest on the Notes redeemed, if any, to (but not including) the redemption date. In addition, at any time and from time to time prior to April 15, 2022, the Issuers may at their option redeem up to 35% of the aggregate principal amount of the Notes with the Net Cash Proceeds of one or more sales of Common Stock of the Company in an Equity Offering at a redemption price of 109.25% of the principal amount of the Notes, plus accrued and unpaid interest on the Notes redeemed, if any, to (but not including) the redemption date; <i>provided</i> that at least 65% of the aggregate principal amount of the Notes issued on the Original Issue Date remains outstanding after each such redemption and any such redemption takes place within 60 days after the closing of the related Equity Offering.</p> <p>In connection with any Change of Control Offer (as defined in the “Description of the Notes”) or any other tender offer to purchase all of the Notes for cash at a purchase price not less than par (“Cash Tender Offer”), if Holders of not less than 90.0% of the aggregate principal amount of the then outstanding Notes validly tender and do not validly withdraw such Notes and the Issuers, or any third party making such offer in lieu of the Issuers, purchases all of such Notes, the Issuers or such third party will have the right, upon notice, to redeem all Notes that remain outstanding following such purchase at a price equal to the price paid to each other Holder in such Change of Control Offer or Cash Tender Offer, <i>plus</i> accrued and unpaid interest, if any, to (but not including) the redemption date.</p>
Repurchase of Notes Upon a Change of Control Triggering Event	<p>Not later than 30 days following a Change of Control Triggering Event, the Issuers will make an Offer to Purchase all outstanding Notes at a purchase price equal to 101% of the principal amount thereof plus accrued and unpaid interest, if any, to (but not including) the Offer to Purchase Payment Date. See “Description of the Notes – Repurchase of Notes Upon a Change of Control Triggering Event”.</p>
Redemption for Tax Reasons	<p>Subject to certain exceptions and as more fully described herein, the Issuers may redeem the Notes, in whole but not in part, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest, if any, to the date of redemption, if the Issuers or a Subsidiary Guarantor would be obligated to pay certain Additional Amounts (as defined in the “Description of the Notes”) as a result of certain changes in specified tax laws. See “Description of the Notes – Redemption for Tax Reasons.”</p>

Covenants	<p>The Notes, the indenture governing the Notes and the Subsidiary Guarantees will limit the Company's ability and the ability of its Restricted Subsidiaries to, among other things:</p> <ul style="list-style-type: none"> • incur additional Indebtedness; • make investments or other Restricted Payments; • pay dividends or make other distributions; • enter into agreements that restrict the Company's Restricted Subsidiaries' ability to pay dividends; • issue or sell Capital Stock of Restricted Subsidiaries; • guarantee Indebtedness; • enter into certain transactions with affiliates; • create Liens; • enter into Sale and Leaseback Transactions; • sell assets; • effect a consolidation or merger; and • engage in different business activities. <p>All of these limitations are subject to a number of important qualifications and exceptions. See "Description of the Notes – Certain Covenants."</p>
Transfer Restrictions	<p>The Notes will not be registered under the Securities Act or under any state securities laws of the United States and will be subject to customary restrictions on transfer and resale. See "Transfer Restrictions."</p>
Form, Denomination and Registration	<p>The Notes sold will be issued only in fully registered form, without coupons, in denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof and will be initially represented by or held by one or more global notes registered in the name of a nominee of The Depository Trust Company.</p>
Book-Entry	<p>The Notes sold will be issued in book-entry form through the facilities of DTC for the accounts of its participants, including Euroclear and Clearstream. For a description of certain factors relating to clearance and settlement, see "Description of the Notes – Book – Entry; Delivery and Form."</p>
Delivery of the Notes	<p>The Issuers expect to make delivery of the Notes, against payment in same-day funds on or about April 15, 2019 which is expected to be the eighth business day following the date of this Offering Memorandum.</p>
Trustee	<p>The Bank of New York Mellon</p>

Principal Paying Agent	The Bank of New York Mellon
Transfer Agent and Registrar	The Bank of New York Mellon
Listing	Approval in-principle has been received for the listing and quotation of the Notes on the Official List of the SGX-ST.
Governing Law	The Notes, the Subsidiary Guarantees and the Indenture will be governed by and will be construed in accordance with the laws of the State of New York.
Risk Factors	For a discussion of certain factors that should be considered in evaluating an investment in the Notes, see “Risk Factors.”

SUMMARY FINANCIAL INFORMATION AND OTHER DATA

The following summary consolidated statement of comprehensive income and summary consolidated statement of cash flow data for the years ended December 31, 2016, 2017 and 2018 and the summary consolidated statement of financial position as of December 31, 2016, 2017 and 2018 set forth below have been derived from our consolidated financial statements which have been prepared in accordance with IFRS. You should read the summary historical financial information below in conjunction with our financial statements and the accompanying notes included in this Offering Memorandum.

Summary consolidated statement of profit or loss and other comprehensive income data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except earnings per share)</i>		
Revenue	120,028	476,364	590,710
Cost of revenue	(120,346)	(273,797)	(360,310)
Gross (loss)/profit	(318)	202,567	230,400
Other cost	(2,808)	(862)	(986)
Other net income/(loss)	4,116	(1,984)	2,146
Selling and distribution costs	(17,654)	(56,631)	(61,410)
General and administrative expenses	(13,133)	(19,097)	(16,458)
(Loss)/Profit from operations	(29,797)	123,993	153,692
Finance income	1,186	48	134
Finance costs	(122,705)	(51,053)	(55,529)
Net finance costs	(121,519)	(51,005)	(55,395)
Gain from the Debt Restructuring	–	262,968	–
Share of (losses)/profit of associates	(5)	163	171
Share of losses of joint venture.....	(21)	–	(8)
(Loss)/Profit before taxation	(151,342)	336,119	98,460
Income tax	(2,650)	(25,813)	(16,050)
(Loss)/Profit for the year	(153,992)	310,306	82,410
Attributable to			
Equity shareholders of the Company	(154,248)	311,013	82,773
Non-controlling interests	256	(707)	(363)
Other comprehensive income for the year (after reclassification adjustments)			
Exchange differences on re-translation	(47,504)	21,698	(36,676)
Surplus on revaluation of plants, buildings, and machinery and equipment.....	341,819	–	–
Total comprehensive income for the year	140,323	332,004	45,734
(Loss)/Profit attributable to the equity shareholders of the Company	(154,248)	311,013	82,773
Total comprehensive income attributable to the equity shareholders of the Company	140,067	332,711	46,097
Basic (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents
Diluted (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents

Summary consolidated statement of financial position

	As of December 31,		
	2016	2017	2018
	<i>(in US\$'000)</i>		
Total non-current assets	1,463,062	1,484,669	1,483,460
Total current assets	113,331	146,763	234,508
Total assets	1,576,393	1,631,432	1,717,968
Total current liabilities	1,035,157	234,530	290,351
Total non-current liabilities	209,927	626,052	610,356
Total liabilities	1,245,084	860,582	900,707
Total equity attributable to equity shareholders of the Company	330,711	770,959	817,733
Non-controlling interests	598	(109)	(472)
Total liabilities and shareholders' equity	1,576,393	1,631,432	1,717,968

Summary consolidated cash flow data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000)</i>		
Net cash generated from operating activities	29,350	95,620	158,600
Net cash generated from/(used in) investing activities	44,262	(82,883)	(89,373)
Net cash used in financing activities	(61,561)	(17,767)	(43,028)

Other financial data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except otherwise indicated)</i>		
Adjusted EBITDA ⁽¹⁾	7,013	177,071	218,299
Adjusted EBITDA margin ⁽²⁾	5.8%	37.2%	37.0%

Notes:

- (1) We calculate Adjusted EBITDA by adding income tax, share of profit/(loss) of associates and joint venture, net finance costs, gain from the Debt Restructuring (as defined below), depreciation and amortization, impairment loss on trade and other receivables, provision losses on coal inventories, gain on disposal of property, plant and equipments and assets held for sale, equity-settled share-based payment expenses, and employee benefit accrued for the year as calculated under IFRS. We have included Adjusted EBITDA data because such data is commonly used by investors to measure a company's ability to service debt. Adjusted EBITDA is not, and should not be used as, an indicator or alternative to profit from operations, profit for the year or cash flow as reflected in our consolidated financial statements, is not intended to represent funds available for debt service, dividends or other discretionary uses, is not a measure of financial performance under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. Investors should not compare Adjusted EBITDA to EBITDA presented by other companies because not all companies use the same definition. For example, we subtract the depreciation expense associated with mining equipment while other competitors who own their equipment do not subtract this cost. Investors should also note that the Adjusted EBITDA as presented herein is calculated differently from Consolidated EBITDA as defined and used in the Indenture governing the Notes. See "Description of the Notes – Definitions" for a description of the manner in which Consolidated EBITDA is defined for purposes of the Indenture governing the Notes. The following table reconciles our profit attributable to the equity shareholders of the Company for the year under IFRS to the definition of Adjusted EBITDA for the periods indicated:

	Year ended December 31,		
	2016	2017	2018
		<i>(in US\$'000)</i>	
(Loss)/Profit for the year	(153,992)	310,306	82,410
Adjustments			
Income tax	2,650	25,813	16,050
Share of profit/(losses) of associates and joint venture	26	(163)	(163)
Net finance costs	121,519	51,005	55,395
Gain from the Debt Restructuring	–	(262,968)	–
Depreciation and amortization	32,707	51,014	63,873
Impairment loss on trade and other receivables	(436)	–	–
Provision losses on coal inventories	4,315	–	–
Gain on disposal of property, plant and equipment and assets held for sale	(524)	(90)	(99)
Equity-settled share-based payment expenses	1,195	1,355	677
Employee benefit accrued	(447)	799	156
Adjusted EBITDA	7,013	177,071	218,299

- (2) Adjusted EBITDA margin is calculated by dividing Adjusted EBITDA by revenue.

Operation Data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except otherwise indicated)</i>		
ROM coal production (Mt)	3.0	8.3	10.9
Average stripping ratio (actual) (bcm/t)	4.5	4.4	5.0
Total coal sales (Mt)	1.6	4.4	4.7
Average sales price per tonne of HCC (US\$ per tonne) ⁽²⁾	77.2	130.3	139.7

Notes:

- (1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Factors Affecting Results of Operation and Financial Condition – Global Coking Coal Prices and Average Selling Prices" for a description of the factors affecting average sales prices of our coal.
- (2) Average sales price is the blended average of HCC sold under all sales terms, excluding sales of coal procured from third party sources in China.

RISK FACTORS

In addition to other information in this Offering Memorandum, you should carefully consider the following risk factors before making any investment decision in relation to the Notes. If any of the events described below occurs, our business, prospects, financial condition and results of operations could be materially and adversely affected and the market price of the Notes could decline. See “Definitions” and “Glossary” for specific or specialized vocabulary used in this section.

Risks Relating to our Business and Industry

We have significant levels of indebtedness, which could adversely affect us or the holders of the Notes.

As of December 31, 2018, we had US\$436.2 million outstanding principal amount of short-term and long-term borrowings. See “Description of Other Material Indebtedness and Perpetual Securities”.

There can be no assurance that we will be able to obtain extensions of our credit facilities in the future as they mature or alternative sources of financing. In the event that we are unable to obtain extensions of these facilities, or if we are unable to obtain sufficient alternative funding at reasonable terms, we will have to repay these borrowings with cash generated by our operating activities. There can be no assurance that our business will generate sufficient cash flow from operations to repay these borrowings. In addition, repaying these borrowings with cash generated by our operating activities will divert our financial resources from the requirements of our ongoing operations and growth, and may have a material adverse effect on our business, prospects, financial condition and results of operations. Furthermore, we are subject to interest rate fluctuations on our financial indebtedness which may adversely impact our cash flow if prevailing interest rates increase. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Quantitative and Qualitative Disclosures about Market Risk – Interest Rate Risk”. If any of the events occurs, our liquidity will be materially and adversely affected.

We have net current liabilities and are dependent on future cash flows generated from our business and obtaining additional financing to support our business operations and to continue as a going concern.

We have cash requirements for ongoing operating expenses, working capital, general corporate purposes and for interest and principal payments on our outstanding borrowings. In the auditor’s report with respect to our financial statements for the years ended December 31, 2016, 2017 and 2018, our independent auditor included a paragraph in their opinion about the material uncertainty relating to our ability to continue as a going concern due to net current liabilities of US\$921.8 million, US\$87.8 million and US\$55.8 million as of December 31, 2016, 2017 and 2018, respectively, indicating the existence of a material uncertainty which may cast doubt on our ability to continue as a going concern. The net current liabilities were primarily attributable to overdue payables to contractors accumulated during the market downturn. We underwent a restructuring in 2017 during which certain of our creditors exchanged their securities or loans into new securities or loans with a lower principal amount, and have continued to service the remaining amount of payments due to the contractors. If we are unable to generate sufficient revenue and cash flows from our operations to service these payments or secure additional financing to meet our obligations, we may be forced to reduce expenditures or not be able to continue as a going concern.

In addition, our financial statements included in this Offering Memorandum have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Our ability to continue as a going concern is substantially dependent on our ability to generate revenue and cash flows from operations and our ability to secure additional financing to meet our working capital and financing requirements. Our ability to do so is dependent, among other things, upon the current economic environment and the sustainability of the price of coking coal in the market. If there is an adverse change to our profits, cash flow or ability to obtain additional financing, our financial statements may need to be prepared on an alternative authoritative basis and adjustments relating to the recoverability and classification of recorded asset amounts or the classification of liabilities may need to be made, which may have a material adverse effect on our business, prospects, financial condition and results of operations and the trading process of the Notes.

Coking coal prices are cyclical and subject to significant fluctuation.

Our results of operations are highly dependent on world coal prices, which tend to be highly cyclical and subject to significant fluctuations. The global coal markets are sensitive to changes in coal mining capacity and output levels, patterns of demand and consumption of coal from the steel industry and other industries, for which coal is the principal raw material, and changes in the world economy. During a prolonged coking coal down cycle between 2012 and the first half of 2016, the price of coking coal decreased materially and reached historical lows in the last decade, primarily as a result of oversupply and excessive production capacity in the steel and coking coal industries, particularly in China. Excess production of steel in other regions, such as India, may also impact the global oversupply of steel products and put additional pressure on China's steel production and its profitability. However, due to measures by the Chinese government to mitigate excessive capacity in the aforementioned industries, the global coking coal market recovered starting from the second half of 2016 and has remained stable since then. However, the coking coal market could fluctuate in the future depending on the global economy and in particular the Chinese economy, and there can be no assurance that we will not experience another prolonged coking coal down cycle in the future. Changes in coal prices could have a material and adverse effect on our business, prospects, financial condition and results of operations.

Our results of operations are subject to economic, political and legal developments in China.

Substantially all of our sales are made, and are expected to continue to be made in the future, to customers based in China. Accordingly, the economic, political and social conditions, as well as government policies, of China may affect our business. The Chinese economy differs from the economies of most developed countries in many respects, including: (i) structure; (ii) level of government involvement; (iii) level of development; (iv) growth rate; (v) control of foreign exchange; and (vi) allocation of resources. The Chinese economy has been transitioning from a planned economy to a more market-oriented economy. For the past three decades, the Chinese government has implemented economic reform measures emphasizing the utilization of market forces in the development of the Chinese economy. Changes in Chinese political, economic and social conditions, laws, regulations and policies could materially and adversely affect our business, prospects, financial condition and results of operations.

The growth of the Chinese economy has been uneven across different geographic regions and different economic sectors. In order to stabilize national economic growth, the Chinese government may adopt macroeconomic policies that include measures to restrict excessive growth in specific sectors of the economy, such as the steel industry. We cannot predict future economic reforms or the effects that any such measure may have on our business, prospects, financial condition or results of operations. The Chinese government exercises significant control over the growth of the Chinese economy through the allocation of resources, controlling payment of foreign currency-denominated obligations, setting monetary policy and providing preferential treatment to particular industries or companies as it deems fit. In the past, the Chinese government has implemented a number of measures, such as raising bank reserves against deposit rates to place additional limitations on the ability of commercial banks to make loans and raise interest rates, in order to suppress the growth of specific segments of the Chinese economy which it believed to be overheating. These actions, as well as future actions and policies of the Chinese government to exert influence over certain segments of the economy, could materially and adversely affect the level of overall economic activity and our Chinese customers' liquidity and access to capital and hence, in turn, affect our ability to operate our business.

In addition, there can be no assurance that the Chinese economy will continue to grow, or that its growth will be steady or in geographic regions or economic sectors to our benefit. Since substantially all of our sales will be made into China, we depend heavily on general economic conditions in China for our continued growth. A downturn in China's economic growth or a decline in its economic conditions may have a material and adverse effect on our business, prospects, financial condition and results of operations.

The Government of Mongolia could determine that any one or more of our projects in Mongolia is a Mineral Deposit of Strategic Importance and could take an equity, production, profit sharing or other interest in any of our projects.

Pursuant to the 2006 Minerals Law, the Parliament has sole discretion to designate mineral deposits to be Mineral Deposits of Strategic Importance. The Government of Mongolia is entitled to participate on an equity basis with the license holder in the exploitation and/or mining of each Mineral Deposit of Strategic Importance on terms to be negotiated between the Government of Mongolia and such license holder. Details of any mineral reserves must be filed by the relevant license holder with the Government of Mongolia, and those deposits on the Strategic Deposits List represent most of the largest and highest profile deposits in Mongolia. In addition to deposits currently on the Strategic Deposits List and the additional Tier 2 Deposits List, the Parliament may at any time designate other deposits not yet currently on either list to be Mineral Deposits of Strategic Importance, add such deposits to either the Strategic Deposits List or the Tier 2 Deposits List and, in the former case, commence negotiations with the relevant license holder with respect to the terms under which the Government of Mongolia will take an interest in such deposit.

Parliament Resolution No. 27, 2007 “On designation of some mineral deposit as Mineral Deposit of Strategic Importance” specifically states that, as one of the Mineral Deposits of Strategic Importance, the Tavan Tolgoi area shall constitute license areas held by Tavan Tolgoi JSC, ER LLC and Erdenes Tavan Tolgoi. On October 3, 2018, the Government of Mongolia issued Resolution No. 300 “On defining the boundaries of some mineral deposits of strategic importance” by which boundary coordinates of the Tavan Tolgoi were defined and whereby the Government of Mongolia expanded the boundaries for Tavan Tolgoi by including the areas under the BN and THG mining licenses. The Company has not yet received any notification or letter from the Government with regards to the consequences or follow-up actions of the above-mentioned resolution. However, there can be no assurance that our BN deposit will not be designated by the Parliament as a Mineral Deposit of Strategic Importance or the Government will not take equity or other interest in this deposit.

Under the 2006 Minerals Law, the size of the Government of Mongolia’s equity participation is determined largely by the level of state funding which has been provided for the exploration of any deposit of strategic importance, with the Government of Mongolia entitled to participate up to 50% in the event that there has been state funding. Pursuant to the Amendment Law to the Minerals Law of 2006 dated February 18, 2015, the percentage of the state share shall be determined by an agreement on exploitation of the deposit, considering the amount of investment made by the state, and the amount of state shares determined under such agreement can be replaced with royalty. There can be no assurance that no legislation will be enacted which further strengthens the Government of Mongolia’s right to participate or increase the volume of the participation percentages in privately held mineral resources in Mongolia such as ours.

In the past, state funds were used to conduct some of the exploration activities of our deposit. In accordance with the 2006 Minerals Law, on September 12, 2008, we entered into an agreement with MRAM and agreed to repay US\$1.18 million of state funds used in the historical exploration activities associated with our UHG mine and we paid the agreed amount in full on June 11, 2010. Also, on November 17, 2010, we entered into an agreement with MRAM and agreed to repay US\$21,576.8 of the state funds used in the historical exploration activities associated with our BN mining license and we paid the agreed amount in full on March 31, 2011.

Moreover, the 2006 Minerals Law also contains provisions requiring any company which holds a Mineral Deposit of Strategic Importance to list no less than 10% of its shares on the Mongolian Stock Exchange. This particular provision of the 2006 Minerals Law has not yet been enforced and it is not clear how it will be enforced in practice.

In February 2007, the Parliament declared the six mining licenses originally held by us to be Mineral Deposits of Strategic Importance under the 2006 Minerals Law. After taking into consideration the economic development policies of Mongolia, we decided to sign the Minerals License Transfer Agreement, pursuant to which we agreed to transfer five of our six mining licenses to the Government of Mongolia. We assumed no liability after these five mining licenses were transferred to the Government of Mongolia and received no cash consideration for the transfer of five of the six mining licenses to the Government of Mongolia. Our UHG deposit was on the list of Mineral Deposits of Strategic Importance, but having entered into the Minerals License Transfer Agreement with the Government of Mongolia, the Government of Mongolia guaranteed that such mining license would not be terminated or amended by requiring state equity

participation on the development. Our Mongolian counsel, ELC LLP Advocates, has confirmed that the Minerals License Transfer Agreement is valid, binding and enforceable in accordance with its terms and is binding on the Government of Mongolia. ELC LLP Advocates has also confirmed that the Government of Mongolia has under the Minerals License Transfer Agreement waived its right under the 2006 Minerals Law to participate jointly with us (by compulsorily taking a 50% or other ownership interest in ER LLC or the relevant minerals) in the exploitation of the minerals deposit covered by Mining License MV-011952, or withhold any further permits or licenses or access to infrastructure necessary for such exploitation provided that we apply for the same in accordance with relevant rules. However, no assurance can be made that the Government will not take equity or other interest in our UHG mine.

Our licenses and permits are subject to termination, renewal and other uncertainties.

Our most significant licenses are (i) the license covering our UHG deposit located in the Tavan Tolgoi coal formation located in South Gobi Province, which gives us the right to mine coal within the license area for a period of 30 years commencing from August 29, 2006, (ii) our BN mining license covering our BN deposit located in South Gobi Province, which gives us the right to mine coal within the license area for a period of 30 years commencing from December 1, 2008, and (iii) our THG mining license covering our BN deposit located in Tsaikhar Khudag, which gives us the right to mine coal within the license area for a period of 30 years commencing from June 24, 2013, all of which are extendable twice, each for an additional 20 years, subject to certain conditions. We must maintain a variety of other licenses, permits and related agreements in our regular course of business, including those related to water and land use, vehicles and the environment.

The Government of Mongolia could revoke any of our licenses or permits if we fail to satisfy our obligations thereunder, including payment of fees, royalties and taxes to the Government of Mongolia and the satisfaction of certain mining, environmental, health and safety requirements. Although we have made all such payments within the permitted time frame pursuant to invoices issued by relevant authorities, there have been instances in the past where local authorities have delayed in certifying our water usage amounts and acknowledging receipt of payment against issued invoices. We cannot assure you that similar delays by relevant authorities may not occur again. In addition, records maintained by relevant authorities with respect to our permits and licenses, and payments thereunder, may not be up to date and may contain omissions and ambiguities, and we cannot assure you that such uncertainties will not impact the validity of our permits and licenses in the future. As we conduct our operations through contractors, any failure by these contractors to perform under their operating agreements may result in our failure to satisfy our obligations under our licenses. As a result, our mining licenses could be terminated by the Government of Mongolia, which will materially and adversely affect our business, prospects, financial condition and results of operations. In addition, we could require additional licenses or permits to conduct our mining or exploration operations in Mongolia or to export coal to China. There can be no assurance that we will be able to obtain and maintain such licenses or permits on terms favorable to us, or at all, for our future intended mining or exploration targets in Mongolia, or that such terms would not be subject to various changes.

The accuracy of our resources and reserves estimates is based on a number of assumptions and we may produce less coal than our current estimates.

Our resources and reserves estimates are based on a number of assumptions in accordance with the JORC Code. There can be no assurance that our resources and reserves will be recovered in the quantities, qualities or yields presented in this Offering Memorandum. Coal resources and reserves estimates are inherently prone to variability. They involve expressions of judgment with regard to the presence and quality of mineralization and the ability to extract and process the mineralization economically. These judgments are based on a variety of factors, such as knowledge, experience and industry practice. The accuracy of these estimates may be affected by many factors, including the quality of the results of drilling and sampling of the coal deposits and analysis of the coal samples and the procedures adopted and experience of the person(s) making the estimates. There are risks associated with such estimates, including that coal mined may be of a different or inferior quality, volume, overburden strip ratio or stripping cost from the resource estimates. Such estimates may also be revised following further exploration or analysis. We may at any time commission a new report to estimate the resources and reserves of our deposits.

If we encounter mineralization or geological or mining conditions different from those predicted by historical drilling, sampling and similar examinations, we may have to adjust our mining plans in a way that may materially and adversely affect our business, prospects, financial condition and results of operations and reduce the estimated amount of coal resources and reserves available for production plans.

You should not assume that the resources estimated are capable of being directly reclassified as reserves under the JORC Code. The inclusion of resources estimates should not be regarded as a representation that these amounts could be exploited economically. You are cautioned not to place undue reliance on resources and reserves estimates.

Coal markets are highly competitive and are affected by factors beyond our control.

We sell substantially all of the coal we produce into China. We compete with Chinese, Mongolian and other foreign coal producers (primarily from Australia) in the Chinese coal market. Competition in the Chinese coal market is based on many factors, including, among others, price, production capacity, coal quality and characteristics, transportation capability and costs, border crossing efficiency, blending capability and brand name. The Chinese coal market is highly fragmented and we face price competition from local coal producers which may enjoy certain operational cost advantages, such as lower expenditure on safety and regulatory compliance and lower transportation costs than we do due to their location. Australian coal producers have low operational costs and some of our international competitors may have greater coal production capacity as well as greater financial, marketing, distribution and other resources than we do, and may benefit from more established brand names in international markets. As Mongolia is a landlocked country sharing borders only with China and Russia, we may be unable to access other markets if there is reduced demand for coal from China. Our inability to maintain our competitive position as a result of these or other factors could materially and adversely affect our business, prospects, financial condition and results of operation.

We are dependent on two sources for diesel and any impact to its availability would affect our operations.

We are dependent on two major providers, NIC and Shunkhlai, to meet our diesel use needs. For the years ended December 31, 2016, 2017 and 2018, NIC provided 84.8%, 58.4% and 70.3%, respectively, of our diesel needs and Shunkhlai provided 15.2%, 41.6% and 27.0%, respectively. Although we have signed fuel supply agreements with NIC and Shunkhlai, which will respectively expire in May 2020 and December 2019, there can be no assurance that we will be able to successfully renew such agreements on acceptable terms or at all, or that our suppliers will continue to supply diesel on terms that are acceptable to us or that we will be able to maintain our relationships with our current suppliers or establish new supplier relationships to ensure a steady supply of diesel in a timely and cost efficient manner. If there is a sudden increase in the price of diesel supplied by such providers or we are unable to renew our agreements, and if we are unable to find suitable alternatives, our business, prospects, financial condition and results of operations may be materially and adversely affected.

We may be adversely affected by future economic downturns that reduce the demand for steel, in particular, any economic downturn in China.

Any future economic downturn that reduces the demand for steel will have a negative impact on the demand for steel in China. China's steel demand grew 8% year-on-year to 768 Mt in 2017, contributing 45% to global demand according to the World Steel Association. However, slowdown in China's construction-centric steel demand and trade disputes with the United States continue to present headwinds to the market, with concerns over China's overall future growth amidst weaker trade data and economic indicators continuing to put downward pressure on the steel sector. As substantially all of our coking coal is currently sold to China and, we believe, is principally used in the manufacture of steel in China, a reduction in the demand for steel in China would directly reduce the demand for our coking coal. Construction has been one of the principal uses of steel in China, and any slowdown in the construction sector of the Chinese economy, whether as a result of falling housing prices, oversupply or otherwise, could significantly reduce the demand for steel in China. As Mongolia is a landlocked country sharing borders only with China and Russia, unless we benefit from transit transportation agreement with our neighbor countries, we may be unable to access other markets if there is reduced demand for coal in China. This would have a material and adverse impact on our business, prospects, financial condition and results of operations.

Disruptions in transportation could adversely affect our business and sales of our coal.

Substantially all of our coal production is exported into China. Thus, our mining operations are highly dependent on road and rail services in Mongolia and China. Inadequate and underdeveloped transportation infrastructure on both the Mongolia and Chinese sides of the border affects the pricing terms under which we sell our coal to customers and the willingness and ability of our customers to purchase coal from us. Our customers factor in any delays and the costs and availability of transportation in determining whether to purchase coal products from us and the prices they are willing to pay.

A bottleneck in the transportation of coal from our UHG mine to customers in China may arise if the road connecting our UHG mine to the GS border crossing does not have sufficient capacity to support any increase in the amount of cargo traffic or is affected by external factors such as disruptions caused by bad weather or delays or closures by governmental authorities for any reason. In the second half of 2017, the queues at the GS border crossing reached over 100 km long, causing transportation bottlenecks which negatively impacted our sales volume. In July and August 2018, the roads from the mine to the Mongolia side of the border were closed for over 10 days due to heavy rains and flooding. While the Company had backstock and was able to continue its operations without disruption, the closure could have impacted the Company's financial performance had the disruption continued. There is no assurance that future transportation bottlenecks or closures will not materially and adversely impact our operations and financial performance. The hours of operation, the handling capacity and the potential closure of the GS and GM border crossings also affect our ability to expedite the movement of our coal transportation. There can be no assurance that the Mongolian and Chinese governments will continue to support further development and expansion of border-crossing handling capacity or that the respective customs authorities will handle our coal shipments in an efficient manner or in priority over other coal or freight being transported by other parties. Border closings have been happening and could happen due to the central or local government policies and decisions, customs control and other relevant authority supervision on importing operation, installation and application of new or revised registration and supervision systems, delayed CIQ release for imported coal, or local authority decision, which adversely affected our sales performance, transport and operation. For example, in 2017, facing increased truck congestion due to the reduced cross border throughput at the GS-GM border crossing point, the Government of Mongolia issued a resolution to temporarily halt customs clearance at mine sites in Tavan Tolgoi area. Therefore, direct shipments from UHG to GM were stopped. As such, coal shipments were handled from UHG to TKH. Once coal inventory accumulated at TKH, it was further shipped for export from TKH to GM. In November 2018, the Government of Mongolia, after lifting the ban imposed on customs clearance, once again directed that coal transportation be conducted using the two-step UHG-TKH and TKH-GM routes. Due to actions taken by relevant authorities in China and/or Mongolia, the average number of trucks going through the GS-GM border crossing experienced significant fluctuations in the past, which affected border crossing throughput. There can be no assurance that such events will not occur in the future.

We use the UHG-GS paved road, which is owned and operated by Erdenes MGL, under a toll fee arrangement pursuant to the Auto Road Use Agreement entered into with the Gashuun Sukhait Auto Road LLC in 2018. There can be no assurance that the fees for the usage of the road will not increase or that our coal hauling operations on any part of this paved road will not be suspended or terminated in the future.

The Government of Mongolia is pursuing the development of a railway between TT and GS, and on July 9, 2018, the Government of Mongolia established "Tavan Tolgoi Railway", a stated-owned enterprise, to proceed with the construction of the UHG-GS railway. However, there can be no assurance that the railway will be constructed in a timely manner in the near future. In addition, the Government of Mongolia may impose tariffs on the railway use at a level which makes future railway transportation uneconomical. There can be no assurance that, in such situations, there would be any other cost-effective means of transporting coal to our primary markets in China. As a result, our coal sales may be constrained and our results of operation may be adversely affected.

In China, rail and road infrastructure and capacity have in the past been affected by extreme weather conditions, earthquakes, delays caused by major rail accidents, the diversion of rolling stock needed to deliver emergency food relief and seasonal congestion during public holidays.

There can be no assurance that any of these aforementioned events, or other new events will not occur in the future. A substantial portion of our costs are spent on transportation. If any of the aforementioned were to occur, our transportation costs could significantly increase. Moreover, customers may not be able to take delivery of our coal, which may lead to delays in payment or refusal to pay for our coal. As a result, our business, prospects, financial condition and results of operations could be materially and adversely affected.

We may need additional capital if we decide to make any new investments.

In the past, we engaged in certain infrastructure project investments. If we decide to undertake any new investment plans in the future, we will need additional capital. Our ability to obtain adequate financing in a timely manner and on acceptable terms, or at all, will be subject to a variety of uncertainties including, but not limited to, capital and financial market conditions, our financial condition and cash flows, political, economic and other conditions. The terms of any debt facilities may also impose restrictive covenants that may limit our business and operations. In the event that we breach any of these covenants, we may not be able to obtain waivers from our lenders. Our inability to raise additional funds may have a material adverse effect on our business, prospects, financial condition and results of operations. See “– We have significant levels of indebtedness, which could adversely affect us or the holders of the Notes”.

Difficult conditions in the global economy and financial markets may adversely affect our financial condition and results of operations.

We have been, and in the future will continue to be, materially affected by geopolitical, economic and market conditions, including factors such as the liquidity of the global financial markets, the level and volatility of debt and equity prices, interest rates, currency and commodities prices, investor sentiment, inflation and the availability and cost of capital and credit. The stress experienced by the global financial markets that began in the second half of 2007 has continued or increased in varying degrees in different regions over the years. The financial markets continue to be impacted by general uncertainty, and growth rates have remained low. The slow economic recoveries in Japan and Europe as well as the impact of the United Kingdom’s withdrawal from the European Union have contributed to higher global volatility. Concerns over possible inflation or deflation, uncertainty relating to currency exchange rates and interest rates, the availability and cost of credit, continued high debt levels in Europe, volatility in commodity, oil, debt and equity prices, all have contributed to a general decline in lending activity by financial institutions and in commercial lending markets and increased volatility. In addition, tighter monetary policy in the United States could further undermine financial stability in emerging market economies. The U.S. Federal Reserve Bank last raised interest rates in December 2018, which was the ninth time these rates were raised since the global financial crisis in 2007, and the current administration has indicated plans to further raise rates in the future. Expectations for the global economy and the markets in the near term remain unclear.

Furthermore, a downturn in China’s economy and restrictive minerals policies could materially and adversely affect our revenues and results of operations. As we export a significant part of our products into China, the results of our operations and financial condition are sensitive to and dependent upon the level of economic activity in China. China’s rates of gross domestic product growth have decreased in recent years, and future developments in or affecting the Chinese economy could impair our ability to proceed with our business plan or materially adversely affect our business, financial condition, or results of operations. Any slowdown in China’s economic development might lead to tighter credit markets, increased market volatility, sudden drops in business and consumer confidence and dramatic changes in business and consumer behaviors.

The credit tightening environment may affect our ability to obtain financing, or banks may even reduce the amount of or discontinue the banking facilities currently available to us. An environment of credit tightening can adversely affect our ability to secure sufficient financing to fund our projects. Any capital expenditure project will be highly dependent upon our ability to obtain additional financing, which is subject to a variety of uncertainties, including:

- our future financial condition and credit rating;
- general market conditions for financing activities;
- our share price; and
- Government of Mongolia policies and regulations relating to coal mining enterprises and lending in general.

External financing may not be available in a timely manner, on acceptable terms, or at all. If we are unable to expand our capacity, we may be unable to grow our business and remain competitive, or provide services to companies with significant capacity requirements, which may have a material adverse effect on our ability to grow our revenue.

Our mining activities are subject to operational risks, hazards and unexpected disruptions.

Our mining activities are subject to a number of operational risks and hazards, some of which are beyond our control, and could delay the production and delivery of our coal, increase our cost of mining or result in accidents in our mine. These risks and hazards include unexpected maintenance or technical problems, periodic interruptions due to inclement or hazardous weather conditions, natural disasters such as earthquakes, industrial accidents, power, water, explosives or fuel supply interruptions or increase in price of such supplies, critical equipment failure, malfunction and breakdowns of information management systems, fires, and unusual or unexpected variations in mineralization, geological or mining conditions. These risks and hazards may result in personal injury, damage to or destruction of properties or production facilities, environmental damage, business interruption, possible legal liability, damage to our business reputation and corporate image and, in severe cases, fatalities. During the three years ended December 31, 2016, 2017 and 2018, one traffic accident occurred in connection with our coal transportation, which resulted in a fatality, and no accidents occurred in connection with operations. See “Business – Safety and Environmental Matters”. As of December 31, 2018, none of these accidents resulted in a significant financial or operational impact to our operations. There can be no assurance that accidents will not occur in the future. Such accidents may have a material adverse effect on our reputation, business, prospects, financial conditions and results of operations.

We are subject to stringent health and safety laws and regulations that give rise to significant costs and could give rise to significant liabilities.

We may also experience safety incidents or accidents at our mine sites. Despite our efforts to monitor and reduce accidents at our facilities, health and safety incidents do occur, some of which may result in costs and liabilities and negatively impact our reputation or the operations of the affected facility. Such accidents could include explosions or gas leaks, fires or collapses in underground mining operations, vehicular accidents, and other accidents involving mobile equipment or exposure to potentially hazardous materials. Some of our industrial activities involve the use, storage and transport of dangerous chemicals and toxic substances, and we are therefore subject to the risk of industrial accidents which could have significant adverse consequences for our workers and facilities, as well as the environment. Such accidents could lead to production stoppages, loss of key personnel, the loss of key assets or put at risk employees (and those of subcontractors and suppliers) or persons living near affected sites.

We are subject to a broad range of health and safety laws and regulations in Mongolia. These laws and regulations, as interpreted by relevant agencies and the courts, impose increasingly stringent health and safety protection standards. The costs of complying with, and the imposition of liabilities pursuant to, health and safety laws and regulations could be significant, and failure to comply could result in the assessment of civil and criminal penalties, the suspension of permits or operations and lawsuits by third parties. In addition, under certain circumstances authorities could require our facilities to curtail or suspend operations based on health and safety concerns.

We may not be successful in developing and operating our BN mine.

We acquired our BN mining license in June 2011 and commenced operations at our BN mine in February 2012. On June 24, 2013, we were granted the THG mining license to cover another 8,340 hectares area contiguous to the BN mining license originally acquired. The development and operation of coal mines is subject to a broad range of operational, regulatory, geological and economic risks. There can be no assurance that we will be able to successfully develop and operate this mine or that the economics and scope of coal production from this mine will meet our expectations or be economical at all. For instance, from 2014 until the third quarter of 2017, we suspended our operations at BN mine to consolidate our personnel and assets at our UHG mine as part of our cost reduction measures taken in response to deteriorating market conditions.

Before the suspension of the mining in 2014, we were engaged in owner mining conducted by personnel of the Group at our BN mine. We have engaged contractors to mine coal at our UHG mine since its opening and therefore have limited direct experience mining coal. We cannot assure you that we will be able to successfully conduct our own mining operations at our BN mine. In addition, there can be no assurance that we would be able to maintain our current contractors or engage new contractors at the BN mine on satisfactory terms, or at all. If we fail to successfully develop and operate our BN mine, we may have to write off all or a portion of the mining rights recognized in connection with the acquisition, which amounted to US\$502.2 million as of December 31, 2018.

We may have to make additional payments under the acquisition agreement for our BN mining license.

We acquired our BN mining license in 2011. If the specified semi-annual ROM production exceeds 5.0 Mt, the consideration is subject to adjustment of the royalty provision contained therein and we may be required to make additional payments or royalties during the period in which such mine is operational. Although we consider the probability of such royalty provision very low as the Company has sole control over its production volume, we cannot assure you that such adjustment will not occur. The determination of our production volume is generally based on a variety of factors such as the market conditions and our development strategies, and we may not be able to lower the production volume or make any adjustment to our production activities for the sole purpose of such royalty provision. To the extent that any such amounts become payable, the payment of such amounts could adversely affect our financial condition. A failure to pay such amounts would constitute a default under the acquisition agreement and potentially cross defaults under our other existing and future contractual arrangements.

The development of any new technology or the use of alternative supply sources in the production of iron and steel may directly impact the demand for coking coal.

The demand for coking coal is directly correlated with the production of crude steel. As a result, any alternative energy source, such as PCI coal, or any heavy fuel oil injection into blast furnaces, or any new technology in steel production, such as electric arc furnace which omits coke from the steel production process, if adopted by steel manufacturers in China, would negatively affect the demand for coking coal. This could, in turn, materially and adversely affect our business, prospects, financial condition and results of operations.

We may not be successful in future acquisitions or may encounter difficulties in integrating and developing the acquired assets or businesses.

We plan to increase our mineral resources through acquisitions of companies with existing exploration rights and additional mining assets. In addition to mining licenses and mining assets, if we are presented with strategically attractive opportunities, we may acquire other businesses or assets that are complementary to our business. We do not have specific timetables for these plans and there can be no assurance that we will be successful in these acquisitions. In addition, we must receive various regulatory approvals or permits in order to develop new reserves or businesses. Our inability to successfully acquire companies with existing exploration rights and additional mining assets, develop mineral resources or obtain necessary governmental approvals may have a material adverse effect on our business, prospects, financial condition and results of operations.

Future acquisitions may also expose us to potential risks and unforeseen operating difficulties and expenditures, including risks associated with the assimilation of new technologies, businesses and personnel, unforeseen or hidden liabilities, the diversion of management attention and resources from our existing business and the inability to generate sufficient revenues to offset the costs and expenses of an acquisition. Any difficulties encountered in the acquisition and integration process may have a material adverse effect on our business, prospects, financial condition and results of operations.

We may dispose of our assets or sell majority or minority stakes in our subsidiaries.

We may dispose of some of our assets or sell majority or minority stakes in our subsidiaries, including our BN mine, if we are presented with strategically attractive opportunities or seek funding opportunities. If we take on joint venture partners, we will be subject to risks associated with jointly owning and managing projects. No assurance can be given that we will or will not engage in, or as to the timing of, any such disposals or joint venture activities and there can be no assurance that we will be successful in these ventures should they occur.

Our mining operations from which we derive all of our operating cash flows and sales are currently concentrated at two mining sites.

Our mining operations are currently concentrated at our UHG and BN mines. Though we commenced operations at our BN mine in February 2012, from 2014 until the end of the third quarter of 2017, we suspended our mining plan for the BN mine in order to consolidate our personnel and assets at our UHG mine as part of our cost reduction measures taken in response to deteriorating market conditions. We resumed our BN mine operations starting from the fourth quarter of 2017. All of our current operating cash flows and sales are currently derived from the sale of coal produced from the two mines. Any significant operational or other difficulties in the mining, processing, storing or transporting of coal at or from our UHG or BN mine could reduce, disrupt or halt our coal production, which would materially and adversely affect our business, prospects, financial condition and results of operations.

We rely on our contractors to perform key aspects of our operations.

Currently, we cooperate with Thiess, our mining contractor, at our UHG mine. Substantially all of the mining equipment used in our UHG mine is provided by Thiess and their personnel supervise the maintenance of our mining operations and our personnel supervise essentially all of our mining operations. Actual mining activities are conducted by our employees who have been trained by Thiess personnel. At the BN mine, we engage Mongolian domestic contractors with formal contracts and no termination penalties or charges are payable by us. See “Business – Mining and Processing.” Failure by Thiess or any of such other contractors to perform their respective contractual obligations or the loss of their services could materially and adversely affect our business, prospects, financial condition and results of operations. If Thiess or our BN contractors terminate their contracts with us, the amount of remedies we may be able to receive may not be sufficient to cover losses we may sustain. There can be no assurance that replacement contractors could be found in a timely manner or at all, or would be able to perform at the same competencies, at the same prices or on the same terms as our current contractors if any of our contractors cease to perform their services or terminate their contracts with us. In addition, if we decide to terminate our agreement with Thiess, we will be required to purchase all equipment provided by Thiess at a specific value.

We use the paved road connecting our UHG mine to the border crossing at GS, which is owned and operated by Erdenes MGL.

We use a paved road that is approximately 240 km from our UHG mine to GS to transport all of our coal products to China under the Auto Road Use Agreement dated May 21, 2018, and currently we pay a toll fee of MNT3,200 (approximately US\$1.21), excluding VAT, per tonne of coal we transport on the road. The term of the Agreement was until January 1, 2019 and is automatically extended unless either party has given notice of termination prior to the expiration date.

While we are able to continue to use the paved road under a toll fee arrangement within the scope of the Auto Road Use Agreement with Gashuun Sukhait Auto Road LLC, there can be no assurance that we would have access to enough capacity on the road to transport all of our current coal output, and any future increases of our coal output, on the road. See “Business – Transportation and Logistics.” Furthermore, we will not be able to use the paved road under a toll fee arrangement if our usage falls out of the scope of the Auto Road Use Agreement. Also, there is no assurance that the paved road would be well maintained or would not encounter other operational problems. In addition, the Government of Mongolia, who is the owner and operator of the paved road, might propose to increase the toll fee rate, narrow the current scope of the toll fee arrangement or refuse to extend or pursue such contractual arrangement in future. If any such event occurs, there can be no assurance that we would find an alternative route to transport our products, and even if we can, it may be on less favorable terms than the paved road. If we are unable to use the paved road, our transportation capacity will be materially and adversely affected and our transportation cost will increase.

Our dependence on our major customers may cause significant fluctuations or declines in our revenues.

Substantially all of our coal production is exported into China and we have a concentrated group of major customers. For the years ended December 31, 2016, 2017 and 2018, our sales to our five largest customers accounted for 54.0%, 68.1% and 84.4%, respectively, of our total sales. For the years ended

December 31, 2016, 2017 and 2018, our sales to our single largest customer accounted for 13.0%, 38.4% and 41.0%, respectively. Although we are planning to expand our customer base, we anticipate that our dependence on our major customers will continue in the near future. There can be no assurance that we will be able to retain these customers or that they will maintain current level of business with us. If there is a reduction or cessation of orders from any of these customers for any reason, our business, prospects, financial condition and results of operations will be materially and adversely affected.

Our ability to receive payments for coal sold and delivered depends on the continued creditworthiness of our customers. Competition with other coal suppliers could force us to extend credit to customers and on terms that could increase the risk of payment default. The bankruptcy of any of our customers could materially and adversely affect our business, prospects, financial condition, and results of operations.

Our insurance may not be adequate to cover losses or liabilities that may arise.

We do not maintain adequate insurance against some operational and infrastructure risks and natural disasters. In particular, we do not have insurance coverage for acts or omissions of our contractors. Under our agreements with mining contractors, insurance against risks or loss to operations is provided by our mining contractors for each of the relevant mining areas. However, some of our contractors may not carry adequate liability coverage.

We have obtained insurance policies from global insurers covering various aspects of our business operations, including property damage for our main assets such as processing plants and power plant, director and officer liabilities, personal injury and health insurance, excluding mining properties. Such policies may not be adequate to cover all losses or liabilities that may be incurred by us. Also, insurance may only be available at premium levels that are prohibitively expensive so we may be unable to renew our existing policies or enter into new policies. As a result, losses incurred or payments we may be required to make may have a material adverse effect on our business, prospects, financial condition and results of operations to the extent such losses or payments are not insured or the insurance proceeds are not adequate.

Increases in the costs, or our accessibility to sources, of fuel and blasting materials could negatively affect our operating costs or disrupt or delay production.

NIC and Shunkhlai, the two largest oil product importers and retailers in Mongolia, supply us with a majority of our fuel requirements. Both suppliers source substantially all of their fuel from Russia. While we have reserved the option to contract with other fuel suppliers, there is no assurance that we would be able to source the requisite amounts of fuel necessary to run our operations from other suppliers if there were an interruption in the fuel supply from Russia to Mongolia or from NIC and Shunkhlai to us. We also engage local suppliers for blasting services for our mining operations.

We directly bear the costs of fuel and blasting services. We do not engage in any fuel hedging arrangements to cover our fuel price risk. Any significant increases in the price of fuel or shortages of fuel or increases in the price of blasting services would cause a corresponding increase in our costs or limit our operations, either of which could result in termination of sales contracts by our customers and materially and adversely affect our business, prospects, financial condition and results of operations.

Issues with local communities may materially and adversely affect our business.

Issues with the local communities directly or indirectly associated with our business activities might arise. These issues may result in community protests, blocking of roads and third-party claims. For instance, in 2013, herders from the Khanbogd soum of Umnugobi province made a complaint to the European Bank for Reconstruction and Development and a number of mining companies operating in the region, including us, with respect to the usage of dirt roads for the transportation of coal and commodity transportation and the impacts on pasture land. There is no assurance that future complaints will not occur. Moreover, the failure to successfully settle any local community issues could divert our management's attention and resources and have a material and adverse effect upon our business, reputation, prospects, financial condition and results of operations.

Our business depends substantially on the continuing efforts of our executive officers and our mining contractors and our ability and the ability of our mining contractors to attract and retain qualified technical personnel.

Our business depends substantially on the continued services of our executive officers and, to a significant extent, on our ability to attract, train and retain qualified technical personnel, particularly those with expertise in coal mining and production. There can be no assurance that we will be able to attract or retain qualified technical personnel. Our executive officers and key employees primarily include Mr. Odjargal Jambaljamts, Dr. Battengel Gotov, Mr. Oyunbat Lkhagvatsend, Ms. Ulemj Baskhuu, Ms. Uurtsaikh Dorjgotov, Mr. Tuvshinbayar Tagarvaa and Mr. Baasandorj Tsogoo. If one or more of our executive officers or key employees were unable or unwilling to continue providing their services to us, we might not be able to replace them with persons of equivalent expertise and experience within a reasonable period of time or at all. If any of our executive officers or key employees joins a competitor or forms a competing company, we may lose customers, suppliers, know-how and key personnel and staff members. If any dispute arises between such employees and us, there can be no assurance as to the extent to which any non-competition undertakings of such employees could be enforced in our favour or at all. If we lose any of our executive officers and key employees, our business may be severely disrupted, our financial condition and results of operations may be materially and adversely affected, and we may incur additional expenses to recruit, train and retain personnel. Furthermore, some of our technical personnel are trained by our contractors. If our contractors cease to train our technical personnel, we may not be able to train or find qualified parties to train our technical personnel. In addition, we believe our future success will depend on our contractors' continued ability to attract and retain their own skilled and qualified personnel. Any difficulty in our contractors' ability to attract, recruit, train and retain skilled and qualified personnel could materially and adversely affect our operations. As our business has grown and is expected to continue to grow rapidly, our ability to train and integrate new employees into our operations may not meet the growing demands of our business.

We could experience labor disputes that may disrupt our operations.

A majority of our employees are represented by labor unions and are covered by collective bargaining or similar agreements, which are subject to periodic renegotiation. Strikes or work stoppages could occur prior to, or during, negotiations preceding new collective bargaining agreements, during wage and benefits negotiations or during other periods for other reasons, in particular in connection with any announced intentions to adapt the footprint. We may experience strikes and work stoppages at various facilities. Prolonged strikes or work stoppages, which may increase in their severity and frequency, may have an adverse effect on our operations and financial results. The risk of strikes and work stoppages is particularly acute during collective bargaining agreement negotiations. The Company is also obliged to comply with the Tripartite Agreement on Labour and Social Coherence of the Geology, Mining and Heavy Industry Sector executed by relevant representatives of the ministry, trade unions and employers of the mining and heavy industry sector which sets (i) labour relations; (ii) wage rates; (iii) professional development of employees; (iv) social issues; (v) occupational health, safety issues; and (vi) labour union rights of those operating in the industries which are represented.

The interests of our principal shareholder, MCS Mongolia, may differ from those of our other shareholders or of the holders of the Notes.

As of December 31, 2018, MCS Mongolia indirectly owned approximately 31.43% of our issued share capital. Accordingly, MCS Mongolia has substantial influence over our business, including decisions regarding mergers, consolidations and the sale of all or substantially all of our assets, election of directors and other significant corporate actions, timing and amount of our dividend payments, and otherwise controls or influences actions that require the approval of our shareholders and may impact the holders of the Notes. These actions may be taken even if they are opposed by our other shareholders or are not in line with the interests of the holders of the Notes. We believe that third parties may be discouraged from making a tender offer or bid to acquire us because of this concentration of ownership. For further information on the ownership of the Shares, see the section headed "Corporate Structure" and "Principal Shareholders" in this Offering Memorandum.

Foreign currency fluctuations could affect expenses and any future earnings and our ability to service the Notes.

We are exposed to foreign exchange fluctuations with respect to the U.S. dollar, the RMB and the MNT. Our financial results are reported in U.S. dollar. The salaries for local laborers in Mongolia are paid in MNT. Sales of coal into China have been and may continue to be settled in RMB. Since our headquarters are in Ulaanbaatar, Mongolia, a portion of our other expenses are in MNT. Our financial obligations are denominated primarily in U.S. dollars. As a result, our financial position and results are impacted by the exchange rate fluctuations between the aforementioned currencies and the U.S. dollar.

The MNT and RMB exchange rates could fluctuate widely against the U.S. dollar or any other foreign currency in the future. The Government and/or Chinese government may adopt reforms of its exchange rate system that may adversely affect the exchange rate of MNT and RMB against the U.S. dollar, it may adversely impact our ability to service our U.S. dollar denominated indebtedness and other obligations. Furthermore, any depreciation of the MNT or RMB will decrease the value of dividends and other distributions payable by our subsidiaries in foreign currency terms. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Quantitative and Qualitative Disclosures about Market Risk – Foreign Currency Exchange Risk”.

The Chinese government may tighten its restrictions on the import of Mongolian coal or adopt policies favorable to Chinese coal producers.

The Chinese government has imposed a 3% import tax on coking coal and a 6% import tax on thermal coal imports since October 2014. There can be no assurance that the Chinese government will not increase such import tax rates or directly or indirectly adopt any other policies that support domestic Chinese coking coal producers. The Chinese government may also delay, restrict or close its border crossing with Mongolia for various reasons, such as political differences with the Mongolian government. See “– Disruptions in transportation could adversely affect sales of our coal” for a detailed discussion on border crossing issues. If we are unable to sell our coal into China on commercially viable terms or at all, there can be no assurance that we will be able to sell our coal to customers in any other jurisdiction. Furthermore, as the only paved road with capacity to transport our coal leads to the Chinese border and all of our coal currently passes through China, any restriction on the transport of Mongolian coal through China will effectively prohibit our coal from reaching any of our Chinese customers or potential overseas customers unless a transit transportation agreement through China is materialized.

The Chinese government may take steps towards the adoption of more stringent environmental regulations.

In April 2016, China signed the Paris Agreement, a global agreement on the reduction of climate change, by which it has committed to peak its carbon dioxide emissions around 2030 and to make best efforts to peak earlier. In particular, the Chinese government is moving towards more rigorous enforcement of applicable environmental laws and regulations and the adoption of more stringent environmental standards. If efforts to increase energy efficiency, control greenhouse gas emissions and enhance environmental protection result in a decrease in coal consumption in China, our revenue may significantly decrease and our business may be materially and adversely affected.

Our mining operations present environmental risks.

All phases of our operations are subject to the environmental regulations of Mongolia. For example, we must complete an environmental protection plan for the Government of Mongolia’s approval and complete a report prepared by an independent expert on environmental compliance every year.

Failure to comply with applicable laws or regulations or to obtain the necessary permits may result in enforcement actions, including orders issued by regulatory or judicial authorities causing operations to cease or be curtailed, and may include corrective measures requiring capital expenditures, installation of additional equipment, or remedial actions. Parties engaged in mining operations may be required to compensate those suffering loss or damage by reason of the mining activities and may have civil or criminal fines or penalties imposed for violations of applicable laws or regulations.

Environmental regulation is evolving in a manner which will likely require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and a heightened degree of responsibility for companies and their officers, directors and employees. There can be no assurance that future changes in environmental regulation, if any, will not materially and adversely affect our business, prospects, financial condition and results of operations. The Government of Mongolia's approvals and permits are also often required in connection with various aspects of our operations. To the extent such approvals or permits are required and not obtained, we may be delayed or prevented from proceeding with planned exploration or development of our mineral properties.

Since 2011, a number of environmental laws and regulations have been renewed, which include imposition of new fees for water pollution and increase in water resource utilization fees upon adoption of the Law on Water Pollution Fee and the Law on Environmental Resources Utilization Fee in 2012. Water resources are scarce in the arid Gobi desert region. According to the aforementioned laws, the fee for water usage is calculated as a percentage defined by the Government within a limit specified in the Law on Environmental Resources Utilization Fee of the base ecological-economic value. The base value is determined by the Government Resolution 302 in 2011, base indicator for such value is determined by the Government Resolution 327 in 2013 and applicable percentage for fee calculation is defined by Government Resolution 326 in 2013. The ecological-economic value of water also differs based on the purpose of the usage and the source of water, that is, surface and underground water. For instance, base value for underground water in Tuul river basin is MNT9,440 per cubic meter while in Galba-Uush Doloodin Gobi river basin is MNT3,996 which we use for our CHPP. There can be no assurance that the base value or fee rates applicable for the fee will not be increased in the near future. Changes to the current laws, regulations and permits governing operations and activities of mining companies, including more stringent implementation or increases in or imposition of new fees, could have a material adverse impact on us including increases in our capital expenditures or production costs, reductions in our production and abandonment or delays in development of new mining properties.

Information in this Offering Memorandum regarding future plans reflects current intentions and is subject to change.

Whether we ultimately implement the business plans described in this Offering Memorandum, and whether we achieve the objectives described in this Offering Memorandum, will depend on a number of factors including, but not limited to, the availability and cost of capital; current and projected coal prices; coal markets; availability of heavy equipment, supplies and personnel; success or failure of activities in areas similar to those in which our projects are situated; and changes in estimates of project completion costs. We will continue to gather information about our projects, and it is possible that additional information will cause us to alter our schedule or determine that a project should not be pursued at all. Accordingly, our plans and objectives may change from those described in this Offering Memorandum.

Destabilizing events in other parts of the world could interrupt our business.

Continued geopolitical instability and conflict in the Middle East, events relating to terrorist and violent attacks around the world and natural disasters increase the uncertainty of global economic prosperity and could lead to an economic slowdown and recessionary pressures globally and in Asia. We cannot assure you that further terrorist acts or other destabilizing events will not occur in the future. In addition, although such acts and events have not been targeted at or directly affected Mongolia, our assets or those of our customers, we cannot assure you that they will not do so in the future. Our current insurance policies do not cover terrorist attacks or other such destabilizing events. Any terrorist attack, natural disaster or other such event, including damage to our infrastructure or that of our customers, could cause interruption to our business and materially and adversely affect our business, financial condition, results of operations, cash flows and prospects.

We face risks related to health epidemics and other outbreaks of contagious diseases.

Our business could be adversely affected by the outbreaks of severe acute respiratory syndrome ("SARS"), Middle East respiratory syndrome, avian influenza or other contagious diseases. Mongolia experienced an outbreak of the H1N1 strain of swine influenza in November 2009. The Government imposed a curfew on shops and restaurants, halted long distance transport services and closed schools. Additionally,

there have been reports of outbreaks of a highly pathogenic avian flu, caused by the H5N1 virus, in certain regions of Asia and Europe since 2003. In 2010, there were a limited number of reported cases of avian flu in Mongolia although to date there have not been any confirmed cases of human infection. In January 2019, Mongolia experienced another H1N1 outbreak in Mongolia resulting in at least seven deaths. There have been reports on the occurrences of avian flu, H5N1 virus, H1N1 influenza, H7N9 influenza and Middle East respiratory syndrome in various parts of China, including a few confirmed cases of human infection. An outbreak of avian flu in the human population of China could result in a widespread health crisis that has the potential to spread to Mongolia and could adversely affect the economies and financial markets of many countries, particularly in Asia. Additionally, any recurrence of swine influenza or SARS, a highly contagious form of atypical pneumonia, similar to the occurrence in 2003 which affected China, Hong Kong, Taiwan, Singapore, Vietnam and certain other countries, would also have similar adverse effects. As a significant portion of Mongolia's economy relies on trade with China and all of our customers are located in China, these outbreaks of contagious diseases, or the fear of these outbreaks, and other adverse public health developments in China, could have a material adverse effect on our business, financial condition and results of operations. We have not adopted any written preventive measures or contingency plans to combat any future outbreak any epidemic or outbreak of disease.

Inclement weather may adversely affect our operations.

Inclement weather may require us to evacuate personnel or curtail operations and may cause damage to our mine site, transportation roads and loading facilities. This could result in the temporary suspension of operations or generally reduce our productivity. In the years ended December 31, 2016, 2017 and 2018, we suspended our mining operations at UHG mine for a total of seventeen days due to inclement weather. Since acquiring BN mining license in 2011, we suspended our mining operations at BN mine for a total of five and a half days due to inclement weather. We suffered no material losses due to the inclement weather, but there can be no assurance that inclement weather will not cause significant losses in the future. Any damage to our mine site, transportation roads and loading facilities caused by prolonged periods of inclement weather could materially and adversely affect our business, prospects, financial condition and results of operations.

Risks Relating to Mongolia

Mongolia's economy has experienced recent periods of slow or negative growth.

In the past, Mongolia has experienced periods of slow or negative growth, high inflation and a devaluation of the Mongolian currency. Historically, certain policies implemented by the Government from time to time have caused fiscal imbalances or current account deficits. While the Government has implemented various measures to stabilize the economy and reduce the budget deficit, factors outside of its control, such as the collapse of copper prices in 2008, continued weak commodity prices or a slowdown in China's economic growth, may materially and adversely affect the economy and operating environment in Mongolia. Consequently, our business operations and assets are subject to the effects of these policies or trends.

In addition, Mongolia has received support and resources from the international community. Mongolia has also issued the US\$1.5 billion "Chinggis Bonds," of which the first repayment of US\$500 million was made in January 2018 with the remaining US\$1.0 billion to mature in 2022, the US\$500.0 million "Mazaalai Bonds" which mature in April 2021 and US\$600 million 8.75% "Khuraldai Bonds" which mature in March 2024. Mongolia has also entered into a US\$250.0 million syndicated loan facility arranged by Credit Suisse, with a term of five years, under which the full amount was drawn down in 2016 and will mature in 2021. Mongolia's economic growth further slowed to 1.0% real GDP growth in 2016 compared to 2.4% in 2015 and 7.9% in 2014. In addition, the Togrog experienced sharp depreciation in August 2016. On September 30, 2016, Mongolia requested financial assistance from the IMF to address these economic issues and ease its balance of payments pressure. On May 24, 2017, the IMF announced a program of financial assistance for Mongolia which includes approximately US\$434.3 million in an extended fund facility as part of a broader US\$5.5 billion financing package supported by Japan, Korea, China, the World Bank and the Asian Development Bank ("ADB"). On October 26, 2017, Mongolia issued a US\$800 million 5.625% bond to make the first US\$500 million repayment of the Chinggis Bonds and to finance the repayment of its RMB1.0 billion bonds which matured in June 2018.

A continued or further slowdown in the Mongolian economy, including a significant deterioration of the fiscal budget or the value of the Togrog, an increase in interest rates or future volatility of global commodity prices could adversely affect the ability of Mongolia to meet its obligations under its outstanding borrowings. Substantially all of our business operations and assets are based in Mongolia. As a result, our income, results of operations and the quality and growth of our assets depend, to a large extent, on the performance of the Mongolian economy. This, in turn, could adversely affect our business, the quality of our assets, our financial performance and trading in the Notes.

Financial assistance to be provided by the IMF will be subject to certain conditions.

The Government finalized the terms of the IMF's financial assistance package on May 24, 2017. The IMF approved a three-year extended fund facility, which had previously been agreed at the staff level on February 19, 2017, in a total amount of SDR 314.5 million (approximately US\$434.3 million) loan for Mongolia as part of a broader approximately US\$5.5 billion financing package supported by Japan, Korea, China, the World Bank and ADB. Collectively, these measures are intended to provide near-term fiscal relief as Mongolia continues to develop its substantial mineral resources and the economy stabilizes over the coming years. The financing parameters underpinning the program that have been agreed with the IMF assume that external private creditor exposure will be maintained at its current level over the program period, on terms consistent with debt sustainability and that gross financing needs will remain at prudent levels during the post-program period. Further, the IMF's extended fund facility is subject to quarterly reviews regarding a number of the Government's commitments, including in respect of the primary balance of the government, net official international reserves and net domestic assets of the Bank of Mongolia. A continuous performance criterion will be applied to non-concessional short-term external debt and accumulation of external payment arrears. The agreements with the IMF also include an indicative target on foreign exchange reserves. If the Government is unable to comply with these or other requirements of the IMF's financial assistance package, we cannot assure you that such financial assistance would continue to remain available, which could in turn materially and adversely affect Mongolia's liquidity position, economic stability, development prospects and investor confidence.

Any downgrade of Mongolia's credit rating could have a material adverse effect on us.

Any downgrade in Mongolia's sovereign rating or placement of Mongolia on ratings watch may have an adverse effect on the market value and trading price of the Notes. Furthermore, as a consequence of any downgrade, our ability to obtain external funding to meet obligations may be adversely affected. A credit rating may not reflect the potential impact of all risks related to the structure, market, additional factors above and other factors that may affect the value of the Notes issued.

Mongolia faces uncertainty with regard to legislation on labor and occupational hazard safety requirements.

The Labor Law of Mongolia is adopted by the Parliament in 1999. Notwithstanding a number of amendments made within last twenty years, the core principles of such law remain stable through last two decades. However, there can be no assurance that such law will not be revised and legal requirements will not be strengthened with stricter regulatory framework.

With regards to changes made in occupational hazard safety legal framework, on 14 May 2015, the Law on Labor Safety was amended and, the employers have become responsible for subscribing for the employees insurance equivalent to salary of not less than 36 months in the case that the job position is considered as a job with high risk as determined by the Government of Mongolia. The Government of Mongolia has not yet approved the list of job position with high risk. There is no assurance that job positions in mining section will not be included in the list and the cost of labor safety and sanitation will not increase.

There is a draft of new Labor Law submitted to the Parliament in 2018. The draft introduces broader range of labor regulation issues and major changes in respect with basic of international labor standards. The draft states that an employee shall be entitled to refuse to work or perform its duty if the employer fails to meet the requirements under the labor safety laws and regulations. These strict provisions regarding the labor safety issues would impose additional responsibilities on the employer. The draft is still pending and is expected to be discussed and adopted in 2019 spring session of the Parliament.

There is uncertainty as to whether the courts of Mongolia would enforce judgments in original actions brought in Mongolia, of liabilities against us, our directors or officers predicated upon the U.S. federal or state securities laws.

We have been advised by our Mongolian legal counsel, ELC LLP Advocates, that there is uncertainty as to whether the courts of Mongolia would enforce judgments in original actions brought in Mongolia, of liabilities against us, our directors or officers predicated upon the U.S. federal or state securities laws. Mongolian courts will not enforce judgments of U.S. courts obtained against us, our directors or officers predicated upon the civil liability provisions of the U.S. federal or state securities laws in the absence of a bilateral treaty between Mongolia and the United States or the mutual recognition of court judgments between the two countries. As of the date of this Offering Memorandum, no such treaty exists.

Mongolia faces uncertainty with regard to implementation of recent changes in tax laws.

The General Taxation Law, the Law on Corporate Income Tax, the Law on Personal Income Tax, the Law on State Registration of Legal Entity, the Minerals Law and the Law on Land were respectively amended in November 2017 in order to introduce a new concept of “ultimate holder” whose direct or indirect transfer or sale of the Mongolian legal entities holding (i) minerals exploration or mining license and/or (ii) land possession or use right may be considered as an “indirect sale of rights” which is subject to 30% withholding tax in Mongolia if such person loses its “ultimate holder” status after the said transfer or sale.

In addition, the Law on State Registration of Legal Entities was revised on June 21, 2018, and instead of “ultimate holder”, the new definition of “ultimate owner” was introduced and defined under Article 3.1.6 of the Law on Anti-Money Laundering and Terrorism Financing. In accordance such revision, the following individuals shall be considered as ultimate owner of a legal entity:

- solely or together with others having ownership over the substantial part of the company’s properties;
- managing the company’s activities by oneself or by others; or
- enjoying benefits and profits of the company by way of controlling the company, any and all of the company’s transactions and the implementation activities of such transactions.

As of the date of this Offering Memorandum, Mr. Odjargal Jambaljamts has been registered with the state registration and taxation authorities as the ultimate owner of the subsidiaries of the Group which hold minerals licenses and land rights in Mongolia, namely, ER LLC, Khangad Exploration LLC and Tavan Tolgoi Airport LLC.

Pursuant to the Corporate Income Tax Law and the relevant methodologies approved by the Ministry of Finance, the 30% tax rate shall be applicable to the transactions involving either or both of mining licenses and land rights. The primary methods to determine taxable amount of the share transfer transaction whereby directly or indirectly transferring shares of the company holding minerals license and/or land rights in Mongolia, are referral to the disclosed consideration of such share transfer. However, another assumingly calculated taxable amount may become mandatory, if such disclosed consideration of mining license transfer or land rights is 20% cheaper than the value estimated under the relevant methodologies, or is somehow cheaper than the estimation made as per the Land Law.

On June 22, 2018, revised versions of the Law on Corporate Income Tax, together with relevant changes to other laws, were submitted to the Parliament. According to the proposed amendments, only when the transactions involve full or partial disposal of direct or indirect interests held by shareholders holding more than 30% stake in legal entities with exploration and mining licenses and land possession rights, will such transactions be subject to a 10% tax rate (in lieu of the original 30% tax rate) imposed on “sale of rights” in Mongolia. Such taxation shall be withheld and paid by the subject holder of exploration and mining licenses and land possession rights.

On March 22, 2019, the Parliament of Mongolia adopted certain amendments to taxation related laws with effect from January 1, 2020. Although the final version of the amendments has not yet been released, from the drafts submitted to the Parliament, it is understood that such tax rate is to be reduced to 10% and also a threshold is to be introduced to define “ultimate holder” as an individual or legal entity holding a 30% or more beneficial interest in a legal entity which holds certain types of rights (including, relevantly, minerals licenses and/or land rights). As such, we expect to amend our filings with the state registration and taxation authorities accordingly, by specifying that no individual has beneficial ownership meeting such criteria applicable to the transactions involving either or both of mining licenses and land rights. The final adoption of the amendments is subject to presidential veto, and there can be no assurance that the amendments will not be vetoed, or that the final amendments will conform to the draft amendments or that the law as finally adopted and implemented will conform to our expectations.

Pursuant to the Law on Excise Tax, the Government is entitled to determining the rate of excise duty for diesel and gasoline with regard to the nature of the sector. Since the latest government resolution of setting the rates applicable for imported diesel and gasoline came into effect on January 19, 2015, the rates have been adjusted and modified seven times. In terms of recent changes in excise duty, gasoline with octane below 95 will be imported to Mongolia using “0” percent excise duty tax while diesel fuel, which is mainly used for the Company’s operation activities, is subject to MNT280,000 of excise duty per tonne. There can be no assurance that the rates applicable for diesel fuel will not be increased in the future.

On November 10, 2016, the Law on Social Insurance (1994) was amended and the mandatory contribution rate of the social benefit insurance payable by employers for its employees was increased from 0.8% to 1.0% of the employee’s gross pay, while the maximum contribution rate for industrial accidents and occupational diseases payable by the employers for its employees was decreased from 3.0% to 2.8%. These changes came into effect on January 1, 2017 and they were designed to benefit employees by changing the composition of the social insurance’s sub-contribution rates. However, equal level of increase and decrease in the above-mentioned sub-contribution rates payable by the employers for its employees at work, except ones on maternity leave, will not cause any change in the overall rate of social insurance contribution payable by the Company.

Pursuant to the amendments to the Law on Social Insurance (1994) in April 2017, the rate of the sub-contribution pension, which is a component of the social insurance contribution, payable by each of employee and employer has been approved to gradually increase from 7% to 9.5% of the salary income on an annual basis, and such increase will persist till 2020. Therefore, the overall rate of the social insurance contribution payable by employer will increase to 12.7% by January 1, 2020. Effective in 2019, such rate of social insurance contribution is 8.5% and applied to both the employers and the employees. However, there can be no assurance that such rate of contribution will not be further increased and therefore increase the Company’s salary cost.

Our ability to conduct our business activity in Mongolia is subject to political risk.

Our ability to efficiently conduct our business activities is subject to changes in government policy or shifts in political attitudes within Mongolia that are beyond our control. Government policy may change to discourage foreign investment, nationalization of mining industries may occur or other government limitations, restrictions or requirements not currently foreseen may be implemented. There can be no assurance that our assets will not be subject to nationalization, requisition or confiscation, whether legitimate or not, by any authority or body. The provisions under Mongolian law for compensation and reimbursement of losses to investors under such circumstances may not be effective to restore the value of our original investment. In addition, Mongolia may experience political instability. Such instability could have a material adverse effect on economic or social conditions in Mongolia and may result in outbreaks of civil unrest, terrorist attacks or threats or acts of war in the affected areas, any of which could materially and adversely affect our business, prospects, financial condition and results of operations.

Legislation in Mongolia may be subject to conflicting interpretations.

The Mongolian legal system exhibits several of the qualitative characteristics typically found in developing countries and many of its laws, particularly with respect to matters of taxation, are still evolving. The legal framework in Mongolia is, in many instances, based on recent political reforms or newly enacted legislation, which may not be consistent with long-standing local conventions and customs. Local institutions and bureaucracies responsible for administering laws may lack a proper understanding of the laws or the experience necessary to apply them in a modern business context. Many laws have been enacted, but in many instances they are neither understood nor enforced and may be applied in an inconsistent, arbitrary manner, while legal remedies may be uncertain, delayed or unavailable. A transaction or business structure that would likely be regarded under a more established legal system as appropriate and relatively straightforward might be regarded in Mongolia as outside the scope of existing Mongolian law, regulation or legal precedent. As a result, certain business arrangements or structures and certain tax planning mechanisms may carry significant risks. In particular, when business objectives and practicalities dictate the use of arrangements and structures that, while not necessarily contrary to settled Mongolian law, are sufficiently novel within a Mongolian legal context, it is possible that such arrangements may be invalidated. The legal system in Mongolia has inherent uncertainties that could limit the legal protections available to us, which include: (i) inconsistencies between laws; (ii) limited judicial and administrative guidance on interpreting Mongolian legislation; (iii) substantial gaps in the regulatory structure due to delay or absence of implementing regulations; (iv) the lack of established interpretations of new principles of Mongolian legislation, particularly those relating to business, corporate and securities laws; (v) a lack of judicial independence from political, social and commercial forces; and (vi) bankruptcy procedures that are not well developed and are subject to abuse.

The Mongolian judicial system has relatively little experience in enforcing the laws and regulations that currently exist, leading to a degree of uncertainty as to the outcome of any litigation. It may be difficult to obtain swift and equitable enforcement, or to obtain enforcement of a judgment by a court of another jurisdiction. In addition, while legislation has been enacted to protect private property against expropriation and nationalization, due to the lack of experience in enforcing these provisions and political factors, these protections may not be enforced in the event of an attempted expropriation or nationalization. Expropriation or nationalization of any of our assets, or portions thereof, potentially without adequate compensation, could materially and adversely affect our business, prospects, financial condition and results of operations.

Application of and amendments to legislation could adversely affect our mining rights or make it more difficult or expensive to develop our projects and continue mining.

The Government of Mongolia has, in the past, expressed its strong desire to foster, and has to date protected the development of, an enabling environment for investments in the mining sector. However, there are political constituencies within Mongolia that have espoused ideas that would not be regarded by the mining industry as conducive to investment if they were to become law or official government policy. There can be no assurance that the present government or a future government will refrain from enacting legislation or adopting government policies that are adverse to our interests or that impair our ability to develop and operate our UHG and BN mines or any other mine or asset in the future.

Mining operations in Mongolia are subject to extensive laws and regulations. These relate to production, development, exploration, exports, imports, taxes and royalties, labor standards, occupational health, waste disposal and re-processing, protection and remediation of the environment, mine safety, transportation safety and other matters. Compliance with these laws and regulations increases the costs of exploring, drilling, developing, constructing, operating and closing mines and other facilities. It is possible that the costs, delays and other effects associated with these laws and regulations may impact our decision as to whether to continue to proceed with the development of our UHG and BN mines. Since Mongolian legal requirements change frequently, are subject to interpretation and may be enforced to varying degrees in practice, we are unable to predict the ultimate cost of complying with these requirements or their effect on our operations. Although we believe our property ownership interests are valid and in accordance with all applicable rules and regulations, there can be no assurance that the underlying agreements, licenses or legislation upon which our property ownership interests is based will not be interpreted and enforced in a way that materially and adversely affects our rights and obligations. Furthermore, changes in governments, regulations and policies and practices could have an adverse impact on our future cash flows, earnings, results of operations and financial condition.

For example, in 2006, the Government of Mongolia enacted the 2006 Minerals Law. The 2006 Minerals Law preserves to a limited extent some of the substance of the former 1997 minerals legislation, which was drafted with the assistance of legal experts in the area of mining legislation and was widely regarded as progressive, internally consistent and effective. However, the 2006 Minerals Law contains new provisions that have increased the potential for political interference and weakened the rights and security of title holders of mineral licenses in Mongolia. Certain provisions of the 2006 Minerals Law are ambiguous and it is unclear how they will be interpreted and applied in practice. Examples of such provisions include those relating to the designation of a mineral deposit as a Mineral Deposit of Strategic Importance. See “– The Government of Mongolia could determine that any one or more of our projects in Mongolia is a Mineral Deposit of Strategic Importance and could take an equity, production, profit sharing or other interest in any of our projects.”

In addition, the introduction of new Mongolian laws and regulations and the interpretation of existing ones may be subject to policy changes reflecting domestic political or social changes. For example, on July 16, 2009, the Parliament enacted the Law on Prohibition of Exploration and Mining in Headquarters of Rivers, Protected Areas (the “Law on Mining Prohibition in Special Areas”) along with the Law on Implementation of the Law on Mining Prohibition in Special Areas and prohibited minerals exploration and mining operation in areas such as headwaters of rivers and lakes, forest areas as defined in the Forest Law of Mongolia and areas adjacent to rivers and lakes as defined in the Water Law of Mongolia. New exploration licenses and mining licenses overlapping with the defined prohibited areas will not be granted and previously granted licenses that overlap with the defined prohibited areas will be terminated within five months following the adoption of the Law on Mining Prohibition in Special Areas. From 2012 to 2015, the Government of Mongolia defined a portion of the boundaries of certain areas containing gold deposits where exploration and mining operations are prohibited, published a list of licenses that overlap with the prohibited area and approved respective compensation regulations. However, this caused a number of disputes and complaints with respect to the compensation amount and an overall lack of confidence among investors and instability in Mongolian mining sector. Following that, on February 18, 2015, the Parliament amended the Law on the Implementation of Law on Mining Prohibition in Special Areas and provided an option for license holders to continue their operations subject to undertaking a number of obligations in respect of protection and restoration of the environment. In particular, if a license holder wishes to continue its operations, it should submit a request to the MRPAM within three months from the effective date of the amendment (March 16, 2015) and enter into an agreement with the relevant Ministry in charge of environmental matters, MRPAM and the governor of the relevant province. If a mining license holder does not submit such request and enter into the necessary agreement, the mining license will be revoked and there will be no compensation payable to the license holder. If a mining license holder does not restore the mining area (after the project is completed), the costs for restoring the area are payable by the license holder taking into account the profits gained during the mining period. In light of this amendment, the 2006 Minerals Law has also been amended to state that a breach of the above-mentioned Law on Implementation of the Law on Mining Prohibition in Special Areas and/or the agreement entered into in accordance with such law shall constitute grounds for license revocation.

On June 17, 2010, the Parliament enacted the Law on Prohibition of Granting New Exploration Licenses which prohibited the granting of new exploration licenses until December 1, 2010. The prohibition was effective until July 1, 2014 (upon subsequent extensions made on February 9, 2011, April 30, 2011 and January 12, 2012). On July 1, 2014, however, Parliament resolved to invalidate this prohibition along with its approval of amendments to the 2006 Minerals Law. This amendment to the 2006 Minerals Law was made pursuant to the State Policy on Mineral Sector, which was approved by the Parliament on January 16, 2014.

There can be no assurance that future political and economic conditions in Mongolia will not result in the Government of Mongolia adopting different policies in relation to foreign development and ownership of mineral resources. Any such changes in government or policy may result in changes in laws affecting ownership of assets, environmental protection, labor relations, repatriation of income, return of capital, investment agreements, income tax laws, royalty regulation, government incentive and other areas, each of which may materially and adversely affect our ability to undertake exploration and development activities in the manner currently contemplated. Similarly, any restrictions imposed, or Government of Mongolian charges levied or raised (including royalty fees), under Mongolian law on the export of coal could harm our competitiveness.

Uncertainties regarding VAT reimbursement and possible revisions to the Mongolian royalty fee system could adversely affect our financial position.

VAT at a rate of 10% is payable in respect of all goods sold, work performed and services provided within Mongolia. VAT is also payable in respect of goods imported into Mongolia and in respect of certain service fee payments made by Mongolian taxpayers to non-resident service providers. If a legal entity is registered as a value-added taxpayer, it can obtain credits for such tax paid to its suppliers of goods and services and can use such credits to offset value-added, or other taxes owed in Mongolia. However, the Law on VAT provides certain conditions which can limit the ability of a legal entity to register as a value-added taxpayer. On July 21, 2009, the Parliament passed an amendment to the Law on VAT of Mongolia (the “Amendment”) pursuant to which only exported “finished mineral products” are subject to zero-rate VAT. Before the Amendment, there was no distinction between finished and unprocessed mineral products, and all mineral products that were exported were subject to zero-rate VAT regardless of their level of processing. As such, an exporter or producer of mineral products could have the VAT paid on its purchases of services and goods for its operation to produce exported minerals refunded. After the enactment of the Amendment, only finished (processed) mineral products are subject to zero-rate VAT, and sales of other minerals are exempted from the payment of VAT. An exporter or producer of mineral products, other than “finished mineral products” for export, is not entitled to have the VAT paid on the purchases of goods and services used for its mining operation refunded. As a result, operating costs of an exporter or producer of non-finished mineral products, which are types of mineral ores or unprocessed minerals will increase. The Amendment does not define what constitutes exported “finished mineral products”. Instead, it provides that the Government shall adopt a regulation on the list and category of the finished mineral products. On November 10, 2010, the Government issued Resolution No. 286 on the List of Final Mining Products, which included washed and processed coal, briquette and compressed coal generated from the coal and similar solid fuel, coal coke and semi-coke, and lignite coke and semi-coke. On July 9, 2015, the Parliament approved a revised version of the Law on VAT, which became effective from January 1, 2016. There are a number of changes made by the revised Law on VAT (2015), such as increasing revenue threshold for VAT payer registration from MNT10 million to MNT50 million, imposing VAT on all types of work and services imported to Mongolia, regardless of whether such work and services are performed and rendered within the territory of Mongolia, shortening the list of deductible from the VAT taxable amount by excluding taxes paid for imported or purchased goods, work and services for the purpose of establishment of fixed assets, and invalidating group VAT payers regime. Notwithstanding those changes, the zero-rate VAT regime on exported finished mining products remains effective and the Government continues to be entitled to define the list of finished mining products. On December 21, 2015, the Government issued Resolution No. 502 on the List of Final Mining Products, which continues to consider washed and processed coal, briquette and compressed coal generated from the coal and similar solid fuel, coal coke and semi-coke, and lignite coke and semi-coke as final mining products. However, no assurance can be given that the regulations concerning VAT will not be further changed or interpreted in a way, that could adversely affect us, or our processed coal will continue to be considered as a finished mining product.

As of December 31, 2016, 2017 and 2018, our VAT and other tax receivables were US\$16.5 million, US\$16.6 million and US\$39.3 million, respectively.

On November 25, 2010, the Parliament amended the 2006 Minerals Law. Effective from January 1, 2011, we pay a flat 5% royalty on the sale value of all extracted minerals that are sold, shipped for sale or otherwise used, and an additional royalty which is calculated based on the degree to which coal is processed. The additional royalty is based on the monthly comparative price stipulated on the website of the MMHI and is applied at a progressive rate. The level of the progressive royalty rate depends on the level of processing of the minerals. The more processed the minerals are, the lower the progressive royalty rate will be. For example, the progressive royalty rate for raw coal is from 1% to 5% if coal price is above the threshold price of US\$25 per tonne. If coal is processed, the progressive royalty rate will be lower, being 1% to 3%. See “Regulation – Mongolian Laws and Regulations Relating to Exploration for Minerals and Mining – Royalties.” We incurred US\$7.6 million, US\$23.3 million and US\$28.9 million as royalty to the Government of Mongolia for the years ended December 31, 2016, 2017 and 2018, respectively. There can be no assurance that the Government of Mongolia will not further increase royalty rates on and change the calculation methods for the sale value of extracted minerals.

Key decisions concerning foreign participation in the country's mining sector may have an adverse impact on the Mongolian economy.

The Mongolian economy depends heavily on commercial activity associated with the Mongolian mining industry. The development of mining laws and regulations in Mongolia continues to be at a nascent stage and is influenced by the interests of political parties, mining interests, domestic financial interests as well as the need to maintain the Mongolian mining industry as a commercially attractive choice for foreign investment. Laws governing Mongolia's mining industry, including provisions pertaining to Government participation in or control of certain projects as well as the royalties and other taxes payable by the mining industry, have historically been subject to periodic substantive revision by Parliament. For example, the Government has imposed a windfall profits tax on mining reserves and made changes to the basic royalty rate in order to replace lost tax revenues. In addition, the Investment Law requires investors with foreign (direct or indirect) state ownership of 50.0% or more to obtain approval from the Ministry of Finance when acquiring an interest of 33.0% or more in a company operating in certain strategic sectors. Furthermore, the Government executed the Mine Plan with Oyu Tolgoi LLC, Turquoise Hill and Rio Tinto in May 2015 to address funding and feasibility studies for Oyu Tolgoi and a project financing facility agreement for Oyu Tolgoi's Phase II was signed in December 2015. The development of underground mining at Oyu Tolgoi was approved in May 2016. Although the Government is significantly involved in major mining projects such as Oyu Tolgoi, recent legislative changes permitting the Government to transfer its equity interests in such projects in exchange for royalties has created uncertainties for investors in the mining sector. Future revisions to this legal regime may adversely impact foreign direct investment in Mongolia, and its mining industry in particular and in turn, the Mongolian economy could be materially adversely affected.

Emerging markets such as Mongolia are subject to greater risks than more developed markets, and are particularly vulnerable to fluctuations in the global economy.

The Mongolian market and the Mongolian economy are influenced by economic and market conditions in other countries. Moreover, financial turmoil in any emerging market country tends to adversely affect prices in capital markets of many emerging market countries, including Mongolia, as investors move their money to more stable, developed markets. As has happened in the past, financial problems or an increase in the perceived risks associated with investing in emerging economies could dampen foreign investment in Mongolia and adversely affect the Mongolian economy. A loss of investor confidence in the financial systems of other emerging markets may cause volatility in Mongolian financial markets and indirectly, in the Mongolian economy in general. Any worldwide financial instability could also have a negative impact on the Mongolian economy. This in turn could negatively impact the Mongolian economy, including the movement of exchange rates and interest rates in Mongolia. In addition, during such times, companies that operate in emerging markets can face severe liquidity constraints as foreign funding sources are withdrawn. Thus, even if the Mongolian economy remains relatively stable, financial turmoil in any emerging market country could seriously disrupt our business, as well as adversely affect trading in the Notes. Mongolia's inflation rate is also higher than some of the more developed economies. A further increase in Mongolia's inflation rate could materially and adversely impact our business, financial condition and results of operations.

Generally, investment in emerging markets is only suitable for sophisticated investors who fully appreciate the significance of the risks involved in, and are familiar with, investing in emerging markets. Investors should also note that emerging markets such as Mongolia are subject to rapid change and that the information set out in this Offering Memorandum may become outdated relatively quickly.

Weaknesses relating to the Mongolian legal system and Mongolian legislation create an uncertain environment for investment and business activity.

The legal system in Mongolia is at an early stage of development and has various uncertainties that could limit the full legal protections that may be available to holders of the Notes in more developed countries. The following risks relating to the Mongolian legal system create uncertainties, many of which rarely exist in countries with more developed market economies:

- inconsistencies among, or uncertainties in the application or official interpretation of, laws, decrees, orders and regulations, and regional and local rules and regulations, as a result of limited judicial guidance, lack of stare decisis or established precedents and other factors;

- limited judicial guidance on interpreting Mongolian legislation;
- gaps in the regulatory structure due to delay in, or absence of, implementing regulations;
- the lack of experience of judges and courts in interpreting new principles of Mongolian legislation, particularly those relating to securities laws;
- a relatively high degree of discretion on the part of governmental authorities; and
- bankruptcy procedures that are not well developed and are subject to abuse.

In general, the Mongolian judicial system is relatively inexperienced in enforcing the laws and regulations that currently exist, leading to a degree of uncertainty as to the outcome of any litigation. The Mongolian judicial system may also favour Mongolian parties over foreign companies and individuals. Further, it may be difficult to obtain swift and equitable enforcement, or to obtain enforcement of a judgment by a court of another jurisdiction. The introduction of new Mongolian laws and regulations and the application or interpretation of existing ones may be subject to policy changes reflecting domestic political or social changes. As the Mongolian legal system continues to develop, we cannot assure you that changes in such legislation or application or interpretation thereof will not have a material adverse effect on our business, financial condition, results of operations and future prospects.

In addition, while legislation has been enacted to protect private property against expropriation and nationalization, due to the lack of experience in enforcing these provisions and political factors, these protections may not be enforced in the event of an attempted expropriation or nationalization. Expropriation or nationalization of any of our businesses, our assets or portions thereof, potentially without adequate compensation, could have a material adverse effect on our business and prospects and on the trading price of the Notes.

Certain facts and statistics contained in this Offering Memorandum have come from official government sources or other industry publications, the reliability of which cannot be assumed or assured.

Certain facts and statistics in this Offering Memorandum related to Mongolia, its economy and the industries in which we operate, are derived directly or indirectly from official government sources generally believed to be reliable. While we have taken reasonable care to reproduce such information, we cannot guarantee the quality and reliability of such source material. These facts and statistics have not been independently verified by us, the Initial Purchasers or any of our or their respective affiliates or advisors or any other parties involved in this offering and, therefore, we make no representation as to the accuracy of such facts and statistics, which may not be consistent with other information compiled within or outside Mongolia and may not be complete or up-to-date. Due to possibly flawed or ineffective collection methods or discrepancies between published information and market practice, the facts and statistics in this Offering Memorandum may be inaccurate and the statistics may not be comparable to statistics produced for other economies. Further, there can be no assurance that they are stated or compiled on the same basis or with the same degree or accuracy as may be the case elsewhere. In all cases, investors should give consideration as to how much weight or importance they should attach to or place on all such facts and statistics.

Mongolia may experience political and social instability.

Since the collapse of communism in 1990, Mongolia has experienced a process of democratic change, resulting in political and social events that have highlighted the unpredictable nature of Mongolia's changing political landscape. Such events have resulted in political instability as well as general social and civil unrest on certain occasions in the past few years. Prior to 1990, Mongolia was a socialist country and the only functioning political party was the Mongolian People's Revolutionary Party (the "MPRP"). In March 1990, due to extended street protests carried out in public and popular demands for faster reform, the political bureau of the MPRP resigned. In May 1990, the constitution was amended, which removed the MPRP's role as the guiding force in the country, legalized opposition parties, created a standing legislative body and established the office of president.

The MPRP and the Democratic Party are two of the main political parties in Mongolia. The MPRP was the ruling party for the first half of the 1990s and was succeeded by the Democratic Party until it regained control of the Parliament in 2000. Following a political realignment in 2006, when a new coalition government was formed, the MPRP won the majority of seats in Parliament again in 2008. However, there were allegations of fraudulent practices in the elections made by the chairman of the Democratic Party. The Mongolian General Committee of Elections dismissed these allegations and confirmed that the MPRP had won the majority of seats in Parliament. The election results also triggered strong protests and riots and the Government declared a state of emergency, which was lifted after four days.

Although Mongolia's transition to democracy has been relatively peaceful and there is representation of various political parties in the Government, tension continues to exist between the governing coalition partners. We cannot assure you that events similar to those described above will not occur in the future and on a wider scale, or that such disturbances will not, directly or indirectly, have a material adverse effect on our business. Future changes in the Government, the ruling party, major policy shifts or lack of consensus between the various political groups could lead to political instability that could also have material adverse effect on our business. In addition, the possibility of political instability and uncertainty could adversely affect trading in the Notes and have a significant adverse impact on the economy of Mongolia, and investors may adopt a more cautious approach towards Mongolia's securities markets or investments in Mongolia in general, and such factors could adversely affect trading in the Notes.

Corruption and bribery are threats to Mongolia's economic growth and democratic governance.

Corruption and bribery are threats to Mongolia's economic growth and democratic governance. The Independent Authority Against Corruption has investigated, and is conducting ongoing investigations in relation to allegations of corruption, misuse of power, misappropriation of state funds and bribery against former Government officials. For example, there have been investigations of certain officials and individuals regarding the alleged misappropriations of shares of Erdenet Mining Corporation, which is partly owned by the Government. These alleged acts of corruption and bribery by Government officials could materially and adversely affect the Government, the Mongolian economy, the political environment and stability, negatively impact investor confidence and adversely affect trading in the Notes.

We may be subject to income tax stemming from transfer of shares by our largest shareholder.

In November 2017, the General Taxation Law, Law on Corporate Income Tax and Law on State Registration of Legal Entity were amended along with a number of other laws to introduce a new concept of "ultimate holder" for tax purposes. In the event of share transfer by the "ultimate holder" who simultaneously ceases to be the substantial shareholder of a company such as us, a 30% income tax would be imposed on such company based on the value of the mineral license or land rights held by the legal entity. The implementation of this tax regime is still uncertain. If it is implemented and such events unfold, our business, financial condition, results of operations maybe adversely affected. See "Risks Relating to Mongolia."

On March 22, 2019, the Parliament of Mongolia adopted certain amendments to taxation related laws with effect from January 1, 2020. Although the final version of the amendments has not yet been released, from the drafts submitted to the Parliament, it is understood that such tax rate is to be reduced to 10% and also a threshold is to be introduced to define "ultimate holder" as an individual or legal entity holding a 30% or more beneficial interest in a legal entity which holds certain types of rights (including, relevantly, minerals licenses and/or land rights). As such, we expect to amend our filings with the state registration and taxation authorities accordingly, by specifying that no individual has beneficial ownership meeting such criteria applicable to the transactions involving either or both of mining licenses and land rights. The final adoption of the amendments is subject to presidential veto, and there can be no assurance that the amendments will not be vetoed, or that the final amendments will conform to the draft amendments or that the law as finally adopted and implemented will conform to our expectations.

Risks Relating to the Notes and the Subsidiary Guarantee

Payments with respect to the Notes are structurally subordinated to liabilities, contingent liabilities and obligations of our subsidiaries that do not guarantee the Notes.

We are a holding company with no material operations. The Notes will not be guaranteed by certain current or future subsidiaries. Creditors, including trade creditors of non-guarantor subsidiaries and any holders of preferred shares in such entities, would have a claim on the assets of the non-guarantor subsidiaries that would be prior to the claims of holders of the Notes. As a result, our payment obligations under the Notes will be effectively subordinated to all existing and future obligations of our subsidiaries that do not guarantee the Notes, including their obligations under guarantees they have issued or will issue in connection with our business operations, and all claims of creditors of our non-guarantor subsidiaries will have priority as to the assets of such entities over our claims and those of our creditors, including holders of the Notes. As of December 31, 2018, our non-guarantor subsidiaries did not have any outstanding borrowings, capital commitments or contingent liabilities, however, there can be no assurance that our non-guarantor subsidiaries will not incur future indebtedness or contingent liabilities. The Notes and the indenture permit us, the guarantors and our non-guarantor subsidiaries to incur additional indebtedness and issue additional guarantees, subject to certain limitations.

The Issuers' secured creditors or those of any Subsidiary Guarantor would have priority as to the Issuers' assets or the assets of such Subsidiary Guarantor securing the related obligations over claims of holders of the Notes.

The Notes and the Subsidiary Guarantees will constitute unsubordinated obligations and will rank *pari passu* in right of payment with all other existing and future unsubordinated indebtedness and senior in right of payment to all subordinated indebtedness, if any. The Notes and each Subsidiary Guarantee will be issued as a general obligation of the Issuers. However, the Notes and the Subsidiary Guarantees will be effectively subordinated to any of the Issuers' or the Subsidiary Guarantors' secured obligations to the extent of the assets serving as security for such secured obligations. In bankruptcy, the holder of a security interest with respect to any assets of the Issuers or the Subsidiary Guarantors would be entitled to have the proceeds of such assets applied to the payment of such holder's claim before the remaining proceeds, if any, are applied to the claims of the holders of the Notes. As of the date of this Offering Memorandum, the Group has pledged (i) the Shared Collateral in connection with the 2022 Notes and (ii) the Shared Collateral, certain accounts and certain coal stockpiles in connection with the Senior Loan. The Issuers or the Subsidiary Guarantors may pledge additional collateral in the future.

We have substantial indebtedness and may incur substantial additional indebtedness in the future, which could adversely affect our financial health and our ability to generate sufficient cash to satisfy our outstanding and future debt obligations.

We now have, and will continue to have after the offering of the Notes, a substantial amount of indebtedness. Our total borrowings, including both current and non-current borrowings, as of December 31, 2018 were US\$436.2 million. See "Description of Other Material Indebtedness and Perpetual Securities". Our substantial indebtedness could have important consequences to you. For example, it could:

- limit our ability to satisfy our obligations under the Notes and other debt;
- increase our vulnerability to adverse general economic and industry conditions;
- require us to dedicate a substantial portion of our cash flow from operations to servicing and repaying our indebtedness, thereby reducing the availability of our cash flow to fund working capital, capital expenditures and for other general corporate purposes;
- limit our flexibility in planning for or reacting to changes in our businesses and the industry in which we operate;
- limit, along with the financial and other restrictive covenants of our indebtedness, our ability to borrow additional funds; and
- increase the cost of additional financing.

We may from time to time incur substantial additional indebtedness and contingent liabilities. Although the Indenture restricts us and our Restricted Subsidiaries from incurring additional debt and contingent liabilities, these restrictions are subject to important exceptions and qualifications. If we or our subsidiaries incur additional debt, the risks that we face as a result of our existing indebtedness and leverage could intensify.

Our ability to generate sufficient cash to satisfy our outstanding and future debt obligations will depend upon our future operating performance, which will be affected by prevailing economic conditions and financial, business and other factors, many of which are beyond our control. We anticipate that our operating cash flow will be sufficient to meet our anticipated operating expenses and to service our debt obligations as they become due. However, we may not generate sufficient cash flow for these purposes. If we are unable to service our indebtedness, we will be forced to adopt an alternative strategy that may include actions such as reducing or delaying capital expenditures, selling assets, restructuring or refinancing our indebtedness or seeking equity capital. These strategies may not be instituted on satisfactory terms, if at all.

In addition, the indenture prohibits us from incurring additional indebtedness unless (i) we are able to satisfy a certain financial ratio or (ii) we are able to incur such additional indebtedness pursuant to any of the exceptions to the financial ratio requirement, and meet any other applicable restrictions. Our ability to meet our financial ratio requirement may be affected by events beyond our control. We might not be able to meet this ratio. Such restrictions in the Notes and our other financing arrangements may impair our ability to react to changes in market conditions, take advantage of business opportunities we believe to be desirable, obtain future financing, fund required capital expenditures, or withstand a continuing or future downturn in our business. Any of these factors could materially and adversely affect our ability to satisfy our obligations under the Notes and other debt.

To service our indebtedness, the Issuers will require a significant amount of cash. The Issuers' ability to generate cash depends on many factors beyond our control.

The Issuers' ability to make payments on and to refinance their indebtedness, including these Notes, and to fund planned capital expenditures and project development will depend on their ability to generate cash. This, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond their control.

Our business might not generate cash flow from operations in an amount sufficient to enable the Issuers to pay their indebtedness, including the Notes, or to fund their other liquidity needs. The Issuers may need to refinance all or a portion of their indebtedness, including the Notes, on or before maturity. The Issuers might not be able to refinance any of their indebtedness on commercially reasonable terms or at all.

ER LLC may be required to list no less than 10% of its shares on the Mongolian Stock Exchange which would result in an event of default.

The 2006 Minerals Law contains provisions requiring any company which holds a Mineral Deposit of Strategic Importance to list no less than 10% of its shares on the Mongolian Stock Exchange. This particular provision of the 2006 Minerals Law has not yet been enforced and it is not clear how it will be enforced in practice. If it is enforced, we may be required to reduce our indirect shareholding percentage in ER LLC to 90.0% or less, which would result in an event of default.

Our subsidiaries are subject to restrictions on the payment of dividends and the repayment of intercompany loans or advances to us and our subsidiaries.

As a holding company, the Company depends on the receipt of dividends and the interest and principal payments on intercompany loans or advances from our subsidiaries to satisfy our obligations, including our obligations under the Notes. The ability of our subsidiaries to pay dividends and make payments on intercompany loans or advances to their shareholders is subject to, among other things, distributable earnings, cash flow conditions, restrictions contained in the articles of association of our subsidiaries, applicable laws and restrictions contained in the debt instruments of such subsidiaries. The Company and its subsidiaries are in compliance with the applicable laws and restriction contained in such debt instruments of such subsidiaries. See "Description of Other Material Indebtedness and Perpetual

Securities”. In addition, if any of our subsidiaries raises capital by issuing equity securities to third parties, dividends declared and paid with respect to such shares would not be available to us to make payments on the Notes. These restrictions or legal requirements could reduce the amounts that we receive from our subsidiaries, which would restrict our ability to meet our payment obligations under the Notes and the guarantees for the Notes.

Mongolian laws and regulations permit payment of dividends only out of accumulated profits as determined in accordance with Mongolian accounting standards and regulations and such profits differ from profits determined in accordance with IFRS in certain respects, including the use of different bases of recognition of revenue and expenses. Dividends paid by our Mongolian subsidiaries (i) to their Mongolian parent companies are subject to a 10% withholding tax and (ii) to non-Mongolian parent companies are subject to a 20% withholding tax, unless there is a tax treaty between Mongolia and the jurisdiction in which the non-Mongolian parent company is incorporated, which specifically exempts or reduces such withholding tax.

The double taxation treaty between Mongolia and Luxembourg is no longer in force, as a result of which any dividend paid by our Mongolian subsidiary to its Luxembourg parent company is subject to 20% withholding tax in Mongolia. Dividends and distributions from our Luxembourg subsidiaries are also subject to a 15% withholding tax under Luxembourg law. A reduction may apply under a tax treaty between Luxembourg and the jurisdiction in which the non-Luxembourg parent company is incorporated, which specifically exempts or reduces such withholding tax.

As a result of the foregoing, we may not have sufficient cash flow from dividends or payments on intercompany loans or advances from our subsidiaries to satisfy our obligations under the Notes or the obligations of the guarantors under the guarantees.

If we are unable to comply with the terms of the indenture or our existing or future debt agreements, there could be a default under those agreements, which could cause repayment of our debt to be accelerated.

If we are unable to comply with the terms in the indenture or our existing or future debt obligations and other agreements, there could be a default under those agreements. If that occurs, the holders of the debt could terminate their commitments to lend to us, accelerate repayment of the debt and declare all outstanding amounts due and payable or terminate the agreements, as the case may be. Furthermore, the indenture contains, and our future debt agreements are likely to contain, cross-acceleration or cross-default provisions. As a result, our default under one debt agreement may cause the acceleration of repayment of not only such debt but also other debt, including the Notes, or result in a default under our other debt agreements, including the indenture. If any of these events occur, our assets and cash flow might not be sufficient to repay in full all of our indebtedness and we might not be able to find alternative financing. Even if we could obtain alternative financing, it might not be on terms that are favorable or acceptable to us.

Our operations are restricted by the terms of the Notes, which could limit our ability to plan for or to react to market conditions or meet our capital needs, which could increase your credit risk.

The indenture includes a number of significant restrictive covenants. These covenants restrict, among other things, our ability, and the ability of our Restricted Subsidiaries, to:

- incur or guarantee additional indebtedness and issue disqualified or preferred stock, including, with respect to the Subsidiary Guarantors, layering of debt;
- make investments, capital expenditures or other specified restricted payments;
- declare dividends on capital stock or purchase or redeem capital stock;
- issue or sell capital stock of Restricted Subsidiaries;
- guarantee indebtedness of Restricted Subsidiaries;

- prepay or redeem subordinated debt or equity;
- sell, lease or transfer assets;
- create liens;
- enter into sale and leaseback transactions;
- engage in any business other than permitted business;
- enter into agreements that restrict the Restricted Subsidiaries' ability to pay dividends, transfer assets or make intercompany loans;
- enter into transactions with shareholders or affiliates; and
- effect a consolidation or merger.

These covenants could limit our ability to plan for or react to market conditions or to meet our capital needs. Our ability to comply with these covenants may be affected by events beyond our control, and we may have to curtail some of our operations and growth plans to maintain compliance.

The insolvency laws of the Cayman Islands and other local insolvency laws may differ from U.S. bankruptcy law or those of another jurisdiction with which holders of the Notes are familiar.

Because we and some of the guarantors are incorporated under the laws of the Cayman Islands, Hong Kong, Mongolia or Luxembourg, an insolvency proceeding relating to us or any such guarantor, even if brought in the United States, would likely involve Cayman Islands, Hong Kong, Mongolian or Luxembourg insolvency laws, the procedural and substantive provisions of which may differ from comparable provisions of United States federal bankruptcy law or other jurisdictions with which the holders of the Notes are familiar. We conduct substantially all of our business operations through Mongolian-incorporated subsidiaries in Mongolia. You should analyze the risks and uncertainties carefully before you invest in our Notes.

The Issuers may not be able to repurchase the Notes upon a change of control triggering event.

The Issuers must offer to purchase the Notes upon the occurrence of a change of control triggering event, at a purchase price equal to 101% of the principal amount plus accrued and unpaid interest. See "Description of the Notes". The source of funds for any such purchase would be their available cash or third-party financing. However, the Issuers may not have enough available funds at the time of the occurrence of any change of control triggering event to make purchases of outstanding Notes. The Issuers' failure to make the offer to purchase or purchase the outstanding Notes would constitute an event of default under the Notes. The event of default may, in turn, constitute an event of default under other indebtedness, any of which could cause the related debt to be accelerated after any applicable notice or grace periods. If their other debt were to be accelerated, the Issuers may not have sufficient funds to purchase the Notes and repay the debt.

In addition, the definition of change of control for purposes of the indenture does not necessarily afford protection for the holders of the Notes in the event of some highly leveraged transactions, including certain acquisitions, mergers, refinancing, restructurings or other recapitalizations, although these types of transactions could increase our indebtedness or otherwise affect our capital structure or credit ratings. The definition of change of control for purposes of the indenture also includes a phrase relating to the direct or indirect sale, lease, transfer, conveyance or other disposition of "all or substantially all" of the properties or their assets taken as a whole. Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition under applicable law. Accordingly, the Issuers' obligation to make an offer to purchase the Notes and the ability of a holder of the Notes to require the Issuers to purchase its Notes pursuant to the offer as a result of a highly-leveraged transaction or a sale of less than all of the Issuers' assets may be uncertain.

The liquidity and price of the Notes following the offering may be volatile.

The price and trading volume of the Notes may be highly volatile. Factors such as variations in our revenues, earnings and cash flows and proposals for new investments, strategic alliances and acquisitions, interest rates, the general state of the securities market and fluctuations in price for comparable companies could cause the price of the Notes to change. Any such developments may result in large and sudden changes in the trading volume and price of the Notes. We cannot assure you that these developments will not occur in the future.

A trading market for the Notes may not develop, and there are restrictions on resale of the Notes.

The Notes are a new issue of securities for which there is currently no trading market. Although we have received approval in-principle for listing the Notes on the SGX-ST, we cannot assure you that we will be able to obtain or maintain a listing on the SGX-ST and, even if listed, a liquid trading market might not develop. If no active trading market develops, you may not be able to resell your Notes at their fair market value or at all. Future trading prices of the Notes will depend on many factors, including prevailing interest rates, our operating results and the market for similar securities, which are beyond our control. We have been advised that the Initial Purchasers intend to make a market in the Notes, but the Initial Purchasers are not obligated to do so and may discontinue such market making activity at any time without notice. In addition, the Notes are being offered pursuant to exemptions from registration under the Securities Act and, as a result, you will only be able to resell your Notes in transactions that have been registered under the Securities Act or in transactions not subject to or exempt from registration under the Securities Act. See “Transfer Restrictions”. We cannot predict whether an active trading market for the Notes will develop or be sustained. If an active trading market for the Notes does not develop or is not sustained, the market price and liquidity of the Notes may be adversely affected.

The transfer of the Notes and the Subsidiary Guarantees is restricted, which may adversely affect their liquidity and the price at which they may be sold.

The Notes and the Subsidiary Guarantees have not been registered under, and the Issuers are not obligated to register the Notes or the Subsidiary Guarantees under, the Securities Act or the securities laws of any other jurisdiction and, unless so registered, may not be offered or sold except pursuant to an exemption from, or a transaction not subject to, the registration requirements of the Securities Act or the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”) and any other applicable laws. See “Plan of Distribution” and “Transfer Restrictions”. The Issuers have not agreed to or otherwise undertaken to register the Notes and the Subsidiary Guarantees with the SEC or the Monetary Authority of Singapore or the securities regulatory authority of any other jurisdiction, and the Issuers have no intention of doing so.

The ratings provisionally assigned to the Notes may be lowered or withdrawn.

The Notes have been provisionally assigned a rating of “B” by Fitch Ratings and “B-” by S&P. The ratings address our ability to perform our obligations under the terms of the Notes and credit risks in determining the likelihood that payments will be made when due under the Notes. In addition, MMC has been assigned a rating of “B” with a stable outlook by Fitch Ratings and “B-” with a stable outlook by S&P. A rating is not a recommendation to buy, sell or hold securities and may be subject to revision, suspension or withdrawal at any time. A rating might not remain for any given period of time and could be lowered or withdrawn entirely by the relevant rating agency. The Issuers have no obligation to inform holders of the Notes of any such revision, downgrade or withdrawal. A suspension, reduction or withdrawal at any time of the rating assigned to the Notes may adversely affect the market price of the Notes.

The Notes will initially be held in book-entry form, and therefore you must rely on the procedures of the relevant clearing systems to exercise any rights and remedies.

Unless and until definitive Notes (each a “**Definitive Registered Note**”) are issued in exchange for book-entry interests in the Notes (which will only occur in very limited circumstances), owners of the book-entry interests will not be considered owners or holders of Notes. The nominee for DTC will be the registered holder of the Notes. After payment to DTC, we, the Trustee, the Principal Paying Agent, the Transfer Agent, and the Registrar will have no responsibility or liability for the payment of interest, principal

or other amounts to the owners of book-entry interests. Accordingly, if you own a book-entry interest, you must rely on the procedures of DTC, as applicable, and if you are not a participant in DTC, on the procedures of the participant through which you own your interest, to exercise any rights and obligations of a holder under the Indenture. See “Description of the Notes – Book-Entry; Delivery and Form.”

Unlike holders of the Notes themselves, owners of book-entry interests will not have the direct right to act upon our solicitations for consents or other actions from holders of the Notes. Instead, if you own a book-entry interest, you will be permitted to act only to the extent you have received appropriate proxies to do so from DTC or, if applicable, from a participant. We cannot assure you that procedures implemented for the granting of such proxies will be sufficient to enable you to vote on any requested actions on a timely basis.

Similarly, upon the occurrence of an event of default under the Indenture, unless and until Definitive Registered Notes are issued in respect of all book-entry interests, if you own a book-entry interest, you will be restricted to acting through Euroclear or Clearstream. We cannot assure you that the procedures to be implemented through DTC will be adequate to ensure the timely exercise of rights under the Notes.

The Issuers will follow the applicable corporate disclosure standards for debt securities listed on the SGX-ST, which standards may be different from those applicable to debt securities listed in certain other countries.

The Issuers will be subject to reporting obligations in respect of the Notes to be listed on the SGX-ST. The disclosure standards imposed by the SGX-ST may be different from those imposed by securities exchanges in other countries such as the United States or Hong Kong. As a result, the level of information that is available may not correspond to what investors in the Notes are accustomed to.

Certain transactions that constitute “connected transactions” under the Listing Rules will not be subject to the “Limitation on Transactions with Shareholders and Affiliates” covenant in the Description of the Notes.

Our shares are listed on the Hong Kong Stock Exchange and we are required to comply with the Listing Rules, which provide, among other things, that a “connected transaction” exceeding the applicable de minimis value thresholds will require certain procedures requirements to be completed or approvals to be obtained. However, the “Limitation on Transactions with Shareholders and Affiliates” covenant set forth in the “Description of the Notes” does not capture transactions between the Company or any Restricted Subsidiary, on the one hand, and an Affiliate of any Restricted Subsidiary, on the other hand. As a result, we are not required by the terms of the Notes to ensure that any such transactions are on terms that are fair and reasonable, and we will not need to deliver officer’s certificates or procure the delivery of fairness opinions of accounting, appraisal or investment banking firms to the trustee of the Notes for any such transactions.

Disclosure standards that apply to us may differ from those in the United States or other jurisdictions.

Our consolidated financial information is prepared in accordance with IFRS, which differs in certain respects from U.S. GAAP. As a result, our consolidated financial information and reported earnings could be significantly different if they were prepared in accordance with U.S. GAAP. We have made no attempt to quantify the impact of those differences. This Offering Memorandum does not contain reconciliation of our consolidated financial information to U.S. GAAP, and there is no assurance that such reconciliation would not reveal material differences. Potential investors should consult their own professional advisors for an understanding of the differences between IFRS and U.S. GAAP, and how these differences might affect the financial information herein. In addition, our shares are listed on the Hong Kong Stock Exchange. There may be less publicly available information about us than is regularly made available by public companies listed on certain other stock exchanges.

We cannot assure you that a guarantee issued by Mongolian company in favour of a parent company will not be challenged or will not have its enforceability impaired.

Few Mongolian-incorporated companies have participated in international financing transactions, especially transactions where a Mongolian company has provided a guarantee with respect to the payment obligations of its offshore parent company. Furthermore, the Mongolian legal system is young and exhibits several of the characteristics typically found in a developing country and its judicial system has relatively little experience in enforcing the laws and regulations that currently exist. See “Risks Relating to Mongolia – Legislation in Mongolia may be subject to conflicting interpretations” and “Risks Relating to Mongolia – Weaknesses relating to the Mongolian legal system and Mongolian legislation create an uncertain environment for investment and business activity”. There can be no assurance that a guarantee provided by a Mongolian entity will not be voided or claims in respect of a guarantee provided by a Mongolian entity will not be subordinated to other debt of that entity whether pursuant to law or governmental or judicial mandate. See “– The guarantees may be challenged under applicable bankruptcy, fraudulent transfer insolvency or similar laws, which could impair the enforceability of the guarantees”.

If a court voids a guarantee, subordinates such guarantee to other indebtedness of the guarantor, or holds the guarantee unenforceable for any other reason, holders of the Notes would cease to have a claim against that guarantor based upon such guarantee, would be subject to the prior payment of all liabilities (including trade payables) of such guarantor, and would solely be creditors of us and any guarantors whose guarantees have not been voided or held unenforceable. In such an event, after providing for all prior claims, there might not be sufficient assets to satisfy the claims of the holders of the Notes.

The guarantees may be challenged under applicable bankruptcy, fraudulent transfer, insolvency or similar laws, which could impair the enforceability of the guarantees.

Under bankruptcy, fraudulent transfer, insolvency or similar laws in Hong Kong, Luxembourg or Mongolia and other jurisdictions where future guarantors may be established, a guarantee could be voided, or claims in respect of a guarantee could be subordinated to all other debts of that guarantor if, among other things, the guarantor, at the time it incurred the indebtedness evidenced by, or when it gives, its guarantee:

for guarantors incorporated in Mongolia:

- was liquidated by a court decision due to bankruptcy based on voluntary or involuntary insolvency;
- was liquidated or reorganized due to intentional arrangement between guarantor and obligor prior to the obligation term, or liquidated on grounds provided by other laws;
- became insolvent even if not liquidated or bankrupt;
- had its license revoked, pledged or suspended, or had guarantor’s assets sealed or confiscated due to the guarantor’s illegal action or based a government organization decision;
- fraudulently appeared to be financially insolvent;
- was unable to fulfill its obligation due to the occurrence of conditions that makes the issuance of the guarantee impossible (if stated in the guarantee agreement); or
- was unable to fulfill its obligation due to the occurrence of other conditions (such as change of laws and regulations and consequences caused by force majeure events).

for guarantors incorporated in other jurisdictions:

- incurred the debt with the intent to hinder, delay or defraud creditors or was influenced by a desire to put the beneficiary of the guarantee in a position which, in the event of the guarantor’s insolvency, would be better than the position the beneficiary would have been in had the guarantee not been given;

- received less than reasonably equivalent value or fair consideration for the incurrence of such guarantee;
- was insolvent or rendered insolvent by reason of the incurrence of such guarantee;
- was engaged in a business or transaction for which the guarantor's remaining assets constituted unreasonably small capital; or
- intended to incur, or believed that it would incur, debts beyond its ability to pay such debts as they mature.

In addition, for guarantors or collateral providers incorporated in Luxembourg:

The insolvency laws of Luxembourg may not be as favorable to holders of the Notes as insolvency laws of jurisdictions with which investors may be familiar. For any Subsidiary Guarantor incorporated and having its center of main interests in Luxembourg, insolvency proceedings with respect to that Subsidiary Guarantor may proceed under, and be governed by, Luxembourg insolvency laws. The following is a brief description of certain aspects of insolvency laws in Luxembourg.

Under Luxembourg law, the following types of proceedings (altogether referred to as insolvency proceedings) may be opened against a company incorporated in Luxembourg having center of main interests within the meaning of Regulation (EU) 2015/848 of the European Parliament and of the Council of 20 May 2015 on insolvency proceedings (the "EU Insolvency Regulation") (respectively its central administration, if different, and if the center of main interest is located in a jurisdiction where the EU Insolvency Regulation is not applicable) or an establishment in Luxembourg (in latter case assuming that the center of main interests is located in a jurisdiction where the EU Insolvency Regulation is applicable):

- bankruptcy proceedings, the opening of which may be requested by the company, by any of its creditors or by the courts ex officio. Following such a request, the Luxembourg courts having jurisdiction may open bankruptcy proceedings if the company: (i) is in a state of cessation of payments and (ii) has lost its creditworthiness. The main effect of such proceedings is the suspension of all measures of enforcement against the company, except, subject to certain limited exceptions, for enforcement by secured creditors and the payment of the secured creditors in accordance with their rank upon realization of the assets. In addition, the managers or directors of a Luxembourg company that ceases its payments (i.e. is unable to pay its debts as they fall due with normal means of payment) must within a month of them having become aware of the company's cessation of payments, file a petition for bankruptcy with the court clerk of the district court of the company's registered office. If the managers or directors fail to comply with such provision they may incur civil and/or criminal liability;
- controlled management proceedings, the opening of which may only be requested by the company and not by its creditors and under which a Luxembourg court may order provisional suspension of payments, including a stay of enforcement of claims by secured creditors; or
- composition proceedings, the opening of which may only be requested by the company (subject to obtaining the consent of the majority of its creditors) and not by its creditors themselves. The Luxembourg court's decision to admit a company to the composition proceedings triggers a provisional stay on enforcement of claims by creditors.

In addition to these proceedings, the ability of a holder of the Notes to call the guarantee may be affected by a decision of a Luxembourg court to grant a stay on payments or to put a Luxembourg company into judicial liquidation. Judicial liquidation proceedings may be opened at the request of the public prosecutor against companies pursuing an activity violating criminal laws or that are in serious breach or violation of the Luxembourg Commercial Code or of the Luxembourg law dated August 10, 1915 on commercial companies, as amended. The management of such liquidation proceedings will generally follow similar rules as those applicable to Luxembourg insolvency proceedings.

Liability of the Luxembourg companies in respect of the guarantee will, in the event of a liquidation of the company following bankruptcy or judicial liquidation proceedings, only rank after the cost of liquidation (including any debt incurred for the purpose of such liquidation) and any claims that are preferred under Luxembourg law. Preferential claims under Luxembourg law include, among others:

- liquidation or insolvency fees;
- certain amounts owed to the Luxembourg Revenue and value-added tax and other taxes and duties owed to the Luxembourg Customs and Excise;
- social security contributions; or
- remuneration owed to employees.

Assets over which a security interest has been granted will not, in principle, be available for distribution to unsecured creditors (except after enforcement and to the extent a surplus is realized).

Favorable rules apply in relation to security interests of claims or financial instruments securing monetary claims (or claims for the delivery of financial instruments). Article 20 of the Luxembourg law dated August 5, 2005 on financial collateral arrangements as amended (the “Luxembourg Collateral Law”) provides that all Luxembourg law collateral arrangements (pledges, security assignments and repo agreements) over claims and financial instruments, as well as all enforcement measures and valuation and enforcement measures agreed upon by the parties in accordance with this law, are valid and enforceable even if entered into during the hardening period against third parties, commissioners, receivers, liquidators and other similar persons notwithstanding the opening of insolvency or similar proceedings (save in the case of fraud).

Article 21(2) of the Luxembourg Collateral Law provides that, where a financial collateral arrangement has been entered into after the opening of liquidation proceedings or the coming into force of reorganization measures or the entry into force of such measures, such arrangement is enforceable against third parties, administrators, insolvency receivers, liquidators and other similar organs if the collateral taker proves that it was unaware of the fact that such proceedings had been opened or that such measures had been taken or that it could not reasonably be aware of it.

Article 24 of the Luxembourg Collateral Law provides that foreign law security interests over claims or financial instruments granted by a Luxembourg security provider will be valid and enforceable as a matter of Luxembourg law notwithstanding any Luxembourg insolvency proceedings, if such foreign law security interests are similar in nature to a Luxembourg security interest falling within the scope of the Luxembourg Collateral Act 2005. If Article 24 applies, Luxembourg suspect period rules do not apply (save the case of fraud).

During insolvency proceedings in Luxembourg, all enforcement measures by unsecured creditors are suspended. Other than as described above, the ability of certain secured creditors to enforce their security interest may also be limited, in particular in the event of controlled management proceedings providing expressly that the rights of secured creditors are frozen until a final decision has been taken by a Luxembourg court as to the petition for controlled management, and may be affected thereafter by a reorganization order given by the court. A reorganization order requires the prior approval by more than 50% of the creditors representing more than 50% of the relevant Luxembourg company’s liabilities in order to take effect. Furthermore, declarations of default and subsequent acceleration (such as acceleration upon the occurrence of an event of default) may not be enforceable during controlled management proceedings.

- Luxembourg insolvency laws may affect transactions entered into, or payments made, by a Luxembourg company during the suspect period which is a maximum of six months preceding the judgment declaring bankruptcy, except that in certain specific situations the court may set the start of the suspect period at the ten days preceding it. In particular:
 - some specific transactions (in particular, the granting of a security interest for antecedent debts, save in respect of financial collateral arrangements within the meaning of the Luxembourg law on financial collateral arrangements of August 5, 2005 (as amended); the payment of debts which have not fallen due, whether payment is made in cash or by way of

assignment, sale, set-off or by any other means; the payment of debts which have fallen due by any means other than in cash or by bill of exchange; the sale of assets without consideration or with substantially inadequate consideration) entered into during the suspect period must be set aside or declared null and void, if so requested by the insolvency receiver;

- payments made for matured debts as well as other transactions concluded for consideration during the suspect period are subject to cancellation by the court upon proceedings instituted by the insolvency receiver if they were concluded with the knowledge of the bankrupt's cessation of payments; and
 - the insolvency receiver (acting on behalf of the creditors) has the right to challenge any fraudulent payments and transactions, including the granting of security with an intent to defraud, made prior to the bankruptcy, without any time limit.
- Insolvency proceedings may hence have a material adverse effect on the relevant Luxembourg company's business and assets and the Luxembourg company's respective obligations under the Notes.
 - Finally, international aspects of Luxembourg insolvency proceedings may be subject to the EU Insolvency Regulation. In particular, rights in rem over assets located in another jurisdiction where the EU Insolvency Regulation is applicable will not be affected by the opening of insolvency proceedings, without prejudice however to the applicability of rules relating to the voidness, voidability or unenforceability of legal acts detrimental to all the creditors (subject to the application of Article 24 of the Luxembourg Collateral Law as described above and Article 13 of the EU Insolvency Regulation).

The measure of insolvency for purposes of the foregoing discussion of the legal regimes of Hong Kong, Luxembourg, Mongolia and other jurisdictions will vary depending on the laws of the applicable jurisdiction. Generally, however, a guarantor would be considered insolvent at a particular time if it were unable to pay its debts as they fell due or if the sum of its debts was then greater than all of its properties at a fair valuation or if the present fair saleable value of its assets was then less than the amount that would be required to pay its probable liabilities in respect of its existing debts as they became absolute and matured.

In addition, a guarantee may be subject to review under applicable bankruptcy, fraudulent transfer, insolvency or similar laws in certain jurisdictions or subject to a lawsuit by or on behalf of creditors of the guarantor. In such case, the analysis set forth above would generally apply, except that the guarantee could also be subject to the claim that, since the guarantee was not incurred for the benefit of the guarantor, the obligations of the guarantor thereunder were incurred for less than reasonably equivalent value or fair consideration.

In an attempt to limit the applicability of bankruptcy, fraudulent transfer, insolvency and other laws in certain jurisdictions, the obligations of the guarantors under the guarantees will be limited to the maximum amount that can be guaranteed by the applicable guarantor without rendering the guarantee, as it relates to such guarantor, voidable under such applicable bankruptcy, fraudulent transfer, insolvency or similar laws.

If a court voids a guarantee, subordinates such guarantee to other indebtedness of the guarantor, or holds the guarantee unenforceable for any other reason, holders of the Notes would cease to have a claim against that guarantor based upon such guarantee, would be subject to the prior payment of all liabilities (including trade payables) of such guarantor, and would solely be creditors of us and any guarantors whose guarantees have not been voided or held unenforceable. In such an event, after providing for all prior claims, there might not be sufficient assets to satisfy the claims of the holders of the Notes.

Corporate benefit, capital maintenance laws and other limitations on the Subsidiary Guarantees may adversely affect the validity and enforceability of the Subsidiary Guarantees.

The laws of certain of the jurisdictions in which the Subsidiary Guarantors are incorporated, including Luxembourg, may limit their ability to guarantee the debt of a parent or sister company. These limitations arise from principles of corporate law, which include rules governing capital maintenance, under which, among others, the risks associated with the guaranteeing a parent or sister company's debt need to be reasonably, economically and operationally appreciated in the global context of the case and in a perspective of continuity from the Subsidiary Guarantor's perspective, as well as financial assistance, thin capitalization and fraudulent transfer principles. If these limitations were not considered, observed or justified, the guarantees by those Subsidiary Guarantors could be subject to legal challenge and be declared invalid. In these jurisdictions, the Subsidiary Guarantees usually contain language limiting the amount of debt that can be guaranteed by the relevant Subsidiary Guarantor to mitigate the risk of legal challenge, which could cause the Guarantee to be voidable or otherwise ineffective under applicable laws. In Luxembourg, the granting of a guarantee in absence of sufficient corporate benefit for the guarantor may constitute a misappropriation of corporate assets and the law makes it a criminal offense. See "Description of the Notes – The Subsidiary Guarantees".

The amount recoverable under the Subsidiary Guarantees may be limited to a certain maximum amount that can be guaranteed by a particular Subsidiary Guarantor without rendering such Subsidiary Guarantee, as it relates to such Subsidiary Guarantor, voidable or otherwise ineffective under applicable law, or without creating liability risks for its management.

Our Subsidiary Guarantors may not have the funds necessary to satisfy our financial obligations under the Subsidiary Guarantees.

Certain of our current and future subsidiaries will not provide any guarantee for the Notes now or at any time in the future. As a result, the Notes will be effectively subordinated to all the debt and other obligations, including contingent obligations and trade payables, of such non-guarantor subsidiaries.

We cannot assure you that the initial guarantors or any subsidiaries that may become guarantors in the future will have the funds necessary to satisfy our financial obligations under the Notes if the Issuers are unable to do so.

The guarantees from the Subsidiary Guarantors will be shared on a pari passu basis with the other creditors.

The proceeds from the enforcement of the guarantees from the Subsidiary Guarantors will be shared on a *pari passu* basis among the holders of the Notes, the finance parties under the Senior Loan and may be shared on a *pari passu* basis with other indebtedness ranking *pari passu* with the Notes that the Issuers may issue or incur in the future. Accordingly, in the event of a default on the Notes, the Senior Loan or such other indebtedness and an enforcement of such guarantees, any proceeds so recovered would be shared by the holders of such indebtedness in proportion to the outstanding amounts of each class of such indebtedness. Since certain of the Subsidiary Guarantors are holding companies with no substantial assets, the proceeds of recovery resulting from such enforcement are likely to be insufficient to discharge the obligations under the Notes, the Senior Loan and other *pari passu* indebtedness.

The Trustee may request that the Noteholders provide an indemnity and/or security and/or prefunding to its satisfaction before taking certain actions on behalf of the Noteholders.

In certain circumstances, the Trustee may (at its sole discretion) request the Noteholders to provide an indemnity and/or security, and/or prefunding to its satisfaction before it takes action on behalf of Noteholders. The Trustee shall not be obliged to take any such action if not indemnified and/or secured, and/or prefunded to its satisfaction. Negotiating and agreeing to any indemnity and/or security, and/or prefunding can be a lengthy process and may impact on when such action can be taken. The Trustee may not be able to take action notwithstanding the provision of an indemnity or security or prefunding to it, in breach of the terms of the indenture (as subsequently supplemented and/or amended) governing the Notes and in circumstances where there is uncertainty or dispute as to the applicable laws or regulations and, to the extent permitted by the agreements and the applicable law, it will be for the holders of Notes to take such actions directly.

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the Notes (after discounts and commissions of the initial purchasers, but excluding general expenses payable by us in respect of this offering) will be approximately US\$435.6 million. We intend to use the net proceeds from this offering to pay the tender price of the 2022 Notes tendered in connection with the 2022 Notes Tender Offer and the Perpetual Securities tendered in connection with the Perpetual Securities Tender Offer, plus all related fees and expenses incurred. For more information about the Tender Offers, see “Summary – Recent Developments – Concurrent Transactions.” Any remaining funds are expected to be used by us for general corporate purposes, including to repay our indebtedness.

This Offering Memorandum is neither an offer to purchase nor a solicitation of an offer to sell or buy the 2022 Notes or Perpetual Securities. Any offer to purchase the 2022 Notes or Perpetual Securities will be made solely on the terms and subject to the conditions set forth in a separate offer to purchase memorandum that will be directed to holders of the 2022 Notes and Perpetual Securities.

EXCHANGE RATES AND EXCHANGE CONTROLS

This Offering Memorandum contains translations of Togrog amounts into U.S. dollar amounts at specific exchange rates solely for the convenience of the reader. For convenience only and unless otherwise noted, all translations from Togrogs into U.S. dollars in this Offering Memorandum were made at the rate of MNT2,638.00 to US\$1.00, which translation represents the basic exchange rate published by Bloomberg on December 31, 2018. On March 15, 2019 the translation of Togrogs into U.S. dollars published by Bloomberg was MNT2,631.68 to US\$1.00.

The following table sets forth the mid-closing exchange rates from Bloomberg, in Togrogs per US\$1.00, as of and for each of the periods indicated:

Period	Mid-Closing Exchange Rate			Period End
	Low ⁽²⁾	Average ⁽¹⁾	High ⁽²⁾	
	<i>(MNT per US\$1.00)</i>			
2013	1,387.00	1,532.74	1,744.25	1,663.00
2014	1,660.00	1,818.92	1,895.00	1,888.50
2015	1,858.50	1,972.13	1,995.50	1,993.00
2016	1,937.50	2,162.56	2,487.00	2,487.00
2017	2,349.50	2,434.64	2,497.00	2,427.16
2018	2,390.00	2,481.17	2,639.26	2,639.26
2019				
January	2,627.18	2,646.79	2,663.87	2,627.18
February	2,625.86	2,629.20	2,635.69	2,630.33
March (until March 14, 2019)	2,629.95	2,632.34	2,634.28	2,631.68

(1) Determined by averaging the rates on the last business day of each month during the relevant period for annual periods and each business day for monthly periods.

(2) The high and low figures for each period are determined based on the daily middle exchange rates during the period indicated.

Exchange Controls

There are no restrictions on repatriation of foreign currencies from Mongolia and there are no foreign exchange controls. Foreign currency is generally freely transferable within or from Mongolia. Foreign exchange policy is under the supervision of the Bank of Mongolia and the Financial Regulatory Commission and is subject to modification.

CAPITALIZATION AND INDEBTEDNESS

The following table sets forth our borrowings, equity and capitalization as of December 31, 2018:

- on an actual basis under IFRS; and
- as adjusted to give effect to the issuance of the Notes and the application of the net proceeds from this offering to pay (i) the tender price of the 2022 Notes tendered in the 2022 Notes Tender Offer (assuming US\$303,176,000 principal amount of 2022 Notes tendered, which is the amount for which we received indications of interest from holders of the 2022 Notes as disclosed in the amended terms of the 2022 Notes Tender Offer) and (ii) the tender price of the Perpetual Securities tendered in the Perpetual Securities Tender Offer (assuming US\$23,870,120 principal amount of Perpetual Securities tendered, which is the amount of Perpetual Securities tendered as of the Early Tender Deadline for the Perpetual Securities Tender Offer).

The as adjusted information below is illustrative only and does not take into account any changes in our borrowings and capitalization after December 31, 2018.

	At December 31, 2018	
	Actual	As adjusted
	US\$'000	US\$'000
Current borrowings:		
Current borrowings ⁽¹⁾	25,065	25,065
Total current borrowings	25,065	25,065
Non-current borrowings:		
Senior notes ⁽²⁾	451,711	119,689
Notes to be issued ⁽³⁾	—	435,600
Total non-current borrowings	451,711	555,289
Equity:		
Perpetual Securities ⁽⁴⁾	75,897	66,606
Total equity	817,261	807,970
Total capitalization⁽⁵⁾	1,268,972	1,363,259

Notes:

- (1) Current borrowings also include the current portion of long-term debt. The value presented is inclusive of the fair value of derivative components of the Senior Loan, including interest rate linked to the benchmark coal price index as at the balance sheet date.
- (2) The value presented is inclusive of the fair value of derivative components of the 2022 Notes, including interest rate linked to the benchmark coal price index and cash sweep premium, as at the balance sheet date. We have assumed that the Company will use proceeds from the New Notes issuance to purchase US\$303,176,000 principal amount of 2022 Notes, which principal amount has been adjusted pro-rata against the corresponding accounting fair value to determine the “As Adjusted” amount set forth above.
- (3) Estimated net proceeds after deducting for commissions payable to the initial purchasers, but excluding general expenses payable by us in respect of this offering.
- (4) Represents the fair value of the Perpetual Securities as shown on our consolidated financial statements. We have assumed that the Company will use proceeds from the New Notes issuance to purchase US\$23,870,120 principal amount of Perpetual Securities, which principal amount has been adjusted pro-rata against the corresponding accounting fair value to determine the “As Adjusted” amount set forth above.
- (5) Total capitalization includes total equity and total non-current borrowings.

The assumptions set forth in this table above with respect to the principal amount of each of the 2022 Notes and the Perpetual Securities tendered and purchased with the net proceeds from this offering are estimates only and depend on several factors including, but not limited to, market conditions, investor interest and available financing. The actual principal amounts of 2022 Notes and Perpetual Securities tendered and purchased on the applicable settlement dates as specified in and pursuant to the respective terms of the 2022 Notes Tender Offer and the Perpetual Securities Tender Offer may be significantly different from the assumed principal amounts set forth in the table above.

Except as disclosed above, there has been no material change in our capitalization since December 31, 2018.

SELECTED HISTORICAL CONSOLIDATED FINANCIAL INFORMATION AND OTHER DATA

The following selected consolidated statement of comprehensive income data and selected consolidated statement of cash flow for the years ended December 31, 2016, 2017 and 2018 and the selected consolidated balance sheet data as of December 31, 2016, 2017 and 2018 set forth below have been derived from our consolidated financial statements which have been prepared in accordance with IFRS. You should read the selected historical financial information below in conjunction with our financial statements and the accompanying notes included in this Offering Memorandum.

Summary consolidated statement of profit or loss and other comprehensive income data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except earnings per share)</i>		
Revenue	120,028	476,364	590,710
Cost of revenue	(120,346)	(273,797)	(360,310)
Gross (loss)/profit	(318)	202,567	230,400
Other cost	(2,808)	(862)	(986)
Other net income/(loss)	4,116	(1,984)	2,146
Selling and distribution costs	(17,654)	(56,631)	(61,410)
General and administrative expenses	(13,133)	(19,097)	(16,458)
(Loss)/Profit from operations	(29,797)	123,993	153,692
Finance income	1,186	48	134
Finance costs	(122,705)	(51,053)	(55,529)
Net finance costs	(121,519)	(51,005)	(55,395)
Gain from Debt Restructuring	–	262,968	–
Share of (losses)/profit of associates	(5)	163	171
Share of losses of joint venture	(21)	–	(8)
(Loss)/Profit before taxation	(151,342)	336,119	98,460
Income tax	(2,650)	(25,813)	(16,050)
(Loss)/Profit for the year	(153,992)	310,306	82,410
Attributable to			
Equity shareholders of the Company	(154,248)	311,013	82,773
Non-controlling interests	256	(707)	(363)
Other comprehensive income for the year			
Exchange differences on re-translation	(47,504)	21,698	(36,676)
Surplus on revaluation of plants, buildings, and machinery and equipment	341,819	–	–
Total comprehensive income for the year	140,323	332,004	45,734
(Loss)/Profit attributable to the equity shareholders of the Company	(154,248)	311,013	82,773
Total comprehensive income attributable to the equity shareholders of the Company	140,067	332,711	46,097
Basic (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents
Diluted (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents

Summary consolidated statement of financial position

	As of December 31,		
	2016	2017	2018
		<i>(in US\$'000)</i>	
Total non-current assets	1,463,062	1,484,669	1,483,460
Total current assets	113,331	146,763	234,508
Total assets	1,576,393	1,631,432	1,717,968
Total current liabilities	1,035,157	234,530	290,351
Total non-current liabilities	209,927	626,052	610,356
Total liabilities	1,245,084	860,582	900,707
Total equity attributable to equity shareholders of the Company	330,711	770,959	817,733
Non-controlling interests	598	(109)	(472)
Total liabilities and shareholders' equity	1,576,393	1,631,432	1,717,968

Summary consolidated cash flow data

	Year ended December 31,		
	2016	2017	2018
		<i>(in US\$'000)</i>	
Net cash generated from operating activities	29,350	95,620	158,600
Net cash generated from/(used in) investing activities	44,262	(82,883)	(89,373)
Net cash used in from financing activities	(61,561)	(17,767)	(43,028)

Other financial data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except otherwise indicated)</i>		
Adjusted EBITDA ⁽¹⁾	7,013	177,071	218,299
Adjusted EBITDA margin ⁽²⁾	5.8%	37.2%	37.0%

Notes:

- (1) We calculate Adjusted EBITDA by adding income tax, share of losses profit/(loss) of associates and joint venture, net finance costs, gain from the Debt Restructuring, depreciation and amortization and allowance for doubtful debts, impairment loss on trade and other receivables non-financial assets, provision losses on coal inventories, gain on disposal of property, plant and equipments and assets held for sale, equity-settled share-based payment expenses, and employee benefit accrued equity-settled share-based payment expenses, accrued employee benefit and subtracting share profits of associates, gain on disposal of property, plant and equipment, finance income from profit attributable to the equity shareholders of the Company for the year as calculated under IFRS. We have included Adjusted EBITDA data because such data is commonly used by investors to measure a company's ability to service debt. Adjusted EBITDA is not, and should not be used as, an indicator or alternative to profit from operations, profit for the year or cash flow as reflected in our consolidated financial statements, is not intended to represent funds available for debt service, dividends or other discretionary uses, is not a measure of financial performance under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. Investors should not compare Adjusted EBITDA to EBITDA presented by other companies because not all companies use the same definition. For example, we subtract the depreciation expense associated with mining equipment while other competitors who own their equipment do not subtract this cost. Investors should also note that the Adjusted EBITDA as presented herein is calculated differently from Consolidated EBITDA as defined and used in the Indenture governing the Notes. See "Description of the Notes – Definitions" for a description of the manner in which Consolidated EBITDA is defined for purposes of the Indenture governing the Notes. The following table reconciles our profit attributable to the equity shareholders of the Company for the year under IFRS to the definition of Adjusted EBITDA for the periods indicated:

	Year ended December 31,		
	2016	2017	2018
		(in US\$'000)	
(Loss)/Profit for the year	(153,992)	310,306	82,410
Adjustments			
Income tax	2,650	25,813	16,050
Share of (losses)/profit of associates and joint venture	26	(163)	(163)
Net finance costs	121,519	51,005	55,395
Gain from Debt Restructuring	–	(262,968)	–
Depreciation and amortization	32,707	51,014	63,873
Impairment loss on trade and other receivables	(436)	–	–
Provision losses on coal inventories	4,315	–	–
Gain on disposal of property, plant and equipment and assets held for sale	(524)	(90)	(99)
Equity-settled share-based payment expenses	1,195	1,355	677
Employee benefit accrued	(447)	799	156
Adjusted EBITDA	7,013	177,071	218,299

- (2) Adjusted EBITDA margin is calculated by dividing Adjusted EBITDA by revenue.

Operation Data

	Year ended December 31,		
	2016	2017	2018
	(in US\$'000, except otherwise indicated)		
ROM coal production (Mt)	3.0	8.3	10.9
Average stripping ratio (actual) (bcm/t)	4.5	4.4	5.0
Total coal sales (Mt)	1.6	4.4	4.7
Average sales price per tonne of HCC (US\$ per tonne) ⁽²⁾	77.2	130.3	139.7

Notes:

- (1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Factors Affecting Results of Operation and Financial Condition – Global Coking Coal Prices and Average Selling Prices" for a description of the factors affecting average sales prices of our coal.
- (2) Average sales price is the blended average of HCC sold under all sales terms, excluding sales of coal procured from third party sources in China.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis in conjunction with our financial statements prepared in conformity with IFRS, which may differ in certain material aspects from generally accepted accounting principles in other jurisdictions, together with the accompanying notes, set forth in the audited consolidated financial statements included in this Offering Memorandum. You should read the whole of the audited consolidated financial statements included in this Offering Memorandum and not rely merely on the information contained in this section.

The following discussion contains certain forward-looking statements that involve risks and uncertainties. Our actual results reported in future periods could differ materially from those discussed below. Factors that could cause or contribute to such differences include those discussed in the sections headed "Risk Factors" and "Business" and elsewhere in this Offering Memorandum.

For the purpose of this section, unless the context otherwise requires, references to 2016, 2017 and 2018 refer to our financial year ended December 31 of such year. Unless the context otherwise requires, financial information described in this section is described on a consolidated basis.

Overview

We are a leading Asian coking coal producer engaged in the open-pit mining and processing of coking coal sourced from our UHG and BN deposits, located in the South Gobi Province of Mongolia. These deposits are adjacent to each other and strategically located approximately 250 km from the Sino-Mongolian border and approximately 600 km from Baotou, China, an important railway transportation hub providing access from Mongolia to the largest steel producing provinces in China, including Inner Mongolia, Hebei, Shandong and Jiangsu provinces. We have worked closely with a number of industry-leading experts, including Thiess and Sedgman, throughout the planning, development and operation of our business to develop integrated mining, processing, supporting infrastructure, transportation and logistics operations.

Our UHG mining license permits us to engage in coal mining activities on 2,960 hectares of land for an initial period of 30 years commencing from August 29, 2006. As of December 31, 2018 and January 1, 2019, 663 Mt of JORC-compliant coal resources and 324 Mt of JORC-compliant coal reserves have been identified within such area, respectively. Our BN mining license, comprising the BN mining license area of 4,482 hectares and the contiguous THG mining license area of 8,340 hectares, permits coal mining for an initial period of 30 years commencing from December 1, 2008 and June 24, 2013, respectively. Within the BN and THG mining license areas combined, a total of 399 Mt of JORC-compliant coal resources have been identified as of December 31, 2018. Within the BN mining license area, a total of 175 Mt of JORC-compliant coal reserves have been identified as of January 1, 2019. Our BN mine is located approximately 32 km by paved road southwest of our UHG mine, and its development, in integration with existing facilities at UHG, is yielding benefits through synergies achievable in terms of shared mining, processing and transportation infrastructure and marketing resources. BN mine produced 1.4 Mt ROM coal for 2018. For the years ended December 31, 2016, 2017 and 2018, we produced an aggregate of 3.0 Mt, 8.3 Mt and 10.9 Mt of ROM coal, respectively.

With a view to consistently produce high quality products, reduce product transportation costs and generate improved margins, we constructed and commissioned 15.0 Mtpa of ROM coal processing capacity onsite at the UHG mine. The coal handling and preparation plant ("CHPP"), designed and constructed by Sedgman, comprises three near identical modules of ROM coal processing nameplate capacity of 5.0 Mtpa each. These modules have been in operation since June 2011, February 2012 and June 2013, respectively. Since the commencement of the CHPP operation, we have shifted our sales strategy from raw coal to washed coal, having sold only washed coal products from the beginning of the second quarter of 2012. We are currently in the process of constructing our third ROM coal infeed facility affiliated with the CHPP, which will provide higher raw-coal-crushing capacity compared to the two existing ROM handling facilities. Upon completion of such facility, our large-size-rock processing capacity will be significantly improved, and our total ROM coal feeding capacity will increase from 15 Mtpa to 25 Mtpa.

In October 2011, we completed the construction of a paved road, from UHG to GS under BOT arrangements, which has since been transferred to the Government of Mongolia for compensation in 2014. We continue to use the road under a toll fee arrangement. In January 2012, in collaboration with Erdenes MGL, we expanded the border crossing facilities to allow for 25.0 – 30.0 Mtpa transit through GS, which has also been transferred to the Government of Mongolia with compensation. As a result, we are well placed to deliver all washed coal products to GM.

We have our own fleet of over 430 double-trailer trucks and also have support facilities to flexibly conduct shipments either (i) from UHG to GM directly by our trucks or (ii) from UHG to TKH and further from TKH to GM. Currently, we conduct shipments using the approximately 240 km long UHG-TKH (“long haul”) section solely with our own double-trailer trucks, while cross border shipments for exports using the approximately 20 km long TKH-GM (“short haul”) section are undertaken by our own double-trailer trucks supplemented by third-party Chinese trucking contractors.

We are one of the largest coal producers and exporters in Mongolia. We sell most of our coking coals to end users in China under coal sales and purchase arrangements with iron and steel mills, and coke and others under DAP GM, FOT GM, C&F and FOB end-user destination sales terms. In the years ended December 31, 2016, 2017 and 2018, we sold our hard coking coal at an average selling price of US\$77.2 per tonne, US\$130.3 per tonne and US\$139.7 per tonne, respectively.

We have won the Top 10 Enterprise in Mongolia award from the Mongolian National Chamber of Commerce eight times from 2009 to 2018.

Our revenue for the years ended December 31, 2016, 2017 and 2018 was US\$120.0 million, US\$476.4 million and US\$590.7 million, respectively. We recorded (loss)/profit for the years ended December 31, 2016, 2017 and 2018 of US\$(154.0) million, US\$310.3 million and US\$82.4 million, respectively.

Factors Affecting Results of Operations and Financial Condition

Our business and financial condition and results of operations have been, and will continue to be, affected by a number of important factors, including the following:

Production – Coal Mining

We operate UHG and BN open-pit coking coal mines, both located in close proximity to each other within the Greater Tavan Tolgoi coalfield in Umnugobi aimag, Mongolia. Our UHG and BN mines were commissioned in April 2009 and in February 2012, respectively.

In the year ended December 31, 2016, a total of 3.0 Mt of ROM coal was mined by us, all from the UHG mine with no production activities at the BN mine. In the years ended December 31, 2017 and 2018, a total of 8.3 Mt and 10.9 Mt of ROM coal, respectively, was mined by us from both UHG and BN mines. This was achieved at an overall stripping ratio of 4.5 bcm, 4.4 bcm and 5.0 bcm of overburden per ROM tonne, as a result of moving approximately 13.3 million bcm, 36.7 million bcm and 53.9 million bcm of overburden for the years ended December 31, 2016, 2017 and 2018, respectively.

Production – Coal Processing

ROM coal mined from UHG and BN mines is processed using our CHPP located at UHG mine. Based on ROM coal quality, suitable ROM coal is blended and processed to produce following three distinguished washed coal products: (i) hard coking coal (“HCC”); (ii) semi-soft coking coal (“SSCC”); and (iii) washed thermal coal. The CHPP has three operating modules with combined name-plate capacity 15.0 Mt per annum supplemented by own power and water supply infrastructure.

A total of 3.0 Mt, 8.0 Mt and 10.0 Mt of ROM coal was processed by us in 2016, 2017 and 2018, respectively. Resulting from this plant feed, we were able to produce 1.6 Mt of washed coking coal as a primary product and 0.7 Mt of washed thermal coal as a secondary product for 2016, 4.1 Mt of washed coking coal and 1.8 Mt of washed thermal coal for 2017, and 4.8 Mt of washed coking coal and 2.2 Mt of washed thermal coal for 2018.

Global Coking Coal Prices and Average Selling Prices

Our contracts have pricing terms that are denominated in RMB are adjustable periodically. Most of our coal is currently sold into the Chinese market. Unlike seaborne coking coal prices, which tend to rigidly follow periodic settlements between Australian producers and Japanese consumers, domestic Chinese prices are subject to ongoing negotiation and adjustment according to market dynamics. The far larger size and highly fragmented nature of the Chinese market results in a more fluid pricing system. Our average selling prices are affected by various market factors such as the discovery and development of new deposits, closure of old mines, transportation infrastructure bottlenecks and specific demand of end users. Pursuant to our customer contracts, our selling prices are based on existing market prices and reviewed from time to time. In determining the price of coal sold under our customer agreements, we take into account the delivery point of the coal sold.

Since mid-2012, as a result of the global and in particular Chinese economic slowdown, coking coal prices have significantly deteriorated. The average selling price for our HCC sold under DAP GM terms decreased from US\$155.6 per tonne in 2011 to US\$53.2 per tonne in 2015. In recent years, as a result of the global and in particular Chinese economic recovery, coking coal prices have significantly increased and remained stable in 2017 and 2018. The average selling price for our HCC sold under FOT GM terms increased from US\$70.4 per tonne in 2016 to US\$135.6 per tonne in 2018. See “Risk Factors – Risks Relating to our Business and Industry – Coking coal prices are cyclical and subject to significant fluctuation”.

In the years ended December 31, 2016, 2017 and 2018, we sold our HCC at an average selling price of US\$70.4 per tonne, US\$126.0 per tonne and US\$135.6 per tonne for FOT GM term sales, respectively, and the average selling price of C&F sales were US\$102.5 per tonne, US\$155.0 per tonne and US\$170.1 per tonne for the years ended December 31, 2016, 2017 and 2018, respectively.

Mining Costs

We cooperate with Thiess as our mining contractor under a long-term alliance style contract, and work closely with them in all aspects of our coal mining operations at our UHG mine. We have two components of mining costs: (i) costs directly incurred by us and (ii) costs related to our mining contractor. Costs directly incurred by us primarily include fuel costs, labor costs, employee-related expenses (onsite accommodations) and blasting expenses. Costs related to our mining contractor include plant rates for mining equipment operation, expatriate staff wages, corporate overhead and contractor fee. Plant rates include contractor costs related to the depreciation, financing, insurance and maintenance of the mining equipment used at our UHG mine. The contractor fee payable is correlated to the contractor’s investment in mining equipment brought to site and its utilization, productivity and efficiency.

We have engaged a local contractor, UARP LLC, who are responsible for mining operations at the BN mine, including fleet operation and maintenance of overburden stripping. Costs directly incurred by us primarily include fuel costs, labor costs, employee-related expenses (onsite accommodations) and blasting expenses. Costs related to our mining contractor include plant rates for a mining equipment operation.

Mining costs represent and will continue to represent a significant portion of our cost of revenue. Our mining costs associated with coal sold were US\$33.8 million, US\$93.8 million and US\$126.4 million for the years ended December 31, 2016, 2017 and 2018, respectively. In 2018, approximately 31.3% of our mining costs were primarily fuel, labor and other employee-related costs, as well as drilling and blasting expenses directly incurred by us. The remainder is associated with our mining contractor costs, the majority of which was related to plant rates.

Transportation Costs

Transportation costs are costs associated with the transportation of our coal from UHG to TKH by our own truck fleet, from TKH to GM with mainly third-party contractors’ trucks and from UHG directly to GM by our own truck fleet supplemented by third-party contractors’ trucks. In addition, transportation between our BN and UHG mines is performed by our own truck fleet. We transported all of the coal produced at our UHG mine to the Sino-Mongolian border on the paved road owned and operated by Erdenes

MGL under a toll fee arrangement. Since the second half of 2017, we expanded our trucking fleet capacity by acquiring around 150 heavy haul double-trailer trucks, which brings our total trucking capacity to around 430 trucks, each capable of carrying around 130 metric tonnes of coal, as of the date of this Offering Memorandum.

The cost of our own transportation can be maintained at relatively stable levels as compared to those of third-party trucking contractors, which can be highly volatile due to its fluctuation depending on the coal market. We are focused on maximizing our fleet utilization in order to mitigate the volatility of third-party contractor costs while continuing to maintain a sufficient fleet of trucks to meet our annual targeted volume for export.

Transportation costs associated with coal sold were approximately US\$12.9 per tonne, US\$20.1 per tonne and US\$25.5 per tonne, respectively, for the years ended December 31, 2016, 2017 and 2018. Transportation costs from BN to UHG mine site were US\$2.4 per tonne and US\$2.3 per tonne, respectively, for the years ended December 31, 2017 and 2018.

We transported a total of 1.5 Mt, 0.6 Mt and 2.8 Mt of HCC from the UHG to TKH coal stockpile and transshipping facility, and 1.6 Mt, 0.9 Mt and 2.9 Mt of coal products were exported from TKH to GM in 2016, 2017 and 2018, respectively. In 2017 and 2018, we transported 3.6 Mt and 1.8 Mt of coal products, respectively, directly from UHG to GM. In addition, a further 54.6 kilotonnes and 1.2 Mt of ROM coal that was mined and stockpiled previously at BN was transported by our own fleet of double-trailer heavy haulage trucks to UHG for processing in 2017 and 2018, respectively.

Fuel Costs

We directly bear the costs related to the use of fuel in our mining operations and for the coal hauling trucks owned by us for coal transport. Fuel costs are included in both mining costs and transportation costs. For the years ended December 31, 2016, 2017 and 2018, fuel costs relating to our mining operations represented approximately 15.8%, 14.9% and 17.7% of mining costs, respectively. During the same period, fuel costs associated with the transportation of our coal were approximately 15.8%, 5.8% and 8.1% of transportation costs, respectively. Our fuel costs for mining and own transportation for the years ended December 31, 2016, 2017 and 2018 were US\$8.6 million, US\$19.0 million and US\$31.9 million.

We signed a fuel supply contract with NIC for mining and processing activities and with Shunkhlai for transportation and logistics activities in 2017, under which the two suppliers have agreed to supply fuel products, including diesel fuel, lubricants and other types of fuel and provide other related services. The fuel price is adjusted monthly in accordance with the change in the monthly fuel import price on a DAP basis. All other costs, such as taxes, transportation and service fees, are fixed under the contract. Our agreements with NIC and Shunkhlai will respectively expire in May 2020 and December 2019.

Critical Accounting Policies

Critical accounting policies are those that require our management to exercise judgment and to make estimates that would yield materially different results if our management applied different assumptions or made different estimates. These accounting policies are set forth in note 2 to our financial statements included elsewhere in this Offering Memorandum. The preparation of our financial information pursuant to IFRS requires our management to adopt accounting policies and make estimates and assumptions that affect the amount reported in our financial information. These estimates and assumptions are continually evaluated by management and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Actual results may differ from those estimates and assumptions. We have identified the following accounting policies as critical to an understanding of our financial condition and results of operations.

In the process of applying our accounting policies, we have made the following accounting judgments:

Revenue Recognition

Income is classified by the Group as revenue when it arises from the sale of goods or the provision of services in the ordinary course of the Group's business.

Revenue is recognized when control over a product or service is transferred to the customer, at the amount of promised consideration to which the Group is expected to be entitled, excluding those amounts collected on behalf of third parties. Revenue excludes value added tax or other sales taxes and is after deduction of any trade discounts.

Fair Value of Buildings and Plants, Machinery and Equipment Classified as Property, Plant and Construction in Progress

We have changed our accounting policy for our buildings and plants, machinery and equipment, and such class of items under construction status from cost model to valuation model with effect from December 31, 2016. Buildings and plants, machinery and equipment classified as property, plant and construction in progress were revalued by an external appraiser as at December 31, 2016. Such valuations were based on certain assumptions which are subject to uncertainty and might materially differ from the actual results. Judgment is required in relation to the selection of assumptions in arriving at the fair values and the determination of the frequency of performing a revaluation with sufficient regularity.

Reserves

We estimate and report Mineral Resources and Ore Reserves, commonly referred to as Coal Resources and Coal Reserves in the coal mining industry, meeting requirements of the JORC Code, and subsequently the Australian Guidelines for the Estimation and Classification of Coal Resources (2014) to which are referred.

A “Coal Reserve” is the economically mineable part of a Measured and/or Indicated Coal Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

A “Probable Coal Reserve” is the economically mineable part of an Indicated, and in some circumstances, a Measured Coal Resource. The confidence in the Modifying Factors applying to a Probable Coal Reserve is lower than that applying to a Proved Coal Reserve. A Proved Coal Reserve implies a high degree of confidence in the Modifying Factors.

The Modifying Factors are considerations used to convert Coal Resources to Coal Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors. Modifying Factors may change from one estimation to the next, where the materiality of such changes is demonstrable. Such changes may be as result of variation to any of the mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, governmental or other factors.

Because the Modifying Factors used to estimate Coal Reserves may change from one estimate to the next, estimates of Coal Reserves may change from one period to another. Changes in reported Coal Reserves thus may affect the Group’s financial results and financial position in a number of ways, including the following:

- Asset recoverable amounts may be affected due to changes in estimated future cash flows.
- Depreciation, depletion and amortisation charged in the income statement may change where such charges are determined on the units of production basis, or where the useful economic lives of assets change.
- Overburden removal costs recorded on the statement of financial position or charged to the income statement may change due to changes in stripping ratios or the units of production basis of depreciation.
- Reclamation and mine closure provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities.

The carrying amount of deferred tax assets may change due to changes in estimates of the likely recovery of the tax benefits.

Useful Lives of Property, Plant and Equipment

We determine the estimated useful lives of and related depreciation charges for our property, plant and equipment. This estimate is based on the actual useful lives of assets of similar nature and functions. It could change significantly as a result of significant technical innovations and competitor actions in response to industry cycles. We will increase the depreciation charges where useful lives are less than previously estimated lives, and will write-off or write-down technically obsolete or non-strategic assets that have been abandoned or sold.

Impairment of Assets

We review the carrying amounts of the assets at each balance sheet date to determine whether there is objective evidence of impairment. When indication of impairment is identified, we prepare discounted future cash flow to assess the differences between the carrying amount and value in use and provide for impairment loss. Any change in the assumptions adopted in the cash flow forecasts would increase or decrease the provision of the impairment loss and affect our net asset value.

In relation to trade and other receivables (including VAT receivables), a provision for impairment is made and an impairment loss is recognized in profit and loss when there is objective evidence (such as the probability of insolvency or significant financial difficulties of the debtor) that we will not be able to collect all of the amounts due under the original terms of the invoice. We use judgment in determining the probability of insolvency or significant financial difficulties of the debtor.

An increase or decrease in the above impairment loss would affect the net profit in future years.

Obligation for Reclamation

The estimation of the liabilities for final reclamation and mine closure involves the estimates of the amount and timing for the future cash spending as well as the discount rate used for reflecting current market assessments of the time value of money and the risks specific to the liabilities. We consider the factors including future production volume and development plan, the geological structure of the mining regions and reserve volume to determine the scope, amount and timing of reclamation and mine closure activities to be performed. Determination of the effect of these factors involves judgments by us and the estimated liabilities may turn out to be different from the actual expenditure to be incurred. The discount rate used by us may also be altered to reflect the changes in the market assessments of the time value of money and the risks specific to the liability, such as change of the borrowing rate and inflation rate in the market. As changes in estimates occur (such as mine plan revisions, changes in estimated costs, or changes in timing of the performance of reclamation activities), the revisions to the obligation will be recognized at the appropriate discount rate.

Recognition of Deferred Tax Assets

Deferred tax assets in respect of unused tax losses and tax credit carried forward and deductible temporary differences are recognized and measured based on the expected manner of realization or settlement of the carrying amount of the assets, using tax rates enacted or substantively enacted at the balance sheet date. In determining the carrying amounts of deferred assets, expected taxable profits are estimated which involves a number of assumptions relating to our operating environment and requires a significant level of judgment exercised by the directors. Any change in such assumptions and judgment would affect the carrying amounts of deferred tax assets to be recognized and hence the net profit in the future years.

Derivative Financial Instruments

In determining the fair value of the derivative financial instruments, considerable judgment is required to interpret market data used in the valuation techniques. The use of different market assumptions and/or estimation methodologies may have a material effect on the estimated fair value amounts.

Capitalized Stripping Costs

The process of removing overburden and other mine waste materials to access mineral deposits is referred to as stripping. Stripping costs (waste removal costs) are incurred during the development and production phases at open-pit mining and they are accounted for separately for each component of an ore body unless the stripping activity provides improved access to the whole of the ore body. A component is a specific section within an ore body that is made more accessible by the stripping activity. The identification of components is dependent on the mine plan. Judgment is required to identify and define these components and also to determine the expected volumes of waste to be stripped and ore to be mined in each of these components. Judgment is also required to identify a suitable production measure that can be applied in the calculation and allocation of production stripping costs between inventory and production stripping activity. These are used to calculate and allocate the production stripping costs to inventory and/or the stripping activity assets.

Development stripping costs are capitalized as a stripping activity asset, in construction in progress and forming part of the cost of constructing the mine, when:

- It is probable that future economic benefits associated with the asset will flow to the entity; and
- The costs can be measured reliably.

Capitalization of development stripping costs ceases and these costs are transferred to mine properties in property, plant and equipment when the ore body or component of ore body is ready for its intended use.

Production stripping can give rise to two benefits being the extraction of ore in the current period and improved access to the ore body or component of ore body in future periods. To the extent that the benefit is the extraction of ore, the stripping costs are recognized as an inventory cost.

To the extent the benefit is improved access to the ore body or component of ore body in future periods, the stripping costs are capitalized as mine properties in property, plant and equipment, if the following criteria are met:

- It is probable that the future economic benefit (improved access to ore) will flow to the Group;
- The ore body or component of the ore body for which access has been improved can be identified; and
- The costs relating to the stripping activity can be measured reliably.

Production stripping costs are allocated between the inventory produced and the mine properties capitalized using a life-of-component waste to ore strip ratio. When the current strip ratio is greater than the life-of-component ratio, a portion of the stripping costs is capitalized to the existing mine properties.

The development and production stripping assets are depreciated using the units of production method based on the proven and probable mineral reserves of the relevant ore body or component of ore body.

Translation of Foreign Currencies

Our reporting currency is U.S. dollars. The functional currency of our main operating subsidiaries and offshore holding companies is U.S. dollars and the functional currency of the remaining subsidiaries is mainly MNT. Effective from January 1, 2018, the functional currencies of the main operating subsidiaries changed from MNT to U.S. dollars following the relevant approvals from the Ministry of Finance.

Foreign currency transactions during the year are translated at the foreign exchange rates as at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the foreign exchange rates as at the balance sheet date. Exchange gains and losses are recognized those in profit or loss.

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates.

The results of operations in Mongolia are translated into U.S. dollars at the exchange rates approximating the foreign exchange rates as at the dates of the transactions. Balance sheet items are translated into U.S. dollars at the foreign exchange rates as at the balance sheet date. The resulting exchange difference is recognized directly in a separate component of equity.

Summary consolidated statement of profit or loss and other comprehensive income data

	Year ended December 31,		
	2016	2017	2018
	<i>(in US\$'000, except otherwise indicated)</i>		
Revenue	120,028	476,364	590,710
Cost of revenue	(120,346)	(273,797)	(360,310)
Gross profit	(318)	202,567	230,400
Other costs	(2,808)	(862)	(986)
Other net income/(loss)	4,116	(1,984)	2,146
Selling and distribution costs	(17,654)	(56,631)	(61,410)
General and administrative expenses	(13,133)	(19,097)	(16,458)
(Loss)/profit from operations	(29,797)	123,993	153,692
Finance income	1,186	48	134
Finance costs	(122,705)	(51,053)	(55,529)
Net finance costs	(121,519)	(51,005)	(55,395)
Gain from the Debt Restructuring	–	262,968	–
Share of (loss)/profit of associates	(5)	163	171
Share of losses of joint venture	(21)	–	(8)
Profit before taxation	(151,342)	336,119	98,460
Income tax	(2,650)	(25,813)	(16,050)
(Loss)/profit for the year	(153,992)	310,306	82,410
Attributable to:			
Equity shareholders of the Company	(154,248)	311,013	82,773
Non-controlling interests	256	(707)	(363)
(Loss)/profit for the year	(153,992)	310,306	82,410
Basic (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents
Diluted (loss)/earnings per share	(1.67) cents	3.13 cents	0.80 cents
(Loss)/profit for the year	(153,992)	310,306	82,410
Other comprehensive income for the year (after reclassification adjustments)			
Items that may be reclassified subsequently to profit or loss:			
Exchange differences on re-translation	(47,504)	21,698	(36,676)
Total comprehensive income for the year	140,323	332,004	45,734
Attributable to:			
Equity shareholders of the Company	140,067	332,711	46,097
Non-controlling interests	256	(707)	(363)
Total comprehensive income for the year	140,323	332,004	45,734

Description of Selected Statement of Profit or Loss Line Items

Revenue

We are principally engaged in the mining, processing, transportation and sale of coking coal. Revenue represents the sales value of goods sold to customers, exclusive of VAT or sales taxes and after deduction of any trade discounts and volume rebates.

We generated total revenue of US\$120.0 million, US\$476.4 million and US\$590.7 million, respectively, for the years ended December 31, 2016, 2017 and 2018. In 2016, 2017, and 2018, revenue amounting to US\$16.7 million, US\$16.1 million and US\$4.3 million, equivalent to 13.9%, 3.4% and 0.7% of the total revenue, respectively, were generated from sales on DAP GM terms, of which US\$16.0 million, US\$6.9 million and nil, respectively, were from sales of HCC, and US\$0.7 million, US\$9.2 million and US\$3.4 million, respectively, were generated from sales of washed thermal coal. As a result of our strategy to penetrate the inland China market implemented since 2014, we generated 99.3% of the total revenue from sales under FOT and C&F terms amounting to US\$506.6 million and US\$79.8 million, respectively, in 2018, 96.6% of the total revenue from sales under FOT and C&F terms amounting to US\$374.8 million and US\$85.4 million, respectively, in 2017, and 86.1% of the total revenue from sales under FOT and C&F terms amounting to US\$78.3 million and US\$25.0 million, respectively, in 2016. The total HCC revenue including inland China sales was US\$119.3 million, US\$466.4 million and US\$546.5 million, representing 99.4%, 97.9% and 92.5% of the total revenue for the years ended December 31, 2016, 2017 and 2018, respectively.

In the years ended December 31, 2016, 2017 and 2018, our pricing followed the trend for all coking coal products in the global market, where prices started to recover towards the end of 2016. The average selling price of HCC was US\$77.2 per tonne, US\$130.3 per tonne and US\$139.7 per tonne for 2016, 2017 and 2018, respectively, supported by higher HCC selling prices of inland China sales. In 2017, the average selling price of FOT and C&F term sales was US\$126.0 per tonne and US\$155.0 per tonne, respectively, while the average selling price of DAP GM sales was US\$115.7 per tonne, which was approximately 40.5% higher compared to US\$84.4 per tonne in 2016. In 2018, the average selling price of FOT and C&F term sales was US\$135.6 per tonne and US\$170.1 per tonne, respectively.

Our total sales volume for the years ended December 31, 2016, 2017 and 2018 reached approximately 1.6 Mt, 4.4 Mt and 4.7 Mt of coal products, respectively. Total sales volume for HCC for the years ended December 31, 2016, 2017 and 2018 reached approximately 1.5 Mt, 3.6 Mt and 3.9 Mt, respectively.

Cost of Revenue

Our cost of revenue consists primarily of mining costs, processing and handling costs, transportation and logistics costs, and costs related to site administration, transportation stockpile and loss, and governmental royalties and fees.

The cost of revenue increased by 127.6% from US\$120.3 million in 2016 to US\$273.8 million in 2017 and further by 31.6% to US\$360.3 million in 2018 as a result of increased sales volume.

The following table presents, for the periods indicated, individual costs of revenue in terms of amount and percentages of our total cost of revenue:

	Year ended December 31,					
	2016		2017		2018	
	US\$'000	%	US\$'000	%	US\$'000	%
Cost of revenue	120,346	100.0	273,797	100.0	360,310	100.0
Idling costs	25,664	21.3	–	–	–	–
Inventory provision	4,315	3.6				
Cost of revenue excluding idling costs and inventory provision	90,367	75.1	273,797	100.0	360,310	100.0
Mining cost	33,802	28.1	93,758	34.2	126,420	35.1
Processing cost	12,963	10.8	37,758	13.8	42,876	11.9
Handling cost	2,209	1.8	6,756	2.5	11,400	3.1
Transportation costs	20,683	17.2	88,834	32.4	117,784	32.7
Logistics cost.....	3,465	2.9	6,198	2.3	5,428	1.5
Site administration cost	6,440	5.3	14,216	5.2	16,125	4.5
Transportation and stockpile loss.....	670	0.6	(2,953)	(1.1)	4,929	1.4
Royalties and fees.....	10,135	8.4	29,230	10.7	35,348	9.8

Idling Cost

Starting from 2014, in accordance with our policy to conserve cash outflow during times when the average selling price of coal is trending lower in the market, it made tactical sense for us to temporarily suspend operations at certain times during the year for conservation and efficiency purposes. Idling costs primarily consist of fixed charges paid to the mining contractor and depreciation expenses relating to idled plants and equipments during the suspension.

Mining Cost

Mining cost consists of costs associated with overburden and topsoil removal and ROM coal extraction, including the costs related to mining staff and equipment, together with base and performance fees paid to the mining contractor, blasting contractor fees and costs paid to fuel suppliers.

Processing Cost

Processing cost primarily includes the costs associated with the operations of CHPP including power and water costs.

Our processing cost was approximately US\$13.0 million, US\$37.8 million and US\$42.9 million during 2016, 2017 and 2018, respectively, including (i) US\$6.5 million, US\$24.1 million and US\$23.4 million related to the depreciation and amortization of the CHPP, (ii) US\$2.4 million, US\$4.1 million and US\$4.3 million incurred for power generation, and (iii) US\$1.0 million, US\$1.2 million and US\$1.6 million incurred for water extraction and distribution related to the washed coal sold, respectively, during 2016, 2017 and 2018.

Unit processing cost calculated per ROM coal in-feed tonne increased from US\$4.4 per ROM tonne in 2016 to US\$5.3 per ROM tonne in 2017 and decreased to US\$4.6 per ROM tonne in 2018. The increase in 2017 was mainly due to the increase in depreciation and amortisation on a unit basis due to higher value of the underlying assets as a result of fixed assets revaluation performed by the end of 2016. The decrease in 2018 was mainly due to the increased volume of ROM coal processed.

Handling Cost

Handling cost is related to feeding ROM coal from ROM coal stockpiles to the CHPP, and also the removal of coarse reject (primarily rock and sediment separated from coal) after coal processing.

Unit handling cost increased from US\$1.4 per tonne in 2016 to US\$1.5 per tonne in 2017 and further increased to US\$2.4 per tonne in 2018. The increase in 2017 and 2018 was mainly attributable to optimization of coal stockpiles.

Transportation Cost

Transportation cost includes cost related to the transportation of ROM coal from the BN mine to the CHPP located at the UHG mine and the transportation of coal products from UHG to TKH and GM, including fees paid to third-party transportation contractors.

On unit cost basis, our average transportation costs in the UHG-GM section increased from US\$12.9 per tonne in 2016 to US\$20.1 per tonne in 2017 and further to US\$25.5 per tonne in 2018. Since the second half of 2017, the prolonged and tightened control procedure of the customs reduced the number of trucks crossing the border. This situation not only limited the Group's sales volume but also increased our transportation cost. The border crossing throughput started to improve in May 2018. In addition, the improved coal market environment increased the demand for coal transport, while the bottleneck at the border extended turnaround time required for coal export. As a result, the cost of third party contractors increased, increasing our total transportation costs.

Logistics Cost

Logistics cost is mainly related to cost associated with operating product stockpiles at UHG and TKH. Our logistics cost was US\$3.5 million in 2016, US\$6.2 million in 2017 and was US\$5.4 million in 2018.

Site Administration Cost

Site administration cost is primarily related to site support facilities, such as overall supervision and joint management of the Group's mining, processing, transportation and logistics operations. Our site administration cost increased approximately from US\$6.4 million in 2016 to US\$14.2 million in 2017 and further increased to US\$16.1 million in 2018 due to an increase in number of employees. The increase in number of employees was primarily due to increase of operations level.

Royalties and Fees

Governmental royalties and fees are related to royalties, air pollution fees and custom fees paid according to the applicable laws and regulations in Mongolia. A combined flat and progressive royalty rate is applied at a range of 5 to 8% for processed coal products and 5 to 10% for raw coal products. Our effective royalty average rate for the years ended December 31, 2016, 2017 and 2018 was approximately 5.0%, 5.5% and 5.5% for the revenue generated by our operating subsidiaries from coal exported from Mongolia based on the amount recorded in the customs clearance documents.

Gross Profit/(Loss)

Gross profit/(loss) equals revenue less cost of revenue.

Selling and Distribution Costs

Our selling and distribution costs are associated with the inland China sales activities and include expenses relating to fees and charges incurred for importing coal into China, logistics, transportation, governmental fees and charges and fixed agent fees. The selling and distribution cost is linked to sales volume realized under FOT, GM and C&F sales terms.

General and Administrative Expenses

Our general and administrative expenses relate primarily to staff costs, share option expenses, consultancy and professional fees, depreciation and amortization of office equipment and other expenses. The general and administrative expenses were US\$13.1 million, US\$19.1 million and US\$16.5 million for the years ended December 31, 2016, 2017 and 2018, respectively.

Net Finance Costs

Net finance costs primarily consist of (i) interest expense on bank and other borrowings, promissory notes, the 2022 Notes and the Senior Loan (ii) change in fair value of derivative component of the 2022 Notes and the Senior Loan including the interest rates linked to the benchmark coal price index and cash sweep premium, (iii) amortization of the difference between the fair value and the principal amounts due on the 2022 Notes and the Senior Loan using the effective interest rate method and (iv) foreign exchange net loss. Foreign exchange losses are related to the fluctuations in exchange rates between MNT, RMB and U.S. dollar denominated payables, receivables and cash at bank and in hand.

Income Tax Expenses/Income

We are subject to income tax on an entity basis on profit arising in or derived from the tax jurisdictions in which we or our subsidiaries operate. The general income tax rate applicable to business entities with Mongolian source income is 10% on the first MNT3 billion of taxable income and 25% on amounts in excess thereof.

Subsidiary Financial Performance

For the year ended December 31, 2018, the consolidated revenue and net loss for Tianjin Zhengcheng Import and Export Trade Co., Ltd (China) was US\$84.3 million and US\$0.7 million, respectively. As of December 31, 2018, consolidated net assets for Tianjin Zhengcheng Import and Export Trade Co., Ltd (China) was US\$0.9 million.

Results of Operations and Financial Condition

2018 Compared to 2017

Revenue. Our revenue increased by 24.0% from US\$476.4 million in 2017 to US\$590.7 million in 2018. The increase in revenue was primarily attributable to an increase in sales volume and price of our coking coal. Our HCC sales volume increased by 9.3% from 3.6 Mt in 2017 to 3.9 Mt in 2018. Our average selling price of HCC increased from US\$130.3 per tonne in 2017 to US\$139.7 per tonne in 2018.

Cost of Revenue. Our cost of revenue increased by 31.6% from US\$273.8 million in 2017 to US\$360.3 million in 2018 as a result of an increase in sales volume.

Our mining costs increased by 34.8% from US\$93.8 million in 2017 to US\$126.4 million in 2018, in line with the increase in our sales volume. Our processing costs increased by 13.6% from US\$37.8 million in 2017 to US\$42.9 million in 2018, also in line with the increase in our sales volume. Our transportation costs increased by 32.6% from US\$88.8 million in 2017 to US\$117.8 million in 2018, primarily due to increase of sales volume and the inefficient cross-border logistics issue at the GS-GM border crossing.

Gross Profit. As a result of the foregoing, our gross profit increased by 13.7% from US\$202.6 million in 2017 to US\$230.4 million in 2018.

General and Administrative Expenses. Our general and administrative expenses decreased by 13.8% from US\$19.1 million in 2017 to US\$16.5 million in 2018.

Net Finance Costs. Our net finance cost increased by 8.6% from US\$51.0 million in 2017 to US\$55.4 million in 2018. Increase in net finance cost for 2018 was primarily due to changes in the fair value of the derivative components of the 2022 Notes and the Senior Loan.

Income Tax Expenses. Our income tax expense decreased 37.6% from US\$25.8 million in 2017 to US\$16.1 million in 2018. The decrease is mainly attributable to deferred taxes recognised on temporary differences arising between tax base and accounting base related with unrealized foreign exchange losses.

Profit for the Year. Our profit attributable to equity shareholders of the Company decreased by 73.4% from US\$311.0 million in 2017 to US\$82.8 million in 2018. The decrease in profit in 2018 was due to the recognition in 2017 of a gain from our Debt Restructuring completed on May 4, 2017.

2017 Compared to 2016

Revenue. Our revenue increased by 297.0% from US\$120.0 million in 2016 to US\$476.4 million in 2017. The increase was primarily attributable to the improved market condition resulting in an increase in sales volume and average selling price of our coking coal. Our HCC sales volume increased by 131.7% from 1.5 Mt in 2016 to 3.6 Mt in 2017. Our average selling price of HCC also increased by 68.8% from US\$77.2 per tonne in 2016 to US\$130.3 per tonne in 2017.

Cost of Revenue. Our cost of revenue increased by 127.6% from US\$120.3 million in 2016 to US\$273.8 million in 2017, due to the higher mining, processing and transportation costs resulting from sales volume. Our mining costs increased by 177.5% from US\$33.8 million in 2016 to US\$93.8 million in 2017, mostly in line with an increase in sales volume. Our processing costs increased by 190.8% from US\$13.0 million in 2016 to US\$37.8 million in 2017, in line with the increase in sales volume. Our transportation costs increased by 329.0% from US\$20.7 million in 2016 to US\$88.8 million in 2017, primarily as a result of an increase in sales volume and the inefficient cross-border logistics issue at the GS-GM border crossing.

Gross Profit/Loss. As a result of the foregoing, our gross profit was US\$202.6 million in 2017, representing a turnaround from the gross loss of US\$0.3 million in 2016.

General and Administrative Expenses. Our general and administrative expenses increased by 45.8% from US\$13.1 million in 2016 to US\$19.1 million in 2017 mainly due to increase in number of employees.

Net Finance Costs. Our net finance costs decreased by 58.0% from US\$121.5 million in 2016 to US\$51.0 million in 2017. Decrease in net finance costs were mainly due to the decrease in interest expense resulting from reduced amount of debt outstanding after the completion of our Debt Restructuring in 2017.

Income Tax Expenses. In 2017, we incurred income tax expense of US\$25.8 million due to increase in taxable income, compared to our income tax expenses of US\$2.7 million in 2016.

Profit/Loss for the Year. As a result of the foregoing and the recognition of a gain from the Debt Restructuring in 2017 in the amount of US\$263.0 million, our profit attributable to equity shareholders of the Company increased from loss attributable to equity shareholders of US\$154.2 million in 2016 to profit attributable to equity shareholders of US\$311.0 million in 2017.

Liquidity and Capital Resources

For the years ended December 31, 2016, 2017 and 2018, our cash needs had been primarily related to working capital requirements and financing-related repayments. Our cash resources were funded mainly by cash generated from coal sales.

We regularly monitor current and expected liquidity requirements and compliance with debt covenants to ensure that we maintain sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet our liquidity requirements in the short and long term.

In the year ended December 31, 2016, 2017 and 2018, our net current liabilities were US\$921.8 million, US\$87.8 million and US\$55.8 million, respectively, which were primarily attributable to overdue payables to contractors accumulated during the market downturn. We underwent a restructuring in 2017 and have continued to service the remaining amount of payments due to the contractors. See “Our Corporate Structure and History”. Our financial statements included in this Offering Memorandum have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Our ability to continue as a going concern is substantially dependent on our profits and ability to generate cash flows from operations and our ability to obtain continued bank financing to meet our working capital and financing requirements. Our ability to do so is dependent, among other

things, upon the current economic environment and the sustainability of the price of coking coal in the market. For more details related to risks associated with our liquidity and capital resources, see “Risk Factors – Risks Relating to our Business and Industry – We have net current liabilities and are dependent on future cash flows generated from our business and obtaining additional financing to support our business operations and to continue as a going concern.”

Taking into consideration the financial resources available to us, including cash generated from our operating activities, and assuming a successful completion of this issuance of the Notes, we believe that we will have sufficient liquidity to meet our working capital and operating requirements for at least the next 12 months.

The following table sets forth certain information regarding our consolidated cash flows for the periods indicated:

	Year ended December 31,		
	2016	2017	2018
		<i>(US\$'000)</i>	
Net cash generated from operating activities	29,350	95,620	158,600
Net cash generated from/(used in) investing activities	44,262	(82,883)	(89,373)
Net cash used in financing activities	(61,561)	(17,767)	(43,028)
Net increase/(decrease) in cash and cash equivalents	12,051	(5,030)	26,199
Cash and cash equivalents at beginning of the year	702	12,268	7,460
Effect of foreign exchange rate changes	(485)	222	(624)
Cash and cash equivalents at end of the year	12,268	7,460	33,035

Cash Flows from Operating Activities

We generated net cash from operating activities of US\$158.6 million in 2018 and US\$95.6 million in 2017, primarily due to an increase in sales volume and price of our coking coal.

In 2016, we generated net cash from operating activities of US\$29.4 million.

The table below provides details on our cash flows from operating activities for the periods indicated:

Operating cash flow:

	Year ended December 31,		
	2016	2017	2018
		<i>(US\$'000)</i>	
(Loss)/profit before taxation	(151,342)	336,119	98,460
Adjustments for:			
Depreciation and amortisation	32,707	51,014	63,873
Impairment losses on trade and other receivables	(436)	–	–
Provision losses on coal inventories	4,315	–	–
Share of losses/(profit) of associates and joint venture	26	(163)	(163)
Gain on disposal of property, plant, equipment and assets held for sale	(524)	(90)	(99)
Net finance costs	121,519	51,005	55,395
Gain from the Debt restructuring	–	(262,968)	–
Equity-settled share-based payment expenses	1,195	1,355	677
Employee benefit accrued	(447)	799	156

	Year ended December 31,		
	2016	2017	2018
	(US\$'000)		
Changes in working capital:			
Increase in inventories	(667)	(24,564)	(33,235)
Decrease/(increase) in trade and other receivables	33,277	(13,624)	(29,118)
Increase/(decrease) in trade and other payables	34,224	(20,674)	17,461
Increase in other non-current assets and liabilities	(44,494)	(22,398)	(1,840)
Cash generated from operating activities	29,353	95,811	171,567
Income tax paid	(3)	(191)	(12,967)
Net cash generated from operating activities	29,350	95,620	158,600

Cash Flows from Investing Activities

Net cash used in investing activities was US\$89.4 million in 2018 and US\$82.9 million in 2017, which consisted primarily of payments of deferred stripping activity and payments of payables for property, plant and equipment.

In 2016, net cash generated from investing activities was US\$44.3 million, primarily as a result of release of time deposit.

The table below provides details on our cash flows from investing activities for the periods indicated:

Investing cash flow:

	Year ended December 31,		
	2016	2017	2018
	(US\$'000)		
Payments for acquisition of property, plant and equipment and construction in progress	(9,655)	(82,938)	(89,497)
Proceeds from disposals of property, plant and equipment and assets held for sale	430	55	–
Interest received	3,487	–	124
Other cash flows generated from investing activities	50,000	–	–
Net cash generated from/(used in) operating activities	44,262	(82,883)	(89,373)

Cash Flows from Financing Activities

In 2018, net cash used in financing activities was US\$43.0 million, which consisted primarily of interest paid under the 2022 Notes and the Senior Loan, and principal repayment made under the Senior Loan.

In 2017, net cash used in financing activities was US\$17.8 million, a decrease compared to 2016, primarily as a result of a decrease in interest expense resulting from reduced amount of credit facilities after the completion of the Debt Restructuring.

In 2016, net cash used in financing activities was US\$61.6 million, primarily as a result of interest expense paid under the 2017 Notes and BNP and ICBC Facility, and foreign exchange net loss due to depreciating MNT.

The table below provides details on our cash flows from financing activities for the periods indicated:

Financing cash flow:

	Year ended December 31,		
	2016	2017	2018
	(US\$'000)		
Repayment of borrowings	(56,596)	–	(7,500)
Interest paid	(4,965)	(17,767)	(35,528)
Net cash used in operating activities	(61,561)	(17,767)	(43,028)

Taxation

Income tax expenses for the years ended December 31, 2016, 2017 and 2018 can be reconciled to profit before income tax as follows:

	As of December 31,		
	2016	2017	2018
	(US\$'000)		
(Loss)/Profit before income tax.....	(151,342)	336,119	98,460
Notional tax on profit before taxation ⁽ⁱ⁾⁽ⁱⁱ⁾	3,246	35,606	24,240
Tax effect of non-deductible items ⁽ⁱⁱⁱ⁾	4,789	23,880	(4,371)
Tax effect of non-taxable items ^(iv)	(5,436)	(33,675)	(4,193)
Tax loss not recognized.....	51	2	374
Actual tax expenses.....	2,650	25,813	16,050

- (i) Pursuant to the Mongolian Enterprise Income Tax, we paid tax at a rate of 10% for the first MNT3 billion taxable income and 25% of the remaining taxable income for the years ended December 31, 2016, 2017 and 2018.
- (ii) We are not subject to any income tax in the Cayman Islands. We are not subject to Hong Kong and Luxembourg profits tax as we had no assessable income arising in or derived from Hong Kong and Luxembourg during the years ended December 31, 2016, 2017 and 2018.
- (iii) Non-deductible items mainly represent the non-deductible expenses and the unrealized exchange losses which is non-deductible pursuant to the Mongolian Enterprise Income Tax.
- (iv) Non-taxable items mainly represent the unrealized exchange gains which is non-taxable pursuant to the Mongolian Enterprise Income Tax.

Indebtedness

The following table sets forth our borrowings as of the dates indicated and the maturity profile of such borrowings:

	As at December 31,		
	2016	2017	2018
	(US\$'000)		
Indebtedness			
Bank loans (Secured)	–	31,753	25,065
Senior notes.....	599,692	436,563	451,711
Less: Current portion of long-term borrowings.....	(93,000)	(7,500)	(25,065)
Total	506,692	460,816	451,711
Maturity Profile of Borrowings			
Due within one year or on demand	93,000	7,500	25,065
Due after one year, but within two years	–	24,253	–
Due after two years but within five years	–	–	–
Total	93,000	31,753	25,065

Note: Indebtedness shown on above table represents the fair value of indebtedness as at each balance sheet date. The face values of indebtedness outstanding as at December 31, 2018 are stated below.

As of December 31, 2018, we had outstanding principal amount of US\$436.2 million in short-term and long-term borrowings, including indebtedness incurred under the 2022 Notes and the Senior Loan.

The 2022 Notes bear an interest rate of 5% to 8% per annum based on the benchmark coal price index payable semi-annually in arrears. The 2022 Notes will mature in September 22, unless earlier redeemed. As of December 31, 2018, the outstanding principal amount was US\$412.5 million. See note 25 to our audited consolidated financial information as of and for the year ended December 31, 2018 and 2017 included elsewhere in this Offering Memorandum.

The Senior Loan was entered into between ER LLC as the arrangers and certain original lenders. As of December 31, 2018, the outstanding principal amount was US\$23.7 million.

For a detailed description on the Company's indebtedness, see "Description of Other Indebtedness and Perpetual Securities."

Capital Commitments and Capital Expenditures

The following table sets forth our capital commitments outstanding at respective balance sheet dates not provided for in the financial statements for the periods indicated:

	2016	2017	2018
		(US\$'000)	
Contracted for.....	510	4,699	3,880
Authorized but not contracted for.....	–	17,337	3,255
Total	510	22,036	7,135

The following table sets forth our historical capital expenditures for the periods indicated:

	Year ended December 31,		
	2016	2017	2018
		(Actual)	
		(US\$'000)	
Capital Expenditures:			
CHPP	–	4,396	6,443
Trucks and equipment	–	13,325	5,406
Others	276	1,485	3,623
Total	276	19,206	15,472

Our maintenance capital expenditure is expected to be approximately US\$5 million per year. We will reassess our capital expenditures from time to time in light of the then current circumstances, including without limitation our operational requirements and our financial capacity, and there can be no assurance that our actual capital expenditure will correspond to our forecast.

Contingent Liabilities

We acquired our BN mining license in 2011. If the specified semi-annual ROM production exceeds 5.0 Mt, the consideration is subject to adjustment of royalty provision contained therein and we may be required to make additional payments. We consider the probability of such royalty provision very low as the Company has the sole authority on production volume. We solely make the decision on production volume of BN mine. This arrangement is effective during the life-of-mine ("LOM") of BN mine. See "Risk Factors – Risks Relating to our Business and Industry – We may have to make additional payments under the acquisition agreement for our BN mining license".

Quantitative and Qualitative Disclosures about Market Risk

We are, in the normal course of business, exposed to market risks relating primarily to credit risk, foreign currency exchange risk, interest rate risk, liquidity risk and commodity price risk.

Credit Risk

Our credit risk is primarily attributable to our cash at bank and trade and other receivables. We have a certain concentration credit risk as two customers accounted for 88.8% and 93.9% of our total trade receivables as of December 31, 2018 and 2017, respectively. See “Risk Factors – Our dependence on our major customers may cause significant fluctuations or declines in our revenues” and note 31(b) to our financial statements included elsewhere in this Offering Memorandum. For the year ended December 31, 2018, we had approximately US\$5.9 million in trade receivables and US\$98.9 million in other receivables. The other receivables of US\$95.6 million in 2018 primarily consisted of US\$39.3 million VAT and other tax receivables, US\$55.5 million other deposits and prepayments and US\$0.8 million of deposits, advances, prepayments and other receivables in the ordinary course of business. For the year ended December 31, 2017, we had US\$13.6 million in trade receivables and US\$58.8 million in other receivables. For the year ended December 31, 2016, we had approximately US\$11.8 million in trade receivables and US\$46.9 million in other receivables.

In accordance with our internal credit policy, we hold quarterly credit committee meetings to review, assess and evaluate our overall credit quality and the recoverable amount of each individual trade credit based on quantitative and qualitative analysis, and review the expected credit losses for the purposes of recording loss allowances to reflect changes in credit risk. The purpose of the credit policy is to set limits for and monitor the unsecured credit provided to customers at the Group level and to each single customer and the maximum contractual term for unsecured limit. Our management continues to monitor, on an ongoing basis, the exposure, including but not limited to the current ability to pay, and takes into account information specific to the customer and pertaining to the economic environment in which the customer operates considering current and forward-looking estimates.

Our other receivables are primarily VAT and other tax receivables, railway project related reimbursement, deposits and prepayments. We believe that no impairment allowance is necessary for our other receivables based on past experiences.

Substantially all of our cash at bank are deposited in reputable banks for which we assessed the credit risk to be insignificant.

Foreign Currency Exchange Risk

Cash and cash equivalents denominated in a currency other than the functional currency of the entity to which they relate as of December 2016, 2017 and 2018 amounted to US\$1.4 million, US\$0.4 million and US\$10.2 million, respectively. Total borrowings denominated in a currency other than the functional currency of the entity to which they relate as of December 2016, 2017 and 2018 amounted to nil, US\$443.7 million and nil, respectively.

We have not entered into any derivative instruments to manage foreign currency exchange fluctuations. However, our management monitors foreign exchange exposure and will consider hedging significant foreign currency exposure should the need arise.

Interest Rate Risk

Our exposure to interest rate risk relates primarily to our borrowings and our senior notes (which primarily comprise the 2022 Notes as of December 31, 2018), which totaled US\$80.7 million, US\$466.4 million and US\$443.7 million as of December 31, 2016, 2017 and 2018, respectively. In addition, an increase in prevailing interest rates would lead to an increase in interest cost on our short-term borrowings when such debt is rolled over. To date, we have not entered into any type of interest rate agreements or derivatives to hedge against interest rate fluctuations. To the extent that we decide to do so in the future, we cannot assure you that any such hedging activities will protect us from fluctuations in interest rates.

Liquidity Risk

Liquidity risk is the risk that we will not be able to meet our financial obligations as they fall due. To manage our liquidity risk, we maintain a balance between continuity of funding and the flexibility through the use of borrowings. Our management closely monitors our liquidity position and expects to have adequate sources of funding to finance our projects and operations. We maintain a suitable level of liquidity to finance daily operations, capital expenditures and repayments of borrowings. We regularly monitor current and expected liquidity requirements to ensure that we maintain sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet our liquidity requirements in the short and longer terms.

Commodity Price Risk

Our financial performance depends on coal prices. Prices of bulk commodities such as coal are affected by numerous factors such as interest rates, exchange rates, inflation or deflation and global and regional supply and demand. We have not entered into any commodity derivative instruments or futures to hedge against fluctuations of coal prices. Therefore, fluctuations in the prices of coal will have a direct effect on our results of operations.

Effects of Inflation

According to the Bank of Mongolia, Mongolia's annual inflation, as measured by the consumer price index, was 1.1% in 2016, 6.4% in 2017 and 8.1% in 2018. We do not consider inflation in Mongolia, where all of our operations are located, to have had a material impact on our results of operations.

Seasonality

Our site is fully operational throughout the year. The infrastructure and equipment used in our operations are designed to work during most weather conditions. Occasional inclement weather conditions, such as dust storms, have had no significant effect on our operations. However, our transportation and sales volume slow down during the winter period due to scheduled maintenance and the holiday seasons, such as the Chinese New Year, during which we usually perform additional scheduled maintenance work.

New Accounting Pronouncements

The International Accounting Standards Board has released revisions to existing and new accounting standards that may have a material impact on our future financial statements. We are currently evaluating the potential impact that the adoption of such accounting standards may have on our financial statements. See note 37 to our financial statements included elsewhere in this Offering Memorandum.

MONGOLIA

Unless otherwise expressly stated, the information set out in this section is derived from publicly available sources. Such information and statistics have been not verified by us or any of the Initial Purchasers or their or our respective affiliates or advisers. The information may not be consistent with other information compiled within or outside Mongolia.

Overview of Mongolia

As the world's second-largest landlocked country, Mongolia is located in northern Asia bordered by Russia in the north and China in the south, east and west. Its strategic location, providing direct access to markets in neighboring countries, has enabled Mongolia to serve as a transit country with a long history of international trade, dating from the Silk Road in the 13th century to modern export activity. Mongolia is 1,564.9 thousand square kilometers large with 8,253 kilometers of borders (4,710 kilometers in the south bordering China and 3,543 kilometers in the north bordering Russia).

Mongolia has a diverse and abundant supply of natural resources, including some of the world's largest known reserves of coal, copper and gold, which have only begun to be developed. Of the 86 minerals discovered thus far in Mongolia, only 20 minerals are being exported commercially. One of the Government of Mongolia's main objectives is to use modern technology and international mine planning and exploitation strategies to transform Mongolia's mining industry from extraction and export of unprocessed commodities to the domestic production of value-added mining products.

Mongolia's major exports are copper, coal, crude oil, zinc ore, iron ore, gold and cashmere. Its major export partner is China, with a smaller percentage of exports going to Russia, Canada, Italy, Korea, the United Kingdom, Germany and the United States. Mongolia's major imports are oil products, machinery and equipment, vehicles, food products, chemical and metallurgical industrial products. Its major import partners are China, Russia, the United States, Japan and Korea, with a small percentage of imports coming from Germany, Ukraine and Singapore.

Mongolia is geographically diverse. It has forested mountain ranges in the north; desert steppe and steppe areas with low mountains in the south; high mountains and glaciers in the west; and vast plains in the east. Mongolia has approximately 3,000 rivers with a combined length of approximately 67,000 km, over 3,000 lakes, 6,900 springs, 190 glaciers and 250 mineral water springs. Situated at an average altitude of 1,500 m above sea level, Mongolia experiences an extreme continental climate with long winters and short summers. Its average annual rainfall measures 200 to 220 millimeters and it has approximately 250 cloudless days each year, earning it the nickname "country of blue sky."

Ulaanbaatar is Mongolia's capital. It is also Mongolia's largest city, home to approximately 46% of the country's population. Ulaanbaatar has the lowest average temperature of any national capital in the world. Mongolia is divided into 21 aimags (provinces) which are further divided into 330 soums (districts). The Government of Mongolia administers its capital city, Ulaanbaatar, as an independent municipality separate from Tov aimag, in which it is located.

As of December 31, 2018, Mongolia had a population of approximately 3.2 million people, of which approximately 1.9 million people were of working age. The average life expectancy at birth was 69.89 years in 2017. Buddhism is the most prominent religion in Mongolia, though a small number of Christians, Muslims and Shamans reside in Mongolia. The official language is Khalkha Mongolian and is spoken by 90% of the population. English is replacing Russian as the most popular foreign language. Many Mongolians also speak Korean, Japanese, Chinese and other Western European languages.

Recent Political Developments

The Mongolian political system is established under the framework of parliamentary democracy. The State Great Hural is the unicameral 76-seat parliament with members elected for a term of four years. It elects the Prime Minister of Mongolia who heads the executive branch and appoints the Cabinet Ministers. The President of Mongolia is the Head of State and the Commander-in-Chief of Mongolia's armed forces with limited executive powers. The President is elected by a universal popular vote for a term of four years. The Judicial System of Mongolia consists of a three-tiered court system which are first instance, appellate and Supreme Court, and the judges are nominated by the Judicial General Council and by the Chief Justice of the respective instance court, for approval by the President. The electoral legal framework primarily comprises the Constitution, the 2015 Law on Elections, the 2006 Law on the Central Election Body, the 2011 Law on the Automated Election System, and regulations of the General Election Committee.

There have been seven parliamentary and presidential elections since 1991, each election being held once every four years. Although the MPRP won the parliamentary and presidential elections in 1992, MPRP was defeated by the Democratic Party in the subsequent parliamentary election in 1996. The MPRP won the 2000 election, but its representation in the Parliament was subsequently reduced in 2004.

After the 2004 election, a coalition government was formed and the leader of the Democratic Party, Mr. Elbegdorj Tsakhia, was elected as the Prime Minister. He was replaced by MPRP leader Mr. Enkhbold Miyegombo in January 2006. On November 7, 2007, the Prime Minister submitted a letter of resignation to the Parliament following his failure to be re-elected as the Chairman of the MPRP. Subsequent to Mr. Enkhbold Miyegombo's resignation, Mr. Bayar Sanjaa was appointed Prime Minister and a new government, comprised of the Prime Minister, ministers from the MPRP and ministers from other parties, was formed in November 2007.

The next parliamentary elections were held in June 2008, in which the MPRP won the majority of the parliamentary seats. Accusations of electoral fraud brought forward by the opposition led to the first-ever riots in Mongolia causing a number of deaths and property damages. Subsequently, despite MPRP's majority position in the Parliament, it invited opposition politicians to the Cabinet, forming a coalition government. Mr. Bayar held the position of the Prime Minister until October 2009 and was replaced by the previous Minister of Foreign Affairs, Mr. Batbold Sukhbaatar. The MPRP changed its name to the Mongolian People's Party ("MPP") in 2010.

Under the parliamentary election held in 2012, no single party won majority seats in the Parliament. As a result, Democratic Party, Justice Coalition and Civil Will-Green Party established a coalition by which the Government was formed. In the presidential election held in 2013, the Democratic Party nominee, incumbent President Mr. Elbegdorj Tsakhia, won for his second term since 2009.

In the last parliamentary elections, which were held in June 2016, the MPP won 65 out of 76 seats in Parliament, winning a clear mandate and avoiding the need to form a coalition government. As a result, Mr. Erdenebat Jargaltulga was appointed the Prime Minister. On October 4, 2017, Khurelsukh Ukhnaa, a former Deputy Prime Minister of Mr. Erdenebat Jargaltulga's Cabinet, was appointed as a Prime Minister to succeed Mr. Erdenebat Jargaltulga.

The seventh presidential election was held on June 26, 2017. None of the three candidates, Mr. Battulga Khaltmaa of the Democratic Party, Mr. Enkhbold Miyegombo of the MPP and Mr. Ganbaatar Sainkhuu of the Mongolian People's Revolutionary Party (which is a spin-off from the MPP by registering under its previous name), received a majority of the votes which lead to the second-round run-off between the two candidates with the most votes. As a result of the second round held on July 7, 2017 between Mr. Battulga Khaltmaa and Mr. Enkhbold Miyegombo, Mr. Battulga Khaltmaa, the candidate from the opposition party and a former member of the Parliament and Cabinet received a majority of the votes.

Recent Economic Developments

Mongolia operated as a Soviet-style centrally planned economy until the establishment of a new coalition government in 1990, which undertook a sustained transition to a free market economy. The Government relinquished its role as the central planner of Mongolia's economy and began limiting itself to making policies supporting a market-oriented economy. The main objectives of the Government include:

- increasing mining sector development, revising mining legislation and using a portion of mining revenues from strategic mining deposits for distribution among Mongolian citizens;
- developing and implementing Mongolia's industrial program, planning and developing mining-based industries and small and medium enterprises which use locally produced raw materials;
- improving agricultural production in particular, production of meat, milk, flour, potatoes and vegetables;
- providing health services and employment opportunities to Mongolian citizens and providing vocational training; and
- providing transparency and accountability in public administration.

Over the past two decades, Mongolia has transformed itself into one of the world's fastest growing economies, largely due to its rapidly developing mining industry and related increasing foreign investment. From 2003 through 2017, Mongolia experienced average real GDP growth of 7.7% per annum according to the IMF.

However, high levels of external debt and reduced foreign exchange reserves have created pressure on Mongolia's near-term fiscal stability. The Togrog depreciated against the U.S. dollar by 58.7% from December 31, 2013 to December 30, 2018, and by 80.3% against the RMB during the same period. In addition, the previous government administration implemented a number of monetary easing measures through policy lending programs.

In early August 2016, the Government announced the creation of a task force to address Mongolia's budget deficit, slowing economic growth and currency devaluation. Ratified by Parliament on September 9, 2016, the Government Action Plan for 2016-2020 aims to overcome short-term economic difficulties while attracting domestic and foreign investment and relieving economic pressure on citizens and domestic businesses by creating a more favorable long-term business environment. In April 2018, the Government announced that the implementation of the Government Action Plan for 2016-2020 was 44.6% completed.

Despite this rapid response by the MPP-led government, Mongolia's fiscal position deteriorated significantly in 2016, with high levels of external debt and reduced foreign exchange reserves creating pressure on its near-term fiscal stability. The Togrog continued to depreciate against the U.S. dollar and the RMB, and the MPP-led government inherited several outstanding loans. External indebtedness had risen significantly in recent years, and the near-term maturity of notes issued by DBM created concerns regarding depletion of Mongolia's foreign exchange reserves.

These adverse economic indicators led to Mongolia's sovereign credit rating being downgraded in August 2016 by S&P (from "B" to "B-") and Moody's (from "B2" to "B3"), with the rating agencies citing slowing growth and other weakened economic fundamentals. On November 18, 2016, Moody's further downgraded Mongolia's government long-term issuer and senior unsecured ratings to "Caa1," citing uncertainty regarding the Government's ability to meet its debt service obligations, Mongolia's external liquidity, the continuing budget deficit and a weaker growth outlook. On November 22, 2016, Fitch downgraded Mongolia's long-term foreign and local currency ratings from "B" to "B-," citing heightened external liquidity risks and weak economic growth. On February 19, 2017 Fitch affirmed Mongolia's long-term and local currency credit rating at "B-" with a stable outlook. On February 15, 2017, Moody's placed Mongolia's issuer rating on negative watch for downgrade, but on March 30, 2017, Moody's confirmed the Caa1 long-term issuer ratings and the Caa1 senior unsecured ratings of the Government with a stable

outlook, citing the abatement of liquidity pressures and the progress made in respect of a financial assistance program provided by the IMF. On April 18, 2017, S&P affirmed Mongolia's long-term sovereign credit rating at "B-" with stable outlook, citing weakening fiscal and growth performance prior to the approval of the Extended Funding Facility of the IMF on May 24, 2017. Following the economic growth in 2017, Moody's upgraded Mongolia's sovereign rating to "B3" in January 2018. On July 9, 2018, Fitch upgraded Mongolia's long-term foreign currency ratings from "B-" to "B," citing ongoing improvements to fiscal and external metrics and progress in meeting key IMF program targets.

In response to this difficult near-term fiscal position, the Government submitted a request to the IMF in September 2016 for financial assistance. To support its request, the Government formulated the Economic Recovery Plan, which reflected various policy recommendations made by the IMF, and Parliament subsequently approved the Economic Recovery Plan in November 2016. The Economic Recovery Plan is designed to stabilize short-term macro-economic conditions, to achieve sustainable debt levels and to implement medium-term economic structural reforms. It provides guidance on forming fiscal policies aimed at ensuring a sustainable deficit, monetary policies aimed at reducing the balance of payments pressure and stabilizing the exchange rate and strategies to increase reserves, promote foreign direct investment and address the Government's short-term payment obligations. Another goal of the Economic Recovery Plan is to encourage large scale projects in mining and infrastructure, including Phase II of Oyu Tolgoi, the Tavantolgoi – Gashuun Sukhait railway, the Tavan Tolgoi mine, the Tavan Tolgoi power plant, the Erdenet – Ovoot railway, the Khuut – Bichigt railway, the Bogd Khan railway and the Nariin Sukhait – Shivee Khuren railway. The Cabinet approved a detailed action plan for the implementation of the Economic Recovery Plan in December 2016. In November 2017, the Government announced the implementation of the Economic Recovery Plan was 60.9% completed. It is expected that the coordinated implementation of the Government Action Plan for 2016-2020 and the Economic Recovery Plan will enable the Government to meet its policy targets for the next year.

After visits from the IMF to Mongolia in late 2016 and early 2017, on February 19, 2017, the IMF reached staff-level agreement with Mongolia on the three-year Extended Fund Facility. On May 24, 2017, the IMF concluded the 2017 Article IV Consultation, an annual bilateral discussion on current economic and financial updates, with Mongolia. On the same day, the Government finalized the terms of the IMF's financial assistance package, which includes a three-year SDR 314.5 million (approximately US\$434.3 million) loan for Mongolia. This was agreed as part of a broader approximately US\$5.5 billion financing package supported by Japan, Korea, China, the World Bank and the ADB. Collectively, these measures are intended to provide near-term fiscal relief as Mongolia continues to develop its substantial mineral resources as the economy stabilizes over the coming years.

The combined program addresses the key issues discussed in the Article IV consultation, and aims to stabilize the economy, restore domestic confidence, and pave the way to economic recovery. The goal of the program is to achieve a sustainable, inclusive growth in the future of Mongolia. To achieve these goals, the Government intends to instill discipline in its fiscal and monetary policy and overall government expenditures and budget balance, maintain a flexible exchange rate, improve the Bank of Mongolia's independence and corporate governance, facilitate reforms in taxation and pension and public financial management. The Government also plans to pursue reforms to increase revenues from non-mining sectors and focus on establishing the basis of economic diversification and the strengthening of the financial sector.

According to the IMF, Mongolia's performance under the program remains strong. The fourth review under the program was completed on June 27, 2018. Total disbursements under the arrangement are SDR 131.0 million (approximately US\$184.6 million). Strong GDP growth and stabilizing inflation of the Mongolian economy has led to a 1.9% outperformance in GDP growth rate over IMF estimates for 2018.

The following table sets forth Mongolia's key macroeconomic data for the years or periods or as of the dates indicated below:

	As of and for the year ended December 31,					
	2013 ⁽¹⁾	2014 ⁽¹⁾	2015 ⁽¹⁾	2016 ⁽¹⁾	2017 ⁽¹⁾⁽²⁾	2018
Nominal GDP (MNT billions).....	19,174.2	22,227.1	23,150.4	23,942.9	27,895.5	32,166.0
Nominal GDP (US\$ millions ⁽³⁾) ..	12,492.1	12,197.6	11,725.0	11,053.4	11,193.1	12,187.5
Nominal GDP growth.....	14.9%	15.9%	4.2%	3.4%	16.5%	15.3%
Real GDP (MNT billions) ⁽⁴⁾	14,350.7	15,482.3	15,850.7	16,035.9	16,886.1	18,059.5
Real GDP (US\$ millions ⁽³⁾⁽⁴⁾	9,349.5	8,496.3	8,027.9	7,410.7	6,952.2	6,842.6
Real GDP growth ⁽⁸⁾	11.6%	7.9%	2.4%	1.2%	5.3%	6.9%
Nominal GDP per capita (MNT thousands) ⁽⁵⁾	5,052.5	5,330.6	5,347.6	5,297.8	5,439.4	9,903.2
Nominal GDP per capita (US\$ ⁽³⁾⁽⁵⁾)	3,496.0	3,249.5	2,906.0	2,602.0	2,291.0	3,752.3
Year-on-year inflation.....	12.5%	10.4%	1.9%	1.1%	6.4%	8.1%
Export (US\$ millions ⁽³⁾)	4,269.1	5,774.3	4,669.5	4,916.3	6,200.7	7,011.8
Imports (US\$ millions ⁽³⁾).....	6,357.8	5,236.7	3,797.5	3,358.1	4,335.5	5,875.0
Balance of payments (US\$ millions ⁽³⁾⁽⁶⁾)	(1,867.3)	(471.1)	(268.1)	(18.2)	1,459.9	(141.2)
Unemployment rate	7.9%	7.9%	7.5%	10.0%	8.8%	6.6%
External debt (US\$ millions ⁽³⁾⁽⁷⁾)	19,022.1	21,851	22,718	24,625	27,493	28,743.1
Current account (US\$ millions)...	(4731.8)	(1,934.3)	(948.5)	(699.7)	(1,155)	(1,902.1)
Financial account (US\$ millions).....	2,807.9	1,503.8	788	811.9	2,593.3	1,800.5
Gross foreign exchange reserves (US\$ millions ⁽³⁾⁽⁶⁾)	2,248.0	1,649.9	1,323.1	1,296.3	3,008.1	3,541.6
Population	2,930,277	2,995,949	3,057,778	3,120,931	3,177,899	3,248,032

Sources: Bank of Mongolia; World Bank; National Statistical Office of Mongolia

(1) National Statistical Office of Mongolia, except otherwise indicated.

(2) Provisional figures subject to further adjustments.

(3) The following exchange rates were applied: 2012 – MNT1,359.32 = US\$1.00, 2013 – MNT1,534.91 = US\$1.00, 2014 – MNT1,822.25 = US\$1.00, 2015 – MNT1,974.44 = US\$1.00, 2016 – MNT2,165.98 = US\$1.00, 2017 – MNT2,427.13 = US\$1.00 and December 31, 2018 – MNT2,462.82 = US\$1.00.

(4) Real GDP calculated at 2010 constant prices.

(5) Nominal GDP per capita calculated at 2010 constant prices.

(6) Bank of Mongolia.

(7) "External debt" includes external debt of and external debt guaranteed by the Government and the Bank of Mongolia, external debt of commercial banks and other sectors and direct investment according to the Bank of Mongolia.

(8) Based on real GDP figures in MNT billions.

Mining Sector

In 2015, 2016 and 2017, the mining and quarrying sector accounted for 17.1%, 20.0% and 23.4% of nominal GDP, respectively. While the sector grew by 19.4% in 2014, primarily due to the commencement of exports by Oyu Tolgoi, it recorded a negative growth rate of 5.5% in 2017, primarily due to decreased production of minerals other than coal, lignite and metal ores. Total foreign trade turnover rose 22.3% in 2018, driven by increases in export revenues, particularly from resources such as coal.

The contribution of coal to Mongolia's exports has significantly increased in the last couple of years. Total coal exports were 33.4 million tons in 2017, 25.8 million tons in 2016 and 14.5 million tons in 2015.

Mongolia has US\$1.3 trillion in proven mineral resources including Oyu Tolgoi, the world's third largest copper mine, Tavan Tolgoi, one of the world's largest global coal deposits, and Erdenet which produces approximately 29 million tons of ore per year and has an estimated 1.5 billion tons of recoverable copper and molybdenum. Key resources where production is expected to grow in the next decade include copper, gold, oil and uranium.

Mongolia's mining industry is still in its early stage of development due in large part to the rugged and remote terrain where key deposits are located. However, a number of significant projects have been undertaken in recent years to develop Mongolia's extensive mineral resources:

- **Oyu Tolgoi:** The signing of an Investment Agreement in October 2009 with Rio Tinto and Ivanhoe Mines to develop the Oyu Tolgoi mine, one of the world's largest copper-gold reserves under development, represents a major milestone in the development of Mongolia's mining sector. The mine is expected to commence full operations after the construction of an underground mining expansion, which the Government expects will be completed between 2021 and 2024. According to Turquoise Hill, the in-country spend related to Oyu Tolgoi was approximately US\$7.2 billion for the period from 2010 to 2017.
- **Tavan Tolgoi:** In 2010, Erdenes Tavan Tolgoi (a government-owned company) began developing Tavan Tolgoi, which is believed, according to the World Bank, to be one of the world's largest coal deposits under development with an estimated 7.4 billion tons of coking and thermal coal resources. Tavan Tolgoi's resources are located mainly in the east and west sections of the Tsankhi coalfield and comprised of six coalfields: (i) Sharteeg, (ii) Ukhaa Khudag, (iii) Bor Tolgoi, (iv) Borteeg, (v) the Southwest coalfield and (vi) the Eastern coalfield.
- In addition, Mongolia possesses large reserves of copper, gold, uranium and rare earth minerals that are being developed at numerous sites.

Recent Government initiatives related to infrastructure development, particularly policy statements for national railroad expansion, are expected to accelerate the development of strategic natural resource deposits in the coming years. Key mining projects as well as improvements to infrastructure supporting these mining projects are expected to have a positive impact on Mongolia's overall economic situation as commercial production commences. Parliament has approved the establishment of a commodities exchange in Mongolia and the relevant legislation and policy are under discussion. In 2014, Mongolia and China also signed a memorandum of understanding, pursuant to which Mongolia expects to supply 1.0 billion tons of coal to China over the next 20 years, priced according to market conditions. As part of the 2016-2020 Government Action Plan and the Economic Recovery Plan, the Government expects to expand its mining industry and revitalize the economy pending improved external conditions regarding commodities prices.

INDUSTRY OVERVIEW

We commissioned Shanxi Fenwei, a leading Chinese consultancy and service provider in coal and coke industry, to prepare an independent report for use, in whole or in part, in this section. Shanxi Fenwei prepared its report based on its industry knowledge, in-house database, independent third-party reports and publicly available data from reputable industry organizations. Where necessary, Shanxi Fenwei visits companies operating in the industry to gather and synthesize information about the market, prices and other relevant information. Shanxi Fenwei has assumed that the information and data on which it relied are complete and accurate.

Forecasts and assumptions included in the Shanxi Fenwei Report are inherently uncertain because of events or combinations of events that cannot reasonably be foreseen, including, without limitation, the actions of governments, individuals, third parties and competitors. Specific factors that could cause actual results to differ materially include, among others, fluctuations in coal prices, risks inherent in the mining industry, financing risks, labor risks, uncertainty of mineral reserve and resource estimates, equipment and supply risks, regulatory risks and environmental concerns.

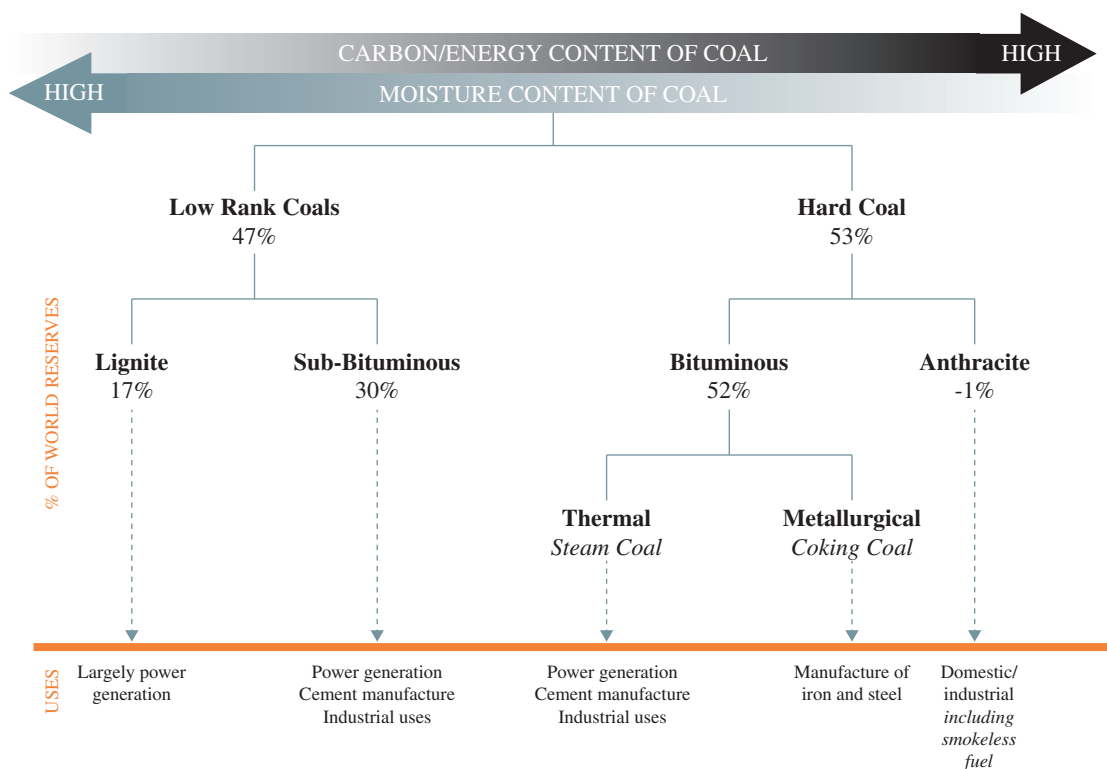
Shanxi Fenwei has provided part of the statistical and graphical information contained in this section, including tables of historical data and estimated future supply, demand and market trends created by compiling, interpreting and analyzing engineering, production, economic, statistical and technical information from many third-party sources. The information contained herein has been obtained from sources believed by Shanxi Fenwei to be reliable, but there can be no assurance as to the accuracy or completeness of included information. Most of the data presented in this section with respect to the Chinese coal industries has been extracted from the Shanxi Fenwei Report.

Unless otherwise specified, all of the data presented in this section with respect to Chinese coal reserves and resources refer to the Chinese national standard for the Classification of Resources/Reserves for Solid Fuels and Mineral Commodities (GB/T 17766-1999).

While we, the Initial Purchasers and the other parties involved in the offering have taken reasonable care in the extraction, compilation and reproduction of the information and statistics from the Shanxi Fenwei Report, none of us, the Initial Purchasers and the other parties involved in the offering has independently verified the information and statistics derived directly or indirectly from official government sources or made any representation as to their accuracy. Such information and statistics may be out of date and may not be consistent with other information and statistics compiled within or outside Mongolia. You should not place undue reliance on such information and statistics contained in this section.

An Introduction to Coking Coal

Coal is one of the most abundant fossil fuels worldwide. Different types of coal exist depending on the various changes undergone as the coal matures in carbon content from peat (lowest form) to anthracite (highest form), which also effectively “ranks” the coal in terms of its physical and chemical properties. The diagram below summarizes the different types of coal and respective end-uses, including electricity generation, coke production for steel making, and industrial applications such as cement manufacturing:



Source: World Coal Association

Low rank coal (e.g. lignite and subbituminous coal) or “brown” coal is typically softer, friable and dull and earthy in appearance. Typically, these types of coal are characterized by high moisture levels and low carbon content, yielding lower energy content. Higher rank coal or “hard” coal (e.g. thermal, coking coal and anthracite) is generally harder and stronger with a black, vitreous luster. These types of coal contain more carbon, have lower moisture content and generate more energy than low rank coal.

While there are several systems of coal classification used around the world, coking coal can be broadly categorized into four distinct grades, namely HCC, semi-HCC, semi-soft coking coal and soft coking coal. Hard/semi-HCC is essential for the production of coke, which is used as a reductant in the manufacturing of iron and steel. Semisoft/soft coking coal is typically used for blending purposes to enhance certain physical and chemical parameters of the coke but in a way that reduces costs by maximizing the proportion of less expensive HCC.

China Coal Classification

According to the Chinese Coal Classification Standard (“CCCS”), coal is classified into three categories based on metaphoric rank: lignite, bituminous and anthracite. Bituminous is further classified into several types based on volatile matter and G Index. Coking coal is composed of (“PS”), lean coal (“SM”), primary coking coal (“JM”), fat coal (“FM”), 1/3 coking coal (“1/3 JM”), gas fat coal (“QF”), and gas coal (“QM”). There is no direct correlation between the Chinese and other international classifications although HCC under general international standards is equivalent to JM and FM in China, while semi-soft coking coal is similar to 1/3 JM and SM in China. The table below sets out the translation between the general international standards and the CCCS:

Type	Similar Chinese type	Ash (ad, %)	Volatile matter (ad, %)	CSN	CSR (%)
Premium hard coking coal ..	JM, FM	<8.5	19-38	8-9	55-74
Standard hard coking coal ..		<9.7	19-38	6-9	>55
Semi-hard coking coal.....	1/3JM, SM	8.0-10.5	17-26	4-6	50-60
Semi-soft coking coal.....		8.0-11.0	25-41	3-8	45-55
Low volatility PCI	QM, PM, SM, RN	6.0-10.5	10-19	1-2	–
High volatility PCI.....		4.0-10.0	26-42	1-5	–

Source: Fenwei Energy

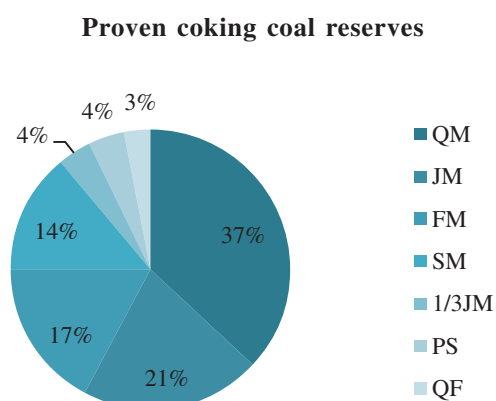
Note: RN is weakly sticky coal in the Chinese classification of coal. RN is used as thermal coal for power generation mostly, but it can also be used as PCI for making pig iron.

Chinese Coking Coal Industry Overview

According to Shanxi Fenwei, China will remain a major export market for Mongolian coal from 2019 to 2023. In this context, Shanxi Fenwei analyzed the Chinese coking coal supply and demand dynamics.

China Coking Coal Reserves

China has abundant coal reserves, but coking coal accounts for a minority of total coal reserves at a distinct geographic concentration. As of 2017, the mineable coking coal reserves accounted for 25% of total mineable reserves. Within the proven coking coal reserves, JM and FM together accounted for 38% of the proven coking coal reserves. The chart below illustrates the distribution of the proven coking coal reserves by category:

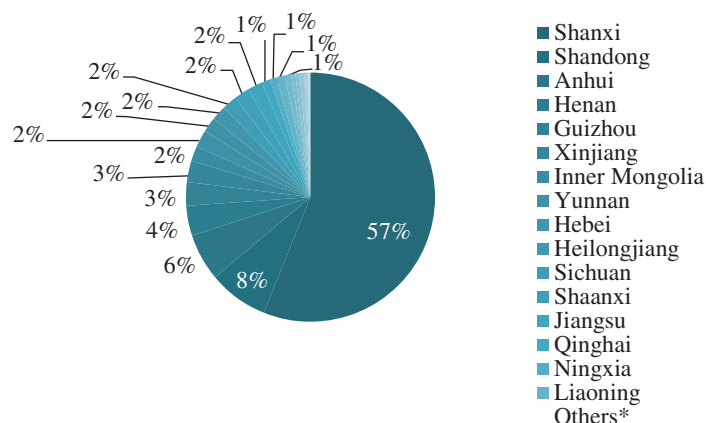


Source: MNR, Fenwei

The top ten provinces with respect to mineable coking coal reserves are Shanxi, Shandong, Anhui, Henan, Guizhou, Xinjiang, Inner Mongolia, Yunnan, Hebei and Heilongjiang, totaling 90% of the total mineable coking coal reserves in China in 2017. Shanxi has the most mineable coking coal reserves, accounting for 57% of the total minable coking coal reserves in China in 2017.

2017 China minable coking coal reserves by province

Unit: Bt



Sources: Fenwei

* Others include Jiangxi, Hunan, Jilin, Guangxi, Hubei, Zhejiang, Guangdong, Fujian, Beijing and Hainan

China's Structural Supply Side Reform

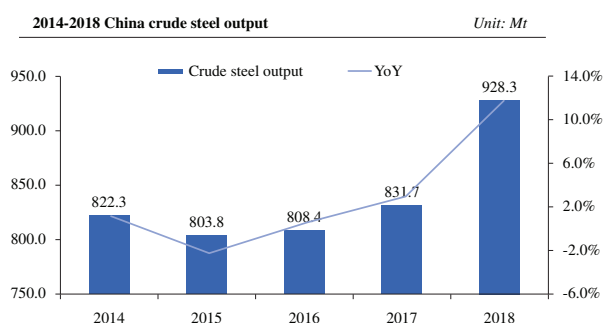
Since 2016, China's coal sector has experienced significant structural changes, driven by a focus on the environment, mine safety and the elimination of excess and outdated capacity. These changes are guided by the "Thirteenth Five-Year Plan for the Coal Industry" where China plans to eliminate 800 Mt of backward capacity by 2020. From 2016 to 2018, a total of 700.9 Mt of backward capacity was eliminated. According to Shanxi Fenwei, 54.2 Mt of coking coal capacity, or 30% of the total coal capacity eliminated in 2018, was eliminated, and the elimination mainly occurred in Shanxi (12.7 Mt or 23.4% of the total coking coal capacity eliminated) and Heilongjiang (11.77 Mt or 21.7% of the total eliminated coking coal capacity). According to the notice issued by the National Energy Administration on July 31, 2017, mining rights that may interfere with nature reserves, scenic spots and protection areas for drinking water sources were to be withdrawn in principle before 2020. Accordingly, China is expected to continue to shut down 91.4 Mt more of coking coal capacity from 2019 to 2023, of which 38.7 Mt is expected to be withdrawn in 2019.

In order to reduce the impact of the capacity elimination on coal supply, the National Development and Reform Commission along with three other ministries published a notice on February 9, 2018, proposing to further accelerate capacity replacement and the release of high-quality capacity. The newly-operating coking coal capacity (part of newly-built and expanding capacity changing into operating capacity) is predicted to reach 132.2 Mt in China from 2019 to 2023, of which 38.5 Mt is estimated to become operational in 2019.

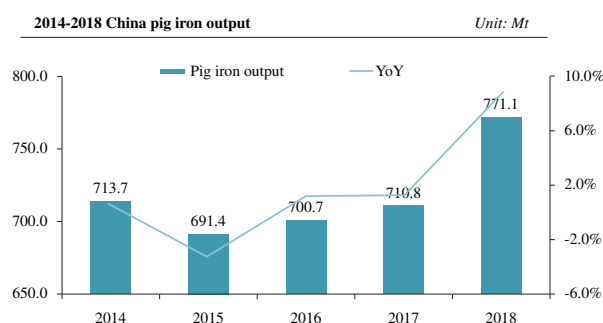
Overall, from 2019 to 2023, the total coking coal production in China is expected to decrease slightly and is estimated to reach 460.8 Mt in 2019. The total coking coal production is then expected to decrease at a CAGR of -0.2% to 457.7 Mt in 2023. Washed HCC production is projected to reduce from 254.6 Mt in 2019 to 252.6 Mt in 2023 at a CAGR of -0.2%, of which washed JM production will decrease from 150.5 Mt in 2019 to 149.6 Mt in 2023 at a CAGR of -0.1%, and washed 1/3 JM production is expected to decrease from 38.7 Mt in 2019 to 38.2 Mt in 2023 at a CAGR of -0.3%.

China Structural Demand Side Reform

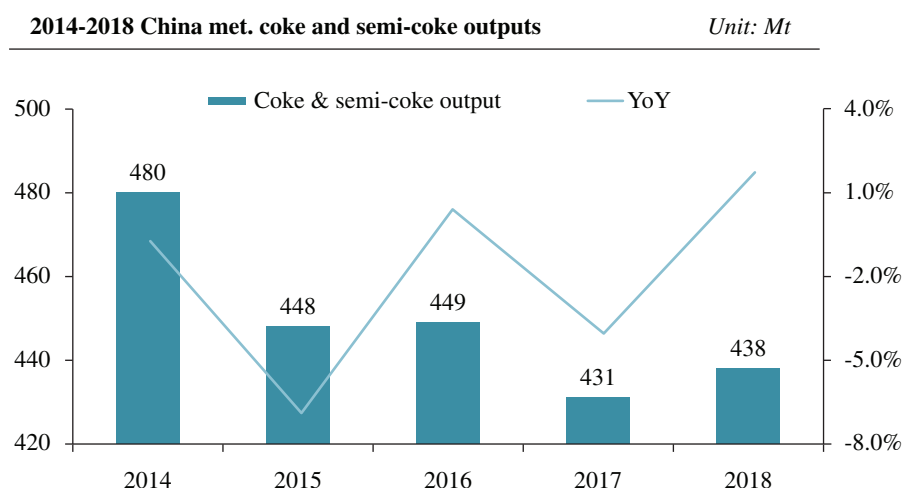
In China, demand for coking coal mainly comes from the steel industry, which experienced significant growth in 2018 due to an increase in real estate investments. In 2018, crude steel and pig iron outputs reached 928.3 Mt and 771.1 Mt, representing growths of 11.6% and 8.5% from 2017, respectively. As a result of the demand from the increase in the steel production, coke production (including semi-coke) reached 438 Mt, representing an increase of 2.2% from 2017. The charts below illustrate the historical crude steel, pig iron and coke and semi-coke output in China from 2014 to 2018:



Source: NBS, Fenwei



Source: NBS, Fenwei



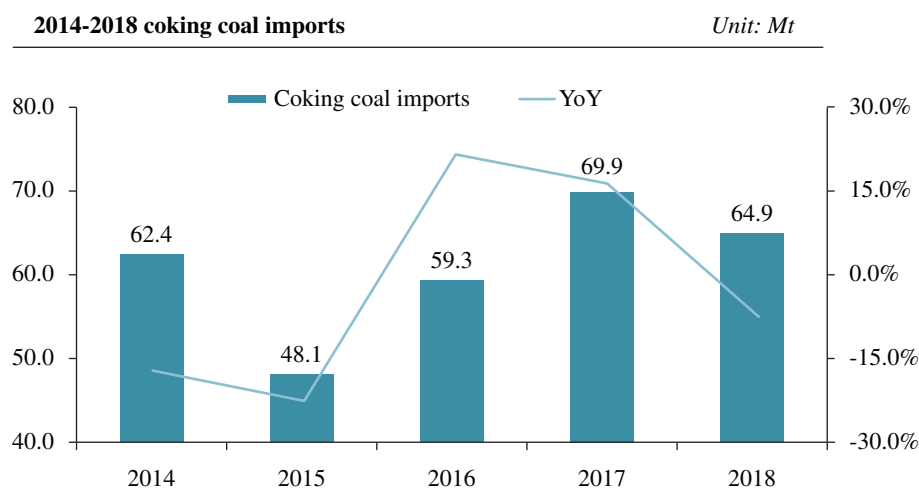
Source: NBS, Fenwei

In recent years, Chinese steel mills have been actively building large scale blast furnaces to increase their competitiveness, which require relatively smaller floor spaces, higher productivity and the use of more advanced technology. Large scale blast furnaces require a stable blending ratio of quality coking coal. Even though coking plants in China generally improve coke quality by applying stamp charging technology, HCC is still indispensable and coking plants can only slightly lower the blending ratio of HCC to save costs. From 2017 to 2018, the demand for washed coking coal in China increased 0.8% to 520.1 Mt, but the demand for HCC increased 2.0% from 2017, which accounted for 302.1 Mt or 58% of total coking coal demand.

From 2019 to 2023, it is expected that the demand for steel in China will decline slightly because of trade frictions, weak external economic growth and the pressure on the domestic economic growth. As demand for steel declines, China's crude steel, pig iron and coke production will also show a downward trend. Crude steel output is projected to decrease to 886 Mt in 2023 from 920 Mt in 2019 with a CAGR of -0.9%. Pig iron production is expected to 712 Mt in 2023 from 750 Mt in 2019 with a CAGR of -1.3%. Coke and semi-coke will drop to 427 Mt in 2023 from 434 Mt in 2019 with a CAGR of -0.5%. Therefore the demand for coking coal is also expected to decrease at a CAGR of 0.4% from 515 Mt in 2019 to 507 Mt in 2023.

China Coking Coal Import Analysis

Since the implementation of a policy restricting coal imports in July 2017, the amount of coal China imported has decreased significantly, which has also impacted China's overall coal supply. The import restriction was temporarily relaxed in December 2017, but China instituted a new round of restrictions in April 2018. Compared with the import restriction in 2017, the new restrictions instituted in 2018 mainly focus on restricting imports ordered by traders while imports ordered by end-users were less restricted. In addition to these import restrictions, the seaborne coking coal supply was affected by the disruption in transportation in Australia caused by severe weather conditions, trade frictions and production suspension of some international mines. As a result, China coking coal imports decreased 7.2% from 2017 to 64.9 Mt in 2018. The chart below illustrates the coking coal imports by China for the periods indicated:



Source: NBS, Fenwei

In 2018, China imported coking coal mostly from Australia and Mongolia, each contributing 28.3 Mt (an 8.8% decrease from 2017) and 27.7 Mt (an increase of 5.4% from 2017), respectively. The table below sets out the China's coking coal imports by origin for the periods indicated:

2014-2018 China coking coal imports by origin Unit: Mt

Origin	2014	2015	2016	2017	2018	YoY
Australia.....	31.3	25.9	26.8	31.0	28.3	-8.8%
Mongolia.....	14.8	12.7	23.6	26.3	27.7	+5.4%
Canada	7.2	5.7	5.2	4.3	2.2	-47.9%
Russia	5.8	3.2	2.6	4.6	4.4	-4.2%
Others	3.4	0.6	1.1	3.8	2.3	-38.6%

Source: GAC

From 2019 to 2023, China's coking coal imports are expected to decline at a CAGR of -0.4% due to softening domestic demand and existing and future import restriction policies.

China Coking Coal Supply-Demand Dynamics

In 2018, the demand for washed coking coal slightly exceeded the supply. As domestic supply capability gradually increases, domestic washed coking coal supply is expected to continue to increase, and the total washed coking coal supply is expected to slightly exceed the demand in 2019 as set out in the table below. However, due to the gradual degrading of domestic coal quality, demand for imported high-quality coking coal, especially low-ash and low-sulfur HCC, will remain high. The table below illustrates China's coking coal supply and demand dynamics for the periods indicated:

2018-2023 China coking coal supply-demand balance

Unit: Mt

	2018	2019E	2020E	2021E	2022E	2023E	CAGR 19-23
Washed coking coal output	455.5	460.8	460.6	460.1	458.8	457.7	-0.2%
Imports.....	64.9	63.0	62.7	62.5	62.2	62.0	-0.4%
Washed coking coal imports	55.3	55.7	54.9	54.9	55.1	54.9	-0.4%
Exports.....	1.1	1.0	2.0	2.2	2.4	2.7	27.7%
Net imports	54.2	54.7	52.9	52.7	52.6	52.2	-1.2%
Total washed coking coal supply.....	509.7	515.6	513.5	512.8	511.4	509.9	-0.3%
Coking coal demand.....	547.5	542.5	538.8	538.5	537.7	534.1	-0.4%
Washed coking coal demand.....	520.1	515.4	511.9	511.6	510.8	507.3	-0.4%

Source: Fenwei

Mongolian Coking Coal Industry Overview

Mongolian Coking Coal Resources

Mongolia has rich coal resources, and its total coal reserves amounted to 173.3 billion tons as of year-end 2015, 12.4% (21.5 billion tons) of which are proven reserves based on statistics from the Mongolia Ministry of Fuel and Energy. Mongolia also has great coal type varieties, of which 25% of the reserves are lignite (in the central and eastern regions), 40% of the reserves are thermal coal (in the western and northern regions), and 35% of the reserves are coking coal (in the central and southern Gobi regions). The map below illustrates Mongolian coal resource distribution and how metamorphic ranks of Mongolian coal increase from the east side to the west side of Mongolia:

Mongolian coal resource distribution



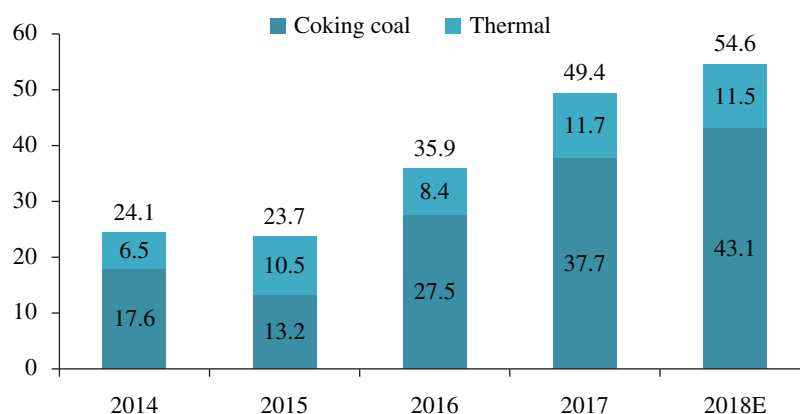
Source: Fenwei

Mongolian Coal Production

From 2014 to 2017, Mongolian coal production has fluctuated with the coal demand from China, and according to the Mongolia Ministry of Fuel and Energy, Mongolian raw coal output reached 49.4 Mt in 2017. Mongolian coal production is expected to reach 54.6 Mt in 2018, representing a 10.6% increase from 2017 despite newly implemented import restrictions in China. The chart below illustrates Mongolian raw coal output by coal type for the periods indicated:

2014-2018 Mongolian raw coal output by coal type

Unit: Mt

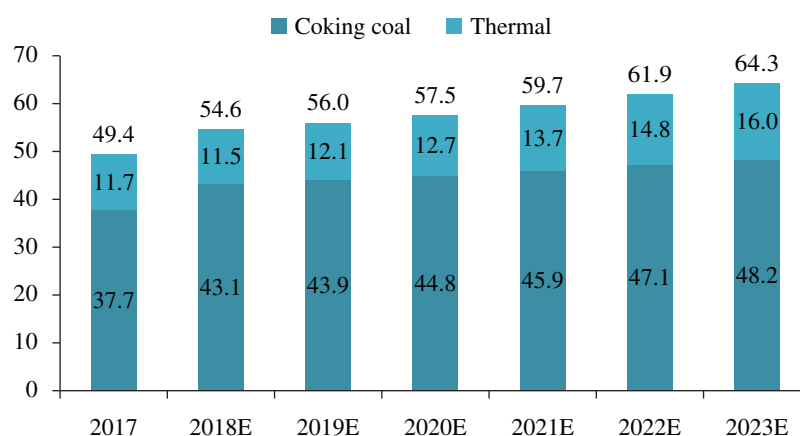


Sources: MRPAM, Fenwei

Mongolian coal output is expected to increase to 56.0 Mt (43.9 Mt for coking coal and 12.1 Mt for thermal coal) in 2019, and continue to increase at the CAGR of 3% (2% for coking coal production and 7% for thermal coal production) to reach 64.3 Mt (48.2 Mt of coking coal and 16.0 Mt of thermal coal) in 2023. Such output growth will be driven by an increase in demand for imported high-quality coking coal from China and the production capacity expansion and domestic demand for coal within Mongolia. The chart below illustrates Mongolian raw coal output by coal type for the periods indicated:

2017-2023 Mongolian raw coal output by coal type

Unit: Mt



Source: Mongolian Resource and Petroleum Authority of Mongolia MRPAM, Fenwei

Mongolian Coal Transportation Infrastructure

Currently, approximately 90% of Mongolian coal exported to China uses either the GS-GM route or the Shivee Khuren (Mongolia)-Ceke (China) route.

GS (ten kilometers from the GM border checkpoint in China) is currently the largest border checkpoint in Mongolia for its coal exports, and it is designed to process up to 30 Mt coal exports per annum. TT, UHG and ETT export their coal to China through the GS border checkpoint by mainly relying on road transportation. The GM border checkpoint is connected with the Ganquan Railway, which is owned by the Shenhua Group in China. The border has sound supporting facilities, including processing park zones, coal import firms and customs supervision sites. GM's "five in five out" tollgate was officially put into operation in 2013, designed to accommodate for a capacity of 30 Mt. The "seven in seven out" customs clearance passage is expected to be completed in 2019 and the clearance capacity is expected to be further improved after completion. In 2011, MMC built an asphalt road from UHG Mine to GM Border, which remains in good condition. Transport costs from UHG to GM is 20.5 US\$/t or 135 yuan/t. In 2018, the customs release at GM Border cost 27.1 yuan/t, roughly flat from a year ago.

UHG $\xrightarrow{210\text{ km}}$ Tsagaan Khad $\xrightarrow{30\text{ km}}$ Gashuun Sukhait $\xrightarrow{10\text{ km}}$ Ganqimaodu

Mongolia plans to build six border-linked railways, which will connect with Ceke and GM borders in West Mongolia and Laoyemiao Border in Xinjiang. These railways will facilitate Mongolian mineral exports. Currently it is only the TT-GM railway that is being built, although progress has been slow (since commencement of construction in 2013) due to financial challenges and setbacks in the TT mine project. The date of completion is difficult to estimate. The railway adopts the same track gauge standard as China.

After the TT-GM railway becomes operational, TT coal can be directly transported to GM. Shanxi Fenwei expects transport costs to be 7 US\$/t or 48 yuan/t, significantly lower than the current level. Given China's coal imports from Mongolia may fall slightly based on Shanxi Fenwei's forecasts, while border clearance capacity will improve upon facility renovation and eased congestion at the borders, roadway transport costs are expected to decrease. Subsequently, it is expected to cost 22 US\$/t or 148 yuan/t to carry UHG coal to GM by truck.

Mongolian Coal Exports to China

Mongolia's coal exports to China are expected to reach 36.2 Mt in 2018, representing an increase of 6.6% from 2017. The table below sets out a breakdown between thermal and coking coal for the periods indicated:

2014-2018 Mongolia coal exports to China by type

Unit: Mt

	2014	2015	2016	2017	2018E	YoY
Total	19.3	14.3	26.4	34.0	36.2	6.6%
Thermal coal	4.5	1.7	2.8	7.7	8.6	10.8%
Coking coal	14.8	12.7	23.6	26.3	27.7	5.4%

Sources: NBS, Fenwei

Compared to importing seaborne coal to China, Mongolian coal can be quickly transported to meet the demand from China. From 2019 to 2023, Mongolian coal exports are expected to remain at around 32-35 Mt with coking coal at 24-27 Mt and thermal coal at 8-8.5 Mt.

Competitive Positioning and Target Markets for MMC Coal

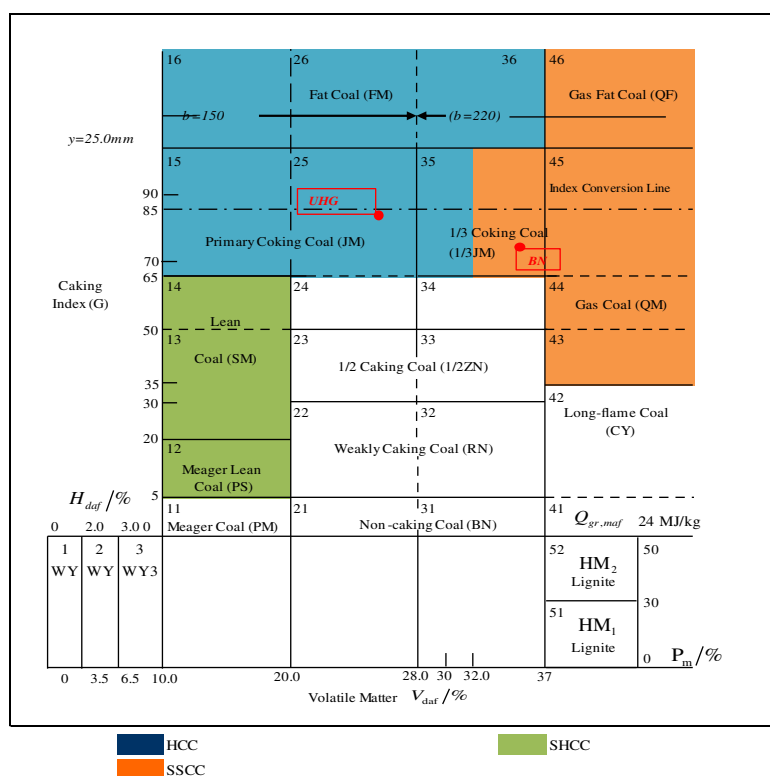
MMC Coal Quality Evaluation

MMC is currently operating two coal mines in South Gobi Province. The UHG mine mainly produces HCC, and the BN mine produces SSCC. The table below sets out the coal quality indicators and CCCS classifications:

UHG and BN coal quality indicators						Unit:%, mm
Coal type	Moisture (ad)	Ash (ad)	Volatility (daf)	Sulfur (ad)	CSN	CSR
HCC	8.3	10.5	26	0.7	7.6	62-64
SSCC		9.5	35	0.7		

Source: MMC

UHG and BN Coal Products under the Chinese Coal Classification Standard



Source: Chinese Coal Classification Standard (GB/T 5751-2009)

MMC's HCC has medium ash, low sulfur, mid-to-low volatility and strong caking. MMC's HCC can generate plastic mass with proper heat stability when heated. When used separately, MMC's HCC is able to produce high-quality coke with large lumpiness, less cracks, high crushing strength and high HGI. The big expansion pressure during coking makes it hard for coke pushing, which requires gas coal and lean coal to be blended into feed to improve oven environment and enhance coke quality. MMC's HCC helps enhance coke mechanical strength.

MMC's SSCC features low ash, low sulfur, mid-to-high volatility and medium caking quality. MMC's SSCC can produce high-quality coke with high strength and better fusibility. MMC's SSCC is a highly preferred blending coal, because it can improve coke quality with a flexible blending ratio.

A Quality Comparison With Rival Coals

MMC's HCC contains medium ash, low sulfur and high caking property. Compared to domestic coal, MMC's HCC contains similar ash content and lower sulfur content, while having inferior qualities for volatile matter content (or "Vdaf"), which is the content of volatile substances in the combustion component. Compared to Australian coal, the ash and sulfur content of MMC's HCC are similar, while other indicators of MMC's HCC are inferior to Australian coal's. MMC's SSCC has low ash content and sulfur and medium caking property, similar to Shanxi Linfen 1/3 JM from China. Compared to Australian coal, the ash content of MMC's SSCC is slightly lower but is inferior. In terms of quality indicators and caking property, MMC HCC is close to JM in Inner Mongolia's Baotou area with a competitive edge due to low ash and sulfur content.

The table below compares the major quality indicators between MMC coal and their Chinese and Australian equivalent coals:

Quality comparison between MMC coal and major rival coals

Unit: %, mm

Coal type	Origin	Ash (ad)	VM (daf)	Sulfur (ad)
JM (or HCC)	UHG	10.5	26	0.7
	Baotou of Inner Mongolia	10.5	25	0.8
	Gujiao of Shanxi	10	21	1.3
	Wuhai of Inner Mongolia	10.5	26	1.1-1.3
	Australia Peak Downs	10.0	21	0.5
1/3JM (or SSCC)	BN	9.5	35	0.7
	Wuhai of Inner Mongolia	10.5	32	1
	Linfen of Shanxi	10.5	35	0.8-1.2
	Australia Blackwater	10.0	30	0.4

Source: Fenwei

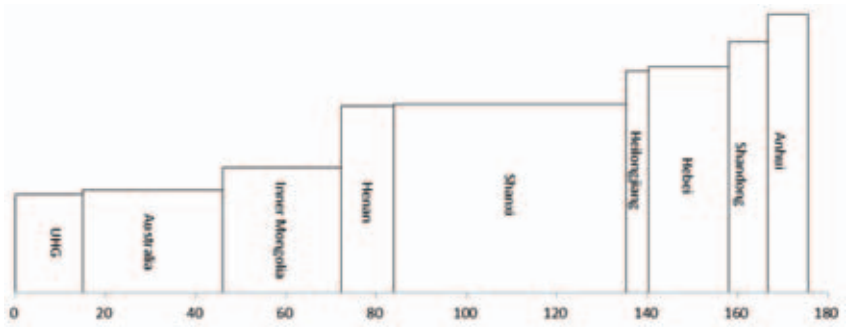
Note: Fenwei selected the JM from Tunlan Mine to represent Gujiao JM quality, and the JM from Xingwu Mine to represent Liulin JM quality, as well as the 1/3 JM from Yuanxing Mine to represent Linfen 1/3 JM quality. The benchmark Australian HCC and SSCC are the coals delivered to China's Jingtang Port.

A Production Cost Comparison With Rival Coals

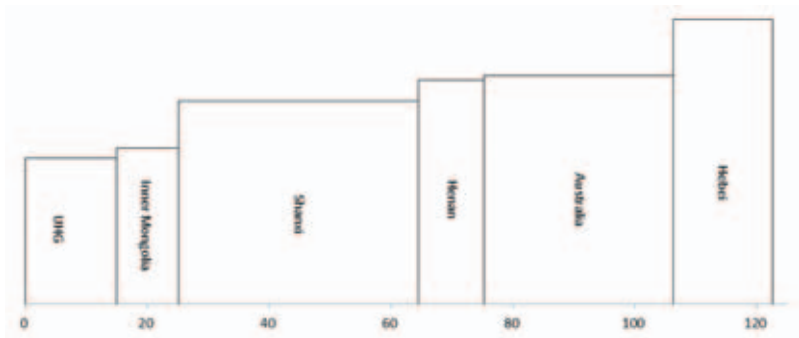
MMC's washed coal production cost is competitive because of shallow burial depth, low labor costs and moderate washed coal yield. Among the main coking coal producing provinces in China, raw coal production costs are high in Anhui, Shandong and Hebei due to difficulties in mining and high maintenance costs. Production costs are low in Shanxi, Henan and Inner Mongolia because of relatively larger mines and less complex geological conditions. Moreover, compared to Mongolian coal in Inner Mongolia, Shanxi, Henan and Hebei coals have higher transportation costs. In addition, because Australian coal needs to be shipped to Jingtang Port first and then sold to various points of consumption, transportation costs are also high for Australian coal. As a result, UHG coal costs in the Inner Mongolia market are lower than those of the main domestic coking coal producers and Australian producers. Inner Mongolia is the main target market region of MMC.

According to Shanxi Fenwei, UHG’s production coal cost is at the low end of the cost curve. UHG’s coal cost is 172 yuan/t, lower than Australia’s average cost of 180 yuan/t and Chinese producers’ cost range of 220-487 yuan/t.

2018 coking coal (JM) production costs at main producing regions *Unit: yuan/t*



2018 coking coal (JM) cost comparison in Inner Mongolia *Unit: yuan/t*



Target Markets for UHG and BN Coals

Currently, MMC’s coal is transported to GS by road, and once it has arrived at GM, it is railed to Wanshuiquan in Baotou by the Shenhua Ganquan Railway and transported either westward to Gansu, Inner Mongolia’s Wuhai and/or Xinjiang, or eastward to Baotou, Tangshan, Shandong and/or Jiangsu. The map below illustrates such transportation options:



Source: Company presentation

Inner Mongolia is rich in coking coal resources, and its coking coal output is on a slightly growing trend. However, the coke produced locally has high ash and sulfur content and will not meet the requirements of steel mills. In Hebei's Tangshan, there are presently no large-scale new or expanding mine projects, while existing coal mines are gradually becoming depleted. In Shandong, coking coal resources are rich, of which gas and gas SM are ample, but its JM reserves are limited. In Jiangsu, there is no washed JM, and its 1/3 JM production is gradually declining. In Gansu, all JM and 1/3 JM demands rely on other provinces. In Xinjiang, coking coal resources are scarce. The table below sets out the forecasted demand and supply gap within the geographic locations and periods indicated:

2019-2023 washed coking coal supply-demand gap forecast

Unit: Mt

		2019E	2020E	2021E	2022E	2023E
	Total	-26.1	-26.1	-26.3	-26.5	-26.4
Washed JM.....	Inner Mongolia	-0.1	0.1	0.1	0.2	0.4
	Hebei Tangshan	-9.0	-9.2	-9.5	-9.7	-9.9
	Shandong	-11.3	-11.2	-11.1	-11.1	-10.9
	Jiangsu	-7.5	-7.5	-7.5	-7.5	-7.5
	Gansu	2.7	2.7	2.7	2.7	2.7
	Xinjiang	-1.0	-1.0	-1.1	-1.1	-1.1
	Total	-10.1	-10.6	-10.8	-11.1	-11.2
Washed 1/3 JM.....	Inner Mongolia	0.7	0.4	0.3	0.3	0.2
	Hebei Tangshan	-3.3	-3.4	-3.5	-3.7	-3.8
	Jiangsu	-4.8	-4.8	-4.8	-4.8	-4.8
	Gansu	-1.1	-1.1	-1.1	-1.1	-1.1
	Xinjiang	-1.8	-1.8	-1.8	-1.8	-1.8

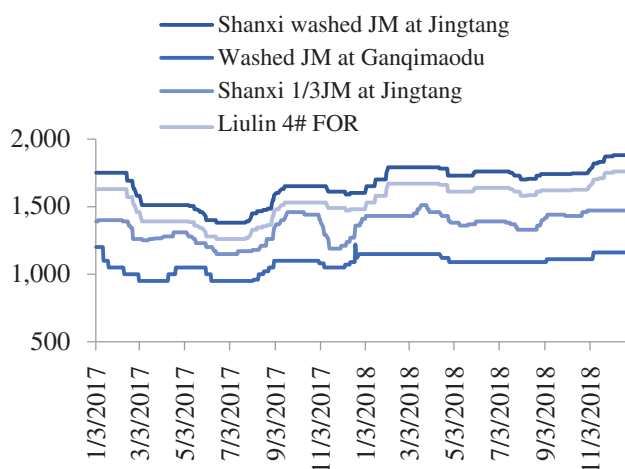
Source: Fenwei

China Coking Coal Price

UHG's HCC and BN's SSCC are of similar quality as washed Shanxi JM at Jingtang Port, washed JM at GM Border, washed 1/3JM at Jingtang Port and Liulin 4#, the prices of which have been on a slightly upward trend as shown below.

Representative washed JM average price in 2018 (incl. taxes)

Unit: yuan/t



Source: Fenwei

From 2019 to 2023, coking coal demand in China is expected to decline slightly while the supply may increase slightly, thus prices for coking coal may decline. However, as the supply of high-quality coking coal will remain limited, any drop in its price will be smaller than for other coking coal types. Import restrictions, production by domestic and international miners, railing capacity to ports and extreme weather will likely continue to affect coking coal supply in China, which may impact international coking coal prices.

The table below sets forth the price forecasts for Jingtang Port washed Shanxi JM and 1/3 JM for the periods indicated:

2019-2023 Jingtang Port washed Shanxi JM and 1/3 JM price forecasts

Unit: yuan/t

	2018	2019E	2020E	2021E	2022E	2023E	CAGR 19-23
Jingtang washed Shanxi JM	1,764	1,720	1,686	1,660	1,639	1,622	-1.5%
Jingtang washed 1/3 JM	1,421	1,378	1,344	1,317	1,294	1,275	-1.9%

Source: Fenwei

The saleable prices of MMC products at GM Border are expected to decrease slightly from 2019 to 2023. The price of MMC HCC is expected to decline from 1,197 yuan/t to 1,102 yuan/t and while the price of SSCC is expected to decline from 729 yuan/t to 643 yuan/t. The table below sets forth the price forecasts for MMC washed coal at FOT GM for the periods indicated:

2019-2023 MMC washed coal price forecast at FOT GM

Unit: yuan/t

	2018	2019E	2020E	2021E	2022E	2023E
MMC-JM.....	1,237	1,197	1,165	1,140	1,119	1,102
MMC-1/3JM	763	729	701	679	660	643

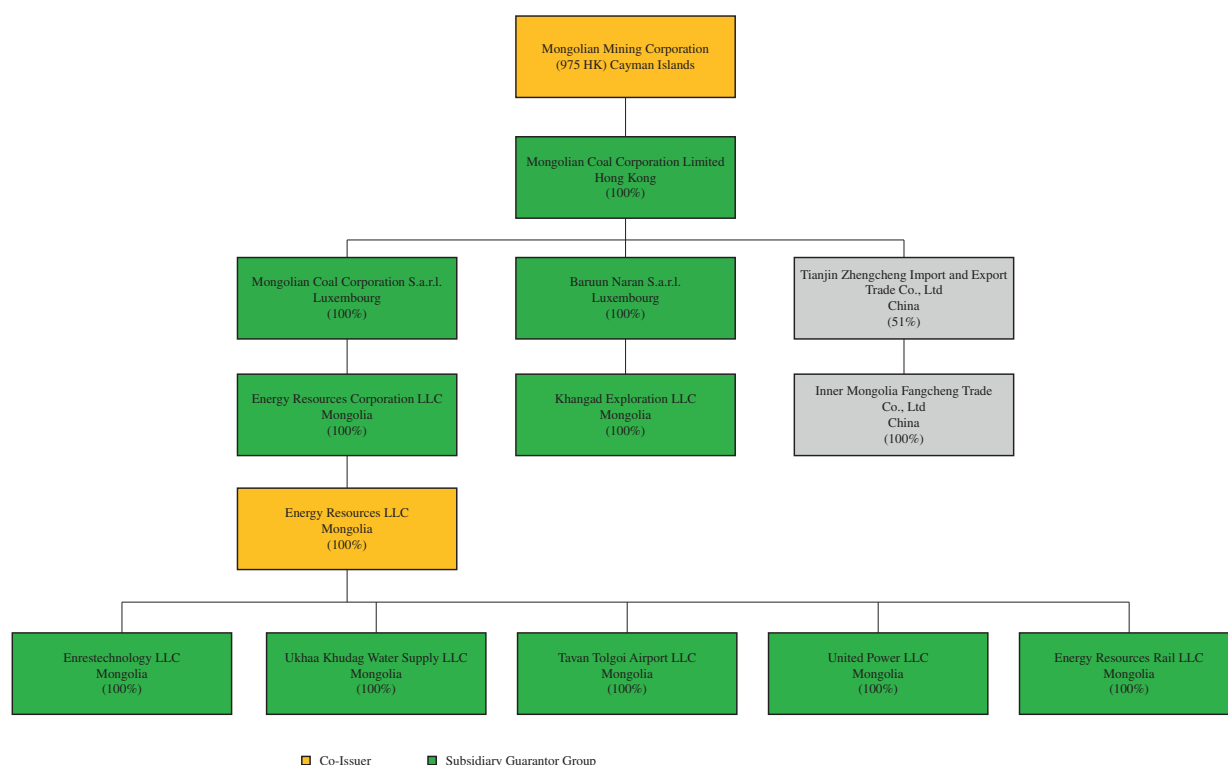
Note: Fenwei has consulted with the premium/penalty standard in making this price forecast.

Source: Fenwei

CORPORATE STRUCTURE AND HISTORY

Corporate Structure

As of December 31, 2018, our corporate structure is as follows:



History

We were incorporated in the Cayman Islands as an exempted company with limited liability on May 18, 2010 in anticipation of our initial public offering. We operate our business through our subsidiary companies in Mongolia, including ER LLC and its subsidiaries. Through Mongolian Coal Corporation Limited, incorporated in Hong Kong, Mongolian Coal Corporation S.à.r.l. incorporated in Luxembourg, and Energy Resources Corporation LLC, incorporated in Mongolia, each a direct or indirect wholly-owned subsidiary of the Company, we indirectly own 100% of ER LLC.

Our current corporate structure was substantially put in place in connection with our initial public offering in October 2010. The history of our and our subsidiaries predecessors dates back to 1999, when Mine Info LLC obtained exploration licenses to conduct exploration activities in the Tavan Tolgoi area of Mongolia. In 2002, Darkhankhaan Uul LLC obtained exploration licenses to conduct exploration activities in additional areas in the Tavan Tolgoi area of Mongolia.

ER LLC was incorporated in Mongolia in 2005, and was jointly owned by the shareholders of Energoresources LLC and the shareholder of Darkhankhaan Uul LLC. On May 4, 2005, the shareholders of Energoresources LLC and Darkhankhaan Uul LLC transferred all six of their exploration licenses to ER LLC. In 2006, the exploration licenses of ER LLC were converted into mining licenses. On March 21, 2008, ER LLC entered into the Minerals License Transfer Agreement with the Government of Mongolia, pursuant to which we transferred five of our six mining licenses to the Government of Mongolia. The transfer of such mining licenses was completed on May 28, 2008. For details of the circumstances leading to the transfer of the mining licenses and details of our UHG mining license, see “Business – Our Location and Licenses”.

We entered into a share purchase agreement with Quincunx (BVI) and its then parent company, Kerry Mining (Mongolia) Limited on May 31, 2011 to acquire Baruun Naran Limited (formerly named QGX Coal Limited) incorporated in Gibraltar, Baruun Naran S.á.r.l (formerly named QGX Coal S.á.r.l) incorporated in Luxembourg, and Khangad Exploration LLC. The acquisition was completed on June 1, 2011. Khangad Exploration LLC was incorporated in 2006 and holds a mining license to conduct mining activities in our BN deposit. On June 24, 2013, we were granted the THG mining license to cover another 8,340 hectares area contiguous to the BN mining license originally acquired.

The first, second and third modules of our CHPP, each with ROM coal nameplate processing capacity of 5.0 Mtpa, have been in operation since June 2011, February 2012 and July 2013, respectively. In September 2011, we completed the construction of a paved road from our UHG mine to GS, which commenced operation in October 2011. Such paved road was transferred to the Government of Mongolia in 2014 and we are able to continue to use the paved road under a toll fee arrangement. In January 2012, we, together with Erdenes MGL, completed an expansion of the GS border crossing, which increased the border crossing capacity from 10 Mtpa to approximately 25.0-30.0 Mtpa. Such project was also transferred to the Government of Mongolia in 2014 with compensation.

In 2016, we commenced a debt restructuring with the holders of the 2017 Notes, BNP Paribas Singapore Branch and Industrial and Commercial Bank of China Limited and QGX (the “**Debt Restructuring**”). On May 4, 2017, we implemented the Debt Restructuring. Upon the completion of the Debt Restructuring, the outstanding principal and accrued interest of the 2017 Notes, the BNP and ICBC Facility and the QGX Promissory Notes were restructured to (i) shares of the Company, (ii) the Perpetual Securities, (iii) the Senior Loan and the (iv) 2022 Notes.

Our other subsidiaries include:

- Enreotechnology LLC, which is responsible for owning and operating our CHPP at our UHG mine.
- Ukhaa Khudag Water Supply LLC, which is responsible for the water exploration and supply of water to our UHG mine.
- United Power LLC, which is responsible for the construction and operation of the power plant.
- Tavan Tolgoi Airport LLC, which is responsible for the operation and management of the airport in Tsogttsetsii soum serving the miners’ camp with several Mongolian commercial airlines.
- Energy Resources Rail LLC, which was incorporated for the then-ongoing implementation of construction of the base infrastructure of UHG-GS railway, which was subsequently transferred to the Government of Mongolia in 2013.
- Tianjin Zhengcheng Import and Export Trade Co., Ltd., a joint venture with a member of Risun Group which is responsible for joint transportation, sales and distribution of coal products in China.
- Inner Mongolia Fangcheng Trading Co., Ltd, a wholly-owned subsidiary of Tianjin Zhengcheng Import and Export Trade Co., Ltd, which is responsible for sales and distribution of coal products within Inner Mongolia, China.

Our other affiliates include:

- International Medical Center LLC, which is responsible for the construction and operation of a private general hospital.
- Gashuun Sukhait Rail LLC, a joint venture with certain other leading mining companies which is responsible for the GS-GM cross-border railway construction project.
- Gashuun Sukhait Auto Road LLC, a joint venture with certain other leading mining companies which is responsible for the operation and maintenance of UHG-GS paved road.

BUSINESS

Overview

We are a leading Asian coking coal producer engaged in the open-pit mining and processing of coking coal sourced from our UHG and BN deposits, located in the South Gobi Province of Mongolia. These deposits are adjacent to each other and strategically located approximately 250 km from the Sino-Mongolian border and approximately 600 km from Baotou, China, an important railway transportation hub providing access from Mongolia to the largest steel producing provinces in China, including Inner Mongolia, Hebei, Shandong and Jiangsu provinces. We have worked closely with a number of industry-leading experts, including Thiess and Sedgman, throughout the planning, development and operation of our business to develop integrated mining, processing, supporting infrastructure, transportation and logistics operations.

Our UHG mining license permits us to engage in coal mining activities on 2,960 hectares of land for an initial period of 30 years commencing from August 29, 2006. As of December 31, 2018 and January 1, 2019, 663 Mt of JORC-compliant coal resources and 324 Mt of JORC-compliant coal reserves have been identified within such area, respectively. Our BN mining license, comprising the BN mining license area of 4,482 hectares and the contiguous THG mining license area of 8,340 hectares, permits coal mining for an initial period of 30 years commencing from December 1, 2008 and June 24, 2013, respectively. Within the BN and THG mining license areas combined, a total of 399 Mt of JORC-compliant coal resources have been identified as of December 31, 2018. Within the BN mining license area, a total of 175 Mt of JORC-compliant coal reserves have been identified as of January 1, 2019. Our BN mine is located approximately 32 km by paved road southwest of our UHG mine, and its development, in integration with existing facilities at UHG, is yielding benefits through synergies achievable in terms of shared mining, processing and transportation infrastructure and marketing resources. BN mine produced 1.4 Mt ROM coal for 2018. For the years ended December 31, 2016, 2017 and 2018, we produced an aggregate of 3.0 Mt, 8.3 Mt and 10.9 Mt of ROM coal, respectively.

With a view to consistently produce high quality products, reduce product transportation costs and generate improved margins, we constructed and commissioned 15.0 Mtpa of ROM coal processing capacity onsite at the UHG mine. The coal handling and preparation plant (“CHPP”), designed and constructed by Sedgman, comprises three near identical modules of ROM coal processing nameplate capacity of 5.0 Mtpa each. These modules have been in operation since June 2011, February 2012 and June 2013, respectively. Since the commencement of the CHPP operation, we have shifted our sales strategy from raw coal to washed coal, having sold only washed coal products from the beginning of the second quarter of 2012. We are currently in the process of constructing our third ROM coal infeed facility affiliated with the CHPP, which will provide higher raw-coal-crushing capacity compared to the two existing ROM handling facilities. Upon completion of such facility, our large-size-rock processing capacity will be significantly improved, and our total ROM coal feeding capacity will increase from 15 Mtpa to 25 Mtpa.

In October 2011, we completed the construction of a paved road, from UHG to GS under BOT arrangements, which has since been transferred to the Government of Mongolia for compensation in 2014. We continue to use the road under a toll fee arrangement. In January 2012, in collaboration with Erdenes MGL, we expanded the border crossing facilities to allow for 25.0 – 30.0 Mtpa transit through GS, which has also been transferred to the Government of Mongolia with compensation. As a result, we are well placed to deliver all washed coal products to GM.

We have our own fleet of over 430 double-trailer trucks and also have support facilities to flexibly conduct shipments either (i) from UHG to GM directly by our trucks or (ii) from UHG to TKH and further from TKH to GM. Currently, we conduct shipments using the approximately 240 km long UHG-TKH (“long haul”) section solely with our own double-trailer trucks, while cross border shipments for exports using the approximately 20 km long TKH-GM (“short haul”) section are undertaken by our own double-trailer trucks supplemented by third-party Chinese trucking contractors.

We are one of the largest coal producers and exporters in Mongolia. We sell most of our coking coals to end users in China under coal sales and purchase arrangements with iron and steel mills, and coke and others under DAP GM, FOT GM, C&F and FOB end-user destination sales terms. In the years ended December 31, 2016, 2017 and 2018, we sold our hard coking coal at an average selling price of US\$77.2 per tonne, US\$130.3 per tonne and US\$139.7 per tonne, respectively.

We have won the Top 10 Enterprise in Mongolia award from the Mongolian National Chamber of Commerce eight times from 2009 to 2018.

Our revenue for the years ended December 31, 2016, 2017 and 2018 was US\$120.0 million, US\$476.4 million and US\$590.7 million, respectively. We recorded (loss)/profit for the years ended December 31, 2016, 2017 and 2018 of US\$(154.0) million, US\$310.3 million and US\$82.4 million, respectively.

Our Competitive Strengths

High-quality coking coal producer with a strong operating platform

We own two high quality coking coal mines in South Gobi Province, Mongolia, namely our UHG and BN mines. Located within 30 km of each other, such close proximity allows us to achieve synergies through integrated operations due to the accessibility of the established infrastructure already in place, which was primarily constructed to facilitate the exploitation of the UHG deposit.

Our UHG mine had a total of 663 Mt of JORC-compliant measured, indicated and inferred coal resources as of December 31, 2018, and a total of 324 Mt of JORC-compliant proved and probable coal reserves as of January 1, 2019, according to the technical study completed by Glogex. Our BN mine had a total of 324 Mt of JORC-compliant measured, indicated and inferred coal resources as of December 31, 2018, and a total of 175 Mt of JORC-compliant proved and probable coal reserves as of January 1, 2019, according to the technical study completed by Glogex.

We have one of the largest coking coal resource bases in Asia. The table below presents our measured and indicated resources and those of other coking coal producers in Asia and Australia:

	Measured and Indicated Resources
	<i>(million tons)</i>
Mongolia	
Mongolian Mining Corporation ⁽¹⁾	850
South Gobi ⁽²⁾	496
China	
Hidili ⁽³⁾	199
Shougang Fushan ⁽³⁾	151
Australia	
BHP Billiton (Goonyella Riverside) ⁽⁴⁾	417
Glencore (Hail Creek) ⁽⁵⁾	253
Anglo American (Moranbah North) ⁽⁶⁾	73

(1) From the UHG, BN and THG mining license JORC (2012) compliant Coal Resources estimate, by depth and category, as of December 31, 2018.

(2) From the South Gobi Resources Annual Information Form for the year ended December 31, 2017. Data as of December 31, 2016 for Ovoot Tolgoi Mine (operating), as of January 10, 2013 for Soumber Deposit (under developed) and January 10, 2013 for Zag Suuj Deposit (under developed).

(3) From the Shougang Fushan 2017 Annual Report. Data as of December 31, 2017.

(4) From the BHP Billiton 2018 Annual Report, which includes BHP Billiton's Goonyella Riverside mine. Data as of June 30, 2018.

(5) From the Rio Tinto 2017 Annual Report, which includes Glencore and Hail Creek mine. Data as of December 31, 2017.

(6) From Anglo American 2017 Annual Report, which Includes Anglo American's Moranbah North coking coal mine. Data as of December 31, 2017.

Competitive cost structure underpinning cash flow generation

We believe that we have one of the lowest mining and processing cash operating costs of production among coking coal producers. The majority of our coal deposits are close to the surface, which enables the development of lower cost open pit mines. Our low average strip ratio drives our gate cash costs lower. The stripping ratio of our UHG mine in 2018 was 4.67. The total yield of our washed coal from raw coal was approximately 69.1% in 2018. These characteristics enable us to produce high quality washed coal at a low cost.

Our cost of production is lower than our principal competitors serving China, namely coking coal producers from China and Australia. Coking coal from China is predominantly produced from underground mines. In general, underground mining is significantly more capital intensive, costly and operationally challenging than open-pit mining. Our HCC mine gate cash costs were US\$29.7, US\$31.7 and US\$36.3 per ton for 2016, 2017 and 2018, respectively.

We have also prioritized cost control initiatives intended to achieve enhanced operational efficiency and productivity. For example, in November 2015 we successfully renegotiated fees with our mining contractors, providing us more flexibility in managing operational costs during industry cycles. Under the new fee structure, the contractor base fee is linked to the HCC coking coal price, which enables us to pay only 25% of the base fee when the Ex-Works Baotou (incl. VAT) coal price falls below RMB560 per ton. We also connected our power plant to the central grid to stabilize power plant operations and reduce electricity costs from US\$1.2 per ROMt in 2012 to US\$0.5 per ROMt in 2018. We also installed a new belt filter press (“BFP”) to improve water utilization, which doubled the rate of water recovery. With respect to logistics, we purchased an additional 150 trucks between 2017 and 2018 to improve our transportation capacity and lower transportation costs, localized more staff to reduce trip and camp costs and improved our logistics infrastructure to better access the Chinese railway network. As a result, we have achieved a more competitive cost structure, which makes us more resilient to fluctuations in coal prices.

Higher profitability driven by washed coal sales and integrated infrastructure

Prior to the commencement of the CHPP operation, we could only sell raw coal that we mined and had to rely on coal traders and customers to wash our coal. Since the commencement of the CHPP operation, we have been able to produce washed coal to meet the needs of customers and sell high-quality washed coal under our own brand. The sale of washed coal not only guarantees a substantially higher price than raw coal, but also allows for cost savings with respect to saleable product transportation (washed coal weigh lighter than raw coal), lower (yield adjusted) royalty rates and VAT refunds on our washed coal sales.

The availability of sufficient electricity and water onsite is fundamental to the value-add achieved through processing raw coal at the CHPP. Since October 2011, an 18 MW coal fired power station has been operating to supply substantially all of the electricity requirements at the UHG mine, including CHPP. Since May 2013, the UHG mine site has been connected to the Central Electricity Grid of Mongolia, providing an outlet for the sale of excess electricity generation and a back-up supply to the power plant. Furthermore, the 3x2 MW diesel power generators relied upon prior to the power plant construction remain on site providing further electricity supply redundancy in case of a combined power station and grid shortfall. Water required at the CHPP and to support other UHG mine site activities is supplied from a nearby underground aquifer. We have a license to extract more than sufficient water to meet our requirements. Further in December 2013, we commissioned a BFP, which improves the efficiency of water recycling at the CHPP by extracting water from fine tailings without exposure to evaporation normally experienced in more conventional recovery techniques such as the decanting of tailings dam. The BFP doubles the rate of water recovery.

Utilizing the paved road between UHG and GS, we transport our coal products using over 430 of our own double-trailer heavy haulage road trucks. In addition to the productivity advantages that the paved road has brought, the double-trailer trucks have proven very cost effective and since 2013, have been solely responsible for the transportation of our coal products between UHG and TKH without utilizing third-party contract haulage. For coal export, we utilize two routes of direct transportation from the Tavan Tolgoi area to GM and indirect transportation by a transshipment facility under the Group’s management on the Mongolian side of the border for the short haul between TKH and GM. On the TKH-GM short-haul route, we mainly utilize third-party Chinese contractor trucks. The border crossing facilities at the GS port were expanded in

2012 from 10 Mtpa capacity to approximately 25.0-30.0 Mtpa capacity, which should be sufficient to handle the required export volume from Mongolia to China. Our HCC operating cash costs were US\$49.9, US\$60.8 and US\$69.5 at DAP GM per ton for 2016, 2017 and 2018, respectively.

Strategic location with proximate access and direct sales to Chinese end users

China is the world's largest steel producer. According to the World Steel Association, China produced 928.3 Mt of crude steel in 2018, representing 51.3% of the world's total steel production. Based on the 13th Five-Year plan (2016 to 2020) for China's iron and steel industry, the steel industry in China is expected to grow at a rate of 6.0% per annum from 2016 to 2020. In 2018, China imported 64.9Mt of coking coal, of which 42.7% was sourced from Mongolia, according to Fenwei. Chinese demand for metallurgical coal is expected to remain stable.

We believe that we are strategically positioned to benefit from the Chinese steel industry's strong demand for coking coal. We are the closest coking coal exporter to the largest steel producing provinces in China, including Inner Mongolia, Hebei, Shandong and Jiangsu. Compared to our local competitors, we are able to reach Chinese coal end users instead of coal traders, which provides more stable and predictable sales during industry cycles. Our UHG and BN mines are located approximately 240 km and 230 km from the GS border crossing, respectively. We are also only approximately 600 km from Baotou, China and 1600 km to Hebei, China. Through the railway from GM, we have gained access to China's large steel producing provinces and ports including Jingtang, Caofeidian and Tianjin. See "Risk Factors-Risks Relating to Our Business and Industry-Our licenses and permits are subject to termination, renewal and other uncertainties."

Our core customer base is located in Inner Mongolia, where total crude steel production increased by 16% year-over-year in 2018, higher than China's national average. Inner Mongolia is also less affected by more stringent changes in environmental policies, which are generally focused on reducing steel production in areas such as the Beijing-Tianjin-Hebei corridor to reduce air pollution by shifting steel and coking capacity from coastal cities to inland provinces such as Inner Mongolia.

The further rationalization of China's coal supply is increasingly driven by environmental and safety concerns, and thus the supply of Mongolian coal imports is increasingly important to China. In particular, the Tavan Tolgoi basin is essential to China given the depletion of China's low sulphur coking coal reserves and continued focus on emission standards. Furthermore, Chinese customers are focused on higher quality coking coal, given higher blast furnace utilization and larger blast furnace builds. Such preference favors our coal products.

We sell our coal products directly to end-users under 10-year agreements primarily with China-based iron and steel mills and coke plants. As of December 31, 2018, we have entered into long-term agreements directly with Chinese end-user customers, such as Baotou Iron & Steel Co., Ltd., China Energy Coal and Coking Co., Ltd, Shagang, Risun Group, Tangshan Dafeng, Tangshan Jianlong and others. For details on these agreements, see "Business – Customer Base." In the years ended December 31, 2016, 2017 and 2018, the amount of our sales of coal to iron and steel mills and coke plants was 75.7%, 87.6% and 94.7%, respectively.

Integrated business platform with minimal future capital expenditure requirements

We believe that our infrastructure development is largely complete and do not expect significant capital expenditure projects in the future. We have completed the infrastructure development of our UHG deposit, and as a result of proximity, infrastructure integration and the use of contractors, we have no additional development capital expenditures planned for our BN deposit. Our maintenance capital expenditure is expected to be approximately US\$5 million per year.

Strong business outlook supported by industry dynamics

We believe that the economic and regulatory environment in China, where a majority of our customers are located, contribute to a positive outlook for our business. Growth in the Chinese economy has continued to outperform the global average. China's large GDP base, coupled with GDP growth levels exceeding 5.5%, have helped sustain sizable infrastructure build-up and fixed asset investments. Supply side reforms in China have also strengthened requirements for high-quality coal and limited domestic production of coal overall, which has driven increased demand for imports of high-quality hard coking coal products such as ours. Finally, Chinese coal prices have recovered since 2015 and 2016 and have been stable through 2018, suggesting balanced supply and demand dynamics.

Despite a recent slowdown in Chinese economic growth, we are well-positioned to maintain our sales to Chinese customers. From a demand perspective, China's demand for imported coal is expected to remain stable, driven by a loss of low sulphur premium HCC, shift in blast furnace size and location driving a continued reliance on high quality imports. China is focused on higher quality coking coal, given higher blast furnace utilization and larger blast furnace builds, favoring MMC coal. For instance, China's de-capacity strategy has led to the closures of illegal and inefficient steel mills while the remaining Chinese steel makers are being encouraged to swap to bigger blast furnaces. Baotou Iron & Steel in Inner Mongolia has already made a strategic decision to increase Mongolian coal use. In addition, depletion of China's low sulphur coking coal reserves and continued focus on emission standards support the development of Tavan Tolgoi basin. In accordance with the "Three-Year Action Plan to Win the Blue Sky Defense War" issued by the State Council in July 2018, various provincial and central government subsequently introduced production limits and environmental protection policies. Recent mining accidents in China including Shanxi and Inner Mongolia's Yinman Mining followed by increasing mine safety checks suggest that coal production growth in China continues to be challenged. Finally, recent restrictions on Australian coking coal import in China calls for import replacement from Mongolia. Considering China's continuous reliance on coal import, demand for Mongolian coal is expected to rise substantially.

Experienced management team with proven execution track record

Our directors and senior management include representatives of our shareholders and professionals who have extensive industry knowledge and experience in their respective industries, which include mining operations, exploration, development, finance and marketing resources. The team has experience in successfully managing coal price cycles and the majority has been with us for more than 10 years. Mr. Odjargal Jambaljamts, our executive Director, chairman of the Board and executive chairman, has overseen the development of our business from the time of our establishment. Dr. Battengel Gotov, our chief executive officer, has been instrumental in transforming our UHG mine from a greenfield project to a full-fledged mining operation. Building on extensive industry experience, our management team has demonstrated strong execution abilities to expand mine operations and infrastructure. Our management team has proven capable of effectively managing our operations while employing international mining practices and corporate governance standards.

Our Strategy

We intend to pursue the following key strategies to maintain and enhance our position as a leading Asian coking coal mining company.

Minimize operating cost and improve operating efficiency

We have implemented various measures aiming at reducing the total and unit cost of operation, including (i) eliminating third-party contractors for domestic coal transportation, (ii) connecting the UHG power plant to the central energy grid to stabilize its operation and allow for sale of excess generating capacity, (iii) implementing water recycling technology such as the Belt Filter Press connected to CHPP which doubles the rate of water recovery and (iv) localizing staff to reduce trip and camp costs. In 2019, we won the Water Innovation Award by the International Finance Corporation for our initiatives in rainwater harvesting and increasing the rate of water recycling in the Gobi area.

Since November 2015, mining contractor fees have been linked with a market index representative of HCC sales prices, enabling us to reduce mining costs when coking coal prices remain low. Target and assessment of key performance indicators under our mining and blasting services contracts have been mutually negotiated to ensure that the objectives of both the contractor and the principal are aligned to achieve operational efficiencies and cost effectiveness and therefore the success of the overall business.

Following the re-evaluation of the geotechnical guidelines resulting from our increased geological knowledge, we have revised the Life-of-Mine planning ex-pit waste dump design assumptions to reduce the haulage distance of overburden mines and the required truck operating hours and therefore the relevant maintenance, fuel and labor costs. Continuous focus on cost minimization will improve our competitive cost curve to further respond to the current challenging market conditions.

Since the completion of the paved road between UHG and GS and the commencement of our double-trailer heavy haulage truck operation in 2011, we have focused on improving the productivity and efficiency of the long haul operation to reduce the unit cost of coal transported.

We have adopted various measures to achieve increases in fleet productivity, including (i) limiting the number of trucks available to be utilized to meet planned transportation requirements, (ii) redesigning the stockpile layout at TKH to facilitate improved unloading efficiency, (iii) improving the number, design and interaction process of truck weighbridges, (iv) revising standard operating practices for wheel loader operation loading and unloading transportation truck trailers and (v) revising standard operating practices for stockpile loading and unloading at CHPP. We will continue to focus on improving the productivity and efficiency of our transportation.

Continue to develop and diversify our long-term customer base and promote our own brand

We intend to continue to expand and diversify our customer base, and have identified, and will continue to identify, new customers for our incremental coal volumes. We seek to sell high-quality washed coal under our own brand directly to end-use customers, which we believe will significantly increase our market recognition, competitiveness and bargaining power. We sell most of our washed coal into China pursuant to long-term agreements with iron and steel mills and coke and chemical plants under our own brand. Even in connection with our sales to coal traders, we have made the identification of our actual end-use customers a priority. Starting from 2014, we have extended our sales channel to other locations in China in addition to GM to further penetrate China's coal market. Although we believe there is sufficient demand for our coking coal in China, we have shipped a small portion on the Trans-Siberian railway to explore alternative markets, such as European and other Asian markets.

Expand and diversify our business operations through acquisitions, investments and joint ventures

Where suitable opportunities arise, we may acquire or invest in companies or assets in the steel industry supply chain. We may selectively pursue natural resources used in the steel making industry (in particular, coking coal and iron ore) especially those that we believe will enhance our revenue growth, operational efficiency and profitability. In addition, given the importance of transportation infrastructure and a sales network to our mining business, we may consider strategic investments and joint ventures that will enhance our existing logistics capabilities and product penetration in the TMR and new markets, thereby strengthening our leading position as Mongolia's largest producer and exporter of coal.

We have established a joint venture in China, Tianjin Zhengcheng Import and Export Trade Co., Ltd., with Risun Supply Chain Management Co., Ltd, a member of Risun Group which is the largest coke and related coal-derived chemicals producer and supplier in China, for the transportation, sales and distribution of coal products in China. This joint venture has facilitated the increase of geographical market penetration in major steel and coke producing regions in China, including Hebei and Shandong provinces.

From time to time, the Parliament initiates a tender offer process to encourage coalfield developments and we may participate.

Continued strong commitment to safety, the environment and social responsibility

We operate with a goal of achieving zero harm to employees and the environment in which we operate. We have been and will continue to be, in compliance with applicable Mongolian legal requirements, while at the same time implementing best practices above and beyond legislative requirements to meet and exceed stakeholder expectations.

We strive to be an environmentally and socially responsible company and attach great importance to creating sustainable economic and social opportunities for the communities in which we operate. We seek to minimize the impact of our activities on the environment through carefully designing mining plans, in particular land rehabilitation and mining closure plans, and closely monitoring the effects of mining. We have invested in various community development programs that support the local community and preserve our cultural heritage. We have received numerous awards and recognitions as a result of our efforts. See “–Community Development” for more information.

Our Location and Licenses

The following map shows the location of our UHG and BN deposits and our existing and proposed transportation infrastructure:



UHG Mine

Our UHG deposit is located in Tsogttsetsii soum of South Gobi Province, Mongolia’s largest aimag by area with a population of approximately 65,000 residents divided into 15 soums. The mine is located approximately 540 km south of Ulaanbaatar and approximately 240 km from the Sino-Mongolian border. A small town site located approximately 7 km from our mine serves as an administrative and logistical center for our UHG mine.

The UHG mine sits within the Mining License MV-011952 area and is one of six separate deposits located in the Tavan Tolgoi coal formation, the others being the Borteeg, Bor Tolgoi, Eastern, Southwest and Shar-teeg deposits. This license was issued to us on January 23, 2007 for a period of 30 years commencing from August 29, 2006, and is extendable twice, each time for another 20 years, subject to certain conditions.

In July 2006, the 2006 Minerals Law was adopted, which introduced the concept of a Mineral Deposit of Strategic Importance. See “Risk Factors – Risks Relating to our Business and Industry – The Government of Mongolia could determine that any one or more of our projects in Mongolia is a Mineral Deposit of Strategic Importance and could take an equity, production, profit sharing or other interest in any of our projects”. The 2006 Minerals Law stated that the Government of Mongolia had the right to participate up to 50% jointly with private entities in the exploitation of a Minerals Deposit of Strategic Importance in situations where exploration funded by the Government of Mongolia was used to determine the proven reserves of the deposit.

When we were granted our mining licenses on August 29, 2006, we paid US\$1,000 as a service fee for the conversion of each of these exploration licenses into mining licenses. We did not pay any consideration for the acquisition of any underlying “original materials and reports on prospecting and exploration work” in relation to the six exploration licenses. In February 2007, the Parliament declared our six mining licenses to be Mineral Deposits of Strategic Importance under the 2006 Minerals Law. After taking into consideration the economic development policies of Mongolia, we decided to sign the Minerals License Transfer Agreement, pursuant to which we agreed to transfer five of our six mining licenses to the Government of Mongolia and assumed no liability after these five mining licenses were transferred to the Government of Mongolia. We received no cash consideration for the transfer of five of the six mining licenses to the Government of Mongolia. In the year ended December 31, 2007, we wrote off US\$3.5 million, almost all of which relates to the write-off of the carrying amount of the relevant capitalized drilling and exploration expenditures to profit and loss. Our UHG deposit was on the list of Mineral Deposits of Strategic Importance but having entered into the Minerals License Transfer Agreement with the Government of Mongolia, the Government of Mongolia guaranteed that our remaining Mining License MV-011952 would not be terminated or amended by requiring state equity participation on the development.

Our Mongolian counsel, ELC LLP Advocates, has confirmed that the Minerals License Transfer Agreement is valid, binding and enforceable in accordance with its terms and is binding on the Government of Mongolia. ELC LLP Advocates has also confirmed that the Government of Mongolia has under the Minerals License Transfer Agreement waived its right under the 2006 Minerals Law to participate jointly with us (by compulsorily taking a 50% or other ownership interest in ER LLC or the relevant minerals) in the exploitation of the minerals deposit covered by Mining License MV-011952, or withhold any further permits or licenses or access to infrastructure necessary for such exploitation provided that we apply for the same in accordance with relevant rules. See “Risk Factors – Risks Relating to our Business and Industry – The Government of Mongolia could determine that any one or more of our projects in Mongolia is a Mineral Deposit of Strategic Importance and could take an equity, production profit sharing or other interest in any of our projects”.

BN Mine

On June 1, 2011, we completed the acquisition of the BN mine through the acquisition of 100% of the equity interests in Baruun Naran Limited, formerly QGX Coal Limited. The acquisition provided a key opportunity to obtain a coking coal asset strategically located in close proximity to our UHG mine, which is already in an advanced development stage, to achieve synergistic benefits through integrated operation with the existing UHG mine assets and to allow us to expand our existing footprint in Mongolia. The BN deposit is located approximately 30 km southwest of our UHG mine and 60 km east of Dalanzadgad, the capital of South Gobi Province. See “– Our Location and Licenses” for a map showing the location of our BN deposit.

The BN mining license covering an area of 4,482 hectares was obtained as part of the acquisition of the BN mine and remains valid for a period of 30 years from December 1, 2008. This license is also extendable twice, each for another 20 years, subject to certain conditions. After the acquisition of BN mine, we were granted the THG mining license on June 24, 2013, covering an area of another 8,340 hectares contiguous to the BN mining license.

Extraction of coal reserves from the BN mine benefits from potential synergies through integrated operations with the UHG mine. The BN mine is able to rely upon the existing processing and transportation infrastructure and also upgrade certain of its coal to HCC products where ROM feed blend includes UHG sourced coal.

We commenced coal mining operations at our BN mine in February 2012. From 2014 until the third quarter of 2017, we suspended our operations at BN mine to consolidate our personnel and assets at our UHG mine as part of our cost reduction measures taken in response to deteriorating market conditions. We have resumed our BN mine operations starting from the fourth quarter of 2017.

Parliament Resolution No. 27, 2007 “On designation of some mineral deposit as Mineral Deposit of Strategic Importance” specifically states that, as one of the Mineral Deposits of Strategic Importance, the Tavan Tolgoi area shall constitute license areas held by Tavan Tolgoi JSC, Energy Resources LLC and Erdenes Tavan Tolgoi JSC. On October 3, 2018, the Government of Mongolia issued Resolution No. 300 “On

defining the boundaries of some mineral deposits of strategic importance” by which boundary coordinates of the Tavan Tolgoi were defined and whereby the Government of Mongolia expanded the boundaries for Tavan Tolgoi by including the areas under the BN and THG mining licenses. The Company has not yet received any notification or letter from the Government with regards to the consequences or follow-up actions of the abovementioned resolution. As of the date of this Offering Memorandum, our BN and THG mining license areas have not been designated as a Mineral Deposit of Strategic Importance by the Parliament and were not included in the Strategic Deposit List or the Tier 2 Deposits List as delineated in the Mongolian Parliamentary Resolution No. 27 dated February 6, 2007, so it is not subject to regulations allowing the Government to assert equity or other interests in it. See “Risk Factors – Risks Relating to our Business and Industry – The Government of Mongolia could determine that any one or more of our projects in Mongolia is a Mineral Deposit of Strategic Importance and could take an equity, production, profit sharing or other interest in any of our projects.”

Coal Resources

UHG deposit

Subsequent to the grant of the UHG mining license, we have prepared three JORC compliant coal resource estimates. The most recent estimate of the JORC-compliant coal resource within the UHG deposit is as of December 31, 2018.

Exploration activities conducted in the process of preparing the three preceding JORC compliant Coal Resource estimates and used by us to prepare the structural and coal quality models supporting the latest Coal Resource estimate as at December 31, 2018, included:

- Drilling a total of 191,275 m across 1,556 individual boreholes, including 104,369 m of HQ-3 drilling and 86,906 m of 122 square meters diameter open hole drilling;
- Collecting and testing 37,548 individual analytical samples;
- Collaborating with Velseis Processing Pty Ltd (“Velseis”) to interpret data collected from 71 km of high resolution 2D seismic in-field measurements, collected by Polaris Seismic International Ltd; and
- Large-diameter, bulk-sample drilling with analysis samples collected conducted at the ALS Group laboratories in Ulaanbaatar.

Data derived from these exploration activities was used to prepare the structural and coal quality models, and subsequently the UHG mining license JORC (2012) coal resource estimate as of December 31, 2018. Internal peer audit of this model was conducted by Mr. Gary Ballantine, which confirmed compliance of our work carried out to update the UHG geological model, and thus the JORC (2012) coal resource estimate for the UHG mining license area. Since completion of the previous coal resource estimates in 2014, no further exploration data has been incorporated into structural or coal quality geological models.

The following table sets forth the UHG mining license area JORC (2012) coal resource by depth and category as of December 31, 2018. Based upon mine survey calculation, since January 1, 2018 to December 31, 2018, mine production has depleted the stated coal resource by approximately 9.5 Mt.

Total Coal Resource	Resource Category (Mt)				
	Measured	Indicated	Inferred	Total (M+I)	Total (M+I+I)
Depth limit from topographic surface					
Subcrop to Base Horizon of Weathering					
Elevation (“BHWE”)	2	3	5	5	10
BHWE to 100m	62	23	17	85	102
From 100m to 200m.....	82	47	25	129	154
From 200m to 300m.....	91	64	21	155	176
From 300m to 400m.....	57	35	15	92	107
Below 400m	40	44	30	84	114
Sub-Total above 300m.....	237	137	68	374	442
Sub-Total below 300m.....	97	79	45	176	221
Total	334	216	113	550	663
Total (Rounded)	330	220	110	550	660

Notes:

- (1) Technical information in the UHG coal resource estimation report has been compiled by Mr. Lkhagva-Ochir Said, Executive General Manager for Mining and Processing, Mongolian Mining Corporation. Mr. Said is a member of the Australasian Institute of Mining and Metallurgy (Member #316005) and has over ten years of experience relevant to the style and type of coal deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined by the JORC Code (2012 Edition). The estimate of the Coal Resource set out herein are considered to be a true reflection of the UHG Coal Resource as at December 31, 2018, and have been carried out in accordance with the principles and guidelines of the JORC Code (2012 Edition).
- (2) Technical information was internally peer reviewed by Mr. Gary Ballantine, who was then the Group’s Executive General Manager for Exploration and Geology. Mr. Ballantine is a member of the Australasian Institute of Mining and Metallurgy (Member #109105) and has over 28 years of experience relevant to the style and type of coal deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined by the JORC Code (2012 Edition).
- (3) Due to rounding, discrepancy may exist between sub-totals and totals. Rounding rules refer to Clause 25 of the JORC Code (2012 Edition).

BN deposit

Following acquisition of the BN deposit, our Exploration and Geology department has been working to update the coal resource estimations previously prepared by McElroy Bryan Geological Services and Glogex for the BN and THG license areas. Such work included incorporating additional exploration data gained from an exploration drilling program conducted in 2014 and 2018, and applying the more stringent requirements of the Australian Guidelines for the Estimation and Classification of Coal Resources (2014). The most recent estimate of the JORC-compliant coal resource within the UHG deposit is as of December 31, 2018.

The following activities provided the basis for the development of the geological models underpinning the most recent Coal Resource statement, dated December 31, 2018:

- Total of 92 and 32 exploration boreholes at BN and THG;
- Total of 28,540 m drilling at BN, of which 14,780 m were HQ-3, 9,640 m PQ-3 and 4,120 m were 122 square meter diameter open hole;
- Total of 9,970 m drilling at THG, of which 5,900 m were HQ-3, 3,610 m PQ-3 and 460 m were 122 square meter open hole;
- Total of 8,720 (BN) and 3,824 (THG) coal samples collected and analyzed; and
- Total of 75 km of 2D seismic survey captured by Polaris over the BN mining license, and analyzed by Velseis.

Internal peer review was conducted by Mr. Gary Ballantine, employed by the Group at that time as Executive General Manager of Exploration and Geology, whilst external peer review was provided by Mr. Todd Sercombe of GasCoal Pty Ltd confirming compliance of our work to update the structural and coal quality geological model. Mr. Brett Larkin from Geoscheck Pty Ltd was also used for peer review purposes with regard to the geostatistical analysis required to be prepared under the Australian Guidelines for the Estimation and Classification of Coal Resources (2014). Since completion of the previous coal resource estimate, no further resource exploration data has been incorporated into structural or coal quality geological models.

The following tables set forth the JORC (2012) coal resource for the BN and THG mining license areas by depth and category as of December 31, 2018, respectively. The last update stated for BN and THG as at December 31, 2018 was made only on the basis of revised surface topography, to account for depletion as a result of mining activity between October 1, 2017 and December 31, 2018, and no further exploration data was incorporated.

Total Coal Resource for BN mining license	Resource Category (Mt)				
	Measured	Indicated	Inferred	Total (M+I)	Total (M+I+I)
Depth limit from topographic surface					
Subcrop to BHWE.....	10	2	1	12	13
BHWE to 100m.....	41	9	3	50	53
From 100m to 200m.....	62	11	5	73	78
From 200m to 300m.....	67	13	7	80	87
From 300m to 400m.....	70	16	9	86	95
Below 400m.....	—	—	—	—	—
Sub-Total above 300m.....	180	35	16	215	231.6
Sub-Total below 300m.....	70	16	9	86	94.9
Total	250	51	25	301	326
Total (Rounded)	250	50	30	300	330

Total Coal Resource for THG mining license	Resource Category (Mt)				
	Measured	Indicated	Inferred	Total (M+I)	Total (M+I+I)
Depth limit from topographic surface					
Subcrop to BHWE.....	—	—	2	—	2
BHWE to 100m.....	—	—	14	—	14
From 100m to 200m.....	—	—	19	—	19
From 200m to 300m.....	—	—	19	—	19
From 300m to 400m.....	—	—	19	—	19
Sub-Total above 300m.....	—	—	54	—	54
Sub-Total below 300m.....	—	—	19	—	19
Total	—	—	73	—	73
Total (Rounded)	—	—	70	—	70

Notes:

- (1) Technical information in the BN deposit coal resource estimation report has been compiled by Mr. Lkhagva-Ochir Said, our Executive General Manager for Technical Services. Mr. Said is a member of the Australasian Institute of Mining and Metallurgy (Member #316005) and has over 10 years of experience relevant to the style and type of coal deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined by the JORC Code (2012 Edition). The estimate of the coal resource set out herein considered to be a true reflection of the BN deposit coal resource as of December 31, 2018, and have been carried out in accordance with the principles and guidelines of the JORC Code (2012 Edition).
- (2) Technical information was internally peer reviewed by Mr. Gary Ballantine who was then our Executive General Manager for Exploration and Geology. Mr. Ballantine is a member of the Australasian Institute of Mining and Metallurgy (Member #109105) and has over 28 years of experience relevant to the style and type of coal deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined by the JORC Code (2012 Edition). Due to rounding, discrepancy may exist between sub-totals and totals. Rounding rules refer to Clause 25 of the JORC Code (2012 Edition).
- (3) Due to rounding, discrepancy may exist between sub-totals and totals. Rounding rules refer to Clause 25 of the JORC Code (2012 Edition).

Coal Reserves

Ukhaa Khudag (UHG) deposit

We engaged Glogex to prepare an updated JORC (2012) Coal Reserve statement as of January 1, 2019 for the UHG deposit. The process used was the same as that used to prepare the previous JORC (2012) Coal Reserve estimate, with the updated JORC (2012) Coal Reserve estimate again based on open cut, multi seam, truck and excavator mining methods. The last reserve statement was made on the basis of revised surface topography to account for depletion as a result of mining activity from January 1, 2018 to January 1, 2019.

Pit optimization software was used to generate a series of nested pit shells corresponding to varying revenue factors, simulating incrementally different economic scenarios as impacted by mining cost or coal price variance.

The pit optimization algorithms used included:

- Geotechnical constraints, including limitation of overall slope angles within the pit by sector, ex-pit dump offset from LOM pit shell crest and maximum pit depth, with updates on basis of research and analyses made since timing of the previous JORC (2012) Coal Reserve estimate, as provided by Mr. John Latilla of AMC Consultants Pty Ltd (“AMC”);
- Washability curves on seam ply basis, as prepared previously by Mr. John Trygstad of Norwest Corporation (“Norwest”) for inclusion in the previous JORC (2012) Coal Reserve estimate, to individual coal seams based upon propensity for processing into coking and/or thermal products, with update made to reassign portion of Seam 0B and 0AU from thermal to coking coal production, based upon results observed during production trials in 2017;
- Updated cost input assumptions, derived from recent historical operating performance at UHG mine on the basis of sustainable cost reductions made in response to difficult market conditions, and as forecast based upon negotiated reductions in cost for mining and blasting contractor services; and updated revenue input assumptions, derived from an updated market study prepared by Fenwei, which provided for medium to long term forecasting of expected Free-on-Transport (“FOT”) pricing at UHG mine for hard coking, semi-soft coking and thermal coal products planned for production.

Practical pit designs were created within the selected optimized pit shells, representative of the stated revenue assumptions of the study. Through application of estimated mining and metallurgical factors, mineable in situ coal within the pit shell was converted to ROM and product coal quantities. From this, mine schedules were sequenced to maximize value derived.

The tables below set forth the run-of-mine (“ROM”) raw coal tonnages resulting from the updated statement of the JORC (2012) Coal Reserve estimate for the UHG and BN deposits as at January 1, 2019 based upon an as-received basis with 2.97% total moisture for the UHG deposit and 4.5% total moisture for the BN deposit:

UHG Deposit

ROM Coal Reserve

Coal Type	Reserve Category (Mt)		
	Proved	Probable	Total
Coking	194	117	311
Thermal.....	11	2	13
Total	205	119	324

Baruun Naran (BN) deposit

Coal Reserve statement for the BN deposit was prepared by Glogex with the resulting statement dated 1 January 2019. The LOM mining plan prepared to underpin the current JORC (2012) Coal Reserve estimate for the BN deposit was based upon open cut, multi seam, truck and excavator mining methods. Pit optimization software was used to generate a series of nested pit shells corresponding to varying revenue factors, simulating incrementally different economic scenarios as impacted by operating cost and coal revenue variance.

The pit optimisation algorithms used included for implementation of the following:

- limitation of open pit depth to 360 m from surface, and overall slope angle restrictions, based upon geotechnical advice received from Mr. John Latilla of AMC;
- categorisation of coal seams for scheduling purposes on basis of propensity for coking or thermal coal production, based upon recommendations made by Mr. John Trygstad of Norwest;
- cost input assumptions based on stripping and blasting estimates derived from the current mining contractors;
- revenue input assumptions derived from an updated market study of the principal coking and thermal coal markets in China, completed by Fenwei.

The JORC (2012) Coal Reserve estimate for the BN deposit prepared on basis of the above is summarized in Table 5, with tonnage estimation based on an as-received basis with 4.5% total moisture. The last reserve statement was made on the basis of surface topography depletion due to mining activity from 1 January 2018 to 1 January 2019.

ROM Coal Reserve	Reserve Category (Mt)		
	Proved	Probable	Total
Coal Type			
Coking	163	12	175
Thermal.....	0	0	0
Total	163	12	175

Notes:

- (1) The estimate of coal reserve presented above has been carried out in accordance with the JORC Code (2012 edition). Technical information in the UHG and BN coal reserve estimation reports has been compiled by Mr. Naranbaatar Lundeg, who is a Member of the Australasian Institute of Mining and Metallurgy (Member #326646). He is the General Director and Executive Consultant of Glogex. He holds a bachelor's degree of mining industrial management and a master's degree of business administration in the field of financial management. He has extensive experience in the mining industry, having worked with major mining companies and as a consultant for over 16 years. During this time he has either managed or contributed significantly to numerous mining studies related to the estimation, pit optimization, mine planning, assessment, evaluation and economic extraction of coal in Mongolia. He has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity he is undertaking to qualify him as a Competent Person as defined under the JORC Code (2012). Mr. Lundeg consents to the inclusion in the release of the matters based on this information in the form and context in which it appears.
- (2) Due to rounding, discrepancy may exist between sub-totals and totals.

The last reserve statement was made on the basis of surface topography depletion due to mining activity from January 1, 2018 to January 1, 2019. As measured by mine survey, the stated BN ROM coal reserve has been depleted by 1.0 Mt.

Coal Products

The coal in our UHG and BN deposits is Permian coal. A premium medium volatile hard coking coal is produced as the primary product after processing, which also generates a low sulphur high energy content thermal coal resulting by-product as a secondary product, known as washed thermal coal. Thermal coal is also available without processing from seams with lesser coking qualities.

The first, second and third modules of our CHPP, each with ROM coal nameplate processing capacity of 5.0 Mtpa, have been in operation since June 2011, February 2012 and July 2013, respectively. We are able to produce HCC, SSCC and thermal coal from our UHG and BN mines. The type of coal we produce will depend on the specific seam(s) being mined and blended in feed to CHPP. Our UHG deposit contains a significant amount of high quality thermal coal which we may mine and sell in the future depending on transportation costs and market prices. In response to the downturn in coking coal market conditions globally between 2012 and the first half of 2016, which have affected both demand and price of coking coal, we have tailored the output of our operation to meet sales forecasts, reducing working capital requirements and improving liquidity by operating fewer mining equipments and each of the three CHPP modules intermittently.

We currently produce washed HCC from our UHG mine and produce both washed HCC and SSCC from our BN mine. We believe that our products are viewed by most consumers as high-quality coking coal and are readily used by coke manufacturers and steel producers both in China and abroad. The Chinese classification of coking coal differs from common international standard with many of the attributes for which we test omitted.

Extensive exploration and coal quality assessment indicate that our coal compares favorably with international coal. The HCC delivered to customers displays characteristically high CSN and lower sulfur content, both of which are desirable qualities.

Mining and Processing

We engage in open-pit mining at our UHG and BN deposits with primary overburden stripping and coal mining being handled by diesel hydraulic excavators and diesel mechanical trucks. The typical open-pit mining process begins with land clearing. We then strip the top soil from the area to be mined and the waste dump area. We remove the top 10 to 15 meters of soft waste materials without drill and blasting, depending on the hardness of the waste materials. A combination of conventional drilling and blasting techniques is then used to fragment the overburden, which is removed by excavators and rear dump trucks. Coal is loaded by excavators into rear-dump trucks and delivered directly to CHPP for processing or to temporary ROM stockpiles nearby. Mining operations are conducted through two 12-hour shifts, 7 days a week, 365 days a year, subject to weather conditions.

At the UHG mine, we cooperate with Thiess, a mining services provider, in all aspects of our coal mining operations under an alliance style contract, and since mid-2018 we have contracted with Vertex Mining Partners LLC (“Vertex”), a local contractor and a subsidiary of Hera Equipment LLC, a mining equipment dealer in Mongolia. In January 2009, the currently effective UHG Coal Mining Agreement was entered into with Leighton LLC, subsequently renamed as Thiess, and remains effective through December 31, 2022 under subsequent amendments. If we elect to terminate the UHG Coal Mining Agreement earlier in order to continue operations as the owner miner after acquiring all remaining assets and inventories from Thiess at an agreed value, we can terminate the Agreement with effect on or after January 1, 2021 by providing a sufficient prior notice. If we advise Thiess to extend the UHG Coal Mining Agreement at the end of the currently extended period, then Thiess shall consider this extension request and applicable terms of extension, in good faith. In 2015, we provided payment guarantee to Thiess in the amount of US\$60.0 million. In addition, under the UHG Coal Mining Agreement, the amount of liability Thiess may incur is capped at 10% of the aggregate sum of the amounts then paid by ER LLC under the UHG Coal Mining Agreement. Our agreement with Vertex expires on December 31, 2019 and can be extended by 18 months by mutual agreement of the parties.

We supervise all mining activities at UHG while Thiess is in charge of and responsible for the readiness and management of maintenance of all equipment at the UHG mine. All operators and maintainers are employed by us, while Thiess trains our employees based on their standards. We have access to a wide range of mining services support from Thiess corporate resources, including review and optimization of short, medium and long-term designs and schedules, technical and operational studies, budgeting and cost estimation work. Substantially all of the mining related equipment used at our UHG mine is owned by Thiess. As one of the world’s largest purchasers of mining equipment, Thiess is able to negotiate quite favorable terms with equipment manufacturers for not only the initial capital equipment purchases but also the ongoing spare parts required to maintain the equipment. The majority of the mining equipment supplied

to UHG mine has been sourced from internationally recognized equipment manufacturers such as Caterpillar, Liebherr and Hitachi. We believe effective asset management is the backbone of our agreement with Thiess, and therefore require such equipment manufacturers to have sufficient local capacity of critical spares and skills in Tsogttsetsii soum or at least within Mongolia.

Thiess invoices and is paid on a transparent, open book basis for the costs incurred in delivery of the contracted services, plus a contractor fee calculated based on the capital investment made to obtain the assets required to deliver the contracted services at the UHG mine. Such costs comprise costs related to employment of their personnel, corporate overhead, general materials and plant rates covering cost of asset operation and maintenance on a per utilized hour basis. The plant rates are developed to meet costs related to the depreciation, finance, insurance and maintenance over forecast asset lives based upon forecast asset utilizations. These costs are recorded as mining costs under our cost of revenue. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Factors Affecting Results of Operations and Financial Condition”. Contractor fees consist of two components, base fee and risk fee. The base fee is linked to the market price for equivalent primary products in our TMR, and the risk fee is calculated based on the operational Key Performance Indicator metrics. Our contractual arrangement with Thiess allows us the flexibility to amend and renegotiate the agreement based on forecast variance to mining volumes, and allows us to continue benefiting from Thiess’s investment in the equipment used at our UHG mine. See “Risk Factors – Risks Relating to Our Business and Industry-We rely on our contractors to perform key aspects of our operations”.

We manage and operate all mining activities and planning at BN mine through a local contractor, UARP LLC. UARP LLC has the capability and equipment to move 10 million bcm of overburden annually. All employees and equipment are provided by UARP and we handle supervision of the BN mine.

We engaged Sedgman to construct our CHPP with a three module design, each with a ROM coal nameplate processing capacity of 5.0 Mtpa and together providing a total nameplate capacity of 15.0 Mtpa ROM coal feed. In 2018, we engaged TAKRAF to construct an extension to the CHPP, to increase the total capacity of the ROM coal feed to 25.0 Mtpa. Our CHPP is capable of operating 24 hours per day, 365 days per year, in the harsh climate of Mongolia’s South Gobi desert with extreme fluctuations in temperature. In response to the downturn in the coking coal market conditions globally between 2012 and the first half of 2016, which have affected both demand and price of coking coal, we have tailored the output of the CHPP to meet sales forecasts, reducing working capital and improving liquidity, by operating less mining fleet and each of the three CHPP modules intermittently. In 2018, the CHPP processed a total of 10.0 Mt of ROM coal to produce a total of 4.8 Mt of washed coking coal products.

We have engaged two local companies to provide “down-the-hole” blasting services, which include supply, delivery and initiation of explosive products at the UHG and BN mines to fragment overburden and coal prior to excavation. Both contracts are formulated under a ‘schedule of rates’ construct, which depends on the volume of explosive products used. Payment amounts are subject to achievement of key performance indicators measured against specified performance criteria for each blast loaded, tied and fired. It is economically and operationally preferable to outsource blasting to third-party contractors, who are better equipped to obtain and maintain the necessary specialist licenses and authorizations issued by the Government of Mongolia for the importing, manufacturing, transportation, storage and use of explosives.

In October 2011, we commenced operation of an 18 MW coal fired power plant at the UHG mine site. This facility is used principally to provide the electricity required to operate the CHPP, as well as all other facilities at the UHG mine site. MCS International has been engaged to operate the power plant and provide electricity and heat distribution across the site and to third parties in the neighboring community. The power plant uses a mix of raw thermal coal and washed thermal coal and is designed to comply with applicable environmental regulations of the World Bank and other international institutions. Since May 2013, the UHG mine site has been connected to the Central Electricity Grid of Mongolia, providing an outlet for the sale of excess electricity generated as well as a back-up supply to UHG site in the event of disruption to power plant electricity generation. In addition to this main electrical grid back-up, the 8 MW diesel power generators operated prior to power plant construction remain on site, providing further electricity supply redundancy.

Water required in support of other UHG mine site activities is supplied from a nearby underground aquifer. We have a license to extract more than a sufficient amount of water to meet our requirements. Initial operation of the water supply facility commenced in 2011 at the Naimant Depression borefield, and the development of the Naimdain Khundii borefield has further increased available water supply. The majority of water extracted is used at the CHPP to process coal. To achieve both cost efficiency and environmental benefit, the CHPP is designed to ensure optimum water use efficiency by recycling water. In December 2013, a Belt Filter Press facility was commissioned adjacent to the CHPP to further improve efficiency of water recycling used within the CHPP. Such facility extracted water from fine tailings without exposure to evaporation normally experienced in more conventional recovery techniques such as the decanting of tailings dam as operated previously. The Belt Filter Press facility is able to decrease the amount of fresh water for coal processing by approximately 35%.

Transportation and Logistics

Washed coking and thermal coal produced at UHG are stacked underneath radial stackers upon exit from the CHPP. Afterwards, coal is loaded by wheel loader into road trucks for onward transportation to the transshipment facility at TKH through the 230 km segment of transportation referred to as the “long haul” section. Since 2013, we have relied solely on our own fleet of 300 double-trailer heavy haulage trucks for transportation over the long haul section. In addition, we have acquired 150 new double-trailer heavy haulage trucks with a capacity of 130 tonnes each to expand our transportation capacity. The first 100 trucks were delivered towards the end of 2017, while the remaining 50 trucks were delivered in the first half of 2018.

The paved road used for hauling all our coal products from UHG to GS was completed in September 2011 and commenced operation in October 2011. This two-lane heavy-haul coal transport road bears an axle load of 18 tonnes, which allows our double-trailer trucks to carry around 130 tonnes of net payload on a single trip. Although ownership of such paved road was transferred to the Government of Mongolia for compensation in 2014, we have open access to the paved road for the transportation of coal mined from our UHG and BN mines. Pursuant to the Auto Road Use Agreement entered into with the Gashuun Sukhait Auto Road LLC in May 2018, we transport our coal through the paved road on a toll fee basis of MNT3,200 (approximately US\$1.21), excluding VAT, per tonne of coal transported. The paved road has improved productivity of long haul of trucking operations, decreased fuel consumption and reduced maintenance requirements, therefore enabling us to reduce the unit cost of coal transportation between UHG and TKH. The paved road connecting the UHG mine and the BN mine, which was completed in 2012, remains under our ownership, with the same fleet of double-trailer heavy haulage trucks facilitating haulage of ROM coal from the BN mine to the UHG mine. At the TKH transshipment facility, coal is unloaded to stockpiles, from where it is reloaded by wheel loader into third-party contractors’ trucks for onward delivery to GM on the Chinese side of the border. This segment of transportation is referred to as the “short haul” section, with a distance of approximately 20 km from TKH to GM stockyards. We believe efficient operation of the border crossing facilities is critical to ensuring the productivity and efficiency of the short haul section. The border crossing facilities were expanded in 2012 from approximately 10.0 Mtpa of capacity to 25.0 – 30.0 Mtpa of capacity, which is sufficient to handle export volume from Mongolia to China.

During the past three years, there have been two modes for our export transportation to GM: direct transportation from UHG to GM and a “two tiered structure”, under which we transport from UHG to TKH and then from TKH to GM. Under the direction of the Government of Mongolia during the bottleneck at the border crossing point and traffic congestions situations, the direct transportation mode was temporarily suspended from time to time during 2017 and 2018. Recent development indicate efforts to improve border crossings. There are an additional four gates under construction at the border which would increase crossing capacity once constructed. In addition, the Chinese Customs Authority is installing new smart systems for customs clearance. On a macro level, Mongolia and China have recently agreed to a bilateral arrangement to increase trade turnover to US\$20 billion by 2020. Part of this agreement includes investment in customs infrastructures to further facilitate trade.

We comply with the Government decisions and all of our trucks are fully licensed to carry out such operations, supplemented by third-party contractors. Before 2014, the majority of our sales used to be made on DAP GM basis, where we deliver our coal to GM and our customers are responsible for the transportation of our coal from GM to the end destinations. In the last few years, through our agent and subsidiary operating in China, we have switched from DAP GM sales term to FOT GM, C&F and FOB end user destinations, where under FOT GM terms, Chinese import tax, port related charges and Chinese VAT are included in the selling prices, and under C&F and FOB terms, transportation and designated stock expenses are included. With these changes, the company managed to increase its control and management over its products and delivery channels and has established direct communications with major end-users, which is in line with our sales policy. As of 2018, our coal is mainly distributed in various locations in Inner Mongolia, Gansu, Xinjiang, Tianjin and Hebei.

Suppliers

We have established a network of over 600 local and international suppliers who provide us with contracting services, fuel, equipment and other ancillary materials and services. For the years ended December 31, 2016, 2017 and 2018, our five largest suppliers accounted for approximately 73.9%, 58.7% and 56.7%, respectively, of our total purchases, while, Thiess, our largest supplier for the years ended December 31, 2016, 2017 and 2018 accounted for approximately 44.5%, 30.6% and 32.5% respectively, of our total purchases for the same periods. Our five largest suppliers in 2018 were:

- *Thiess*. Thiess is our mining contractor at our UHG mine and assists in mine planning, training of mining personnel and the supervision of mining activities, and is responsible for sourcing a large proportion of the mining equipment used to mine our coal. See “– Mining and Processing” for further information on our relationship with Thiess.
- *NIC*. NIC, a leading oil product importer and retailer in Mongolia, supplies us with fuel products including diesel fuel, lubricants and other types of fuel and provides other related services at the UHG and BN mine sites. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Factors Affecting Results of Operation and Financial Condition – Fuel Costs”.
- *Inner Mongolia Qinghua Group Co., Ltd.* We began cooperating with this company as early as 2008. They are one of our very first customers who purchased our coal and helped market our coal. In recent years, Inner Mongolia Qinghua Group Co., Ltd has provided coal transportation services from TKH to GM border while still purchasing coal from us for its coke plant in Wuhai, Inner Mongolia area.
- *MERA LLC*. MERA LLC provides explosive and blasting services, including materials, professional personnel, tools, equipment and engineering assistance, for our UHG and BN mines.
- *Uniservice Solution*. Uniservice Solution is a wholly owned subsidiary of MCS Holding that provides Gallery Camp operation and site cleaning services at our UHG mine.

We recognize the value our operations bring to the local economy and encourage and develop local partnerships wherever possible. We follow ethical business practices in our purchasing and supply management and give priority to local businesses. In 2018, we cooperated with about 300 suppliers and contractors, of which over 93% were local businesses in Mongolia. In this period, we sourced products and services from 27 local businesses in South Gobi Province and our expenditures on goods and services used in our operations, such as transport, utilities, construction and food from the local suppliers totaled MNT3,617.5 million. Local businesses are also supported through our Sustainable Livelihood Support Program.

Suppliers are required to adhere to our Social and HSE policies and procedures when doing business with us. In 2018, we set a goal to improve our cooperation with local suppliers in South Gobi Province, and we have increased our purchasing amount by 316% compared to 2017 and 2,631% compared to 2016.

Capital Expenditures

The following table sets forth our capital expenditures for the periods indicated:

	Year ended December 31,		
	2016	2017	2018
		(US\$'000)	
Capital Expenditures:			
CHPP	–	4,396	6,443
Trucks and equipment	–	13,325	5,406
Others*	276	1,485	3,623
Total	276	19,206	15,472

* Others mainly include equipment, appliances and light vehicles.

Marketing and Sales

Our primary activities are the mining and exploration of coal in Mongolia and the sale of coking coal. We sell our coal principally to end users, including iron and steel mills and coke and chemical plants, as well as coal traders. Our main target market is the Inner Mongolia Province of China.

For the years ended December 31, 2016, 2017 and 2018, approximately 41.1%, 29.6% and 60.8% of our coal sales were made to coke plants, respectively, 34.7%, 58.0% and 33.9% to steel mills, respectively and 24.3%, 12.4% and 5.0% to coal traders, respectively. For the years ended December 31, 2016, 2017 and 2018, our total revenues were derived from 29, 44 and 47 customers, respectively. We sell our coal mainly to China with a small amount of coal being sold on trial shipments to seaborne markets such as Japan, Taiwan and India and via the Trans-Siberian railway to Poland. Our target market regions in China are Inner Mongolia, Gansu, Hebei, Tianjin and Xinjiang provinces. We sell our coking coal into China pursuant to long-term cooperation and short term agreements with a diversified group of customers. For example, we expanded our end-user customer base in China through establishing a cooperative relationship with China Energy Coal Coking Co., Ltd to supply our washed coal products to Shenhua Bayannaoer and Shenhua Wuhai Energy's coke plants in Bayannaoer and Wuhai.

We enter into both long-term and short-term contracts with our customers. Our long-term contracts have terms of up to ten years with end-user customers. Our short-term contracts typically have terms of up to one year. The principal terms of our sales and purchase contracts with customers include, among others: (1) specified volumes, (2) contract prices linked to existing market prices which are subject to periodic review and (3) delivery to China for FOT GM, C&F, FOB end user destination delivery terms. Currently, the majority of our sales contracts have advance payments terms. For a description of our key customers, see “– Customer Base” below.

We recognize revenue when ownership of the coal has passed to the customer, which is typically upon delivery of the coal to the customer. We price our coal by adopting a netback calculation of the main benchmark products with similar quality and demand sourced from Baotou, Tangshan, other areas in Hebei and Shanxi provinces in China and Australian coal delivered to the east coast of China. For long-term agreements with DAP delivery term, we agree on annual target volumes and adjust prices monthly. For spot agreements with FOT or C&R delivery term, we adopt a netback calculation referring to the prevailing spot prices depending on customers' location.

With our CHPP, we believe we are able to produce washed coal at consistent quality levels. As a result, we are selling directly to end-use customers under our own brand. We believe this increases our average selling price and profitability compared to selling raw coal and enhances our market recognition and competitiveness.

Customer Base

The tables below set forth our top five customers by revenue for the periods indicated. All the customers in the tables below are located in China.

			Year ended December 31, 2016	
Customer	Customer Type		Revenue	Percentage of Total Revenue
			(in US\$'000)	%
1. Customer 1	Coke plant		15,657	13.0%
2. Customer 2	Iron and steel mill		14,798	12.3%
3. Customer 3	Coke plant		13,440	11.2%
4. Customer 4	Iron and steel mill		13,360	11.1%
5. Customer 5	Coke plant		7,639	6.4%
Total			64,893	54.0%

			Year ended December 31, 2017	
Customer	Customer Type		Revenue	Percentage of Total Revenue
			(in US\$'000)	%
1. Customer 1	Iron and steel mill		182,947	38.4%
2. Customer 2	Iron and steel mill		48,631	10.2%
3. Customer 3	Trader		35,883	7.5%
4. Customer 4	Iron and steel mill		33,011	6.9%
5. Customer 5	Coke plant		24,338	5.1%
Total			324,810	68.1%

			Year ended December 31, 2018	
Customer	Customer Type		Revenue	Percentage of Total Revenue
			(in US\$'000)	%
1. Customer 1	Coke plant		242,220	41.0%
2. Customer 2	Iron and steel mill		112,530	19.0%
3. Customer 3	Coke plant		56,030	9.5%
4. Customer 4	Iron and steel mill		48,246	8.2%
5. Customer 5	Iron and steel mill		39,372	6.7%
Total			498,398	84.4%

For the years ended December 31, 2016, 2017 and 2018, revenue from our single largest customer represented 13.0%, 38.4% and 41.0%, respectively, of our revenues for that year. For the years ended December 31, 2016, 2017 and 2018, our five largest customers accounted for approximately 54.0%, 68.1% and 84.4%, respectively, of our total revenues.

As of December 31, 2018, we have entered into long-term agreements with most of our end-user customers. We have entered into ten-year sales contracts with each of Baotou Iron and Steel (to supply up to 5Mt of coal products per annum), China Energy Coal Coking Co., Ltd (to supply up to 3Mt of HCC and 1Mt of SSCC per annum) and Shagang Group; and a five-year sales contract with Risun Group, Tangshan Dafeng Coke Jianlong Jianboat Steel and Kerry Mining. For the year ended December 31, 2018, we generated approximately 56.9% of our revenue from sales of coking coal under our long-term coal sales contracts, and we expect to continue selling a significant amount of our coking coal under long-term coal sales contracts in the future. Our customers are allowed to adjust the amount of coal they will purchase, subject to mutual agreement. In 2018, the average selling price under FOT GM and C&F terms were US\$135.6 per tonne and US\$170.1 per tonne for HCC, respectively, and US\$92.9 per tonne and US\$141.0 per tonne for SSCC, respectively.

Quality and volumes for the coal are stipulated in our coal sales contracts. Our coal sales contracts contain provisions requiring us to deliver coal within certain ranges for specific coal characteristics such as total moisture, ash, volatile matter and sulfur content. Failure to meet these specifications can result in economic penalties, suspension or cancellation of shipments or ultimately termination of the agreements. Some of our contracts set out mechanisms for temporary reductions or delays in coal volumes in the event of a force majeure, including events such as fire, flood, war, conflict, military actions, quarantine, natural disaster, strikes, uprising, rioting, demonstration, epidemic, explosion, introduction of a ban or prohibition, or any other conditions beyond the control of any party.

Competition

We sell substantially all of the coal we produce into China and any remainder into other Asian markets. Competition in the Chinese coal industry is based on many factors including price, production capacity, coal quality and characteristics and transportation capability and costs. Most of our competition in coking coal comes from mines in central and western Shanxi, northeast Hebei, eastern Heilongjiang, Wuhai in Inner Mongolia and Muli in Qinghai. Some of our Chinese competitors may have lower transportation costs than we do due to their location. In addition, the Chinese coal market is highly fragmented and we face price competition from local coal producers that produce coal for significantly lower costs than us due to various factors, including their lower expenditure on safety and regulatory compliance. Outside of China, our main competition in the Chinese and other Asian coal markets comes from Australia, Canada, United States and Russia. Some of our international competitors may have greater coal production capacity as well as greater financial, marketing, distribution and other resources than we do and may benefit from more established brand names in international markets. We are also competing with domestic players in Mongolia, including Erdenes Tavan Tolgoi, Tavan Tolgoi JSC, MAK, South Gobi Sands, Terra Energy and Usukh Zoos.

We believe that our cost of production is lower than our principal competitors serving China, namely coking coal producers from China and Australia. Coking coal from China is predominantly produced from underground mines. In general, underground mining is significantly more capital intensive, costly and more operationally challenging than open-pit mining. See “Risk Factors – Risks Relating to Our Business and Industry – Coal markets are highly competitive and are affected by factors beyond our control.”

Quality Control

The ability to consistently produce high quality coal products meeting the specifications expected by customers is critical to the success of our business. Therefore, we have implemented numerous quality control measures during the planning and operation stages of the coal production chain, from exploration through delivery. One of the most critical measures is to sample and test both ROM and product coal at each key stage throughout the mining, processing and transportation stages of our operation, to provide guidance as to achieving and maintaining target specifications.

In recognition of the importance of quality control throughout the coal production chain from in situ location to customer, we have established onsite laboratory service capabilities, including employee training on implementation of quality control systems. The laboratory facilities, operating at the UHG mine, primarily analyze raw coal and product coal, and also test water, air and soil qualities.

These facilities are accredited under national standards in parallel with international standard requirements, and coal quality related analysis work is performed under the ISO/IEC 17025:2005 (MN ISO/IEC 17025:2007) standard in May 2012, which remains valid until July 2019. The latest laboratory audits were completed in October 2017 by competent independent bodies to assure standards and procedures being complied with, and we received quite positive feedback on our compliance with requirements and implementation of world leading practices.

Properties

As of December 31, 2018, our principal properties consisted of (i) land possession rights of 44 parcels of land in Mongolia, used for our mining operations and supporting infrastructure and (ii) plants and office buildings developed by us and leased properties such as office and equipment.

Pursuant to land possession certificates issued by the governor of South Gobi Province and relevant soums, we are permitted to use our 44 parcels of land to conduct our mining activities and to build and operate our CHPP, airport, camp, apartments, offices, workshops, customs-control office, water supply pipelines, power plants, power lines, hard paved roads and cellular communication antenna. ELC LLP Advocates, our legal advisors as to Mongolian law, has confirmed all of our land uses are in compliance with the relevant Mongolian laws and regulations.

Safety and Environmental Matters

We apply standards of industrial health and safety standards and work with Thiess to ensure that our mining activities are conducted in such a way as to provide a safe and healthy working environment while satisfying Mongolian legal requirements, industry best practices and customers' expectations. Our heavy machinery operators undergo an extensive on-site simulator training conducted by Thiess's personnel in order to minimize potential damage from equipment failure or accidents. We provide training and appropriate resources for our employees to work safely and effectively, and all of our employees have undertaken safety and hygiene training in compliance with Mongolian labor law. We have implemented an occupational health and safety policy that sets out standard approaches to risk minimization and operating procedures. We require our contractors and subcontractors to meet our occupational health and safety standards and policies. In addition, they are required to report all accidents and violations of occupational health and safety standards.

During the three years ended December 31, 2016, 2017 and 2018, one traffic accident occurred in connection with our coal transportation, which resulted in a fatality, and no accidents occurred in connection with operations. On January 27, 2017, a traffic accident resulting in a fatality occurred at a transportation road 175 km from the UHG mine when a coal transportation truck from another company crashed into one of our trucks. Subsequently, our Transport and Logistics department and HSE department created and implemented a program with the aim to decrease traffic accidents and further develop the safety culture of all employees. In 2018, we did not register any class 1 risks (defined as a fatality or injury that lead to permanent disability of an individual) in all workplaces. In addition, we implemented 99 controlling measures against risks that we identified, such as cleaning fuel tanks, removing contaminated soil, creating protected zones and others. We installed GPS systems in over 430 coal trucks to monitor speed limits. We monitor employee work loads and rest time through our Mine2TL program. We also collaborate with local Government organizations and traffic police and conduct trainings for our coal truck drivers.

We are committed to complying with Mongolian environmental laws, regulations and international environmental standards. By carefully designing mining plans, conducting studies, implementing pollution control recommendations from internal and external sources, monitoring the effects of mining and carefully designing land rehabilitation and mine closure plans, we seek to minimize the impact of our activities on the environment. In compliance with the Law on Environmental Impact Assessment and Law on Environmental Protection and Minerals Law, we have in place an environmental management plan ("EMP") which is reviewed and approved by the Ministry of Environment and Tourism on an annual basis. Such plan consists of the Environmental Protection Plan and Environmental Monitoring Program and specifies the aggregate budget for our environmental activities for each financial year, of which 50% shall be deposited with the bank designated by the Government of Mongolia at the commencement of the year and will be refunded to the Company, in whole or in part, at the end of the year according to the performance review by the Government of our environmental activities for the year. For 2019, we have made a deposit of MNT172,770,000 for UHG mine and MNT39,500,000 for BN mine for environmental protection activities. Only when the Company achieves the target of 80% EMP performance as required by relevant regulations will the Ministry of Environment and Tourism approve our EMP for the next year. We have always achieved over 80% EMP performance since the commencement of the UHG mine operation in 2009 and acquisition of the BN mine in 2011. As of December 31, 2018, we have not been fined or subject to any penalties due to environmental noncompliance.

Ensuring health, safety and environmental (“HSE”) compliance is an integral component of our operations. To continuously improve our HSE activities, we upgraded our HSE management system and adopted international management system standards ISO 14001:2004 (Environment management system standard) and OHSAS 18001:2007 (Occupational Health and Safety management system standard) in 2018 and ISO 9001:2015 (Quality Management System) 2018. Our HSE management system is a Group-wide system that incorporates our HSE policies, objectives, mandatory requirements and effective practices to achieve our policy commitments and improve performances.

Additionally, ER LLC developed and implemented an integrated management system aimed at ensuring the quality and stability of production, improving customer satisfaction, monitoring and managing occupational health, safety and environmental (“OHSE”) risks and taking actions to continually improve the framework of the common requirements of ISO 14001:2015, OHSAS 18001:2007, and ISO 9001:2015 standards. We became the first Mongolian mining company to introduce a comprehensive international management system consisting of these standards and was awarded the National Quality Award in 2018 by the Government of Mongolia for this achievement. OHSE related procedures have also been updated and introduced to all workforce.

We have an environmental team who is responsible for the compliance of our activities with national laws, regulations and international requirements. Our environmental team conducts regular workplace inspections at the mine sites and as of December 31, 2018, the performance of corrective actions has reached 98%. According to a 2010 environmental and social impact assessment study produced by Environmental Resources Management, a leading global provider of environmental, health, safety, risk, and social consulting services, together with other national and international consulting companies, there were no major socioeconomic issues that threaten the feasibility of our mines. Nonetheless, we have taken several measures to mitigate the socioeconomic impact of our mines, which include (a) improving local healthcare and educational facilities; (b) establishing monitoring programs to ensure that pit dewatering and other water sourcing for the mine does not adversely affect shallow groundwater sources that are used by herders; (c) implementing controls to verify contracts and adjust designs and behaviors to minimize risks of depleting shallow groundwater sources that are used by herders; and (d) developing and implementing action plans to provide compensation for herders affected by the mining activities and other infrastructure construction activities.

We have also implemented several measures to specifically mitigate various aspects of our mines and supporting infrastructure. During construction of our transportation infrastructure, we ensure that quarry rock and in-fill materials are sourced from areas that will not adversely affect cultural heritage and monitor contractors to ensure that they use appropriate quarry sites to exploit construction materials. In connection with our water supply project we have developed procedures for monitoring the levels of hand-dug shallow wells to assess if our use of water sources has any impact on wells used by herders near our UHG mining area.

Also, effective water management plays a vital role in our environmental management efforts as water resources are scarce in the arid Gobi desert region. We have successfully expanded the capacity of belt press facility in 2018 and commenced the operation of a filter press facility. As a result, we have established the technical capacity to decrease the water usage of the CHPP by up to 240,000 m³/year.

In general, the large amount of earthworks planned for mine expansion, including the creation of large waste rock dumps, topsoil stripping and stockpiling increases dust generation in addition to the ambient dust level. We have implemented specific mitigation and management measures to reduce dust impact, and provide compensation for economic displacement to all those affected by our expanding mining activities.

Community Development

Our community development initiatives are aimed at supporting the long-term sustainability of the local communities where we operate. We have been carrying out dozens of long-term community development programs, focusing mainly on community education and healthcare, cultural heritage preservation, small and medium-sized enterprises and entrepreneurship development, environmental offsetting and employment generation. Many of Tsogttsetsii soum's permanent residents have direct involvement in one or more of our community development projects while all of the soum residents enjoy indirect benefits of the projects and initiatives. Community development programs are based on results of socio-economic baseline studies of impacted soums and herder households, and recommendations from our social and environmental management plans and public consultation events. We pioneered proactive engagement with local communities in the South Gobi region and organized the first public consultation and disclosure event among the communities prior to the commencement of our mining operations at both UHG and BN mines. The events have since been held annually, serving as a reliable platform for meaningful dialogue and ongoing cooperation with our host communities.

Under Article 42.1 of the 2006 Minerals Law, mining license holders are obligated to enter into a community cooperation agreement with local authorities in respect of environment protection, infrastructure development and employment creation. In 2016, the Government of Mongolia issued Resolution No. 179 which adopted a template for the community cooperation agreement as stipulated under the Minerals Law, with such community cooperation agreement to be entered into between exploration and mining license holders and aimag (province) governors representing the local authorities. Accordingly, ER LLC, on June 22, 2017, and Khangad Exploration LLC, on October 1, 2018, entered into a Community Cooperation Agreement with respective authorities.

We have a Community Development Advisory Council ("CDAC") based in Tsogttsetsii soum, Umnugobi aimag, created solely by our initiative on May 21, 2016. The CDAC comprises nine community members of Tsogttsetsii soum, representing the local non-governmental organizations, affected herders, senior citizens, female headed households and soum center residents. The CDAC provides a venue for the community members to get updated information about our operations, share any concerns or suggestions, discuss the effectiveness of the on-going community programs and/or submit proposals for new programs. The CDAC members meet on a monthly basis with our Community Relations Team to promote more regular interactions with the community members.

In addition to a socio-economic baseline study, we conduct surveys on areas such as tangible and intangible cultural heritage and mining-induced population influx in Tsogttsetsii soum. In line with these surveys, we have developed and implemented programs on cultural heritage preservation and population influx management, among others. For example, a memorandum of understanding was signed with the Khankhongor soum governor based on the results of a socio-economic baseline study conducted at the soum level, which defined our main areas of cooperation in improving healthcare and education for soum residents, preserving local cultural heritage and promoting local small business development and training.

As one of the largest private employers both locally and nationally, we endeavor to provide employment opportunities to members of local communities. Our human resource policy targets to provide high value employment for local people and contribute to their personal development. As of December 31, 2018, approximately 44% of our total employees were residents of Tsogttsetsii, Bayan-Ovoo, Manlai, Dalanzadgad and Tsagaan-Ovoo soums of South Gobi Province.

We have completed several community infrastructure development projects in Tsogttsetsii soum, ranging from paved roads to housing projects for resettled employees. The soum residents and businesses enjoy access to our 24 hour electricity and filtered drinking water. In addition, we have built a 12 km paved road across the soum center in order to minimize dust generation therein. To mitigate adverse impacts associated with population influx to Tsogttsetsii soum and to support the local education sector, we built two secondary schools, a kindergarten and a dormitory complex jointly with the local government. These facilities contribute to improving the education quality in the isolated Gobi region and provide better access to education for more than 800 children in the local community. As part of our efforts, we also arrange to regularly dispatch qualified mathematics professors from Ulaanbaatar soum to Tsogttsetsii soum to assist and collaborate with the local teachers. Our community development and corporate social responsibility initiatives are considered exemplary at the national level and have been highly recognized by the Government of Mongolia and relevant state and professional organizations.

Employees

As of December 31, 2018, we had a total of 1,938 employees, of which 95% of the employees focused on operations and the remaining 5% of employees served at headquarters office.

The total workforce of our contractors at our UHG and BN mines as of December 31, 2018 was approximately 2,500 personnel.

The majority of our employees have signed employment contracts with us which provide, among other things, the employee's responsibilities, remuneration and grounds for termination of employment. Our mine operates 24 hours a day, seven days a week and 365 days a year, subject to weather conditions. Our mine operators work 12-hour shifts and are on a three-week rotation: (1) first week, day shift; (2) second week, evening shift; and (3) third week, off.

The majority of our employees are represented by labor unions and are covered by collective bargaining or similar agreements.

Employee Remuneration Policy

Our remuneration policy is designed to attract, retain and motivate highly skilled individuals to ensure the capability of our workforce to implement our business strategy. Key principles of the remuneration policy are to:

- set competitive rewards to attract, retain and motivate highly skilled people;
- provide detailed feedback to develop employees' skills and critically analyze employees' contributions;
- establish short-and long-term incentive programs, including the equity incentive plan;
- ensure remuneration planning continues to be integrated within our business planning process; and
- ensure total reward levels and performance targets are set at appropriate levels to reflect the competitive market in which we operate, the prevailing economic environment and the relevant performance of similar companies.

We seek to accomplish the above goals by conducting annual remuneration reviews which take into account individual performance, the economic environment and the unique requirement for certain employees to travel and spend time in Mongolia, particularly at mine sites and relevant job and industry comparisons. We value the contribution of both individuals and teams in achieving the goals and objectives of our business.

We adopted a share option scheme in September 2010 and made adjustments to the exercise price and the number of shares to be issued upon exercise of the share options in accordance with the terms of the share option scheme and the supplementary guidance issued by the Hong Kong Stock Exchange on September 5, 2005 regarding the adjustment of share options under Rule 17.03(13) of the Listing Rules in December 2014. We granted to certain eligible participants a total of 37,500,000, 22,750,000, 154,750,000 and 140,000,000 share options in October 2011, November 2012, June 2015 and May 2017, respectively.

Benefit Schemes

We maintain benefit schemes for our employees as required by relevant laws in Mongolia.

Injuries

Exploration, development and production operations on mineral properties and transportation of mineral products are subject to numerous hazards. While we have not had any large scale accidents that materially affected our results of operations, from time to time we have experienced incidents that have resulted in injury or death to employees. During the three years ended December 31, 2016, 2017 and 2018, one traffic accident occurred in connection with our coal transportation, which resulted in a fatality, and no accidents occurred in connection with operations.

For the year ended December 31, 2018, within all operations under the management of Group, approximately 8.7 million man-hours were worked by employees, contractors and sub-contractors. During this period, 3 incidences of Lost Time Injury was recorded, resulting in an overall Lost Time Injury Frequency Rate of 0.35, a decrease of 12.5% from targets for 2018. The reported Lost Time Injury Frequency Rate represents the Company's best reported performance in any half or full year of operation thus far, and demonstrates our on-going commitment to achieve the overarching goal of Zero Harm. See "Risk Factors – Risks Relating to our Business and Industry – Our mining activities are subject to operational risks, hazards and unexpected disruptions" and "Business – Safety and Environmental Matters".

Insurance

We maintain insurance coverage for our employees, officers and board of directors. As of December 31, 2018, we have obtained insurance coverage from leading global insurers including Swiss Re, AIG, SCOR, CV Star and Generali on property damage for our properties at the mine site. In addition, we have the following insurance coverage:

- heavy fleet and operators' liability insurance;
- motor and drivers' third-party liability insurance for us and our subsidiaries;
- personal accident and health insurance for our employees;
- truck insurance, truck driver's liability and personal accident insurance; and
- directors' and officers' liability insurance.

The insurance policies arranged by us do not cover liability or damage arising from acts of war and terrorism, and other customary exclusions from coverage.

Under our operating agreements with our mining contractors, the contractors are responsible for their own employees and they and their employees must also be covered by appropriate insurance, including insurance for property and vehicles, loss and damage and third-party claims.

See "Risk Factors – Risks Relating to our Business and Industry – Our insurance may not be adequate to cover losses or liabilities that may arise."

Intellectual Property

We own over 27 trademarks, including those related to our corporate logo and names, which are registered in Mongolia. We also own trademarks to three of our logos, "🏠", "🏡" and "🏢", which are registered in Hong Kong.

Legal Proceedings

We are not currently involved in any litigation, legal proceedings or regulatory actions which could be expected to have a material adverse effect on our business, results of operations or financial position.

REGULATIONS

Mongolian Laws and Regulations Relating to Exploration for Minerals and Mining

Between July 1997 and August 25, 2006, Mongolian minerals policies and practices were governed by the 1997 Minerals Law. On July 8, 2006, the Parliament enacted the 2006 Minerals Law, superseding and replacing the 1997 Minerals Law. The 2006 Minerals Law became effective as of August 26, 2006.

The Parliament also enacted supplementary implementation and procedural legislation (the “2006 Implementation Law”) to address various technical issues, including the issues on re-registration of exploration licenses under the new 2006 Minerals Law.

Under the 1997 Minerals Law, exploration licenses were granted by the DGMC, a subordinate agency of Mineral Resources Agency of Mongolia (“MRAM”), which at the time was a subordinate agency of the former cabinet level Ministry of Industry and Trade. In 2006, the Petroleum Authority of Mongolia was merged with the MRAM – creating the Minerals Resources and Petroleum Authority of Mongolia – and the name of the DGMC was changed to the Cadastral Registration Center. To remain effective, all exploration licenses granted by the DGMC under the 1997 Minerals Law were required to be re-registered with the Cadastral Registration Center under the 2006 Minerals Law within five months following the effective date of the 2006 Minerals Law.

In December 2008, the Government of Mongolia again made changes to its regulatory bodies in connection with the mineral industry. The MRAM and the Petroleum Authority of Mongolia became separate subordinate agencies of the MMHI, and the name of the Cadastral Registration Center was changed back to the DGMC. In 2016, MRAM and the Petroleum Authority of Mongolia merged again and formed current MRPAM. The name of the DGMC was changed to the Department of Cadaster, but its main responsibility for registration of exploration and mining license rights remains unchanged.

Registration with the DGMC is the definitive record of the holders of minerals license rights under the 2006 Minerals Law. Pledges and transfers of exploration licenses must be registered with the DGMC to be effective. Pledges, transfers and certain other transactions are recorded on endorsement sheets that are separate from, but considered to be an integral part of, each exploration license certificate. The DGMC does not maintain records of other liens or encumbrances to which a license may be subject.

In 2016, the name of the MRAM was changed to the Mineral Resources and Petroleum Authority of Mongolia (“MRPAM”) upon merging with the Petroleum Authority, and the name of the DGMC was changed to the Department of Cadaster.

The minerals defined under the 2006 Minerals Law do not include water, oil, natural gas, radioactive minerals and common minerals, which are separately regulated by respective laws of the 2012 Law on Water, the 2014 Law on Petroleum, the 2009 Law on Nuclear Energy and the 2014 Law on Common Minerals.

All subsequent references to minerals and licenses to explore or mine minerals will be limited to minerals other than water, oil, natural gas, radioactive minerals and common minerals, as so defined.

Common minerals, as defined by the 2014 Law on Common Minerals, include construction materials such as sand and gravel which does not contain coal. As of the date of this Offering Memorandum, we hold neither exploration nor mining license on commons minerals. However, if common materials such as sand and gravel may become necessary for any of our construction projects from time to time, we may decide to submit a request for respective exploration or mining licenses of the common minerals.

Note that references to “mineral resources” and “mineral reserves” in this section entitled “Mongolian Laws and Regulations Relating to Exploration for Minerals and Mining” are not references to mineral resources and mineral reserves determined in accordance with the JORC Code.

Mongolian Exploration Licenses

The holder of an exploration license has rights to conduct exploration activities in the license area, to construct temporary structures within the license area related to its exploration activities, and if gaining access to its exploration license area requires passing over land which is owned or possessed by others, to traverse such land subject to terms and conditions negotiated with such owners or possessors. If a mineral resource is identified by exploration activities, the exploration license holder has the right to apply for a mining license for any part of the exploration license area. Pursuant to the 2006 Minerals Law, exploration licenses granted on or after August 26, 2006 have an initial term of three years. The holder of such an exploration licenses may apply for an extension of the license for three successive additional periods of three years each. Thus, the maximum period that an exploration license may be held by one or more holders is twelve years from the date of issue.

Each exploration license is subject to cancellation if applicable license fees are not paid on time or if the holder fails to comply with certain other requirements of the 2006 Minerals Law or other relevant laws. Only Mongolian legal entities are entitled to hold exploration licenses.

Annual fees are payable per hectare of exploration license area as follows:

Year	Annual fee per hectare
Initial term – Year 1	MNT145
Initial term – Year 2	MNT290
Initial term – Year 3	MNT435
First extension (3 years)	MNT1,450 each year
Second extension (3 years)	MNT2,175 each year
Third extension (3 years)	MNT7,250 each year

Exploration license holders must spend the following minimum amounts annually on exploration activities per hectare within the license area:

Year	Annual amount per hectare
Initial term – Year 1	No expenditure required
Initial term – Year 2	US\$0.50
Initial term – Year 3	US\$0.50
First extension (3 years)	US\$1.00 each year
Second extension (3 years)	US\$1.50 each year
Third extension (3 years)	US\$10.00 each year

The tables above show the required annual fees and expenditure amounts for each of the first three years, as well as for the succeeding three years (i.e., the “first extension”), following three years (i.e., the “second extension”) and the last three years (i.e the “third extension”). There are no applicable fees or amounts due after the third extension since the exploration license will have expired.

Exploration license holders are also subject to various environmental protection obligations. Within 30 days of receiving an exploration license, the holder must prepare, and submit to the relevant authorities, an environmental protection and reclamation plan. Once the plan has been approved by the relevant authorities, the holder of the exploration license must deposit funds equal to 50% of its environmental protection budget for that particular year in a bank account established by the governing authority of the soum (district) in which the exploration license area is located. Holders of exploration licenses must also submit to relevant authorities an exploration plan and annual reports of exploration activities.

On February 9, 2011, the Parliament enacted the Law on Prohibition of Granting New Exploration Licenses which initially prohibited the granting of new exploration licenses until April 30, 2011. The prohibition was subsequently extended to July 1, 2014.

Reserves

In Mongolia, the tonnage and coal quality of a mineral reserve that has been defined by exploration activities must be recorded in official archives. Under the 2006 Minerals Law, a mining license holder must extract all of the mineral reserves that are within the license area. The purpose of this provision is to prevent “high-grading”, but the net effect is to mandate mining practices that are not consistent with practices in countries where free market principles prevail and the concept of mining mineral reserves on an economically viable basis is recognized and understood. If the license holder practiced “high grading” of mineral reserves, the illegally acquired properties will be confiscated and a fine of MNT100,000 (for individuals) or MNT1,000,000 (for legal entities) will be imposed.

Mining Licenses

If a commercially viable mineral resource is defined within the license area of an exploration license, the holder of the exploration license is entitled to apply for a mining license covering the relevant portion of the license area defined by specific longitude and latitude coordinates in the mineral exploration license. A mining license holder has the right to conduct mining activities throughout the license area and to construct structures within the license area that are related to its mining activities. All such activities must be conducted in compliance with the 2006 Minerals Law and relevant Mongolian laws pertaining to health and safety, environment protection and reclamation. Mining licenses are granted by the MRPAM for an initial term of thirty years and are renewable for two successive periods of twenty years each based upon remaining reserves, for a maximum overall period of seventy years. Upon the expiration of a mining license, the license and the rights under such license revert to the Government of Mongolia. Only Mongolian legal entities are entitled to hold mining licenses. In the case of all minerals other than coal, limestone and minerals which can be used for industrial production, the per hectare annual license fee is MNT21,750. In the case of coal, limestone and minerals which can be used for industrial production, the per hectare annual license fee is MNT7,250. A mining license is subject to cancellation if applicable license fees are not paid on time or other requirements under the 2006 Minerals Law or other relevant laws are not satisfied.

To receive a mining license, an exploration license holder must submit an application to the MRPAM together with, among other documents, an environmental impact assessment and a resource report. Holders of mining licenses must also prepare environmental protection and reclamation plans and satisfy various reporting and security deposit requirements.

Local Government Approval of Exploration Licenses and Mining Licenses

Pursuant to the Licensing Law of Mongolia enacted on February 1, 2001, and effective from January 1, 2002, as the same may be amended and supplemented from time to time (“Mongolian Licensing Law”), the granting of each exploration license and mining license by the MRPAM used to be approved by the governor of the aimag (province) in which the relevant license area is located. However, with existence of the amendment to the 2006 Minerals Law dated November 10, 2017, starting from January 1, 2018, the MRPAM determined the overall boundaries of the areas where minerals exploration and mining license can be issued and informs the governor of the aimag (province) of the determined areas for the purpose of seeking the governor’s response before actual tendering for licensing. The governor must, by collecting comments from the citizens’ self-governing body of the relevant province, submit his/her response to the MRPAM within 45 days of its receipt of the determination of the areas from the MRPAM and his/her failure to respond within this timeframe will automatically signify the governor’s acceptance of the MRPAM’s proposal to include the area for tendering of licensing.

After collecting the governor’s acceptance and the MMHI’s comment, the Government shall approve the boundaries of the areas where minerals exploration and mining licenses can be granted.

Note that the thirty-day notice and response requirements of the 2006 Minerals Law do not apply to the grant of a mining license, but that the Mongolian Licensing Law requirements clearly apply to both exploration and mining licenses. It is not clear how these issues will be resolved in the case of mining licenses.

Approval to Commence Mining Operations

Pursuant to the 2006 Minerals Law, before a mining license holder can bring a mine into production, the MMHI appoints a commission (the “Commission”) to review and audit pre-mining requirements compliance by the mining license holder that proposes to commence operation. The Commission consists of the following members: (i) representatives of the Ministries in charge of geology and mining, environment and labor; (ii) representatives of MRPAM; (iii) representatives from the inspection agencies; and (iv) based on specification on the mine, representatives of respective aimag, city, soum and district of the Governor’s office, state agency of the emergency management and mining requisite team. The Commission reviews to determine whether the license holder has all pre-mining requirements under the 2006 Minerals Law. It also reviews the following key documents (among others) to determine whether they have been prepared in compliance with applicable laws and regulations:

- a certified copy of the mining license;
- a feasibility study and mining plan complied with relevant Mongolian Law and reviewed by the relevant authority;
- the environmental impact assessment;
- the environmental management plan;
- any minerals sales agreement and any lease agreement relating to the mining assets;
- records on establishing and marking the boundary of the mining area; and
- any agreement on land and water usage.

In addition, the Commission makes an on-site inspection of the mine and relevant supporting facilities, such as electrical power generators, mining equipment, water supply facilities, maintenance shops and health and safety equipment.

Upon completion of its review of all relevant documentation and its on-site inspection, if all requirements have been satisfied, the Commission will issue an approval (signed by all of its members) approving the commencement of mining operations by the mining license holder. After the approval is issued, the mining license holder can commence mining.

According to a regulation, feasibility studies are expected to be updated on a five year basis. The updates of the feasibility studies of UHG mine and BN mine have been reviewed and approved by the MRPAM, respectively on November 24, 2017 and August 1, 2018.

Deposits of Strategic Importance

Either the Government of Mongolia or the Parliament may initiate proposals to declare a mineral resource as a Mineral Deposit of Strategic Importance, but the Parliament must approve any such proposal. If a deposit is designated as a Mineral Deposit of Strategic Importance, the Government of Mongolia may acquire certain percentage of the equity stake of such deposit from the license holder on terms agreed by the Government of Mongolia and the license holder. Effective from February 18, 2015, in lieu of the abovementioned right to acquire certain equity interest, upon approval of the Parliament, the Government may agree with the license holder on imposing special royalty of up to 5% in addition to the base and progressive royalties applicable to all mining licenses since the amendment made on February 18, 2015 to the 2006 Minerals Law. A deposit is a Mineral Deposit of Strategic Importance if (i) it may potentially impact the national security of Mongolia, or the economic and social development of the country, or (ii) it may generate or has the potential to generate a revenue more than 5% of Mongolia’s GDP in any given year.

Pursuant to the Parliament Resolution No. 27 dated February 6, 2007, the Parliament has published the Strategic Deposits List, which identifies 16 deposits as Mineral Deposits of Strategic Importance (the “Strategic Deposits List”). This resolution also identifies a further 39 deposits in the Tier 2 Deposits List (the “Tier 2 Deposits List”) and instructs the Government of Mongolia to further evaluate such deposits and determine if one or more of these deposits should be recommended by the Government of Mongolia to the Parliament for designation as a Mineral Deposit of Strategic Importance. In addition to the deposits on the Strategic Deposits List and the Tier 2 Deposits List, Parliament may at any time designate other deposits that are not currently on either list to be Mineral Deposits of Strategic Importance. The Government of Mongolia is not obligated to complete negotiation with the relevant license holders and finalize the status of all deposits currently identified as Mineral Deposits of Strategic Importance.

On January 23, 2015, the Parliament added gold deposit named Gatsuurt as 16th mineral deposit of Strategic Importance, which is located in Selenge aimag of Mongolia. The 16 Mineral Deposits of Strategic Importance specified by Parliament in the Strategic Deposits List have no defined “edges”. They each consist of concentrations of mineralization in a general area that is identified only by a name and not by a set of specific coordinates. License areas, on the other hand, are precisely defined by specific coordinates. Thus, it is not feasible to definitively determine whether or not any given license area is within or overlaps a Mineral Deposit of Strategic Importance.

As of the date of this Offering Memorandum, the Government of Mongolia defined the boundary coordinates of 8 Mineral Deposits of Strategic Importance in total. On April 4, 2017, the Government of Mongolia issued Resolution No. 109 “On defining the boundaries of Gatsuurt gold deposit” and on October 3, 2018, issued Resolution No. 300 “On defining the boundaries of some mineral deposits of strategic importance” for defining boundary coordinates of the other 7 Mineral Deposits of Strategic Importance. Under Resolution No. 300, the Government of Mongolia defined boundary coordinates of Tavan Tolgoi and expanded boundary coordinates for Tavan Tolgoi by including areas under the BN and THG mining licenses. The Company has not yet received any notification or letter from the Government with regards to the consequences or follow-up actions of the abovementioned resolution. Since, only Parliament has sole power to designate deposits as Mineral Deposit of Strategic Importance, as of the date of this Offering Memorandum, our BN and THG mining license area have not been designated as a Mineral Deposit of Strategic Importance by the Parliament and they are not included in the Strategic Deposit List or the Tier 2 Deposits List as it delineated in the Mongolian Parliamentary Resolution No. 27 dated February 6, 2007.

Funded from the State Budget

During the 1970s and 1980s, teams of geologists from the former Soviet Union and other Soviet-Bloc countries, working in conjunction with Mongolian geologists, conducted extensive exploration work throughout Mongolia. Following the collapse of the Soviet Union in 1991, Russia attributed the cost of the exploration to be part of the overall debt owed to Russia by Mongolia. Mongolia negotiated a settlement of this debt, thus the cost attributable to the exploration are deemed to have been funded from the Mongolian state budget (the “State Budget”). Mineral resources that have been explored (in whole or part) by such activities are also considered to be deposits that have been funded from the State Budget. In addition, expenses incurred by the Government of Mongolia in connection with subsequent survey and exploration activities are also deemed to be expenses funded from the State Budget. To the extent that such expenditures incurred in exploring a specified deposit, they may be regarded as debt owed to the Government of Mongolia by the relevant license holder.

Under the 2006 Minerals Law, the encumbrance issue may be claimed to have been addressed by the payment of these costs by the license holder.

Both the designation of mineral resources as Mineral Deposits of Strategic Importance and the claims that such mineral resources have been funded – at least to some extent – by the State Budget are essentially decisions that are rather arbitrary.

During the 1970s and 1980s, state funds were used by Russian-Mongolian scientific teams to conduct some of the exploration activities of UHG deposit. On September 12, 2008, we entered into an agreement with the MRPAM, which required us to repay US\$1.18 million, being the amount of state fund used in the exploration activities of our deposit, within five years of the date of the agreement. In the year ended December 31, 2008, we repaid US\$0.28 million and in the six months ended June 30, 2010, we repaid the remaining of US\$0.9 million to the MRPAM. We have no further payment obligations under the agreement.

State Participation in Mineral Deposits of Strategic Importance

The 2006 Minerals Law provides that the Government of Mongolia may acquire up to 50% equity interest if the relevant exploration is state financed, such as funded from the State Budget or up to 34% equity interest, if the relevant exploration is privately financed. The terms and conditions of such participation are subject to negotiation between the Government of Mongolia and the license holder and may not necessarily adhere to the 50% or 34% limitations. The 2006 Minerals Law does not provide any guidelines as to the form such negotiations should take. Effective from February 18, 2015, in lieu of the abovementioned right to acquire certain equity interest, upon approval of the Parliament, the Government may agree with the license holder on imposing special royalty of up to 5% in addition to the base and progressive royalties applicable to all mining licenses since the amendment made on February 18, 2015 to the 2006 Minerals Law.

In addition, on July 1, 2014, the Parliament resolved to refuse taking any equity interest in copper and molybdenum deposit named ‘Tsagaan suvarga’, which was included in the list of Mineral Deposit with Strategic Importance back in 2007 by the Parliament.

The 2006 Minerals Law further provides that any company which holds a Mineral Deposit of Strategic Importance is required to list at least 10% of its shares on the Mongolian Stock Exchange. To our knowledge, this provision has not yet been enforced with respect to any of those companies with deposits on the Strategic Deposit List, including us, and it is not clear whether the provision would be enforced in the future.

Tax Stabilization Certificate

Pursuant to the Law on Investment adopted on October 3, 2013, on August 13, 2015 the Company, through its wholly owned subsidiary ER LLC, received the Tax Stabilization Certificate from the National Development Agency (formerly known as Mongolian Investments Department or Invest Mongolia Agency), the Government agency responsible for implementation of state policy on investment. Under this Tax Stabilization Certificate, the four core taxes such as corporate income tax, custom duty, VAT and royalty are stabilized for a period of 24 years until April 17, 2033. For detailed information with respect to investment regulations, see “– Mongolian Laws Relating to Business Entities with Foreign Investment” below.

Royalties

A base royalty at the rate of 5% is payable in respect of the sales price of all products extracted pursuant to a mining license (other than domestically sold coal and construction minerals) that are sold, shipped for sale, or otherwise used. Part of the royalty goes to the central treasury, while the remaining part goes to local governments. The base royalty rate for domestically sold coal and construction minerals is 2.5%, whereas the rate for international exports of these materials is 5%.

An additional progressive royalty rate, which is calculated based on the degree to which coal is processed is also payable. The level of the progressive royalty rate depends on the level of processing of coal and is set forth in the table below.

Raw Coal Progressive Royalty Rate		Processed Coal Progressive Royalty Rate	
Price Range (US\$/tonne)	Progressive Royalty %	Price Range (US\$/tonne)	Progressive Royalty %
0-25	—	0-100	—
25-50	1.00	100-130	1.00
50-75	2.00	130-160	1.50
75-100	3.00	160-190	2.00
100-125	4.00	190-210	2.50
125+	5.00	210+	3.00

In addition to the abovementioned base and progressive royalty rates, effective from February 18, 2015, in lieu of the Government's right to acquire certain equity interest up to 50% equity interest in Mineral Deposits with Strategic Importance, if the relevant exploration is state financed or up to 34% equity interest in such deposit, if the relevant exploration is privately financed, upon approval of the Parliament, the Government may agree with the license holder on imposing special royalty of up to 5% in addition to the base and progressive royalties applicable to all mining licenses.

Sales and Transfers of Exploration Licenses and Mining Licenses

In accordance with the 2006 Minerals Law, the holder of an exploration license may not sell the license itself. The holder may, however, sell the underlying "original materials and reports on prospecting and exploration work" (the "license area data") in respect of the license. Upon completion of the sale of the license area data, and payment of applicable taxes (evidenced by a document showing payment of such tax), the holder may transfer the license, but for no consideration.

In accordance with the 2006 Minerals Law, the holder of a mining license may not sell the license itself. The holder may, however, sell "the mine, together with its machinery, equipment and documents" that is located within the relevant license area. Upon completion of the sale of the mine, and payment of applicable taxes (evidenced by a document showing payment of such tax), the holder may transfer the license, but for no consideration.

Law on Subsoil was adopted on November 29, 1988. In addition to the 2006 Minerals Law, the Law on Subsoil regulates issues regarding use and protection of subsoil. As in the Constitution of Mongolia, Article 3 of the Law on Subsoil provides that the subsoil is owned by the country or the whole nation.

The Law on Subsoil contains provisions that grant power to the State Great Hural, the Government of Mongolia, the Ministries of Geology, Nature and Environment and local authorities to protect and regulate the use of subsoil. In addition to mining and geological exploration, subsoil may be used for building facilities underground including burying of oil, gas, other poisonous substances and industrial waste or waste water drainage system. Local authorities shall provide permits to use the subsoil depending on the nature of the project. Article 19 of the Law on Subsoil provides that the subsoil shall be allocated for use for 30 years extendable for another 20 years.

Chapter 3 of the Law on Subsoil provides requirements and procedures regarding development of design and building facilities underground and plants that would be used for mining of minerals. Even though Article 10.2 of the Law on Subsoil provides that issues regarding exploration and mining of minerals from the subsoil shall be regulated by the 2006 Minerals Law, Chapter 4 of the Law on Subsoil regulates the procedures for using the subsoil for purposes of mining of minerals and it deals with the procedures for the entity to mine the subsoil, and requirements of the legal entity during the mining operations, including effective and full use of the deposit and imposing obligations not to selectively mine not to damage the neighboring deposits and general requirements for rehabilitation, ensuring safety of the employees and the population in the area (Article 32.8).

Chapter 5 of the Law on Subsoil regulates the use of subsoil for purposes other than the mining of minerals. The Law on Subsoil also regulates issues related to the safety, use and protection of the subsoil, maintenance and registration of minerals reserve deposits and monitoring of the use and protection of subsoil and geological studies conducted in the subsoil.

Mongolian Laws Relating to Additional Permits

Effective from January 1, 2002, the Law on Special Permits for Business Activities (the “Licensing Law”) provides for governing relations regarding granting, suspending and revoking special permits for certain business activities that may have impact on the public interest, human health, environment and national safety or that may require certain conditions and qualification.

Article 15 of the Licensing Law lists the type of business activities that require special permits or licenses:

- 15.6.2 Production of poisonous or dangerous chemical substance other than explosive material.
- 15.6.3 Importing, exporting, transporting over the border use trading and liquidation of poisonous chemical or dangerous substances other than explosive material.
- 15.6.5 Discharging polluting substances, in which acceptable amount is not determined under the standards.
- 15.6.6 Conducting detailed environmental impact assessment.
- 15.6.7 Importing, trading and servicing poisonous chemical or dangerous substance that may have significant adverse impact on the environment.
- 15.8.2 Construction of electricity power source or transmission line.
- 15.8.3 Production of electricity transmission dispatching coordination distribution, supply and sales of electricity.
- 15.8.5 Assembly and maintenance of boilers pressure tanks and park lines.
- 15.10.4 Production, trade, import and export of explosive substance and explosive equipment for explosions and conducting explosions.
- 15.10.5 Minerals exploration.
- 15.10.6 Minerals mining.
- 15.10.13 Production of oil products.
- 15.10.17 Import, wholesale and trade of all kinds of fuel.
- 15.10.18 Exploration of oil.
- 15.10.19 Exploration of unconventional oil.
- 15.10.20 Use of oil.
- 15.10.21 Use of unconventional oil.
- 15.14.6 Designing construction and facilities, conducting construction activities production of construction material, production assembly and maintenance of lifting equipment and its spare parts.
- 15.15.2 Conducting civil aviation operation.
- 15.16.1 Using radio wave and setting up communication service network and its use and provision of services.

The Law on Water was renewed on May 17, 2012 and the purpose of this law is to govern issues regarding proper use of water and water bed area protection and rehabilitation. As provided for in the Law on Water, any citizens, legal entity or organization must obtain the right to use the water by entering into an agreement and obtaining the permission. The agreement to use water must be entered for a term of up to ten years and as long as the user complied with its obligations the agreement can be extended for another five years. For the mineral deposits with strategic importance, the law even allows to grant water utilization permits equal to the minerals license terms. However in practice, since implementation of the 2012 Law on Water, the water use permits have always been granted for one year, subject for annual renewal.

The Law on Energy was adopted on February 1, 2001. The purpose of this law is to govern the issues regarding production, transmission, distribution, dispatching coordination and services using energy reserves and construction of energy infrastructure and use of energy.

On December 22, 2009, United Power LLC, a subsidiary of the Company, obtained a special license for construction of power plant at the Ukhaa Khudag soum in South Gobi Province. Accordingly, the Company constructed 3x6 MW on site power plant in 2011. The power plant is now fully operational and meets all the power consumption need of the Ukhaa Khudag coking coal mine. Since the commencement of the operation of the power plant, we faced issue as to how to utilize the power plant. As the Company has no special permits required for operating the power plant, we entered into the Power System Operation and Maintenance Agreement with MCS International LLC. MCS International LLC and its subsidiaries hold such special permits required for operating the power plant at the area where the power plant is located. According to the Law on Energy, scope of license is limited to certain territory. Therefore, only one legal entity may hold a license to conduct energy related activities in relation to a particular source of energy within the territory specified in the relevant permit.

The Law on Construction was renewed on February 5, 2016. The purpose of this law is to govern the issues regarding conduct of construction activities, production of construction material, and executing, supervising and commissioning construction works. As defined in this law the “building and facilities” shall mean apartments, civil, industrial, energy, communication, water and petroleum purpose buildings, and facilities such as water channel, dams and shields and the engineering networks thereof.

Law on Poisonous Chemicals and Dangerous Substances was adopted on May 25, 2006. As provided in this law, special permits must be obtained in order to import, transport and use chemical and dangerous substances by the ministry in charge of environment. The Company obtains special permit to import, transport and use certain types of chemical elements and harmful substances that being used for coal mining from the Ministry of Environment and Tourism once a year in accordance with the relevant laws.

List of Other Applicable Mongolian Laws

- Law on Auto Road was adopted on May 11, 2017.
- The Law on Auto Transportation was adopted on June 4, 1999.
- The Law on Traffic Safety was adopted on July 8, 2015.
- The Law on Civil Aviation was adopted on January 21, 1999.
- The Law on using Air Space for Aviation was adopted on May 30, 2003.
- The Law on Custom was adopted on May 20, 2008.
- The Law on Waste was adopted on May 12, 2017.
- The Law on Border was adopted on December 28, 2016.
- The Law on Communication was adopted on October 18, 2001.

- The Law on Radio Wave was adopted on June 4, 1999.
- The Law on Urban and Rural Water Supply Sanitation Sewerage Uses was adopted on October 6, 2011.

Mongolian Laws and Regulations Relating to Labor, Health and Safety

The Mongolian Labor Law (1999) (“Labor Law”) and the Labor Safety and Sanitary Law (2008) (“Labor Safety Law”) contain provisions of general application in relation to labor, health and safety.

Labor legislation in Mongolia includes the Law on Setting up Minimum Labor Wage (2010) according to which the National Trilateral Committee of Labor and Social Consensus shall set the minimum labor wage, and the minimum labor wage. Most recently, on August 18, 2018, the minimum labor wage was set at MNT320,000 for the year 2019 and will be increased to MNT420,000 from January 1, 2020.

The Labor Law provides general provisions and detailed provisions regarding collective bargaining and contract, detailed clauses regarding independent contract and provisions regarding the grounds for terminating employment agreement, provisions governing wage and allocation of wages including the overtime, holiday and afterhours wages or day-off time, provisions regarding the labor condition, safety and health standards, the labor of women, juveniles, disabled and senior citizen’s and foreign citizens in Mongolian entities. The Labor Law also deals with the collective and individual dispute resolution.

An employer is responsible for maintaining a safe working environment that meets applicable safety and sanitation requirements. Furthermore, if the nature of an employee’s work requires so, the employer must provide special work garments and arrange for such employees to receive regular, preventative health examinations related to their work. Mining companies must create a special department, or appoint an officer, dedicated to overseeing matters of safety and sanitation. The Ministry of Social Welfare and Labor is responsible for adopting regulations governing labor safety and sanitation.

The Labor Law and the Labor Safety Law provide that in the event of an industrial accident the employer, at its own expense, must immediately transport injured employees to a hospital and take steps to eliminate any causes of harm created by the accident. Employers are obligated to investigate and report all industrial accidents. Regardless of whether an employee was covered by insurance for injuries sustained during an industrial accident, the employer must reimburse the employee in an amount determined as a percentage of the average salary of the employee. If the employee died as a result of the accident, the employer must reimburse the employee’s family in an amount equal to or more than the deceased employee’s average compensation for 36 months. Reimbursement under these provisions of the Labor Law and Labor Safety Law do not affect the employee’s entitlement to pensions or other benefits under social insurance or other laws.

If a company’s activities are proven to have an adverse impact on the health and safety of its employees, the State Professional Inspection Agency of Mongolia or other authorized official may take steps to force the company to remedy the breaches. If the company fails to remedy such breaches, it may be ordered to wholly or partially suspend business activities until the labor safety and sanitation requirements are satisfied. Additionally, failing to comply with labor safety and sanitation regulations, causing or concealing an industrial accident, or failing to pay requisite compensation for an industrial accident, may result in the imposition of administrative fines. In extreme cases, criminal sanctions may be imposed for violating the applicable Labor Law provisions.

The 2006 Minerals Law provides that local administrative and self-governing bodies are responsible for monitoring compliance with respect to health and safety regulations for workers and local residents. A mining license holder must carry out activities that ensure (i) safety for the citizens of the relevant soum or district and (ii) labor safety and proper sanitary conditions for its employees.

If a license holder is found to have continually violated mining operation safety regulations, its license(s) may be suspended by a State inspector for up to two months, and if the deficiencies are not eliminated within this period, the license(s) may be revoked. If a mining license holder causes serious damage to human health through failure to implement safety rules and appropriate technical standards while using toxic chemicals and substances, its license may be revoked and no new license issued for a period of twenty years. Criminal sanctions may also be imposed for violating the health and safety provisions of the 2006 Minerals Law, in extreme cases.

Under the Law on Subsoil (1988), a special mining rescue unit has been established by the Government of Mongolia, and mine operators are required to pay fees to support and maintain the services of this unit. Also under this law, the Ministry of Environment and Tourism of Mongolia and the MMHI are responsible for ensuring compliance with applicable safety rules and standards while conducting subsoil-related activities. If a mine operator is not in compliance with these safety rules and standards, it may be ordered to suspend its activities.

The Fire Safety Law (2015) requires companies to observe fire prevention and extinguishing regulations, norms and standards and to train employees in firefighting skills.

Specific provisions of the regulations implemented by the Ministry of Labor and Social Welfare pursuant to the Labor Law, newly amended and supplemented by the Labor Safety Law, effective from June 16, 2008, as the same may amended and supplemented from time to time, govern:

- the air quality structure and permitted levels of poisonous gas in the atmosphere;
- fire prevention measures; permitted levels of dust in the atmosphere;
- provision of amenity rooms for mine operating personnel, medical and first-aid care, and a clean water supply;
- establishment of ancillary facilities for the health and welfare of mine operating personnel; and
- compliance with radiation safety norms and permitted levels of radioactive exposure.

Mine operators, as well as all employees working at a mine site, are responsible for complying with these regulations. A breach of the regulations, regardless of whether or not it results in an industrial accident, may result in disciplinary, administrative or criminal liability depending on the severity of the breach.

Law on Sending Work Force Abroad and Accepting Work Force and Specialists From Abroad was adopted on April 12, 2001. As the Article 1 states the purpose of the Law is to govern the issues regarding sending Mongolian citizens abroad and accepting foreign citizens to Mongolia for the purposes of employment and for protecting their right and interests.

Chapter 2 and especially Article 7 deals with the general conditions of a contract under which the work force and specialists are received in Mongolia and according to Article 9, business entity, organization or individual citizens shall pay a fee equal to two times of the minimum monthly wage for employing a foreign citizen in Mongolia and that fee is per month per each foreign citizen. Article 9.3 of the Law states that if a mining license holder employs foreign citizens in numbers more than stated in Article 43.1 of the 2006 Minerals Law then the fees stated in Article 43.2 of the Law shall be paid each month. (Article 43.1 of the 2006 Minerals Law states that the license holder is obliged to employ the citizens of Mongolia and up to 10 percent of the employees may be foreign citizens. Article 43.2 provides that if the number of foreign citizens employed exceeds the percentage set forth in Article 43.1 the license holder shall pay 10 times the minimum monthly salary for each foreign citizen every month.)

Pursuant to Articles 4.1.4 and 7.3 of the Law on Sending Work Force Abroad and Accepting Work Force, the Government annually approves the percentages of foreign labor force and personnel allowed to be employed by Mongolian companies in the mining and other sectors within the immediate next year. The percentage depends on the company's main operational direction, equity fund and number of total employees.

No specific percentage applicable to companies exploring and mining minerals in Mongolia was approved by the Government through its Resolution No. 377 dated December 12, 2018 which approved the percentages of foreign labor force and personnel allowed to be employed by Mongolian companies with the year 2019. Therefore, the general percentage of 5% shall be applicable to companies, whose operation is exploration and/or mining of minerals and whose total employees are 20 or more.

Mongolian Laws Relating to Coal Export Requirements

A Mongolian mining company holding a valid mining license that extracts and processes coal has the right to export and sell the coal on the international market. There is no additional export license required. There are, however, certain requirements that must be complied with and procedures that must be followed in order to lawfully export coal.

First, a coal mining company must pay the appropriate royalty (addressed in more detail above) and obtain a document evidencing such payment from the relevant tax office. Under the 2006 Minerals Law, the royalty rate is based on the sales value, which in turn in case of exported minerals is directly defined by the Mining Ministry's regularly announced monthly average international market price rate, which is sourced only from the widely accepted as a definitive source of reliable information concerning the coal market in China. This source is defined by the Government Resolution No. 81, dated February 1, 2016 in accordance with the 2006 Minerals Law. Besides, the 2006 Minerals Law provides second option on defining sales value based on actual sales contract price, if it is impossible to define sales price based on international market price. In the past, due to serious market instability incurred in 2014 in coal market, the Government accepted use of sales contract price for the calculation of royalty in 2014 from April 1, 2014 up to January 1, 2015. The respective procedure on defining royalty based on contract price is approved by the Government Resolution No. 220, dated July 4, 2014, as may be amended and supplemented from time to time. As of the date of this Offering Memorandum, the royalty is defined based on the Government's announced international market price. Coal is not subject to Mongolian export tax.

Second, the coal producer/exporter must obtain a certificate of origin from the Mongolian Chamber of Commerce and Industry in respect of the Group's coal being exported. This certificate of origin certifies that the source of the coal is from within Mongolia.

Finally, the producer/exporter must obtain a certificate from Custom's Central Laboratory certifying that the coal to be shipped is properly classified. It will be classified in accordance with a rule approved by Mongolian National Centre of Standardization and Measurement.

In order to complete the coal export process, the coal producer/exporter must present the three aforementioned documents, along with the following additional documents, to the customs authority at the border crossing:

- a copy of the producer's mining license (to establish that the coal has been extracted and processed by a duly authorized Mongolian entity);
- a copy of the coal sales contract;
- a copy of the shipping contract; and
- other standard commercial shipping documentation.

Mongolian Laws Relating to Borrowing and Lending Activities among Legal Persons

The Civil Code of Mongolia allows citizens, legal bodies and organizations to borrow money or other property in two ways: from other citizens, legal bodies or organizations or from banks or financial institutions. Article 281.1 of the Civil Code regulates the regular loan relationship between legal bodies while Article 451.1 of Civil Code regulates loan relation between legal bodies and banks or financial institutions. There is no restriction in the laws and legislation of Mongolia on borrowing from any individual, who might be considered connected persons of the borrower, but special decision making requirements defined by the 2011 Company Law pertains to contracts that involves conflict of interest.

Mongolian Laws and Regulations Relating to Land Tenure

Land Tenure

Land tenure in Mongolia is divided into: (i) ownership rights; (ii) possession rights; and (iii) use rights. Only Mongolian citizens can own land. Mongolian citizens, organizations and legal entities that are not deemed to be a business entity with foreign investment ("BEFI") are entitled to possess land, which entitles them to pledge their interest and to transfer or lease it, all subject to approval by relevant authorities. BEFIs may only acquire use rights over land, which may not be transferred, pledged or leased.

Land possession and land use rights are evidenced by certificates issued by the local government authority in the city, aimag (province) or soum (district) in which the relevant property is located. Such certificates are issued in conjunction with a document that provides for the term of the land possession or land use rights and the requirements for maintaining such rights in good standing, most notably the payment of recurring fees to the local government (together a “Land Use or Possession Certificate”).

To engage in mining activities the license holder, if it is a BEFI, must acquire land use rights to the relevant land area. Under the Land Law of Mongolia enacted on June 7, 2002, and effective from January 1, 2003, as the same may be amended and supplemented from time to time (the “Land Law”), land use rights can be granted for a period of up to sixty (60) years, although in practice Land Use Certificates are typically issued for shorter terms. The Land Law provides that renewals may be made once or more than once, but that the maximum term of any renewal may not exceed a period of forty (40) years.

Land Use or Possession Certificates are issued for a specific number of years and for a specific purpose stated in the relevant land use or possession agreement, and are usually renewable if the holder has complied with relevant requirements. Land possession and land use rights are subject to revocation by the issuing authority if the holder fails to comply with (i) applicable provisions of the Land Law, (ii) the terms of the relevant Land Use or Possession Certificate (most notably failure to make timely payment of recurring land use fees), or (iii) applicable environmental protection obligations.

A mining license holder must enter into either a land possession or land use or possession agreement with relevant land owners, possessors, or the governing authorities of soums and districts and obtain the Land Use or Possession Certificate.

An exploration license is also not a real property interest and does not convey either land possession or land use rights to the holder. But it is not clear whether an exploration license holder must obtain a Land Use or Possession Certificate before conducting minerals exploration activities. The 2006 Minerals Law does not specifically provide that such holders must obtain such Land Use or Possession Certificates. All minerals in the ground are owned by the Government of Mongolia on behalf of the people of Mongolia. The holder of a mining license is entitled to extract and sell the minerals located within the land area covered by the license, and is eligible to hold them for up to a maximum of 70 years so long as it complies with all applicable legal requirements. We may sell minerals extracted from the relevant license area, subject to the payment of applicable royalties and income taxes. The mining license will be issued at first for 30 years and is extendable two times for 20 years each.

Government Resolution No. 302, dated September 30, 2009, states that the term of land use for a foreign investment enterprise holding a mining license relating to a Mineral Deposit of Strategic Importance shall be 30 years, extendable for 20 years.

Land Use for Special Needs

The Land Law provides that land can be taken for special needs by the relevant local government body for the purpose of turning the land into: (i) specially protected areas; (ii) lands allocated for ensuring national defense and security; (iii) land granted to foreign diplomatic and consular offices and representative offices of international organizations; (iv) sites reserved for conducting scientific and technological tests and experiments; (v) permanent environment and weather prediction and observation sites; (vi) pastures and hayfields; (vii) areas designated for oil exploration pursuant to production sharing agreements; and (viii) free trade zones. Pursuant to the 2006 Minerals Law, the DGMC may revoke a license on the grounds that the exploration or a mining area has been designated as special needs territory and the license holder has been fully compensated. Mongolia’s 2013 Investment Law provides that the property of an investor, including both foreign and domestic, may be expropriated exclusively for public purposes or interests and only in accordance with due process of law with payment of full compensation. The 2006 Minerals Law further provides that a government agency which has issued a decision to take the land for special needs shall be obligated to compensate the license holder within one year. If the parties fail to reach agreement, the amount of compensation shall be determined based on an adequate compensation amount determined by an authorized independent body. The 2006 Minerals Law provides that disputes relating to compensation shall be decided by a court.

Mongolian Laws Relating to Business Entities

On October 6, 2011, the Parliament adopted new edition of the Company Law of Mongolia. The Company Law introduces governance requirements for all companies. The Company Law provides general and detailed provisions regarding the legal status of a company and its establishment including, but not limited to, reorganization and liquidation, share capital of a company, dividends and transfer of a company's property, company's management and responsibilities of a company's authorized officials, and the provisions of major transactions or conflict-of-interest transactions.

Pursuant to Article 6.5 of the Company Law, controlled and subsidiary companies shall not be liable for the debts of its parent company and, unless otherwise provided by law and by an agreement, the parent company shall not be liable for debts of its controlled and subsidiary companies.

Mongolian Laws Relating to Business Entities with Foreign Investment

In order to encourage foreign direct investment into Mongolia, especially in the mining and mineral processing sector, the Government of Mongolia implemented a number of initiatives to ensure a stable and supportive legal environment for foreign investment. This was deliberately considered to restore confidence of international investors in Mongolia. As part of immediate steps taken in this regard, upon extensive dialogue and consultation with key stakeholders in the Mongolian business sector, including those from both the international and domestic investment communities, on October 3, 2013 the Parliament introduced a new legislation to regulate investments in Mongolia under the name of the "Law on Investment".

The Law on Investment is a comprehensive piece of legislation intended to encourage investment into Mongolia, by providing certainty on taxation and other key regulatory aspects for new investments. It is aimed to attract and maintain investors' interest in key business sectors within Mongolia.

The Law on Investment was developed on the basis of experience and results from previous similar legislation, and the new law serves to replace the "Law on Foreign Investment" (1993) and the Law on Regulation of Foreign Investment Business Entities Operating in Sectors of Strategic Importance (2012), which were subsequently abolished by the Parliament on November 1, 2013 when the new Law on Investment came into force.

The Law on Investment provides certainties on the stability of the legal environment, and overall protection of investment for both foreign and domestic investors under non-discriminatory treatment of their interests. One of the key components of the new legislation is the introduction of a clear regime of tax stabilization for investors for defined periods of time. Under the Law on Investment, the following four major taxes can be stabilized for qualifying project investment for five to 18 years:

- (a) Corporate income tax;
- (b) Customs tax;
- (c) VAT; and
- (d) Royalty on mineral resources.

The periods of stabilization available depend upon the size of the investment made, its location and the industrial sector. The period of stabilization can be multiplied by 1.5 times for projects with total investment of more than MNT500 billion, which have significant importance for long term sustainable socioeconomic development and produce import substitutions with potential to generate export revenue. Stabilization regime under the Law on Investment is granted and documented by a certificate of stabilization issued by the state administrative body, the National Development Agency, in charge of investment affairs.

In addition, the Law on Investment also allows investors an option to apply and enter into an investment agreement with the Government of Mongolia for projects with investment over MNT500 billion.

Under the newly adopted Law on Investment the following business sectors remain classified as strategically important to the country:

- (a) Mining;
- (b) Banking and finance; and
- (c) Media and Communications.

With the introduction of the Law on Investment, requirements for mandatory approval on foreign investment into strategically important sectors were eased. The National Development Agency, the Government agency, has been appointed as the governmental body charged with approving foreign investments by state owned enterprises. This supersedes the previous requirement of high level Parliamentary or Governmental approval where an investment exceeds one third of total equity of an entity operating in strategically important sectors. The new legislation does not require approval for foreign investments by private entities in sectors of strategic importance.

In accordance with the Law on Investment, the Government of Mongolia established a new agency named the “Mongolian Investment Department” on November 9, 2013 and currently the responsibilities to implement the Law on Investment have been transferred to the National Development Agency.

ER, which holds UHG mining license, submitted its applications for available tax stabilization certificates on February 24, 2014 and, it was granted the Tax Stabilization Certificate from the National Development Agency on August 13, 2015, under which the core four taxes, namely, corporate income tax, customs duty, VAT and royalty are stabilized for a period of 24 years until April 17, 2033.

Under the Law on Investment, where twenty-five percent (25%) or more of the paid-in-capital of a Mongolian company is contributed from foreign sources and where each foreign shareholders’ equity contribution is no less than US\$100,000, such company is deemed to be a BEFI.

Previously under the 1993 Foreign Investment Law, which was abolished in October 3, 2013 upon approval of the new Law on Investment, bureaucratic system for mandatory registration and approval of the BEFIs and minimum investment threshold requirements for foreign investors are lifted. Since then BEFIs are registered with the State Legal Entity Agency through same procedure as domestic entities.

Mongolian Laws Relating to Payments for Goods and Services in Local Currency

The Law on Implementing Payments in National Banknotes enacted in 2009 provides that (i) all posted tariffs and contracts between two parties within the territory of Mongolia must be stated in MNT; (ii) all payments made between two parties within the territory of Mongolia must be made in MNT; and (iii) parties within the territory of Mongolia are prohibited from including an adjustment mechanism in the terms of a contract that adjusts the agreed MNT price based on changes in foreign exchange rates. The Law of Mongolia on Implementing Payments in National Banknotes does not prohibit an offshore party and a Mongolian party from transacting in the currency of their choice, nor does the law prohibit a Mongolian party from paying into an offshore account or being paid in an offshore account in foreign currency.

Penalties for non-compliance with the Law of Mongolia on Implementing Payments in National Banknotes include confiscation of the proceeds of an illegal payment by the State, other administrative fines and revocation of a non-complying business’s operating license.

Mongolian Laws Relating to Auditing

According to Article 10.1 of the Law on Auditing (2015), certain business entities and organizations are subject to financial audit, including entities obliged for compliance with the international accounting standards, entities which issue consolidated financial reports, foreign invested business entities and organizations, and funds and entities obliged for mandatory auditing under the international treaties to which Mongolia is a party. Such entities and organizations shall procure so that their financial reports are

confirmed by an auditing organization which is incorporated and registered in Mongolia. In case of a failure to appoint such auditing organization, the maximum penalty imposed will be approximately US\$400. If such failure causes loss for users of their financial reports, the accountable officer shall be responsible for compensation.

Sino-Mongolian Bilateral Treaties

There are several bilateral agreements between Mongolia and China.

Sino-Mongolian Border Railroad Agreement: The agreement has been entered between the Ministry of Infrastructure Development of Mongolia and Ministry of Railroad of China on October 17, 1955 in Ulaanbaatar, Mongolia. The agreement only has a few provisions such as traffic conditions of trains, procedure on arrangement of the cargo and transportation plans, telegraphic and telephone communication between the two parties, the adherence to the time schedule, terms and procedures to use the opposites of the boarder stations, constructions of roads and stations, staying of railroad employees in the other parties territory, procedure for serving trains interchange operations, traffic interruption, maintenance of rolling stock and railway, procedures during accident and breakdown issues regarding passenger transportation cargo transportation, responsibilities of the parties for any damages the transportation of spare parts material communication issues. The agreement also has a number of rules and procedures mainly for coordinating train traffic Zamyn-Uud and Erlian boarder stations, procedure on maintaining a log book on both sides, procedures on mutual warning on traffic and other necessary events, and procedures on passing for employees from both sides and their staying on the other territory of the other side. The agreement also has numerous forms for notification and log maintenance.

The Agreement between the Governments of China and Mongolia for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income was signed on July 29, 1991 and came into force on January 1, 1993.

The Agreement on Friendly Relations and Cooperation between Mongolia and China was signed on April 29, 1994 and ratified by the State Great Hural on July 4, 1994.

The Intergovernmental Agreement between Mongolian Government and the Government of China on Protection and Use of Border Area Water which was signed on April 29, 1994 was ratified by the State Great Hural on January 3, 1995.

On June 9, 2006, the State Great Hural ratified Intergovernmental Agreement signed between the Government of Mongolia and the Government of China on November 28, 2005 titled 'General Loan Agreement' regarding usage of export soft loan for the amount of US\$300 million.

The Intergovernmental Agreement between the Governments of China and Mongolia on Auto Transportation was signed on June 16, 2011 and approved by the Government on August 24, 2011.

Mongolian Air Pollution Laws

On June 24, 2010, the State Great Hural adopted the Air Pollution Fee Law, which imposes fees on entities that pollute, including persons engaged in raw coal mining, producers and importers of organic absorbent, users of auto vehicles and self-moving equipment, holders of licenses to use significant and stationary sources of air pollution and citizens, business entities and organizations using sources of air pollution.

The fee for extracting raw coal is between MNT1 to 2 per kilogram of coal and for producing and importing organic absorbent between MNT10 to 30 per kilogram of organic absorbent. The fee for emission of carbon dioxide by auto vehicles and self-moving equipment that emit more than 120 grams of carbon dioxide per km per year is between MNT1,800 and 9,500 per year per vehicle/equipment, based on the amount of emissions. The fee for waste of significant and stationary sources of air pollution is between MNT1 to 10 per kilogram of waste. Exemptions from fees exist where raw coal is highly processed and new fuel is produced that meets standard requirements. Business entities and organizations extracting raw coal for ensuring national security and protecting public interest and producing power may be exempt from the fee subject to regulations adopted by the Government.

Based upon the range of MNT1 to 2 defined by the 2010 Air Pollution Fee Law, the Government of Mongolia published Resolution Number 273 on October 20, 2010 and specifically defined the air pollution fee for the coal mining industry to be MNT1 for every kilogram of raw coal mined.

Certain Mongolian Tax Laws

This section does not purport to be a comprehensive description of the Mongolian tax system.

Mongolian tax law sets forth a general structure of taxation but in many circumstances fails to provide clear or detailed guidance as to how the general provisions contained in the law are to be applied to specific transactions. This lack of detailed guidance may lead to inconsistent implementation of the law by the tax authorities.

The basic Mongolian tax law is the General Law on Taxation which provides the overall structure of the tax regime and the general rights and obligations of taxpayers and the taxation authorities. This law has been substantially amended, effective as of July 1, 2008. Specific laws, such as the Corporate Income Tax Law, the Personal Income Tax Law and the Law on VAT, address specific areas of the tax law regime. These three tax laws were substantially renewed, effective as of January 1, 2007. The Corporate Income Tax Law and the Personal Income Tax Law were recently amended on November 10, 2017, with effect from January 1, 2018, so as to register ultimate holders of the Mongolia companies holding exploration and mining licenses and to impose 30% taxation on right holding entity for indirect transfer and sale of the exploration and mining licenses by its ultimate holder. The Law on VAT was further renewed on July 9, 2015, effective as of January 1, 2016.

A summary of the principal tax legislation that may affect the operations of the Company and its subsidiaries in Mongolia is as follows:

- The general income tax rate applicable to business entities with Mongolian source income is 10% on the first MNT3 billion of taxable income and 25% on amounts in excess thereof. These rates are applicable to operating and certain other types of income (e.g., capital gains on the sale of shares and equipment). Other types of income (e.g., capital gains on the sale of real property, interest, royalty and dividend income) are subject to other, varying rates of income tax.
- On March 22, 2019, the Parliament of Mongolia adopted certain amendments to taxation related laws with effect from January 1, 2020. Although the final version of the amendments has not yet been released, from the drafts submitted to the Parliament, it is understood that the threshold for the 10% tax rate is to be raised from MNT3 billion to MNT6 billion. The final adoption of the amendments is subject to presidential veto, and there can be no assurance that the amendments will not be vetoed, or that the final amendments will conform to the draft amendments or that the law as finally adopted and implemented will conform to our expectations.
- Taxable operating income of a Mongolian business entity is determined by taking into account operating income received less permitted deductions. However, Mongolian tax law does not always permit all items of expense incurred in the furtherance of the business purpose of the enterprise (as such concept would be understood in more developed jurisdictions) to be fully deducted when determining taxable operating income.
- Effective from January 1, 2010, the Economic Entity Income Tax Law has been amended to allow for operating losses accumulated by mining companies as well as companies that are operating in the infrastructure sector to be carried forward and deducted from taxable income for a period of four to eight years following the year in which the loss was incurred, the determination of the carry-forward period applicable to any particular mining company to be determined by the Resolution No. 287 of the Government of Mongolia (2009) after taking into consideration the investment made by such company in its mining operations. In the case of mining companies, the loss carry-forward deduction can be applied to 100% of the taxable income calculated in the relevant tax year.

- In the absence of a tax treaty, (i) dividend income received from a business entity that is registered and operates in Mongolia; (ii) loan interest from a guarantee, royalty income and interest from finance lease; (iii) rental income from tangible and intangible asset lease; and (iv) income resulting from goods sold and services provided within Mongolia, received by a non-resident legal entity from a Mongolian source are subject to Mongolian income tax rate of 20% that is withheld by the payer. The Mongolian legal entity making such payments is obligated to withhold the Mongolian income tax from such payments. Mongolia has signed double taxation treaties with 35 countries, out of which four have been terminated and 26 treaties are in force or ratified. Such treaties provide for lower rates of taxation in certain circumstances.
- A VAT at a rate of 10% is payable in respect of all goods sold, work performed and services provided within Mongolia. VAT is also payable in respect of goods imported into Mongolia and in respect of certain service fee payments made by Mongolian taxpayers to non-resident service providers. If a legal entity is registered as a value-added taxpayer, it can obtain credits for such tax paid to its suppliers of goods and services and can use such credits to offset value-added, or other, taxes owed in Mongolia. However, the Law on VAT provides certain conditions which can limit the ability of a legal entity to register as a value-added taxpayer. Pursuant to the Law on VAT, exported “finished mineral products” are zero-rated. The Law on VAT entitles the Government of Mongolia to determine types of “finished mineral products”. On December 21, 2015, the Government of Mongolia issued Resolution No. 502 on the List of Final Mining Products, whereby washed and processed coal, briquette and compressed coal generated from the coal and similar solid fuel, coal coke and semi-coke, and lignite coke and semi-coke are defined as final mining products. As of general principle, any VAT paid by a producer of mineral products cannot be claimed back, i.e. the producer is deemed to be the end-user and must bear the burden of VAT paid to produce such product. Only finished products that are exported are, however, zero-rated and VAT paid to produce such products may be claimed back.
- Equipment and other goods imported into Mongolia are also subject to an import duty, generally at the rate of 5%. The import duty is defined by the Parliament Resolution 27, dated June 3, 1999. On July 9, 2015, the Parliament provided discretion to the Government to set actual rate of import duties of the certain Mongolia rich certain agriculture and mining products such as meat, seed and dairy products along with resource rich mineral products such as salt, limestone and cement up to 15% or 20%. On August 17, 2015, the Government issued Resolution No. 332 and defined import duty rate for abovementioned Mongolia rich goods mainly up to 15% or 20%. Except cement, of which import tax rate was set to be 20%, no other import rate was increased for the equipment, spare parts or materials which could be imported by us for our mining, processing, transportation or other industrial operations. An additional excise tax is payable on the importation of petroleum products and some motor vehicles. It should be noted that value-added tax is also imposed on them.
- Mongolian employers are required to withhold income tax and social insurance fees owed by their employees from salaries payable to such employees, and to make an additional employer payment to the Mongolian social insurance fund. The relevant laws have been substantially revised, and effective from May 8, 2008 these rules apply to Mongolian and non-Mongolian employees. These rules also apply to independent contractors. Payments to the social insurance fund are to be made in respect of all salary, bonus and benefit payments (e.g., housing and transportation allowances) received by the individual. Employees must pay 12.5% of such total compensation package (to be withheld by the employer), but such percentage will be applied to a maximum compensation amount which is adjusted annually but which is currently set at MNT3,200,000 per month (i.e., income in excess of this amount is not subject to the 12.5% assessment). The employer must pay an additional 13.5-15.5% (15.5% in respect of employees engaged in dangerous occupations, such as mining) and such percentage is applied to all compensation paid to the employee with no maximum amount limitation.

DIRECTORS AND MANAGEMENT

General

The Board consists of eight Directors, comprising two executive Directors, three non-executive Directors and three independent non-executive Directors.

The principal functions and duties conferred on our Board include:

- convening Shareholders' general meetings and reporting our Board's work at Shareholders' general meetings;
- implementing the resolutions passed by our Shareholders in general meetings;
- deciding our business plans and investment plans;
- preparing our annual financial budgets and final reports;
- formulating the proposals for profit distributions, recovery of losses and for the increase or reduction of our authorized share capital; and
- exercising other powers, functions and duties conferred by our Shareholders in general meetings.

The following table provides information about our Directors and other senior managers of our Company.

Name	Age	Position
Board of Directors		
Odjargal Jambaljamts	54	Executive Director and Chairman of the Board
Battsengel Gotov	47	Executive Director and Chief Executive Officer
Od Jambaljamts	55	Non-executive Director
Enkhtuvshin Gombo	48	Non-executive Director
Enkhtuvshin Dashtseren	44	Non-executive Director
Khashchuluun Chuluundorj	53	Independent non-executive Director
Unenbat Jigjid	57	Independent non-executive Director
Chan Tze Ching, Ignatius	62	Independent non-executive Director
Senior Management		
Oyunbat Lkhagvatsend	43	Executive Vice President and Deputy Chief Executive Officer
Ulemj Baskhuu	41	Executive Vice President and Chief Financial Officer
Uurtsaikh Dorjgotov	55	Executive Vice President and Chief Legal Counsel
Baasandorj Tsogoo	57	Vice President and Chief Operating Officer
Tuvshinbayar Tagarvaa	45	Vice President and Chief Marketing Officer

Executive Directors

Odjargal Jambaljamts is an executive Director and Chairman of the Board of the Company. Mr. Jambaljamts was appointed an executive Director of the Company in May 2010. Mr. Jambaljamts is also the Chairman of the Nomination Committee and member of the Remuneration Committee. From 1993 to the present, Mr. Jambaljamts has been the Chairman of MCS Holding LLC (one of the controlling shareholders of the Company, and together with its subsidiaries, the "MCS Group"). Mr. Jambaljamts has been a director of Starain Limited since January 2011, a director of Novel International Investment Limited and a director of Novel Holdings Group Limited, a controlling shareholder of the Company, since March 2012. He has been appointed a director of MCS (Mongolia) Limited, MCS Mining Group Limited and MCS Global Limited since July 2012, all of which are controlling shareholders of the Company. Mr. Jambaljamts is the brother of Mr. Od Jambaljamts, a non-executive Director and controlling shareholder of the Company. From 1989 to 1991, Mr. Jambaljamts was an automation engineer at the Energy Authority of Ulaanbaatar, Mongolia. From

1992 to 1993, he was an economist at the Hydropower LLC for the Project of Egiin River. Mr. Jambaljamts was awarded a bachelor's degree in cybernetics of electrical system by the Kiev Polytechnic Institute, Ukraine, and holds his master's degree in business administration from the Maastricht School of Management, Ulaanbaatar, Mongolia.

Battsengel Gotov is an executive Director and Chief Executive Officer of the Company. Dr. Gotov was appointed an executive Director of the Company in May 2010. Dr. Gotov joined the Group in May 2008 as the Chief Executive Officer of ER LLC. Since 2004, Dr. Gotov has served at various managerial positions in the MCS Group. From 1996 to 2000, Dr. Gotov was an assistant professor at Comenius University in Bratislava. He moved to the University of Cologne, Germany in September 2000 as a research fellow sponsored by the Alexander von Humboldt Foundation. He stayed at the University of Cologne, Germany from September 2000 until October 2003 as a postdoctoral fellow. Dr. Gotov is a board member of the Mongolian National Mining Association. He was appointed a member of the Mineral Resources Policy Council in October 2014. Dr. Gotov was awarded a master's degree in science and a PhD in organic chemistry by the Comenius University, Slovakia.

Non-executive Directors

Od Jambaljamts is a non-executive Director of the Company. Mr. Jambaljamts was appointed a non-executive Director of the Company in July 2012. He is also a member of the Corporate Governance Committee. Mr. Jambaljamts is the president of MCS Group and a director of a number of subsidiaries within the MCS Group. He also works as the Honorary Council General of Denmark. Mr. Jambaljamts has over 20 years of experience in both private and public sectors and has extensive experience in working with companies in a diversity of fields. Mr. Jambaljamts is the brother of Mr. Odjargal Jambaljamts, the Chairman of the Board, an executive Director and a controlling shareholder of the Company. Mr. Jambaljamts is also a director of MCS (Mongolia) Limited, MCS Mining Group Limited and MCS Global Limited since July 2012 and a director of Trimunkh Limited since July 2011, all of which are controlling shareholders of the Company. Mr. Jambaljamts was awarded a bachelor's degree in International Relations by the Institute for International Relations, Moscow, Russia in 1988 and master's degree in arts majoring in foreign affairs by the University of Oxford, United Kingdom in 1993. Mr. Jambaljamts was awarded the Honorary Labour Medal of Mongolia in 1997, and awarded with the Polestar medal of Mongolia twice.

Enkhtuvshin Gombo is a non-executive Director of the Company. Ms. Gombo was appointed a non-executive Director of the Company in October 2017. She is also a member of the Audit Committee. Ms. Gombo is the vice president of MCS Holding LLC, a controlling shareholder of the Company. Ms. Gombo joined MCS Holding LLC in 2003 as a financial analyst, and was subsequently appointed as the head of the Planning Unit under the Finance Department in 2006. Ms. Gombo became the vice president and director of the Finance Department of MCS Holding LLC in 2008. In addition, Ms. Gombo has previously served as a non-executive Director and a member of the Audit Committee for the period from the initial public offering of the Company on October 13, 2010 to October 12, 2014. Ms. Gombo was awarded a bachelor's degree in Banking and Finance by the Economics College of Mongolia in 1994. In 1997, she was awarded a master's degree in International Banking and Finance at Birmingham University Business School, Birmingham, United Kingdom.

Enkhtuvshin Dashtseren is a non-executive Director of the Company. Mr. Dashtseren was appointed as a non-executive Director of the Company on January 4, 2018. Mr. Dashtseren is the vice president of MCS Holding LLC, a controlling shareholder of the Company. Mr. Dashtseren joined the MCS Group in 1997 as a financial manager of MCS International LLC, and was appointed as the chief financial officer and vice president of the Finance Department of MCS Group in 2002. Mr. Dashtseren was subsequently appointed as the vice president of Corporate Strategy of MCS Group in 2005. Mr. Dashtseren served as the executive vice president of the Sales and Marketing Department of the Company from 2008 to 2014 and as advisor to the Chairman of the Board until his departure in 2016. During his past tenure with the Company, Mr. Dashtseren had a broad scope of responsibilities in strategic market planning, business development, sales forecasting, marketing, pricing and training of sales personnel. Mr. Dashtseren was the senior sales executive and key person for the sales and marketing of the coal mined at the Ukhaa Khudag mine developed by the Company. He was instrumental in developing an extensive marketing strategy and research for potential coal markets with major focus on the Chinese market. Mr. Dashtseren was awarded a bachelor's degree in Finance and Management by the National University of Mongolia in 1997 and also studied at the London Metropolitan University in London, United Kingdom.

Independent Non-Executive Directors

Dr. Khashchuluun Chuluundorj is an independent Non-Executive Director of the Company. Dr. Chuluundorj was appointed as an independent Non-Executive Director of the Company on January 8, 2016.

Dr. Chuluundorj is also the Chairman of the Remuneration Committee and a member of the Audit Committee and Nomination Committee. He was awarded a bachelor's degree in economics from the Moscow State University, Russia, in 1989, a master's degree in economics from the Graduate School of Economics, Yokohama City University, Japan, in 1996 and a PhD in international economics from the Graduate School of Economics, Keio University, Japan, in 2003. Dr. Chuluundorj is a Professor at the Department of Economics of the National University of Mongolia, and a member of the Academic Council and the Supervising Board of the National University of Mongolia. He is also an Executive Director of the Mongolian Oil Shale Association and a Director of Ulaanbaatar City Development Corporation. From 2009 to 2012, he served as the Chairman of National Development and Innovation Committee of Mongolia, a government agency in charge of national development strategy and investment policy. Dr. Chuluundorj managed government efforts on the introduction of private-public partnership concept and private sector support policies. As one of the leading economists of the country, he managed government efforts to adopt economic and development policies and legislation in wide range of fields and hugely contributed in successful implementation of major economic development programs in Mongolia.

Unenbat Jigjid is an independent non-executive Director of the Company. Mr. Jigjid was appointed an independent non-executive Director of the Company in September 2010. Mr. Jigjid is the Chairman of the Corporate Governance Committee and member of the Audit Committee, Nomination Committee and Remuneration Committee. From 1990 to 2000, Mr. Jigjid held various positions in the Bank of Mongolia, including economist, senior economist, director of the monetary policy department and governor. From 2000 to 2006, Mr. Jigjid was the executive director of the Mongolian Bankers Association. Mr. Jigjid was a director of Resources Investment Capital from October 2010 to November 2013. Mr. Jigjid has been an executive director of the Corporate Governance Development Center in Mongolia since 2009 and was appointed Head of the Center in March 2015. Mr. Jigjid became the executive director and secretary general of the Mongolian Bankers Association in November 2015. He is also a member of the supervisory board of the Bank of Mongolia and the board of Micro Finance Development Fund. From October 2010, Mr. Jigjid serves as a director of Golomt Bank of Mongolia. He has been the board member of Open Society Forum in Mongolia since March 2011. In April 2013, Mr. Jigjid was appointed an independent non-executive Director of APU Company, a company listed on the Mongolian Stock Exchange. Mr. Jigjid was awarded a master's degree in economics by the Moscow Institute of Economics and Statistics, Russia, and a master's degree in international affairs by Columbia University, United States.

Chan Tze Ching, Ignatius is an independent non-executive Director of the Company. Mr. Chan was appointed an independent non-executive Director of the Company in September 2010. He is the Chairman of the Audit Committee and member of the Corporate Governance Committee. From 1980 to 2007, Mr. Chan held various positions in Citigroup, including management associate, country treasurer and head of sales and trading, head of corporate banking business for Hong Kong, country officer for Taiwan, chief operating officer for Greater China, country officer for Hong Kong and head of corporate and investment banking business for Greater China. Mr. Chan was appointed a member of the board of directors of the Community Chest of Hong Kong in September 1999. From November 2012 to June 2014, Mr. Chan was appointed an independent non-executive director of Larry Jewelry International Company Limited, the shares of which are listed on the Hong Kong Stock Exchange. From March 2011 to June 2016, Mr. Chan is a member of the Sponsorship and Development Fund of the Open University of Hong Kong. In 2008, he was the deputy chief executive of the Bank of China (Hong Kong) Limited. Mr. Chan was appointed a senior advisor of The Bank of East Asia Limited in March 2009. He was also appointed a member of the Council of Hong Kong Red Cross in April 2010, senior advisor of CVC Capital Partners Limited in November 2010, member of the Executive Committee of the Investor Education Centre (IEC) of the Securities and Futures Commission from October 2012 to October 2015, member of the Hong Kong Tourism Board from April 2013 to March 2017 and Deputy Chairman of Council of the Hong Kong Polytechnic University from April 2014 to March 2016, and Board Adviser of Hong Kong New Territories General Chamber of Commerce in May 2013. He is also an Honorary Advisory Vice President of The Hong Kong Institute of Bankers for the period from February 2011 to December 2016. Mr. Chan was appointed a Member of the Standing Commission on Civil Service Salaries and Conditions of Service of the Government of the Hong Kong Special Administrative Region for the period from January 1, 2014 to December 31, 2015. Mr. Chan was appointed a member of the Financial Reporting Council (FRC) for the period from December 2014 to November 2016. Mr. Chan is a member of the Disciplinary Appeals Committee of the Hong Kong Securities Clearing Company Limited from December 2009 and an independent non-executive director of Hong Kong Exchanges and Clearing Limited from April 2009 to April 2015, the shares of which are listed on the Stock Exchange. He was also appointed a non-executive director of Rizal Commercial Banking Corporation, the shares of which are listed on the

Philippines Stock Exchange in November 2011. Mr. Chan was appointed a non-independent non-executive director of Affin Holdings Berhad, the shares of which are listed on Bursa Malaysia from August 2013 to August 2016. Mr. Chan was awarded bachelor's and master's degrees in business administration by the University of Hawaii, United States, and is a Certified Public Accountant with the American Institute of Certified Public Accountants.

Senior Management

Oyunbat Lkhagvatsend is the President and Deputy Chief Executive Officer of the Company. Mr. Lkhagvatsend was appointed the Deputy Chief Executive Officer of the Company in May 2013 and the Chief Executive Officer of Energy Resources Rail LLC in February 2011. Mr. Lkhagvatsend has nearly 14 years of experience in the business sector of Mongolia, holding senior positions in various businesses in the country. From 2003 to 2005, Mr. Lkhagvatsend was the chief executive officer of Newcom Group and was responsible for strategy planning and business development. From May 2005 to December 2006, he was the president and chief executive officer of Eznis Airways and was in charge of strategy planning, project management and other corporate affairs. He joined the Group in July 2008 as the chief executive officer of Energy Resources Rail LLC and was responsible for overall business strategy and planning. Mr. Lkhagvatsend was awarded a bachelor's degree in law by the National University of Mongolia, Mongolia. He also underwent executive trainings held by the Michigan Business School, United States, in 2004.

Ulemj Baskhuu is the Executive Vice President and Chief Financial Officer of the Company. Ms. Baskhuu was appointed the Company's Chief Financial Officer responsible for the overall financial management, liquidity, asset management and investor relations of the Company in August 2013. Ms. Baskhuu joined the Group as vice president responsible for investment of Energy Resources Rail LLC in December 2008. Ms. Baskhuu has worked for major banks and held various senior positions such as director of Financial Institutions at the Trade and Development Bank of Mongolia and head of investment banking at Khan Bank. Ms. Baskhuu was awarded a bachelor's degree in business administration from the Mercer University, United States.

Uurtsaikh Dorjgotov is the Executive Vice President and Chief Legal Officer of the Company. Ms. Dorjgotov joined the Group in March 2008. Prior to joining the Company, Ms. Dorjgotov was the director of the legal and administration department and chief legal counsel of MCS Holding LLC. She also worked for six years on the USAID-funded Mongolia Privatization Program of Barents Group of Bearing Point, Inc. as in-house lawyer and for nine years at the Prosecutor General Office of Mongolia as a supervising prosecutor. Ms. Dorjgotov was awarded a master's degree (LLM) by the University of Waikato, New Zealand, and also a diploma of lawyer by the University of Irkutsk, Russia.

Baasandorj Tsogoo is the Vice President and Chief Operating Officer of the Company. Mr. Tsogoo joined the Group in November 2009. Mr. Tsogoo was appointed as the Company's Chief Operating Officer on January 1, 2017. He was also appointed as Chief Executive Officer of United Power LLC, Tavan Tolgoi Airport LLC, and Enrestech technology LLC on February 10, 2013, April 1, 2013, and December 1, 2015, respectively. Since 1994, Mr. Tsogoo served at various managerial positions within the MCS Group of companies and worked in highly successful projects in Mongolia, such as the Taishir Hydropower Plant project. Mr. Tsogoo holds a bachelor's degree in civil and hydropower engineering from the Agricultural Institute in Irkutsk, Russia and a master's degree in business administration from the National Academy of Governance in Mongolia.

Tuvshinbayar Tagarvaa is the Vice President and Chief Marketing Officer of the Company. Mr. Tagarvaa was appointed as the Company's Chief Marketing Officer with effect from April 1, 2017. Since 2003, Mr. Tagarvaa served at various managerial positions within the MCS Group of companies and joined the Group in February 2011 as an Executive General Manager for Transportation and Logistics which was instrumental in the successful implementation of the Company's efforts to improve efficiency and cost of transportation and logistics while ensuring a stable supply of coal products exported by the Company. Mr. Tagarvaa holds a bachelor's degree and a master's degree in business administration from the Institute of Finance and Economics of Mongolia.

Company Secretary

Cheung Yuet Fan was appointed Secretary of our Company in October 2017. Ms. Cheung is a director of the corporate services of Tricor Services Limited. She is a Chartered Secretary and an Associate

of both the Hong Kong Institute of Chartered Secretaries and the Institute of Chartered Secretaries and Administrators in the UK. Before joining the Tricor Group, Ms. Cheung has worked in the Company Secretarial Department of Deloitte Touche Tohmatsu in Hong Kong and in various Hong Kong listed companies in the role of company secretary and corporate governance areas. Ms. Cheung has more than 25 years of experience in the company secretarial field and has been providing corporate services to both multi-national companies and listed companies in Hong Kong.

Board Practices

In the absence of extraordinary events, it is the practice of the Board to meet at least four times a year. At such meeting, our Directors conduct, among other things, an operational review of our business.

Board Committees

Audit Committee

The Board has established an Audit Committee, which operates under a charter approved by the Board. It is the Board's responsibility to ensure that an effective internal control framework exists within the Company. This includes internal controls to deal with both the effectiveness and efficiency of significant business processes, safeguarding of assets, maintenance of proper accounting records, and reliability of financial information as well as non-financial considerations such as benchmarking of operational key performance indicators. The Board has delegated the responsibility for the initial establishment and maintenance of a framework of internal controls and ethical standards for our management to the Audit Committee.

The Audit Committee comprises four members, including one independent non-executive Director who possesses the appropriate professional qualifications or accounting or related financial management expertise. There are three independent non-executive Directors, namely Mr. Chan Tze Ching, Ignatius (chairman), Dr. Khashchuluun Chuluundorj and Mr. Unenbat Jigjid, and one non-executive Director, namely Ms. Enkhtuvshin Gombo in the Audit Committee.

Nomination Committee

The Nomination Committee of the Board is responsible for making recommendations to the Board regarding candidates to fill vacancies on the Board.

Our Nomination Committee currently comprises three members, with a majority of independent non-executive Directors. The members are Mr. Odjargal Jambaljamts (chairman), executive Director, and Dr. Khashchuluun Chuluundorj and Mr. Unenbat Jigjid, independent non-executive Directors.

Remuneration Committee

The Remuneration Committee of the Board is responsible for determining and reviewing compensation arrangements for our Directors, the chief executive officer and the senior management. The Remuneration Committee assesses the appropriateness of the nature and amount of emoluments of such officers on a periodic basis by reference to relevant employment market conditions with the overall objective of ensuring maximum shareholder benefit from the retention of a high quality board and executive team. To assist in achieving these objectives, the Remuneration Committee considers the nature and amount of executive Directors' and senior executives' emoluments with reference to our Company's financial and operational performance. All senior executives have the opportunity to qualify for participation in the Share Option Scheme, which currently provides incentives where specified criteria are met.

Our Remuneration Committee currently comprises three members, with a majority of independent non-executive Directors. The members are Dr. Khashchuluun Chuluundorj (chairman) and Mr. Unenbat Jigjid, being independent non-executive Directors, and Mr. Odjargal Jambaljamts, executive Director.

Corporate Governance Committee

The Corporate Governance Committee of the Board is responsible for reviewing and reporting to the Board on matters of corporate governance, including developing and reviewing the Company's policies and

practices on corporate governance and making recommendations to the Board and to review and monitor training and continuous professional development of the directors and senior management of the Company and making recommendations on methods to improve directors' knowledge of the Company's business and governance policies and their responsibilities.

Our Corporate Governance Committee comprises three members with a majority of independent non-executive Directors. The members are Mr. Unenbat Jigjid (chairman) and Mr. Chan Tze Ching, Ignatius, being independent non-executive Directors, and Mr. Od Jambaljamts, executive Director.

PRINCIPAL SHAREHOLDERS

As of December 31, 2018, so far as known to any Director or chief executive of the Company, shareholders (other than a Director or chief executive of the Company) who had an interest or short position in the shares or underlying shares of the Company as recorded in the register required to be kept pursuant to section 336 of the SFO were as follows:

Name of substantial shareholder	Capacity/Nature of interest	Number of Shares	Approximate percentage of shareholdings in our Company
MCS Mining Group Limited ^(Note 1)	Beneficial owner	3,234,921,892 (L)	31.43%
		223,898,693 (S)	2.18%
MCS (Mongolia) LLC ^(Note 1)	Interest of controlled corporation	3,234,921,892 (L)	31.43%
		223,898,693 (S)	2.18%
MCS Holding LLC ^(Note 1)	Interest of controlled corporation	3,234,921,892 (L)	31.43%
		223,898,693 (S)	2.18%
Ms. Batmunkh Dashdeleg ^(Note 1)	Interest of spouse	3,696,569,439 (L)	35.92%
		223,898,693 (S)	2.18%
Ms. Munkhsuren Surenkhuu ^(Note 1)	Interest of spouse	3,500,684,159 (L)	34.01%
		223,898,693 (S)	2.18%
Kerry Mining (UHG) Limited (“KMUHG”) ^(Note 2)	Beneficial owner	750,000,000 (L)	7.29%
Kerry Mining (Mongolia) Limited (“KMM”) ^(Note 2)	Interest of controlled corporation	750,000,000 (L)	7.29%
Fexos Limited (“Fexos”) ^(Note 2)	Interest of controlled corporation	756,890,120 (L)	7.35%
Kerry Holdings Limited (“KHL”) ^(Note 2)	Interest of controlled corporation	775,780,883 (L)	7.54%
Kerry Group Limited (“KGL”) ^(Notes 2 and 3)	Interest of controlled corporation	1,216,351,874 (L)	11.82%

(L) – Long position (S) – Short position

- (1) MCS Mining Group Limited is owned as to approximately 43.51% by MCS Holding LLC and approximately 56.49% by MCS (Mongolia) LLC. MCS Holding LLC is wholly-owned by MCS (Mongolia) LLC. MCS (Mongolia) LLC is owned as to approximately 55.11% by Mr. Odjargal Jambaljamts, and approximately 29.16% by Mr. Od Jambaljamts. MCS Mining Group Limited holds 3,234,921,892 shares and had a short position in 223,898,693 shares in the Company. Novel Holdings Group Limited and Trimunkh Limited also directly hold 461,647,547 shares and 265,762,267 shares, respectively, in the Company. The entire interest of Novel Holdings Group Limited and Trimunkh Limited are held by Mr. Odjargal Jambaljamts and Mr. Od Jambaljamts respectively. Ms. Batmunkh Dashdeleg is the spouse of Mr. Odjargal Jambaljamts, and Ms. Munkhsuren Surenkhuu is the spouse of Mr. Od Jambaljamts.
- (2) (a) KMUHG is a direct wholly-owned subsidiary of KMM. Fexos controls more than one-third of the voting power of KMM. Fexos is a direct wholly-owned subsidiary of KHL which in turn is a direct wholly-owned subsidiary of KGL. Accordingly, KMM, Fexos, KHL and KGL were deemed to be interested in 750,000,000 shares of the Company that KMUHG was interested. (b) Fexos controls more than one-third of the voting power of Kerry Asset Management Limited (“KAM”). Fexos, KHL and KGL were deemed to be interested in 6,890,120 shares of the Company that KAM was interested.
- (3) Out of KGL’s corporate interest in 1,216,351,874 shares of the Company, KGL’s wholly-owned subsidiaries (other than KHL) were interested in 440,570,991 shares of the Company, KHL (through companies that it controls more than one-third of the voting power) was interested in 775,780,883 shares of the Company.

Save as disclosed above, as of December 31, 2018, the Company has not been notified by any person (other than the Directors or chief executive of the Company) who had interests or short position in the shares or underlying shares of the Company.

RELATED PARTY TRANSACTIONS

We and our subsidiaries engage in a broad range of related party transactions with our subsidiaries and affiliates, some of which are material to our operations. The following is a summary of material transactions we have engaged in with our direct and indirect shareholders, affiliates of our shareholders and other related parties, including those in which we or our management have a significant equity interest. We believe each of these arrangements as described below have been entered into based on agreements on arm's length terms or on terms that we believe have been at least as favorable to us as similar transactions with non-related parties. For a further discussion of related party transactions, see Note 33 to our financial statements as of and for the years ended December 31, 2016, 2017, and 2018 included elsewhere in this Offering Memorandum.

Ancillary Services

As of December 31, 2016, 2017 and 2018, we recorded ancillary services payments to Uniservice Solution LLC, MCS International LLC, MCS and its affiliates of US\$10.2 million, US\$13.5 million and US\$13.6 million, respectively. Ancillary services represent expenditures for support services such as cleaning and canteen expense, power and heat generation and distribution and management fees. The service charges are based on comparable or prevailing market rates, as applicable.

Sales of Property, Plant and Equipment

As of December 31, 2016, 2017 and 2018, we recorded sales of property, plant and equipment to MCS and its affiliates of approximately US\$264,000, US\$8,000 and US\$9,000, respectively.

Lease of Property, Plant and Equipment

As of December 31, 2016, 2017 and 2018, we recorded lease of property, plant and equipment to MCS and its affiliates of approximately US\$0.5 million, US\$0.4 million and US\$0.4 million, respectively. Lease of property, plant and equipment represents rental paid or payable in respect of properties and office equipment leased from Shangri-La Ulaanbaatar LLC, MCS and its affiliates. Rental charges are based on comparable or prevailing market rates, as applicable.

Purchase of Property and Goods

As of December 31, 2016, 2017 and 2018, we recorded purchase of property goods from MCS and its affiliates of nil, nil and US\$0.4 million, respectively.

DESCRIPTION OF OTHER MATERIAL INDEBTEDNESS AND PERPETUAL SECURITIES

Set forth below is a summary of the material terms and conditions of our indebtedness and Perpetual Securities. As of December 31, 2018, we had an outstanding principal amount of US\$436.2 million in short-term and long-term borrowings, including indebtedness incurred under the 2022 Notes and the Senior Loan.

2022 Notes

On May 4, 2017, we entered into an indenture (the “2022 Notes Indenture”) pursuant to which we issued the 2022 Notes with a principal amount of approximately US\$412.5 million. As of December 31, 2018, the entire principal amount of the 2022 Notes was outstanding.

The 2022 Notes have been accounted for as a hybrid financial instrument containing a derivative component and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognized at its fair value of US\$9,481,667 and the derivative component of cash sweep premium was initially recognized at its fair value of US\$37,789,333. The fair value of the derivative component of interest rate linked to the benchmark coal price index, the derivative component of cash sweep premium and the derivative component of early redemption option as at December 31, 2018 was US\$30,519,000, US\$33,874,550 and nil respectively. The liability component was initially recognized at its fair value of US\$377,996,000 and will be accounted on amortized cost subsequently.

Concurrently with this offering, we commenced the 2022 Notes Tender Offer, which is subject to certain terms and conditions including the consummation of this offering. For more information about the 2022 Notes Tender Offer, see “Summary – Concurrent Transactions”. We intend to use the net proceeds from this offering to pay the tender price of any 2022 Notes tendered in connection with the 2022 Notes Tender Offer. See “Use of Proceeds”. We cannot assure you that the 2022 Notes Tender Offer and the related Consent Solicitation will be consummated. This Offering Memorandum is neither an offer to purchase nor a solicitation of an offer to sell or buy the 2022 Notes. Any offer to purchase the 2022 Notes will be made solely on the terms and subject to the conditions set forth in a separate offer to purchase memorandum that will be directed to holders of the 2022 Notes.

Guarantee

The obligations pursuant to the 2022 Notes are guaranteed by Mongolian Mining Corporation and by certain of our existing subsidiaries (the “Subsidiary Guarantors”) including Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, ER LLC, Tavan Tolgoi Airport LLC, United Power LLC, Enrestechnology LLC and Ukhaa Khudag Water Supply LLC.

The Company and each of the Subsidiary Guarantors, jointly and severally, guarantees the due and punctual payment of the principal, any premium, and interest on, and all other amounts payable under, the 2022 Notes.

Collateral

In order to secure the obligations under the 2022 Notes, the Group pledged the Shared Collateral.

Interest

The 2022 Notes bear an interest rate of 5% to 8% per annum based on the benchmark coal price index payable semi-annually in arrears.

Covenants

Subject to certain conditions and exceptions, the 2022 Notes Indenture contains certain covenants, restricting us to each of the related restricted subsidiaries from, among other things:

- incurring or guaranteeing additional indebtedness and issuing disqualified or preferred stock;

- declaring dividends on its capital stock or purchasing or redeeming capital stock;
- making investments or other specified restricted payments;
- issuing or selling capital stock of the related restricted subsidiaries;
- guaranteeing indebtedness of the related restricted subsidiaries;
- selling assets;
- creating liens;
- entering into sale and leaseback transactions;
- entering into agreements that restrict the related restricted subsidiaries' ability to pay dividends, transfer assets or make intercompany loans;
- entering into transactions with shareholders or affiliates; and
- effecting a consolidation or merger.

Event of Default

The 2022 Notes Indenture contains certain customary events of default, including default in the payment of principal, or of any premium, on the 2022 Notes, when such payments become due, default in payment of interest which continues for 30 days, breaches of covenants, insolvency and other events of default specified in the 2022 Notes Indenture. If an event of default occurs and is continuing, the trustee under the 2022 Notes Indenture or the holders of at least 25% of the outstanding 2022 Notes may declare the principal of the 2022 Notes plus any premium and any accrued and unpaid interest to be immediately due and payable.

Change of Control

Upon the occurrence of certain events of change of control, we will make an offer to repurchase all outstanding 2022 Notes at a purchase price equal to 100% of their principal amount plus (i) any accrued and unpaid interest and (ii) the Cash Sweep Premium, if any, that has not been paid as of the redemption date on the 2022 Notes redeemed (together, the "Early Redemption Amount"). "Cash Sweep Premium" means the cash, if any upon full repayment of the Senior Loan, in the debt service reserve account subject to a maximum aggregate amount of US\$75.0 million.

Maturity and Redemption

The maturity date of the 2022 Notes is September 30, 2022.

At any time after all amounts due under the Senior Loan have been repaid in full, we may on one or more occasions redeem all or any part of the 2022 notes, at the redemption price equal to the Early Redemption Amount.

Additionally, if we or a Subsidiary Guarantor under the 2022 Notes Indenture would become obligated to pay certain additional amounts as a result of certain changes in specified tax law, we may redeem the 2022 Notes at a redemption price equal to the Early Redemption Amount, subject to certain exceptions.

Intercreditor Agreement

On May 4, 2017, we, the Subsidiary Guarantors, the trustee for the 2022 Notes for the benefit of holders of the 2022 Notes, the shared security agent, the senior agent, the senior security agent and the senior lender entered into an intercreditor agreement (the "Intercreditor Agreement"), pursuant to which the

security interest created on the shared transaction security which includes but not limited to the Shared Collateral shall be shared on a *pari passu* basis among (i) the holders of the 2022 Notes, (ii) the senior lender and (iii) any holder of the Permitted *Pari Passu* Secured Indebtedness as defined therein.

Perpetual Securities

On May 4, 2017, we entered into the Perpetual Securities Indenture pursuant to which we issued approximately US\$195.0 million in aggregate principal amount of the Perpetual Securities, booked at its fair value of US\$75,897,000. As of December 31, 2018, the entire principal amount of the Perpetual Securities was outstanding.

Concurrently with this offering, we commenced the Perpetual Securities Tender Offer, which is subject to certain terms and conditions including the consummation of this offering. For more information about the Perpetual Securities Tender Offer, see “Summary-Concurrent Transactions”. We intend to use the net proceeds from this offering to pay the tender price of any Perpetual Securities tendered in connection with the Perpetual Securities Tender Offer. See “Use of Proceeds”. We cannot assure you that the Perpetual Securities Tender Offer will be consummated. This Offering Memorandum is neither an offer to purchase nor a solicitation of an offer to sell or buy the Perpetual Securities. Any offer to purchase the Perpetual Securities will be made solely on the terms and subject to the conditions set forth in a separate offer to purchase memorandum that will be directed to holders of the Perpetual Securities.

Interest

Distribution payments can be deferred at the discretion of the Company.

The Perpetual Securities shall bear an interest rate of 0% at issuance. The interest rate will increase to 5% after 12 months post event triggering transaction in relation to the Tavan Tolgoi project with 1% step-up annually thereafter, with total rate capped at 15%. If the interest rate is not otherwise already at 10%, it will increase up to 10% for the first coupon period beginning immediately after full repayment of the 2022 Notes (provided that this will not include a restructuring of the 2022 Notes) or 1% step-up annually thereafter, with total rate capped at 15%, whichever occurs earlier.

Event of Default

The Perpetual Securities Indenture contains the following events of default: (i) an order being made or an effective resolution being passed for the Winding-Up (as defined in the Perpetual Securities Indenture) of the Company; (ii) the sale of the Company’s business as part of a scheme procedure; or (iii) the Company failing to make payment in respect of the Perpetual Securities for a period of 15 business days or more after the date on which such payment is due (although failure to pay a distribution validly deferred in accordance with the Perpetual Securities Indenture shall not constitute an event of default. If an event of default occurs and is continuing, the trustee under the Perpetual Securities Indenture or the holders of at least 25% of the outstanding Perpetual Securities may declare the principal of the Perpetual Securities plus any premium and any accrued and unpaid interest to be immediately due and payable.

Maturity and Redemption

The Perpetual Securities have no fixed maturity. On or after amounts due under the Senior Loan have been fully repaid, the Perpetual Securities are redeemable at the Company’s option at a purchase price equal to 100% of their principal amount plus any accrued and unpaid interest.

Senior Loan

On May 4, 2017, we entered into a Senior Loan agreement with BNP Paribas Singapore Branch, Industrial and Commercial Bank of China Limited and ICBC London Plc as the arrangers and original lenders. As of December 31, 2018, the outstanding principal amount was US\$23.7 million.

The Senior Loan has been accounted for as a hybrid financial instrument containing a derivative component and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognised at its fair value of US\$1,754,000. The fair value of the derivative component of interest rate linked to the benchmark coal price index as at December 31, 2018 was US\$1,761,000. The liability component was initially recognised at its fair value of US\$29,206,000 and will be accounted on amortised cost subsequently.

The Senior Loan is expected to be paid in full before the settlement of this Offering.

Guarantee

The obligations under the Senior Loan are guaranteed by the Company, Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, Energy Resources Rail LLC, Tavan Tolgoi Airport LLC, Enrestechology LLC, Ukhua Khudag Water Supply LLC and United Power LLC. Each of these guarantors, jointly and severally, guarantees the due and punctual payment of the principal and interest on, and all other amounts payable under, the Senior Loan.

Collateral

In order to secure the obligations under the Senior Loan, we entered into a security over cash agreement with the security agent to create a charge on our cash collateral account and ER LLC entered into a security over cash agreement with the security agent to create charge on two of its collection accounts into which it deposits proceeds from certain coking coal contracts it has entered into. ER LLC also pledged its coal assets in favour of the security agent and assigned certain of its coking coal contracts to the security agent. The Group also pledged the Shared Collateral.

The lenders and security agent under the Senior Loan entered into accession deeds to accede to the Intercreditor Agreement and share the security interest created on the shared transaction security under the Intercreditor Agreement.

Interest and Repayment

The Senior Loan bears an interest rate ranging from 5% to 8% per annum based on the benchmark coal price index, payable semi-annually and is repayable with quarterly installments of US\$7.5 million starting from December 31, 2018 with the remaining repayable upon maturity on September 30, 2019.

Covenants

The Facilities Agreement contains certain covenants, including provision of our financial statements and other information undertakings, compliance with certain financial ratios, and other general covenants which, subject to certain conditions and exceptions, restrict us and the guarantors from, among other things:

- effecting a consolidation or merger;
- making any acquisition or incorporate a company;
- entering into, investing in or acquiring any equity interest in any joint ventures;
- creating security or quasi-security over its asset;
- selling, transferring, leasing or otherwise disposing of its assets;
- incurring or guaranteeing additional indebtedness;
- declaring dividends on its capital stock or purchasing or redeeming capital stock; and
- issuing capital stock.

Event of Default

The Facilities Agreement contains certain events of default, including default in the payment of principal, interest and other amount payable under the Facilities Agreement when such payments become due, breaches of covenants and undertakings, insolvency, cross default, change of ownership, loss of material license or concession, delisting and other events of default specified in Facilities Agreement. If an event of default occurs, the agent under the Senior Loan may, and shall if so directed by the majority lenders, cancel the total commitments and declare the principal and the accrued interest outstanding under the loans made immediately due and payable or payable on demand.

Credit Line Agreement

On October 24, 2018, we entered into an agreement (“Credit Line Agreement”) with Xac Bank, a commercial bank in Mongolia for a US\$10.0 million credit line. The Credit Line Agreement will expire on October 24, 2019 but such date is subject to change if we request to extend the duration of the Credit Line Agreement. We may also request to expand or reduce the credit line.

A loan under the Credit Line Agreement matures on October 24, 2019 and bears an interest rate of 9% per annum. An additional 0.5% is charged as a one-time loan service commission. Any loan or part of a loan which remains outstanding after October 24, 2019 bears an interest rate of 10.8%.

A commission of 1.2% per annum is charged for any unused amount of the credit line before the expiry of the Credit Line Agreement.

As of the date of this Offering Memorandum, we have not utilized the credit line.

TAXATION

The following summary of certain Cayman Islands, Mongolian and U.S. federal income tax consequences of the ownership and disposition of the Notes is based upon applicable laws, regulations, rulings and decisions as of the date of this offering memorandum, all of which are subject to change (possibly with retroactive effect). This discussion does not purport to be a comprehensive description of all the tax considerations that may be relevant to a decision to purchase, own or dispose of the Notes and does not purport to deal with consequences applicable to all categories of investors, some of which may be subject to special rules. Persons considering the purchase of the Notes should consult their own tax advisers concerning the tax consequences of the purchase, ownership and disposition of the Notes, including such possible consequences under the laws of their country of citizenship, tax residence or domicile.

Cayman Islands Taxation

Under the laws of the Cayman Islands, payments of interest, principal or premium on the Notes will not be subject to taxation and no withholding will be required on the payment of interest, principal or premium to any holder of the Notes, as the case may be, nor will gains derived from the disposal of the Notes be subject to Cayman Islands income or corporation tax. The Cayman Islands currently have no income, corporation or capital gains tax and no estate duty, inheritance tax or gift tax. The Cayman Islands are not party to any double taxation treaties.

No stamp duty is payable in respect of the issue of the Notes. The holder of any Notes (or a legal personal representative of such holder) whose Notes are brought into the Cayman Islands may in certain circumstances be liable to pay stamp duty imposed under the laws of the Cayman Islands in respect of such Notes. Certificates evidencing registered Notes, to which title is not transferable by delivery, will not attract Cayman Islands stamp duty. However, an instrument transferring title to a registered Note, if brought to or executed in the Cayman Islands, would be subject to nominal Cayman Islands stamp duty. Stamp duty will be payable on any documents executed by the Company if any such documents are executed in or brought into the Cayman Islands or produced before the Cayman Islands Courts.

The Company has been incorporated under the laws of the Cayman Islands as an exempted company with limited liability and, as such, has obtained an undertaking from the Governor in Cabinet of the Cayman Islands as to tax concessions under the Tax Concessions Law (1999 Revision). In accordance with the provision of section 6 of The Tax Concessions Law (1999 Revision), the Governor in Cabinet undertakes with Mongolian Mining Corporation:

- That no law which is hereafter enacted in the Cayman Islands imposing any tax to be levied on profits, income, gains or appreciations shall apply to the Company or its operations; and
- In addition, that no tax to be levied on profits, income, gains or appreciations or which is in the nature of estate duty or inheritance tax shall be payable (i) on or in respect of the shares, debentures or other obligations of the Company; or (ii) by way of the withholding, in whole or part, of any relevant payment as defined in Section 6(3) of the Tax Concessions Law (1999 Revision).
- These concessions shall be for a period of twenty years from 25 May 2010.

The Cayman Islands does not have any income tax treaty arrangement with any country, however the Cayman Islands has entered into tax information exchange agreements with a number of countries.

Mongolian Taxation

No income or withholding tax in Mongolia is payable on principal payments in respect of the Notes. Noteholders are subject to Mongolian tax on interest payments if the payments are deemed to be sourced from Mongolia. The Issuers currently expect that interest payments will be made by ER and be deemed to be sourced from Mongolia, and that ER will withhold Mongolian taxes from interest payments at the rates described below. Under the terms of the Notes, ER is required, subject to certain exceptions, to pay additional amounts with respect to Mongolian withholding taxes. If any interest payment is deemed to be sourced in Mongolia, a 20% withholding tax would apply to interest payments to a non-resident holder of Notes other than an individual, unless the rate is reduced by any applicable bilateral double taxation treaty.

If any interest payment is deemed to be sourced in Mongolia, a 10% withholding tax would apply in the case of interest payments to non-resident individual holders.

Mongolia has concluded double taxation treaty with 26 countries. However, Mongolia does not have a double taxation treaty with the Cayman Islands, Hong Kong, Luxembourg or the United States.

On March 22, 2019, the Parliament of Mongolia adopted certain amendments to taxation related laws with effect from January 1, 2020. Although the final version of the amendments has not yet been released, from the drafts submitted to the Parliament, it is understood that a 5% flat withholding tax is to be applied on interest paid by Mongolian entities for listed and publicly traded securities, however this excludes entities within the mining industry. The final adoption of the amendments is subject to presidential veto, and there can be no assurance that the amendments will not be vetoed, or that the final amendments will conform to the draft amendments or that the law as finally adopted and implemented will conform to our expectations.

Mongolia does not have a capital gains tax. Gains made on the sale of shares and securities, intangible assets and movables and immovable property are included in taxable income. Non-Mongolian holders will not be subject to tax on sales or transfer of the Notes, unless the Notes are sold to a Mongolian entity or individual. In such case, the Mongolian purchaser may withhold 10% of the difference between the sale price and the Noteholder's original purchase price.

Certain U.S. Federal Income Tax Considerations

The following is a description of certain U.S. federal income tax consequences to the U.S. Holders described below of owning and disposing of Notes, but it does not purport to be a comprehensive description of all tax considerations that may be relevant to a particular person's decision to acquire the Notes. This discussion applies only to U.S. Holders that (i) purchase Notes in this offering at the "issue price," which will equal the first price to the public (not including bond houses, brokers or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers) at which a substantial amount of the Notes is sold for money and (ii) hold the Notes as capital assets for U.S. federal income tax purposes (generally, property held for investment).

This discussion does not describe all of the tax consequences that may be relevant in light of a U.S. Holder's particular circumstances, including the special tax accounting rules set forth in Section 451(b) of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), any alternative minimum tax and Medicare contribution tax consequences and tax consequences applicable to U.S. Holders subject to special rules, such as:

- certain financial institutions;
- dealers or traders in securities that use a mark-to-market method of tax accounting;
- persons holding Notes as part of a straddle, wash sale, conversion transaction or integrated transaction;
- persons whose functional currency for U.S. federal income tax purposes is not the U.S. dollar;
- certain U.S. expatriates;

- entities classified as partnerships for U.S. federal income tax purposes;
- tax-exempt entities, “individual retirement accounts” and “Roth IRAs;” and
- persons holding Notes in connection with a trade or business conducted outside of the United States.

If an entity that is classified as a partnership for U.S. federal income tax purposes holds Notes, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. Partnerships holding Notes and partners in such partnerships should consult their tax advisers as to the particular U.S. federal income tax consequences of holding and disposing of the Notes.

This discussion is based on the Code, administrative pronouncements, judicial decisions, and Treasury regulations, all as of the date hereof, any of which is subject to change, possibly with retroactive effect.

As used herein, a “U.S. Holder” is a person that for U.S. federal income tax purposes is a beneficial owner of a Note and is:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity taxable as a corporation, created or organized in or under the laws of the United States, any state therein or the District of Columbia; or
- an estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

THIS DISCUSSION IS NOT INTENDED AS LEGAL ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISERS REGARDING THE APPLICATION OF ANY U.S. FEDERAL INCOME TAX RULES TO THEIR PARTICULAR CIRCUMSTANCES AS WELL AS THE STATE, LOCAL, NON-U.S. OR OTHER TAX CONSEQUENCES TO THEM OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF NOTES.

Potential Contingent Payment Debt Instrument Treatment

There are circumstances in which the Company might be required to make payments on a Note that would increase the yield of the Note, for example, as described under “Description of the Notes – Repurchase of Notes upon a Change of Control Triggering Event” and “Description of the Notes – Additional Amounts”. The Company intends to take the position that the possibility of such payments does not result in the Notes being treated as contingent payment debt instruments under the applicable Treasury regulations. The Company’s position is not binding on the Internal Revenue Service (“IRS”). If the IRS takes a contrary position, U.S. Holders may be required to accrue interest income based upon a “comparable yield” (as defined in the Treasury regulations) determined at the time of issuance of the Notes (which is not expected to differ significantly from the actual yield on the Notes), with adjustments to such accruals when any contingent payments are made that differ from the payments based on the comparable yield. In addition, any income on the sale, exchange, retirement or other taxable disposition of the Notes would be treated as interest income rather than as capital gain. U.S. Holders should consult their tax advisers regarding the tax consequences if the Notes were treated as contingent payment debt instruments. The remainder of this discussion assumes that the Notes are not treated as contingent payment debt instruments.

Payments of Interest

It is expected, and this discussion assumes, that the Notes will be issued without original issue discount for U.S. federal income tax purposes. Interest on the Notes (including foreign taxes, if any, withheld from payments in respect of the Notes and any Additional Amounts with respect thereto) will be taxable to a U.S. Holder as ordinary interest income at the time it accrues or is received, in accordance with the U.S. Holder’s method of accounting for U.S. federal income tax purposes.

Interest income generally will constitute foreign-source income for foreign tax credit purposes, which may be relevant in calculating the U.S. Holder's foreign tax credit limitation.

Subject to applicable limitations that may vary depending on the U.S. Holder's particular circumstances, any foreign income taxes withheld from payments in respect of the Notes will be creditable against a U.S. Holder's U.S. federal income tax liability. The rules governing foreign tax credits are complex, and U.S. Holders should consult their tax advisers regarding the creditability of any foreign income taxes in their particular circumstances. Instead of claiming a credit, a U.S. Holder may elect to deduct such foreign taxes in computing taxable income. An election to deduct foreign taxes instead of claiming foreign tax credits must apply to all foreign taxes paid or accrued in the taxable year.

Sale, Exchange, Retirement or Other Taxable Disposition of the Notes

Upon the sale, exchange, retirement or other taxable disposition of a Note, a U.S. Holder will recognize taxable gain or loss in an amount equal to the difference between the amount realized on the sale, exchange, retirement or other taxable disposition and the U.S. Holder's tax basis in the Note. For these purposes, the amount realized does not include any amount attributable to accrued interest, which will be treated as interest as described under "– Payments of Interest" above. Gain or loss realized on the sale, exchange, retirement or other taxable disposition of a Note will be U.S.-source capital gain or loss, and will be long-term capital gain or loss if at the time of the sale, retirement or disposition the U.S. Holder has held the Note for more than one year. Long-term capital gains recognized by non-corporate U.S. Holders are subject to reduced tax rates. The deductibility of capital losses may be subject to limitations.

As described in "Mongolian Taxation," if a U.S. Holder sells Notes to a Mongolian purchaser, the Mongolian purchaser may withhold 10% from the gross proceeds. A U.S. Holder is entitled to use foreign tax credits to offset only the portion of its U.S. federal income tax liability that is attributable to foreign-source income. Because capital gains are generally treated as U.S.-source income, this limitation may preclude a U.S. Holder from claiming a credit for all or a portion of any Mongolian taxes imposed on any such gains. U.S. Holders should consult their tax advisers regarding their ability to claim a refund or foreign tax credit with respect to any Mongolian tax on dispositions in their particular circumstances.

Information Reporting and Backup Withholding

Payments of interest and proceeds from the sale of a Note that are made within the United States or through one of certain U.S.-related financial intermediaries generally are subject to information reporting to the IRS, and may be subject to backup withholding, unless (i) the U.S. Holder is an exempt recipient or (ii) in the case of backup withholding, the U.S. Holder provides a correct taxpayer identification number and certifies that it is not subject to backup withholding. Backup withholding is not an additional tax. The amount of any backup withholding from a payment to a U.S. Holder will be allowed as a credit against the U.S. Holder's U.S. federal income tax liability and a U.S. Holder may obtain a refund of any excess amounts withheld, provided that the required information is timely furnished to the IRS.

Certain U.S. Holders who are individuals (or certain specified entities) may be required to report information relating to their ownership of the Notes, or non-U.S. accounts through which the Notes are held. U.S. Holders should consult their tax advisers regarding their reporting obligations with respect to the Notes.

DESCRIPTION OF THE NOTES

For purposes of this “Description of the Notes,” the term “Company” refers only to Mongolian Mining Corporation, a company incorporated with limited liability under the laws of the Cayman Islands, and any successor obligor on the Notes, and not to any of its Subsidiaries and the term “Co-Issuer” refers only to Energy Resources LLC, a limited liability company established under the laws of Mongolia, and any successor co-obligor on the Notes, and not to any of its Subsidiaries. Each Subsidiary of the Company which guarantees the Notes is referred to as a “Subsidiary Guarantor,” and each such guarantee is referred to as a “Subsidiary Guarantee.”

The Notes are to be issued under an indenture (the “Indenture”), to be dated as of the Original Issue Date, among the Company, the Co-Issuer (together with the Company, the “Issuers” and each, an “Issuer”), the initial Subsidiary Guarantors, as guarantors, and The Bank of New York Mellon as trustee (the “Trustee”). The Issuers will be jointly and severally liable for all obligations under the Notes.

The following is a summary of certain provisions of the Indenture, the Notes and the Subsidiary Guarantees. This summary does not purport to be complete and is qualified in its entirety by reference to all of the provisions of the Indenture, the Notes and the Subsidiary Guarantees. It does not restate those agreements in their entirety. Whenever particular sections or defined terms of the Indenture not otherwise defined herein are referred to, such sections or defined terms are incorporated herein by reference. Copies of the Indenture will be available for inspection (following prior written request and satisfactory proof of holding) on or after the Original Issue Date during normal office hours (between 9:00 am and 3:00 pm) at the corporate trust office of the Trustee at The Bank of New York Mellon, 240 Greenwich Street, New York, NY 10286, United States of America.

Brief Description of the Notes

The Notes are:

- general obligations of the Issuers;
- effectively subordinated to secured obligations of the Issuers, to the extent of the value of the assets serving as security therefor;
- senior in right of payment to any existing and future obligations of the Issuers expressly subordinated in right of payment to the Notes;
- at least *pari passu* in right of payment with all other unsecured, unsubordinated Indebtedness of the Issuers (subject to any priority rights of such unsubordinated Indebtedness pursuant to applicable law);
- guaranteed by the Subsidiary Guarantors on a senior basis, subject to the limitations described below under the caption “– The Subsidiary Guarantees” and in “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantees”; and
- effectively subordinated to all existing and future obligations of any Subsidiaries of the Company other than the Co-Issuer and the Subsidiary Guarantors.

The Notes will mature on April 15, 2024, unless earlier redeemed or repurchased by the Issuers pursuant to the terms thereof and the Indenture.

The Indenture allows additional Notes to be issued from time to time (the “Additional Notes”), subject to certain limitations described under “– Further Issues.” Unless the context requires otherwise, references to the “Notes” for all purposes of the Indenture and this “Description of the Notes” include any Additional Notes that are actually issued. The Notes will bear interest at 9.25% per annum from the Original Issue Date or from the most recent interest payment date to which interest has been paid or duly provided for, payable semi-annually in arrears on April 15 and October 15 of each year (each an “Interest Payment Date”), commencing October 15, 2019.

Interest on the Notes will be paid to Holders of record at the close of business on March 31 and September 30 immediately preceding an Interest Payment Date (each, a “Record Date”), notwithstanding any transfer, exchange or cancellation thereof after a Record Date and prior to the immediately following Interest Payment Date. In any case in which the date of the payment of principal of or premium (if any) or interest on the Notes (including any payment to be made on any date fixed for redemption or purchase of any Note) is not a Business Day in the relevant place of payment, then payment of principal or premium (if any) or interest need not be made in such place on such date but may be made on the next succeeding Business Day in such place. Any payment made on such Business Day shall have the same force and effect as if made on the date on which such payment is due, and no interest on the Notes shall accrue for the period after such date. Interest on the Notes will be calculated on the basis of a 360 day year comprised of twelve 30-day months. So long as the Notes are held in global form, each payment in respect of the Global Note will be made to the person shown as the holder of the Notes in the Register at the close of business (of the relevant clearing system) on the Clearing System Business Day before the due date for such payments, where “Clearing System Business Day” means a weekday (Monday to Friday, inclusive) except December 25 and January 1.

The Notes will be issued only in fully registered form, without coupons, in denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof. No service charge will be made for any registration of transfer or exchange of Notes, but the Issuers may require payment of a sum sufficient to cover any transfer tax or other similar governmental charge payable in connection therewith.

All payments on the Notes will be made in U.S. dollars by the Issuers at the office or agency of the Issuers maintained for that purpose (which initially will be the corporate trust administration office of the Paying Agent, currently located at 240 Greenwich Street, New York, NY 10286, United States of America, attn: Corp Trust Administration – Project Symphony, with a copy to: The Bank of New York Mellon, Hong Kong Branch, Level 24, Three Pacific Place, 1 Queen’s Road East, Hong Kong, Attn: Global Corporate Trust – Project Symphony), and the Notes may be presented for registration of transfer or exchange at such office or agency; *provided* that, at the option of the Issuers, payment of interest may be made by wire transfer. Interest payable on the Notes held through DTC will be available to DTC participants (as defined herein) on the Business Day following payment thereof.

The Subsidiary Guarantees

On the Original Issue Date, all of the Company’s Subsidiaries (including the Co-Issuer) will be Restricted Subsidiaries, and the initial Subsidiary Guarantors will consist of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.à.r.l., Energy Resources Corporation LLC, Energy Resources Rail LLC, Tavan Tolgoi Airport LLC, United Power LLC, Enreotechnology LLC, Ukhuaa Khudag Water Supply LLC, Baruun Naran S.à.r.l. and Khangad Exploration LLC. Tianjin Zhengcheng Import and Export Trade Co., Ltd. and Inner Mongolia Fangcheng Trade Co., Ltd. will not guarantee the Notes, and accordingly, such entities and any future Restricted Subsidiaries of the Company that do not become Subsidiary Guarantors are collectively referred to herein as the “Non-Guarantor Restricted Subsidiaries.”

The Company may at its option at any time cause any Restricted Subsidiary to become a Subsidiary Guarantor by causing such Restricted Subsidiary to execute and deliver to the Trustee a supplemental indenture to the Indenture pursuant to which such Restricted Subsidiary will guarantee the payment of the Notes.

Although the Indenture contains limitations on the amount of additional Indebtedness that Non-Guarantor Restricted Subsidiaries may incur, the amount of such additional Indebtedness could be substantial. In the event of a bankruptcy, liquidation or reorganization of any Non-Guarantor Restricted Subsidiary, the Non-Guarantor Restricted Subsidiary will pay the holders of its debt and its trade creditors before it will be able to distribute any of its assets to the Company. See “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantees – We are a holding company and payments with respect to the Notes are structurally subordinated to liabilities, contingent liabilities and obligations of our subsidiaries that do not guarantee the Notes.”

As of December 31, 2018,

- the Company and its consolidated subsidiaries had approximately US\$436.2 million principal amount of consolidated indebtedness outstanding, all of which was secured;

- the Company and the Subsidiary Guarantors had approximately US\$436.2 million principal amount of secured indebtedness outstanding;
- the Non-Guarantor Restricted Subsidiaries did not have any indebtedness outstanding; and
- the Company and its consolidated subsidiaries had US\$7.1 million of capital commitments, none of which was at the Non-Guarantor Restricted Subsidiaries.

In addition, the Non-Guarantor Restricted Subsidiaries accounted for 14.3% and (0.3)% of the Company's consolidated net revenue and the Company's consolidated EBITDA, respectively, for the year ended December 31, 2018, and 0.3% of the Company's consolidated total assets as of December 31, 2018.

The Subsidiary Guarantee of each Subsidiary Guarantor:

- is a general obligation of such Subsidiary Guarantor;
- is effectively subordinated to secured obligations of such Subsidiary Guarantor, to the extent of the value of the assets serving as security therefor;
- is senior in right of payment to all future obligations of such Subsidiary Guarantor expressly subordinated in right of payment to such Subsidiary Guarantee;
- ranks at least *pari passu* with all other unsecured, unsubordinated Indebtedness of such Subsidiary Guarantor (subject to any priority rights of such unsecured, unsubordinated Indebtedness pursuant to applicable law); and
- is effectively subordinated to all existing and future obligations of any Subsidiaries of the Company other than the Co-Issuer and the Subsidiary Guarantors.

The Company will cause each of its future Wholly Owned Restricted Subsidiaries which, directly or indirectly, own any mining deposits or reserves or any mining license, as soon as practicable but in any event within five days after becoming a Restricted Subsidiary, to execute and deliver to the Trustee a supplemental indenture to the Indenture pursuant to which such Restricted Subsidiary will guarantee the payment of the Notes. Notwithstanding the foregoing, the Company will not be obligated to cause any Restricted Subsidiary to guarantee the Notes to the extent such guarantee could reasonably be expected to give rise to or result in any conflict with or violation of applicable law (or risk of personal or criminal liability for the officers, directors, managers or shareholders of such Restricted Subsidiary). Each Subsidiary of the Company that guarantees the Notes after the Original Issue Date is referred to as a "Future Subsidiary Guarantor" and, upon execution of the applicable supplemental indenture to the Indenture, will be a "Subsidiary Guarantor."

Under the Indenture, and any supplemental indenture to the Indenture, as applicable, each of the Subsidiary Guarantors will jointly and severally guarantee the due and punctual payment of the principal of, premium, if any, and interest on, and all other amounts payable under, the Notes and the Indenture, subject to the limitations set forth herein. The Subsidiary Guarantors will (1) agree that their obligations under the Subsidiary Guarantees will be enforceable irrespective of any invalidity, irregularity or unenforceability of the Notes or the Indenture and (2) waive their right to require the Trustee to pursue or exhaust its legal or equitable remedies against the Issuers prior to exercising its rights under the Subsidiary Guarantees. Moreover, if at any time any amount paid under a Note or the Indenture is rescinded or must otherwise be restored, the rights of the Holders under the Subsidiary Guarantees will be reinstated with respect to such payments as though such payments had not been made. All payments under the Subsidiary Guarantees are required to be made in U.S. dollars.

Under the Indenture and any supplemental indenture to the Indenture, as applicable, each Subsidiary Guarantee will be limited to an amount not to exceed the maximum amount that can be guaranteed by the applicable Subsidiary Guarantor without rendering the Subsidiary Guarantee, as it relates to such Subsidiary Guarantor, voidable under applicable law relating to fraudulent conveyance, fraudulent transfer, financial assistance, corporate benefit, capital maintenance or similar laws affecting the rights of creditors generally. In respect of any Subsidiary Guarantor incorporated under the laws of Luxembourg (each, a “Luxembourg Subsidiary Guarantor”), the maximum liability of such Luxembourg Subsidiary Guarantor will be limited so that the maximum amount payable by it under the Notes or the Indenture, shall at no time exceed the Maximum Amount notwithstanding any provision of the Notes or the Indenture. Any Subsidiary Guarantee of any Subsidiary Guarantor may include specific provisions limiting such guarantee to the extent such guarantee could reasonably be expected to give rise to or result in any conflict with or violation of applicable law (or risk of personal or criminal liability for the officers, directors, managers or shareholders of such Restricted Subsidiary). By virtue of these limitations, a Subsidiary Guarantor’s obligations under its Subsidiary Guarantee could be significantly less than amounts payable with respect to the Notes, or a Subsidiary Guarantor may effectively have no obligation under its Subsidiary Guarantee. If a Subsidiary Guarantee were to be rendered voidable, it could be subordinated by a court to all other indebtedness (including guarantees and other contingent liabilities) of the applicable Subsidiary Guarantor and, depending on the amount of such indebtedness, a Subsidiary Guarantor’s liability on its Subsidiary Guarantee could be reduced to zero.

The obligations of each Subsidiary Guarantor under its respective Subsidiary Guarantee may be limited, or possibly invalid, under applicable laws. See “Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantees – The Subsidiary Guarantees may be challenged under applicable bankruptcy or fraudulent transfer, insolvency or similar laws which could impair the enforceability of the Subsidiary Guarantees.”

Release of the Subsidiary Guarantees

A Subsidiary Guarantee given by a Subsidiary Guarantor may be released in certain circumstances, including:

- upon repayment in full of the Notes;
- upon a defeasance or satisfaction and discharge as described under “– Defeasance – Defeasance and Discharge”; or “– Satisfaction and Discharge”;
- upon the designation by the Company of a Subsidiary Guarantor as an Unrestricted Subsidiary in compliance with the terms of the Indenture;
- upon the sale of Capital Stock of a Subsidiary Guarantor in compliance with the terms of the Indenture (including the covenants described under the captions “– Certain Covenants – Limitation on Sales and Issuances of Capital Stock in Restricted Subsidiaries,” “– Certain Covenants – Limitation on Asset Sales,” and “– Consolidation, Mergers and Sale of Assets”) resulting in such Subsidiary Guarantor no longer being a Wholly Owned Restricted Subsidiary, so long as (1) the proceeds from such sale are used for the purposes permitted or required by the Indenture; (2) if such Subsidiary Guarantor is no longer a Restricted Subsidiary upon such sale, such Subsidiary Guarantor is simultaneously released from its obligations in respect of any of the Company’s other Indebtedness or any Indebtedness of any other Restricted Subsidiary and neither the Company or any Restricted Subsidiary guarantees or provides credit support for any Indebtedness of such Subsidiary Guarantor upon such sale, unless the Company or such Restricted Subsidiary could have incurred the Indebtedness represented by such guarantee or credit support under the Indenture on the date of such release after giving pro forma effect to such sale and release and (3) if such Subsidiary Guarantor remains a Restricted Subsidiary upon such sale, any outstanding Indebtedness of such Subsidiary Guarantor for money borrowed which is owed to any Person other than the Company or any Restricted Subsidiary is repaid in full prior to the release of the Subsidiary Guarantee of such Subsidiary Guarantor, unless such Subsidiary Guarantor could have incurred such Indebtedness under the Indenture as a Restricted Subsidiary that is not a Subsidiary Guarantor on the date of such release after giving pro forma effect to such sale and release;

- upon the merger or consolidation of any Subsidiary Guarantor with and into the Company, the Co-Issuer or a Wholly Owned Subsidiary Guarantor (or a Wholly Owned Restricted Subsidiary that becomes a Subsidiary Guarantor concurrently with the transaction) that is the surviving Person in such merger or consolidation, or upon the liquidation of such Subsidiary Guarantor following the transfer of all or substantially all of its assets to the Company, the Co-Issuer or a Wholly Owned Subsidiary Guarantor (or a Wholly Owned Restricted Subsidiary that becomes a Subsidiary Guarantor concurrently with the transaction); or
- as described under “– Amendments and Waivers.”

No release of a Subsidiary Guarantor from its Subsidiary Guarantee shall be effective against the Trustee or the Holders until the Company has delivered to the Trustee an Officers’ Certificate stating that all requirements relating to such release have been complied with and that such release is not prohibited by the terms of the Indenture.

Under the circumstances described below under the caption “– Certain Covenants – Designation of Restricted and Unrestricted Subsidiaries”, the Company will be permitted to designate certain of its Subsidiaries (other than the Co-Issuer) as “Unrestricted Subsidiaries”. The Company’s Unrestricted Subsidiaries will generally not be subject to the restrictive covenants in the Indenture and will not guarantee the Notes.

Further Issues

Subject to the covenants described below, the Issuers may, from time to time, without notice to or the consent of the Holders, create and issue Additional Notes having the same terms and conditions as the Notes (including the benefit of the Subsidiary Guarantees) in all respects (or in all respects except for the issue date, issue price and the date and/or amount of the first payment of interest on them and, to the extent necessary, certain temporary securities law transfer restrictions) (a “Further Issue”) so that such Additional Notes may be consolidated and form a single class with the previously outstanding Notes and vote together as one class on all matters with respect to the Notes; *provided* that the issuance of any such Additional Notes shall then be permitted under the “– Certain Covenants – Limitation on Indebtedness” covenant described below and the other provisions of the Indenture; and *provided further* that Additional Notes will not be issued under the same CUSIP, ISIN or Common Code as the Notes unless such Additional Notes are fungible with the Notes for United States federal income tax purposes. In connection with any such issuance of Additional Notes, the Issuers shall deliver an Officers’ Certificate to the Trustee directing the Trustee to authenticate and deliver Additional Notes in an aggregate principal amount specified therein and the Trustee, in accordance with such Officers’ Certificate, shall authenticate and deliver such Additional Notes.

In addition, the issuance of any Additional Notes by the Issuers will be subject to the following conditions:

- (1) the Additional Notes shall be secured and guaranteed under the Indenture and the Subsidiary Guarantees to the same extent and on the same basis as the Notes outstanding on the date the Additional Notes are issued; and
- (2) the Issuers shall have delivered to the Trustee an Officers’ Certificate, in form and substance satisfactory to the Trustee, confirming that the issuance of the Additional Notes complies with the Indenture and is permitted by the Indenture.

Optional Redemption

At any time and from time to time on or after April 15, 2022, the Issuers may at their option redeem the Notes, in whole or in part, at a redemption price equal to the percentage of principal amount set forth below, plus accrued and unpaid interest, if any, on the Notes redeemed, to (but not including) the applicable redemption date, if redeemed during the 12-month period commencing on April 15 of any year set forth below:

Period	Redemption Price
2022.....	104.625%
2023.....	102.313%

At any time and from time to time prior to April 15, 2022, the Issuers may at their option redeem the Notes, in whole or in part, at a redemption price equal to 100% of the principal amount of the Notes plus the Applicable Premium as of, and accrued and unpaid interest on the Notes redeemed, if any, to (but not including), the redemption date. Neither the Trustee nor any of the Agents shall be responsible for calculating or verifying the Applicable Premium.

In addition, at any time and from time to time prior to April 15, 2022, the Issuers may at their option redeem up to 35% of the aggregate principal amount of the Notes with the Net Cash Proceeds of one or more sales of Common Stock of the Company in an Equity Offering at a redemption price of 109.25% of the principal amount of the Notes, plus accrued and unpaid interest on the Notes redeemed, if any, to (but not including) the redemption date; *provided* that at least 65% of the aggregate principal amount of the Notes issued on the Original Issue Date remains outstanding after each such redemption and any such redemption takes place within 60 days after the closing of the related Equity Offering.

In connection with any Change of Control Offer (as defined below) or any other tender offer to purchase all of the Notes for cash at a purchase price not less than par (“Cash Tender Offer”), if Holders of not less than 90.0% of the aggregate principal amount of the then outstanding Notes validly tender and do not validly withdraw such Notes in such Change of Control Offer or Cash Tender Offer and the Issuers purchase, or any third party making such Change of Control Offer or Cash Tender Offer in lieu of the Issuers purchases, all of the Notes validly tendered and not validly withdrawn by such Holders, the Issuers or such third party will have the right upon notice, given not more than 60 days following such purchase date, to redeem all Notes that remain outstanding following such purchase at a price equal to the price paid to each other Holder in such Change of Control Offer or Cash Tender Offer, *plus*, to the extent not included in the Change of Control Offer or Cash Tender Offer payment, accrued and unpaid interest, if any, thereon, to (but not including), the redemption date.

The Issuers will give not less than 30 days’ nor more than 60 days’ notice of any redemption to the Holders and the Trustee. If fewer than all of the Notes are to be redeemed at any time, Notes for redemption will be selected as follows:

- if the Notes are listed on any securities exchange, in compliance with the requirements of the principal securities exchange on which the Notes are then listed or if the Notes are held through the clearing systems, in compliance with the requirements of the applicable clearing systems; or
- if the Notes are not listed on any securities exchange or held through clearing systems, on a *pro rata* basis, by lot or by such other method as the Trustee in its sole discretion shall determine unless otherwise required by applicable law.

However, no Note of US\$200,000 in principal amount or less shall be redeemed in part. If any Note is to be redeemed in part only, the notice of redemption relating to such Note will state the portion of the principal amount to be redeemed. In the case of Certificated Notes, a new Note in principal amount equal to the unredeemed portion will be issued upon cancellation of the original Note. On and after the redemption date, interest will cease to accrue on Notes or portions of them called for redemption.

Repurchase of Notes upon a Change of Control Triggering Event

Not later than 30 days following a Change of Control Triggering Event, the Issuers will make an Offer to Purchase all outstanding Notes (a “Change of Control Offer”) at a purchase price equal to 101% of the principal amount thereof plus accrued and unpaid interest, if any, to (but not including) the Offer to Purchase Payment Date.

The Issuers have agreed in the Indenture that they will timely repay all Indebtedness or obtain consents as necessary under, or terminate, agreements or instruments that would otherwise prohibit a Change of Control Offer required to be made pursuant to the Indenture. Notwithstanding this agreement of the Issuers, it is important to note that if the Issuers are unable to repay (or cause to be repaid) all of the Indebtedness, if any, that would prohibit repurchase of the Notes or are unable to obtain the requisite consents of the holders of such Indebtedness, or terminate any agreements or instruments that would otherwise prohibit a Change of Control Offer, they would continue to be prohibited from purchasing the Notes. In that case, the failure by the Issuers to purchase tendered Notes would constitute an Event of Default under the Indenture.

Certain of the events constituting a Change of Control under the Notes will also constitute an event of default under certain other debt instruments of the Issuers or their Subsidiaries. Future debt of the Issuers may also (i) prohibit the Issuers from purchasing Notes in the event of a Change of Control, (ii) provide that a Change of Control is a default or (iii) require repurchase of such debt upon a Change of Control. Moreover, the exercise by the Holders of their right to require the Issuers to purchase the Notes could cause a default under other Indebtedness, even if the Change of Control itself does not, due to the financial effect of the purchase on the Issuers. The ability of the Issuers to pay cash to the Holders following the occurrence of a Change of Control Triggering Event may be limited by the Issuers' then existing financial resources. There can be no assurance that sufficient funds will be available when necessary to make the required purchase of the Notes. See "Risk Factors – Risks Relating to the Notes and the Subsidiary Guarantees – We may not be able to repurchase the Notes upon a Change of Control Triggering Event."

The definition of Change of Control includes a phrase "all or substantially all" as used with respect to the assets of the Company. No precise definition of the phrase has been established under applicable law, and the phrase will likely be interpreted under applicable law of the relevant jurisdictions based on particular facts and circumstances. Accordingly, there may be a degree of uncertainty as to the ability of a Holder to require the Issuers to repurchase such Holder's Notes as a result of a sale of less than all the assets of the Company to another person or group.

Notwithstanding the above, the Issuers will not be required to make a Change of Control Offer following a Change of Control Triggering Event if a third party makes the Change of Control Offer in the same manner, at the same times and otherwise in compliance with the requirements set forth in the Indenture applicable to a Change of Control Offer made by the Issuers and purchases all Notes validly tendered and not withdrawn under such Change of Control Offer.

Except as described above with respect to a Change of Control Triggering Event, the Indenture does not contain provisions that permit the Holders to require that the Issuers purchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

The Trustee shall not be required to take any steps to ascertain whether a Change of Control Triggering Event or any event which could lead to a Change of Control Triggering Event has occurred and shall not be liable to any person for any failure to do so.

No Mandatory Redemption or Sinking Fund

There will be no mandatory redemption or sinking fund payments for the Notes.

Additional Amounts

All payments of principal of, and premium (if any) and interest on, the Notes or under the Subsidiary Guarantees by or on behalf of either Issuer, a Surviving Person (as defined under the caption "– Consolidation, Merger and Sale of Assets") or a Subsidiary Guarantor will be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature imposed or levied by or within any jurisdiction in which either Issuer, a Surviving Person or an applicable Subsidiary Guarantor is organized or resident for tax purposes or any jurisdiction from or through which such payments are made (or any political subdivision or taxing authority thereof or therein) (each, as applicable, a "Relevant Jurisdiction"), unless such withholding or deduction is required by law or by regulation or governmental policy having the force of law. In the event that any such withholding or

deduction is so required, the Issuers, a Surviving Person or the applicable Subsidiary Guarantor, as the case may be, will pay such additional amounts ("Additional Amounts") as will result in receipt by the Holder of each Note of such amounts payable under the Notes or the Subsidiary Guarantees as would have been received by such Holder had no such withholding or deduction been required, except that no Additional Amounts shall be payable:

(a) for or on account of:

- (i) any tax, duty, assessment or other governmental charge that would not have been imposed but for:
 - (A) the existence of any present or former connection between the Holder or beneficial owner of such Note and the Relevant Jurisdiction other than merely holding such Note or the receipt of payments thereunder or under a Subsidiary Guarantee, as the case may be, including, without limitation, such Holder or beneficial owner being or having been a national, domiciliary or resident of such Relevant Jurisdiction or treated as a resident thereof or being or having been physically present or engaged in a trade or business therein or having or having had a permanent establishment therein;
 - (B) the presentation of such Note (in cases in which presentation is required) more than 30 days after the later of the date on which the payment of the principal of, premium, if any, and interest on, such Note became due and payable pursuant to the terms thereof or was made or duly provided for, except to the extent that the Holder thereof would have been entitled to such Additional Amounts if it had presented such Note for payment on any date within such 30 day period;
 - (C) the failure of the Holder or beneficial owner to comply with a timely request of the Issuers, a Surviving Person or any Subsidiary Guarantor addressed to the Holder to provide information concerning such Holder's or beneficial owner's nationality, residence, identity or connection with any Relevant Jurisdiction, if and to the extent that due and timely compliance with such request would have reduced or eliminated any withholding or deduction as to which Additional Amounts would have otherwise been payable to the Holder; or
 - (D) the presentation of such Note (in cases in which presentation is required) for payment in the Relevant Jurisdiction, unless such Note could not have been presented for payment elsewhere;
- (ii) any estate, inheritance, gift, sale, transfer, personal property or similar tax, assessment or other governmental charge;
- (iii) any withholding or deduction that is imposed or levied on a payment to an individual and is required to be made pursuant to sections 1471 through 1474 of the U.S. Internal Revenue Code of 1986, as amended ("FATCA"), any intergovernmental agreement or the laws of any Relevant Jurisdictions implementing FATCA, or any agreement between the Issuers, a Surviving Corporation or a Subsidiary Guarantor and the United States or any authority thereof entered into for FATCA purposes;
- (iv) any tax, duty, assessment or other governmental charge which is payable other than by deduction or withholding from payments of principal of or interest or any premium on the Notes or payments under the Subsidiary Guarantees;
- (v) any combination of taxes, duties, assessments or other governmental charges referred to in the preceding clauses (i), (ii), (iii) or (iv); or

- (b) to a Holder that is a fiduciary, partnership or person other than the sole beneficial owner of any payment, to the extent that such payment would be required to be included for tax purposes in the income under the laws of a Relevant Jurisdiction of a beneficiary or settlor with respect to the fiduciary, or a member of that partnership or a beneficial owner who would not have been entitled to such Additional Amounts had that beneficiary, settlor, member or beneficial owner been the Holder thereof.

As a result of these provisions, there are circumstances in which taxes, duties, assessment or other governmental charges could be withheld or deducted but Additional Amounts would not be payable to some or all Holders of Notes.

At least 30 days prior to the first date on which any payment under or with respect to the Notes is due and payable (unless the obligation to pay Additional Amounts arises after the 30th day prior to such date), and either Issuer, a Surviving Person or any Subsidiary Guarantor becomes obligated to pay Additional Amounts with respect to such payment, the Issuers will deliver to the Trustee an Officers' Certificate stating that fact that such Additional Amounts will be payable and the amounts to be paid and will set forth such other information necessary to enable the Paying Agent to pay such Additional Amounts to the Holders on such payment date. The Issuers will deliver to the Trustee an Officers' Certificate 30 days prior to any subsequent payment date if there has been a change in the matters set forth in the previously furnished certificate (unless the change occurred after the 30th day prior to such date).

Whenever there is mentioned in any context the payment of principal, premium or interest in respect of any Note or any Subsidiary Guarantee, such mention shall be deemed to include payment of Additional Amounts provided for in the Indenture to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

Redemption for Tax Reasons

The Notes may be redeemed, at the option of the Issuers or a Surviving Person (as defined under the caption “– Consolidation, Merger and Sale of Assets”), as a whole but not in part, upon giving not less than 30 days’ nor more than 60 days’ notice to the Holders (which notice shall be irrevocable), at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to the date fixed by the Issuers or the Surviving Person, as the case may be, for redemption (the “Tax Redemption Date”) if, as a result of:

- (1) any change in, or amendment to, the laws (or any regulations or rulings promulgated thereunder) of the jurisdiction in which either Issuer or a Surviving Person is organized or resident for tax purposes (or any political subdivision or taxing authority thereof or therein) (a “Relevant Taxing Jurisdiction”) affecting taxation; or
- (2) any change in the existing official position, or the stating of an official position, regarding the application or interpretation of such laws, regulations or rulings (including a holding, judgment or order by a court of competent jurisdiction),

which change or amendment becomes effective on or after (i) the Original Issue Date (other than in the circumstances described in (ii) immediately below) or (ii) with respect to a Surviving Person organized or resident for tax purposes in a jurisdiction that was not a Relevant Taxing Jurisdiction prior to the date on which the Surviving Person becomes a Surviving Person, the date such Surviving Person becomes a Surviving Person with respect to any payment due or to become due under the Notes or the Indenture, either Issuer or such Surviving Person is, or on the next Interest Payment Date would be, required to pay Additional Amounts, and such requirement cannot be avoided by the taking of reasonable measures by the Issuers or such Surviving Person; *provided* that no such notice of redemption shall be given earlier than 90 days prior to the earliest date on which the Issuers or such Surviving Person would be obligated to pay such Additional Amounts if a payment in respect of the Notes were then due.

Prior to the mailing of any notice of redemption of the Notes pursuant to the foregoing, the Issuers or a Surviving Person, as the case may be, will deliver to the Trustee at least 30 days but not more than 60 days before the Tax Redemption Date:

- (1) an Officers' Certificate stating that such change or amendment referred to in the prior paragraph has occurred, describing the facts related thereto and stating that such requirement cannot be avoided by the Issuers or such Surviving Person, as the case may be, by taking reasonable measures available to it; and
- (2) an Opinion of Counsel or an opinion of a tax consultant, in either case, of recognized standing with respect to tax matters of the Relevant Taxing Jurisdiction, stating that the requirement to pay such Additional Amounts results from such change or amendment referred to in the prior paragraph.

The Trustee shall accept and conclusively rely on such certificate and opinion as sufficient evidence of the satisfaction of the conditions precedent described above, in which event it shall be conclusive and binding on the Holders. The Trustee will not be responsible for any loss occasioned by acting in reliance on such certificate and opinion. The Trustee is not obligated to investigate or verify any information in such certificate and opinion.

Any Notes that are redeemed will be cancelled.

Open Market Purchases and Cancellation of Notes

The Issuers may purchase Notes in the open market or by tender or by any other means at any price, so long as such acquisition does not otherwise violate the terms of the Indenture; *provided* that all Notes redeemed or repurchased by the Issuers or any of its affiliates may not be reissued or resold.

Certain Covenants

Set forth below are summaries of certain covenants contained in the Indenture.

Limitation on Indebtedness

- (a) The Company will not, and will not permit any Restricted Subsidiary to, Incur any Indebtedness (including Acquired Indebtedness); *provided* that the Company, the Co-Issuer and any Subsidiary Guarantor or any Finance Subsidiary may Incur Indebtedness (including Acquired Indebtedness) and any Non-Guarantor Restricted Subsidiary may Incur Permitted Subsidiary Indebtedness (including Acquired Indebtedness) if, after giving effect to the Incurrence of such Indebtedness or Permitted Subsidiary Indebtedness, as applicable, and the receipt and application of the proceeds therefrom, the Leverage Ratio would be positive but less than 3.5 to 1.0. Notwithstanding the foregoing, the Company will not permit any Restricted Subsidiary to Incur any Disqualified Stock (other than Disqualified Stock held by the Company, the Co-Issuer, a Subsidiary Guarantor or a Finance Subsidiary, so long as it is so held).
- (b) Notwithstanding the foregoing, the Company and, to the extent provided below, any Restricted Subsidiary, may Incur each and all of the following ("Permitted Indebtedness"):
 - (1) Indebtedness under the Notes (excluding any Additional Notes of the Issuers) and each Subsidiary Guarantee;
 - (2) Indebtedness of the Company or any Restricted Subsidiary outstanding on the Original Issue Date excluding Indebtedness permitted under clause (b)(3) of this covenant;

- (3) Indebtedness of the Company or any Restricted Subsidiary owed to the Company or any Restricted Subsidiary; *provided* that (x) any event which results in any such Restricted Subsidiary ceasing to be a Restricted Subsidiary or any subsequent transfer of such Indebtedness (other than to the Company or any Restricted Subsidiary) shall be deemed, in each case, to constitute an Incurrence of such Indebtedness not permitted by this clause (b)(3), and (y) if the Company, the Co-Issuer or any Subsidiary Guarantor is the obligor on such Indebtedness (and such Indebtedness is not owed to the Company, the Co-Issuer, a Subsidiary Guarantor or a Finance Subsidiary), such Indebtedness must be unsecured and expressly be subordinated in right of payment to the Notes, in the case of the Company or the Co-Issuer, or the Subsidiary Guarantee of such Subsidiary Guarantor, in the case of a Subsidiary Guarantor;
- (4) Indebtedness (“Permitted Refinancing Indebtedness”) issued in exchange for, or the net proceeds of which are used, to refinance, refund, replace, exchange, renew, repay, defease, discharge or extend (collectively, “refinance” and “refinances” and “refinanced” shall have a correlative meaning), then outstanding Indebtedness (or Indebtedness repaid substantially concurrently with but in any case before the Incurrence of such Permitted Refinancing Indebtedness) Incurred under clause (a) or clause (b)(1), (b)(2), (b)(4), (b)(6), (b)(12), (b)(14), (b)(15) and (b)(16) of this covenant and any refinancings thereof in an amount not to exceed the amount so refinanced (plus premiums, accrued interest, fees and expenses); *provided* that (A) Indebtedness the proceeds of which are used to refinance the Notes or Indebtedness that is *pari passu* with, or subordinated in right of payment to, the Notes or a Subsidiary Guarantee shall only be permitted under this clause (b)(4) if (x) in case the Notes are refinanced in part or the Indebtedness to be refinanced is *pari passu* with the Notes or a Subsidiary Guarantee, such new Indebtedness, by its terms or by the terms of any agreement or instrument pursuant to which such new Indebtedness is issued or remains outstanding, is expressly made *pari passu* with, or subordinate in right of payment to, the remaining Notes or such Subsidiary Guarantee or (y) in case the Indebtedness to be refinanced is subordinated in right of payment to the Notes or a Subsidiary Guarantee, such new Indebtedness, by its terms or by the terms of any agreement or instrument pursuant to which such new Indebtedness is issued or remains outstanding, is expressly made subordinate in right of payment to the Notes or such Subsidiary Guarantee at least to the extent that the Indebtedness to be refinanced is subordinated to the Notes or such Subsidiary Guarantee, (B) such new Indebtedness, determined as of the date of Incurrence of such new Indebtedness, does not mature prior to the earlier of the final maturity date of the Notes and the Stated Maturity of the Indebtedness to be refinanced, and the Average Life of such new Indebtedness is at least equal to the remaining Average Life of the Indebtedness to be refinanced or more than 180 days after the final maturity date of the Notes (*provided* that with respect to the refinancing of any Existing Perpetual Securities, such new Indebtedness, determined as of the date of Incurrence of such new Indebtedness, does not mature prior to the final maturity date of the Notes and the Average Life of such new Indebtedness is more than 180 days after the final maturity date of the Notes) and (C) in no event may Indebtedness of the Company, the Co-Issuer or any Subsidiary Guarantor be refinanced pursuant to this clause (b)(4) by means of any Indebtedness of any Restricted Subsidiary that is not a Subsidiary Guarantor;
- (5) Indebtedness Incurred by the Company or any Restricted Subsidiary pursuant to Hedging Obligations designed solely to protect the Company or any Restricted Subsidiary from fluctuations in interest rates, currencies or the price of commodities and not for speculation;
- (6) Indebtedness Incurred by the Company or any Restricted Subsidiary (A) representing Capitalized Lease Obligations or (B) for the purpose of financing (i) all or any part of the purchase price of real or personal property, assets or equipment to be used in the ordinary course of business by the Company or a Restricted Subsidiary in the Permitted Business, including any such purchase through the acquisition of Capital Stock of any Person that owns such real or personal property, assets or equipment which will, upon such acquisition, become a Restricted Subsidiary or (ii) all or any part of the purchase price or the cost of development, construction or improvement of real or personal property, assets or equipment

to be used in the ordinary course of business by the Company or a Restricted Subsidiary in the Permitted Business; *provided, however*, that in each case (A) the aggregate principal amount of such Indebtedness shall not exceed such purchase price or cost, (B) such Indebtedness shall be Incurred no later than 180 days after the acquisition of such property, asset or equipment or completion of such development, construction or improvement, and (C) on the date of the Incurrence of such Indebtedness and after giving effect thereto, the aggregate principal amount outstanding of all such Indebtedness (including Capitalized Lease Obligations) permitted by this clause (b)(6) (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) plus (ii) the aggregate principal amount outstanding of all Indebtedness Incurred under clauses (b)(14) and (b)(15) hereof (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) does not exceed an amount equal to the greater of (x) US\$100 million (or the Dollar Equivalent thereof) and (y) 5% of Total Assets;

- (7) Indebtedness Incurred by the Company or any Restricted Subsidiary with respect to workers' compensation claims or claims arising under similar legislation, or in connection with self-insurance obligations or similar requirements, or bid, performance or surety bonds (in each case other than for an obligation for borrowed money);
- (8) Indebtedness Incurred by the Company or any Restricted Subsidiary constituting reimbursement obligations with respect to letters of credit or trade guarantees, performance and surety bonds and similar instruments issued in the ordinary course of business to the extent that such letters of credit or trade guarantees, performance and surety bonds and similar instruments are not drawn upon or, if drawn upon, to the extent such drawing is reimbursed no later than the 30 days following receipt by the Company or such Restricted Subsidiary, as applicable, of a demand for reimbursement;
- (9) Indebtedness of the Company or any Restricted Subsidiary arising from agreements providing for indemnification, adjustment of purchase price, earn-out or other similar obligations, or from guarantees or letters of credit, surety bonds or performance bonds securing any obligation of the Company or any Restricted Subsidiary pursuant to such agreements, in any case, Incurred in connection with the disposition of any business, assets or Restricted Subsidiary (other than guarantees of Indebtedness Incurred by any Person acquiring all or any portion of such business, assets or Restricted Subsidiary for the purpose of financing such acquisition); *provided* that the maximum aggregate liability in respect of all such Indebtedness shall at no time exceed the gross proceeds actually received by the Company or any Restricted Subsidiary from the disposition of such business, assets or Restricted Subsidiary;
- (10) Indebtedness of the Company or any Restricted Subsidiary arising from the honoring by a bank or other financial institution of a check, draft or similar instrument drawn against insufficient funds in the ordinary course of business; *provided, however*, that such Indebtedness is extinguished within five Business Days of Incurrence;
- (11) guarantees by the Company or any Restricted Subsidiary of Indebtedness of the Company or any Restricted Subsidiary that was permitted to be Incurred by another provision of this covenant; *provided* that if the Indebtedness being guaranteed is subordinated to or *pari passu* with the Notes or a Subsidiary Guarantee, then the guarantee shall be subordinated or *pari passu*, as applicable, to the same extent as the Indebtedness guaranteed;
- (12) Indebtedness of the Company or any Restricted Subsidiary in an aggregate principal amount outstanding at any time (together with refinancings thereof) not to exceed US\$20.0 million (or the Dollar Equivalent thereof);
- (13) (i) Indebtedness of a Finance Subsidiary that is guaranteed by the Company to the extent the Company is permitted to Incur such Indebtedness under this covenant and (ii) any guarantee by a Subsidiary Guarantor of any Indebtedness of a Finance Subsidiary so guaranteed by the Company;

- (14) Acquired Indebtedness of any Restricted Subsidiary Incurred and outstanding on the date on which such Restricted Subsidiary became a Restricted Subsidiary; *provided, however*, that on the date of the Incurrence of such Indebtedness and after giving effect thereto, the aggregate principal amount outstanding of all such Indebtedness permitted by this clause (b)(14) (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) plus (ii) the aggregate principal amount outstanding of all Indebtedness Incurred under clauses (b)(6) and (b)(15) hereof (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) does not exceed an amount equal to the greater of (x) US\$100 million (or the Dollar Equivalent thereof) and (y) 5% of Total Assets;
- (15) Indebtedness Incurred by the Company or any Restricted Subsidiary constituting a Guarantee of any Indebtedness of any Person; *provided, however*, that on the date of the Incurrence of such Indebtedness and after giving effect thereto, the aggregate principal amount outstanding of all such Indebtedness permitted by this clause (b)(15) (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) plus (ii) the aggregate principal amount outstanding of all Indebtedness Incurred under clauses (b)(6) and (b)(14) hereof (together with refinancings thereof, but excluding any guarantee Incurred under such clause to the extent the amount of such guarantee is otherwise reflected in such aggregate principal amount) does not exceed an amount equal to the greater of (x) US\$100 million (or the Dollar Equivalent thereof) and (y) 5% of Total Assets;
- (16) Indebtedness of the Company or any Restricted Subsidiary with a maturity of 18 months or less used by the Company or any Restricted Subsidiary for working capital; *provided that* the aggregate principal amount outstanding of all such Indebtedness permitted by this clause (b)(16) (together with refinancings thereto) does not exceed US\$50.0 million (or the Dollar Equivalent thereof); and
- (17) Indebtedness constituting a Subordinated Shareholder Loan.
- (c) For purposes of determining compliance with this “Limitation on Indebtedness” covenant, in the event that an item of Indebtedness meets the criteria of more than one of the types of Indebtedness described above, including under the proviso in the first sentence of clause (a) of this covenant, the Company, in its sole discretion, shall classify (and divide) and from time to time may reclassify (and divide), such item of Indebtedness.
- (d) For purposes of determining compliance with any U.S. dollar denominated restriction on the Incurrence of Indebtedness under this “Limitation on Indebtedness” covenant, the Dollar Equivalent principal amount of Indebtedness denominated in a foreign currency shall be calculated based on the relevant currency exchange rate in effect on the date such Indebtedness was Incurred, in the case of term Indebtedness, or first committed, in the case of revolving credit Indebtedness; *provided that* if such Indebtedness is Incurred to refinance other Indebtedness denominated in a foreign currency, and such refinancing would cause the applicable U.S. dollar-denominated restriction to be exceeded if calculated at the relevant currency exchange rate in effect on the date of such refinancing, such U.S. dollar-denominated restriction shall be deemed not to have been exceeded so long as the principal amount of such refinancing Indebtedness does not exceed the principal amount of such Indebtedness being refinanced. Notwithstanding any other provision of this covenant, the maximum amount of Indebtedness that may be Incurred pursuant to this covenant shall not be deemed to be exceeded solely as a result of fluctuations in the exchange rates of currencies. The principal amount of any Indebtedness Incurred to refinance other Indebtedness, if Incurred in a different currency from the Indebtedness being refinanced, shall be calculated based on the currency exchange rate applicable to the currencies in which such refinancing Indebtedness is denominated that is in effect on the date of such refinancing.

Limitation on Restricted Payments

The Company will not, and will not permit any Restricted Subsidiary to, directly or indirectly (the payments or any other actions described in clauses (a) through (d) below being collectively referred to as “Restricted Payments”):

- (a) declare or pay any dividend or make any distribution on or with respect to the Company’s or any Restricted Subsidiary’s Capital Stock (other than dividends or distributions payable solely in shares of the Company’s or any Restricted Subsidiary’s Capital Stock (other than Disqualified Stock or Preferred Stock) or in options, warrants or other rights to acquire shares of such Capital Stock) held by Persons other than the Company or any Restricted Subsidiary;
- (b) purchase, call for redemption or redeem, retire or otherwise acquire for value any shares of Capital Stock (including options, warrants or other rights to acquire such shares of Capital Stock) of the Company, any Restricted Subsidiary or any direct or indirect parent of the Company held by any Persons other than the Company or any Restricted Subsidiary;
- (c) make any voluntary or optional principal payment, or voluntary or optional redemption, repurchase, defeasance, or other acquisition or retirement for value, of Subordinated Indebtedness (excluding any intercompany Indebtedness between or among the Company and any Restricted Subsidiary); or
- (d) make any Investment, other than a Permitted Investment;

if, at the time of, and after giving effect to, the proposed Restricted Payment:

- (A) a Default has occurred and is continuing or would occur as a result of such Restricted Payment;
- (B) the Company could not Incur at least US\$1.00 of Indebtedness under the proviso in the first sentence of clause (a) of the covenant described under the caption “– Limitation on Indebtedness”; or
- (C) such Restricted Payment, together with the aggregate amount of all Restricted Payments made by the Company and its Restricted Subsidiaries after the Measurement Date, shall exceed the sum (without duplication) of:
 - (i) 50% of the aggregate amount of the Consolidated Net Income of the Company (or, if the Consolidated Net Income is a loss, minus 100% of the amount of such loss) accrued on a cumulative basis during the period (taken as one accounting period) beginning on the Measurement Date and ending on the last day of the Company’s most recently ended semi-annual fiscal period for which consolidated financial statements of the Company (which the Company shall use its reasonable best efforts to compile in a timely manner) are available (which may include internal consolidated financial statements); plus
 - (ii) 100% of the aggregate Net Cash Proceeds received by the Company after the Measurement Date as a capital contribution to its common equity or from the issuance and sale of its Capital Stock (other than Disqualified Stock) to a Person who is not a Subsidiary of the Company, including any such Net Cash Proceeds received upon (x) the conversion of any Indebtedness (other than Subordinated Indebtedness) of the Company into Capital Stock (other than Disqualified Stock) of the Company, or (y) the exercise by a Person who is not a Subsidiary of the Company of any options, warrants or other rights to acquire Capital Stock of the Company (other than Disqualified Stock), in each case after deducting the amount of any such Net Cash Proceeds used to redeem, repurchase, defease or otherwise acquire or retire for value any Subordinated Indebtedness or Capital Stock of the Company; plus

- (iii) an amount equal to the net reduction in Investments (other than reductions in Permitted Investments) that were made after the Measurement Date in any Person resulting from (w) payments of interest on Indebtedness, dividends or repayments of loans or advances by such Person, in each case, to the Company or any Restricted Subsidiary (except, in each case, to the extent any such payment or proceeds are included in the calculation of Consolidated Net Income), (x) the unconditional release of a guarantee provided by the Company or any Restricted Subsidiary after the Measurement Date of an obligation of another Person, (y) the net cash proceeds from the sale of any such Investment (except to the extent such proceeds are included in the calculation of Consolidated Net Income) or (z) from redesignations of Unrestricted Subsidiaries as Restricted Subsidiaries, not to exceed, in each case, the amount of Investments made by the Company or a Restricted Subsidiary after the Measurement Date in any such Person; plus
- (iv) the amount by which Indebtedness of the Company or any Restricted Subsidiary is reduced on the Company's consolidated balance sheet upon the conversion or exchange (other than by a Subsidiary of the Company) subsequent to the Measurement Date of any Indebtedness of the Company or any Restricted Subsidiary convertible or exchangeable into Capital Stock (other than Disqualified Stock) of the Company (less the amount of any cash, or the Fair Market Value of any other property, distributed by the Company or any Restricted Subsidiary upon such conversion or exchange).

The foregoing provision shall not be violated by reason of:

- (1) the payment of any dividend or redemption of any Capital Stock within 60 days after the related date of declaration or call for redemption if, at said date of declaration or call for redemption, such payment or redemption would comply with the preceding paragraph;
- (2) the redemption, repurchase, defeasance or other acquisition or retirement for value of Subordinated Indebtedness of the Company, the Co-Issuer or any Subsidiary Guarantor with the Net Cash Proceeds of, or in exchange for, a substantially concurrent Incurrence of Permitted Refinancing Indebtedness;
- (3) the redemption, repurchase or other acquisition of Capital Stock of the Company, the Co-Issuer or any Subsidiary Guarantor (or options, warrants or other rights to acquire such Capital Stock) in exchange for, or out of the Net Cash Proceeds of a substantially concurrent capital contribution or sale (other than to a Subsidiary of the Company) of, shares of Capital Stock (other than Disqualified Stock) of the Company (or options, warrants or other rights to acquire such Capital Stock); *provided* that the amount of any such Net Cash Proceeds that are utilized for any such Restricted Payment will be excluded from clause (C)(ii) of the preceding paragraph;
- (4) the redemption, repurchase, defeasance or other acquisition or retirement for value of Subordinated Indebtedness of the Company, the Co-Issuer or any Subsidiary Guarantor in exchange for, or out of the Net Cash Proceeds of, a substantially concurrent capital contribution or sale (other than to a Subsidiary of the Company) of, shares of Capital Stock (other than Disqualified Stock) of the Company (or options, warrants or other rights to acquire such Capital Stock); *provided* that the amount of any such Net Cash Proceeds that are utilized for any such Restricted Payment will be excluded from clause (C)(ii) of the preceding paragraph;
- (5) (x) the payment of any dividends or distributions declared, paid or made by a Restricted Subsidiary payable or (y) the redemption, repurchase, defeasance or other acquisition by a Restricted Subsidiary of any shares of its Capital Stock (including options, warrants or other rights to acquire such shares of Capital Stock), in each case on a pro rata basis or on a basis more favorable to the Company, to (or by) all holders of any class of Capital Stock of such Restricted Subsidiary, a majority of which is held, directly or indirectly through Restricted Subsidiaries, by the Company;
- (6) a Permitted Investment under clause (1) of the definition thereof in the Capital Stock of a Restricted Subsidiary held by a minority shareholder which Investment increases the proportion of the Capital Stock of such Restricted Subsidiary held, directly or indirectly, by the Company;

- (7) the repurchase, redemption or other acquisition or retirement for value of any Capital Stock (including options, warrants or other rights to acquire such shares of Capital Stock) of the Company or any Restricted Subsidiary held by an employee benefit plan of the Company or any Restricted Subsidiary, any current or former officer, director, consultant, or employee of the Company or any Restricted Subsidiary (or permitted transferees, authorized representatives, estates or heirs of any of the foregoing), *provided* that the aggregate price paid for all such repurchased, redeemed, acquired or retired Capital Stock may not exceed US\$1.0 million (or the Dollar Equivalent using the Original Issue Date as the date of determination) in any twelve-month period;
- (8) any purchase, repurchase, redemption, defeasance or other acquisition or retirement for value of Disqualified Stock of the Company or Preferred Stock of a Restricted Subsidiary made by exchange for or out of the Net Cash Proceeds of the substantially concurrent sale of Disqualified Stock of the Company or Preferred Stock of a Restricted Subsidiary, as the case may be, that, in each case, is permitted to be incurred pursuant to the covenant described under “– Limitation on Indebtedness” and that in each case constitutes Permitted Refinancing Indebtedness; *provided* that the amount of any such Net Cash Proceeds that are utilized for any such Restricted Payment will be excluded from clause (C) of the preceding paragraph;
- (9) repurchases of Capital Stock deemed to occur upon the exercise of stock options if such Capital Stock represents a portion of the exercise price thereof;
- (10) cash payments in lieu of the issuance of fractional shares in connection with the exercise of warrants, options or other securities convertible into or exchangeable for Capital Stock of the Company; *provided* that the amount of payments made pursuant to this clause does not exceed US\$2.0 million (or the Dollar Equivalent thereof) in any calendar year;
- (11) any Restricted Payment in an aggregate amount, taken together with all other Restricted Payments made in reliance on this clause (11), not to exceed US\$10.0 million (or the Dollar Equivalent thereof); or
- (12) any repayment, purchase, repurchase, redemption, defeasance or other acquisition or retirement for value of any Existing Perpetual Securities, *provided* that, immediately after giving *pro forma* effect thereto, the Company could Incur at least US\$1.00 of Indebtedness under the proviso in the first sentence of clause (a) of the covenant described under the caption “– Limitation on Indebtedness,”

provided that, in the case of clause (2), (3), (4), (8) or (12) above, no Default shall have occurred and be continuing or would occur as a consequence of the actions or payments set forth therein.

Each Restricted Payment permitted pursuant to clause (1) (but only to the extent that dividends are paid to Persons other than the Company or a Restricted Subsidiary) of the preceding paragraph shall be included in calculating whether the conditions of clause (C) of the first paragraph of this “– Limitation on Restricted Payments” covenant have been met with respect to any subsequent Restricted Payments.

The amount of any Restricted Payments (other than cash) will be the Fair Market Value on the date of the Restricted Payment of the asset(s) or securities proposed to be transferred or issued by the Company or the Restricted Subsidiary, as the case may be, pursuant to the Restricted Payment. The value of any assets or securities that are required to be valued by this covenant will be the Fair Market Value. The Board of Directors’ determination of the Fair Market Value of a Restricted Payment or any such assets or securities must be based upon an opinion or appraisal issued by an accounting, appraisal or investment banking firm of recognized international standing if the Fair Market Value exceeds US\$10.0 million (or the Dollar Equivalent thereof).

Not later than the date of making any Restricted Payment in excess of US\$10.0 million (or the Dollar Equivalent thereof), the Company will deliver to the Trustee an Officers’ Certificate stating that such Restricted Payment is permitted and setting forth the basis upon which the calculations required by this “– Limitation on Restricted Payments” covenant were computed, together with a copy of any fairness opinion or appraisal required by the Indenture.

As of December 31, 2018, the total amount available for Restricted Payments pursuant to clause (C) of the first paragraph of this “– Limitation on Restricted Payments” covenant would have been approximately US\$29.0 million.

Limitation on Dividend and Other Payment Restrictions Affecting Restricted Subsidiaries

(a) Except as provided below, the Company will not, and will not permit any Restricted Subsidiary to, create or otherwise cause or permit to exist or become effective any encumbrance or restriction on the ability of any Restricted Subsidiary to:

- (1) pay dividends or make any other distributions on any Capital Stock of such Restricted Subsidiary owned by the Company or any other Restricted Subsidiary;
- (2) pay any Indebtedness or other obligation owed to the Company or any other Restricted Subsidiary;
- (3) make loans or advances to the Company or any other Restricted Subsidiary; or
- (4) sell, lease or transfer any of its property or assets to the Company or any other Restricted Subsidiary,

provided that it being understood that (i) the priority of any Preferred Stock in receiving dividends or liquidating distributions prior to dividends or liquidating distributions being paid on Common Stock; (ii) the subordination of loans or advances made to the Company or any Restricted Subsidiary to other Indebtedness Incurred by the Company or any Restricted Subsidiary; and (iii) the provisions contained in documentation governing Indebtedness requiring transactions between or among the Company and any Restricted Subsidiary or between or among any Restricted Subsidiary to be on fair and reasonable terms or on an arm’s length basis, in each case, shall not be deemed to constitute such an encumbrance or restriction.

(b) The provisions of paragraph (a) do not apply to any encumbrances or restrictions:

- (1) existing in agreements as in effect on the Original Issue Date, or in the Notes, the Subsidiary Guarantees, the Indenture and any extensions, refinancings, renewals or replacements of any of the foregoing agreements; *provided* that the encumbrances and restrictions in any such extension, refinancing, renewal or replacement, taken as a whole, are no more restrictive in any material respect than those encumbrances or restrictions that are then in effect and that are being extended, refinanced, renewed or replaced;
- (2) existing under or by reason of applicable law, rule, regulation, license, concession, approval, decree or order issued by any government or any agency thereof;
- (3) with respect to any Person or the property or assets of such Person acquired by the Company or any Restricted Subsidiary, existing at the time of such acquisition and not incurred in contemplation thereof, which encumbrances or restrictions are not applicable to any Person or the property or assets of any Person other than such Person or the property or assets of such Person so acquired, and any extensions, refinancings, renewals or replacements thereof; *provided* that the encumbrances and restrictions in any such extension, refinancing, renewal or replacement, taken as a whole, are no more restrictive in any material respect than those encumbrances or restrictions that are then in effect and that are being extended, refinanced, renewed or replaced;
- (4) that otherwise would be prohibited by the provision described in clause (a)(4) of this covenant if they arise, or are agreed to in the ordinary course of business, and that (x) restrict in a customary manner the subletting, assignment or transfer of any property or asset that is subject to a lease or license, (y) exist by virtue of any Lien on, or agreement to transfer, option or similar right with respect to any property or assets of the Company or any

Restricted Subsidiary not otherwise prohibited by the Indenture or (z) do not relate to any Indebtedness, and that do not, individually or in the aggregate, detract from the value of property or assets of the Company or any Restricted Subsidiary in any manner material to the Company or any Restricted Subsidiary;

- (5) with respect to a Restricted Subsidiary and imposed pursuant to an agreement that has been entered into for the sale or disposition of all or substantially all of the Capital Stock of, or property and assets of, such Restricted Subsidiary that is permitted by the “– Limitation on Sales and Issuances of Capital Stock in Restricted Subsidiaries,” “– Limitation on Indebtedness” and “– Limitation on Asset Sales” covenants;
- (6) with respect to any Restricted Subsidiary and imposed pursuant to an agreement that has been entered into for the Incurrence of Indebtedness permitted to be Incurred under the “– Limitation on Indebtedness” covenant if, as determined by the Board of Directors, such encumbrances or restrictions (x) are customary for such types of agreements and (y) would not, at the time agreed to, be expected to materially and adversely affect the ability of the Issuers to make required payments on the Notes and any extensions, refinancings, renewals or replacements of any of the foregoing agreements; *provided* that the encumbrances and restrictions in any such extension, refinancing, renewal or replacement, taken as a whole, are no more restrictive in any material respect than those encumbrances or restrictions that are then in effect and that are being extended, refinanced, renewed or replaced;
- (7) restrictions on cash or other deposits or net worth imposed by customers under contracts entered into in the ordinary course of business;
- (8) existing in customary provisions in joint venture agreements and other similar agreements permitted under the Indenture, to the extent such encumbrance or restriction relates to the activities or assets of a party to such joint venture and if, as determined by the Board of Directors, (A) the encumbrances or restrictions are customary for a joint venture or similar agreement of that type and (B) the encumbrances or restrictions would not, at the time agreed to, be expected to materially and adversely affect the ability of the Issuers to make the required payments on the Notes; or
- (9) customary provisions contained in agreements evidencing Liens incurred in accordance with the “Limitation on Liens” covenant.

Limitation on Sales and Issuances of Capital Stock in Restricted Subsidiaries

The Company will not sell, and will not permit any Restricted Subsidiary, directly or indirectly, to issue or sell, any shares of Capital Stock of a Restricted Subsidiary (including options, warrants or other rights to purchase shares of such Capital Stock) except:

- (1) to the Company or a Restricted Subsidiary;
- (2) to the extent such Capital Stock represents director’s qualifying shares or is required by applicable law to be held by a Person other than the Company or a Restricted Subsidiary;
- (3) the sale of all of the shares of Capital Stock of a Restricted Subsidiary if permitted under, and made in accordance with, the “– Limitation on Asset Sales” covenant;
- (4) the issuance or sale of Capital Stock of a Restricted Subsidiary (which remains a Restricted Subsidiary after any such issuance or sale); *provided* that the Company or such Restricted Subsidiary applies the Net Cash Proceeds of such issuance or sale, to the extent required, in accordance with the “– Limitation on Asset Sales” covenant; and
- (5) the issuance or sale of Capital Stock of a Restricted Subsidiary that does not remain a Restricted Subsidiary after such issuance or sale; *provided* that (a) the transaction complies with the “– Limitation on Restricted Payments” covenant and (b) the Company applies the Net Cash Proceeds of such issuance or sale, to the extent required, in accordance with the “– Limitation on Asset Sales” covenant.

Notwithstanding the foregoing, a Restricted Subsidiary may issue Common Stock to its shareholders on a pro rata basis or on a basis more favorable to the Company and its Restricted Subsidiaries.

Limitation on Issuances of Guarantees by Restricted Subsidiaries

The Company will not permit any Restricted Subsidiary (other than the Co-Issuer) which is not a Subsidiary Guarantor, directly or indirectly, to guarantee any Indebtedness (“Guaranteed Indebtedness”) of the Company, the Co-Issuer or any other Subsidiary Guarantor, unless (1) such Restricted Subsidiary, as soon as practicable but in any event within five days thereafter, executes and delivers a supplemental indenture to the Indenture providing for an unsubordinated Subsidiary Guarantee of payment of the Notes by such Restricted Subsidiary, whereupon it shall become a “Subsidiary Guarantor” and (2) such Restricted Subsidiary waives and will not in any manner whatsoever claim, or take the benefit or advantage of, any rights of reimbursement, indemnity or subrogation or any other rights against the Company or any other Restricted Subsidiary as a result of any payment by such Restricted Subsidiary under its Subsidiary Guarantee until the Notes have been paid in full.

If the Guaranteed Indebtedness (A) ranks *pari passu* in right of payment with the Notes or any Subsidiary Guarantee, then the guarantee of such Guaranteed Indebtedness shall rank *pari passu* in right of payment with, or subordinated to, the Subsidiary Guarantee or (B) is subordinated in right of payment to the Notes or any Subsidiary Guarantee, then the guarantee of such Guaranteed Indebtedness shall be subordinated in right of payment to the Subsidiary Guarantee at least to the extent that the Guaranteed Indebtedness is subordinated to the Notes or the Subsidiary Guarantee.

Limitation on Transactions with Shareholders and Affiliates

The Company will not, and will not permit any Restricted Subsidiary to, directly or indirectly, enter into, renew or extend any transaction or arrangement (including, without limitation, the purchase, sale, lease or exchange of property or assets, or the rendering of any service) with (a) any holder (or any Affiliate of such holder) of 10% or more of any class of Capital Stock of the Company or (b) with any Affiliate of the Company (each an “Affiliate Transaction”), unless:

- (1) the Affiliate Transaction is on terms that are no less favorable to the Company or the relevant Restricted Subsidiary than those that would have been obtained in a comparable arm’s-length transaction by the Company or the relevant Restricted Subsidiary with a Person that is not such a holder or an Affiliate of the Company; and
- (2) the Company delivers to the Trustee:
 - (A) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of US\$5.0 million (or the Dollar Equivalent thereof), a Board Resolution set forth in an Officers’ Certificate certifying that such Affiliate Transaction complies with this covenant and such Affiliate Transaction has been approved by a majority of the disinterested members of the Board of Directors; and
 - (B) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of US\$15.0 million (or the Dollar Equivalent thereof), in addition to the Board Resolution required in clause (2)(A) above, an opinion issued by an accounting, appraisal or investment banking firm of recognized international standing as to the fairness to the Company or such Restricted Subsidiary of such Affiliate Transaction from a financial point of view.

The foregoing limitation does not limit, and shall not apply to:

- (1) any employment or compensation agreement (whether based in cash or securities), officer or director indemnification agreement, severance or termination agreement or any similar arrangement entered into by the Company or any Restricted Subsidiary with their respective officers, directors or employees and payments pursuant thereto, including the payment of reasonable fees and reimbursement of expenses, in each case in the ordinary course of business;

- (2) transactions between or among the Company and any Wholly Owned Restricted Subsidiary or between or among Wholly Owned Restricted Subsidiaries;
- (3) any Restricted Payment (other than a Permitted Investment) not prohibited by the “– Limitation on Restricted Payments” covenant;
- (4) any sale of Capital Stock (other than Disqualified Stock) of the Company;
- (5) the payment of compensation to officers and directors of the Company or any Restricted Subsidiary pursuant to an employee stock or share option scheme, so long as such scheme is in compliance with the listing rules of The Stock Exchange of Hong Kong Limited;
- (6) transactions with a Person (other than an Unrestricted Subsidiary of the Company) that is an Affiliate of the Company solely because the Company, directly or indirectly, owns Capital Stock in, or controls, such Person or solely because the Company or one of its Subsidiaries has the right to designate one or more members of the Board of Directors or similar governing body of such Person;
- (7) loans or advances to officers, directors or employees in the ordinary course of business not to exceed US\$5.0 million (or the Dollar Equivalent thereof) at any one time outstanding; and
- (8) any agreement between any Person and an Affiliate of such Person existing at the time such Person is acquired by or merged into the Company or any of its Restricted Subsidiaries; *provided* that such agreement was not entered into in contemplation of such acquisition or merger.

In addition, the requirements of clause (2) of the first paragraph of this covenant shall not apply to (i) any Permitted Investment (other than a Permitted Investment of the type described in clause (1)(b) of the definition of “Permitted Investment”), (ii) transactions pursuant to agreements in effect on the Original Issue Date and described in this offering memorandum, or any amendment or modification or replacement thereof, so long as such amendment, modification or replacement is not materially more disadvantageous to the Company and its Restricted Subsidiaries than the original agreement in effect on the Original Issue Date, (iii) transactions with customers, clients, suppliers, contractors, other service providers or purchasers and sellers of goods and services or lessors or lessees and (iv) any transaction between or among the Company and any Restricted Subsidiary that is not a Wholly Owned Restricted Subsidiary *provided* that (a) in the case of clause (iii), such transaction is entered into in the ordinary course of business and (b) in the case of clause (iv) none of the minority shareholders or minority partners of or in such Restricted Subsidiary is a Person described in clauses (a) or (b) of the first paragraph of this covenant (other than by reason of such minority shareholder or minority partner being an officer or director of such Restricted Subsidiary).

Limitation on Liens

The Company will not, and will not permit any Restricted Subsidiary to, directly or indirectly, incur, assume or permit to exist any Lien of any nature whatsoever on any of its assets or properties of any kind, whether owned at the Original Issue Date or thereafter acquired, except Permitted Liens, unless the Notes are secured equally and ratably with (or, if the obligation or liability to be secured by such Lien is subordinated in right of payment to the Notes, prior to) the obligation or liability secured by such Lien, for so long as such obligation or liability is secured by such Lien.

Limitation on Sale and Leaseback Transactions

The Company will not, and will not permit any Restricted Subsidiary to, enter into any Sale and Leaseback Transaction; *provided* that the Company or any Restricted Subsidiary may enter into a Sale and Leaseback Transaction if:

- (a) the Company or any Restricted Subsidiary could have (1) Incurred Indebtedness in an amount equal to the Attributable Indebtedness relating to such Sale and Leaseback Transaction under the covenant described under the caption “– Limitation on Indebtedness” and (2) incurred a Lien to secure such Indebtedness pursuant to the covenant described under the caption “– Limitation on Liens,” in which case, the corresponding Indebtedness and Lien will be deemed incurred pursuant to those provisions;

- (b) the gross cash proceeds of that Sale and Leaseback Transaction are at least equal to the Fair Market Value of the property that is the subject of such Sale and Leaseback Transaction; and
- (c) the transfer of assets in that Sale and Leaseback Transaction is permitted by, and the Company applies to the extent required the proceeds of such transaction in compliance with, the covenant described under the caption “– Limitation on Asset Sales.”

Limitation on Asset Sales

The Company will not, and will not permit any Restricted Subsidiary to, consummate any Asset Sale, unless:

- (a) no Default shall have occurred and be continuing or would occur as a result of such Asset Sale;
- (b) the consideration received by the Company or such Restricted Subsidiary, as the case may be, is at least equal to the Fair Market Value of the assets sold or disposed of (determined on the date of the contractual agreement for the Asset Sale);
- (c) at least 75% of the consideration received consists of cash, Temporary Cash Investments or Replacement Assets; *provided* that in the case of an Asset Sale in which the Company or such Restricted Subsidiary receives Replacement Assets involving aggregate consideration in excess of US\$15.0 million (or the Dollar Equivalent thereof), the Company shall deliver to the Trustee an opinion as to the fairness to the Company or such Restricted Subsidiary of such Asset Sale from a financial point of view issued by an accounting, appraisal or investment banking firm of recognized international standing. For purposes of this provision, each of the following will be deemed to be cash:
 - (A) any liabilities, as shown on the Company’s most recent consolidated balance sheet, of the Company or any Restricted Subsidiary (other than contingent liabilities and liabilities that are by their terms subordinated to the Notes or any Subsidiary Guarantee) that are assumed by the transferee of any such assets pursuant to a customary assumption, assignment, novation or similar agreement that releases the Company or such Restricted Subsidiary from further liability; and
 - (B) any securities, notes or other obligations received by the Company or any Restricted Subsidiary from such transferee that are promptly, but in any event within 60 days of closing, converted by the Company or such Restricted Subsidiary into cash, to the extent of the cash received in that conversion.

Within 360 days after the receipt of any Net Cash Proceeds from an Asset Sale, the Company or any Restricted Subsidiary may apply such Net Cash Proceeds to:

- (1) permanently repay Senior Indebtedness of the Company or any Restricted Subsidiary or any Indebtedness of a Restricted Subsidiary that was secured by the assets that were the subject of such Asset Sale (and, if such Senior Indebtedness repaid is revolving credit Indebtedness, to correspondingly reduce commitments with respect thereto) in each case owing to a Person other than the Company or a Restricted Subsidiary; or
- (2) develop or acquire Replacement Assets; *provided* that this clause (2) shall be satisfied if the Company or Restricted Subsidiary (i) enters into a definitive agreement committing to invest the relevant amount in Replacement Assets within 360 days of the receipt of such Net Cash Proceeds and (ii) actually invests such amount in Replacement Assets within 270 days after the 360 day period.

Any Net Cash Proceeds from Asset Sales that are not applied or invested as provided in clauses (1) and (2) in the immediately preceding paragraph will constitute “Excess Proceeds.” Pending the final application of any such Net Cash Proceeds, the Company may temporarily reduce revolving credit borrowings or otherwise invest such Net Cash Proceeds in any manner that is not prohibited by the terms of the Indenture.

Excess proceeds of less than US\$15.0 million (or the Dollar Equivalent thereof) will be carried forward and accumulated. When accumulated Excess Proceeds equals to or exceeds US\$15.0 million (or the Dollar Equivalent thereof), within 10 days thereof, the Issuers shall make an Offer to Purchase Notes having a principal amount equal to:

- (i) accumulated Excess Proceeds, multiplied by
- (ii) a fraction (x) the numerator of which is equal to the outstanding principal amount of the Notes and (y) the denominator of which is equal to the outstanding principal amount of the Notes and all *pari passu* Indebtedness similarly required to be repaid, redeemed or tendered for in connection with the Asset Sale, rounded down to the nearest US\$1,000. The offer price in any Offer to Purchase will be equal to 100% of the principal amount plus accrued and unpaid interest to the date of purchase, and will be payable in cash.

If any Excess Proceeds remain after the consummation of an Offer to Purchase, the Company or any Restricted Subsidiary may use such Excess Proceeds for any purpose not otherwise prohibited by the Indenture. If the aggregate principal amount of Notes and any other *pari passu* Indebtedness tendered into (or required to be prepaid or redeemed in connection with) such Offer to Purchase exceeds the amount of Excess Proceeds, the Notes and such other *pari passu* Indebtedness will be purchased on a *pro rata* basis based on the principal amount of Notes and such *pari passu* Indebtedness tendered (or required to be prepaid or redeemed) (with such adjustments as may be deemed appropriate by the Issuers so that only Notes in denominations of \$200,000, or an integral multiple of \$1,000 in excess thereof, will be purchased). Upon completion of any each Offer to Purchase, the amount of Excess Proceeds will be reset at zero.

Limitation on the Company's Business Activities

The Company will not, and will not permit any Restricted Subsidiary to, directly or indirectly, engage in any business other than a Permitted Business; *provided, however*, that the Company or any Restricted Subsidiary may own Capital Stock of an Unrestricted Subsidiary or joint venture or other entity that is engaged in a business other than a Permitted Business as long as any Investment therein was not prohibited when made by the covenant under the caption “– Limitation on Restricted Payments.”

Maintenance of Insurance

The Company will, and will cause each Restricted Subsidiary, to maintain insurance with reputable and financially sound carriers against such risks and in such amounts as is customarily carried by similar companies engaged in similar business to the Permitted Business in the jurisdictions in which the Company or such Restricted Subsidiary conducts its businesses, including, without limitation, property and casualty insurance.

Use of Proceeds

The Company will not, and will not permit any Restricted Subsidiary to, use the net proceeds from the sale of the Notes on the Original Issue Date, in any amount, for any purpose other than (a) in the approximate amounts and for the purposes specified under the caption “Use of Proceeds” in this offering memorandum (it being understood that the use of proceeds may be reallocated as specified in “Use of Proceeds”) and (b) pending the application of all of such net proceeds in such manner, to invest the portion of such net proceeds not yet so applied in cash or Temporary Cash Investments.

Designation of Restricted and Unrestricted Subsidiaries

The Board of Directors may designate any Restricted Subsidiary (other than the Co-Issuer) to be an Unrestricted Subsidiary; *provided* that (a) no Default shall have occurred and be continuing at the time of or after giving effect to such designation; (b) neither the Company nor any Restricted Subsidiary guarantees or provides credit support for the Indebtedness of such Restricted Subsidiary; (c) such Restricted Subsidiary has no outstanding Indebtedness that could trigger a cross-default to the Indebtedness of the Company or any other Restricted Subsidiary; (d) such Restricted Subsidiary does not own any Disqualified Stock of the Company or Disqualified or Preferred Stock of another Restricted Subsidiary or hold any Indebtedness, or any Lien on any property, of the Company or any Restricted Subsidiary, if such Disqualified or Preferred Stock or Indebtedness could not be Incurred under the covenant described under the caption “– Limitation on Indebtedness” or such Lien would violate the covenant described under the caption “– Limitation on Liens”; (e) such Restricted Subsidiary does not own any Voting Stock of another Restricted Subsidiary, and all of its Subsidiaries are Unrestricted Subsidiaries or are being concurrently designated as Unrestricted Subsidiaries in accordance with this paragraph; and (f) the Investment deemed to have been made thereby in such newly designated Unrestricted Subsidiary and each other newly designated Unrestricted Subsidiary being concurrently redesignated would be permitted to be made by the covenant described under the caption “Limitation on Restricted Payments.

The Board of Directors may designate any Unrestricted Subsidiary to be a Restricted Subsidiary; *provided* that (a) no Default shall have occurred and be continuing at the time of or after giving effect to such designation; (b) any Indebtedness of such Unrestricted Subsidiary outstanding at the time of such designation which will be deemed to have been Incurred by such newly designated Restricted Subsidiary as a result of such designation would be permitted to be Incurred by the covenant described under the caption “– Limitation on Indebtedness”; (c) any Lien on the property of such Unrestricted Subsidiary at the time of such designation which will be deemed to have been Incurred by such newly designated Restricted Subsidiary as a result of such designation would be permitted to be Incurred by the covenant described under the caption “– Limitation on Liens”; (d) such Unrestricted Subsidiary is not a Subsidiary of another Unrestricted Subsidiary (that is not concurrently being designated as a Restricted Subsidiary); and (e) if such Restricted Subsidiary is a Wholly Owned Subsidiary which, directly or indirectly, own any mining deposits or reserves or any mining license, such Restricted Subsidiary shall upon such designation execute and deliver to the Trustee a supplemental indenture to the Indenture by which such Restricted Subsidiary shall become a Subsidiary Guarantor. Notwithstanding the foregoing, the Company will not be obligated to cause any Restricted Subsidiary to guarantee the Notes to the extent such guarantee could reasonably be expected to give rise to or result in any conflict with or violation of applicable law (or risk of personal or criminal liability for the officers, directors, managers or shareholders of such Restricted Subsidiary).

Notwithstanding the provisions of this covenant “Designation of Restricted and Unrestricted Subsidiaries,” in no event shall the Co-Issuer be designated as an Unrestricted Subsidiary so long as the Notes are outstanding.

All designations must be evidenced by a Board Resolution and an Officers’ Certificate delivered to the Trustee certifying compliance with the provisions set forth above, as applicable.

Government Approvals and Licenses; Compliance with Law

The Company will, and will cause each Restricted Subsidiary to, (a) obtain and maintain in full force and effect all governmental approvals, authorizations, consents, permits, concessions and licenses as are necessary to engage in the Permitted Business, (b) preserve and maintain good and valid title to its properties and assets (including mining and land-use rights) free and clear of any Liens other than Permitted Liens and (c) comply with all laws, regulations, orders, judgments and decrees of any governmental body, except to the extent that failure so to obtain, maintain, preserve and comply would not reasonably be expected to have a material adverse effect on (1) the business, results of operations or prospects of the Company and its Restricted Subsidiaries, taken as a whole, or (2) the ability of any Issuer or any Subsidiary Guarantor to perform its obligations under the Notes, the relevant Subsidiary Guarantee or the Indenture.

Anti-Layering

The Issuers will not, and will not permit any Subsidiary Guarantor to, Incur any Indebtedness if such Indebtedness is contractually subordinated in right of payment to any other Indebtedness of either Issuer or such Subsidiary Guarantor, as the case may be, unless such Indebtedness is also contractually subordinated in right of payment to the Notes or the applicable Subsidiary Guarantee, on substantially identical terms. This covenant does not apply to distinctions between categories of Indebtedness that exist by reason of any Liens or guarantees securing or in favor of some but not all of such Indebtedness or securing on a junior priority basis.

Suspension of Certain Covenants

If, on any date following the date of the Indenture, the Notes have an Investment Grade Rating from both of the Rating Agencies and no Default or Event of Default has occurred and is continuing (a "Suspension Event"), then, beginning on that day and continuing until such time, if any, at which the Notes cease to have an Investment Grade Rating from either of the Rating Agencies, the provisions of the Indenture summarized under the following captions will be suspended:

- (1) "– Certain Covenants – Limitation on Indebtedness";
- (2) "– Certain Covenants – Limitation on Restricted Payments";
- (3) "– Certain Covenants – Limitation on Dividend and Other Payment Restrictions Affecting Restricted Subsidiaries";
- (4) "– Certain Covenants – Limitation on Sales and Issuances of Capital Stock in Restricted Subsidiaries";
- (5) "– Certain Covenants – Limitation on Issuances of Guarantees by Restricted Subsidiaries";
- (6) "– Certain Covenants – Limitation on Sale and Leaseback Transactions";
- (7) "– Certain Covenants – Limitation on Asset Sales"; and
- (8) "– Certain Covenants – Limitation on the Company's Business Activities."

During any period that the foregoing covenants have been suspended, the Board of Directors may not designate any Restricted Subsidiary as an Unrestricted Subsidiary pursuant to the covenant described under the caption "– Certain Covenants – Designation of Restricted and Unrestricted Subsidiaries" or the definition of "Unrestricted Subsidiary."

Such covenants will be reinstituted and apply according to their terms as of and from the first day on which a Suspension Event ceases to be in effect. Such covenants will not, however, be of any effect with regard to actions of the Company or any Restricted Subsidiary properly taken in compliance with the provisions of the Indenture during the continuance of the Suspension Event and, following reinstatement, (1) the calculations under the covenant described under the caption "– Certain Covenants – Limitation on Restricted Payments" will be made as if such covenant had been in effect since the date of the Indenture except that no Default will be deemed to have occurred solely by reason of a Restricted Payment made while that covenant was suspended and (2) all Indebtedness incurred during the Suspension Period will be classified to have been incurred or issued pursuant to clause (b)(2) of the covenant described under the caption "– Certain Covenants – Limitation on Indebtedness." Upon the occurrence of a Suspension Period, the amount of Excess Proceeds shall be reset at zero. There can be no assurance that the Notes will ever achieve an Investment Grade Rating or that, if achieved, any such rating will be maintained.

Provision of Financial Statements and Reports

- (a) So long as any of the Notes remain outstanding, the Company will furnish to the Trustee and furnish to the Holders upon request, as soon as they are available but in any event not more than 10 calendar days after they are filed with The Stock Exchange of Hong Kong Limited or any other securities exchange on which the Company's ordinary shares are at any time listed for trading, true and correct copies of any financial or other report in the English language filed with such exchange; *provided* that, if at any time the ordinary shares of the Company cease to be listed for trading on a recognized securities exchange, the Company will file with the Trustee and furnish to the Holders:
- (1) as soon as they are available, but in any event within 90 calendar days after the end of each fiscal year of the Company, annual reports containing, and in a level of detail that is comparable in all material respects to that included in this offering memorandum, the following information: (i) audited consolidated balance sheets of the Company of the end of the two most recent fiscal years and audited consolidated income statements and statements of cash flow of the Company for the two most recent fiscal years, including complete footnotes to such financial statements and the audit report of a member firm of an internationally recognized firm of independent accountants on the financial statements; (ii) an operating and financial review of the audited financial statements, including a discussion of the results of operations, financial condition, Consolidated Adjusted EBITDA (as presented in this offering memorandum) and liquidity and capital resources of the Company, and a discussion of material recent developments and material commitments and contingencies and critical accounting policies; and (iii) description of the business, management and shareholders of the Company (on a consolidated basis);
 - (2) as soon as they are available, but in any event within 60 calendar days after the end of the first semi-annual fiscal period of the Company, semi-annual reports of the Company containing the following information: (i) an unaudited condensed consolidated balance sheet as of the end of such semi-annual period and unaudited condensed consolidated statements of income and statements of cash flow of the Company for the most recent semi-annual fiscal period ending on the unaudited condensed consolidated balance sheet date, and the comparable prior year period, together with condensed footnote disclosure, reviewed by a member firm of an internationally recognized firm of independent accountants together with the review report thereon; and (ii) an operating and financial review of the unaudited financial statements, including a discussion of the results of operations, financial condition, Consolidated Adjusted EBITDA (as presented in this offering memorandum) and liquidity and capital resources of the Company, and a discussion of material recent developments and material changes in commitments and contingencies and critical accounting policies since the most recent annual report; and
 - (3) promptly after the occurrence of (i) any Material Acquisition or Disposition or restructuring, (ii) any senior executive officer changes at the Company or change in auditors of the Company or (iii) any other material event not in the ordinary course of business, solely with respect to this sub-clause (iii), that the Company announces publicly, a report containing a description of such event.
- (b) In addition, so long as any of the Notes remain outstanding, the Company will provide to the Trustee (1) within 120 days after the close of each fiscal year, an Officers' Certificate stating the Leverage Ratio with respect to the two most recent semi-annual fiscal periods and showing in reasonable detail the calculation of the Leverage Ratio, including the arithmetic computations of each component of the Leverage Ratio, together with a certificate from the Company's external auditors verifying the accuracy and arithmetic computation; and (2) as soon as possible and in any event within 10 days after the Company and/or the Co-Issuer becomes aware or should reasonably become aware of the occurrence of a Default, an Officers' Certificate setting forth the details of such Default or default, and the action which the Issuers propose to take with respect thereto.

- (c) Further, each of the Issuers and each Subsidiary Guarantor have agreed that, for as long as any Notes are “restricted securities” within the meaning of Rule 144(a)(3) under the Securities Act, during any period in which such Issuer or such Subsidiary Guarantor is neither subject to Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), nor exempt from reporting pursuant to Rule 12g3-2(b) thereunder, the Issuers or such Subsidiary Guarantor, as the case may be, will supply to (i) any Holder or beneficial owner of a Note or (ii) a prospective purchaser of a Note or a beneficial interest therein designated by such Holder or beneficial owner, the information specified in, and meeting the requirements of Rule 144A(d)(4) under the Securities Act upon the request of any Holder or beneficial owner of a Note.

Events of Default

The following events will be defined as “Events of Default” in the Indenture:

- (a) default in the payment of principal of (or premium, if any, on) the Notes when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise;
- (b) default in the payment of interest on any Note when the same becomes due and payable, and such default continues for a period of 30 consecutive days;
- (c) (x) default in the performance or breach of the provisions of the covenants described under the caption “– Consolidation, Merger and Sale of Assets,” or (y) the failure by the Issuers to make or consummate an Offer to Purchase in the manner described under the captions “– Repurchase of Notes upon a Change of Control Triggering Event” or “– Certain Covenants – Limitation on Asset Sales”;
- (d) the Company, the Co-Issuer or any other Restricted Subsidiary defaults in the performance of or breaches any other covenant or agreement in the Indenture or under the Notes (other than a default specified in clause (a), (b) or (c) above) and such default or breach continues for a period of 30 consecutive days after written notice of such default or breach to either Issuer by the Trustee or the Holders of 25% or more in aggregate principal amount of the Notes;
- (e) there occurs with respect to any Indebtedness of the Company or any Restricted Subsidiary having an outstanding principal amount of US\$15.0 million (or the Dollar Equivalent thereof) or more in the aggregate for all such Indebtedness of all such Persons, whether such Indebtedness now exists or shall hereafter be created, (1) an event of default that has caused the holder thereof to declare such Indebtedness to be due and payable prior to its Stated Maturity and/or (2) a failure to pay principal of, or interest or premium on, such Indebtedness when the same becomes due (subject to the applicable grace period in the relevant documents);
- (f) one or more final judgments or orders for the payment of money are rendered against the Company or any Restricted Subsidiary and are not paid or discharged, and there is a period of 60 consecutive days following entry of the final judgment or order that causes the aggregate amount for all such final judgments or orders outstanding and not paid or discharged against all such Persons to exceed US\$15.0 million (or the Dollar Equivalent thereof) (in excess of amounts which the Company’s insurance carriers have agreed to pay under applicable policies) during which a stay of enforcement, by reason of a pending appeal or otherwise, is not in effect;
- (g) an involuntary case or other proceeding is commenced against any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary) with respect to it or its debts under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect seeking the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary) or for any substantial part of the property and assets of any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary) and such involuntary case or other proceeding remains undismissed and unstayed for a period of 60

consecutive days; or an order for relief is entered against any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary) under any applicable bankruptcy, insolvency or other similar law as now or hereafter in effect;

- (h) any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary) (1) commences a voluntary case under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect, or consents to the entry of an order for relief in an involuntary case under any such law, (2) other than in connection with a solvent liquidation or reorganization of any Significant Subsidiary in the ordinary course of business that shall result in the net assets of such Significant Subsidiary being transferred to or otherwise vested in the Company, the Co-Issuer or any other Restricted Subsidiary on a pro rata basis or on a basis more favorable to the Company or the Co-Issuer, consents to the appointment of or taking possession by a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary), or for all or substantially all of the property and assets of any Issuer or any Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary), or (3) effects any general assignment for the benefit of creditors;
- (i) (a) the entity holding the mining license in relation to the Ukhaa Khudag mine ceases to be, directly or indirectly a Wholly Owned Restricted Subsidiary, the Co-Issuer or a Subsidiary Guarantor or (b) the mining license for the Ukhaa Khudag mine ceases to be valid and effective or wholly owned by the Company, the Co-Issuer or a Subsidiary Guarantor; or
- (j) any Subsidiary Guarantor denies or disaffirms its obligations under its Subsidiary Guarantee or, except as permitted by the Indenture, any Subsidiary Guarantee is determined to be unenforceable or invalid or shall for any reason cease to be in full force and effect.

If an Event of Default (other than an Event of Default specified in clause (g) or (h) above) occurs and is continuing under the Indenture, the Trustee in its sole discretion or the Holders of at least 25% in aggregate principal amount of the Notes, then outstanding, by written notice to the Issuers (and to the Trustee if such notice is given by the Holders), may, and the Trustee at the request of such Holders (subject to being indemnified and/or secured and/or pre-funded to its satisfaction) shall, declare the principal of, premium, if any, and accrued and unpaid interest on the Notes to be immediately due and payable. Upon a declaration of acceleration, such principal of, premium, if any, and accrued and unpaid interest shall be immediately due and payable. If an Event of Default specified in clause (g) or (h) above occurs with respect to any Issuer or any Significant Subsidiary (or any group of Restricted Subsidiaries that together would constitute a Significant Subsidiary), the principal of, premium, if any, and accrued and unpaid interest on the Notes then outstanding shall automatically become and be immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

The Holders of at least a majority in principal amount of the outstanding Notes by written notice to the Issuers and to the Trustee may on behalf of all Holders waive all past defaults and rescind and annul a declaration of acceleration and its consequences if:

- (x) all existing Events of Default, other than the non-payment of the principal of, premium, if any, and interest on the Notes that have become due solely by such declaration of acceleration, have been cured or waived; and
- (y) the rescission would not conflict with any judgment or decree of a court of competent jurisdiction.

Upon such waiver, the Default will cease to exist, and any Event of Default arising therefrom will be deemed to have been cured, but no such waiver will extend to any subsequent or other Default or impair any right consequent thereon.

If an Event of Default occurs and is continuing, the Trustee may (but shall not be obligated to) pursue, in its own name or as trustee of an express trust, any available remedy by proceeding at law or in equity to collect the payment of principal of and interest on the Notes or to enforce the performance of any provision of the Notes or the Indenture. The Trustee may maintain a proceeding even if it does not possess any of the Notes or does not produce any of them in the proceeding.

The Holders of at least a majority in aggregate principal amount of the outstanding Notes may direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee. However, the Trustee may refuse to follow any direction that is unclear, conflicting or equivocal, conflicts with law or the Indenture that may involve the Trustee in personal liability, or that the Trustee determines in good faith may be unduly prejudicial to the rights of Holders not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from Holders. In addition, the Trustee will not be required to expend its own funds in following each direction if it does not believe that reimbursement or satisfactory indemnification and/or security and/or pre-funding is assured to it.

A Holder may not institute any proceeding, judicial or otherwise, with respect to the Indenture or the Notes, or for the appointment of a receiver or trustee, or for any other remedy under the Indenture or the Notes unless:

- (1) the Holder has previously given the Trustee written notice of a continuing Event of Default;
- (2) the Holders of at least 25% in aggregate principal amount of outstanding Notes make a written request to the Trustee to pursue the remedy;
- (3) such Holder or Holders provide the Trustee indemnity and/or security and/or pre-funding satisfactory to the Trustee against any costs, liability or expense to be incurred in compliance with such request;
- (4) the Trustee does not comply with the request within 60 days after receipt of the request and the indemnity and/or security and/or pre-funding; and
- (5) during such 60-day period, the Holders of a majority in aggregate principal amount of the outstanding Notes do not give the Trustee a direction that is inconsistent with the request.

However, such limitations do not apply to the right of any Holder to receive payment of the principal of, premium, if any, or interest, and any Additional Amounts, if any, on, such Note or to bring suit for the enforcement of any such payment, on or after the due date expressed in the Notes, which right shall not be impaired or affected without the consent of the Holder.

Two Officers of the Company must certify to the Trustee in writing, on or before a date not more than 120 days after the end of each fiscal year, that a review has been conducted of the activities of the Company and its Restricted Subsidiaries and the Company's and its Restricted Subsidiaries' performance under the Indenture and the Notes and that the Company and its Restricted Subsidiaries have fulfilled all obligations thereunder, or, if there has been a default in the fulfillment of any such obligation, specifying each such default and the nature and status thereof. The Issuers will also be obligated to notify the Trustee in writing of any default or defaults in the performance of any covenants or agreements under the Indenture. See "– Provision of Financial Statements and Reports."

Neither the Trustee nor any Agent is obligated to do anything to ascertain whether any Event of Default or Default has occurred or is continuing and will not be responsible to the Holders or any other person for any loss arising from any failure by it to do so, and each of the Trustee and the Agents may assume that no such event has occurred and that the Issuers and the Subsidiary Guarantors are performing all of their obligations under the Indenture and the Notes unless the Trustee or the Agent, as the case may be, has received written notice of the occurrence of such event or facts establishing that a Default or an Event of Default has occurred or that the Issuers or the Subsidiary Guarantors are not performing all of their obligations under the Indenture and/or the Notes. The Trustee is entitled to rely on any Opinion of Counsel or Officers' Certificate regarding whether an Event of Default has occurred.

Consolidation, Merger and Sale of Assets

Neither the Company nor the Co-Issuer will consolidate with, merge with or into another Person, permit any Person to merge with or into it, or sell, convey, transfer, lease or otherwise dispose of all or substantially all of its and its Restricted Subsidiaries' properties and assets (computed on a consolidated basis) to another Person (as an entirety or substantially an entirety in one transaction or a series of related transactions), unless:

- (a) either the Company or the Co-Issuer (as applicable) shall be the continuing Person, or the Person (if other than it) formed by such consolidation or merger, or with or into which the Company or the Co-Issuer (as applicable) consolidated or merged, or that acquired or leased such property and assets (the "Surviving Person") shall be (x) a corporation organized and validly existing under the laws of the Cayman Islands, the British Virgin Islands, Luxembourg, Mongolia or Hong Kong or any jurisdiction thereof and (y) shall expressly assume, by a supplemental indenture to the Indenture, executed and delivered to the Trustee, all the obligations of the Company or the Co-Issuer (as applicable) under the Indenture and the Notes, including the obligation to pay Additional Amounts with respect to any jurisdiction in which it is organized or resident for tax purposes, or from or through which payment is made, and the Indenture and the Notes shall remain in full force and effect;
- (b) immediately after giving effect to such transaction, no Default shall have occurred and be continuing;
- (c) immediately after giving effect to such transaction on a pro forma basis, the Company or the Surviving Person, as the case may be, could Incur at least US\$1.00 of Indebtedness under the proviso in the first sentence of clause (a) of the covenant described under the caption "– Certain Covenants – Limitation on Indebtedness";
- (d) the Company or the Co-Issuer (as applicable) delivers to the Trustee (1) an Officers' Certificate (attaching the arithmetic computations to demonstrate compliance with clause (c)) and (2) an Opinion of Counsel, in each case stating that such consolidation, merger or transfer and such supplemental indenture complies with this provision and that all conditions precedent provided for in the Indenture relating to such transaction have been complied with;
- (e) each Subsidiary Guarantor, unless such Subsidiary Guarantor is the Person with which the Company or the Co-Issuer has entered into a transaction described under this covenant, shall execute and deliver a supplemental indenture to the Indenture confirming that its Subsidiary Guarantee shall apply to the obligations of the Company, the Co-Issuer or the Surviving Person in accordance with the Notes and the Indenture; and
- (f) no Rating Decline shall have occurred.

No Subsidiary Guarantor will consolidate with or merge with or into another Person, permit any Person to merge with or into it, or sell, convey, transfer, lease or otherwise dispose of all or substantially all of its and its Restricted Subsidiaries' properties and assets (computed on a consolidated basis) (as an entirety or substantially an entirety in one transaction or a series of related transactions) to another Person (other than the Company, the Co-Issuer or another Subsidiary Guarantor), unless:

- (A) such Subsidiary Guarantor shall be the continuing Person, or the Person (if other than it) formed by such consolidation or merger or that acquired or leased such property and assets shall be the Company, the Co-Issuer or another Subsidiary Guarantor or shall become a Subsidiary Guarantor concurrently with the transaction;
- (B) immediately after giving effect to such transaction, no Default shall have occurred and be continuing;
- (C) immediately after giving effect to such transaction on a pro forma basis, the Company could Incur at least US\$1.00 of Indebtedness under the proviso in the first sentence of clause (a) of the covenant described under the caption "– Certain Covenants – Limitation on Indebtedness";

(D) the Company delivers to the Trustee (1) an Officers' Certificate (attaching the arithmetic computations to demonstrate compliance with clause (C)) and (2) an Opinion of Counsel, in each case stating that such consolidation, merger or transfer and the relevant supplemental indenture complies with this provision and that all conditions precedent provided for in the Indenture relating to such transaction have been complied with; and

(E) no Rating Decline shall have occurred;

provided that this paragraph shall not apply to (1) any sale or other disposition that complies with the "Limitation on Asset Sales" covenant or any Subsidiary Guarantor whose Subsidiary Guarantee is unconditionally released in accordance with the provisions described under "The Subsidiary Guarantees – Release of Subsidiary Guarantees" and (2) a consolidation or merger of any Subsidiary Guarantor with and into the Company, the Co-Issuer or any other Subsidiary Guarantor, so long as the Company, the Co-Issuer or such Subsidiary Guarantor survives such consolidation or merger.

Nothing in the Indenture will prevent any Restricted Subsidiary that is not a Subsidiary Guarantor from consolidating with, merging into or transferring all or substantially all of its properties and assets to the Company, the Co-Issuer, a Subsidiary Guarantor or any other Restricted Subsidiary. The Company or the Co-Issuer (as applicable) may consolidate or otherwise combine with or merge into an Affiliate incorporated or organized for the purpose of changing the legal domicile of the Company or the Co-Issuer, reincorporating the Company or the Co-Issuer in another jurisdiction in compliance with clause (a)(x) of the first paragraph under this "– Consolidation, Merger and Sale of Assets" covenant or changing the legal form of the Company or the Co-Issuer.

Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve "all or substantially all" of the property or assets of a Person.

The foregoing provisions would not necessarily afford Holders protection in the event of highly leveraged or other transactions involving the Company, the Co-Issuer or the Subsidiary Guarantors that may adversely affect Holders.

No Payments for Consents

The Issuers will not, and shall not permit any of their Subsidiaries to, directly or indirectly, pay or cause to be paid any consideration, whether by way of interest, fee or otherwise, to any Holder for or as an inducement to any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes unless such consideration is offered to be paid and is paid to all Holders that consent, waive or agree to amend such term or provision within the time period set forth in the solicitation documents relating to such consent, waiver or amendment.

Notwithstanding the foregoing, in any offer or payment of consideration for, or as an inducement to, any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes in connection with an exchange offer, the Issuers and any Restricted Subsidiary may exclude any Holder or beneficial owner of the Notes, or offer and pay different consideration to any Holder or beneficial owner of the Notes for, in each case to the extent that such Holder or beneficial owner of the Notes is in any jurisdiction where (A)(i) the solicitation of such consent, waiver or amendment in the manner deemed appropriate by the Issuers, (ii) the payment of the consideration therefor or (iii) the conduct or completion of a related offer to purchase or exchange the Notes for cash or other securities in the manner deemed appropriate by the Issuers, in each case would be prohibited or would require the Issuers or any of their Subsidiaries to (a) file a registration statement, prospectus or similar document, or subject any of the Issuers or any of their Subsidiaries to ongoing periodic reporting or similar requirements under any securities laws (including, but not limited to, the United States federal securities laws and the laws of the European Union or its member states), or conduct a bondholder identification exercise to establish the availability of an exemption from registration under Rule 802 under the United States Securities Act of 1933, as amended, or to offer to the United States of America, in each case which the Issuers in their sole discretion determine would be burdensome, (b) qualify as a foreign corporation or other entity or as a dealer in securities in such

jurisdiction if it is not otherwise required to so qualify, (c) generally consent to service of process in any such jurisdiction or (d) subject any of the Issuers or any of their Subsidiaries to taxation in any such jurisdiction if it is not otherwise so subject; or (B) such solicitation would otherwise not be permitted under applicable law in such jurisdiction.

Defeasance

Defeasance and Discharge

The Indenture will provide that the Issuers will be deemed to have paid and will be discharged from any and all obligations in respect of the Notes on the 183rd day after the deposit referred to below, and the provisions of the Indenture will no longer be in effect with respect to the Notes (except for, among other matters, certain obligations to register the transfer or exchange of the Notes, to replace stolen, lost or mutilated Notes, to maintain paying agencies and to hold monies for payment in trust) if, among other things:

- (a) the Issuers have (1) deposited with the Trustee (or another entity designated by the Trustee for such purpose), in trust, money and/or U.S. Government Obligations or any combination thereof that through the payment of interest and principal in respect thereof in accordance with their terms will provide money in an amount sufficient to pay the principal of, premium, if any, and accrued interest on the Notes on the Stated Maturity of such payments in accordance with the terms of the Indenture and the Notes and (2) delivered to the Trustee an Opinion of Counsel or a certificate of an internationally recognized firm of independent auditors to the effect that the amount deposited by the Issuers is sufficient to provide payment for the principal of, premium, if any, and accrued interest on, the Notes on the Stated Maturity of such payment in accordance with the terms of the Indenture;
- (b) the Issuers have delivered to the Trustee (1) either (x) an Opinion of Counsel of recognized standing with respect to U.S. federal income tax laws which is based on a change in applicable U.S. federal income tax law occurring after the Original Issue Date to the effect that beneficial owners will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the Issuers' exercise of their option under this "Defeasance and Discharge" provision and will be subject to U.S. federal income tax on the same amounts and in the same manner and at the same times as would have been the case if such deposit, defeasance and discharge had not occurred or (y) a ruling directed to the Issuers or the Trustee received from the U.S. Internal Revenue Service to the same effect as the aforementioned Opinion of Counsel, and (2) an Opinion of Counsel of recognized international standing to the effect that the creation of the defeasance trust does not violate the U.S. Investment Company Act of 1940, as amended, and after the passage of 123 days following the deposit, the trust fund will not be subject to the effect of Section 547 of the United States Bankruptcy Code or Section 15 of the New York Debtor and Creditor Law; and
- (c) immediately after giving effect to such deposit on a pro forma basis, no Event of Default, or event that after the giving of notice or lapse of time or both would become an Event of Default, shall have occurred and be continuing on the date of such deposit or during the period ending on the 183rd day after the date of such deposit, and such defeasance shall not result in a breach or violation of or constitute a default under, any other agreement or instrument to which the Company or any Restricted Subsidiary is a party or by which the Company or any Restricted Subsidiary is bound.

In the case of either discharge or defeasance, each of the Subsidiary Guarantees will terminate.

Defeasance of Certain Covenants

The Indenture further will provide that the provisions of the Indenture will no longer be in effect with respect to clauses (c), (d)(1) and (f) under the first paragraph and clauses (C), (D)(1) and (E) under the second paragraph under "Consolidation, Merger and Sale of Assets" and all the covenants described herein under "– Certain Covenants," other than as described under "– Certain Covenants – Government Approvals

and Licenses; Compliance with Law” and “– Certain Covenants – Anti-Layering,” clause (c) under “Events of Default” with respect to such clauses (c), (d)(1) and (f) under the first paragraph and clauses (C), (D)(1) and (E) under the second paragraph under “Consolidation, Merger and Sale of Assets” and with respect to the other events set forth in such clause, clause (d) under “Events of Default” with respect to such other covenants and clauses (e) and (f) under “Events of Default” shall be deemed not to be Events of Default upon, among other things, the deposit with the Trustee (or another entity designated by the Trustee for such purpose), in trust, of money, U.S. Government Obligations or a combination thereof that through the payment of interest and principal in respect thereof in accordance with their terms will provide money in an amount sufficient to pay the principal of, premium, if any, and accrued interest on the Notes on the Stated Maturity of such payments in accordance with the terms of the Indenture and the Notes, the satisfaction of the provisions described in clause (b)(2) of the preceding paragraph and the delivery by the Issuers to the Trustee of an Opinion of Counsel of recognized standing with respect to U.S. federal income tax matters to the effect that beneficial owners will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such deposit and defeasance of certain covenants and Events of Default and will be subject to U.S. federal income tax on the same amounts and in the same manner and at the same times as would have been the case if such deposit and defeasance had not occurred.

Defeasance and Certain Other Events of Default

In the event the Issuers exercise their option to omit compliance with certain covenants and provisions of the Indenture as described in the immediately preceding paragraph and the Notes are declared due and payable because of the occurrence of an Event of Default that remains applicable, the amount of money and/or U.S. Government Obligations on deposit with the Trustee will be sufficient to pay amounts due on the Notes at the time of their Stated Maturity but may not be sufficient to pay amounts due on the Notes at the time of the acceleration resulting from such Event of Default. However, the Issuers and the Subsidiary Guarantors will remain liable for such payments.

Amendments and Waiver

Amendments Without Consent of Holders

The Indenture, the Notes or the Subsidiary Guarantees may be amended, without the consent of any Holder, to:

- (a) cure any ambiguity, defect, omission or inconsistency in the Indenture, the Notes or any Subsidiary Guarantee;
- (b) comply with the provisions described under “Consolidation, Merger and Sale of Assets”;
- (c) evidence and provide for the acceptance of appointment by a successor Trustee;
- (d) add any Subsidiary Guarantor or any Subsidiary Guarantee or release any Subsidiary Guarantor from any Subsidiary Guarantee as provided or permitted by the terms of the Indenture;
- (e) provide for the issuance of Additional Notes in accordance with the limitations set forth in the Indenture;
- (f) add collateral to secure the Notes or any Subsidiary Guarantee and create or register Liens on such collateral;
- (g) in any other case where a supplemental indenture to the Indenture is required or permitted to be entered into pursuant to the provisions of the Indenture without the consent of any Holder;
- (h) effect any changes to the Indenture in a manner necessary to comply with the procedures of DTC or any other applicable securities depositary or clearing system;
- (i) make any other change that, in the good faith opinion of the Board of Directors, does not materially and adversely affect the rights of any Holder;

- (j) conform the text of the Indenture, the Notes or the Subsidiary Guarantees to any provision of this “Description of the Notes” to the extent that such provision in this “Description of the Notes” was intended to be a verbatim recitation of a provision in the Indenture, the Notes or the Subsidiary Guarantees; or
- (k) to make any other change that would provide any additional rights or benefits to the Holders.

Amendments With Consent of Holders

Amendments of the Indenture, the Notes or the Subsidiary Guarantees may be made by the Issuers, the Subsidiary Guarantors and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes, and the holders of a majority in principal amount of the outstanding Notes may waive future compliance by the Issuers with any provision of the Indenture, the Notes or the Subsidiary Guarantees; *provided, however*, that no such modification, amendment or waiver may, without the consent of each Holder affected thereby:

- (a) change the Stated Maturity of the principal of, or any installment of interest on, any Note;
- (b) reduce the principal amount of, or premium, if any, or interest on, any Note;
- (c) change the currency, time or place of payment of principal of, or premium, if any, or interest on, any Note;
- (d) impair the right to institute suit for the enforcement of any payment on or after the Stated Maturity (or, in the case of a redemption, on or after the redemption date) of any Note or any Subsidiary Guarantee;
- (e) reduce the above stated percentage of outstanding Notes the consent of whose Holders is necessary to modify or amend the Indenture;
- (f) waive a default in the payment of principal of, premium, if any, or interest on the Notes;
- (g) release any Subsidiary Guarantor from its Subsidiary Guarantee, except as provided in the Indenture;
- (h) reduce the percentage or aggregate principal amount of outstanding Notes the consent of whose Holders is necessary for waiver of compliance with certain provisions of the Indenture or for waiver of certain defaults;
- (i) amend, change or modify any Subsidiary Guarantee in a manner that adversely affects the Holders, except as permitted by the Indenture;
- (j) reduce the amount payable upon a Change of Control Offer or an Offer to Purchase with the Excess Proceeds from any Asset Sale or change the time or manner by which a Change of Control Offer or an Offer to Purchase with the Excess Proceeds from any Asset Sale may be made or by which the Notes must be repurchased pursuant to a Change of Control Offer or an Offer to Purchase with the Excess Proceeds from any Asset Sale, unless such amendment, waiver or modification shall be in effect prior to the occurrence of a Change of Control or the event giving rise to the repurchase of the Notes under “– Limitation on Asset Sales”;
- (k) change the redemption date or the redemption price of the Notes from that stated under “– Optional Redemption” or “– Redemption for Tax Reasons”;
- (l) amend, change or modify the obligation of the Issuers or any Subsidiary Guarantor to pay Additional Amounts; or
- (m) amend, change or modify any provision of the Indenture or the related definitions to contractually subordinate in right of payment the Notes or any Subsidiary Guarantee to any other

Indebtedness of any Issuer or any Subsidiary Guarantor (for the avoidance of doubt, the Notes and the Subsidiary Guarantees will not be contractually subordinated in right of payment to any other Indebtedness of any Issuer or any Subsidiary Guarantor solely by virtue of being unsecured or by virtue of being secured on a junior priority basis).

Satisfaction and Discharge

The Indenture will be discharged and will cease to be of further effect as to the Notes issued thereunder, when either:

- (a) all Notes theretofore authenticated and delivered, except lost, stolen or destroyed Notes which have been replaced or paid and Notes for whose payment money has theretofore been deposited in trust, have been delivered to the Trustee for cancellation; or
- (b) (1) all Notes not theretofore delivered to such Trustee for cancellation have become due and payable by reason of the making of a notice of redemption or otherwise, will become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption by the Trustee in the name, and at the expense, of the Issuers and the Issuers have or any Subsidiary Guarantor has irrevocably deposited or caused to be deposited with such Trustee as trust funds in trust solely for the benefit of the Holders, cash in U.S. dollars, U.S. Government Obligations, or a combination thereof, in such amounts as will be sufficient without consideration of any reinvestment of interest to pay and discharge the entire indebtedness on Notes not theretofore delivered to the Trustee for cancellation for principal, premium, if any, and accrued interest to the date of maturity or redemption;
- (2) no Default or Event of Default (other than that resulting from borrowing funds to be applied to make such deposit and any similar and simultaneous deposit relating to other Indebtedness and, in each case, the granting of Liens in connection therewith) with respect to the Indenture or the Notes issued thereunder shall have occurred and be continuing on the date of such deposit or shall occur as a result of such deposit and such deposit will not result in a breach or violation of, or constitute a default under the Credit Facilities or any other material agreement or instrument (other than the Indenture or the Notes) to which any Issuer or any Subsidiary Guarantor is a party or by which any Issuer or any Subsidiary Guarantor is bound (other than that resulting from borrowing funds to be applied to make such deposit and any similar and simultaneous deposit relating to other Indebtedness and, in each case, the granting of Liens in connection therewith);
- (3) the Issuers have paid or caused to be paid all sums payable by them under the Indenture; and
- (4) the Issuers have delivered irrevocable instructions to the Trustee under the Indenture to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be.

In addition, the Issuers must deliver an Officers' Certificate and an Opinion of Counsel to the Trustee stating that all conditions precedent to satisfaction and discharge have been satisfied.

Unclaimed Money

Claims against the Issuers or any Subsidiary Guarantor for the payment of principal of, premium, if any, or interest, on the Notes will become void unless presentation for payment is made as required in the Indenture within a period of six years.

No Personal Liability of Incorporators, Stockholders, Members, Officers, Directors or Employees

No recourse for the payment of the principal of, premium, if any, or interest on any of the Notes or for any claim based thereon or otherwise in respect thereof, and no recourse under or upon any obligation, covenant or agreement of any Issuer or any of the Subsidiary Guarantors in the Indenture, or in any of the Notes or the Subsidiary Guarantees or because of the creation of any Indebtedness represented thereby, shall be had against any incorporator, stockholder, member, officer, director, employee or controlling person of any Issuer or any of the Subsidiary Guarantors or of any successor Person thereof. Each Holder, by accepting the Notes, waives and releases all such liability. The waiver and release are part of the consideration for the issuance of the Notes and the Subsidiary Guarantees. Such waiver may not be effective to waive liabilities under any applicable law.

Concerning the Trustee and the Paying Agent

The Bank of New York Mellon is to be appointed as Trustee under the Indenture and The Bank of New York Mellon as registrar ("Registrar") and transfer agent ("Transfer Agent") and The Bank of New York Mellon is to be appointed as paying agent (the "Paying Agent") with regard to the Notes. Except during the continuance of a Default, the Trustee will not be liable, except for the performance of such duties as are specifically set forth in the Indenture and no implied covenant or obligation shall be read into the Indenture and the Notes against the Trustee. If an Event of Default has occurred and is continuing, the Trustee will use the same degree of care and skill in its exercise of the rights and powers vested in it under the Indenture as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The Trustee will be under no obligation to exercise any rights or powers conferred under the Indenture for the benefit of the Holders unless such Holders have offered to the Trustee indemnity and/or security and/or pre-funding satisfactory to the Trustee against any loss, liability or expense.

The Indenture contains limitations on the rights of the Trustee, should it become a creditor of any Issuer or any of the Subsidiary Guarantors, to obtain payment of claims in certain cases or to realize on certain property received by it in respect of any such claims, as security or otherwise.

Neither the Trustee nor the Paying Agent shall be responsible for the performance by any other person appointed by the Issuers in relation to the Notes and, unless notified in writing to the contrary, shall assume that the same are being duly performed. Neither the Trustee nor the Paying Agent shall be liable to any Holder or any other person for any action taken by the Holders, the Trustee or the Paying Agent or in accordance with the instructions of the Holders. Both the Trustee and the Paying Agent shall be entitled to rely on any written direction of the Holders which has been duly given by the Holders in accordance with the Indenture. Neither the Trustee nor the Paying Agent shall be deemed to have knowledge of any event unless it has been actually notified of such event or have actual knowledge thereof. The Trustee is entitled to rely on all instructions, notices, declarations, calculations and certifications received pursuant to the Indenture without investigating the accuracy, authenticity and validity of these instructions, notices, declarations, calculations and certifications. Pursuant to the terms of the Indenture or the Notes, the Issuers or the Subsidiary Guarantors will reimburse the Trustee for all properly incurred expenses.

The Trustee is permitted to engage in other transactions with the Issuers and its Affiliates and shall not be obligated to account for any profits therefrom and no Trustee and no director or officer of any corporation being a Trustee hereof shall by reason of the fiduciary position of such Trustee be in any way precluded from making any contracts or entering into any transactions in the ordinary course of business with the Issuers, or any person or body corporate directly or indirectly associated with the Issuers, or from accepting the trusteeship of any other debenture stock, debentures or securities of the Issuers or any person or body corporate directly or indirectly associated with the Issuers, and neither the Trustee nor any such director or officer shall be accountable to the Holders, the Issuers, or any person or body corporate directly or indirectly associated with the Issuers, for any profit, fees, commissions, interest, discounts or share of brokerage earned, arising or resulting from any such contracts or transactions and the Trustee and any such director or officer shall also be at liberty to retain the same for its or his own benefit.

Book-Entry; Delivery and Form

The certificates representing the Notes will be issued in fully registered form without interest coupons. Notes sold in offshore transactions in reliance on Regulation S under the Securities Act will initially be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each a “Regulation S Global Note”) and will be deposited with a custodian for, and registered in the name of a nominee of, DTC for the accounts of Euroclear and Clearstream.

Notes sold in reliance on Rule 144A will be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each a “Restricted Global Note”; and together with the Regulation S Global Notes, the “Global Notes”) and will be deposited with a custodian for, and registered in the name of a nominee of, DTC.

Each Global Note (and any Notes issued for exchange therefor) will be subject to certain restrictions on transfer set forth therein as described under “Transfer Restrictions.”

Ownership of beneficial interests in a Global Note will be limited to persons who have accounts with DTC (“participants”) or persons who hold interests through participants. Ownership of beneficial interests in a Global Note will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee (with respect to interests of participants) and the records of participants (with respect to interests of persons other than participants). Beneficial owners may hold their interests in a Global Note directly through DTC if they are participants in such system, or indirectly through organizations which are participants in such system.

Euroclear and Clearstream will hold interests in the Global Notes on behalf of their participants through DTC.

So long as DTC, or its nominee, is the registered owner or holder of a Global Note, DTC or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by such Global Note for all purposes under the Indenture and the Notes. No beneficial owner of an interest in a Global Note will be able to transfer that interest except in accordance with DTC’s applicable procedures, in addition to those provided for under the Indenture and, if applicable, those of Euroclear and Clearstream.

Payments of the principal of, and interest on, a Global Note will be made to DTC or its nominee, as the case may be, as the registered owner thereof. None of the Issuers, the Subsidiary Guarantors, the Trustee or the Paying Agent will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in a Global Note or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

The Issuers expect that DTC or its nominee, upon receipt of any payment of principal or interest in respect of a Global Note, will credit participants’ accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of such Global Note as shown on the records of DTC or its nominee.

The Issuers also expect that payments by participants to owners of beneficial interests in such Global Note held through such participants will be governed by standing instructions and customary practices, as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. Such payments will be the responsibility of such participants.

The Issuers expects that DTC will take any action permitted to be taken by a holder of Notes (including the presentation of Notes for exchange as described below) only at the direction of one or more participants to whose account the DTC interests in a Global Note is credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. However, if there is an Event of Default under the Notes, DTC will exchange the applicable Global Note for Notes in certificated form (“Certificated Notes”), which it will distribute to its participants and which may be legended as set forth under the heading “Transfer Restrictions.”

Although DTC, Euroclear and Clearstream are expected to follow the foregoing procedures in order to facilitate transfers of interests in a Global Note among participants of DTC, Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Issuers, the Subsidiary Guarantors, the Trustee or the Paying Agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective participants or indirect participants of their respective obligations under the rules and procedures governing their operations.

If DTC is at any time unwilling or unable to continue as a depository for the Global Notes and a successor depository is not appointed by the Company within 90 days, the Issuers will issue Certificated Notes in registered form, which may bear the legend referred to under “Transfer Restrictions,” in exchange for the Global Notes. Holders of an interest in a Global Note may receive Certificated Notes, which may bear the legend referred to under “Transfer Restrictions,” in accordance with the DTC’s rules and procedures in addition to those provided for under the Indenture.

The Clearing Systems

General

DTC, Euroclear and Clearstream have advised the Issuers as follows:

DTC. DTC is a limited-purpose trust company organized under the laws of the State of New York, a “banking organization” within the meaning of New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Exchange Act. DTC was created to hold securities of its participants and to facilitate the clearance and settlement of securities transactions among its participants in such securities through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of securities certificates. DTC’s participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations, some of whom own DTC, and may include the initial purchaser. Indirect access to the DTC system is also available to others that clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly (“indirect participants”). Transfers of ownership or other interests in Notes in DTC may be made only through DTC participants. In addition, beneficial owners of Notes in DTC will receive all distributions of principal of and interest on the Notes from the Trustee through such DTC participant.

Euroclear and Clearstream. Euroclear and Clearstream hold securities for participating organizations and facilitate the clearance and settlement of securities transactions between their respective participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide to their participants, among other things, services for safekeeping, administration, clearance and settlement of internationally-traded securities and securities lending and borrowing. Euroclear and Clearstream interface with domestic securities markets. Euroclear and Clearstream participants are financial institutions such as underwriters, securities brokers and dealers, banks, trust companies and certain other organizations. Indirect access to Euroclear or Clearstream is also available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Euroclear or Clearstream participant, either directly or indirectly.

Initial Settlement

Investors’ interests in Notes held in book-entry form by DTC will be represented through financial institutions acting on their behalf as direct and indirect participants in DTC. As a result, Euroclear and Clearstream will hold positions on behalf of their participants through DTC.

Investors electing to hold their Notes through DTC (other than through accounts at Euroclear or Clearstream) must follow the settlement practices applicable to United States corporate debt obligations. The securities custody accounts of investors will be credited with their holdings against payment in same day funds on the settlement date.

Investors electing to hold their Notes through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional Eurobonds in registered form. Notes will be credited to the securities custody accounts of Euroclear Holders and of Clearstream Holders on the Business Day following the settlement date against payment for value on the settlement date.

Secondary Market Trading

Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules. Secondary market trading between Clearstream participants and/or Euroclear participants will occur in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear and will be settled using the procedures applicable to conventional eurobonds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream participants or Euroclear participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. depository; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if a transaction meets its settlement requirements, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving Notes in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream participants and Euroclear participants may not deliver instructions directly to the U.S. depositories.

Because of time zone differences, credits of Notes received in Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the Business Day following the DTC settlement date. Such credits or any transactions in such Notes settled during such processing will be reported to the relevant Clearstream participants or Euroclear participants on such Business Day. Cash received in Clearstream or Euroclear as a result of sales of Notes by or through a Clearstream participant or a Euroclear participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the Business Day following settlement in DTC.

Notices

All notices or demands required or permitted by the terms of the Notes or the Indenture to be given to or by the Holders are required to be in writing and may be given or served by being sent by prepaid courier or by being deposited, first-class postage prepaid, in the United States mails (if intended for the Issuers or any Subsidiary Guarantor or the Trustee) addressed to the Issuers, such Subsidiary Guarantor or the Trustee, as the case may be, at the corporate trust office of the Trustee; and (if intended for any Holder) addressed to such Holder at such Holder's last address as it appears in the Note register.

Any such notice or demand will be deemed to have been sufficiently given or served when so sent or deposited and, if to the Holders, when delivered in accordance with the applicable rules and procedures of DTC. Any such notice shall be deemed to have been delivered on the day such notice is delivered to DTC or if by mail, when so sent or deposited.

Consent to Jurisdiction; Service of Process

Each of the Issuers and the Subsidiary Guarantors will irrevocably (i) submit to the non-exclusive jurisdiction of any U.S. federal or New York state court located in the Borough of Manhattan, The City of New York in connection with any suit, action or proceeding arising out of, or relating to, the Notes, any Subsidiary Guarantee, the Indenture or any transaction contemplated thereby and (ii) designate and appoint Law Debenture Corporate Services Inc., currently at 400 Madison Avenue, Suite 4D, 4th Floor, New York, NY 10017, for receipt of service of process in any such suit, action or proceeding.

Governing Law

Each of the Notes, the Subsidiary Guarantees and the Indenture provides that such instrument will be governed by, and construed in accordance with, the laws of the State of New York.

Definitions

Set forth below are defined terms used in the covenants and other provisions of the Indenture. Reference is made to the Indenture for other capitalized terms used in this “Description of the Notes” for which no definition is provided.

“*Acquired Indebtedness*” means Indebtedness of a Person existing at the time such Person becomes a Restricted Subsidiary or Indebtedness of a Restricted Subsidiary assumed in connection with an Asset Acquisition by such Restricted Subsidiary, whether or not Incurred in connection with, or in contemplation of, the Person merging with or into or becoming a Restricted Subsidiary.

“*Adjusted Treasury Rate*” means, with respect to any redemption date, (i) the yield, under the heading which represents the average for the immediately preceding week, appearing in the most recently published statistical release designated “H.15(519)” or any successor publication which is published weekly by the Board of Governors of the Federal Reserve System and which establishes yields on actively traded United States Treasury securities adjusted to constant maturity under “Treasury Constant Maturities,” for the maturity corresponding to the Comparable Treasury Issue (if no maturity is within three (3) months before or after April 15, 2022, yields for the two published maturities most closely corresponding to the Comparable Treasury Issue shall be determined and the Adjusted Treasury Rate shall be interpolated or extrapolated from such yields on a straight line basis, rounding to the nearest month) or (ii) if such release (or any successor release) is not published during the week preceding the calculation date or does not contain such yields, the rate per year equal to the semi-annual equivalent yield to maturity of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such redemption date, in each case calculated on the third Business Day immediately preceding the redemption date.

“*Affiliate*” means, with respect to any Person, any other Person (i) directly or indirectly controlling, controlled by, or under direct or indirect common control with, such Person, (ii) who is a director or officer of such Person or any Subsidiary of such Person or of any Person referred to in clause (i) of this definition or (iii) who is a spouse or any person cohabiting as a spouse, child or step-child, parent or step-parent, brother, sister, step-brother or step-sister, parent-in-law, grandchild, grandparent, uncle, aunt, nephew and niece of a Person described in clause (i) or (ii). For purposes of this definition, “control” (including, with correlative meanings, the terms “controlling,” “controlled by” and “under common control with”), as applied to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

“*Applicable Premium*” means with respect to a Note at any redemption date, the greater of (i) 1.00% of the principal amount of such Note and (ii) the excess of (A) the present value at such redemption date of the redemption price of such Note on April 15, 2022 (such redemption price being described in the first paragraph in the “– Optional Redemption” section exclusive of any accrued interest), plus all required remaining scheduled interest payments due on such Note through April 15, 2022 (but excluding accrued and unpaid interest to the redemption date), computed using a discount rate equal to the Adjusted Treasury Rate plus 50 basis points, over (B) the principal amount of such Note on such redemption date.

“*Asset Acquisition*” means (1) an Investment by the Company or any Restricted Subsidiary in any other Person pursuant to which such Person shall become a Restricted Subsidiary or shall be merged into or consolidated with the Company or any Restricted Subsidiary or (2) an acquisition by the Company or any Restricted Subsidiary of the property and assets of any Person other than the Company or any Restricted Subsidiary that constitute substantially all of a division or line of business of such Person.

“*Asset Disposition*” means the sale or other disposition by the Company or any Restricted Subsidiary (other than to the Company or another Restricted Subsidiary) of (1) all or substantially all of the Capital Stock of any Restricted Subsidiary or (2) all or substantially all of the assets that constitute a division or line of business of the Company or any Restricted Subsidiary.

“*Asset Sale*” means any sale, transfer or other disposition of any assets (including by way of merger, consolidation or Sale and Leaseback Transaction and including any sale or issuance of Capital Stock by a Restricted Subsidiary) in one transaction or a series of related transactions by the Company or any Restricted Subsidiary to any Person; *provided* that “Asset Sale” shall not include:

- (a) sales, transfers or other dispositions of inventory, receivables and other current assets in the ordinary course of business;
- (b) sales, transfers or other dispositions of assets constituting a Permitted Investment or Restricted Payment permitted to be made under the covenant described under the caption “– Certain Covenants – Limitation on Restricted Payments”;
- (c) sales, transfers or other dispositions of assets with a Fair Market Value not in excess of US\$5.0 million (or the Dollar Equivalent thereof) in any transaction or series of related transactions;
- (d) any sale, transfer, assignment or other disposition of any property or equipment that has become damaged, worn out, obsolete or otherwise unsuitable for use in connection with the business of the Company or its Restricted Subsidiaries;
- (e) any transfer, assignment or other disposition deemed to occur in connection with creating or granting any Permitted Lien;
- (f) sales or other dispositions of cash or Temporary Cash Investments;
- (g) any transfer, termination, unwinding or other disposition of Hedging Obligations;
- (h) a transaction covered by the covenant under the caption “– Consolidation, Merger and Sale of Assets”;
- (i) any sale, transfer or other disposition of any assets by the Company or any Restricted Subsidiary, including the sale or issuance by the Company or any Restricted Subsidiary of any Capital Stock of any Restricted Subsidiary, to the Company or any other Restricted Subsidiary;
- (j) transfers resulting from any casualty or condemnation of property;
- (k) disposition of Investment in joint ventures to the extent required by or made pursuant to buy/sell arrangements between the joint venture parties; *provided* that any cash, Temporary Cash Investment or other consideration received must be applied in compliance with the covenant described under the caption “– Limitation on Asset Sales”; and
- (l) any surrender or waiver of contract rights or settlement, release, recovery on or surrender of contract, tort or other claims in the ordinary course of business.

“*Attributable Indebtedness*” means, in respect of a Sale and Leaseback Transaction, at the time of determination, the present value, discounted at the interest rate implicit in such Sale and Leaseback Transaction, of the total obligations of the lessee for rental payments during the remaining term of the lease in such Sale and Leaseback Transaction, including any period for which such lease has been extended or may, at the option of the lessor, be extended; *provided*, however, that if such Sale and Leaseback Transaction results in Capitalized Lease Obligations, the amount of Indebtedness represented thereby will be determined in accordance with the definition of “Capitalized Lease Obligations.”

“*Average Life*” means, at any date of determination with respect to any Indebtedness, the quotient obtained by dividing (1) the sum of the products of (a) the number of years from such date of determination to the dates of each successive scheduled principal payment of such Indebtedness and (b) the amount of such principal payment by (2) the sum of all such principal payments.

“*Board of Directors*” means the board of directors elected or appointed by the stockholders of the Company to manage the business of the Company or any committee of such board duly authorized to take the action purported to be taken by such committee.

“*Board Resolution*” means any resolution of the Board of Directors taking an action which it is authorized to take and adopted at a meeting duly called and held at which a quorum of disinterested members (if so required) was present and acting throughout or adopted by written resolution executed by the requisite members of the Board of Directors.

“*Business Day*” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, London or Hong Kong (or in any other place in which payments on the Notes are to be made) are authorized by law or governmental regulation to close.

“*Capital Stock*” means, with respect to any Person, any and all shares, interests, participations or other equivalents (however designated, whether voting or non-voting) in equity of such Person, whether outstanding on the Original Issue Date or issued thereafter, including, without limitation, all Common Stock and Preferred Stock, but excluding debt securities convertible into such equity.

“*Capitalized Lease*” means, with respect to any Person, any finance lease of any property (whether real, personal or mixed) which, in conformity with IFRS, is required to be capitalized on the balance sheet of such Person.

“*Capitalized Lease Obligations*” means the present value of minimum lease payments under a Capitalized Lease measured in conformity with IFRS.

“*Change of Control*” means the occurrence of one or more of the following events:

- (1) the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of the properties or assets of the Company and its Restricted Subsidiaries, taken as a whole, to any “person” (within the meaning of Section 13(d) of the U.S. Securities Exchange Act of 1934, as amended (the “Exchange Act”)), other than one or more Permitted Holders;
- (2) the Company consolidates with, or merges with or into, any Person (other than one or more Permitted Holders), or any Person consolidates with, or merges with or into, the Company, in any such event pursuant to a transaction in which any of the outstanding Voting Stock of the Company or such other Person is converted into or exchanged for cash, securities or other property, other than any such transaction where the Voting Stock of the Company outstanding immediately prior to such transaction is converted into or exchanged for (or continues as) Voting Stock (other than Disqualified Stock) of the surviving or transferee Person constituting a majority of the outstanding shares of Voting Stock of such surviving or transferee Person (immediately after giving effect to such issuance);
- (3) any Person other than the Permitted Holders becomes the beneficial owner of 30% or more of the total voting power of the Voting Stock of the Company;
- (4) individuals who on the Original Issue Date constituted the Board of Directors (together with any new directors whose nomination or election was approved by a vote of at least a majority of the members of the Board of Directors then in office who were members of the Board of Directors on the Original Issue Date or whose nomination or election was previously so approved) cease for any reason to constitute a majority of the members of the Board of Directors then in office; or

(5) the adoption of a plan relating to the liquidation or dissolution of the Company or the Co-Issuer.

“*Change of Control Triggering Event*” means the occurrence of both a Change of Control and Rating Decline.

“*Clearstream*” means Clearstream Banking, société anonyme, Luxembourg.

“*Commodity Agreement*” means any spot, forward contract, commodity swap agreement, commodity option agreement, commodity price protection or other similar agreement or arrangement designed to protect against fluctuations in commodity prices.

“*Common Stock*” means, with respect to any Person, any and all shares, interests or other participations in, and other equivalents (however designated and whether voting or non-voting) of such Person’s common stock or ordinary shares, whether or not outstanding on the Original Issue Date, and include, without limitation, all series and classes of such common stock or ordinary shares.

“*Comparable Treasury Issue*” means the U.S. Treasury security having a maturity comparable to April 15, 2022 that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to April 15, 2022.

“*Comparable Treasury Price*” means, with respect to any redemption date, if clause (ii) of the Adjusted Treasury Rate is applicable, the average of three, or such lesser number as is obtained by the Issuers, Reference Treasury Dealer Quotations for such redemption date.

“*Consolidated EBITDA*” means, for any period, Consolidated Net Income for such period plus, to the extent such amount was deducted in calculating such Consolidated Net Income:

- (1) Consolidated Interest Expense;
- (2) income taxes (other than income taxes attributable to extraordinary and non-recurring gains or losses or sales of assets); and
- (3) depreciation expense, amortization expense and all other non-cash items reducing Consolidated Net Income (other than non-cash items in a period which reflect cash expenses paid or to be paid in another period), less all non-cash items increasing Consolidated Net Income (other than accrual of revenues in the ordinary course of business),

all as determined on a consolidated basis for the Company and its Restricted Subsidiaries in conformity with IFRS; *provided* that if any Restricted Subsidiary is not a Wholly Owned Restricted Subsidiary, Consolidated EBITDA shall be reduced (to the extent not otherwise reduced in accordance with IFRS) by an amount equal to (A) the amount of the Consolidated Net Income attributable to such Restricted Subsidiary multiplied by (B) the percentage ownership interest in the income of such Restricted Subsidiary not owned on the last day of such period by the Company or any Restricted Subsidiary.

“*Consolidated Interest Expense*” means, for any period, the amount that would be included in gross finance costs/interest expense on a consolidated statement of comprehensive income prepared in accordance with IFRS for such period of the Company and its Restricted Subsidiaries, plus, to the extent not included in such gross interest expense, and to the extent incurred, accrued or payable during such period by the Company and its Restricted Subsidiaries, without duplication, (i) interest expense attributable to Capitalized Lease Obligations and imputed interest with respect to Attributable Indebtedness, (ii) amortization of debt issuance costs and original issue discount expense and non-cash interest payments in respect of any Indebtedness, (iii) the interest portion of any deferred payment obligation, (iv) all commissions, discounts and other fees and charges with respect to letters of credit or similar instruments issued for financing purposes or in respect of any Indebtedness, (v) the net costs associated with Hedging Obligations (including the amortization of fees), (vi) interest accruing on Indebtedness of any other Person that is guaranteed by the Company or any Restricted Subsidiary proportionate to the extent that such Indebtedness is guaranteed or secured by a Lien on assets of the Company or any Restricted Subsidiary; (vii) any capitalized interest and

(viii) all other non-cash interest expense; *provided* that interest expense attributable to interest on any Indebtedness bearing a floating interest rate will be computed on a pro forma basis as if the rate in effect on the date of determination had been the applicable rate for the entire relevant period; and *provided further* that, for the avoidance of doubt, distributions incurred, accrued or payments on any perpetual securities that would not be included in gross finance costs/interest expense on a consolidated statement of comprehensive income prepared in accordance with IFRS of the Company and its Restricted Subsidiaries, including but not limited to the Existing Perpetual Securities, shall not be included in the calculation of Consolidated Interest Expense.

“*Consolidated Net Income*” means, with respect to any specified Person for any period, the aggregate of the consolidated profit attributable to the equity shareholders of such Person for such period, on a consolidated basis, determined in conformity with IFRS; *provided* that the following items shall be excluded in computing Consolidated Net Income (without duplication):

- (1) the net income (or loss) of any Person that is not a Restricted Subsidiary or that is accounted for by the equity method of accounting, except to the extent of the amount of net income actually paid in cash to, or the amount of loss actually funded in cash by, the specified Person or a Restricted Subsidiary of the Person during such period;
- (2) the net income (or loss) of any Person accrued prior to the date it becomes a Restricted Subsidiary or is merged into or consolidated with the Company or any Restricted Subsidiary or all or substantially all of the property and assets of such Person are acquired by the Company or any Restricted Subsidiary;
- (3) the net income (but not loss) of any Restricted Subsidiary (other than the Co-Issuer or a Subsidiary Guarantor) to the extent that the declaration or payment of dividends or similar distributions by such Restricted Subsidiary of such net income is not at the time permitted by the operation of the terms of its charter, articles of association or other similar constitutive documents, or any agreement, instrument, judgment, decree, order, statute, rule or governmental regulation applicable to such Restricted Subsidiary;
- (4) the cumulative effect of a change in accounting principles;
- (5) any net after-tax gains realized on the sale or other disposition of (A) any property or assets of the Company or any Restricted Subsidiary which is not sold in the ordinary course of business or (B) any Capital Stock of any Person (including any gains by the Company realized on sales of Capital Stock of the Company or any Restricted Subsidiary);
- (6) any non-cash expense, loss, income or gain relating to any change in fair value of convertible securities issued by the Company;
- (7) any non-cash expense, loss, income or gain relating to any change in fair value of share options and other equity based compensation;
- (8) any translation gains or losses due solely to fluctuations in currency values and related tax effects; and
- (9) any net after-tax extraordinary or non-recurring gains or (solely for the purposes of calculating Consolidated EBITDA) losses.

“*Credit Facilities*” means one or more debt facilities or commercial paper facilities or indentures or trust deeds or note purchase agreements or Capitalized Lease Obligations, in each case, with banks or other institutional lenders or investors providing for revolving credit loans, term loans, receivables financing (including through the sale of receivables to such lenders or to other entities formed to borrow from such lenders against such receivables), letters of credit, bonds, notes, debentures or other corporate debt instruments or other financing, in each case, as amended, extended, restated, modified, supplemented, renewed, refunded, replaced or refinanced (whether upon or after termination or otherwise) (including by

means of sales of debt securities to institutional investors) in whole or in part from time to time by one or more credit agreements, debt facilities or other agreement without limitation as to the identity of the lenders or investors, or the maturity, terms, conditions, covenants or other provisions thereof.

“Currency Agreement” means any foreign exchange forward contract, currency swap agreement, currency hedge agreement, currency option agreement or other similar agreement or arrangement designed to protect against fluctuations in foreign exchange rates.

“Default” means any event that is, or after notice or passage of time or both would be, an Event of Default.

“Disqualified Stock” means any class or series of Capital Stock of any Person that by its terms or otherwise is (1) required to be redeemed prior to the Stated Maturity of the Notes, (2) redeemable at the option of the holder of such class or series of Capital Stock at any time prior to the Stated Maturity of the Notes or (3) convertible into or exchangeable for Capital Stock referred to in clause (1) or (2) above or Indebtedness having a scheduled maturity prior to the Stated Maturity of the Notes; *provided* that any Capital Stock that would not constitute Disqualified Stock but for provisions thereof giving holders thereof the right to require such Person to repurchase or redeem such Capital Stock upon the occurrence of an “asset sale” or “change of control” occurring prior to the Stated Maturity of the Notes shall not constitute Disqualified Stock if (a) the “asset sale” or “change of control” provisions applicable to such Capital Stock are no more favorable to the holders of such Capital Stock than the provisions contained in “– Certain Covenants – Limitation on Asset Sales” and “Repurchase of Notes upon a Change of Control Triggering Event” covenants and such Capital Stock specifically provides that such Person will not repurchase or redeem any such stock pursuant to such provision prior to the Issuers’ repurchase of the Notes as are required to be repurchased pursuant to the “– Certain Covenants – Limitation on Asset Sales” and “Repurchase of Notes upon a Change of Control Triggering Event” covenants or (b) if the terms of such Capital Stock provide that such Person may not repurchase or redeem such Capital Stock pursuant to such provision unless such repurchase or redemption complies with the covenant described under “– Certain Covenants – Limitation on Restricted Payments.”

“Dollar Equivalent” means, with respect to any monetary amount in a currency other than U.S. dollars, at any time for the determination thereof, the amount of U.S. dollars obtained by converting such foreign currency involved in such computation into U.S. dollars at the base rate for the purchase of U.S. dollars with the applicable foreign currency as quoted by the Federal Reserve Bank of New York on the date of determination.

“DTC” means The Depository Trust Company and its successors.

“Equity Offering” means (i) any underwritten primary public offering or private placement of Common Stock of the Company after the Original Issue Date to any Person other than a Wholly Owned Restricted Subsidiary or any Permitted Holder or (ii) any secondary public offering or secondary private placement of Common Stock of the Company beneficially owned by a Permitted Holder after the Original Issue Date, the net proceeds therefrom are contributed to the common equity capital of the Company; *provided* that the aggregate gross cash proceeds received by the Company from such transaction shall be no less than US\$20.0 million (or the Dollar Equivalent thereof).

“Euroclear” means Euroclear Bank S.A./N.V., as operator of the Euroclear System.

“Existing Perpetual Securities” means the subordinated perpetual securities issued by the Company pursuant to an indenture dated May 4, 2017 and entered into between, among others, the Company and The Bank of New York Mellon as trustee.

“Fair Market Value” means the price that would be paid in an arm’s-length transaction between an informed and willing seller under no compulsion to sell and an informed and willing buyer under no compulsion to buy, as determined in good faith by the Board of Directors, whose determination shall be conclusive if evidenced by a Board Resolution.

“Finance Subsidiary” means any Person who is Wholly Owned by the Company and who does not engage in any business activity except (1) the Incurrence of Indebtedness to Persons other than the Company or any Restricted Subsidiary from time to time to finance the operations of the Company and/or any Restricted Subsidiary, (2) the ownership of shares of another Finance Subsidiary, (3) activity related to the establishment or maintenance of that Person’s corporate existence, and (4) any other activity in connection with or incidental to activities referred to in clauses (1), (2) or (3).

“Fitch” means Fitch Ratings Ltd. or any successor to the rating agency business thereof.

“guarantee” means any obligation, contingent or otherwise, of any Person directly or indirectly guaranteeing any Indebtedness or other obligation of any other Person and, without limiting the generality of the foregoing, any obligation, direct or indirect, contingent or otherwise, of such Person (1) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or other obligation of such other Person (whether arising by virtue of partnership arrangements, or by agreements to keep-well, to purchase assets, goods, securities or services, to take-or-pay, or to maintain financial statement conditions or otherwise) or (2) entered into for purposes of assuring in any other manner the obligee of such Indebtedness or other obligation of the payment thereof or to protect such obligee against loss in respect thereof (in whole or in part); *provided* that the term “guarantee” shall not include endorsements for collection or deposit in the ordinary course of business. The term “guarantee” used as a verb has a corresponding meaning.

“Hedging Obligation” of any Person means the obligations of such Person pursuant to any Commodity Agreement, Currency Agreement or Interest Rate Agreement.

“Holder” means the Person in whose name a Note is registered in the Note register.

“IFRS” means International Financial Reporting Standards as in effect from time to time. All computations contained or referred to in the Indenture, to the extent applicable, shall be computed in conformity with IFRS applied on a consistent basis.

“Incur” means, with respect to any Indebtedness or Capital Stock, to incur, create, issue, assume, guarantee or otherwise become liable for or with respect to, or become responsible for, the payment of, contingently or otherwise, such Indebtedness or Capital Stock; *provided* that (1) any Indebtedness and Capital Stock of a Person existing at the time such Person becomes a Restricted Subsidiary (or fails to meet the qualifications necessary to remain an Unrestricted Subsidiary) will be deemed to be Incurred by such Restricted Subsidiary at the time it becomes a Restricted Subsidiary and (2) the accretion of original issue discount, the accrual of interest, the accrual of dividends, the payment of interest in the form of additional Indebtedness and the payment of dividends on Preferred Stock in the form of additional shares of Preferred Stock (to the extent provided for when the Indebtedness or Preferred Stock on which such interest or dividend is paid was originally issued) shall not be considered an Incurrence of Indebtedness. The terms “Incurrence,” “Incurred” and “Incurring” have meanings correlative with the foregoing.

“Indebtedness” means, with respect to any Person at any date of determination (without duplication):

- (1) all indebtedness of such Person for borrowed money;
- (2) all obligations of such Person evidenced by bonds, debentures, notes or other similar instruments;
- (3) all obligations of such Person in respect of letters of credit, bankers’ acceptances or other similar instruments;
- (4) all obligations of such Person to pay the deferred and unpaid purchase price of property or services, except Trade Payables;
- (5) all Capitalized Lease Obligations and Attributable Indebtedness;
- (6) all Indebtedness of other Persons secured by a Lien on any asset of such Person, whether or not such Indebtedness is assumed by such Person; *provided* that the amount of such Indebtedness shall be the lesser of (A) the Fair Market Value of such asset at such date of determination and (B) the amount of such Indebtedness;

- (7) all Indebtedness of other Persons guaranteed by such Person to the extent such Indebtedness is guaranteed by such Person;
- (8) to the extent not otherwise included in this definition, Hedging Obligations;
- (9) all Disqualified Stock issued by such Person valued at the greater of its voluntary or involuntary liquidation preference and its maximum fixed repurchase price plus accrued dividends (to the extent not included therein); and
- (10) any Preferred Stock issued by (i) such Person, if such Person is a Restricted Subsidiary or (ii) any Restricted Subsidiary of such Person, valued at the greater of its voluntary or involuntary liquidation preference and its maximum fixed repurchase price plus (to the extent not included therein) accrued dividends.

Notwithstanding the foregoing, “Indebtedness” will not include (i) any capital commitments, pre-sale receipts, deposits or advances from customers or any contingent obligations to refund payments (including deposits) to customers (or any guarantee thereof) in connection with mandatory obligations under or pending completion of a customer contract, or (ii) obligations of the Company or a Restricted Subsidiary to pay the deferred and unpaid purchase price of property or services due to suppliers of equipment or other assets (including parts thereof) not more than one year after such property is acquired or such services are completed and the amount of unpaid purchase price retained by the Company or any Restricted Subsidiary in the ordinary course of business in connection with an acquisition of equipment or other assets (including parts thereof) pending full operation or contingent on certain conditions during a warranty period of such equipment or assets in accordance with the terms of the acquisition; *provided* that, in each case, such Indebtedness is not reflected as borrowings on the consolidated balance sheet of the Company (contingent obligations and commitments referred to in a footnote to financial statements and not otherwise reflected as borrowings on the balance sheet will not be deemed to be reflected on such balance sheet). For the avoidance of doubt, “Indebtedness” will include the Existing Perpetual Securities.

Notwithstanding the foregoing, in connection with the purchase by the Company or any Restricted Subsidiary of any asset or property to be used in the ordinary course of business by the Company or any Restricted Subsidiary in the Permitted Business (including any such purchase through the acquisition of Capital Stock of any Person that owns such asset or property, which will, upon such acquisition, become a Restricted Subsidiary), the term “Indebtedness” will not include post-closing payment obligations of the Company or such Restricted Subsidiary to which the seller may become entitled to the extent the amount of such payment is determined by a final closing balance sheet, final reserve assessment or a similar report or document or such payment depends on the performance of such asset or property after the closing; *provided, however*, that, at the time of closing, the amount of any such payment obligation is not determinable and, to the extent such payment thereafter becomes fixed and determined, the amount is paid within 360 days thereafter.

The amount of Indebtedness of any Person at any time shall be the outstanding balance at such time of all unconditional obligations as described above and, with respect to contingent obligations, the maximum liability upon the occurrence of the contingency giving rise to the obligation; *provided* that:

- (A) the amount outstanding at any time of any Indebtedness issued with original issue discount is the face amount of such Indebtedness less the remaining unamortized portion of the original issue discount of such Indebtedness at such time as determined in conformity with IFRS;
- (B) money borrowed and set aside at the time of the Incurrence of any Indebtedness in order to prefund the payment of the interest on such Indebtedness shall not be deemed to be “Indebtedness” so long as such money is held to secure the payment of such interest; and
- (C) that the amount of or the principal amount of Indebtedness with respect to any Hedging Obligation shall be equal to the net amount payable if such Hedging Obligation terminated at or prior to that time due to a default by such Person.

“*Interest Rate Agreement*” means any interest rate protection agreement, interest rate future agreement, interest rate option agreement, interest rate swap agreement, interest rate cap agreement, interest rate collar agreement, interest rate hedge agreement, option or future contract or other similar agreement or arrangement designed to protect against fluctuations in interest rates.

“*Investment*” means:

- (i) any direct or indirect advance, loan or other extension of credit to another Person,
- (ii) any capital contribution to another Person (by means of any transfer of cash or other property to others or any payment for property or services for the account or use of others),
- (iii) any purchase or acquisition of Capital Stock, Indebtedness, bonds, notes, debentures or other similar instruments or securities issued by another Person, or
- (iv) any guarantee of any obligation of another Person to the extent such obligation is outstanding and to the extent guaranteed by such Person.

For the purposes of the provisions of the “– Certain Covenants – Designation of Restricted and Unrestricted Subsidiaries” and “– Certain Covenants – Limitation on Restricted Payments” covenants: (i) the Company will be deemed to have made an Investment in an Unrestricted Subsidiary in an amount equal to the Company’s proportional interest in the Fair Market Value of the assets (net of liabilities owed to any Person other than the Company or a Restricted Subsidiary and that are not guaranteed by the Company or a Restricted Subsidiary) of a Restricted Subsidiary that is designated an Unrestricted Subsidiary at the time of such designation representing the percentage ownership of such Unrestricted Subsidiary at such time and (ii) any property transferred to or from any Person shall be valued at its Fair Market Value at the time of such transfer, as determined in good faith by the Board of Directors.

“*Investment Grade*” means a rating of “AAA,” “AA,” “A” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest Rating Categories, by S&P, Fitch or any of its successors or assigns or the equivalent ratings of any internationally recognized rating agency or agencies, as the case may be, which shall have been designated by the Issuers as having been substituted for S&P or Fitch or both, as the case may be.

“*Leverage Ratio*” means, as of any Transaction Date, the ratio of (i) the aggregate amount of Indebtedness of the Company and its Restricted Subsidiaries on a consolidated basis outstanding on such Transaction Date to (ii) the aggregate amount of Consolidated EBITDA for the Two Semi-annual Periods with respect to such Transaction Date. In making the foregoing calculation:

- (A) *pro forma* effect will be given to any Indebtedness Incurred, repaid or redeemed during the Reference Period relating to such Two Semi-annual Periods (other than Indebtedness Incurred or repaid under a revolving credit or similar arrangement (or any predecessor revolving credit or similar arrangement) in effect on the last day of such Two Semi-annual Periods), in each case as if such Indebtedness had been Incurred, repaid or redeemed on the first day of such Reference Period; provided that, in the event of any such repayment or redemption, Consolidated EBITDA for such Two Semi-annual Periods will not include any interest income actually earned by the Company or such Restricted Subsidiary during such Two Semi-annual Periods in respect of the funds used to repay or redeem such Indebtedness;
- (B) *pro forma* effect will be given to Asset Dispositions and Asset Acquisitions (including giving *pro forma* effect to the application of proceeds of any Asset Disposition) that occur during such Reference Period as if they had occurred and such proceeds had been applied on the first day of such Reference Period;

- (C) *pro forma* effect will be given to asset dispositions and asset acquisitions (including giving *pro forma* effect to the application of proceeds of any asset disposition) that have been made by any Person that has become a Restricted Subsidiary or has been merged with or into the Company or any Restricted Subsidiary during such Reference Period and that would have constituted Asset Dispositions or Asset Acquisitions had such transactions occurred when such Person was a Restricted Subsidiary as if such asset dispositions or asset acquisitions were Asset Dispositions or Asset Acquisitions that occurred on the first day of such Reference Period; and
- (D) *pro forma* effect will be given to the creation, designation or re-designation of Restricted Subsidiaries and Unrestricted Subsidiaries as if such creation, designation or re-designation had occurred on the first day of such Reference Period;

provided that to the extent that clause (B) or (C) of this paragraph requires that *pro forma* effect be given to an Asset Acquisition or Asset Disposition (or asset acquisition or asset disposition), such *pro forma* calculation will be based upon the two full semi-annual fiscal periods immediately preceding the Transaction Date of the Person, or division or line of business of the Person, that is acquired or disposed for which financial information is available.

“*Liabilities*” means, with respect to a Luxembourg Subsidiary Guarantor, all existing liabilities (other than any liabilities owed to the direct or indirect shareholders of such Luxembourg Subsidiary Guarantor) incurred by such Luxembourg Subsidiary Guarantor and as reflected in the books of such Luxembourg Subsidiary Guarantor.

“*Lien*” means any mortgage, pledge, security interest, encumbrance, lien or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to create any mortgage, pledge, security interest, lien, charge, easement or encumbrance of any kind).

“*Material Acquisitions or Dispositions*” means any transaction that would require the preparation of pro forma financial information pursuant to Rule 11-01(a) or (b) of Regulation S-X promulgated under the Securities Act, assuming that such Rule is applicable to the Company.

“*Maximum Amount*” means, with respect to a Luxembourg Subsidiary Guarantor, an amount equal to 90% of the Luxembourg Subsidiary Guarantor’s own funds (*capitaux propres*), as referred to in annex I to the grand-ducal regulation dated 18 December 2015 defining the form and content of the presentation of balance sheet and profit and loss account, and enforcing the Luxembourg law dated 19 December 2002 concerning the trade and companies register and the accounting and annual accounts of undertakings less the Liabilities at the time the guarantee or the indemnity is called.”

“*Measurement Date*” means July 1, 2018.

“*Net Cash Proceeds*” means:

- (a) with respect to any Asset Sale (other than the issuance or sale of Capital Stock), the proceeds of such Asset Sale in the form of cash or Temporary Cash Investments, including payments in respect of deferred payment obligations (to the extent corresponding to the principal, but not interest, component thereof) when received in the form of cash or Temporary Cash Investments and proceeds from the conversion of other property received when converted to cash or Temporary Cash Investments, net of
- (1) brokerage commissions and other fees and expenses (including fees and expenses of counsel and investment banks) related to such Asset Sale;
 - (2) provisions for all taxes (whether or not such taxes will actually be paid or are payable) as a result of such Asset Sale without regard to the consolidated results of operations of the Company and its Restricted Subsidiaries, taken as a whole;
 - (3) payments made to repay Indebtedness or any other obligation outstanding at the time of such Asset Sale that either (x) is secured by a Lien on the property or assets sold or (y) is required to be paid as a result of such sale;

- (4) appropriate amounts to be provided by the Company or any Restricted Subsidiary as a reserve against any liabilities associated with such Asset Sale, including, without limitation, pension and other post-employment benefit liabilities, liabilities related to environmental matters and liabilities under any indemnification obligations associated with such Asset Sale, all as determined in conformity with IFRS; and
 - (5) all distributions and other payments required to be made to minority interest holders in Subsidiaries or joint ventures as a result of such Asset Sale or the distribution of proceeds from such Asset Sale; and
- (b) with respect to any Asset Sale consisting of the issuance or sale of Capital Stock, the proceeds of such issuance or sale in the form of cash or Temporary Cash Investments, including payments in respect of deferred payment obligations (to the extent corresponding to the principal, but not interest, component thereof) when received in the form of cash or Temporary Cash Investments and proceeds from the conversion of other property received when converted to cash or Temporary Cash Investments, net of attorneys' fees, accountants' fees, underwriters' or placement agents' fees, discounts or commissions and brokerage, consultant and other fees incurred in connection with such issuance or sale and net of taxes paid or payable as a result thereof.

"Offer to Purchase" means an offer to purchase the Notes by the Issuers from the Holders commenced by the Issuers mailing a notice by first class mail, postage prepaid, to the Trustee and each Holder at its last address appearing in the Note register stating:

- (1) the provision of the Indenture pursuant to which the offer is being made and that all Notes validly tendered will be accepted for payment on a pro rata basis;
- (2) the purchase price and the date of purchase (which shall be a Business Day no earlier than 30 days nor later than 60 days from the date such notice is mailed) (the "Offer to Purchase Payment Date");
- (3) that any Note not tendered will continue to accrue interest pursuant to its terms;
- (4) that, unless the Issuers default in the payment of the purchase price, any Note accepted for payment pursuant to the Offer to Purchase shall cease to accrue interest on and after the Offer to Purchase Payment Date;
- (5) that Holders electing to have a Note purchased pursuant to the Offer to Purchase will be required to surrender the Note, together with the form entitled "Option of the Holder to Elect Purchase" on the reverse side of the Note completed, to the Paying Agent at the address specified in the notice prior to the close of business on the Business Day immediately preceding the Offer to Purchase Payment Date;
- (6) that Holders will be entitled to withdraw their election if the Paying Agent receives, not later than the close of business on the third Business Day immediately preceding the Offer to Purchase Payment Date, a facsimile transmission or letter setting forth the name of such Holder, the principal amount of Notes delivered for purchase and a statement that such Holder is withdrawing his election to have such Notes purchased; and
- (7) that Holders whose Notes are being purchased only in part will be issued new Notes equal in principal amount to the unpurchased portion of the Notes surrendered; *provided* that each Note purchased and each new Note issued shall be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof.

One Business Day prior to the Offer to Purchase Payment Date, the Issuers will deposit with the Paying Agent money sufficient to pay the purchase price of all Notes or portions thereof to be accepted by the Issuers for payment on the Offer to Purchase Payment Date. On the Offer to Purchase Payment Date, the Issuers shall (a) accept for payment on a pro rata basis Notes or portions thereof tendered pursuant to an Offer to Purchase; and (b) deliver, or cause to be delivered, to the Trustee all Notes or portions thereof so accepted together with an Officers' Certificate specifying the Notes or portions thereof accepted for payment by the Issuers. In the case of Certificated Notes, the Paying Agent shall promptly mail to the Holders of Notes so accepted payment in an amount equal to the purchase price, and the Trustee shall promptly authenticate and mail to such Holders a new Note equal in principal amount to any unpurchased portion of the Note surrendered; *provided* that each Note purchased and each new Note issued shall be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof. The Issuers will publicly announce the results of an Offer to Purchase as soon as practicable after the Offer to Purchase Payment Date. The Issuers will comply with Rule 14e-1 under the Exchange Act and any other securities laws and regulations to the extent such laws and regulations are applicable, in the event that the Issuers are required to repurchase Notes pursuant to an Offer to Purchase.

To the extent that the provisions of any securities laws or regulations of any jurisdiction conflict with the provisions of the Indenture governing any Offer to Purchase, the Issuers will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under the Indenture by virtue of such compliance.

The materials used in connection with an Offer to Purchase are required to contain or incorporate by reference information concerning the business of the Issuers and their Subsidiaries which the Issuers in good faith believe will assist such Holders to make an informed decision with respect to the Offer to Purchase, including a brief description of the events requiring the Issuers to make the Offer to Purchase, and any other information required by applicable law to be included therein. The offer is required to contain all instructions and materials necessary to enable such Holders to tender Notes pursuant to the Offer to Purchase.

"Officer" means one of the executive officers of the Company and/or the Co-Issuer (as the case may be) or, in the case of a Subsidiary Guarantor, one of the directors or executive officers of such Subsidiary Guarantor.

"Officers' Certificate" means a certificate signed by two Officers; *provided* that, with respect to any Subsidiary Guarantor having only one Officer, an *"Officers' Certificate"* means a certificate signed by such Officer.

"Opinion of Counsel" means a written opinion from legal counsel which is acceptable to the Trustee that meets the requirements of the Indenture; *provided* that legal counsel shall be entitled to rely on certificates of the Company and any Subsidiary of the Company as to matters of fact.

"Original Issue Date" means the date on which the Notes are originally issued under the Indenture.

"Payment Default" means (i) any default in the payment of interest on any Note when the same becomes due and payable, (ii) any default in the payment of principal of (or premium, if any, on) the Notes when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise, (iii) the failure by the Issuers to make or consummate a Change of Control Offer in the manner described under the caption *"– Repurchase of Notes upon a Change of Control Triggering Event,"* or an Offer to Purchase in the manner described under the caption *"– Certain Covenants – Limitation on Asset Sales"* or (iv) any Event of Default specified in clause (e) of the definition of Events of Default.

"Permitted Business" means any business conducted by the Company and its Restricted Subsidiaries on the Original Issue Date as described in this offering memorandum, any other natural resources extraction, processing, transportation or marketing business and other businesses reasonably related or ancillary thereto.

“Permitted Holders” means any or all of the following:

- (1) Mr. Odjargal Jambaljamts and Mr. Od Jambaljamts;
- (2) the estate, trust and spouse or any immediate family member of the Person specified in clause (1) or the legal representative of any of the foregoing;
- (3) any Affiliate (other than an Affiliate as defined in clause (ii) or (iii) of the definition of “Affiliate”) of either of the Persons specified in clause (1) of this definition; and
- (4) any Person both the Capital Stock and the Voting Stock of which (or in the case of a trust, the beneficial interests in which) are more than 80% owned by Persons specified in clauses (1) and (2) of this definition.

“Permitted Investment” means:

- (1) any Investment in (a) the Company or a Restricted Subsidiary that is, directly or indirectly primarily engaged in a Permitted Business or (b) a Person which will, upon the making of such Investment, become a Restricted Subsidiary that is, directly or indirectly primarily engaged in a Permitted Business or be merged or consolidated with or into or to transfer or convey all or substantially all its assets to the Company or a Restricted Subsidiary that is, directly or indirectly primarily engaged in a Permitted Business;
- (2) cash or Temporary Cash Investments;
- (3) payroll, travel and similar advances to cover matters that are expected at the time of such advances ultimately to be treated as expenses in accordance with IFRS;
- (4) stock, obligations or securities received in satisfaction of judgments;
- (5) an Investment in an Unrestricted Subsidiary consisting solely of an Investment in another Unrestricted Subsidiary;
- (6) any Investment pursuant to a Hedging Obligation designed solely to protect the Company or any Restricted Subsidiary against fluctuations in commodity prices, interest rates or foreign currency exchange rates and not for speculation;
- (7) receivables, trade credits or other current assets owing to the Company or any Restricted Subsidiary, if created or acquired in the ordinary course of business and payable or dischargeable in accordance with customary trade terms, including such concessionary trade terms as the Company or any Restricted Subsidiary considers reasonable under the circumstances;
- (8) any securities or other Investments received as consideration in, or retained in connection with, sales or other dispositions of property or assets, including Asset Dispositions made in compliance with the covenant described under the caption “– Certain Covenants – Limitation on Asset Sales”;
- (9) pledges or deposits (x) with respect to leases or utilities provided to third parties in the ordinary course of business or (y) otherwise described in the definition of “Permitted Liens” or made in connection with Liens permitted under the covenant described under the caption “– Certain Covenants – Limitation on Liens”;
- (10) Investments in securities or other obligations of trade creditors, trade debtors or customers received in compromise or settlement of debts created in the ordinary course of business, or pursuant to any plan of reorganization or similar arrangement upon the bankruptcy or insolvency of such trade creditor, trade debtor or customer, or as a result of foreclosure of or transfer of title with respect to any secured investment;

- (11) loans or advances to contractors, vendors, suppliers or distributors for the acquisition of assets or consumables or services in the ordinary course of business that are recorded as deposits or prepaid expenses on the Company's consolidated balance sheet;
- (12) loans or advances to employees made in the ordinary course of business in an aggregate principal amount not to exceed \$5.0 million at any one time outstanding;
- (13) deposits made in order to comply with statutory or regulatory obligations to maintain deposits for workers, compensation claims and other purposes specified by statute or regulation from time to time in the ordinary course of business;
- (14) deposits made in order to secure the performance of the Company or any of its Restricted Subsidiaries and prepayments made in connection with the acquisition of real property or land use rights by the Company or any Restricted Subsidiary, in each case, in the ordinary course of a Permitted Business;
- (15) any guarantee of Indebtedness Incurred in accordance with the covenant "– Limitation on Indebtedness";
- (16) repurchases of the Notes;
- (17) an acquisition of assets, Capital Stock or other securities by the Company or its Subsidiary for consideration to the extent such consideration consists solely of Common Stock of the Company;
- (18) Investments (including binding commitments to make Investments) in existence on the Original Issue Date and as described in this offering memorandum; or
- (19) other Investments in any Person having an aggregate Fair Market Value (measured on the date each such Investment was made and without giving effect to subsequent changes in value), when taken together with all other Investments (minus to the extent that an Investment made after the Original Issue Date under this clause (19) is sold or otherwise liquidated or repaid for cash, the lesser of (x) the net cash proceeds from the return of capital with respect to such Investment (less the cost of disposition, if any) and (y) the initial amount of such Investment, not to exceed, in each case, the amount of Investments made by the Company or a Restricted Subsidiary after the Original Issue Date in any such Person under this clause) made pursuant to this clause (19) since the Original Issue Date, not to exceed 1% of Total Assets.

"Permitted Liens" means:

- (1) Liens for taxes, assessments, governmental charges or claims that are being contested in good faith by appropriate legal or administrative proceedings promptly instituted and diligently conducted and for which a reserve or other appropriate provision, if any, as shall be required in conformity with IFRS shall have been made;
- (2) statutory and common law Liens of landlords and carriers, warehousemen, mechanics, suppliers, repairmen or other similar Liens arising in the ordinary course of business and with respect to amounts not yet delinquent or being contested in good faith by appropriate legal or administrative proceedings promptly instituted and diligently conducted and for which a reserve or other appropriate provision, if any, as shall be required in conformity with IFRS shall have been made;
- (3) Liens incurred or deposits made to secure the performance of tenders, bids, leases, statutory or regulatory obligations, bankers' acceptances, surety and appeal bonds, government contracts, performance and return-of-money bonds and other obligations of a similar nature incurred in the ordinary course of business (exclusive of obligations for the payment of borrowed money);
- (4) leases or subleases granted to others that do not materially interfere with the ordinary course of business of the Company and its Restricted Subsidiaries, taken as a whole;

- (5) Liens encumbering property or assets under construction arising from progress or partial payments by a customer of the Company or its Restricted Subsidiaries relating to such property or assets;
- (6) any interest or title of a lessor in the property subject to any operating lease;
- (7) Liens on property of, or on shares of Capital Stock or Indebtedness of, any Person existing at the time such Person becomes, or becomes a part of, any Restricted Subsidiary; *provided* that such Liens do not extend to or cover any property or assets of the Company or any Restricted Subsidiary other than the property or assets acquired; *provided further* that such Liens were not created in contemplation of or in connection with the transactions or series of transactions pursuant to which such Person became a Restricted Subsidiary;
- (8) Liens in favor of the Company or any Restricted Subsidiary;
- (9) Liens arising from attachment or the rendering of a final judgment or order against the Company or any Restricted Subsidiary that does not give rise to an Event of Default;
- (10) (a) Liens securing reimbursement obligations with respect to letters of credit or trade guarantees, performance and surety bonds and similar instruments that encumber documents and other property relating to such letters of credit or trade guarantees, performance and surety bonds and similar instruments and the products and proceeds thereof, in each case exclusive of obligations for the payment of borrowed money or (b) Liens in favor of any bank having a right of setoff, revocation, refund or chargeback with respect to money or instruments of the Company or any Restricted Subsidiary on deposit with or in the possession of such bank;
- (11) Liens existing on the Original Issue Date;
- (12) Liens securing Indebtedness which is Incurred to refinance secured Indebtedness which is permitted to be Incurred under clause (b)(4) of the covenant described under the caption “– Limitation on Indebtedness”; *provided* that such Liens do not extend to or cover any property or assets of the Company or any Restricted Subsidiary other than the property or assets securing the Indebtedness being refinanced;
- (13) Liens (including extensions and renewals thereof) upon real or personal property, asset or equipment acquired after the Original Issue Date of the Company or any Restricted Subsidiary; *provided* that (a) such Lien is created solely for the purpose of securing Indebtedness Incurred under clause (b)(6)(B) of the covenant described under the caption “– Limitation on Indebtedness,” (b) such Lien is created prior to, at the time of or within 180 days after the later of the acquisition or the completion of development, construction or improvement of such property, (c) the principal amount of Indebtedness secured by such Lien does not exceed 100% of the cost of such property, development, construction or improvement and (d) such Lien shall not extend to or cover any property or assets other than such item of property and any improvements on such item;
- (14) easements, rights-of-way, municipal and zoning ordinances or other restrictions as to the use of properties in favor of governmental agencies or utility companies that do not materially adversely affect the value of such properties or materially impair the use for the purposes of which such properties are held by the Company or any Restricted Subsidiary;
- (15) Liens securing Indebtedness under any Hedging Obligation permitted to be Incurred under clause (b)(5) of the covenant described under the caption “– Certain Covenants – Limitation on Indebtedness”; *provided* that (i) Indebtedness relating to any such Hedging Obligations is, and is permitted under the covenant described under the caption “– Certain Covenants – Limitation on Liens” to be, secured by a Lien on the same property securing such Hedging Obligation or (ii) such Lien is encumbering customary initial deposits or margin deposits or are otherwise within the general parameters customary in the industry;

- (16) any interest or title of a lessor under any Capitalized Lease Obligation permitted to be Incurred under the Indenture; *provided, however*, that the Liens do not extend to any property or assets which is not leased property subject to such Capitalized Lease Obligation;
- (17) Liens on pledges or deposits under worker's compensation laws, unemployment insurance laws or similar legislation, or good faith deposits in connection with bids, tenders, contracts or leases, or to secure public or statutory obligations, and other purposes specified by statute made in the ordinary course of business and not securing Indebtedness of the Company or any Restricted Subsidiary;
- (18) Liens on deposits made in order to secure the performance of the Company or any of its Restricted Subsidiaries in connection with the acquisition of real property or land use rights by the Company or any of its Restricted Subsidiaries in the ordinary course of business and not securing Indebtedness of the Company or any Restricted Subsidiary;
- (19) Liens to secure Indebtedness permitted under clause (b)(12) under the caption "Limitation on Indebtedness";
- (20) Liens on assets of a Non-Guarantor Restricted Subsidiary securing any Permitted Subsidiary Indebtedness of such Non-Guarantor Restricted Subsidiary permitted to be Incurred under clause (a) of the covenant "– Limitation on Indebtedness";
- (21) Liens in favor of customs and revenue authorities arising by operation of law to secure payment of customs duties in connection with importation or exportation of goods in the ordinary course of business;
- (22) retention of title reserved by any seller of goods or any Lien imposed, reserved or granted over goods supplied by such seller, in each case in the ordinary course of business;
- (23) Liens on the Capital Stock of Unrestricted Subsidiaries or any Person that is not a Subsidiary of the Company solely to secure Indebtedness of Unrestricted Subsidiaries or such Person, in each case that is non-recourse to the Company or any Restricted Subsidiary, unless the Company or such Restricted Subsidiary could have incurred such Indebtedness under the Indenture on the date of incurrence of such Lien;
- (24) Liens with respect to minor survey exceptions, minor encumbrances, easements or reservations of, or rights of others for, licenses, rights of way, sewers, electric lines, telegraph and telephone lines and other similar purposes, or zoning or other restrictions as to the use of real property, not interfering in any material respect with the conduct of the business of the Company and its Restricted Subsidiaries;
- (25) Liens with respect to licenses or leases or subleases as licensor, lessor or sublessor of any of the Company's or its Restricted Subsidiaries property, including intellectual property, in the ordinary course of business;
- (26) Liens on the Capital Stock of any Finance Subsidiary or any loan extended by a Finance Subsidiary to the Company or any other Restricted Subsidiary; *provided* such Lien is for the benefit of the lenders relating to, or interests in, such Indebtedness Incurred by such Finance Subsidiary in compliance with the covenant "– Limitation on Indebtedness";
- (27) Liens to secure Indebtedness permitted to be Incurred by the Company or any Restricted Subsidiary under clause (b)(14), (b)(15) or (b)(16) of the covenant described under "Limitation on Indebtedness"; and
- (28) Liens with respect to obligations of the Company or any Restricted Subsidiary that do not exceed US\$5.0 million (or the Dollar Equivalent thereof using the Original Issue Date as the date of determination) at any one time outstanding,

provided that Permitted Liens shall not include any Liens on the mining license for the Ukhaa Khudag mine or the Capital Stock of the entity holding the mining license for the Ukhaa Khudag mine.

“Permitted Subsidiary Indebtedness” means any Indebtedness of any Non-Guarantor Restricted Subsidiary; provided that, on the date of the Incurrence of such Indebtedness and after giving effect thereto and the application of the proceeds thereof, the aggregate principal amount outstanding of all Indebtedness of all Non-Guarantor Restricted Subsidiaries (but excluding the amount of any Indebtedness of any Non-Guarantor Restricted Subsidiary permitted under clauses (b)(3), (b)(5), (b)(7), (b)(8), (b)(9), (b)(10), (b)(11) and (b)(13) of the covenant described under the caption “– Certain Covenants – Limitation on Indebtedness”) does not exceed an amount equal to 15% of Total Assets.

“Person” means any individual, corporation, partnership, limited liability company, joint venture, trust, unincorporated organization or government or any agency or political subdivision thereof.

“Preferred Stock” as applied to the Capital Stock of any Person means Capital Stock of any class or classes that by its term is preferred as to the payment of dividends, or as to the distribution of assets upon any voluntary or involuntary liquidation or dissolution of such Person, over any other class of Capital Stock of such Person.

“Rating Agencies” means (i) S&P, (ii) Fitch and (iii) if S&P or Fitch or both shall not make a rating of the Notes publicly available, one or more “nationally recognized statistical rating organizations,” as the case may be, within the meaning of Rule 15c3-I(c)(2)(iv)(F) under the Exchange Act, selected by the Issuers, which shall be substituted for S&P or Fitch or both, as the case may be.

“Rating Category” means (i) with respect to S&P, any of the following categories: “BB,” “B,” “CCC,” “CC,” “C” and “D” (or equivalent successor categories); (ii) with respect to Fitch, any of the following categories: “BB,” “B,” “CCC,” “CC,” “C” and “D” (or equivalent successor categories); and (iii) the equivalent of any such category of S&P or Fitch used by another Rating Agency. In determining whether the rating of the Notes has decreased by one or more gradations, gradations within Rating Categories (“+” and “-” for S&P and Fitch; or the equivalent gradations for another Rating Agency) shall be taken into account (e.g., with respect to S&P, a decline in a rating from “BB+” to “BB,” as well as from “BB-” to “B+,” will constitute a decrease of one gradation).

“Rating Date” means, (i) in connection with a Change of Control Triggering Event, that date which is 90 days prior to the earlier of (x) a Change of Control and (y) a public notice of the occurrence of a Change of Control or of the intention by any Issuer or any other Person or Persons to effect a Change of Control or (ii) in connection with actions contemplated under the caption “– Consolidation, Merger and Sale of Assets,” that date which is 90 days prior to the earlier of (x) the occurrence of any such actions as set forth therein and (y) a public notice of the occurrence of any such actions.

“Rating Decline” means, (i) in connection with a Change of Control Triggering Event, the occurrence on, or within 90 days after, the date, or public notice of the occurrence of, a Change of Control or the intention by any Issuer or any other Person or Persons to effect a Change of Control (which period will be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies) of any of the events listed below or (ii) in connection with actions contemplated under the caption “– Consolidation, Merger and Sale of Assets,” the notification by any of the Rating Agencies that such proposed actions will result in any of the events listed below:

- (a) in the event the Notes are rated by both S&P and Fitch on the Rating Date as Investment Grade, the rating of the Notes by either Rating Agency shall be below Investment Grade;
- (b) in the event the Notes are rated by either, but not both, of the Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by such Rating Agency shall be below Investment Grade; or
- (c) in the event the Notes are rated below Investment Grade by both Rating Agencies on the Rating Date, the rating of the Notes by either Rating Agency shall be decreased by one or more gradations (including gradations within Rating Categories as well as between Rating Categories).

“Reference Period” means, as of any Transaction Date, the period commencing on and including the first day of the Two Semi-annual Periods with respect to such Transaction Date and ending on and including the Transaction Date.

“Reference Treasury Dealer” means each of any three investment banks of recognized standing that is a primary U.S. Government securities dealer in The City of New York, selected by the Issuers in good faith.

“Reference Treasury Dealer Quotations” means, with respect to each Reference Treasury Dealer and any redemption date, the average as determined by an investment banking firm of recognized international standing selected by the Issuers, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to such investment banking firm by such Reference Treasury Dealer at 5:00 p.m. on the fifth Business Day preceding such redemption date.

“Replacement Assets” means, on any date, property or assets (other than current assets) of a nature or type or that are used in a Permitted Business, including the Capital Stock of any Person holding such property or assets that is, directly or indirectly, primarily engaged in a Permitted Business and is or will become, upon the acquisition by the Company or any of its Restricted Subsidiaries of such Capital Stock, a Restricted Subsidiary.

“Restricted Subsidiary” means any Subsidiary of the Company other than an Unrestricted Subsidiary.

“S&P” means Standard & Poor’s Ratings Services and its affiliates.

“Sale and Leaseback Transaction” means any direct or indirect arrangement relating to property (whether real, personal or mixed), now owned or hereafter acquired whereby the Company or any Restricted Subsidiary transfers such property to another Person and the Company or any Restricted Subsidiary leases it from such Person.

“Senior Indebtedness” of the Company or any Restricted Subsidiary, as the case may be, means all Indebtedness of the Company or such Restricted Subsidiary, as relevant, whether outstanding on the Original Issue Date or thereafter created, except for Indebtedness which, in the instrument creating or evidencing the same, is expressly stated to be subordinated in right of payment to (a) in respect of the Issuers, the Notes or (b) in respect of any Restricted Subsidiary that is a Subsidiary Guarantor, its Subsidiary Guarantee; *provided* that Senior Indebtedness does not include (i) any obligation to the Company or any Restricted Subsidiary, (ii) trade payables or (iii) Indebtedness Incurred in violation of the Indenture.

“Significant Subsidiary” means any Restricted Subsidiary that would constitute a “significant subsidiary” as defined in Article 1, Rule 1-02 of Regulation S-X, promulgated pursuant to the United States Securities Act of 1933, as such Regulation is in effect on the date of the Indenture.

“Stated Maturity” means, (1) with respect to any Indebtedness, the date specified in such debt security as the fixed date on which the final installment of principal of such Indebtedness is due and payable as set forth in the documentation governing such Indebtedness and (2) with respect to any scheduled installment of principal of or interest on any Indebtedness, the date specified as the fixed date on which such installment is due and payable as set forth in the documentation governing such Indebtedness, and shall not include any contingent obligations to repay, redeem or repurchase any such interest or principal prior to the date originally scheduled for the payment thereof.

“Subordinated Indebtedness” means any Indebtedness of the Company, the Co-Issuer or any Subsidiary Guarantor which is contractually subordinated or junior in right of payment to the Notes or any Subsidiary Guarantee, as applicable, pursuant to a written agreement to such effect.

“Subordinated Shareholder Loan” means any unsecured Indebtedness for borrowed money Incurred by the Company, the Co-Issuer or any Subsidiary Guarantor but only so long as such Indebtedness is owed to any direct or indirect holder of the Common Stock of the Company that, at such time, is an Affiliate of the Company which (i) is expressly made subordinate to the prior payment in full of the Notes or such

Subsidiary Guarantor's Subsidiary Guarantee, as the case may be, by its terms or by the terms of any agreement or instrument pursuant to which such Indebtedness is issued, created or remains outstanding, with respect to the payment of principal and any other payment obligations in respect of such Indebtedness, (ii) by its terms (and by the terms of any security into which it is convertible or for which it is exchangeable) does not mature and is not required to be repaid, redeemed, repurchased or otherwise retired, pursuant to a sinking fund obligation, event of default or otherwise, in whole or in part, on or prior to the date that is one year after the Stated Maturity of the Notes and (iii) by its terms, does not provide for any cash payment of interest (or premium).

"*Subsidiary*" means, with respect to any Person, any corporation, association or other business entity (i) of which more than 50% of the voting power of the outstanding Voting Stock is owned, directly or indirectly, by such Person and one or more other Subsidiaries of such Person or (ii) of which 50% of the outstanding Voting Stock is owned, directly or indirectly, by such Person and which is "controlled" and consolidated by such Person in accordance with IFRS; *provided, however*, that with respect to clause (ii) the occurrence of any event (other than the issuance or sale of Capital Stock) as a result of which such corporation, association or other business entity ceases to be "controlled" by such Person under IFRS and to constitute a Subsidiary of such Person shall be deemed to be a designation of such corporation, association or other business entity as an Unrestricted Subsidiary by such Person and be subject to the requirements under the first paragraph of "– Designation of Restricted and Unrestricted Subsidiaries" covenant.

"*Subsidiary Guarantee*" means any guarantee of the obligations of the Issuers under the Indenture and the Notes by any Subsidiary Guarantor, subject to the limitations set forth therein.

"*Subsidiary Guarantor*" means any initial Subsidiary Guarantor named herein and any other Restricted Subsidiary which guarantees the payment of the Notes pursuant to the Indenture and the Notes; *provided* that Subsidiary Guarantor will not include any Person whose Subsidiary Guarantee has been released in accordance with the Indenture and the Notes.

"*Temporary Cash Investment*" means any of the following:

- (1) direct obligations of the United States of America, any state of the European Economic Area, the United Kingdom, Japan, the People's Republic of China, Singapore and Hong Kong or any agency of the foregoing; *provided* that such country or state is rated "AA" (or such similar equivalent rating) or higher by at least two nationally recognized statistical rating organization (as defined in Rule 436 under the Securities Act) (each such country or state a "Rated Country/State"), or obligations fully and unconditionally guaranteed by any Rated Country/State, in each case maturing within one year;
- (2) demand or time deposit accounts, certificates of deposit and money market deposits maturing within 180 days of the date of acquisition thereof issued by a bank or trust company which is organized under the laws of the United States of America or any state thereof, any state of the European Economic Area that is rated "AA" (or such similar equivalent rating) or higher by at least two nationally recognized statistical rating organization (as defined in Rule 436 under the Securities Act), the United Kingdom, Japan, Singapore or Hong Kong, and which bank or trust company has capital, surplus and undivided profits aggregating in excess of US\$500.0 million (or the Dollar Equivalent thereof) and has outstanding debt which is rated "A" (or such similar equivalent rating) or higher by at least one nationally recognized statistical rating organization (as defined in Rule 436 under the Securities Act) or any money market fund sponsored by a registered broker dealer or mutual fund distributor;
- (3) repurchase obligations with a term of not more than 30 days for underlying securities of the types described in clause (1) above entered into with a bank or trust company meeting the qualifications described in clause (2) above;
- (4) commercial paper, maturing within one year of the date of acquisition thereof, issued by a corporation (other than an Affiliate of the Company) organized and in existence under the laws of the United States of America, any state thereof or any foreign country recognized by the United States of America with a rating at the time as of which any investment therein is made of "P-1" (or higher) according to Moody's or "A-1" (or higher) according to S&P;

- (5) securities, maturing within 180 days of the date of acquisition thereof, issued or fully and unconditionally guaranteed by any state, commonwealth or territory of the United States of America, or by any political subdivision or taxing authority thereof and rated at least “A” by S&P or Moody’s;
- (6) any mutual or money market fund that has at least 95% of its assets continuously invested in investments of the types described in clauses (1) through (5) above; and
- (7) demand or time deposit accounts, certificates of deposit, overnight or call deposits and money market deposits with (i) Standard Chartered Bank, Citibank, N.A., Hong Kong Branch, The Bank of East Asia Limited, Standard Bank Plc, Trade and Development Bank of Mongolia, Golomt Bank, Khan Bank, Xac Bank, Industrial and Commercial Bank of China, Bank of China, China Construction Bank, ING, HSBC and Deutsche Bank (or, in each case, any successor), (ii) any other bank or trust company organized under the laws of the People’s Republic of China, Hong Kong, Mongolia or the United Kingdom, whose long-term debt rating by Moody’s or S&P is “A2” or “A” or higher, respectively, or (iii) any other bank organized under the laws of the People’s Republic of China, Hong Kong, Mongolia or the United Kingdom, provided that, in the case of clause (iii), such deposits do not exceed US\$30.0 million (or the Dollar Equivalent thereof) in the aggregate on any date of determination.

“*Total Assets*” means, as of any date, the total consolidated assets of the Company and its Restricted Subsidiaries measured in accordance with IFRS as of the last day of the most recent semi-annual fiscal period for which consolidated financial statements of the Company (which the Company shall use its reasonable best efforts to compile in a timely manner) are available (which may be internal consolidated financial statements); *provided* that only with respect to clause (b)(6) of the covenant described under the caption “– Certain Covenants – Limitation on Indebtedness” and the definition of “Permitted Subsidiary Indebtedness,” Total Assets shall be calculated after giving pro forma effect to include the cumulative value of all of the real or personal property, asset or equipment the acquisition, development, construction or improvement of which requires or required the Incurrence of Indebtedness and calculation of Total Assets thereunder, as measured by the purchase price or cost therefor or budgeted cost provided in good faith by the Company or any of its Restricted Subsidiaries to the bank or other similar financial institutional lender providing such Indebtedness.

“*Trade Payables*” means, with respect to any Person, any accounts payable or any other indebtedness or monetary obligation to trade creditors created, assumed or guaranteed by such Person or any of its Subsidiaries arising in the ordinary course of business in connection with the acquisition of goods or services and payable within 180 days.

“*Transaction Date*” means, with respect to the Incurrence of any Indebtedness, the date such Indebtedness is to be Incurred and, with respect to any Restricted Payment, the date such Restricted Payment is to be made.

“*Two Semi-annual Periods*” means, as of any Transaction Date, the then most recent two semi-annual fiscal periods prior to such Transaction Date for which consolidated financial statements of the Company (which the Company will use its reasonable best efforts to compile in a timely manner) are available (which may include internal consolidated financial statements).

“*Unrestricted Subsidiary*” means (1) any Subsidiary of the Company that at the time of determination shall be designated an Unrestricted Subsidiary by the Board of Directors in the manner provided in the Indenture and (2) any Subsidiary of an Unrestricted Subsidiary.

“*U.S. Government Obligations*” means securities that are (1) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (2) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the Stated Maturity of the Notes, and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of

interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depository receipt; *provided* that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depository receipt.

“*Voting Stock*” means, with respect to any Person, Capital Stock of any class or kind ordinarily having the power to vote for the election of directors, managers or other voting members of the governing body of such Person.

“*Wholly Owned*” means, with respect to any Subsidiary of any Person, the ownership of 100% of the outstanding Capital Stock of such Subsidiary (other than any director’s qualifying shares or Investments by foreign nationals mandated by applicable law or a minimum number of shares owned by a second shareholder as mandated by applicable law) by such Person or one or more Wholly Owned Subsidiaries of such Person.

TRANSFER RESTRICTIONS

Because of the following restrictions, purchasers are advised to consult legal counsel prior to making any offer, sale, resale, pledge or other transfer of the Notes.

We have not registered the Notes under the Securities Act and the Notes may only be offered or sold (i) within the United States to “qualified institutional buyers” in reliance on Rule 144A under the Securities Act or (ii) outside the United States in offshore transactions in reliance on Regulation S under the Securities Act. Terms used above and otherwise in this section of this Offering Memorandum have the meanings given to them by Regulation S and Rule 144A.

Each purchaser of Notes will be deemed to have represented and agreed as follows:

- (1) You understand and acknowledge that the Notes have not been and will not be registered under the Securities Act or any other applicable securities laws and that the Notes are being offered for resale in transactions not requiring registration under the Securities Act or any other securities laws, including resales pursuant to Rule 144A, and, unless so registered, may not be offered, sold or otherwise transferred except in compliance with the registration requirements of the Securities Act or any other applicable securities laws, pursuant to an exemption therefrom, or in a transaction not subject thereto, and in each case in compliance with the conditions for transfer set forth in paragraph (3) below.

You are not our “affiliate” (as defined in Rule 144 under the Securities Act), you are not acting on our behalf and you are either:

- (a) a qualified institutional buyer and are aware that any sale of these Notes to you will be made in reliance on Rule 144A and such acquisition will be for your own account or for the account of another qualified institutional buyer; or
 - (b) purchasing Notes in an offshore transaction in accordance with Regulation S.
- (2) You acknowledge that none of us, the Initial Purchasers or any person representing us or the Initial Purchasers has made any representation to you with respect to us or the offer or sale of any of the Notes, other than the information contained in this Offering Memorandum, which Offering Memorandum has been delivered to you. You represent that you are only relying on this Offering Memorandum in making your investment decision with respect to the Notes. You acknowledge that the Initial Purchasers make no representation or warranty as to the accuracy or completeness of this Offering Memorandum. You have had access to such financial and other information concerning us and the Notes, including an opportunity to ask questions of, and request information from, us and the Initial Purchasers.
- (3) You are purchasing Notes for your own account, or for one or more investor accounts for which you are acting as a fiduciary or agent, in each case for investment, and not with a view to, or for offer or sale in connection with, any distribution thereof in violation of the Securities Act, subject to any requirement of law that the disposition of your property or the property of such investor account or accounts be at all times within your or their control and subject to your or their ability to resell such Notes pursuant to Rule 144A, Regulation S or any other available exemption from registration available under the Securities Act. You agree on your own behalf and on behalf of any investor account for which you are purchasing the Notes, and each subsequent holder of these Notes by its acceptance thereof will agree, to offer, sell or otherwise transfer such Notes prior to (x) the date which is one year (or such shorter period of time as permitted by Rule 144(d) under the Securities Act or any successor provision thereunder) after the later of the date of the original issue of these Notes and the last date on which we or any of our affiliates were the owner of such Notes (or any predecessor thereto) or (y) such later date, if any, as may be required by applicable law (the “Resale Restriction Termination Date”) only:

- (a) to us or any of our affiliates;

- (b) pursuant to a registration statement which has been declared effective under the Securities Act;
- (c) for so long as the Notes are eligible for resale pursuant to Rule 144A, to a person you reasonably believe is a qualified institutional buyer that purchases for its own account or for the account of another qualified institutional buyer to whom you give notice that the transfer is being made in reliance on Rule 144A;
- (d) outside the United States in offshore transactions meeting the requirements of Rule 904 under the Securities Act; or
- (e) pursuant to any other available exemption from the registration requirements of the Securities Act;

subject in each of the foregoing cases to any requirement of law that the disposition of the seller's property or the property of an investor account or accounts be within the seller or account's control, and in compliance with any applicable state securities laws.

You acknowledge that we, the Trustee and the Registrar reserve the right prior to any offer, sale or other transfer of the Notes pursuant to clause (e) above prior to the Resale Restriction Termination Date of the Notes to require the delivery of an opinion of counsel, certifications and/or other information satisfactory to us, the trustee and the registrar.

- (4) You acknowledge that each Note will contain a legend substantially in the following form:

- (a) In the case of Notes initially sold in reliance on Rule 144A:

“THIS NOTE AND THE GUARANTEE RELATED TO THIS NOTE HAVE NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”) AND, ACCORDINGLY, THIS NOTE MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED WITHIN THE UNITED STATES, EXCEPT AS SET FORTH IN THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF OR OF A BENEFICIAL INTEREST HEREIN, THE HOLDER (1) REPRESENTS THAT IT IS A “QUALIFIED INSTITUTIONAL BUYER” (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) (A “QIB”), (2) AGREES THAT IT WILL NOT, PRIOR TO THE DATE THAT IS ONE YEAR (OR SUCH SHORTER PERIOD AS MAY BE PERMITTED BY RULE 144 UNDER THE SECURITIES ACT AS IN EFFECT ON THE DATE OF THE TRANSFER OF THIS NOTE) AFTER THE LATER OF THE ORIGINAL ISSUE DATE HEREOF AND THE LAST DATE THAT THE ISSUERS OR ANY OF THEIR RESPECTIVE AFFILIATES WAS THE OWNER OF THIS NOTE OR ANY PREDECESSOR OF THIS NOTE, RESELL OR OTHERWISE TRANSFER THIS NOTE EXCEPT (A) TO THE ISSUERS OR ANY OF THEIR RESPECTIVE AFFILIATES, (B) TO A PERSON WHOM THE HOLDER REASONABLY BELIEVES IS A QIB PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QIB IN COMPLIANCE WITH RULE 144A UNDER THE SECURITIES ACT, (C) OUTSIDE THE UNITED STATES IN AN OFFSHORE TRANSACTION IN COMPLIANCE WITH RULES 903 OR 904 UNDER THE SECURITIES ACT, (D) PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE), OR (E) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT AND, IN EACH CASE, IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS, AND (3) AGREES THAT IT WILL DELIVER TO EACH PERSON TO WHOM THIS NOTE OR AN INTEREST HEREIN IS TRANSFERRED A NOTICE SUBSTANTIALLY TO THE EFFECT OF THIS LEGEND. IN CONNECTION WITH ANY TRANSFER OF THIS NOTE OR ANY INTEREST HEREIN WITHIN THE TIME PERIOD REFERRED TO ABOVE, THE HOLDER MUST CHECK THE APPROPRIATE BOX SET FORTH ON THE REVERSE HEREOF RELATING TO THE MANNER OF SUCH TRANSFER AND

SUBMIT THIS CERTIFICATE TO THE TRUSTEE. AS USED HEREIN, THE TERMS “OFFSHORE TRANSACTION” AND “UNITED STATES” HAVE THE MEANINGS GIVEN TO THEM BY RULE 902 OF REGULATION S UNDER THE SECURITIES ACT. THE INDENTURE CONTAINS A PROVISION REQUIRING THE TRUSTEE TO REFUSE TO REGISTER ANY TRANSFER OF THIS NOTE IN VIOLATION OF THE FOREGOING RESTRICTIONS. THIS LEGEND WILL BE REMOVED UPON THE REQUEST OF THE HOLDER AFTER THE DATE THE APPLICABLE RESALE RESTRICTIONS TERMINATE.”

- (b) In the case of Notes initially sold in reliance on Regulation S:

“THIS NOTE AND THE GUARANTEE RELATED TO THIS NOTE HAVE NOT BEEN REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), OR THE SECURITIES LAWS OF ANY STATE OR OTHER JURISDICTION. NEITHER THIS NOTE, THE GUARANTEE NOR ANY INTEREST OR PARTICIPATION HEREIN MAY BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED WITHIN THE UNITED STATES IN THE ABSENCE OF SUCH REGISTRATION OR UNLESS SUCH TRANSACTION IS EXEMPT FROM, OR NOT SUBJECT TO, SUCH REGISTRATION.”

If you purchase Notes, you will also be deemed to acknowledge that the foregoing restrictions apply to holders of beneficial interests in these Notes as well as to holders of these Notes.

- (5) You acknowledge that the registrar will not be required to accept for registration or transfer any Notes acquired by you, except upon presentation of evidence satisfactory to us and the registrar that the restrictions set forth herein have been complied with.
- (6) You acknowledge that:
- (a) the Issuers and their subsidiaries, the Initial Purchasers and others will rely upon the truth and accuracy of your acknowledgements, representations and agreements set forth herein and you agree that, if any of your acknowledgements, representations or agreements herein cease to be accurate and complete, you will notify us and the Initial Purchasers promptly in writing; and
 - (b) if you are acquiring any Notes as fiduciary or agent for one or more investor accounts, you represent with respect to each such account that:
 - (i) you have sole investment discretion; and
 - (ii) you have full power to make the foregoing acknowledgements, representations and agreements.
- (7) You agree that you will give to each person to whom you transfer these Notes notice of any restrictions on the transfer of the Notes.
- (8) You understand that no action has been taken in any jurisdiction (including the United States) by us or the Initial Purchasers that would permit a public offering of the Notes or the possession, circulation or distribution of this Offering Memorandum or any other material relating to us or the Notes in any jurisdiction where action for that purpose is required. Consequently, any transfer of the Notes will be subject to the selling restrictions set forth under “Plan of Distribution.”
- (9) The Notes may not be sold or transferred to, and you as a purchaser, by your purchase and holding of the Notes, shall be deemed to have represented and covenanted that you are not acquiring the Notes for or on behalf of, and will not transfer the Notes to, any employee benefit plan that is subject to Title I of the United States Employee Retirement Income Security Act of

1974, as amended (“ERISA”), plans, individual retirement accounts and other arrangements that are subject to Section 4975 of the Internal Revenue Code of 1986, as amended (the “Code”), and entities whose underlying assets are considered to include “plan assets” of such employee benefit plans, plans accounts or arrangements (pursuant to Section 3(42) of ERISA and regulations promulgated under ERISA by the U.S. Department of Labor), unless such purchase and holding will not constitute a non-exempt prohibited transaction under Title I of ERISA and the Code.

For further discussion of the requirements (including the presentation of transfer certificates) under the relevant Indenture to effect exchanges of transfer of interests in Notes represented by a global certificate and of Notes in certificated form, see “Description of the Notes – Book-Entry; Delivery and Form”.

PLAN OF DISTRIBUTION

J.P. Morgan Securities plc and Morgan Stanley & Co International plc are acting as the Initial Purchasers. Subject to the terms and conditions stated in the purchase agreement dated the date of this Offering Memorandum (the “Purchase Agreement”), each Initial Purchaser named below has severally and not jointly agreed to purchase, and each of the Issuers has jointly and severally agreed to issue and sell to each such Initial Purchaser, the principal amount of the Notes set forth opposite the name of such Initial Purchaser.

Initial Purchaser	Principal Amount
J.P. Morgan Securities plc.....	US\$220,000,000
Morgan Stanley & Co. International plc	US\$220,000,000
Total	US\$440,000,000

The Purchase Agreement provides that the several and not joint obligations of the Initial Purchasers to purchase the Notes are subject to approval of certain legal matters by counsel and to certain other conditions. The Initial Purchasers must purchase all of the Notes if they purchase any of the Notes. The initial offering price is set forth on the cover page of this Offering Memorandum. After the Notes are released for sale, the Initial Purchasers may change the offering price and other selling terms. The Initial Purchasers reserve the right to withdraw, cancel or modify offers to investors and to reject orders in whole or in part. Delivery of the Notes is expected to occur on or about April 15, 2019.

The Issuers and the Subsidiary Guarantors have agreed to indemnify the Initial Purchasers against certain liabilities, including liabilities under the Securities Act, or to contribute to payments that the Initial Purchasers may be required to make in respect of any of such liabilities.

None of the Issuers or the Subsidiary Guarantors will, for a period of 90 days following the date hereof, without first obtaining the prior written consent of the Initial Purchasers, directly or indirectly, offer, sell, contract to sell, pledge, otherwise dispose of, or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition of any debt securities or securities exchangeable for or convertible into debt securities, issued or guaranteed by the Issuers, the Subsidiary Guarantors or their subsidiaries, except for the Notes sold to the Initial Purchasers pursuant to the Purchase Agreement. The Notes have not been registered under the Securities Act and, unless so registered, may not be offered or sold within the United States except in certain transactions exempt from, or not subject to, the registration requirements of the Securities Act.

The Notes will constitute a new class of securities with no established trading market. We have received approval in-principle for the listing and quotation of the Notes on the SGX-ST. The Issuers does not intend to apply for listing or quotation of the Notes on any national securities exchange in the United States. However, there can be no assurance that the prices at which the Notes will sell in the market after the offering of the Notes will not be lower than the initial offering price or that an active trading market for the Notes after the completion of the offering of the Notes will develop and continue after the offering. The Initial Purchasers have advised us that they currently intend to make a market in the Notes. However, they are not obligated to do so and may discontinue any market-making activities with respect to the Notes at any time without notice. In addition, market-making activity will be subject to the limits imposed by applicable law. Accordingly, there can be no assurance that the trading market for the Notes will have any liquidity.

In connection with the offering, J.P. Morgan Securities plc (the “Stabilizing Manager”) (or persons acting on its behalf) may over-allot Notes or effect transactions with a view to supporting the market price of the Notes during the stabilization period at a level higher than that which might otherwise prevail. However, stabilization may not necessarily occur. Any stabilization action may begin on or after the date of adequate public disclosure of the terms of the offer of the Notes and, if begun, may cease at any time, but it must end no later than 30 calendar days after the date on which the Issuers receive the proceeds of the issue, or no later than 60 calendar days after the date of allotment of the Notes, whichever is the earlier. Any stabilization action or over-allotment must be conducted by the Stabilizing Manager (or persons acting on its behalf) in accordance with all applicable laws and rules and will be undertaken at the offices of the Stabilizing Manager (or persons acting on its behalf) and on the SGX-ST.

Certain of the Initial Purchasers and their respective affiliates have, from time to time, performed, and may in the future perform, certain commercial banking and lending, investment banking and advisory and other banking services for us, and/or our affiliates for which they have received or will receive customary fees and expenses. The Initial Purchasers are acting as dealer managers and consent solicitation agents in connection with the Tender Offers, for which they may receive customary and usual fees. The Initial Purchasers and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advice, investment management, principal investment, hedging, financing and brokerage activities. In the ordinary course of their various business activities, the Initial Purchasers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and instruments of the Issuers or the Subsidiary Guarantors, and may also tender into the Tender Offers the relevant securities that they may hold or acquire.

If a jurisdiction requires that the offering of the Notes be made by a licensed broker or dealer and the Initial Purchasers or any affiliate of the Initial Purchasers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by that Initial Purchaser or its affiliate on behalf of the Issuer in such jurisdiction.

Delivery of the Notes is expected on or about April 15, 2019 which is the eighth business day following the date of this Offering Memorandum (such settlement cycle being referred to as “T+8”). Under Rule 15c6-1 under the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the Notes on the date of pricing or the next succeeding business day will be required, because the Notes initially will settle in T+8, to specify an alternate settlement cycle at the time of any such trade to prevent a failed settlement. Purchasers who wish to trade the Notes on the pricing date or the next succeeding business day should consult their own advisers.

Selling Restrictions

General

No action has been taken or will be taken in any jurisdiction by the Issuers, the Subsidiary Guarantors or the Initial Purchasers that would permit a public offering of Notes, or the possession, circulation or distribution of this Offering Memorandum or any other material relating to the Notes or the offering of the Notes, in any jurisdiction where action for that purpose is required.

Accordingly, the Notes may not be offered or sold, directly or indirectly, and neither this Offering Memorandum nor such other material may be distributed or published, in or from any country or jurisdiction except in compliance with any applicable rules and regulations of such country or jurisdiction.

Cayman Islands

No offer or invitation, whether directly or indirectly, may be made to the public in the Cayman Islands to subscribe for the Notes. This offering circular does not constitute, and will not be, an offering of the Notes to any person in the Cayman Islands.

France

This Offering Memorandum has not been and will not be submitted to the clearance procedure (*visa*) nor approved by the *Autorite des marches financiers* (the “AMF”). The Notes have not been and will not be, directly or indirectly, offered or sold to the public in France. This offering memorandum and any other documents or offering materials relating to the offering of the Notes may only be distributed or caused to be distributed to: (i) qualified investors (*investisseurs qualifiés*) acting for their own account and/or (ii) providers of investment services relating to portfolio management for the account of third parties (*personnes fournissant le service d’investissement de gestion de portefeuille pour compte de tiers*), all as defined in, and in accordance with, Articles L. 411-2 and D. 411-1 of the French Financial and Monetary Code (*Code monétaire et financier*).

The Notes so purchased may not be offered or resold, directly or indirectly, to the public in France other than in compliance with Articles L. 411-1, L. 411-2, L. 412-1 and L. 621-8 to L. 621-8-3 of the French Financial and Monetary Code (*Code monétaire et financier*).

Hong Kong

The Notes may not be offered or sold in Hong Kong, by means of any document, other than (i) to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the “SFO”) and any rules made under the SFO, or (ii) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (“CWUMPO”) or which do not constitute an offer to the public within the meaning of CWUMPO.

No person may issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the SFO and any rules made under the SFO.

Luxembourg

This Offering Memorandum has not been approved by, and will not be submitted for approval to, the Luxembourg Financial Services Authority (Commission de Surveillance du Secteur Financier, the “CSSF”) or a competent authority of another EU Member State for notification to the CSSF, where applicable, for purposes of a public offering or sale in the Grand Duchy of Luxembourg. Accordingly, the Notes may not be offered or sold to the public in Luxembourg, directly or indirectly, and neither this offering memorandum nor any other offering circular, prospectus, form of application, advertisement or other material may be distributed, or otherwise made available in, from or published in, Luxembourg, except in circumstances which do not constitute an offer of securities to the public requiring the publication of a prospectus in accordance with the Luxembourg Act of July 10, 2005 on prospectuses for securities, as amended (the “Prospectus Act”) and implementing the Prospectus Directive.

Mongolia

Each Initial Purchaser has represented and agreed that neither it nor any of its affiliates has offered or sold or will offer or sell any of the Notes in the territory of Mongolia.

People’s Republic of China

Each Initial Purchaser has represented, undertaken, warranted and agreed that the Notes are not being offered or sold and may not be offered or sold, directly or indirectly, in the People’s Republic of China (for such purposes, not including Hong Kong and Macau Special Administrative Regions or Taiwan), except as permitted by the applicable laws of the People’s Republic of China.

Republic of Italy

The offering of the Notes has not been registered pursuant to Italian securities legislation and, accordingly, no Notes may be offered, sold or delivered, nor may copies of the offering memorandum or of any other document relating to the Notes be distributed in the Republic of Italy, except:

- (a) to qualified investors (*investitori qualificati*), as defined pursuant to Article 100 of Legislative Decree No. 58 of February 24, 1998, as amended (the “Financial Services Act”) and Article 34-ter, first paragraph, letter b) of CONSOB Regulation No. 11971 of May 14, 1999, as amended from time to time (“Regulation No. 11971”); or
- (b) in other circumstances which are exempted from the rules on public offerings pursuant to Article 100 of the Financial Services Act and Article 34-ter of Regulation No. 11971.

Any offer, sale or delivery of the Notes or distribution of copies of the offering memorandum or any other document relating to the Notes in the Republic of Italy under (a) or (b) above must:

- (1) be made by an investment firm, bank or financial intermediary permitted to conduct such activities in the Republic of Italy in accordance with the Financial Services Act, CONSOB Regulation No. 20307 of February 15, 2018 (as amended from time to time) and Legislative Decree No. 385 of September 1, 1993, as amended (the “Banking Act”); and
- (2) comply with any other applicable laws and regulations or requirement imposed by CONSOB, the Bank of Italy (including the reporting requirements, where applicable, pursuant to Article 129 of the Banking Act and the implementing guidelines of the Bank of Italy, as amended from time to time) and/or any other Italian authority.

Singapore

This Offering Memorandum has not been and will not be registered as a prospectus with the Monetary Authority of Singapore (the “MAS”) under the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”). As such, each of the Initial Purchasers has represented, warranted and agreed, that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this Offering Memorandum or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor (as defined in Section 4A of the SFA) pursuant to under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275, of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased in reliance of an exemption under Section 274 or 275 of the SFA, the Notes shall not be sold within the period of six (6) months from the date of the initial acquisition of the Notes, except to any of the following persons:

- (i) an institutional investor;
- (ii) a relevant person as defined in Section 275(2) of the SFA; or
- (iii) any person pursuant to an offer referred to in Section 275(1A) of the SFA,

unless expressly specified otherwise in Section 276(7) of the SFA or Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interests (howsoever described) in that trust shall not be transferred within six (6) months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except:

- (1) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or (in the case of such corporation) where the transfer arises from an offer referred to in Section 276(3)(i)(B) of the SFA, or (in the case of such trust) where the transfer arises from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (2) where no consideration is or will be given for the transfer;
- (3) where the transfer is by operation of law;
- (4) as specified in Section 276(7) of the SFA; or
- (5) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

Any reference to the SFA is a reference to the Securities and Futures Act, Chapter 289 of Singapore and a reference to any term as defined in the SFA or any provision in the SFA is a reference to that term as modified or amended from time to time including by such of its subsidiary legislation as may be applicable at the relevant time.

Switzerland

This Offering Memorandum does not constitute an issue prospectus pursuant to Article 652a or Article 1156 of the Swiss Code of Obligations and the notes will not be listed on the SIX Swiss Exchange. Therefore, this offering memorandum may not comply with the disclosure standards of the listing rules (including any additional listing rules or prospectus schemes) of the SIX Swiss Exchange. Accordingly, the notes may not be offered to the public in or from Switzerland, but only to a selected and limited circle of investors who do not subscribe to the notes with a view to distribution. Any such investors will be individually approached by the Initial Purchasers from time to time.

Neither this document nor any other offering or marketing material relating to the offering, the Issuers or the Notes have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of the Notes will not be supervised by, the Swiss Financial Market Supervisory Authority ("FINMA"), and the offer of the Notes has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of the Notes.

The Netherlands

The Notes have not been and will not be offered in The Netherlands other than to persons or entities which are qualified investors (*gekwalficeerde belegger*) as defined in article 1:1 of the Dutch Financial Supervision Act (*Wet op het financieel toezicht*).

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), each Initial Purchaser has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Memorandum to the public in that Relevant Member State other than:

- to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the Initial Purchasers for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of Notes shall require the Issuers or any Initial Purchaser to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression “an offer of Notes to the public” in relation to any Notes in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State; the expression Prospectus Directive means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

EEA Retail Investors

Each Initial Purchaser has represented and agreed that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes to any retail investor in the European Economic Area. For the purposes of this provision the expression “retail investor” means a person who is one (or more) of the following:

- (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “MiFID II”); or
- (ii) a customer within the meaning of Directive 2002/92/EC (as amended, the “Insurance Mediation Directive”), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II.

United Kingdom

Each Initial Purchaser has represented and agreed that:

- (a) it has only communicated or caused to be communicated, and will only communicate or cause to be communicated, an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000 (the “FSMA”)) received by it in connection with the issue or sale of any Notes in circumstances in which section 21(1) of the FSMA does not apply to the Issuer; and
- (b) it has complied with, and will comply with, all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

United States

The Notes have not been, and will not be, registered under the Securities Act or any state securities laws and, unless so registered, may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and applicable state securities laws. See “Transfer Restrictions” for a description of other restrictions on the transfer of the Notes. Accordingly, the Notes are being offered and sold only (1) in the United States to “qualified institutional buyers” in reliance on Rule 144A and (2) outside the United States in offshore transactions in reliance on Regulation S. Resales of the Notes are restricted as described under “Transfer Restrictions.”

As used herein, the term “United States” has the meaning given to it in Regulation S.

RATINGS

The Notes are expected to be rated “B” by Fitch Ratings and “B-” by S&P. The ratings reflect the rating agencies’ assessment of the likelihood of timely payment of the principal of and the interest on the Notes. The credit ratings accorded the Notes are not a recommendation to purchase, hold or sell the Notes in as much as such ratings do not comment as to market price or suitability for a particular investor. There can be no assurance that the ratings will remain in effect for any given period or that the ratings will not be revised by the rating agencies in the future if, in their judgment, circumstances so warrant. Each such rating should be evaluated independently of any other rating on the Notes, on any of our other securities, or on us.

LEGAL MATTERS

Certain legal matters will be passed upon for us by Davis Polk & Wardwell as to United States federal and New York law and Hong Kong law. Certain legal matters as to Mongolian law will be passed on for us by ELC LLP Advocates. Certain legal matters as to Cayman Islands law will be passed on for us by Walkers (Hong Kong). Certain legal matters as to Luxembourg law will be passed on for us by Loyens & Loeff Luxembourg S.à r.l.

Certain legal matters will be passed upon for the Initial Purchasers by Shearman & Sterling as to matters of United States federal securities and New York State laws and Minter Ellison as to Mongolian law.

INDEPENDENT ACCOUNTANTS

The published consolidated financial statements of the Group as of and for the years ended December 31, 2017 and 2018, included in this Offering Memorandum, have been audited by KPMG, certified public accountants, Hong Kong, as stated in their reports appearing herein.

For the purposes of the offers and sales outside the United States under the Regulation S of the Securities Act in reliance on Regulation S and within the United States to “qualified institutional buyers” in reliance on Rule 144A under the Securities Act, KPMG has acknowledged the issue of this Offering Memorandum with the inclusion herein of and all references to (i) its name and (ii) its reports dated March 22, 2018 and March 15, 2019 on the consolidated financial statements for the years ended December 31, 2017 and 2018 in the form and context in which they are respectively included in this Offering Memorandum.

INDEPENDENT MINING AND GEOLOGICAL EXPERT

The coal reserve estimates provided for our UHG and BN deposits presented in this Offering Memorandum are estimates that have been prepared by Glogex Consulting LLC (“**Glogex**”), a provider of consulting services to the mining industry. Glogex has given and has not withdrawn its written consent to the issue of this Offering Memorandum with inclusion of information from its independent technical review report and the references to its name included herein in the form and context in which it is respectively included.

LISTING AND GENERAL INFORMATION

Consents

We have each obtained all necessary consents, approvals and authorizations in the Cayman Islands in connection with the issue and performance of the Notes. The entering into of the Indenture and the issue of the Notes have been authorized by a resolution of the Board dated March 16, 2019.

Documents Available

For so long as any of the Notes are outstanding, copies of the Indenture may be inspected free of charge following prior written request and satisfactory proof of holding during normal business hours (between 9:00 a.m. and 3:00 p.m.) on any weekday (except public holidays) at the corporate trust office of the Trustee. For so long as any of the Notes are outstanding, copies of our audited financial statements for the last two financial years may be inspected following prior written request and satisfactory proof of holding during normal business hours on any weekday (except public holidays) at the corporate trust office of the Trustee.

Clearing System and Settlement

The Notes have been accepted for clearance through the facilities of DTC and Euroclear and Clearstream as participant in DTC. Certain trading information with respect to the Notes is set forth below:

	CUSIP	ISIN
Restricted Global Note	60938LAA2	US60938LAA26
Regulation S Global Note	G61759AA7	USG61759AA70

Only Notes evidenced by either a Restricted Global Note or a Regulation S Global Note have been accepted for clearance through DTC and Euroclear and Clearstream as participants in DTC.

Listing of the Notes

We have received approval in-principle for the listing and quotation of the Notes on the Official List of the SGX-ST. The SGX-ST assumes no responsibility for the correctness of any of the statements made, or opinions expressed or reports contained in this Offering Memorandum. Approval in-principle for the listing and quotation of the Notes and admission of the Notes to the Official List of the SGX-ST are not to be taken as an indication of the merits of the Company, the Group, the Subsidiary Guarantors (if any), any of their respective subsidiaries and/or associated companies, the Notes or the Subsidiary Guarantees.

Subject to the approval of the SGX-ST, the Notes will be traded on the SGX-ST in a minimum board lot size of US\$200,000 for so long as any of the Notes are listed on the SGX-ST and the rules of the SGX-ST so require.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, we shall appoint and maintain a paying agent in Singapore, where the Notes may be presented or surrendered for payment or redemption, in the event that a Global Note is exchanged for Notes in definitive form. In addition, in the event that a Global Note is exchanged for Notes in definitive form, announcement of such exchange shall be made by us or on our behalf through the SGX-ST and such announcement will include all material information with respect to the delivery of the Notes in definitive form, including details of the paying agent in Singapore, for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require.

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Mongolian Mining Corporation
(Stock Code 00975)

Financial Statements
for the year ended 31 December 2018

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation

(Incorporated in the Cayman Islands with limited liability)

Opinion

We have audited the consolidated financial statements of Mongolian Mining Corporation ("the Company") and its subsidiaries ("the Group") set out on pages 7 to 98 which comprise the consolidated statement of financial position as at 31 December 2018, the consolidated statement of profit or loss, the consolidated statement of profit or loss and other comprehensive income, the consolidated statement of changes in equity and the consolidated cash flow statement for the year then ended and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2018 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards ("IFRSs") issued by the International Accounting Standards Board ("IASB") and have been properly prepared in compliance with the disclosure requirements of the Hong Kong Companies Ordinance.

Basis for Opinion

We conducted our audit in accordance with Hong Kong Standards on Auditing ("HKSA") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the HKICPA's Code of Ethics for Professional Accountants ("the Code") together with any ethical requirements that are relevant to our audit of the consolidated financial statements in the Cayman Islands, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Material Uncertainty Related to Going Concern

We draw attention to note 2(b) to the consolidated financial statements, which discloses that the Group had net current liabilities of approximately US\$65,843,000 as at 31 December 2018, indicating the existence of a material uncertainty which may cast significant doubt about the Group's ability to continue as a going concern. The consolidated financial statements have been prepared on a going concern basis, the validity of which is dependent on the Group's ability to generate sufficient cash flows from future operations to enable it to operate as a going concern and meet its financial liabilities as they fall due for the foreseeable future. The Group's ability to do this is dependent upon the current economic environment and the sustainability of the price of coking coal in the market. The consolidated financial statements do not include any adjustments that would result should the Group be unable to continue to operate as a going concern. Our opinion is not modified in respect of this matter.

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation (continued)

(Incorporated in the Cayman Islands with limited liability)

Key Audit Matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. In addition to the matter described in the Material Uncertainty Related to Going Concern section, we have determined the matters described below to be the key audit matters to be communicated in our report.

Assessing impairment of mining related assets

Refer to notes 2(f), 3(a), 14 and 15 to the consolidated financial statements and the accounting policies

The Key Audit Matter

The Group's mining related assets are the most quantitatively significant items in the consolidated statement of financial position and mainly comprise property, plant and equipment, construction in progress, intangible assets and long-term prepayments relating to the Group's mining operations located in Mongolia, which are considered by management to represent a single separately identifiable cash generating unit ("CGU").

Management performs an impairment assessment of mining related assets at the end of each reporting period. As at 31 December 2014, the Group recognised impairment of its mining rights in the amount of USD190 million which reflected downward pressures on the prices of certain coking coal products. As at 31 December 2015, 2016, 2017 and 2018, management concluded that no further impairment or reversal of previously recognised impairment was necessary.

How the matter was addressed in our audit

Our audit procedures to assess impairment of mining related assets included the following:

- evaluating the design and implementation of key internal controls over the estimations of the recoverable amounts of mining related assets;
- assessing the allocation of assets and liabilities by management to the mining CGU and the methodology adopted by management in its impairment assessment with reference to the requirements of the prevailing accounting standards;
- challenging the key assumptions and estimates used to in the discounted cash flow forecast as at 31 December 2018, including those relating to future commodity prices, future sales, future operating costs and the discount rates applied, which included involving our internal valuation specialists to assist us in comparing these key assumptions and estimates with external benchmarks (including future commodity prices and discount rates for similar companies in the same industry) and in considering the key assumptions and estimates based on our knowledge of the Group and the industry in which it operates;

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation (continued)

(Incorporated in the Cayman Islands with limited liability)

Key Audit Matters (continued)

Assessing impairment of mining related assets

Refer to notes 2(h), 3(a), 14 and 15 to the consolidated financial statements and the accounting policies

The Key Audit Matter

Management determines the recoverable amount of mining related assets by assessing the value in use of the CGU to which the assets have been allocated by using discounted cash flow techniques when indicators of impairment are identified. The preparation of a discounted cash flow forecast involves the exercise of significant management judgement in the selection of assumptions in particular in estimating future commodity prices and the discount rate applied as well as in determining internal assumptions relating to future sales and future operating costs.

We identified assessing impairment of mining related assets as a key audit matter because the impairment assessment involves significant management judgement in the selection of assumptions which could be subject to management bias.

How the matter was addressed in our audit

- considering the key assumptions and estimates included in the discounted cash flow forecast prepared in the prior year with the current years performance to assess the reliability management's forecasting process and making enquires of management as to the reasons for any significant variances identified;
- performing sensitivity analyses of the key assumptions and estimates adopted in the discounted cash flow forecast and assessing the impact of changes in the key assumptions and estimates and whether there were any indicators of management bias; and
- assessing the disclosures in the consolidated financial statements in respect of the impairment of mining related assets with reference to the requirements of the prevailing accounting standards.

Information other than the consolidated financial statements and auditor's report thereon

The directors are responsible for the other information. The other information comprises all the information included in the annual report, other than the consolidated financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation (continued)

(Incorporated in the Cayman Islands with limited liability)

Information other than the consolidated financial statements and auditor's report thereon (continued)

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the directors for the consolidated financial statements

The directors are responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRSs issued by the IASB and the disclosure requirements of the Hong Kong Companies Ordinance and for such internal control as the directors determine is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the directors are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or to cease operations, or have no real alternative but to do so.

The directors are assisted by the Audit Committee in discharging their responsibilities for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. This report is made solely to you as a body, and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with HKSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation (continued)

(Incorporated in the Cayman Islands with limited liability)

Auditor's responsibilities for the audit of the consolidated financial statements (continued)

As part of an audit in accordance with HKSAAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design and perform procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Independent Auditor's Report to the Shareholders of Mongolian Mining Corporation (continued)

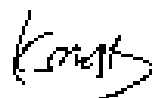
(Incorporated in the Cayman Islands with limited liability)

Auditor's responsibilities for the audit of the consolidated financial statements (continued)

We also provide the Audit Committee with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and, where applicable, related safeguards.

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Chu Man Wai.



Certified Public Accountants
8th Floor, Prince's Building
10 Chater Road
Central, Hong Kong

15 March 2019

**Consolidated statement of profit or loss
for the year ended 31 December 2018**
(Expressed in United States dollars)

	Note	2018 USD'000	2017 (Note) USD'000
Revenue	4	593,710	476,364
Cost of revenue	5	<u>(360,310)</u>	<u>(273,797)</u>
Gross profit		230,400	202,567
Other costs		(986)	(663)
Other net income/(loss)		2,145	(1,984)
Selling and distribution costs	6(c)	(61,410)	(50,631)
General and administrative expenses		(16,458)	(19,097)
Profit from operations		<u>153,652</u>	<u>123,993</u>
Finance income	6(a)	134	48
Finance costs	6(b)	<u>(55,529)</u>	<u>(51,053)</u>
Net finance costs	6(a)	<u>(55,395)</u>	<u>(51,005)</u>
Gain from the Debt Restructuring	7	-	262,968
Share of profit of associates		171	163
Share of losses of joint venture		<u>(8)</u>	<u>-</u>

The notes on pages 16 to 98 form part of these financial statements. Details of dividends payable to equity shareholders of the Company attributable to the profit for the year are set out in Note 30(b).

Consolidated statement of profit or loss
for the year ended 31 December 2018 (continued)
(Expressed in United States dollars)

	<i>Note</i>	2018	2017
		USD'000	(Note) USD'000
Profit before taxation	6	96,460	336,119
Income tax	6	<u>(16,050)</u>	<u>(25,613)</u>
Profit for the year		82,410	310,306
Attributable to:			
Equity shareholders of the Company		82,773	311,013
Non-controlling interests		<u>(363)</u>	<u>(707)</u>
Profit for the year		82,410	310,306
Basic earnings per share	9	<u>0.80 cents</u>	<u>3.13 cents</u>
Diluted earnings per share	9	<u>0.80 cents</u>	<u>3.13 cents</u>

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition method's chosen, comparative information is not restated. See Note 2(c).

The notes on pages 16 to 99 form part of these financial statements. Details of dividends payable to equity shareholders of the Company attributable to the profit for the year are set out in Note 30(b).

Consolidated statement of profit or loss and other comprehensive income for the year ended 31 December 2018

(Expressed in United States dollars)

	Note	2018 USD'000	2017 (Note) USD'000
Profit for the year		82,410	310,306
Other comprehensive income for the year (after reclassification adjustments)	12		
Items that may be reclassified subsequently to profit or loss:			
Exchange differences on re-translation		<u>(36,676)</u>	<u>21,698</u>
Total comprehensive income for the year		<u>45,734</u>	<u>332,004</u>
Attributable to:			
Equity shareholders of the Company		46,097	332,711
Non-controlling interests		<u>(363)</u>	<u>(707)</u>
Total comprehensive income for the year		<u>45,734</u>	<u>332,004</u>

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. See Note 2(c).

The notes on pages 16 to 58 form part of these financial statements.

Consolidated statement of financial position
at 31 December 2018
(Expressed in United States dollars)

	<i>Note</i>	2018 USD'000	2017 (Note) USD'000
Non-current assets			
Property, plant and equipment, net	14	853,278	861,520
Construction in progress	15	23,365	16,010
Lease prepayments	16	53	54
Intangible assets	17	504,392	508,595
Interest in associates	19	328	196
Interest in joint venture		47	60
Other non-current assets	20	70,749	83,338
Deferred tax assets	27(b)	31,248	14,895
Total non-current assets		<u>1,483,460</u>	<u>1,484,669</u>
Current assets			
Assets held for sale		-	183
Inventories	21	99,980	66,745
Trade and other receivables	22	101,493	72,375
Cash and cash equivalents	23	33,035	7,460
Total current assets		<u>234,508</u>	<u>146,763</u>
Current liabilities			
Short-term borrowings and current portion of long-term borrowings	24(b)	26,065	7,500
Trade and other payables	26	195,472	222,731
Contract liabilities	26	43,018	-
Current taxation	27(a)	26,796	4,299
Total current liabilities		<u>291,351</u>	<u>234,530</u>
Net current liabilities		<u>(56,843)</u>	<u>(87,767)</u>
Total assets less current liabilities		<u>1,427,617</u>	<u>1,396,902</u>

**Consolidated statement of financial position
at 31 December 2018 (continued)**
(Expressed in United States dollars)

	Note	2018 USD'000	2017 (Note) USD'000
Non-current liabilities			
Long-term borrowings, less current portion	24(a)	-	24,253
Senior Notes	25	451,711	436,563
Provisions	26	13,059	14,327
Deferred tax liabilities	27(b)	144,290	149,604
Other non-current liabilities		1,296	1,305
Total non-current liabilities		<u>610,356</u>	<u>626,052</u>
NET ASSETS		<u>817,261</u>	<u>770,850</u>
CAPITAL AND RESERVES			
Share capital	30(c)	102,918	102,918
Perpetual notes	30(f)	75,897	75,897
Reserves		<u>638,918</u>	<u>592,144</u>
Total equity attributable to equity shareholders of the Company		<u>817,733</u>	<u>770,959</u>
Non-controlling interests		<u>(472)</u>	<u>(109)</u>
TOTAL EQUITY		<u>817,261</u>	<u>770,850</u>

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. See Note 2(c).

Approved and authorized for issue by the board of directors on 15 March 2019.


Odjargal Jambaljamts
Chairman


Battseengel Gotov
Chief Executive Officer

The notes on pages 16 to 58 form part of these financial statements.

Consolidated statement of changes in equity for the year ended 31 December 2018 (Expressed in United States dollars)

Notes	Attributable to equity shareholders of the Company							Residual income USD'000 (Note 20(f))	Non- controlling interests USD'000	Total equity USD'000
	Share capital USD'000 (Note 20(e))	Share premium USD'000 (Note 20(e)(i))	Other reserve USD'000 (Note 20(e)(ii))	Exchange reserve USD'000 (Note 20(e)(iii))	Property revaluation reserve USD'000 (Note 20(e)(iv))	Accumulated losses USD'000	Total USD'000			
At 1 January 2018	102,918	764,520	36,347	1,960,820	341,825	(193,746)	965,082	75,887	(108)	770,860
Profit for the year	-	-	-	-	-	82,773	82,773	-	(363)	82,410
Other comprehensive income	-	-	-	(34,878)	-	-	(34,878)	-	-	(34,878)
Total comprehensive income	-	-	-	(34,878)	-	82,773	48,097	-	(363)	45,734
Equity-settled share- based transactions	-	-	877	-	-	-	877	-	-	877
Redistribution of property revaluation reserves to accumulated losses	-	-	-	-	(111)	111	-	-	-	-
Upon disposal of assets concerned	-	-	-	-	-	-	-	-	-	-
Redistribution of changing functional currency of certain group entities	-	-	-	(74,014)	-	74,014	-	-	-	-
At 31 December 2018	102,918	764,520	37,044	1,871,520	341,514	(34,860)	941,608	75,887	(472)	917,961

The notes on pages 16 to 96 form part of these financial statements

Consolidated statement of changes in equity for the year ended 31 December 2018 (continued) (Expressed in United States dollars)

Note	Attributable to equity shareholders of the Company						Total USD'000	Residual value USD'000 (Note 20(f))	Non- controlling interests USD'000	Total equity USD'000
	Share capital USD'000 (Note 20(e))	Share premium USD'000 (Note 20(e)(i))	Other reserve USD'000 (Note 20(e)(ii))	Exchange reserve USD'000 (Note 20(e)(iii))	Property revaluation reserve USD'000 (Note 20(e)(iv))	Accumulated losses USD'000				
At 1 January 2017	92,429	748,527	35,032	1342,298	341,819	(504,395)	930,711	-	598	931,309
Profit for the year	-	-	-	-	-	-	-	-	-	-
Other comprehensive income	-	-	-	-	-	311,019	311,019	-	(707)	310,312
Total comprehensive income	-	-	-	-	-	311,019	311,019	-	-	311,019
Transfer of perpetual notes	-	-	-	-	-	-	-	-	-	-
Issuance of shares	10,282	18,863	-	-	-	-	29,145	75,807	-	75,807
Equity-settled share- based transactions	-	-	-	-	-	-	-	-	-	30,285
Revaluation of property, revaluation losses to income tax	-	-	1,305	-	-	-	1,305	-	-	1,305
Accumulated losses upon disposal of intangible assets	-	-	-	-	(1,847)	184	-	-	-	-
At 31 December 2017 (Note)	102,711	768,320	35,032	1342,298	341,819	(193,380)	930,652	75,807	(109)	770,650

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. See Note 2(c).

The notes on pages 16 to 38 form part of these financial statements.

Consolidated cash flow statement
for the year ended 31 December 2018
(Expressed in United States dollars)

	<i>Note</i>	2018 USD'000	2017 USD'000
Cash flows from operating activities			
Profit before taxation		98 460	336,119
Adjustments for:			
Depreciation and amortisation	6(c)	63 873	51,014
Share of profit of associates and joint venture		(163)	(163)
Gain on disposals of property, plant and equipment and assets held for sale	6(c)	(90)	(90)
Net finance costs	6(a)	55 395	51,005
Gain from the Debt Restructuring	7	-	(262,968)
Equity-settled share-based payment expenses	6(b)	677	1,355
Employee benefit accrued		156	799
Changes in working capital:			
Increase in inventories		(33 235)	(24,564)
Increase in trade and other receivables		(29 118)	(13,624)
Increase/(decrease) in trade and other payables		17 461	(20,674)
Increase in other non-current assets and other non-current liabilities		(1 840)	(22,398)
Cash generated from operations		171 567	95,811
Income tax paid	27(a)	(12 567)	(1 91)
Net cash generated from operating activities		158 600	95,620

Consolidated cash flow statement
for the year ended 31 December 2018 (continued)
(Expressed in United States dollars)

	<i>Note</i>	2018 USD 000	2017 USD 000
Investing activities			
Payments for acquisition of property, plant and equipment and construction in progress		(89 497)	(82,838)
Proceeds from disposals of property, plant and equipment and assets held for sale		-	55
Interest received		124	-
Net cash used in investing activities		<u>(89 373)</u>	<u>(82,883)</u>
Financing activities			
Repayment of borrowings		(7 500)	-
Interest paid		(35 528)	(17,767)
Net cash used in financing activities		<u>(43 028)</u>	<u>(17,767)</u>
Net increase/(decrease) in cash and cash equivalents		26 199	(5,030)
Cash and cash equivalents at beginning of the year		7,460	12,265
Effect of foreign exchange rate changes		(624)	222
Cash and cash equivalents at end of the year	23	<u>33 035</u>	<u>7,460</u>

The notes on pages 16 to 98 form part of these financial statements.

Notes to consolidated financial statements

1 Corporate Information

Mongolian Mining Corporation (the 'Company') was incorporated in the Cayman Islands on 18 May 2010 as an exempted company with limited liability under the Companies Law, Cap 22 (Law 3 of 1981, as consolidated and revised) of the Cayman Islands. The Company and its subsidiaries (together referred to as the 'Group') are principally engaged in the mining, processing, transportation and sale of coal.

Pursuant to a group reorganisation completed on 17 September 2010 (the 'Reorganisation') to rationalise the group structure for the public listing of the Company's shares on the Main Board of the Stock Exchange of Hong Kong Limited (the 'Stock Exchange'), the Company's shares were listed on the Stock Exchange on 13 October 2010. Details of the Reorganisation are set out in the prospectus of the Company dated 28 September 2010.

2 Significant accounting policies

(a) Statement of compliance

These financial statements have been prepared in accordance with all applicable International Financial Reporting Standards ('IFRSs') promulgated by the International Accounting Standards Board ('IASB'). IFRSs include all applicable individual International Financial Reporting Standards, International Accounting Standards ('IASs') and related interpretations. These financial statements also comply with the applicable disclosure requirements of the Hong Kong Companies Ordinance. These financial statements also comply with the applicable disclosure provisions of the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (the 'Listing Rules'). A summary of the significant accounting policies adopted by the Group is set out below.

The IASB has issued certain new and revised IFRSs that are first effective or available for early adoption for the current accounting period of the Group and the Company. Note 2(c) provides information on any changes in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Group for the current and prior accounting periods reflected in these financial statements.

(b) Basis of preparation of the financial statements

The consolidated financial statements for the year ended 31 December 2010 comprise the Group and the Group's interest in associates and a joint venture.

2 Significant accounting policies (continued)

The measurement basis used in the preparation of the financial statements is the historical cost basis except that the following assets and liabilities are stated at their fair value as explained in the accounting policies set out below:

- Financial instruments classified as available-for-sale or as trading securities (see Note 2(f)).
- Buildings and plants as well as machinery and equipment (see Note 2(h)).
- Derivative financial instruments (see Note 2(g)).

Non-current assets and disposals groups held for sale are stated at the lower of carrying amount and fair value less costs (see Note 2(y)).

The preparation of financial statements in conformity with IFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

As at 31 December 2018 the Group had net current liabilities of approximately USD65,843,000. This condition indicates the existence of a material uncertainty which may cast significant doubt upon the Group's ability to continue as a going concern.

The Company completed the debt restructuring ("**Debt Restructuring**") (see Note 7) in May 2017. The directors of the Company (the "**Directors**") continue to monitor the future liquidity and performance of the Group and its available sources of financing in assessing whether the Group will have sufficient financial resources to continue as a going concern. Assuming that the Group's business plan and cash flow forecast can be achieved, the Directors expect to generate sufficient financial resources from future operations to cover the Group's operating costs and to meet its financing commitments, as and when they fall due for the twelve months since 31 December 2018. The achievability of the business plan and cash flow forecast is dependent upon the current economic environment and the sustainability of the coking coal price in the market. Based on the business plan and cash flow forecast, the Directors consider that it is appropriate to prepare the consolidated financial statements on a going concern basis. The consolidated financial statements do not include adjustments that would result should the Group be unable to continue as a going concern.

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the "functional currency").

2 Significant accounting policies (continued)

The functional currency of the Company and the investment holding companies is USD. Prior to 2018, the functional currency of other group entities located in Mongolia was Mongolian Tugrug ("MNT"). Since 1 January 2018, the functional currency of certain subsidiaries located in Mongolia was changed from MNT to United States Dollars ("USD") as USD has become the currency of the primary economic environment in which those subsidiaries operate due to changes in underlying transactions relevant to those subsidiaries. This change in functional currency has been accounted for prospectively from 1 January 2018.

The Company and the Group's presentation currency is USD.

Judgements made by management in the application of IFRSs that have significant effect on the financial statements and major sources of estimation uncertainty are discussed in Note 3.

(c) Changes in accounting policies

The IASB has issued a number of new IFRSs and amendments to IFRSs that are first effective for the current accounting period of the Group. Of these, the following developments are relevant to the Group's financial statements:

- IFRS 9, *Financial instruments*
- IFRS 15, *Revenue from contracts with customers*
- IFRIC 22, *Foreign currency transactions and advance consideration*

None of these developments has had a material effect on how the Group's results and financial position for the current or prior periods have been prepared or presented in this financial report, except for the impact by IFRS 15 in relation to presentation of contract liabilities.

Under the transition methods chosen, the Group recognises cumulative effect of the initial application of IFRS 15 as an adjustment to the opening balance of equity at 1 January 2018. Comparative information is not restated. The following table gives a summary of the opening balance adjustments recognised for each line item in the consolidated statement of financial position that has been impacted by IFRS 15 (see also Note 26).

	At 31 December 2017 USD'000	Impact on initial application of IFRS 15 USD'000	At 1 January 2018 USD'000
Contract liabilities	-	27,787	27,787
Trade and other payables	222,731	(27,787)	194,944

2 Significant accounting policies (continued)

(d) Subsidiaries and non-controlling interests

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to or has rights to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing whether the Group has power, only substantive rights (held by the Group and other parties) are considered.

An investment in a subsidiary is consolidated into the consolidated financial statements from the date that control commences until the date that control ceases. Intra-group balances, transactions, cash flows and any unrealised profits arising from intra-group transactions are eliminated in full in preparing the consolidated financial statements. Unrealised losses resulting from intra-group transactions are eliminated in the same way as unrealised gains but only to the extent that there is no evidence of impairment.

Non-controlling interests represent the equity in a subsidiary not attributable directly or indirectly to the Company, and in respect of which the Group has not agreed any additional terms with the holders of those interests which would result in the Group as a whole having a contractual obligation in respect of those interests that meets the definition of a financial liability. For each business combination, the Group can elect to measure any non-controlling interests either at fair value or at the non-controlling interests' proportionate share of the subsidiary's net identifiable assets.

Non-controlling interests are presented in the consolidated statement of financial position within equity, separately from equity attributable to the equity shareholders of the Company. Non-controlling interests in the results of the Group are presented on the face of the consolidated statement of profit or loss and the consolidated statement of profit or loss and other comprehensive income as an allocation of the total profit or loss and total comprehensive income for the year between non-controlling interests and the equity shareholders of the Company. Loans from holders of non-controlling interests and other contractual obligations towards these holders are presented as financial liabilities in the consolidated statement of financial position in accordance with Notes 2(h) or (c) depending on the nature of the liability.

Changes in the Group's interests in a subsidiary that do not result in a loss of control are accounted for as equity transactions, whereby adjustments are made to the amounts of controlling and non-controlling interests within consolidated equity to reflect the change in relative interests, but no adjustments are made to goodwill and no gain or loss is recognised.

When the Group loses control of a subsidiary, it is accounted for as a disposal of the entire interest in that subsidiary, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former subsidiary at the date when control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset or, when appropriate, the cost on initial recognition of an interest in an associate (see Note 2(e)) or joint venture.

In the Company's statement of financial position, an investment in a subsidiary is stated at cost less impairment losses (see Note 2(k)), unless the investment is classified as held for sale (or included in a disposal group that is classified as held for sale) (see Note 2(y)).

2 Significant accounting policies (continued)

(e) Associates and joint ventures

An associate is an entity in which the Group has significant influence, but not control or joint control over its management, including participation in the financial and operating policy decisions.

A joint venture is an arrangement whereby the Group and other parties contractually agree to share control of the arrangement, and have rights to the net assets of the arrangement.

An investment in an associate or a joint venture is accounted for in the consolidated financial statements under the equity method, unless it is classified as held for sale (or included in a disposal group that is classified as held for sale (see Note 2(y)). Under the equity method, the investment is initially recorded at cost, adjusted for any excess of the Group's share of the acquisition-date fair values of investee's identifiable net assets over the cost of the investment (if any). Thereafter, the investment is adjusted for the post-acquisition change in the Group's share of the investee's net assets and any impairment loss relating to the investment (see Note 2(k)). Any acquisition-date excess over cost, the Group's share of the post-acquisition, post-tax results of the investees and any impairment losses for the year are recognised in the consolidated statement of profit or loss, whereas the Group's share of the post-acquisition post-tax items of the investees' other comprehensive income is recognised in the consolidated statement of profit or loss and other comprehensive income.

When the Group's share of losses exceeds its interest in the associate or the joint venture, the Group's interest is reduced to nil and recognition of further losses is discontinued except to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the investee. For this purpose, the Group's interest is the carrying amount of the investment under the equity method together with the Group's long-term interests that in substance form part of the Group's net investment in the associate or the joint venture.

Unrealised profits and losses resulting from transactions between the Group and its associates and joint venture are eliminated to the extent of the Group's interest in the investee, except where unrealised losses provide evidence of an impairment of the asset transferred, in which case they are recognised immediately in profit or loss.

If an investment in an associate becomes an investment in a joint venture or vice versa, retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method.

In all other cases when the Group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (see Note 2(f)).

In the Company's statement of financial position, investments in associates and joint venture are stated at cost less impairment losses, unless classified as held for sale (or included in a disposal group that is classified as held for sale).

2 Significant accounting policies (continued)

(f) Other investments in debt and equity securities

The Group's and the Company's policies for investments in debt and equity securities, other than investments in subsidiaries, associates and joint ventures, are as follows:

Investments in debt and equity securities are recognised/derecognised on the date the Group commits to purchase/sell the investment. The investments are initially stated at fair value plus directly attributable transaction costs, except for those investments measured at fair value through profit or loss (FVPL) for which transaction costs are recognised directly in profit or loss. For an explanation of how the Group determines fair value of financial instruments, see Note 31(f). These investments are subsequently accounted for as follows, depending on their classification:

(A) Policy applicable from 1 January 2018

Investments other than equity investments

Non-equity investments held by the Group are classified into one of the following measurement categories:

- amortised cost, if the investment is held for the collection of contractual cash flows which represent solely payments of principal and interest. Interest income from the investment is calculated using the effective interest method (see Note 2(v)(ii))
- fair value through other comprehensive income (FVOCI) - recycling, if the contractual cash flows of the investment comprise solely payments of principal and interest and the investment is held within a business model whose objective is achieved by both the collection of contractual cash flows and sale. Changes in fair value are recognised in other comprehensive income, except for the recognition in profit or loss of expected credit losses, interest income (calculated using the effective interest method) and foreign exchange gains and losses. When the investment is derecognised, the amount accumulated in other comprehensive income is recycled from equity to profit or loss
- fair value at profit or loss (FVPL) if the investment does not meet the criteria for being measured at amortised cost or FVOCI (recycling). Changes in the fair value of the investment (including interest) are recognised in profit or loss

2 Significant accounting policies (continued)

Equity investments

An investment in equity securities is classified as FVPL unless the equity investment is not held for trading purposes and on initial recognition of the investment the Group makes an election to designate the investment at FVOCI (non-recycling) such that subsequent changes in fair value are recognised in other comprehensive income. Such elections are made on an instrument-by-instrument basis, but may only be made if the investment meets the definition of equity from the issuer's perspective. Where such an election is made, the amount accumulated in other comprehensive income remains in the fair value reserve (non-recycling) until the investment is disposed of. At the time of disposal, the amount accumulated in the fair value reserve (non-recycling) is transferred to retained earnings. It is not recycled through profit or loss. Dividends from an investment in equity securities, irrespective of whether classified as at FVPL or FVOCI, are recognised in profit or loss as other income.

(B) Policy applicable prior to 1 January 2018

Investments in securities held for trading were classified as financial assets measured at FVPL. Any attributable transaction costs were recognised in profit or loss as incurred. At the end of each reporting period the fair value was remeasured, with any resultant gain or loss being recognised in profit or loss.

Dated debt securities that the Group had the positive ability and intention to hold to maturity were classified as held-to-maturity securities. Held-to-maturity securities were stated at amortised cost (for impairment see Note 2(k)(i) – policy applicable prior to 1 January 2018).

Investments which did not fall into any of the above categories were classified as available-for-sale financial assets. At the end of each reporting period the fair value was remeasured, with any resultant gain or loss being recognised in other comprehensive income and accumulated separately in equity in the fair value reserve (recycling). Interest income from debt securities calculated using the effective interest method were recognised in profit or loss in accordance with the policies set out in Notes 2(v)(ii), respectively. Foreign exchange gains and losses arising from debt securities were also recognised in profit or loss. When the investments were derecognised or impaired (see Note 2(k)(i) – policy applicable prior to 1 January 2018), the cumulative gain or loss recognised in equity was reclassified to profit or loss.

(g) Derivative financial instruments

Derivative financial instruments are recognised initially at fair value. At the end of each reporting period the fair value is remeasured. The gain or loss on remeasurement of fair value is recognised immediately in profit or loss.

2 Significant accounting policies (continued)

(h) Property, plant and equipment

The following items are stated at their revalued amounts, being their fair values at the date of the revaluation less any subsequent accumulated depreciation and any subsequent accumulated impairment losses:

- buildings and plants (under the Property, plant and equipment and Construction in progress) and
- machinery and equipment.

Revaluations are performed with sufficient regularity to ensure that the carrying amounts of these assets do not differ materially from that which would be determined using fair values at the end of reporting period.

The following items of property, plant and equipment are stated at cost less accumulated depreciation and impairment losses (see Note 2(k)):

- motor vehicles,
- office equipment, and
- mining properties

Changes arising on the revaluation are generally dealt with in other comprehensive income and are accumulated separately in equity in the asset revaluation reserve. The only exceptions are as follows:

- when a deficit arises on revaluation, it will be charged to profit or loss to the extent that it exceeds the amount held in the reserve in respect of that same asset immediately prior to the revaluation, and
- when a surplus arises on revaluation, it will be credited to profit or loss to the extent that a deficit on revaluation in respect of that same asset had previously been charged to profit or loss.

The cost of an asset comprises its purchase price, any directly attributable costs of bringing the asset to its present working condition and location for its intended use, the cost of borrowed funds used during the period of construction and, when relevant, the costs of dismantling and removing the items and restoring the site on which they are located, and changes in the measurement of existing liabilities recognised for these costs resulting from changes in the timing or outflow of resources required to settle the obligation or from changes in the discount rate.

2 Significant accounting policies (continued)

All other expenditures, including the cost of repairs and maintenance and major overhaul, are expensed as they are incurred.

Construction in progress represents property, plant and equipment under construction and equipment pending installation. Except for those stated at their revalued amount as aforementioned, other construction in progress items are initially recognised at cost less impairment losses (Note 2(k)). Cost comprises cost of materials, direct labour and an appropriate proportion of production overheads and borrowing costs (Note 2(x)). Capitalisation of these costs ceases and the construction in progress is transferred to property, plant and equipment when the asset is substantially ready for its intended use. No depreciation is provided in respect of construction in progress until it is completed and substantially ready for its intended use.

Gains or losses arising from the retirement or disposal of an item of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the item and are recognised in profit or loss on the date of retirement or disposal.

Depreciation is calculated to write off the cost of items of property, plant and equipment, other than mining properties, over their estimated useful lives using the straight-line method after taking into account the estimated residual values.

The estimated useful lives of property, plant and equipment are as follows:

	Depreciable life
- Buildings and plants	10 - 40 years
- Machinery and equipment	10 years
- Motor vehicles	5 - 10 years
- Office equipment	3 - 10 years

Mining properties, except for stripping activity assets related to capitalised stripping costs incurred during the production phase, are depreciated on the units-of-production method utilising only proven and probable coal reserves in the depletion base.

Stripping activity assets related to stripping costs incurred during the production phase are depreciated using a units-of-production basis over the proven and probable coal reserves of the component to which they relate.

No depreciation is provided in respect of construction in progress until it is substantially completed and ready for its intended use.

Where parts of an item of property, plant and equipment have different useful lives, the cost of the item is allocated on a reasonable basis between parts and each part is depreciated separately. Both the useful life of an asset and its residual value, if any, are reviewed annually.

2 Significant accounting policies (continued)

(f) Intangible assets

Intangible assets (acquired mining rights and software) acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value as at the date of acquisition. Following the initial recognition, intangible assets are stated at cost less accumulated amortisation (where the estimated useful life is finite) and impairment losses (see Note 2(k)).

Intangible assets (acquired mining rights) are depreciated on the units-of-production method utilising only proven and probable coal reserves in the depletion base.

Amortisation of other intangible assets with finite useful lives is recognised in profit or loss on a straight-line basis over the expected useful lives. The software are amortised over 10 years from the date they are available for use.

Both the period and method of amortisation are reviewed annually.

(g) Leased assets

An arrangement, comprising a transaction or a series of transactions, is or contains a lease if the Group determines that the arrangement conveys a right to use a specific asset or assets for an agreed period of time in return for a payment or a series of payments. Such a determination is made based on an evaluation of the substance of the arrangement and is regardless of whether the arrangement takes the legal form of a lease.

(i) Classification of assets leased to the Group

Assets that are held by the Group under leases which transfer to the Group substantially all the risks and rewards of ownership are classified as being held under finance leases. Leases which do not transfer substantially all the risks and rewards of ownership to the Group are classified as operating leases.

(ii) Assets acquired under finance leases

Where the Group acquires the use of assets under finance leases, the amounts representing the fair value of the leased asset, or if lower, the present value of the minimum lease payments, of such assets is included in property, plant and equipment and the corresponding liabilities, net of finance charges, are recorded as obligations under finance leases. Depreciation is provided at rates which write off the cost or valuation of the assets over the term of the relevant lease or, where it is likely the Group will obtain ownership of the asset, the life of the asset, as set out in Note 2(h). Impairment losses are accounted for in accordance with the accounting policy as set out in Note 2(k). Finance charges implicit in the lease payments are charged to profit or loss over the period of the leases so as to produce an approximately constant periodic rate of charge on the remaining balance of the obligations for each accounting period. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

2 Significant accounting policies (continued)

(iii) Operating lease charges

Where the Group has the use of assets held under operating leases, payments made under the leases are charged to profit or loss in equal instalments over the accounting periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the leased asset. Lease incentives received are recognised in profit or loss as an integral part of the aggregate net lease payments made. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

(iv) Lease prepayments

Lease prepayments represent the costs of acquiring the land use rights. Land use rights are carried at cost less accumulated amortisation and impairment losses (see Note 2(k)(i)). Amortisation is charged to profit or loss on a straight-line basis over the period of the land use rights.

(A) Credit losses and impairment of assets

(i) Credit losses from financial instruments, contract assets and lease receivables

(A) Policy applicable from 1 January 2018

The Group recognises a loss allowance for expected credit losses (ECLs) on the following items:

- financial assets measured at amortised cost (including cash and cash equivalents, trade and other receivables and loans to associates);
- contract assets as defined in IFRS 15 (see Note 2(p));
- debt securities measured at FVOCI (recycling);
- lease receivables; and
- loan commitments issued, which are not measured at FVPL.

Financial assets measured at fair value, including units in bond funds, equity securities measured at FVPL, equity securities designated at FVOCI (non-recycling) and derivative financial assets, are not subject to the ECL assessment.

Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all expected cash shortfalls (i.e. the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive).

2 Significant accounting policies (continued)

For undrawn loan commitments, expected cash shortfalls are measured as the difference between (i) the contractual cash flows that would be due to the Group if the holder of the loan commitment draws down on the loan and (ii) the cash flows that the Group expects to receive if the loan is drawn down.

The expected cash shortfalls are discounted using the following discount rates where the effect of discounting is material:

- fixed-rate financial assets, trade and other receivables and contract assets: effective interest rate determined at initial recognition or an approximation thereof;
- variable-rate financial assets: current effective interest rate;
- lease receivables: discount rate used in the measurement of the lease receivable;
- loan commitments: current risk-free rate adjusted for risks specific to the cash flows.

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

In measuring ECLs, the Group takes into account reasonable and supportable information that is available without undue cost or effort. This includes information about past events, current conditions and forecasts of future economic conditions.

ECLs are measured on either of the following bases:

- 12-month ECLs: these are losses that are expected to result from possible default events within the 12 months after the reporting date; and
- lifetime ECLs: these are losses that are expected to result from all possible default events over the expected lives of the items to which the ECL model applies.

Loss allowances for trade receivables, lease receivables and contract assets are always measured at an amount equal to lifetime ECLs. ECLs on these financial assets are estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors and an assessment of both the current and forecast general economic conditions at the reporting date.

For all other financial instruments (including loan commitments issued), the Group recognises a loss allowance equal to 12-month ECLs unless there has been a significant increase in credit risk of the financial instrument since initial recognition, in which case the loss allowance is measured at an amount equal to lifetime ECLs.

2 Significant accounting policies (continued)

Significant increases in credit risk

In assessing whether the credit risk of a financial instrument (including a loan commitment) has increased significantly since initial recognition, the Group compares the risk of default occurring on the financial instrument assessed at the reporting date with that assessed at the date of initial recognition. In making this reassessment, the Group considers that a default event occurs when (i) the borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realising security (if any is held) or (ii) the financial asset is 90 days past due. The Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- failure to make payments of principal or interest on their contractually due dates
- an actual or expected significant deterioration in a financial instrument's external or internal credit rating (if available)
- an actual or expected significant deterioration in the operating results of the debtor and
- existing or forecast changes in the technological, market, economic or legal environment that have a significant adverse effect on the debtor's ability to meet its obligation to the Group.

For loan commitments, the date of initial recognition for the purpose of assessing ECLs is considered to be the date that the Group becomes a party to the irrevocable commitment. In assessing whether there has been a significant increase in credit risk since initial recognition of a loan commitment, the Group considers changes in the risk of default occurring on the loan to which the loan commitment relates.

Depending on the nature of the financial instruments, the assessment of a significant increase in credit risk is performed on either an individual basis or a collective basis. When the assessment is performed on a collective basis, the financial instruments are grouped based on shared credit risk characteristics, such as past due status and credit risk ratings.

ECLs are remeasured at each reporting date to reflect changes in the financial instrument's credit risk since initial recognition. Any change in the ECL amount is recognised as an impairment gain or loss in profit or loss. The Group recognises an impairment gain or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt securities that are measured at FVOCI (recycling) for which the loss allowance is recognised in other comprehensive income and accumulated in the fair value reserve (recycling).

2 Significant accounting policies (continued)

Basis of calculation of interest income

Interest income recognised in accordance with Note 2(v)(ii) is calculated based on the gross carrying amount of the financial asset unless the financial asset is credit-impaired, in which case interest income is calculated based on the amortised cost (i.e. the gross carrying amount less loss allowance) of the financial asset.

At each reporting date, the Group assesses whether a financial asset is credit-impaired. A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable events:

- significant financial difficulties of the debtor,
- a breach of contract, such as a default or delinquency in interest or principal payments
- it becoming probable that the borrower will enter into bankruptcy or other financial reorganisation
- significant changes in the technological, market, economic or legal environment that have an adverse effect on the debtor, or
- the disappearance of an active market for a security because of financial difficulties of the issuer.

Write-off policy

The gross carrying amount of a financial asset, lease receivable or contract asset is written off (either partially or in full) to the extent that there is no realistic prospect of recovery. This is generally the case when the Group determines that the debtor does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off.

Subsequent recoveries of an asset that was previously written off are recognised as a reversal of impairment in profit or loss in the period in which the recovery occurs.

2 Significant accounting policies (continued)

(B) Policy applicable prior to 1 January 2018

Prior to 1 January 2018, an "incurred loss" model was used to measure impairment losses on financial assets not classified as at FVPL (e.g. trade and other receivables, available-for-sale investments and held-to-maturity debt securities). Under the "incurred loss" model, an impairment loss was recognised only when there was objective evidence of impairment. Objective evidence of impairment included:

- significant financial difficulties of the debtor;
- a breach of contract, such as a default or delinquency in interest or principal payments;
- it becoming probable that the debtor will enter bankruptcy or other financial reorganisation;
- significant changes in the technological, market, economic or legal environment that have an adverse effect on the debtor; and
- a significant or prolonged decline in the fair value of an investment in an equity instrument below its cost.

If any such evidence existed, an impairment loss was determined and recognised as follows:

- For trade and other receivables and other financial assets carried at amortised cost, impairment loss was measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate, where the effect of discounting was material. This assessment was made collectively where these financial assets shared similar risk characteristics, such as similar past due status, and had not been individually assessed as impaired. Future cash flows for financial assets which were assessed for impairment collectively were based on historical loss experience for assets with credit risk characteristics similar to the collective group.

If in a subsequent period the amount of an impairment loss decreased and the decrease could be linked objectively to an event occurring after the impairment loss was recognised, the impairment loss was reversed through profit or loss. A reversal of an impairment loss was only recognised to the extent that it did not result in the asset's carrying amount exceeding that which would have been determined had no impairment loss been recognised in prior years.

2 Significant accounting policies (continued)

When the recovery of a trade debtor or other financial assets carried at amortised cost was considered doubtful but not remote, associated impairment losses were recorded using an allowance account. When the Group was satisfied that recovery was remote, the amount considered unrecoverable was written off against the gross carrying amount of those assets directly. Subsequent recoveries of amounts previously charged to the allowance account were reversed against the allowance account. Other changes in the allowance account and subsequent recoveries of amounts previously written off directly were recognised in profit or loss.

- For available-for-sale investments, the cumulative loss that had been recognised in the fair value reserve (recycling) was reclassified to profit or loss. The amount of the cumulative loss that was recognised in profit or loss was the difference between the acquisition cost (net of any principal repayment and amortisation) and current fair value, less any impairment loss on that asset previously recognised in profit or loss.

Impairment losses recognised in profit or loss in respect of available-for-sale equity securities were not reversed through profit or loss. Any subsequent increase in the fair value of such assets was recognised in other comprehensive income.

Impairment losses recognised in profit or loss in respect of available-for-sale debt securities were reversed if the subsequent increase in fair value could be objectively related to an event occurring after the impairment loss was recognised. Reversals of impairment losses in such circumstances were recognised in profit or loss.

(ii) Impairment of other assets

Internal and external sources of information are reviewed at the end of each reporting period to identify indications that the following assets may be impaired or an impairment loss previously recognised no longer exists or may have decreased:

- property, plant and equipment,
- construction in progress;
- lease prepayments,
- intangible assets,
- other non-current assets (excluding receivables), and
- investment in subsidiaries, associates and joint ventures in the Company's statement of financial position.

If any such indication exists, the asset's recoverable amount is estimated.

2 Significant accounting policies (continued)

- Calculation of recoverable amount

The recoverable amount of an asset is the greater of its fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of time value of money and the risks specific to the asset. Where an asset does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the smallest group of assets that generates cash inflows independently (i.e. a cash-generating unit).

- Recognition of impairment losses

An impairment loss is recognised in profit or loss whenever the carrying amount of an asset or the cash-generating unit to which it belongs, exceeds its recoverable amount. Impairment losses recognised in respect of cash-generating units are allocated to reduce the carrying amount of the assets in the cash-generating unit (or group of units) on a pro rata basis, except that the carrying value of an asset will not be reduced below its individual fair value less costs of disposal (if measurable), or value in use (if determinable).

- Reversals of impairment losses

An impairment loss is reversed if there has been a favourable change in the estimates used to determine the recoverable amount.

A reversal of an impairment loss is limited to the asset's carrying amount that would have been determined had no impairment loss been recognised in prior years. Reversals of impairment losses are credited to profit or loss in the year in which the reversals are recognised.

(iii) Interim financial reporting and impairment

Under the Listing Rules, the Group is required to prepare an interim financial report in compliance with IAS 34, Interim financial reporting, in respect of the first six months of the financial year. At the end of the interim period, the Group applies the same impairment testing, recognition, and reversal criteria as it would at the end of the financial year (see Notes 2(k)(i) and (ii)).

(ii) Inventories

Coal inventories are physically measured or estimated and valued at the lower of cost and net realisable value.

Cost is calculated using the weighted average cost formula and comprises all costs of purchase, an appropriate portion of fixed and variable overhead costs, including the shipping costs incurred during the production phase and other costs incurred in bringing the inventories to their present location and condition.

Net realisable value is the estimated future sales price of the product the Group expects to realise when such item is sold or processed, less estimated costs to complete and bring the product to sale.

2 Significant accounting policies (continued)

When coal inventories are sold, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

Inventories of ancillary materials, spare parts and small tools used in production are stated at cost less impairment losses for obsolescence.

(m) Trade and other receivables

Trade and other receivables are initially recognised at fair value and thereafter stated at amortised cost using the effective interest method, less allowance for credit losses (see Note 2(k)(i)), except where the receivables are interest-free loans made to related parties without any fixed repayment terms or the effect of discounting would be immaterial. In such cases, the receivables are stated at cost less allowance for credit losses.

(n) Interest-bearing borrowings

Interest-bearing borrowings are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, interest-bearing borrowings are stated at amortised cost with any difference between the amount initially recognised and redemption value being recognised in profit or loss over the period of the borrowings, together with any interest and fees payable using the effective interest method.

(o) Trade and other payables

Trade and other payables are initially recognised at fair value and subsequently stated at amortised cost unless the effect of discounting would be immaterial, in which case they are stated at cost.

(p) Contract assets and contract liabilities

A contract asset is recognised when the Group recognises revenue (see note 2(v)) before being unconditionally entitled to the consideration under the payment terms set out in the contract. Contract assets are assessed for expected credit losses (ECL) in accordance with the policy set out in Note 2(k)(i) and are reclassified to receivables when the right to the consideration has become unconditional (see Note 2(m)).

A contract liability is recognised when the customer pays consideration before the Group recognises the related revenue (see Note 2(v)). A contract liability would also be recognised if the Group has an unconditional right to receive consideration before the Group recognises the related revenue. In such cases, a corresponding receivable would also be recognised (see Note 2(m)).

For a single contract with the customer, either a net contract asset or a net contract liability is presented. For multiple contracts, contract assets and contract liabilities of unrelated contracts are not presented on a net basis.

2 Significant accounting policies (continued)

When the contract includes a significant financing component, the contract balance includes interest accrued under the effective interest method (see Note 2(v)).

Policy prior to 1 January 2018

In the comparative period, contract balances were recorded for construction contracts at the net amount of costs incurred plus recognised profit less recognised losses and progress billings. These net balances were presented as the "gross amount due from customers for contract work" (as an asset) or the "gross amount due to customers for contract work" (as a liability), as applicable, under "trade and other receivables" or "trade and other payables" respectively on a contract-by-contract basis. Progress billings not yet paid by the customer were included under "trade debtors and bills receivable". Amounts received before the related work was performed were presented as "receipts in advance" under "trade and other payables". These balances have been reclassified on 1 January 2018 as shown in Note 26 (see note 2(c)).

(q) *Cash and cash equivalents*

Cash and cash equivalents comprise cash at bank and in hand, demand deposits with banks and other financial institutions, and short-term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value, having been within three months of maturity at acquisition.

(r) *Employee benefits*

(i) Short-term employee benefits and contributions to defined contribution retirement plans

Salaries, annual bonuses, paid annual leave, contributions to defined contribution retirement plans and the cost of non-monetary benefits are accrued in the year in which the associated services are rendered by employees. Where payment or settlement is deferred and the effect would be material, these amounts are stated at their present values.

(ii) Share-based payments

The fair value of share options granted to employees is recognised as an employee cost with a corresponding increase in other reserve within equity. The fair value is measured at grant date using Black-Scholes option pricing model, taking into account the terms and conditions upon which the options were granted. Where the employees have to meet vesting conditions before becoming unconditionally entitled to the options, the total estimated fair value of the options is spread over the vesting period, taking into account the probability that the options will vest.

During the vesting period, the number of share options that is expected to vest is reviewed. Any resulting adjustment to the cumulative fair value recognised in prior years is charged/credited to the profit or loss for the year of the review, unless the original employee expenses qualify for recognition as an asset, with a corresponding adjustment to the other reserve. On vesting date, the amount recognised as an expense is adjusted to reflect the actual number of options that vest (with a corresponding adjustment to the other reserve) except where forfeiture is only due to not achieving vesting conditions that relate to the market price of the Company's shares. The equity amount is recognised in the other reserve until either the option is exercised (when it is transferred to the share premium account) or the option expires (when it is released directly to retained earnings).

2 Significant accounting policies (continued)

(iii) Termination benefits

Termination benefits are recognised at the earlier of when the Group can no longer withdraw the offer of those benefits and when it recognises restructuring costs involving the payment of termination benefits.

(iv) Income tax

Income tax for the year comprises current tax and movements in deferred tax assets and liabilities. Current tax and movements in deferred tax assets and liabilities are recognised in profit or loss except to the extent that they relate to items recognised in other comprehensive income or directly in equity, in which case the relevant amounts of tax are recognised in other comprehensive income or directly in equity, respectively.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.

Deferred tax assets and liabilities arise from deductible and taxable temporary differences respectively, being the differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets also arise from unused tax losses and unused tax credits.

Apart from certain limited exceptions, all deferred tax liabilities, and all deferred tax assets to the extent that it is probable that future taxable profits will be available against which the asset can be utilised, are recognised. Future taxable profits that may support the recognition of deferred tax assets arising from deductible temporary differences include those that will arise from the reversal of existing taxable temporary differences, provided those differences relate to the same taxation authority and the same taxable entity, and are expected to reverse either in the same period as the expected reversal of the deductible temporary difference or in periods into which a tax loss arising from the deferred tax asset can be carried back or forward. The same criteria are adopted when determining whether existing taxable temporary differences support the recognition of deferred tax assets arising from unused tax losses and credits, that is, those differences are taken into account if they relate to the same taxation authority and the same taxable entity, and are expected to reverse in a period or periods in which the tax loss or credit can be utilised.

The limited exceptions to recognition of deferred tax assets and liabilities are those temporary differences arising from the initial recognition of assets or liabilities that affect neither accounting nor taxable profit (provided they are not part of a business combination), and temporary differences relating to interests in subsidiaries to the extent that, in the case of taxable differences, the Group controls the timing of the reversal, and it is probable that the differences will not reverse in the foreseeable future, or in the case of deductible differences, unless it is probable that they will reverse in the future.

The amount of deferred tax recognised is measured based on the expected manner of realisation or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the balance sheet date. Deferred tax assets and liabilities are not discounted.

2 Significant accounting policies (continued)

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and is reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the related tax benefit to be utilised. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profit will be available.

Additional income taxes that arise from the distribution of dividends are recognised when the liability to pay the related dividend is recognised.

Current tax balances and deferred tax balances, and movements therein, are presented separately from each other and are not offset. Current tax assets are offset against current tax liabilities, and deferred tax assets against deferred tax liabilities if the Company or the Group have the legally enforceable right to set off current tax assets against current tax liabilities and the following additional conditions are met:

- in the case of current tax assets and liabilities, the Company or the Group intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously; or
- in the case of deferred tax assets and liabilities, if they relate to income taxes levied by the same taxation authority on either:
 - the same taxable entity, or
 - different taxable entities which, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered, intend to realise the current tax assets and settle the current tax liabilities on a net basis or realise and settle simultaneously.

(i) Provisions and contingent liabilities

Provisions are recognised for liabilities of uncertain timing or amount when the Group has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events, are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

2 Significant accounting policies (continued)

(u) Obligations for reclamation

The Group's obligations for reclamation consist of spending estimates at its mines in accordance with the relevant rules and regulations in Mongolia. The Group estimates its liabilities for final reclamation and mine closure based upon detailed calculations of the amount and timing of the future cash spending to perform the required work. Spending estimates are escalated for inflation, then discounted at a discount rate that reflects current market assessments of the time value of money and the risks specific to the liability such that the amount of provision reflects the present value of the expenditures expected to be required to settle the obligation. The Group records a corresponding asset associated with the liability for final reclamation and mine closure, which is included in the mining properties. The obligation and corresponding asset are recognised in the period in which the liability is incurred. The asset is depreciated on the units-of-production method over its expected life and the liability is accreted to the projected spending date. As changes in estimates occur (such as mine plan revisions, changes in estimated costs, or changes in timing of the performance of reclamation activities), the revisions to the obligation and the corresponding asset are recognised at the appropriate discount rate.

(v) Revenue recognition

Income is classified by the Group as revenue when it arises from the sale of goods or the provision of services in the ordinary course of the Group's business.

Revenue is recognised when control over a product or service is transferred to the customer, at the amount of promised consideration to which the Group is expected to be entitled, excluding those amounts collected on behalf of third parties. Revenue excludes value added tax or other sales taxes and is after deduction of any trade discounts.

Further details of the Group's revenue and other income recognition policies are as follows:

(i) Sale of goods

Revenue associated with the sale of coal is recognised when the control over the goods is transferred to the customer. Revenue excludes value added tax or other sales taxes and is after deduction of any trade discounts and volume rebates.

(ii) Interest income

Interest income is recognised as it accrues using the effective interest method. For financial assets measured at amortised cost or FVOCI (recycling) that are not credit-impaired, the effective interest rate is applied to the gross carrying amount of the asset. For credit-impaired financial assets, the effective interest rate is applied to the amortised cost (i.e. gross carrying amount net of loss allowance) of the asset (see Note 2(k)(i)).

2 Significant accounting policies (continued)

(iv) Translation of foreign currencies

The presentation currency of the Group is USD. The functional currency of the Company, the investment holding companies and main operating group entities located in Mongolia is USD and the functional currency of remaining group entities located in Mongolia is Mongolian Tugrog (MNT). Foreign currency transactions during the year are translated at the foreign exchange rates ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the foreign exchange rates ruling at the balance sheet date. Exchange gains and losses are recognised in profit or loss.

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates.

The results of operations in Mongolia are translated into USD at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Statement of financial position items are translated into USD at the foreign exchange rates ruling at the balance sheet date. The resulting exchange differences are recognised in other comprehensive income and accumulated separately in equity in the exchange reserve.

On disposal of a foreign operation, the cumulative amount of the exchange differences relating to that foreign operation is reclassified from equity to profit or loss when the profit or loss on disposal is recognised.

(x) Borrowing costs

Borrowing costs that are directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial period of time to get ready for its intended use or sale are capitalised as part of the cost of that asset. Other borrowing costs are expensed in the period in which they are incurred.

The capitalisation of borrowing costs as part of the cost of a qualifying asset commences when expenditure for the asset is being incurred, borrowing costs are being incurred and activities that are necessary to prepare the asset for its intended use or sale are in progress. Capitalisation of borrowing costs is suspended or ceases when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are interrupted or complete.

(y) Non-current assets held for sale

A non-current asset is classified as held for sale if it is highly probable that it is carrying amount will be recovered through a sale transaction rather than through continuing use and the asset is available for sale in its present condition.

2 Significant accounting policies (continued)

Immediately before classification as held for sale, the measurement of the non-current assets is brought up-to-date in accordance with the accounting policies before the classification. Then, on initial classification as held for sale and until disposal, the non-current assets (except for certain assets as explained below) are recognised at the lower of their carrying amount and fair value less costs to sell. The principal exceptions to this measurement policy so far as the financial statements of the Group and the Company are concerned are deferred tax assets, assets arising from employee benefits, financial assets (other than investments in subsidiaries, associates and joint ventures) and investment properties. These assets, even if held for sale, would continue to be measured in accordance with the policies set out elsewhere in Note 2.

Impairment losses on initial classification as held for sale, and on subsequent remeasurement while held for sale, are recognised in profit or loss. As long as a non-current asset is classified as held for sale the non-current asset is not depreciated or amortised.

(z) Related parties

- (a) A person, or a close member of that person's family, is related to the Group if that person
- (i) has control or joint control over the Group,
 - (ii) has significant influence over the Group, or
 - (iii) is a member of the key management personnel of the Group or the Group's parent.
- (b) An entity is related to the Group if any of the following conditions applies.
- (i) The entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
 - (ii) One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
 - (iii) Both entities are joint ventures of the same third party.
 - (iv) One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
 - (v) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group.
 - (vi) The entity is controlled or jointly controlled by a person identified in (a).
 - (vii) A person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity).

Close members of the family of a person are those family members who may be expected to influence or be influenced by that person in their dealings with the entity.

2 Significant accounting policies (continued)

(aa) Segment reporting

Operating segments, and the amounts of each segment item reported in the financial statements, are identified from the financial information provided regularly to the Group's most senior executive management for the purposes of allocating resources to, and assessing the performance of, the Group's various lines of business and geographical locations.

Individually material operating segments are not aggregated for financial reporting purposes unless the segments have similar economic characteristics and are similar in respect of the nature of products and services, the nature of production processes, the type or class of customers, the methods used to distribute the products or provide the services, and the nature of the regulatory environment. Operating segments which are not individually material may be aggregated if they share a majority of these criteria.

3 Accounting judgements and estimates

(a) Critical accounting judgements in applying the Group's accounting policies

In the process of applying the Group's accounting policies, management has made the following accounting judgement:

(i) Fair value of buildings and plants, machinery and equipment classified as property, plant and construction in progress

The Group has changed its accounting policy for its buildings and plants, machinery and equipment, and such class of items under construction status from cost model to valuation model with effect from 31 December 2016. Buildings and plants, machinery and equipment classified as property, plant and construction in progress were revalued by an external appraiser as at 31 December 2016 (see Notes 14 and 15). Such valuations were based on certain assumptions which are subject to uncertainty and might materially differ from the actual results. Judgement is required in relation to the selection of assumptions in arriving at the fair values and the determination of the frequency of performing a revaluation with sufficient regularity.

(ii) Reserves

The Group estimates and reports Mineral Resources and Ore Reserves, commonly referred to as Coal Resources and Coal Reserves in the coal mining industry, meeting requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), and subsequently the Australian Guidelines for the Estimation and Classification of Coal Resources (2014) to which are referred.

The JORC Code is a professional code of practice that sets minimum standards for Public Reporting of minerals Exploration Results, Mineral Resources and Ore Reserves. The JORC Code provides a mandatory system for the classification of minerals Exploration Results, Mineral Resources and Ore Reserves according to the levels of confidence in geological knowledge and technical and economic considerations in public reports.

3 Accounting judgements and estimates (continued)

Responsibility for demonstrating the required transparency and materiality in the estimation of Coal Resources and/or Coal Reserves required by the JORC Code lies with the 'Competent Person'. A Competent Person is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy (the 'AusIMM') or of the Australian Institute of Geoscientists (the 'AIG'), or of a Recognised Professional Organisation as included in a list available on the JORC website. These organisations have enforceable codes of ethics including disciplinary processes with powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.

A 'Coal Reserve' is the economically mineable part of a Measured and/or Indicated Coal Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that at the time of reporting, extraction could reasonably be justified.

A 'Probable Coal Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Coal Resource. The confidence in the Modifying Factors applying to a Probable Coal Reserve is lower than that applying to a Proved Coal Reserve. A 'Proved Coal Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Coal Reserve implies a high degree of confidence in the Modifying Factors.

'Modifying Factors' are considerations used to convert Coal Resources to Coal Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors. Modifying Factors may change from one estimation to the next, where the materiality of such changes is demonstrable. Such changes may be as result of variation to any of the mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, governmental or other factors.

Because the Modifying Factors used to estimate Coal Reserves may change from one estimate to the next, estimates of Coal Reserves may change from one period to another. Changes in reported Coal Reserves thus may affect the Group's financial results and financial position in a number of ways, including the following:

- Asset recoverable amounts may be affected due to changes in estimated future cash flows.
- Depreciation, depletion and amortisation charged in the income statement may change where such charges are determined on the units of production basis, or where the useful economic lives of assets change.
- Overburden removal costs recorded on the statement of financial position or charged to the income statement may change due to changes in stripping ratios or the units of production basis of depreciation.
- Reclamation and mine closure provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities.
- The carrying amount of deferred tax assets may change due to changes in estimates of the likely recovery of the tax benefits.

3 Accounting judgements and estimates (continued)

(iii) Useful lives of property, plants and equipment

Management determines the estimated useful lives of and related depreciation charges for its property, plant and equipment. This estimate is based on the actual useful lives of assets of similar nature and functions. It could change significantly as a result of significant technical innovations and competitor actions in response to industry cycles. Management will increase the depreciation charges where useful lives are less than previously estimated lives, or will write-off or write-down technically obsolete or non-strategic assets that have been abandoned or sold.

(iv) Impairment of assets

The Group reviews the carrying amounts of the assets at each balance sheet date to determine whether there is objective evidence of impairment. When indication of impairment is identified, management prepares discounted future cash flow to assess the differences between the carrying amount and value in use and provided for impairment loss. Any change in the assumptions adopted in the cash flow forecasts would increase or decrease in the provision of the impairment loss and affect the Group's net asset value.

In relation to trade and other receivables (including the value-added tax ("VAT") receivables), a provision for impairment is made and an impairment loss is recognised in profit or loss when there is objective evidence (such as the probability of insolvency or significant financial difficulties of the debtor) that the Group will not be able to collect all of the amounts due under the original terms of the invoice. Management uses judgment in determining the probability of insolvency or significant financial difficulties of the debtor.

An increase or decrease in the above impairment loss would affect the net profit in future years.

(v) Obligation for reclamation

The estimation of the liabilities for final reclamation and mine closure involves the estimates of the amount and timing for the future cash spending as well as the discount rate used for reflecting current market assessments of the time value of money and the risks specific to the liability. The Group considers the factors including future production volume and development plan, the geological structure of the mining regions and reserve volume to determine the scope, amount and timing of reclamation and mine closure works to be performed. Determination of the effect of these factors involves judgements from the Group and the estimated liabilities may turn out to be different from the actual expenditure to be incurred. The discount rate used by the Group may also be altered to reflect the changes in the market assessments of the time value of money and the risks specific to the liability, such as change of the borrowing rate and inflation rate in the market. As changes in estimates occur (such as mine plan revisions, changes in estimated costs, or changes in timing of the performance of reclamation activities), the revisions to the obligation will be recognised at the appropriate discount rate.

3 Accounting judgements and estimates (continued)

(v) Recognition of deferred tax assets

Deferred tax assets in respect of unused tax losses and tax credit carried forward and deductible temporary differences are recognised and measured based on the expected manner of realisation or settlement of the carrying amount of the assets, using tax rates enacted or substantively enacted at the balance sheet date. In determining the carrying amounts of deferred assets, expected taxable profits are estimated which involves a number of assumptions relating to the operating environment of the Group and require a significant level of judgement exercised by the Directors. Any change in such assumptions and judgement would affect the carrying amounts of deferred tax assets to be recognised and hence the net profit in the future years.

(vi) Derivative financial instruments

In determining the fair value of the derivative financial instruments, considerable judgement is required to interpret market data used in the valuation techniques. The use of different market assumptions and/or estimation methodologies may have a material effect on the estimated fair value amounts.

(vi) Capitalised stripping costs

The process of removing overburden and other mine waste materials to access mineral deposits is referred to as stripping. Stripping costs (waste removal costs) are incurred during the development and production phases of open-pit mining and they are accounted for separately for each component of an ore body unless the stripping activity provides improved access to the whole of the ore body. A component is a specific section within an ore body that is made more accessible by the stripping activity. The identification of components is dependent on the mine plan. Judgement is required to identify and define these components and also to determine the expected volumes of waste to be stripped and ore to be mined in each of these components. Judgement is also required to identify a suitable production measure that can be applied in the calculation and allocation of production stripping costs between inventory and production stripping activity. These are used to calculate and allocate the production stripping costs to inventory and/or the stripping activity assets.

Development stripping costs are capitalised as a stripping activity asset in construction in progress and forming part of the cost of constructing the mine when:

- It is probable that future economic benefits associated with the asset will flow to the entity, and
- The costs can be measured reliably.

Capitalisation of development stripping costs ceases and these costs are transferred to mine properties i.e. property, plant and equipment when the ore body or component of ore body is ready for its intended use.

3 Accounting judgements and estimates (continued)

Production stripping can give rise to two benefits being the extraction of ore in the current period and improved access to the ore body or component of ore body in future periods. To the extent that the benefit is the extraction of ore, the stripping costs are recognised as an inventory cost. To the extent the benefit is improved access to the ore body or component of ore body in future periods, the stripping costs are capitalised as mine properties in property, plant and equipment, if the following criteria are met:

- It is probable that the future economic benefit (improved access to ore) will flow to the Group,
- The ore body or component of the ore body for which access has been improved can be identified, and
- The costs relating to the stripping activity can be measured reliably.

Production stripping costs are allocated between the inventory produced and the mine properties capitalised using a life-of-component waste to ore strip ratio. When the current strip ratio is greater than the life-of-component ratio, a portion of the stripping costs is capitalised to the existing mine properties.

The development and production stripping assets are depreciated using the units of production method based on the proven and probable mineral reserves of the relevant ore body or component of ore body.

(ix) Taxation

The Group is subject to various taxes and levies in the jurisdictions where it has operations. The Group makes payments and determines the provision for tax and levy liabilities primarily based on the computations as prepared by the Group. Nevertheless, judgement is required in determining the provision for taxes and levies as there are many transactions and calculations for which the ultimate determination is uncertain during the ordinary course of business, there are possible cases of disagreements with the relevant authorities on treatment of certain items included in the computations and certain non routine transactions. The Group uses its best judgement to determine the probability although it is typically very difficult to determine the timing and ultimate outcome of each case. If the Group considers it probable that these judgement will result in different positions, the most likely amounts of the outcome will be estimated and adjustments to the liabilities will be made in the period in which such determination is made. Due to the inherent uncertainties related to the eventual outcome of each case, it is probable that certain matters may be resolved for amounts materially different from any estimated provisions or previous disclosures.

(b) Sources of estimation uncertainty

Other than requiring critical accounting judgements, assumptions concerning the future and other major sources of estimation uncertainty at the end of the reporting period are required in relation to the Group's accounting policies on 'obligations for reclamation', 'recognition of deferred tax assets' and 'derivative financial instruments'. Information about the assumptions and their risk factors are set out in Notes 3(a) (v), (vi) and (vi).

4 Revenue

The Group is principally engaged in the mining, processing, transportation and sale of coal products. Revenue represents the sales value of goods sold to customers exclusive of value added or sales taxes and after deduction of any trade discounts and volume rebates. The amount of each significant category of revenue recognised in revenue during the year is as follows:

	2018 USD'000	2017 USD'000
Washed hard-coking coal (HCC);	546,527	466,430
Washed semi-soft coking coal	40,596	722
Washed thermal coal	3,373	9,148
Raw thermal coal	214	64
	<u>590,710</u>	<u>476,364</u>

During the year ended 31 December 2018, the Group had two customers that individually exceeded 10% of the Group's revenue from sales of goods and referring of services, being USD242,232,000 and USD112,530,000. During the year ended 31 December 2017, the Group had two customers that individually exceeded 10% of the Group's revenue from sales of goods and referring of services, being USD182,947,000 and USD48,631,000.

Revenue during the year ended 31 December 2018 include approximately USD500,127,000 (2017: USD397,222,000) which arose from sales of coal products to customers through agent sales arrangements for diversifying and expanding the Group's sales channels.

Details of concentrations of credit risk arising from these customers are set out in Note 31(b).

5 Cost of revenue

	2018 USD'000	2017 USD'000
Mining costs	126,420	93,758
Processing costs	42,875	37,758
Transportation costs	117,784	58,824
Others (Note (i))	73,230	53,447
	<u>360,310</u>	<u>243,787</u>

Note:

(i) Others include royalty tax on the coal sold.

6 Profit before taxation

Profit before taxation is arrived at after charging/(crediting):

(a) Net finance costs:

	2018 USD'000	2017 USD'000
Interest income	(134)	(48)
Finance income	(134)	(48)
Interest on bank and other borrowings	3 719	3 255
Interest on liability component of Senior Notes (Note 25)	41 152	38,460
Transaction costs		235
Unwinding interest on Accrued reclamation obligations (Note 25)	581	373
Net interest expense	45 462	42,323
Net change in fair value of derivative component of Senior Notes and Senior Loan	9 205	7,835
Foreign exchange loss, net	772	856
Finance costs	55 520	51,053
Net finance costs	55 395	51,005

Note: No borrowing costs have been capitalised for the years ended 31 December 2018 and 2017.

(b) Staff costs:

	2018 USD'000	2017 USD'000
Salaries, wages, bonuses and benefits	23 068	16,548
Retirement scheme contributions	3 173	2,238
Equity-settled share-based payment expenses (Note 28)	577	1,355
	26 938	20,541

Pursuant to the relevant labor rules and regulations in Mongolia, the Group participates in defined contribution retirement benefit schemes (the 'Schemes') organised by the Government of Mongolia ('GoM') whereby the Group is required to make contributions to the Schemes at a rate of 5% of the eligible employees' salaries. Contributions to the Schemes vest immediately.

6 Profit before taxation (continued)

The Group has no other material obligation for the payment of pension benefits beyond the annual contributions described above

(c) Other items:

	2018 USD'000	2017 USD'000
Selling and distribution costs (Note (i))	<u>61,410</u>	<u>56,631</u>
Depreciation and amortisation	<u>63,873</u>	<u>51,014</u>
Operating lease charges:		
minimum lease payments		
- hire of plant and machinery	1,515	668
- hire of other assets (including property rentals)	<u>392</u>	<u>538</u>
	<u>2,207</u>	<u>1,206</u>
Net gain on disposals of property, plant and equipment and assets held for sale	<u>(99)</u>	<u>(90)</u>
Auditors' remuneration		
- audit services	568	608
- tax and other services	<u>9</u>	<u>7</u>
	<u>575</u>	<u>615</u>
Cost of inventories (Note (ii))	<u>360,310</u>	<u>273,797</u>

6 Profit before taxation (continued)

Notes:

(i) Selling and distribution costs

Selling and distribution costs represent fees and charges incurred for importing coal into the People's Republic of China ('PRC'), logistics and transportation costs, governmental fees and charges and fixed agent fees associated with sales activities in inland PRC.

(ii) Impairment of non-financial assets

Given the fact that the carrying amount of the Group's net assets exceeded the Group's market capitalisation as at 31 December 2018 according to IAS 38, Impairment of assets, the management has performed impairment assessment on the carrying amount of the Group's property, plant and equipment, construction in progress, intangible assets and long-term prepayments related to the Ukhuaa Khudag ('UHG') mine and Baruun Naran ('BN') mine operations (collectively referred to as '**UHG and BN Assets**'). For the purpose of this, the UHG and BN Assets are treated as a cash generating unit ('**CGU**').

The recoverable amount of the CGU was based on value in use determined by discounting the future cash flows to be generated from the continuing use of the UHG and BN Assets. The key assumptions used in the estimation of value in use were as follows:

- Recoverable reserves and resources

Economically recoverable reserves and resources represent management's expectations at the time of completing the impairment testing, based on reserves and resource statements and exploration and evaluation work undertaken by appropriately qualified persons.

- Growth rate

Instead of using a steady growth rate over the estimation period longer than five years, the cash flow projection made at the year end of 2018 and the year end of 2017 followed the same mechanism based on a coal product price consensus and life-of-mine ('LOM') production plan.

- Coal prices

The coal price assumptions are management's best estimate of the future price of coal in China. Coal price assumptions for the next five years are built on past experience of the industry and consistent with external sources. These prices are adjusted to arrive at appropriately consistent price assumptions for the different qualities and type of coal.

6 Profit before taxation (continued)

Preparation basis used for the coal price assumptions for the next five years estimated at the year end of 2018 is consistent with that at the year end of 2017, which was also updated with reference to the latest market forecast. The coal price estimation over a period longer than five years contains no growth rate except for annual inflation rate. The treatment was consistent among estimations made at the year end of 2018 and the year end of 2017.

- Sales quantity/production profile

Sales quantity is in line with production profile. Estimated production volumes are based on detailed LOM plans and take into account development plans for the mines agreed by management as part of the long-term planning process. Production volumes are dependent on a number of variables, such as the recoverable quantities, the production profile, the cost of the development of the infrastructure necessary to extract the reserves, the production costs, and the contractual duration of mining rights and the selling price of the coal extracted. The production profiles used were consistent with the reserves and resource volumes approved as part of the Group's process for the estimation of proved and probable reserves.

- Operating costs

Operating cost assumptions are based on management's best estimation of the costs to be incurred at the date of impairment testing. Costs are determined after considering current operating costs, future cost expectations, as well as the nature and location of the operation. The estimation also takes future mining contractor arrangements into consideration; and the Directors are of the opinion that such mining contractor arrangements are in line with the Group's business plan.

- Capital expenditure

Future capital expenditure is based on management's best estimate of required future capital requirements. It has been determined by taking into account all committed and anticipated capital expenditure adjusted for future cost estimates.

- Discount rate

This discount rate is derived from the Group's weighted average cost of capital ("WACC"), with appropriate adjustments made to reflect the risks specific to the CGU. The WACC takes into account both debt and equity, weighted based on the Group and comparable peer companies' average capital structure. The cost of equity is derived from the expected return on investment by the Group's investors based on publicly available market data of comparable peer companies. The cost of debt is based on the borrowing cost of interest-bearing borrowings of the Group that reflects the credit rating of the Group.

Post-tax discount rate of 18% and pre-tax discount rate of 21% were applied to the future cash flows projection at the year end of 2018 (2017: post-tax discount rate of 19% and pre-tax discount rate of 23%). The Directors believe that the post-tax discount rate was matching with the latest cash flow projection modelling.

6 Profit before taxation (continued)

Based on above-mentioned impairment assessment, the carrying amount of the CGU has not exceeded its recoverable amount as at 31 December 2018, and has not resulted in the identification of an impairment loss for the year ended 31 December 2018. The Directors are of the opinion that the impairment provision is adequate as at 31 December 2018 and no additional or reversal of impairment provision is needed in respect of the Group's non-financial assets in this regard.

The Directors believe that the estimates and assumptions incorporated in the impairment assessment are reasonable, however, the estimates and assumptions are subject to significant uncertainties and judgements. It is estimated that adverse changes in the key assumptions would lead to the recognition of an impairment provision against the CGU as follows:

	USD'000
1% decrease in long-term coal price	-
1% decrease in the estimated production volume	4 000
1% increase in the estimated operating costs	3 000
One percentage point increase in post-tax discount rate	73 000
20% increase in the estimated capital expenditure	21 000

This assumes that the adverse change in the key assumption occurs in isolation of changes to other key assumptions and that no mitigating action is taken by management.

(ii) Cost of inventories

Cost of inventories includes USD78,577,000 (2017: USD58,752,000) relating to personnel expenses, depreciation and amortisation and operating lease charges which are also included in the respective amounts disclosed separately above for each of these types of expenses. Also cost of inventories includes transportation and stockpile losses amounted to USD4,929,000 (2017: transportation and stockpile gains USD2,353,000).

7 Gain from the Debt Restructuring

The Group commenced the Debt Restructuring with holders of USD600,000,000 senior notes issued in 2012, interest-bearing borrowings due to BNP Paribas Singapore Branch and Industrial and Commercial Bank of China Limited, and promissory notes due to QGX Holding Ltd in 2016. On 4 May 2017, the Group completed the Debt Restructuring.

The excess of carrying value of the restructured financial liabilities over the fair value of the consideration to settle the restructured financial liabilities, amounting to approximately USD262,968,000, net of expenses incurred in relation to the Debt Restructuring of USD30,185,000, has been recognised by the Group as a gain from the Debt Restructuring and credited to profit or loss during the year ended 31 December 2017.

8 Income tax

(a) Income tax in the consolidated statement of comprehensive income represents:

	2018 USD'000	2017 USD'000
Current tax		
Provision for the year (Note 27(a))	37,315	6,446
Deferred tax		
Origination and reversal of temporary difference (Note 27(b))	(21,265)	13,367
	<u>16,050</u>	<u>25,813</u>

(b) Reconciliation between tax expense and accounting profit at applicable tax rates:

	2018 USD'000	2017 USD'000
Profit before income tax	<u>98,460</u>	<u>336,119</u>
Notional tax on profit before taxation	24,240	35,606
Tax effect of non-deductible items (Note (iii))	(4,371)	23,680
Tax effect of non-taxable items (Note (iii))	(4,193)	(33,675)
Tax losses not recognised	<u>374</u>	<u>2</u>
Actual tax expenses	<u>16,050</u>	<u>25,813</u>

Notes:

- (i) Pursuant to the prevailing income tax rules and regulations of Mongolia, the Group is liable to Mongolian Corporate Income Tax at a rate of 10% of first MNT3 billion taxable income and 25% of the remaining taxable income for the years ended 31 December 2018 and 2017. According to the Corporate Income Tax Law of China, the Company's subsidiary in China is subject to statutory income tax rate of 25%.
- (ii) Pursuant to the rules and regulations of the Cayman Islands, the Group is not subject to any income tax in the Cayman Islands. The Group is not subject to Hong Kong and Luxembourg profits tax as it has no assessable income arising in or derived from Hong Kong and Luxembourg during the years ended 31 December 2018 and 2017.
- (iii) Non-deductible and non-taxable items mainly represent the gain from the debt restructuring completed in May 2017, unrealised exchange gain and other non-deductible expenses and non-taxable income pursuant to the income tax rules and regulations of Mongolia and other related tax source regions during the years ended 31 December 2018 and 2017.

9 Earnings per share

(a) Basic earnings per share

The calculation of basic earnings per share is based on the profit attributable to ordinary equity shareholders of the Company of USD82,773,000 (2017: USD311,013,000) and the 10,291,767,865 ordinary shares (2017: 10,291,767,865 ordinary shares) in issue during the year.

(b) Diluted earnings per share

For the years ended 31 December 2018 and 2017, basic and diluted earnings/loss per share are the same.

The equity-settled share-based payment transactions (see Note 28) are anti-dilutive and therefore not included in calculating diluted earnings per share for the years ended 31 December 2018 and 2017.

10 Directors' remuneration

Details of the Directors' remuneration disclosed are as follows:

Year ended 31 December 2018						
	Directors' fee	Salaries, allowances and benefits in kind	Director's remuneration bonus	Matching share contribution	Equity-settled share-based payment expense	Total
	USD 000	USD 000	USD 000	USD 000	USD 000	USD 000
Executive directors						
Olgierai Jamtsants (Chairman)	19	920	18	13	-	1,040
Battsegei Golov	19	610	45	51	225	940
Non-executive directors						
Enkhjargal Ganbaa	19	-	-	-	-	19
Enkhjargal Dashpuren (appointed on 4 January 2018)	19	-	-	-	-	19
Od Jamtsants	19	-	-	-	-	19
Independent non-executive directors						
Khalanchuluun Chuluunbaat	19	-	-	-	-	19
Uranbaat Jigjid	19	-	-	-	-	19
Chen Tze Cheng (Ignatius)	51	-	-	-	-	51
Total	190	1,530	73	124	225	2,142

10 Directors' remuneration (continued)

	Year ended 31 December 2017					Total USD'000
	Directors' fee USD'000	Salaries allowances and benefits in kind USD'000	Discretionary bonuses USD'000	Retirement scheme contributions USD'000	Equity-settled share-based payment expenses USD'000	
Executive directors						
Oyjarjal Ambalajin (Chairman)	14	635	-	47	-	756
Behnigel Golov	14	475	61	36	499	1 085
Non-executive directors						
Oyungei H. Jambaa	14	-	-	-	-	14
Od Jambaajamba	14	-	-	-	-	14
Gankhuyag A. Shalt (resigned on 30 September 2017)	10	-	-	-	-	10
Enkhjirvan Gombo (appointed on 30 September 2017)	5	-	-	-	-	5
Independent non-executive directors						
Khagarchuluun Chuluundag	14	-	-	-	-	14
Uirvaal Jigjid	14	-	-	-	-	14
Chen Tze Chong, Ignellus	43	-	-	-	-	43
TOTAL	142	1 170	61	83	499	1 955

No emoluments have been paid to the Directors as an inducement to join or upon joining the Group or as compensation for loss of office during the years ended 31 December 2018 and 2017.

11 Individuals with highest emoluments

The number of directors and non-directors included in the five highest paid individuals is set forth below:

	2018	2017
Directors	2	2
Non-directors	3	3
	<u>5</u>	<u>5</u>

The emoluments of the Directors are disclosed in Note 10. The aggregate of the emoluments in respect of the remaining highest paid individuals are as follows:

	2018	2017
Basic salaries, allowances and benefits in kind	748	744
Discretionary bonuses	168	2,140
Retirement scheme contributions	70	154
Equity-settled share-based payment expenses (Note)	286	557
	<u>1 272</u>	<u>3,535</u>

11 Individuals with highest emoluments (continued)

The emoluments of the remaining individuals with the highest emoluments are within the following band

	2018	2017
HKD 3,000,001 to HKD 3,500,000	2	-
HKD3,500,001 to HKD4,000,000	1	-
HKD 4,000,001 to HKD 4,500,000	-	1
HKD 4,500,001 to HKD 5,000,000	-	1
HKD 5,000,001 to HKD 5,500,000	-	1

No emoluments have been paid to these individuals as an inducement to join or upon joining the Group or as compensation for loss of office during the years ended 31 December 2018 and 2017

Note

These represent the estimated value of share options granted to the key management under the Group's share option scheme. The value of these share options is measured according to the Group's accounting policies for share-based payment transactions as set out in Note 21(iii) and, in accordance with that policy, included adjustments to reverse amounts accrued in previous years where grants of equity instruments are forfeited prior to vesting.

The details of these benefits in kind, including the principal terms and number of options granted, are disclosed under the paragraph 'Share Option Scheme' in Note 28.

12 Other comprehensive income

	2018 USD'000	2017 USD'000
Exchange differences on translation of		
- financial statements of subsidiaries	(36,676)	(1,481)
- net investment	-	23,179
	<u>(36,676)</u>	<u>21,698</u>

12 Other comprehensive income (continued)

Notes

- (i) Exchange differences on re-translation mainly resulted from the fluctuation of MNT exchange rate against USD during the respective reporting periods
- (ii) The components of other comprehensive income do not have any significant tax effect for the years ended 31 December 2018 and 2017

13 Segment reporting

The Group has one business segment, the mining, processing, transportation and sale of coal products. The majority of its customers are located in China. Based on information reported by the chief operating decision maker for the purpose of resource allocation and performance assessment, the Group's only operating segment is the mining, processing, transportation and sales of coal products. Accordingly, no additional business and geographical segment information are presented.

14 Property, plant and equipment, net

	Buildings and plants USD'000	Machinery and equipment USD'000	Motor vehicles USD'000	Office equipment USD'000	Mining properties USD'000	Total USD'000
Cost:						
At 1 January 2017	400,982	308,120	25,138	3,377	245,483	983,100
Additions	148	1,830	420	198	47,282	49,878
Transfer from construction in progress	50,078	6,815	-	1	-	56,894
Transfer to assets held for sale	(186)	-	-	-	-	(186)
Disposals	(77)	(583)	(734)	(112)	-	(1,506)
Exchange adjustments	10,700	2,872	648	88	6,548	20,856
At 31 December 2017	471,632	324,227	25,473	3,562	299,283	1,124,177
Representing Cost	-	-	25,473	3,562	299,283	328,318
Adoption of revaluation - 2017	471,632	324,227	-	-	-	795,868
At 1 January 2018	471,632	324,227	25,473	3,562	299,283	1,124,177
Additions	1,068	800	18,532	781	68,088	90,330
Disposals	(298)	(572)	(1,854)	(83)	-	(2,807)
Exchange adjustments	(38,388)	(25,187)	(11)	(37)	(45)	(63,768)
At 31 December 2018	448,018	299,271	43,140	4,213	367,316	1,159,958
Representing Cost	-	-	43,140	4,213	367,316	414,669
Adoption of revaluation - 2018	448,018	299,271	-	-	-	747,287

14 Property, plant and equipment, net (continued)

	Buildings and plants USD'000	Machinery and equipment USD'000	Motor vehicles USD'000	Office equipment USD'000	Mining properties USD'000	Total USD'000
Accumulated amortization and depreciation:						
At 1 January 2017	57,705	95,138	24,061	2,380	30,428	209,600
Change for the year	13,812	21,200	614	221	14,308	50,316
Transfer to assets held for sale	(13)	-	-	-	-	(13)
Written back on disposals	(22)	(214)	(731)	(81)	-	(1,050)
Exchange adjustments	1,827	2,580	818	82	852	5,719
At 31 December 2017	73,212	118,682	24,562	2,552	45,548	264,557
Representing Accumulated depreciation	-	-	24,562	2,552	45,548	72,762
Adoption of revaluation - 2017	73,212	118,682	-	-	-	181,894
At 1 January 2018	73,212	118,682	24,562	2,552	45,548	264,557
Change for the year	15,241	21,457	3,176	311	19,494	59,680
Written back on disposals	(7)	(248)	(11,854)	(40)	-	(12,247)
Exchange adjustments	9,854	(10,407)	(8)	(17)	(14)	(115,401)
At 31 December 2018	83,482	128,386	25,875	2,806	65,119	305,678
Representing Accumulated depreciation	-	-	25,875	2,806	65,119	93,800
Adoption of revaluation - 2018	83,482	128,386	-	-	-	212,878
Carrying amount						
At 31 December 2018	362,624	168,886	17,285	1,407	302,197	853,278
At 31 December 2017	400,420	205,545	811	1,000	251,544	881,520

Notes

- (a) Majority part of the Group's property, plant and equipment are located in Mongolia.
- (b) Mining properties as at 31 December 2018 include stripping activity assets carrying book value of USD279,553,000 (2017: USD228,752,000) and application fee for the mining rights of USD774,000 (2017: USD728,000) in relation to the Group's mine deposits.
- (c) As at 31 December 2018, certain of the Group's borrowings were secured by the Group's coal handling and preparation plant (CHPP) modules I and II, power plant and certain water supply infrastructure assets with a net book value of USD172,530,000, USD49,656,000, and USD3,626,000, respectively. As at 31 December 2017, certain of the Group's borrowings were secured by the Group's CHPP modules I and II, power plant and certain water supply infrastructure assets with a net book value of USD201,849,000, USD57,453,000, and USD4,484,000, respectively.

14 Property, plant and equipment, net (continued)

(d) As at 31 December 2018, the Group is in the process of applying for the ownership certificates for certain of its buildings. The aggregate carrying value of such properties of the Group as at 31 December 2018 is approximately USD9,902,000 (2017: USD10,152,000). The Directors are of the opinion that the Group is entitled to lawfully occupy or use of these properties.

(e) Fair value measurement of property, plant and machinery

(i) Fair value hierarchy

The following table presents the fair value of the Group's property, plant and machinery measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13, *Fair value measurement*. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs, i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2 valuations: Fair value measured using Level 2 inputs, i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available.
- Level 3 valuations: Fair value measured using significant unobservable inputs.

14 Property, plant and equipment, net (continued)

	<i>Fair value as at 31 December 2018</i>	<i>Fair value measurements as at 31 December 2018 categorised into</i>		
	USD'000	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>
		USD'000	USD'000	USD'000
Recurring fair value measurement				
Buildings and plants	362,524	-	-	362,524
Machinery and equipment	169,885	-	-	169,885
Buildings and plants, machinery and equipment under construction	23,326	-	-	23,326
Total	555,735	-	-	555,735

	<i>Fair value as at 31 December 2017</i>	<i>Fair value measurements as at 31 December 2017 categorised into</i>		
	USD'000	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>
		USD'000	USD'000	USD'000
Recurring fair value measurement				
Buildings and plants	400,420	-	-	400,420
Machinery and equipment	205,545	-	-	205,545
Buildings and plants, machinery and equipment under construction	15,970	-	-	15,970
Total	621,935	-	-	621,935

During the year ended 31 December 2018, there were no transfers between Level 1 and Level 2 or transfers into or out of Level 3. The Group's policy is to recognise transfers between levels of fair value hierarchy as at the end of the reporting period in which they occur.

14 Property, plant and equipment, net (continued)

As at 31 December 2016, buildings and plants as well as machinery and equipment were revalued and such valuation was carried out by a firm of external appraisers, Duff and Phelps Corporation, who has among their staff fellows of the American Society of Appraisers, Royal Institute of Chartered Surveyors, Chartered Certified Accountant, Chartered Financial Analyst and Financial Risk Manager with recent experience in the mining property valuation worldwide including valuation of coal mines. The Group's property manager and the chief financial officer have discussion with the appraisers on the valuation assumptions and valuation results when the valuation is performed. At each following interim and annual reporting date, the management reviewed the key indicators adopted in the revaluation assessment as at 31 December 2016 and concluded there was no significant change.

The subject properties are purpose-built industrial facilities including buildings and plants, machinery and equipment and construction in progress located in South Gobi of Mongolia. They are operated according to their highest and best use for coal mining and processing. There is no other alternative use of the subject properties. Upon consideration of all relevant facts, it was concluded that the properties subject to valuations are specialised properties.

Depreciated replacement cost is defined by International Valuation Standards ("IVS") as "the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization." Depreciated replacement cost application for major assets classes briefly described below:

- Buildings and plants, and such items under construction status
 - Reproduction cost new (RCN) estimation for the buildings and structures were calculated using indexing method.
 - Indices were applied to the historical cost. The indices were obtained from recognised sources such as Chinese indices (Rider Levett Bucknall), FM Global, BMT Construction costs, Bureau of Labor Statistics of the Department of Labor, AUS Consultants, etc.
 - Physical depreciation was applied using straight line method based on the economic useful life of production, auxiliary, administrative facilities, land improvements, transfer devices,
 - There was no any functional obsolescence revealed.

14 Property, plant and equipment, net (continued)

- Machinery and equipment
 - Machinery RCN was estimated based on the actual machinery quotations received from purchase department of the Company. These estimates were adjusted with installation expenses, engineering expenses and interest during construction. Estimated RCN was compared to indexed historical cost and considered to be relevant. Additionally, unitary reproduction cost (USD/kg of equipment weight) of major and most expensive equipment appraised such as crushers, screens, spirals and flotation cells was compared with unitary cost range of similar equipment recently purchased by other mining companies and considered to be in line with these data. Overall Processing plant modules unitary cost parameter (USD/ton of processing capacity) is in the middle of the range of recently constructed coal processing plants.
 - Engineering and general administrative expenses estimated as average of several recently constructed coal mines and equal to 7% of RCN,
 - Interest during Construction estimated equal to 7.8% of RCN based on the actual interest paid during Processing Plant module 1 construction.

(i) Information about Level 3 fair value measurements

IVS requires that for a private sector entity with specialised assets, a valuation assessed by depreciated replacement cost must be subject to a test of profitability in relation to the whole of the assets held by the entity or the cash-generating unit. For the purpose of profitability test, the Company was considered as a single cash-generating unit.

In testing profitability, the impact that current economic conditions may potentially have on the Company's operations, financial performance, expectations of financial performance or financial conditions is considered. Such impact was assessed with the use of financial models, which make use projections of operating activities and financial performance of the Company provided by the Management. No economic obsolescence for the Group was indicated by the profitability test.

14 Property, plant and equipment, net (continued)

(iii) Depreciated cost of properties held for own use carried at fair value

Had the revalued properties held for own use been carried at cost less accumulated depreciation, the carrying amounts would have been

	2018 USD'000	2017 USD'000
Buildings and plants	140,506	159,317
Machinery and equipment	37,949	49,626
Buildings and plants, machinery and equipment under construction (Note 15)	6,075	6,616
	<u>184,529</u>	<u>215,559</u>

16 Construction in progress

	2018 USD'000	2017 USD'000
At 1 January	16,010	79,976
Additions	9,181	486
Transfer to property, plant and equipment (Note 14)	-	(65,652)
Disposals	-	(480)
Exchange adjustments	(1,826)	1,720
At 31 December	<u>23,365</u>	<u>16,010</u>

The construction in progress is mainly related to machinery and equipment

16 Lease prepayments

	2018 USD MND	2017 USD MND
Cost:		
At 1 January	55	63
Exchange adjustments	<u>-</u>	<u>2</u>
At 31 December	<u>55</u>	<u>65</u>
Accumulated amortisation:		
At 1 January	11	10
Charge for the year	1	1
Exchange adjustments	<u>-</u>	<u>-</u>
At 31 December	<u>12</u>	<u>11</u>
Net book values:	<u>53</u>	<u>54</u>

Lease prepayments comprise interests in leasehold land held for own use under operating leases located in Mongolia with original lease period from 15 years to 50 years.

17 Intangible assets

	<i>Acquired mining right USD'000</i>	<i>Software USD'000</i>	<i>Total USD'000</i>
Cost:			
At 1 January 2017	701 557	3 508	705 145
Exchange adjustments	-	91	91
	<hr/>	<hr/>	<hr/>
At 31 December 2017	701 557	3 679	705 236
	<hr/>	<hr/>	<hr/>
At 1 January 2018	701 557	3 679	705 236
Exchange adjustments	-	(3)	(3)
	<hr/>	<hr/>	<hr/>
At 31 December 2018	701 557	3 676	705 233
	<hr/>	<hr/>	<hr/>
Accumulated amortisation:			
At 1 January 2017	195 203	721	195 924
Amortisation charge for the year	331	366	697
Exchange adjustments	-	20	20
	<hr/>	<hr/>	<hr/>
At 31 December 2017	195 534	1 107	196 641
	<hr/>	<hr/>	<hr/>
At 1 January 2018	195 534	1 107	196 641
Amortisation charge for the year	3 930	307	4 233
Exchange adjustments	-	(3)	(3)
	<hr/>	<hr/>	<hr/>
At 31 December 2018	199 372	1 471	200 841
	<hr/>	<hr/>	<hr/>
Carrying amount:			
At 31 December 2018	502 187	2 205	504 392
	<hr/>	<hr/>	<hr/>
At 31 December 2017	506 023	2 572	508 595
	<hr/>	<hr/>	<hr/>

Acquired mining right represents the mining right acquired during the acquisition of Bh mine

18 Interests in subsidiaries

The following list contains only the particulars of subsidiaries which principally affected the results, assets or liabilities of the Group. The class of shares held is ordinary unless otherwise stated.

Name of company	Place of incorporation and business	Particulars of issued and paid up capital	Equity attributable to the Company		Principal activities
			Direct	Indirect	
Mongolian Coal Corporation Limited	Hong Kong	1 share of HK\$1 each	100%	-	Investment holding
Mongolian Coal Corporation S.à.r.l.	Luxembourg	6,712,668 shares of USD10 each	-	100%	Investment holding
Energy Resources Corporation LLC	Mongolia	12,800,000 shares of USD1 each	-	100%	Investment holding
Energy Resources LLC	Mongolia	117,473,410 shares of USD2 each	-	100%	Mining and trading of coal
Energy Resources Rail LLC	Mongolia	15,300,000 shares of MNT1,000 each	-	100%	Railway project management
Tavan Tolgoi Airport LLC	Mongolia	6,780,521 shares of MNT1,000 each	-	100%	Airport operation and management
Enreotechnology LLC	Mongolia	374,048,073 shares of MNT1,000 each	-	100%	Coal plant management
Uthraa Khudag Water Supply LLC	Mongolia	95,018,551 shares of MNT1,000 each	-	100%	Water exploration and supply management
United Power LLC	Mongolia	100,807,648 shares of MNT1,000 each	-	100%	Power supply project management
Khenged Exploration LLC	Mongolia	34,532,369 shares of USD1 each	-	100%	Exploration and development of coal mine
Barun Haran S.à.r.l.	Luxembourg	24,918,394 shares of EUR1 each	-	100%	Investment holding
Tianjin Zhengcheng Import and Export Trade Co., Ltd.	China	RMB2,035,998	-	51%	Trading of goods and machinery equipment
Inner Mongolia Fangcheng Trade Co., Ltd.	China	RMB1,000,000	-	51%	Trading of goods and machinery equipment

19 Interests in associates

The following table presents the particulars of material associate, which is unlisted corporate entity whose quoted market price is not available:

Name of associate	Form of business structure	Place of incorporation and business	Particulars of issued and paid up capital	Equity attributable to the Company		Principal activity
				Group's effective interest	Held by a subsidiary	
Gashuun Sukhait Road LLC	Incorporated	Mongolia	100,000 shares of MNT 1,000 each	40.00%	40.00%	Paved road maintenance services (Note (ii))

Note

- (i) The principal activities of Gashuun Sukhait Road LLC are supplying safety, readiness, protection, repair and maintenance service for paved road operations from UHG to GS. The investment in Gashuun Sukhait Road LLC enables the Group to monitor the usage situation of the aforementioned paved road.

The above associate is accounted for using the equity method in the consolidated financial statements.

19 Interests in associates (continued)

Summarised financial information of associates, adjusted for any differences in accounting policies, and reconciled to the carrying amounts in the consolidated financial statements, are disclosed below.

	International Technical College LLC	Gasbun Sukhair Road LLC	
	2017	2018	2017
	USD'000	USD'000	USD'000
Gross amounts of associates			
Current assets	6	1,323	970
Non-current assets	35	466	159
Current liabilities	1	969	721
Equity	41	820	458
Revenue	4	4,684	2,777
Profit/(loss) from continuing operations	(8)	487	490
Total comprehensive income	(8)	438	414
Reconciled to the Group's interests in associates			
Gross amounts of net assets of associates	41	820	458
Group's effective interest	33%	40%	43%
Group's share of net assets of associates	13	328	193
Carrying amount in the consolidated financial statements	13	328	193

Note: The investment in International Technical College LLC has been disposed by the Group on 13 Sep 2016.

20 Other non-current assets

	2018	2017
	USD'000	USD'000
Prepayments in connection with construction work, equipment purchases and others	69,257	81,883
Other financial asset (Note)	1,482	1,455
	<u>70,749</u>	<u>83,338</u>

Note: The Group has an investment in International Medical Centre LLC and has 5.02% interest.

21 Inventories

(a) Inventories in the consolidated statement of financial position comprise:

	2018 USD'000	2017 USD'000
Coal	94,755	60,472
Materials and supplies	15,552	16,710
	<u>110,417</u>	<u>77,182</u>
Less: Provision on coal inventories	<u>(10,437)</u>	<u>(10,437)</u>
	<u>99,980</u>	<u>66,745</u>

(b) The analysis of the amount of inventories recognised as an expense and included in profit or loss is as follows:

	2018 USD'000	2017 USD'000
Carrying amount of inventories sold	360,310	273,797
	<u>360,310</u>	<u>273,797</u>

As at 31 December 2018, certain of the Group's borrowings were secured by the Group's coal inventory of USD84,484,000 (31 December 2017: USD50,039,000) (see Note 24).

22 Trade and other receivables

	2018 JSD'000	2017 (Note) USD'000
Trade receivables (Note (a))	5,853	13,552
Other receivables (Note (c))	95,600	58,523
	<u>101,453</u>	<u>72,375</u>
Less: allowance for credit losses (Note (b))	<u>-</u>	<u>-</u>
	<u>101,453</u>	<u>72,375</u>

Note: The Group has initially applied IFRS 9 at January 2018. Under the transition methods chosen, comparative information is not restated (see Note2(c)).

22 Trade and other receivables (continued)

(a) Ageing analysis

As of the end of the reporting period, the ageing analysis of trade debtors and bills receivable (which are included in trade and other receivables) based on the invoice date and net of loss allowance is as follows:

	2018 USD'000	2017 USD'000
Within 90 days	5,503	13,509
90 to 180 days	390	43
Over 180 days	-	-
	<u>5,893</u>	<u>13,552</u>

(b) Loss allowance for trade receivables

Credit losses in respect of trade receivables are recorded using an allowance account unless the Group is satisfied that recovery of the amount is remote, in which case the credit losses is written off against trade receivables directly (Note 2(k)(i)).

As at 31 December 2018, no loss allowance for trade receivables (2017: nil) was made on a collective basis in respect of the Group's trade receivable balances outstanding at the balance sheet date.

22 Trade and other receivables (continued)

(c) Other receivables

	2018 USD'000	2017 USD'000
Amounts due from related parties (Note (i))	2	1
Prepayments and deposits (Note (c))	55,518	40,856
VAT and other tax receivables (Note (ii))	39,254	16,593
Others	826	1,373
	<u>95,600</u>	<u>58,823</u>

Notes

- (i) Amounts due from related parties are unsecured, interest-free and have no fixed repayment terms (see Note 33(a)).
- (c) At 31 December 2018 and 2017, prepayments and deposits mainly represent the prepayments made to the Group's mining contractor.
- (ii) VAT and other tax receivables include amounts that have been accumulated to date in certain subsidiaries and were due from the Mongolian Taxation Authority. Based on current available information the Group anticipates full recoverability of such amounts. Further details are stated in Note 31(b).

All other receivables were aged within one year and expected to be recovered or expensed off within one year.

23 Cash and cash equivalents and other cash flow information

(a) Cash and cash equivalents comprise:

	2018 USD'000	2017 USD'000
Cash in hand	5	7
Cash at bank	<u>33,030</u>	<u>7,453</u>
Cash at bank and in hand	<u>33,035</u>	<u>7,460</u>
Cash and cash equivalents in the consolidated cash flow statement	<u>33,035</u>	<u>7,460</u>

As at 31 December 2018, certain of the Group's borrowings were secured by the Group's cash at bank of USD10,758'000 (31 December 2017: USD148) (see Note 24).

23 Cash and cash equivalents and other cash flow information (continued)

(b) Reconciliation of liabilities arising from financing activities

The table below details changes in the Group's liabilities from financing activities, including both cash and non-cash changes. Liabilities arising from financing activities are liabilities for which cash flows were or future cash flows will be, classified in the Group's consolidated cash flow statement as cash flows from financing activities.

	Bank loans and other borrowings* USD'000 (Note 24)	Senior Notes* USD'000 (Note 25)	Total USD'000
At 1 January 2018	32,391	444,812	477,203
Changes from financing cash flows:			
Principal paid	(7,500)	-	(7,500)
Interest paid	(2,531)	(32,997)	(35,528)
Total changes from financing cash flows	(10,031)	(32,997)	(43,028)
Changes in fair value	(173)	9,468	9,295
Other changes:			
Interest expenses (note 6(a))	3,719	41,162	44,881
Others	(205)	(3,485)	(2,690)
Total other changes	3,514	38,677	42,191
At 31 December 2018	25,711	459,960	485,661

Note

* Liabilities include accrued interest as disclosed in Note 26

24 Borrowings

(a) The Group's long-term interest-bearing borrowings comprise:

	2018 USD'000	2017 USD'000
Senior Loan	25,065	31,753
Less: Current portion of long-term borrowings	(25,065)	(7,500)
	<u>-</u>	<u>24,253</u>

On 4 May 2017, the Group issued the Senior Loan with principal amount of USD31,200,000 and with fair value of USD30,960,000. The Senior Loan bears interest, ranging from 5% to 8% per annum based on the benchmark coal price index, payable semi-annually. The Senior Loan is repayable in quarterly instalment of USD7,500,000 starting from 31 December 2018 with the remaining principal repayable upon maturity in September 2019.

The Senior Loan has been accounted for as a hybrid financial instrument containing a derivative component and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognised at its fair value of USD1,754,000. The fair value of the derivative component of interest rate linked to the benchmark coal price index as at 31 December 2018 was USD1,761,000. The liability component was initially recognised at its fair value of USD29,206,000 and will be accounted on amortised cost subsequently.

The Group pledged collection accounts (Note 23) and certain coal stockpiles under the Senior Loan. In addition, the Group pledged debt reserve account, certain assets (Note 14) and share capital of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S à r l, Enrestechology LLC, Jkhaa Khudag Water Supply LLC and United Power LLC, which are shared among the creditors of the Senior Loan and the Senior Notes (Note 25).

The Group's long-term borrowings are repayable as follows:

	2018 USD'000	2017 USD'000
Within 1 year or on demand	25,065	7,500
After 1 year but within 2 years	-	24,253
After 2 years but within 5 years	-	-
	<u>25,065</u>	<u>31,753</u>

24 Borrowings (continued)

(b) The Group's short-term interest-bearing borrowings comprise:

	2018 USD'000	2017 USD'000
Current portion of long-term borrowings - Senior Loan	25,065	7,500
	<u>25,065</u>	<u>7,500</u>

25 Senior Notes

	2018 USD'000	2017 USD'000
Senior Notes	451,711	436,563
	<u>451,711</u>	<u>436,563</u>

On 4 May 2017, the Group issued the Senior Notes with principal amount of USD412,465,892 and with fair value of USD425,267,000. The Senior Notes bear interest ranging from 5% to 8% per annum based on the benchmark coal price index, payable semi-annually and due in September 2022.

The Senior Notes have been accounted for as a hybrid financial instrument containing a derivative component and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognised at its fair value of USD9,481,667 and the derivative component of cash sweep premium was initially recognised at its fair value of USD37,785,333. The fair value of the derivative component of interest rate linked to the benchmark coal price index, the derivative component of cash sweep premium and the derivative component of early redemption option as at 31 December 2018 was USD30,519,000, USD33,874,550 and nil respectively. The liability component was initially recognised at its fair value of USD377,996,000 and will be accounted on amortised cost subsequently.

Fair value of the Senior Loan and the Senior Notes were valued by the Directors with the reference to a valuation report issued by an external valuer based on the discounted cash flow method.

The Group pledged debt reserve account, certain assets (Note 14) and share capital of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.A r.l., Ernesttechnology LLC, Ukhaz Khudag Water Supply LLC and United Power LLC, which are shared among the creditors of the Senior Loan (Note 24) and the Senior Notes.

26 Trade and other payables

	2018 USD'000	2017 USD'000
Trade payables (Note (i))	141,801	135,847
Receipts in advance (Note (ii))	-	27,787
Amounts due to related parties (Note (iii))	6,085	18,897
Payables for purchase of equipment	2,509	1,347
Security deposit on construction work	-	50
Interest payable (Note (iv))	8,885	8,887
Other taxes payables	29,379	20,275
Others (Note (v))	6,813	9,641
	<u>195,472</u>	<u>222,731</u>

Notes:

- (i) As of the end of the reporting period, the ageing analysis of trade creditors and bills payable (which are included in trade and other payables), based on the invoice date, is as follows

	2018 USD'000	2017 USD'000
Within 90 days	94,235	60,789
90 to 180 days	40,861	13,724
180 to 365 days	431	1,736
Over 365 days	6,273	58,598
	<u>141,801</u>	<u>135,847</u>

- (ii) Receipts in advance represent payments in advance made by third party customers in accordance with the terms set out in respective sales agreements. As a result of the adoption of IFRS 15, gross amount due to customers for receipts in advance is included in contract liabilities

26 Trade and other payables (continued)

(ii) Amounts due to related parties represent contractual service fee payable and payables for equipment and construction work, which are unsecured, interest-free and have no fixed terms of repayments (see Note 33(a)).

(iv) As at 31 December 2017, interest payable related to Senior Loan and Senior Notes are amounting to USD638 000 and USD8 249 000 respectively.

As at 31 December 2018, interest payable related to Senior Loan and Senior Notes are amounting to USD638 000 and USD8 249 000 respectively.

(v) Others represent accrued expenses, payables for staff related costs and other deposits.

All of the other payables and receivables in advance are expected to be settled or recognised in profit or loss within one year or are repayable on demand.

27 Income tax in the consolidated statement of financial position

(a) Tax payable in the consolidated statement of financial position represents:

	2018 USD 000	2017 USD 000
At 1 January	4 299	269
Provision for the year (Note 8(a))	37 315	6 446
Offsetting with other tax receivables		(3,292)
Income tax paid	(12 967)	(191)
Exchange adjustments	(1 851)	67
At 31 December	<u>26 796</u>	<u>4 299</u>

27 Income tax in the consolidated statement of financial position (continued)

(b) Deferred tax assets and liabilities recognised

The components of deferred tax assets/(liabilities) recognised in the consolidated statement of financial position and the movements during the year are as follows:

	2018				2017			
	USD'000				USD'000			
Deferred tax arising from:								
Depreciable assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Capital assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Liabilities	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	(1,000)
Net deferred tax assets	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Net deferred tax liabilities	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)
Net deferred tax assets/(liabilities)	0	0	0	0	0	0	0	0
Net deferred tax assets/(liabilities) recognised in the consolidated statement of financial position	31,248	31,248	31,248	31,248	14,896	14,896	14,896	14,896
Net deferred tax liabilities recognised in the consolidated statement of financial position	(144,290)	(144,290)	(144,290)	(144,290)	(149,604)	(149,604)	(149,604)	(149,604)
Net deferred tax assets/(liabilities)	(113,042)	(113,042)	(113,042)	(113,042)	(134,708)	(134,708)	(134,708)	(134,708)

(c) Deferred tax assets not recognised

In accordance with the accounting policy set out in Note 2(s), the Group has not recognised deferred tax assets in respect of cumulative tax losses of USD356,159,000 as at 31 December 2018 (2017: USD355,851,000) as it is not probable that future taxable profits against which the losses can be utilised will be available in the relevant tax jurisdiction and entity. According to the new amendment to Mongolian Corporate Income Tax Law which is effective on 1 January 2010, for entities engaged in mining or infrastructure construction, the tax losses generated after 1 January 2010 will expire in four to eight years after the tax losses generated under current tax legislation. Tax losses of other entities will expire in two years after the tax losses generated.

27 Income tax in the consolidated statement of financial position (continued)

Expiry of unrecognised tax losses of Group entities located in Mongolia

	2018 USD'000	2017 USD'000
Year of expiry		
2018		477
2019	15	119
2020	9	-
	<u>24</u>	<u>596</u>

In relation to group entities located in the jurisdictions other than Mongolia, the tax losses amounting to USD399 135,000 as at 31 December 2018 do not expire under current tax legislations (31 December 2017: USD395 255 000)

(d) *Deferred tax liabilities not recognised*

At 31 December 2018, temporary differences relating to the undistributed profits of subsidiaries amounted to Nil (2017: nil). Deferred tax liabilities of Nil (2017: nil) have not been recognised in respect of the tax that would be payable on the distribution of these retained profits as the Company controls the dividend policy of these subsidiaries and it has been determined that it is probable that profits will not be distributed in the foreseeable future.

28 Equity-settled share-based payment transactions

The Company has a share option scheme (**Share Option Scheme**) which was adopted on 17 September 2010 that became effective on the Listing Date on 13 October 2010 (**Adoption Date**), whereby the board of Directors of the Group are authorised, at their discretion, invites eligible participants to receive options to subscribe for shares subject to the terms and conditions stipulated therein as incentives or rewards for their contributions to the Group.

Under the Share Option Scheme, the Company may grant options to employees and Directors, suppliers, customers and professional advisers of the Group to subscribe for shares of the Company. The exercise price of the options is determined by the board of Directors of the Company at the time of the grant, and shall be the highest of the nominal value of the shares, the closing price of the shares at the date of grant and the average closing price of the shares for the five business days immediately preceding the date of grant. The Share Option Scheme remains in force for a period of 10 years commencing on the adoption date and is to expire on 12 October 2020.

28 Equity-settled share-based payment transactions (continued)

(a) The terms and conditions of the grants are as follows:

Grant Date	Number of options '000	Vesting conditions	Contractual life of options
12 October 2011	8 800	12 October 2011 to 12 October 2012	12 October 2011 to 12 October 2019
12 October 2011	8 800	12 October 2011 to 12 October 2013	12 October 2011 to 12 October 2019
12 October 2011	8 800	12 October 2011 to 12 October 2014	12 October 2011 to 12 October 2019
12 October 2011	8 800	12 October 2011 to 12 October 2015	12 October 2011 to 12 October 2019
28 November 2012	5 688	28 November 2012 to 28 November 2013	28 November 2012 to 28 November 2020
28 November 2012	5 688	28 November 2012 to 28 November 2014	28 November 2012 to 28 November 2020
28 November 2012	11 374	28 November 2012 to 28 November 2015	28 November 2012 to 28 November 2020
10 June 2015	38 688	10 June 2015	10 June 2015 to 10 June 2020
10 June 2015	38 688	10 June 2015 to 10 June 2016	10 June 2015 to 10 June 2020
10 June 2015	38 687	10 June 2015 to 10 June 2017	10 June 2015 to 10 June 2020
10 June 2015	38 687	10 June 2015 to 10 June 2018	10 June 2015 to 10 June 2020
8 May 2017	28 000	1 July 2017	1 July 2017 to 8 May 2022
8 May 2017	28 000	8 May 2017 to 8 May 2018	8 May 2017 to 8 May 2022
8 May 2017	28 000	8 May 2017 to 8 May 2019	8 May 2017 to 8 May 2022
8 May 2017	28 000	8 May 2017 to 8 May 2020	8 May 2017 to 8 May 2022
8 May 2017	<u>28 000</u>	8 May 2017 to 8 May 2021	8 May 2017 to 8 May 2022
Total share options	<u>352 700</u>		

28 Equity-settled share-based payment transactions (continued)

(b) *The movement of the number and weighted average exercise prices of share options are as follows:*

	2018		2017	
	Weighted average exercise Price HKD	Number of options '000	Weighted average exercise Price HKD	Number of options '000
Outstanding at 1 January (Note)	0.91	356,285	1.50	217,210
Granted during the year	-	-	0.24	139,200
Forfeited during the year	0.87	(1,808)	0.45	(125)
Outstanding at 31 December	0.90	354,677	0.91	356,285
Exercisable at 31 December	1.23	251,877	1.51	209,585

Note

As a result of the rights issue completed on 20 December 2014, adjustments were made to the exercise price and the number of Shares falling to be issued upon the exercise of the Share Options in accordance with the terms of the Share Option Scheme and the supplementary guidance issued by the Stock Exchange on 5 September 2005 regarding the adjustment of share options under Rule 17 (3)(13) of the Listing Rules.

A total of 342,850,000 Options are outstanding under the Share Option Scheme as at the completion of the rights issue. The exercise price and the number of the Shares falling to be issued under the outstanding Share Options have been adjusted pursuant to Clause 11 of the Share Option Scheme (the "Option Adjustments") with effect from 1 January 2015, and such adjustments have been reviewed and confirmed by the independent financial adviser of the Company, Somerley Capital Limited, as follows:

28 Equity-settled share-based payment transactions (continued)

	2016	2015
At 1 January	1,150	1,150
Granted	1,150	1,150
Expired	(1,150)	(1,150)
At 31 December	1,150	1,150
At 31 December 2015	1,150	1,150
At 31 December 2014	1,150	1,150

The options outstanding at 31 December 2016 had an exercise price of HKD4.53 or HKD2.67 or HKD0.445 or HKD0.2392 (2015: HKD4.53 or HKD2.67 or HKD0.445 or HKD0.2392) per share and a weighted average remaining contractual life of 2.2 years (2015: 3.2 years).

(c) Fair value of share options and assumptions

The fair value of services received in return for share options granted is measured by reference to the fair value of share options granted. The estimate of the fair value of the share options granted is measured based on the Black-Scholes option pricing model. The variables of the model included expected life of the options, risk-free interest rate, expected volatility and expected dividend of the shares of the Company.

Fair value of share options and assumptions

	8 May 2017	10 June 2016	28 November 2012	12 October 2011
Fair value at measurement date	HKD0.180 ~HKD0.1150	HKD0.180 ~HKD0.220	HKD1.8155 ~HKD2.0003	HKD3.3793 ~HKD3.7663
Share price	HKD0.2392	HKD0.445	HKD3.92	HKD6.86
Exercise price	HKD0.2392	HKD0.445	HKD3.92	HKD6.86
Expected life	5 years	5 years	4.5 - 5.5 years 0.249% ~	4.5 - 6 years 0.755% ~
Risk-free interest rate	1.132%	1.19%	0.298% 57.71% ~	1.054% 61.97% ~
Expected volatility	67%	60%	58.43%	63.43%
Expected dividends	-	-	-	-

28 Equity-settled share-based payment transactions (continued)

The expected volatility is based on the historic volatility of entities in the same industry (calculated based on the weighted average remaining life of the share options), adjusted for any expected changes to future volatility based on publicly available information. Expected dividends are based on management's estimates. The risk-free interest rate is based on the yield of Hong Kong Exchange Fund Notes corresponding to the expected life of the options as at the grant date. Changes in the subjective input assumptions could materially affect the fair value estimate.

Share options were granted under a service condition. The condition has not been taken into account in the grant date fair value measurement of the services received. There was no market condition associated with the share option grants.

29 Provisions

	2018 USD'000	2017 USD'000
Accrued reclamation obligations	13,359	14,327
Others	<u>1,500</u>	<u>1,500</u>
	14,859	15,827
Less: Current portion	<u>(1,500)</u>	<u>(1,500)</u>
	<u>13,359</u>	<u>14,327</u>

The accrual for reclamation costs has been determined based on management's best estimates. The estimate of the associated costs may be subject to change in the near term when the reclamation on the land from current mining activities becomes apparent in future periods. At the end of each reporting period, the Group reassessed the estimated costs and adjusted the accrued reclamation obligations, where necessary. The Group's management believes that the accrued reclamation obligations at 31 December 2018 are adequate and appropriate. The accrual is based on estimates and therefore, the ultimate liability may exceed or be less than such estimates. The movement of the accrued reclamation cost is as follows:

	2018 USD'000	2017 USD'000
At 1 January	14,327	13,585
(Decrease)/increase for reassessment of estimated costs	(1,540)	19
Accretion expense (Note 5(a))	581	373
Exchange adjustments	<u>-</u>	<u>350</u>
At 31 December	<u>13,359</u>	<u>14,327</u>

Accrued reclamation costs change during the years ended 31 December 2018 and 2017 resulted from the reassessment of estimated costs.

30 Capital, reserves and dividends

(a) Movements in components of equity

The reconciliation between the opening and closing balances of each component of the Group's consolidated equity is set out in the consolidated statement of changes in equity. Details of the changes in the Company's individual components of equity between the beginning and the end of the year are set out below.

	Note	Share capital USD 000 (from 10(c))	Share premium USD 000 (Note 10(c)(i))	Other reserve USD 000 (Note 10(c)(ii))	Accumulated losses USD 000	Reserve costs USD 000 (from 10(c))	Total equity USD 000
At 1 January 2017		92,826	148,517	28,449	(174,849)	-	486,733
Changes in equity for 2017							
Issuance of shares		10,282	10,289	-	-	-	30,289
Issuance of perpetual notes		-	-	-	-	75,897	75,897
Total comprehensive income		-	-	-	193,577	-	193,577
Equity-linked share-based transactions	28	-	-	1,355	-	-	1,355
At 31 December 2017		<u>102,918</u>	<u>158,520</u>	<u>21,804</u>	<u>(181,292)</u>	<u>75,897</u>	<u>787,447</u>
At 1 January 2018		102,918	158,520	21,804	(181,292)	75,897	787,447
Changes in equity for 2018							
Total comprehensive income		-	-	-	(2,245)	-	(2,245)
Equity-linked share-based transactions	28	-	-	677	-	-	677
At 31 December 2018		<u>102,918</u>	<u>158,520</u>	<u>22,481</u>	<u>(183,537)</u>	<u>75,897</u>	<u>786,779</u>

Note: The Group, including the Company, has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. See note 2(c).

(b) Dividends

The board of Directors of the Company does not recommend the payment of a final dividend in respect of the year ended 31 December 2018.

30 Capital, reserves and dividends (continued)

(c) Share capital

The Company was incorporated on 18 May 2010 with an authorised share capital of USD60,000 comprising 5,000,000 ordinary shares of USD0.01 each. On 18 May 2010, MGS Mining Group Limited acquired its initial share of one share of USD0.01. By an ordinary resolution passed at the annual general meeting held on 23 August 2010, the Company's authorised ordinary share capital was increased to USD60,000,000 by the creation of an additional 5,995,000,000 ordinary shares of USD0.01 each, ranking *pari passu* with the existing ordinary shares of the Company in all respects.

On 4 May 2017, a total number of 1,023,178,615 shares were allotted and issued at the subscription price of HKD0.229 per share, the closing price of the Company's shares on 4 May 2017, for net proceeds of USD30,265,066 which have been credited to share capital and capital premium accounts.

The new shares were allotted and issued under the general mandate granted to the Directors at the annual general meeting of the Company held on 31 May 2016. No cash proceeds were received by the Company in consideration for the issue of the new shares which are being issued as part of the Debt Restructuring to refinance certain of the Company's then-existing indebtedness.

(d) Issuance of shares under rights issue

On 29 December 2014, 5,557,554,750 ordinary shares were issued pursuant to the rights issue on the basis of three rights shares for every two existing shares at HKD0.25 each. Total net consideration amounted to USD105,453,000, of which USD55,576,000 was credited to share capital and the remaining proceeds of USD139,877,000 was credited to the share premium account. The Company's authorised ordinary share capital was increased to USD150,000,000 by the creation of an additional 9,000,000,000 ordinary shares of USD0.01 each, ranking *pari* with the existing ordinary shares of the Company in all respects.

The aggregate amount of share capital of the companies now comprising the Group, after elimination of interests in subsidiaries, was included in other reserve during the years ended 31 December 2018 and 2017 (Note 30(e)(ii)).

30 Capital, reserves and dividends (continued)

Authorised:

	2018		2017	
	No of shares'000	USD'000	No of shares'000	USD'000
Ordinary shares	<u>15,000,000</u>	<u>150,000</u>	<u>15,000,000</u>	<u>150,000</u>

Ordinary shares, issued and fully paid:

	2018		2017	
	No of shares'000	USD'000	No of shares'000	USD'000
Ordinary shares	<u>10,291,768</u>	<u>102,918</u>	<u>10,291,768</u>	<u>102,918</u>

(a) Nature and purpose of reserves

(i) Share premium

Under the Companies Law of the Cayman Islands, the share premium account of the Company may be applied for payment of distributions or dividends to shareholders provided that immediately following the date on which the distribution or dividend is proposed to be paid, the Company is able to pay its debts as they fall due in the ordinary courses of business.

(ii) Other reserve

The other reserve comprises the following:

- the aggregate amount of share capital and other reserves of the companies now comprising the Group after elimination of the investments in subsidiaries; and
- the portion of the grant date fair value of unexercised share options granted to Directors and employees of the Company that has been recognised in accordance with the accounting policy adopted for share-based payments in Note 2(i)(i).

(iii) Exchange reserve

The exchange reserve comprises all foreign exchange adjustments arising from the translation of the MNT denominated financial statements of the Group's operations to the Group's presentation currency. The reserve is dealt with in accordance with the accounting policy set out in Note 2(w).

30 Capital, reserves and dividends (continued)

(iv) Property revaluation reserve

The property revaluation reserve has been set up and is dealt with in accordance with the accounting policies adopted for land and buildings held for own use in Note 2(h).

The property revaluation reserve of the Group is distributable to the extent of USD341,514,000 (2017: USD341,625,000).

(v) Perpetual notes

The Company issued perpetual notes which were listed on the Singapore Exchange Securities Trading Limited on 4 May 2017, with principal amount of USD195,000,000 and with face value of USD75,897,000.

The perpetual notes have no fixed maturity and are redeemable at the Company's option. The distribution payments can be deferred at the discretion of the Company. So long as the perpetual notes are outstanding, the Company shall not declare or pay any dividend or make any distribution on or with respect to its capital shares, or redeem, reduce, cancel, buy-back or acquire for any consideration any of its capital shares.

Fair value of the perpetual notes was valued by the management with the reference to a valuation report issued by an independent valuer based on the discounted cash flow method.

(g) Distributability of reserves

Pursuant to the Companies Law, Cap 32 (Law 3 of 1961, as consolidated and reserved) of the Cayman Islands, share premium of the Company is distributable to the shareholders. Other than the share premium, there is no other amount available for distribution to equity shareholders of the Company as at 31 December 2018.

(h) Capital management

The Group's primary objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so that it can continue to provide returns for shareholders and benefits for other stakeholders. The Group defines the capital as total shareholders' equity plus loans and borrowings.

The Group actively and regularly reviews and manages its capital structure to maintain a balance between the higher shareholder returns that might be possible with higher levels of borrowings and the advantages and security afforded by a sound capital position.

The gearing ratio (calculated as total bank and other borrowings divided by total assets) of the Group as at 31 December 2018 was 27.8% (2017: 28.7%).

31 Financial risk management and fair value of financial instruments

(a) Financial risk management objectives and policies

Management has adopted certain policies on financial risk management with the objective of

- (i) ensuring that appropriate funding strategies are adopted to meet the Group's short-term and long-term funding requirements taking into consideration the cost of funding, gearing levels and cash flow projections of each project and that of the Group, and
- (ii) ensuring that appropriate strategies are also adopted to manage related interest and currency risk funding

(b) Credit risk

The Group's credit risk is primarily attributable to cash at bank, trade and other receivables. Management monitors the exposures to these credit risks on an ongoing basis.

Substantially all of the Group's cash at bank are deposited in the reputable banks which management assessed the credit risk to be insignificant.

Trade receivables are presented net of loss allowance. In order to minimise the credit risk, the credit committee, comprising the senior management team of the Group, has established a policy for determining credit limits, credit approvals and other monitoring procedures to ensure that follow-up action is taken to recover overdue debts. The credit committee also evaluates and reviews the credit quality and the recoverable amount of each individual trade debt on an ongoing basis. These evaluations and reviews focus on the customer's past history of making payments when due and current ability to pay, and take into account information specific to the customer as well as pertaining to the economic environment in which the customer operates. The Group establishes a loss allowance for trade receivables that represents its estimate of losses in respect of trade receivables. The components of this allowance are a specific loss component that relates to individually significant exposures, and a collective loss component established for groups of similar assets. At the balance sheet date, the Group believes that no loss allowance for trade receivables is required in the consolidated financial statements. The Group does not hold any collateral as security for these receivables. The Group has a certain concentration credit risk as two customers accounted for 88.8% (2017: 93.9%) of the total trade receivables as at 31 December 2018.

The Group measures loss allowances for trade receivables and contract assets at an amount equal to lifetime ECLs, which is calculated using a provision matrix. As the Group's historical credit loss experience does not indicate significantly different loss patterns for different customer segments, the loss allowance based on past due status is not further distinguished between the Group's different customer bases.

31 Financial risk management and fair value of financial instruments (continued)

The following table provides information about the Group's exposure to credit risk and ECLs for trade receivables and contract assets as at 31 December 2018.

	Expected loss rate %	Gross carrying amount USD'000	Loss allowance USD'000
Current	0.0%	287 694	-
90 - 180 days	0.0%	2 032	-
180 - 270 days	0.0%	-	-
270 - 365 days	0.0%	-	-
More than 365 days	0.0%	-	-
		<u>289 726</u>	<u>-</u>

Expected loss rates are based on actual loss experience over the past 2 years. These rates are adjusted to reflect differences between economic conditions during the period over which the historic data has been collected, current conditions and the Group's view of economic conditions over the expected lives of the receivables.

The Group closely monitors the amount due from related parties.

VAT receivables include amounts that have been accumulated to date in various subsidiaries. According to the prevailing tax rules and regulations in Mongolia, a taxpayer may offset future taxes and royalties payable to the GoM against VAT amounts receivable from the GoM. Based on currently available information, the Group anticipates full recoverability of amounts due on account primarily relating to finished mineral products at 31 December 2018. Verification by the Mongolian Taxation Authority of the collectability of the funds is conducted on a regular basis and any outstanding VAT receivable amounts at 31 December 2018 will be available to the Group to offset future taxes and royalty tax or will be refunded by the Mongolian Taxation Authority.

Further quantitative disclosures in respect of the Group's exposure to credit risk arising from trade and other receivables are set out in Note 22.

(c) Foreign currency exchange risk

The Group is exposed to currency risk primarily through sales, purchases and borrowings which give rise to receivables, payables, borrowings and cash balances that are denominated in a foreign currency, i.e. a currency other than the functional currency of the operations to which the transactions relate. The functional currency of the Group's overseas holding entities and main operating subsidiaries located in Mongolia is USD and the functional currency of remaining subsidiaries located in Mongolia is MNT. The currencies giving rise to this risk are primarily RMB, USD and HKD.

31 Financial risk management and fair value of financial instruments (continued)

(i) Exposure to currency risk

The following table details the Group's exposure at the balance sheet date to currency risk arising from recognised assets or liabilities denominated in a currency other than the functional currency of the entity to which they relate. For presentation purpose, the amounts of the exposure are shown in USD, translated using the spot rate at the year-end date.

	31 December 2018							
	USD	HKD	EUR	GBP	JPY	THB	MYR	SGD
Assets								
Financial assets	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Non-financial assets	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Liabilities								
Financial liabilities	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Non-financial liabilities	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>1,000,000</u>
	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000

(ii) Sensitivity analysis

An 5% strengthening/weakening of other currency against functional currencies, defined in Note 21(a) as at the respective balance sheet dates would (decrease)increase profit after taxation (2017: (decrease)increase profit after taxation) by the amount shown below. This analysis assumes that all other risk variables remained constant.

Profit/loss for the year	2018 USD'000	2017 USD'000
5% increase in RMB	(583)	(1,641)
5% decrease in RMB	583	1,641
5% increase in USD	18	(20,233)
5% decrease in USD	(16)	20,233
5% increase in HKD	(1)	(9)
5% decrease in HKD	1	9
5% increase in MYR	(1,428)	-
5% decrease in MYR	1,428	-
5% increase in EUR	(5)	-
5% decrease in EUR	5	-

31 Financial risk management and fair value of financial instruments (continued)

(d) Interest rate risk

The Group's interest rate risk arises primarily from Senior Notes and Senior Loan Borrowings issued at variable rates expose the Group to cash flow interest rate risk and fair value interest rate risk respectively.

The following table details the profile of the Group's net borrowings (interest-bearing financial liabilities less interest-bearing financial assets) at the balance sheet date. The detailed interest rates and maturity information of the Group's and the Company's borrowings are disclosed in Note 24.

	2018 USD'000	2017 USD'000
Net fixed rate borrowings:		
Borrowings	-	-
Less: Bank deposits	-	(5,578)
	<u>-</u>	<u>(5,578)</u>
Net floating rate borrowings:		
Borrowings	-	-
Senior Loan	25,065	31,753
Senior Notes	451,711	436,563
Less: Bank deposits	(33,030)	(1,875)
	<u>443,746</u>	<u>466,441</u>
Total net borrowings:	<u>443,746</u>	<u>460,863</u>

At 31 December 2018, it is estimated that a general increase/decrease of 100 basis points in interest rates, with all other variables held constant, would have decreased/increased the Group's profit after taxation and retained earnings by approximately USD3,022,000 (31 December 2017: USD3,313,000).

The sensitivity analysis above indicates the instantaneous change in the Group's profit after taxation that would arise assuming that the change in interest rates had occurred at the balance sheet date and had been applied to re-measure those financial instruments held by the Group which expose the Group to fair value interest rate risk at the balance sheet date. In respect of the exposure to cash flow interest rate risk arising from floating rate non-derivative instruments held by the Group at the balance sheet date, the impact on the Group's profit after taxation and retained profits and other components of consolidated equity is estimated as an annualised impact on interest expense or income of such a change in interest rates.

31 Financial risk management and fair value of financial instruments (continued)

(e) Liquidity risk

Liquidity risk is the risk that the Company will not be able to settle or manage its obligations associated with financial liabilities. The Company's objective is to maintain a suitable level of liquidity to finance the daily operation, capital expenditure and repayment of borrowings. The Group's policy is to regularly monitor current and expected liquidity requirements to ensure that it maintains sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet its liquidity requirements in the short and longer term. Note 2(b) explains management's plans for managing the liquidity needs of the Group to enable it to continue to meet its obligations as they fall due.

The following table details the remaining contractual maturities at the balance sheet date of the Group's financial liabilities, which are based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on rates current at the balance sheet date) and the earliest date the Group can be required to pay.

	2018					Balance sheet carrying amount USD 000
	Within 1 year USD 000	After 1 year but within 2 years USD 000	After 2 years but within 5 years USD 000	After 5 years USD 000	Total contractual undiscounted cash flow USD 000	
Borrowings (Note 24)	24,672	-	-	-	24,672	25,085
Senior Notes (Note 25)	24,748	23,717	478,242	-	514,707	458,711
Trade and other payables (Note 26)	195,472	-	-	-	195,472	195,472
Contract liabilities (Note 26)	43,018	-	-	-	43,018	43,018
	<u>287,910</u>	<u>23,717</u>	<u>478,242</u>	<u>-</u>	<u>789,869</u>	<u>719,286</u>

	2017					Balance sheet carrying amount USD 000
	Within 1 year USD 000	After 1 year but within 2 years USD 000	After 2 years but within 5 years USD 000	After 5 years USD 000	Total contractual undiscounted cash flow USD 000	
Borrowings (Note 24)	9,372	25,474	-	-	34,846	31,733
Senior Notes (Note 25)	24,748	32,997	518,437	-	569,202	436,563
Trade and other payables (Note 26)	222,731	-	-	-	222,731	222,731
	<u>256,851</u>	<u>58,471</u>	<u>518,437</u>	<u>-</u>	<u>826,979</u>	<u>691,027</u>

31 Financial risk management and fair value of financial instruments (continued)

(7) Fair value measurement

(i) Financial assets and liabilities measured at fair value

- Fair value hierarchy

The following table presents the fair value of the Group's financial instruments measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13, Fair value measurement. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs, i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2 valuations: Fair value measured using Level 2 inputs, i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available.
- Level 3 valuations: Fair value measured using significant unobservable inputs.

The Group has a team headed by the finance manager performing valuations for the financial instruments, derivative components of the Senior Notes and derivative component of the Senior Loan. The team reports directly to the chief financial officer. A valuation report with analysis of changes in fair value measurement is prepared by the team at each interim and annual reporting date, and is reviewed and approved by the chief financial officer. Discussion of the valuation process and results with the chief financial officer is held twice a year, to coincide with the reporting dates.

		Fair value measurements as at 31 December 2018 categorised into		
	Fair value at 31 December 2018 USD'000	Level 1 USD'000	Level 2 USD'000	Level 3 USD'000
Recurring fair value measurements				
Financial liabilities				
- Derivative components of Senior Notes	64,394	-	-	64,394
- Derivative component of Senior Loan	1,761	-	-	1,761

31 Financial risk management and fair value of financial instruments (continued)

	Fair value at 31 December 2017 USD 000	Fair value measurements as at 31 December 2017 categorised into		
		Level 1 USD 000	Level 2 USD 000	Level 3 USD 000
Recurring fair value measurements				
Financial liabilities				
- Derivative components of Senior Notes	54,926	-	-	54,926
- Derivative component of Senior Loan	1,934	-	-	1,934

During the year ended 31 December 2018, there were no transfers between Level 1 and Level 2, or transfers into or out of Level 3 (2017: nil). The Group's policy is to recognise transfers between levels of fair value hierarchy as at the end of the reporting period in which they occur.

Information about Level 3 fair value measurements

	Valuation techniques	Significant unobservable inputs	Weighted average
Derivative components of Senior Notes	Discounted cash flow method	Bond yield	10.5%
Derivative component of Senior Loan	Discounted cash flow method	Coal price index	USD130 to USD161
		Bond yield	8.81%
		Coal price index	USD130 to USD161

The fair value of derivative components of the Senior Notes is determined using discounted cash flow method and the significant unobservable input used in the fair value measurement is bond yield and coal price index. The fair value measurement is negatively correlated to the bond yield. As at 31 December 2018, it is estimated that with all other variables held constant, an increase/decrease in bond yield by 100bps would have decreased/increased the Group's net finance costs by USD487,000/USD600,000 respectively. The fair value measurement is correlated to the coal price index. As at 31 December 2018, it is estimated that with all other variables held constant, an increase/decrease in coal price index by 1% would have increased the Group's net finance costs by USD1,127,000/nil respectively.

The fair value of derivative component of the Senior Loan is determined using discounted cash flow method and the significant unobservable input used in the fair value measurement is bond yield and coal price index. The fair value measurement is negatively correlated to the bond yield. As at 31 December 2018, it is estimated that with all other variables held constant, an increase/decrease in bond yield by 100bps would have decreased/increased the Group's net finance costs by USD10,000/USD10,000 respectively. The fair value measurement is correlated to the coal price index. As at 31 December 2018, it is estimated that with all other variables held constant, a decrease/increase in coal price index by 1% would have decreased the Group's net finance costs by nil respectively.

31 Financial risk management and fair value of financial instruments (continued)

The movement during the period in the balance of Level 3 fair value measurements is as follows:

	USD'000
Derivative components of Senior Notes	
At 31 December 2017	54,326
Changes in fair value recognised in profit or loss during the period	<u>9,468</u>
At 31 December 2018	<u>64,304</u>
Total losses for the period included in profit or loss for liabilities held at the end of the reporting period	<u>9,458</u>
	USD'000
Derivative component of Senior Loan	
At 31 December 2017	1,934
Changes in fair value recognised in profit or loss during the period	<u>(173)</u>
At 31 December 2018	<u>1,761</u>
Total gain for the period included in profit or loss for liabilities held at the end of the reporting period	<u>(173)</u>

The net unrealised losses resulting from the remeasurement of the derivative components of the Senior Notes and derivative component of the Senior Loan are recognised in net finance costs in the consolidated statement of profit or loss.

(ii) Fair value of financial assets and liabilities carried at other than fair value

The carrying amounts of the Group's financial instruments carried at cost or amortised cost were not materially different from their fair values as at 31 December 2018 except for the following financial instruments, for which their carrying amounts and fair value are disclosed below:

	<u>At 31 December 2018</u>	
	Carrying amount USD'000	Fair value USD'000
Liability component of Senior Loan	23,304	22,484
Liability component of Senior Notes	387,318	347,306

32 Commitments and contingencies

(a) Capital commitments

Capital commitments outstanding at respective balance sheet dates not provided for in the financial statements were as follows:

	2018 USD'000	2017 USD'000
Contracted for	3,880	4,699
Authorised but not contracted for	3,255	17,337
	<u>7,135</u>	<u>22,036</u>

(b) Operating lease commitments

- (i) At 31 December 2018, the total future minimum lease payments under non-cancellable operating leases are payable as follows:

	2018 USD'000	2017 USD'000
Within 1 year	560	85
After 1 year but within 5 years	147	-
	<u>707</u>	<u>85</u>

- (ii) The Group leases certain buildings through operating leases. These operating leases do not contain provisions for contingent lease rentals. None of the agreements contain escalation provisions that may require higher future rental payments.

(c) Environmental contingencies

Historically, the Group has not incurred any significant expenditure for environmental remediation. Further, except for the accrued reclamation obligations as disclosed in Note 28 and amounts incurred pursuant to the environment compliance protection and precautionary measures in Mongolia, the Group has not incurred any other significant expenditure for environmental remediation, is currently not involved in any other environmental remediation and has not accrued any other amounts for environmental remediation relating to its operations. Under existing legislation, the Directors believe that there are no probable liabilities that will have a material adverse effect on the financial position or operating results of the Group. However, environmental laws and regulations continue to evolve. Management of the Group regularly reassesses environmental remediation for its operations. Environmental liabilities are subject to considerable uncertainties which affect the Group's ability to estimate the ultimate cost of remediation efforts. The outcome of environmental liabilities under future environmental legislations cannot be estimated reasonably at present and which could be material.

33 Material related party transactions

(a) Transactions with related parties

Related parties refer to enterprises over which the Group is able to exercise significant influence or control during the year. During the year, the Group entered into transactions with the following related parties:

Name of party	Relationship
MCS Mongolia LLC ("MCS")	Shareholder of MMC
MCS Holding LLC	Subsidiary of MCS
MCS Estates LLC	Subsidiary of MCS
Unitel LLC	Subsidiary of MCS
Uniservice Solution LLC	Subsidiary of MCS
MCS Property LLC	Subsidiary of MCS
MCS International LLC	Subsidiary of MCS
M Armor LLC	Subsidiary of MCS
Univision LLC	Subsidiary of MCS
Shangri-La Ulaanbaatar Hotel	Subsidiary of MCS
Chinggis Eon Tour LLC	Subsidiary of MCS
Shangri-La Ulaanbaatar LLC	Subsidiary of MCS
Skynetworks LLC	Subsidiary of MCS
Sky Resort LLC	Subsidiary of MCS
Anun LLC	Subsidiary of MCS
Gashuun Sukhat Auto Zam LLC	Associate of MMC

Particulars of significant transactions between the Group and the above related parties during the year ended 31 December 2018 are as follows:

	2018 USD'000	2017 USD'000
Ancillary services (Note (i))	13,618	13,456
Sales of property, plant and equipment (Note (ii))	9	8
Lease of property, plant and equipment (Note (iii))	407	420
Purchase of property and goods (Note (iv))	403	-

Notes

- Ancillary services represent expenditures for support services such as cleaning and canteen expense, power and heat generation, and distribution and management fees paid to Uniservice Solution LLC, MCS International LLC, MCS and its affiliates. The service charges are based on comparable or prevailing market rates, where applicable.
- Sales of property, plant and equipment represent sale to MCS and its affiliates. The sales are carried out at comparable or prevailing market rates, where applicable.
- Lease of property, plant and equipment represents rental paid or payable in respect of properties leased from Shangri-La Ulaanbaatar LLC, MCS and its affiliates. The rental charges are based on comparable or prevailing market rates, where applicable.

33 Material related party transactions (continued)

- (iv) Purchase of property and goods represents purchases from MCS and its affiliates. The purchases are carried out at comparable or prevailing market rates, where applicable.

The Directors of the Company are of the opinion that the above transactions were conducted in the ordinary course of business, on normal commercial terms and in accordance with the agreements governing such transactions.

Amounts due from/to related parties

	2018 USD'000	2017 USD'000
Other receivables (Note 22(c))	<u>2</u>	<u>1</u>
Other accruals and payables (Note 26)	<u>(6,085)</u>	<u>(18,897)</u>

(b) Key management personnel remuneration

Key management personnel are those persons holding positions with authority and responsibility for planning, directing and controlling the activities of the Group, directly or indirectly, including the Group's Directors.

Remuneration for key management personnel, including amounts paid to the Company's Directors as disclosed in Note 10, and certain of the highest paid employees as disclosed in Note 11, is as follows:

	2018 USD'000	2017 USD'000
Salaries and other emoluments	2,653	2,199
Discretionary bonus	263	2,211
Retirement scheme contributions	210	287
Equity-settled share-based payment expenses	<u>539</u>	<u>1,104</u>
	<u>3,665</u>	<u>5,801</u>

(c) Applicability of the Listing Rules relating to connected transactions

Certain related party transactions in respect of (a) above constitute connected transactions or continuing connected transactions as defined in Chapter 14A of the Listing Rules. The disclosures required by Chapter 14A of the Listing Rules are provided in section headed "Connected transactions and continuing connected transactions" of the Directors' Report.


34 Ultimate controlling party

As at 31 December 2018, the Directors consider the ultimate controlling party of the Group to be MCS Mongolia LLC, which was incorporated in Mongolia. This entity does not produce financial statements available for public use.

35 Company-level statement of financial position

	Now	2016 USD'000	2017 USD'000
Non-current assets			
Interests in subsidiaries		<u>785,847</u>	<u>788,422</u>
Total non-current assets		<u>785,847</u>	<u>788,422</u>
Current assets			
Trade and other receivables		257	40
Cash at bank and in hand		<u>347</u>	<u>245</u>
Total current assets		<u>604</u>	<u>285</u>
Current liabilities			
Trade and other payables		<u>172</u>	<u>860</u>
Total current liabilities		<u>172</u>	<u>860</u>
Net current assets/(liabilities)		<u>432</u>	<u>(575)</u>
Total assets less current liabilities		<u>786,279</u>	<u>787,847</u>
Total non-current liabilities		<u>-</u>	<u>-</u>
NET ASSETS		<u>786,279</u>	<u>787,847</u>
CAPITAL AND RESERVES	30(a)		
Share capital		102,918	102,918
Reserves		<u>683,361</u>	<u>684,929</u>
TOTAL EQUITY		<u>786,279</u>	<u>787,847</u>

Approved and authorized for issue by the board of directors on 15 March 2019.


Odjangel Jantibajames
Chairman


Batmangel Gatsav
Chief Executive Officer

36 Comparative figures

The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. Further details of the changes in accounting policies are disclosed in Note 2(c).

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2018

Up to the date of issue of these financial statements, the ASB has issued a number of amendments and new standards which are not yet effective for the year ended 31 December 2018 and which have not been adopted in these financial statements. These include the following which may be relevant to the Group:

	<i>Effective for accounting periods beginning on or after</i>
IFRS 16, Leases	1 January 2019
IFRIC 23, Uncertainty over income tax treatments	1 January 2019
Annual Improvements to IFRSs 2015-2017 Cycle	1 January 2019
Amendments to IAS 28, Long-term interest in associates and joint ventures	1 January 2019

The Group is in the process of making an assessment of what the impact of these amendments, new standards and interpretations is expected to be in the period of initial application. So far the Group has identified some aspects of the IFRS 16 which may have an impact on the consolidated financial statements. Further details of the expected impacts are discussed below. While the assessment has been substantially completed for IFRS 16, the actual impacts upon the initial adoption of the standards may differ as the assessment completed to date is based on the information currently available to the Group, and further impacts may be identified before the standards are initially applied in the Group's interim financial report for the six months ending 30 June 2019. The Group may also change its accounting policy elections, including the transition options, until the standards are initially applied in that financial report.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2018 (continued)

IFRS 16, Leases

As disclosed in Note 2(j), currently the Group classifies leases into finance leases and operating leases and accounts for the lease arrangements differently depending on the classification of the lease. The Group enters into some leases as the lessee.

IFRS 16 is not expected to impact significantly on the way that lessors account for their rights and obligations under a lease. However, once IFRS 16 is adopted, lessees will no longer distinguish between finance leases and operating leases. Instead, subject to practical expedients, lessees will account for all leases in a similar way to current finance lease accounting, i.e. at the commencement date of the lease the lessee will recognise and measure a lease liability at the present value of the minimum future lease payments and will recognise a corresponding right-of-use asset. After initial recognition of this asset and liability, the lessee will recognise interest expense accrued on the outstanding balance of the lease liability and the depreciation of the right-of-use asset, instead of the current policy of recognising rental expenses incurred under operating leases on a systematic basis over the lease term. As a practical expedient, the lessee can elect not to apply this accounting model to short-term leases (i.e. where the lease term is 12 months or less) and to leases of low-value assets, in which case the rental expenses would continue to be recognised on a systematic basis over the lease term.

IFRS 16 will primarily affect the Group's accounting as a lessee of leases for properties, plant and equipment which are currently classified as operating leases. The application of the new accounting model is expected to lead to an increase in both assets and liabilities and to impact on the timing of the expense recognition in the statement of profit or loss over the period of the lease.

IFRS 16 is effective for annual periods beginning on or after 1 January 2019. As allowed by IFRS 16, the group plans to use the practical expedient to grandfather the previous assessment of which existing arrangements are, or contain, leases. The group will therefore apply the new definition of a lease in IFRS 16 only to contracts that are entered into on or after the date of initial application. In addition, the group plans to elect the practical expedient for not applying the new accounting model to short-term leases and leases of low-value assets.

The Group plans to elect to use the modified retrospective approach for the adoption of IFRS 16 and will recognise the cumulative effect of initial application as an adjustment to the opening balance of equity at 1 January 2019 and will not restate the comparative information. As disclosed in note 32(b) at 31 December 2018, the Group's future minimum lease payments under non-cancellable operating leases amount to USD707,000 for properties, all of which USD660,000 is payable within 1 year after the reporting date, and USD147,000 is payable after 1 year but within 2 years after the reporting date. Upon the initial adoption of IFRS 16, the opening balances of lease liabilities and the corresponding right-of-use assets will be adjusted to USD304,000 and USD304,000 respectively, after taking account the effects of discounting as at 1 January 2019.

Other than the recognition of lease liabilities and right-of-use assets, the Group expects that the transition adjustments to be made upon the initial adoption of IFRS 16 will not be material. However, the expected changes in accounting policies as described above could have a material impact on the Group's financial statement from 2019 onwards.

Mongolian Mining Corporation
(Stock Code: 00975)

Financial Statements
for the year ended 31 December 2017

Independent Auditors' Report to the Shareholders of Mongolian Mining Corporation

(Incorporated in the Cayman Islands with limited liability)

Opinion

We have audited the consolidated financial statements of Mongolian Mining Corporation (**the Company**) and its subsidiaries (**the Group**) set out on pages 7 to 29 which comprise the consolidated statement of financial position as at 31 December 2017, the consolidated statement of profit or loss, the consolidated statement of profit or loss and other comprehensive income, the consolidated statement of changes in equity and the consolidated cash flow statement for the year then ended and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2017 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (**IFRSs**) issued by the International Accounting Standards Board (**IASB**) and have been properly prepared in compliance with the disclosure requirements of the Hong Kong Companies Ordinance.

Basis for Opinion

We conducted our audit in accordance with Hong Kong Standards on Auditing (**HKSAs**) issued by the Hong Kong Institute of Certified Public Accountants (**HKICPA**). Our responsibilities under those standards are further described in the Auditors' responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the HKICPA's Code of Ethics for Professional Accountants (**the Code**), together with any ethical requirements that are relevant to our audit of the consolidated financial statements in the Cayman Islands, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Material Uncertainty Related to Going Concern

We draw attention to note 2(b) to the consolidated financial statements, which discloses that the Group had net current liabilities of approximately USD87,767,000 as at 31 December 2017, indicating the existence of a material uncertainty which may cast significant doubt about the Group's ability to continue as a going concern. The consolidated financial statements have been prepared on a going concern basis, the validity of which is dependent on the Group's ability to generate sufficient cash flows from future operations to enable it to operate as a going concern and meet its financial liabilities as they fall due for the foreseeable future. The Group's ability to do this is dependent upon the current economic environment and the sustainability of the price of coking coal in the market. The consolidated financial statements do not include any adjustments that would result should the Group be unable to continue to operate as a going concern. Our opinion is not modified in respect of this matter.

Key Audit Matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. In addition to the matter described in the Material Uncertainty Related to Going Concern section, we have determined the matters described below to be the key audit matters to be communicated in our report.

Assessing impairment of mining related assets	
Refer to notes 29(i), 3(a), 14 and 15 to the consolidated financial statements and the accounting policies on pages 21, 33, 52 and 58	
The Key Audit Matter	How the matter was addressed in our audit
<p>The Group's mining related assets are the most quantitatively significant items in the consolidated statement of financial position and mainly comprise property, plant and equipment, construction in progress, intangible assets and long-term prepayments relating to the Group's mining operations located in Mongolia, which are considered by management to represent a single separately identifiable cash generating unit (CGU).</p> <p>Management performs an impairment assessment of mining related assets at the end of each reporting period. As at 31 December 2014, the Group recognised impairment of its mining rights in the amount of USD192 million which reflected downward pressures on the prices of certain coking coal products. As at 31 December 2015, 2016 and 2017, management concluded that no further impairment or reversal of previously recognised impairment was necessary.</p> <p>Management determines the recoverable</p>	<p>Our audit procedures to assess impairment of mining related assets included the following:</p> <ul style="list-style-type: none"> evaluating the design and implementation of key internal controls over the estimations of the recoverable amounts of mining related assets; assessing the allocation of assets and liabilities by management to the mining CGU and the methodology adopted by management in its impairment assessment with reference to the requirements of the prevailing accounting standards.

Assessing impairment of mining related assets

Refer to notes 2(h), 3(a), 14 and 15 to the consolidated financial statements and the accounting policies on pages 21, 35, 52 and 58.

amount of mining related assets by assessing the value in use of the CGU to which the assets have been allocated by using discounted cash flow techniques when indicators of impairment are identified. The preparation of a discounted cash flow forecast involves the exercise of significant management judgement in the selection of assumptions, in particular in estimating future commodity prices and the discount rate applied as well as in determining internal assumptions relating to future sales and future operating costs.

We identified assessing impairment of mining related assets as a key audit matter because the impairment assessment involves significant management judgement in the selection of assumptions which could be subject to management bias.

- challenging the key assumptions and estimates used to in the discounted cash flow forecast as at 31 December 2017, including those relating to future commodity prices, future sales, future operating costs and the discount rates applied, which included involving our internal valuation specialists to assist us in comparing these key assumptions and estimates with external benchmarks (including future commodity prices and discount rates for similar companies in the same industry) and in considering the key assumptions and estimates based on our knowledge of the Group and the industry in which it operates;
- comparing the key assumptions and estimates included in the discounted cash flow forecast prepared in the prior year with the current year's performance to assess the reliability management's forecasting process and making enquiries of management as to the reasons for any significant variances identified;
- performing sensitivity analyses of the key assumptions and estimates adopted in the discounted cash flow forecast and assessing the impact of changes in the key assumptions and estimates and whether there were any indicators of management bias; and
- assessing the disclosures in the consolidated financial statements in respect of the impairment of mining related assets with reference to the requirements of the prevailing accounting standards.

Information other than the consolidated financial statements and auditor's report thereon

The directors are responsible for the other information. The other information comprises all the information included in the annual report other than the consolidated financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the directors for the consolidated financial statements

The directors are responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRSs issued by the IASB and the disclosure requirements of the Hong Kong Companies Ordinance and for such internal control as the directors determine is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the directors are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or to cease operations, or have no realistic alternative but to do so.

The directors are assisted by the Audit Committee in discharging their responsibilities for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. This report is made solely to you, as a body, and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report.

Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with HKSAAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with HKSA's, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Audit Committee with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and, where applicable, related safeguards.

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Chu Man Wai.



Certified Public Accountants
8th Floor, Prince's Building
10 Chater Road
Central, Hong Kong
22 March 2018

Consolidated statement of profit or loss
for the year ended 31 December 2017
(Expressed in United States dollars)

	Note	2017 USD 000	2016 USD 000
Revenue	4	475,364	120,028
Cost of revenue	5	<u>(273,797)</u>	<u>(120,346)</u>
Gross profit/(loss)		202,567	(318)
Other cost		(862)	(2,808)
Other net (loss)/income		(1,584)	4,116
Selling and distribution costs	6(c)	(58,631)	(17,654)
General and administrative expenses		<u>(19,097)</u>	<u>(13,133)</u>
Profit/(loss) from operations		<u>123,993</u>	<u>(29,797)</u>
Finance income	6(a)	48	1,186
Finance costs	6(a)	<u>(51,063)</u>	<u>(122,709)</u>
Net finance costs	6(a)	<u>(51,006)</u>	<u>(121,519)</u>
Gain from the Debt Restructuring	7	262,568	-
Share of profit/(losses) of associates		163	(5)
Share of losses of joint venture		<u>-</u>	<u>(21)</u>

The notes on pages 16 to 99 form part of these financial statements

Consolidated statement of profit or loss
for the year ended 31 December 2017 (continued)
(Expressed in United States dollars)

	Note	2017 USD 000	2016 USD 000
Profit/(loss) before taxation	5	335,115	(151,342)
Income tax	5	(25,813)	(2,652)
Profit/(loss) for the year		310,300	(153,992)
Attributable to:			
Equity shareholders of the Company		311,013	(154,248)
Non-controlling interests		(707)	256
Profit/(loss) for the year		310,300	(153,992)
Basic earnings/(loss) per share	9	<u>3.13 cents</u>	<u>(1.67) cents</u>
Diluted earnings/(loss) per share	9	<u>3.13 cents</u>	<u>(1.67) cents</u>

The notes on pages 35 to 66 form part of these financial statements. Details of dividends payable to equity shareholders of the Company attributable to the profit for the year are set out in Note 30(a).

Consolidated statement of profit or loss and other comprehensive income for the year ended 31 December 2017

(Expressed in United States dollars)

	Note	2017 USD'000	2016 USD'000
Profit/(loss) for the year		310,306	(153,992)
Other comprehensive income for the year (after reclassification adjustments)	12		
Items that may be reclassified subsequently to profit or loss:			
Exchange differences on re-translation		21,698	(47,504)
Surplus on revaluation of plants, buildings, and machinery and equipment	14, 15, 27	-	341,819
Total comprehensive income for the year		<u>332,004</u>	<u>140,323</u>
Attributable to:			
Equity shareholders of the Company		332,711	140,067
Non-controlling interests		(707)	256
Total comprehensive income for the year		<u>332,004</u>	<u>140,323</u>

The notes on pages 15 to 99 form part of these financial statements

Consolidated statement of financial position at 31 December 2017

(Expressed in United States dollars)


	Note	2017 USD'000	2016 USD'000
Non-current assets			
Property, plant and equipment, net	14	861,520	776,464
Construction in progress	15	16,010	79,976
Lease prepayments	16	54	53
Intangible assets	17	508,595	509,221
Interest in associates	19	156	32
Interest in joint venture		60	58
Other non-current assets	20	83,338	61,917
Deferred tax assets	27(b)	14,896	35,341
Total non-current assets		1,484,669	1,483,062
Current assets			
Assets held for sale		183	131
Inventories	21	66,745	42,181
Trade and other receivables	22	72,375	58,751
Cash and cash equivalents	23	7,460	12,268
Total current assets		146,763	113,331
Current liabilities			
Short-term borrowings and current portion of long-term borrowings	24(b)	7,500	93,000
Senior notes	25	-	599,692
Trade and other payables	26	222,731	342,196
Current taxation	27(e)	4,299	269
Total current liabilities		234,530	1,035,157
Net current liabilities		(87,767)	(921,826)
Total assets less current liabilities		1,396,902	561,236

The notes on pages 15 to 99 form part of these financial statements


**Consolidated statement of financial position
at 31 December 2017 (continued)**
(Expressed in United States dollars)

	Note	2017 USD'000	2016 USD'000
Non-current liabilities			
Long-term borrowings, less current portion	24(a)	74,753	-
Senior notes	25	436,583	-
Provisions	29	14,327	13,585
Deferred tax liabilities	27(b)	149,504	150,178
Other non-current liabilities		1,305	45,100
		<u>626,052</u>	<u>208,827</u>
Total non-current liabilities		<u>626,052</u>	<u>208,827</u>
NET ASSETS		770,850	231,309
CAPITAL AND RESERVES			
Share capital	20(c)	102,916	92,626
Perpetual notes	30(f)	75,697	-
Reserves		<u>592,234</u>	<u>238,685</u>
Total equity attributable to equity shareholders of the Company		770,850	230,711
Non-controlling interests		<u>(105)</u>	<u>598</u>
TOTAL EQUITY		770,850	231,309

Approved and authorised for issue by the board of directors on 22 March 2018



Odjargal Jambajamts
Chairman



Battseengel Golov
Chief Executive Officer

The notes on pages 16 to 99 form part of these financial statements

Consolidated statement of changes in equity for the year ended 31 December 2017 (Expressed in United States dollars)

Note	Attributable to equity shareholders of the Company							Non- controlling interests USD'000	Total equity USD'000
	Share capital USD'000 (Note 30)(1)	Share premium USD'000 (Note 30)(1)	Other reserves USD'000 (Note 30)(1)(2)	Exchange reserves USD'000 (Note 30)(1)(2)	Reserves revaluation USD'000 (Note 30)(4)(2)	Accumulated losses USD'000	Reserves USD'000 (Note 30)(1)		
At 1 January 2016	92,829	749,527	53,837	(334,284)	-	(589,747)	-	342	189,791
Loss for the year	-	-	-	-	-	(154,248)	-	259	(153,989)
Other comprehensive income	-	-	-	(47,824)	341,819	-	-	-	294,315
Total comprehensive income	-	-	-	(47,824)	341,819	(154,248)	-	259	140,338
Equity settled share- based transactions	-	-	1,199	-	-	-	-	-	1,199
At 31 December 2016	92,829	749,527	54,036	(382,209)	341,819	(604,895)	-	898	331,399

The notes on pages 16 to 59 form part of these financial statements

Consolidated cash flow statement for the year ended 31 December 2017 (Expressed in United States dollars)

	Note	2017 USD 000	2016 USD 000
Cash flows from operating activities			
Profit/(loss) before taxation		336,119	(151,342)
Adjustments for:			
Depreciation and amortisation	6(c)	51,014	32,707
Impairment loss on trade and other receivables	6(c)	-	(436)
Provision/losses on coal inventories		-	4,315
Share of (profit)/losses of associates and joint venture		(163)	26
Gain on disposals of property, plant and equipment and assets held for sale	6(c)	(90)	(524)
Net finance costs	6(a)	51,006	121,519
Gain from the Debt Restructuring	7	(352,968)	-
Equity-settled share-based payment expenses	6(d)	1,356	1,195
Employee benefit accrued		(96)	(447)
Changes in working capital:			
Increase in inventories		(24,564)	(667)
(Increase)/decrease in trade and other receivables		(13,624)	33,277
(Decrease)/increase in trade and other payables		(20,674)	34,224
Increase in other non-current assets and other non-current liabilities		(22,398)	(44,494)
Cash generated from operations		95,811	29,353
Income tax paid	2/(a)	<u>(191)</u>	<u>(3)</u>
Net cash generated from operating activities		<u>95,620</u>	<u>29,350</u>

The notes on pages 16 to 99 form part of these financial statements

Consolidated cash flow statement
for the year ended 31 December 2017 (continued)
(Expressed in United States dollars)

	Note	2017 USD 000	2016 USD 000
Investing activities			
Payments for acquisition of property, plant and equipment and construction in progress		(62 930)	(6 655)
Proceeds from disposals of property, plant and equipment and assets held for sale		50	400
Interest received		-	3 487
Other cash flows generated from investing activities			50 000
Net cash (used in)/generated from investing activities		<u>(62 880)</u>	<u>44 252</u>
Financing activities			
Repayment of borrowings		-	(56 556)
Interest paid		<u>(17 757)</u>	<u>(4 965)</u>
Net cash used in financing activities		<u>(17 757)</u>	<u>(61 561)</u>
Net (decrease)/increase in cash and cash equivalents		<u>(5 030)</u>	<u>12 051</u>
Cash and cash equivalents at beginning of the year		<u>12 068</u>	<u>700</u>
Effect of foreign exchange rate changes		<u>222</u>	<u>(456)</u>
Cash and cash equivalents at end of the year	23	<u><u>7 460</u></u>	<u><u>12 068</u></u>

The notes on pages 16 to 30 form part of these financial statements.

Notes to consolidated financial statements

1 Corporate Information

Mongolian Mining Corporation (the “Company”) was incorporated in the Cayman Islands on 18 May 2010 as an exempted company with limited liability under the Companies Law Cap 22 (Law 3 of 1961 as consolidated and revised) of the Cayman Islands. The Company and its subsidiaries (together referred to as the “Group”) are principally engaged in the mining, processing, transportation and sale of coal.

Pursuant to a group reorganisation completed on 17 September 2010 (the “Reorganisation”) to rationalise the group structure for the public listing of the Company’s shares on the Main Board of the Stock Exchange of Hong Kong Limited (the “Stock Exchange”), the Company’s shares were listed on the Stock Exchange on 13 October 2010. Details of the Reorganisation are set out in the prospectus of the Company dated 28 September 2010.

2 Significant accounting policies

(a) Statement of compliance

These financial statements have been prepared in accordance with all applicable International Financial Reporting Standards (“IFRSs”) promulgated by the International Accounting Standards Board (“IASB”). IFRSs include all applicable individual International Financial Reporting Standards, International Accounting Standards (“IASs”) and related interpretations. These financial statements also comply with the applicable disclosure requirements of the Hong Kong Companies Ordinance. These financial statements also comply with the applicable disclosure provisions of the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (the “Listing Rules”). A summary of the significant accounting policies adopted by the Group is set out below.

The IASB has issued certain new and revised IFRSs that are first effective or available for early adoption for the current accounting period of the Group and the Company. Note 2(c) provides information on any changes in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Group for the current and prior accounting periods reflected in these financial statements.

(b) Basis of preparation of the financial statements

The consolidated financial statements for the year ended 31 December 2017 comprise the Group and the Group’s interest in associates and a joint venture.

2 Significant accounting policies (continued)

The measurement basis used in the preparation of the financial statements is the historical cost basis except that the following assets and liabilities are stated at their fair value as explained in the accounting policies set out below:

- Financial instruments classified as available-for-sale or as trading securities (see Note 2(f));
- Buildings and plants as well as machinery and equipment (see Note 2(h));
- Derivative financial instruments (see Note 2(g)).

Non-current assets and disposals groups held for sale are stated at the lower of carrying amount and fair value less costs (see Note 2(x)).

The preparation of financial statements in conformity with IFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

As at 31 December 2017, the Group had net current liabilities of approximately USD87,767,000. This condition indicates the existence of a material uncertainty which may cast significant doubt upon the Group's ability to continue as a going concern.

With the completion of the debt restructuring ("**Debt Restructuring**") in May 2017 (see Note 7) and assuming that the Group's business plan and cash flow forecast can be achieved, the directors of the Company (the "**Directors**") expect to generate sufficient financial resources from future operations to cover the Group's operating costs and to meet its financing commitments, as and when they fall due for the twelve months since 31 December 2017. The achievability of the business and cash flow forecast is dependent upon the current economic environment and the sustainability of the price of coking coal in the market. Based on the Director's plan and cash flow forecast, the Directors consider that it is appropriate to prepare the consolidated financial statements on a going concern basis. The consolidated financial statements do not include adjustments that would result should the Group be unable to continue as a going concern.

Judgements made by management in the application of IFRSs that have significant effect on the financial statements and major sources of estimation uncertainty are discussed in Note 3.

2 Significant accounting policies (continued)

(c) Changes in accounting policies

The ASB has issued several amendments to IFRSs that are first effective for the current accounting period of the Group. None of these impacts the accounting policies of the Group. However, additional disclosure has been included in Note 23(b) to satisfy the new disclosure requirements introduced by the amendments to AS 7, Statement of cash flows: Disclosure initiative, which require entities to provide disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash changes.

The Group has not applied any new standard or interpretation that is not yet effective for the current accounting period.

(d) Subsidiaries and non-controlling interests

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing whether the Group has power, only substantive rights (held by the Group and other parties) are considered.

An investment in a subsidiary is consolidated into the consolidated financial statements from the date that control commences until the date that control ceases. Intra-group balances, transactions and cash flows and any unrealised profits arising from intra-group transactions are eliminated in full in preparing the consolidated financial statements. Unrealised losses resulting from intra-group transactions are eliminated in the same way as unrealised gains but only to the extent that there is no evidence of impairment.

Non-controlling interests represent the equity in a subsidiary not attributable directly or indirectly to the Company, and in respect of which the Group has not agreed any additional terms with the holders of those interests which would result in the Group as a whole having a contractual obligation in respect of those interests that meets the definition of a financial liability. For each business combination, the Group can elect to measure any non-controlling interests either at fair value or at the non-controlling interests' proportionate share of the subsidiary's net identifiable assets.

Non-controlling interests are presented in the consolidated statement of financial position within equity, separately from equity attributable to the equity shareholders of the Company. Non-controlling interests in the results of the Group are presented on the face of the consolidated statement of profit or loss and the consolidated statement of profit or loss and other comprehensive income as an allocation of the total profit or loss and total comprehensive income for the year between non-controlling interests and the equity shareholders of the Company. Loans from holders of non-controlling interests and other contractual obligations towards these holders are presented as financial liabilities in the consolidated statement of financial position in accordance with Notes 2(n) or (o) depending on the nature of the liability.

2 Significant accounting policies (continued)

Changes in the Group's interests in a subsidiary that do not result in a loss of control are accounted for as equity transactions, whereby adjustments are made to the amounts of controlling and non-controlling interests within consolidated equity to reflect the change in relative interests, but no adjustments are made to goodwill and no gain or loss is recognised.

When the Group loses control of a subsidiary, it is accounted for as a disposal of the entire interest in that subsidiary, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former subsidiary at the date when control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset or, when appropriate, the cost on initial recognition of an interest in an associate (see Note 2(e)) or joint venture.

In the Company's statement of financial position, an investment in a subsidiary is stated at cost less impairment losses (see Note 2(k)), unless the investment is classified as held for sale (or included in a disposal group that is classified as held for sale) (see Note 2(x)).

(e) Associates and joint ventures

An associate is an entity in which the Group or Company has significant influence, but not control or joint control, over its management, including participation in the financial and operating policy decisions.

A joint venture is an arrangement whereby the Group and other parties contractually agree to share control of the arrangement, and have rights to the net assets of the arrangement.

An investment in an associate or a joint venture is accounted for in the consolidated financial statements under the equity method, unless it is classified as held for sale (or included in a disposal group that is classified as held for sale) (see Note 2(x)). Under the equity method, the investment is initially recorded at cost, adjusted for any excess of the Group's share of the acquisition-date fair values of investee's identifiable net assets over the cost of the investment (if any). Thereafter, the investment is adjusted for the post-acquisition change in the Group's share of the investee's net assets and any impairment loss relating to the investment (see Note 2(k)). Any acquisition date excess over cost, the Group's share of the post-acquisition, post-tax results of the investees and any impairment losses for the year are recognised in the consolidated statement of profit or loss, whereas the Group's share of the post-acquisition post-tax items of the investees' other comprehensive income is recognised in the consolidated statement of profit or loss and other comprehensive income.

When the Group's share of losses exceeds its interest in the associate or the joint venture, the Group's interest is reduced to nil and recognition of further losses is discontinued except to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the investee. For this purpose, the Group's interest is the carrying amount of the investment under the equity method together with the Group's long-term interests that in substance form part of the Group's net investment in the associate or the joint venture.

2 Significant accounting policies (continued)

Unrealised profits and losses resulting from transactions between the Group and its associates and joint venture are eliminated to the extent of the Group's interest in the investee except where unrealised losses provide evidence of an impairment of the asset transferred in which case they are recognised immediately in profit or loss.

If an investment in an associate becomes an investment in a joint venture or vice versa, retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method.

In all other cases when the Group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (see Note 2(f)).

In the Company's statement of financial position, investments in associates and joint venture are stated at cost less impairment losses, unless classified as held for sale (or included in a disposal group that is classified as held for sale).

(f) Other investments in debt and equity securities

The Group's and the Company's policies for investments in debt and equity securities, other than investments in subsidiaries, associates and joint ventures, are as follows:

Investments in debt and equity securities are initially stated at fair value, which is their transaction price unless it is determined that the fair value at initial recognition differs from the transaction price and that fair value is evidenced by a quoted price in an active market for an identical asset or liability or based on a valuation technique that uses only data from observable markets. Cost includes attributable transaction costs, except where indicated otherwise below. These investments are subsequently accounted for as follows, depending on their classification:

Investments in securities which do not fall into categories of investments in securities held for trading neither dated debt securities are classified as available-for-sale securities. At the end of each reporting period the fair value is remeasured, with any resultant gain or loss being recognised in other comprehensive income and accumulated separately in equity in the fair value reserve. As an exception to this, investments in equity securities that do not have a quoted price in an active market for an identical instrument and whose fair value cannot otherwise be reliably measured are recognised in the statement of financial position as cost less impairment losses (see Note 2(k)).

When the investments are derecognised or impaired (see Note 2(k)), the cumulative gain or loss recognised in equity is reclassified to profit or loss. Investments are recognised / derecognised on the date the Group commits to purchase/sell the investments or they expire.

2 Significant accounting policies (continued)

(g) *Derivative financial instruments*

Derivative financial instruments are recognised initially at fair value. At the end of each reporting period the fair value is remeasured. The gain or loss on remeasurement of fair value is recognised immediately in profit or loss.

(h) *Property, plant and equipment*

The following items are stated at their revalued amounts, being their fair values at the date of the revaluation, less any subsequent accumulated depreciation and any subsequent accumulated impairment losses:

- buildings and plants (under the Property, plant and equipment and Construction in progress), and
- machinery and equipment, and

Revaluations are performed with sufficient regularity to ensure that the carrying amounts of these assets do not differ materially from that which would be determined using fair values at the end of reporting period.

The following items of property, plant and equipment are stated at cost less accumulated depreciation and impairment losses (see Note 2(k))

- motor vehicles,
- office equipment; and
- mining properties

Changes arising on the revaluation are generally dealt with in other comprehensive income and are accumulated separately in equity in the asset revaluation reserve. The only exceptions are as follows:

- when a deficit arises on revaluation, it will be charged to profit or loss to the extent that it exceeds the amount held in the reserve in respect of that same asset immediately prior to the revaluation, and
- when a surplus arises on revaluation, it will be credited to profit or loss to the extent that a deficit on revaluation in respect of that same asset had previously been charged to profit or loss.

The cost of an asset comprises its purchase price, any directly attributable costs of bringing the asset to its present working condition and location for its intended use, the cost of borrowed funds used during the period of construction and, when relevant, the costs of dismantling and removing the items and restoring the site on which they are located, and changes in the measurement of existing liabilities recognised for these costs resulting from changes in the timing or outflow of resources required to settle the obligation or from changes in the discount rate.

2 Significant accounting policies (continued)

The Group recognises in the carrying amount of an item of property, plant and equipment the cost of replacing part of such an item when that cost is incurred if it is probable that the future economic benefits embodied with the item will flow to the Group and the cost of the item can be measured reliably. All other cost is recognised as an expense in profit or loss in the period in which it is incurred.

In open pit mining operations, the removal of overburden and waste materials, referred to as stripping, is required to obtain access to the ore body. Stripping costs incurred during the development phase of a mine are capitalised as stripping activity asset forming part of the cost of constructing the mining properties.

Stripping costs incurred during the production phase of a surface mine are variable production costs that are included in the costs of inventory produced during the period that the stripping costs are incurred (Note 2(i)), unless the stripping activity can be shown to give rise to probably future economic benefits from the mineral property by improving the access to the ore body, the component of the ore body for which access has been improved is identifiable and the costs associated with that component can be reliably measured, in which case the stripping costs would be capitalised as stripping activity asset included in property, plant and equipment – mining properties.

All other expenditures, including the cost of repairs and maintenance and major overhaul, are expensed as they are incurred.

Construction in progress represents property, plant and equipment under construction and equipment pending installation. Except for those stated at their revalued amount as aforementioned, other construction in progress items are initially recognised at cost less impairment losses (Note 2(k)). Cost comprises cost of materials, direct labour and an appropriate proportion of production overheads and borrowing costs (Note 2(w)). Capitalisation of these costs ceases and the construction in progress is transferred to property, plant and equipment when the asset is substantially ready for its intended use. No depreciation is provided in respect of construction in progress until it is completed and substantially ready for its intended use.

Gains or losses arising from the retirement or disposal of an item of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the item and are recognised in profit or loss on the date of retirement or disposal.

Depreciation is calculated to write off the cost of items of property, plant and equipment, other than mining properties, over their estimated useful lives using the straight-line method, after taking into account the estimated residual values.

2 Significant accounting policies (continued)

The estimated useful lives of property, plant and equipment are as follows.

	<i>Depreciable life</i>
- Buildings and plants	10 - 40 years
- Machinery and equipment	10 years
- Motor vehicles	5 - 10 years
- Office equipment	3 - 10 years

Mining properties, except for stripping activity assets related to capitalised stripping costs incurred during the production phase, are depreciated on the units-of-production method utilising only proven and probable coal reserves in the depletion base.

Stripping activity assets related to stripping costs incurred during the production phase are depreciated using a units-of-production basis over the proven and probable coal reserves of the component to which they relate.

No depreciation is provided in respect of construction in progress until it is substantially completed and ready for its intended use.

Where parts of an item of property, plant and equipment have different useful lives, the cost of the item is allocated on a reasonable basis between parts and each part is depreciated separately. Both the useful life of an asset and its residual value, if any, are reviewed annually.

(i) ~~Intangible assets~~

Intangible assets (acquired mining rights and software) acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value as at the date of acquisition. Following the initial recognition, intangible assets are stated at cost less accumulated amortisation (where the estimated useful life is finite) and impairment losses (see Note 2(k)).

Intangible assets (acquired mining rights) are depreciated on the units-of-production method utilising only proven and probable coal reserves in the depletion base.

Amortisation of other intangible assets with finite useful lives is recognised in profit or loss on a straight-line basis over the expected useful lives. The software are amortised over 10 years from the date they are available for use.

Both the period and method of amortisation are reviewed annually.

2 Significant accounting policies (continued)

(j) Leased assets

An arrangement, comprising a transaction or a series of transactions, is or contains a lease if the Group determines that the arrangement conveys a right to use a specific asset or assets for an agreed period of time in return for a payment or a series of payments. Such a determination is made based on an evaluation of the substance of the arrangement and is regardless of whether the arrangement takes the legal form of a lease.

(i) Classification of assets leased to the Group

Assets that are held by the Group under leases which transfer to the Group substantially all the risks and rewards of ownership are classified as being held under finance leases. Leases which do not transfer substantially all the risks and rewards of ownership to the Group are classified as operating leases.

(ii) Assets acquired under finance leases

Where the Group acquires the use of assets under finance leases, the amounts representing the fair value of the leased asset or, if lower, the present value of the minimum lease payments, of such assets is included in property, plant and equipment and the corresponding liabilities, net of finance charges, are recorded as obligations under finance leases. Depreciation is provided at rates which write off the cost or valuation of the assets over the term of the relevant lease or, where it is likely the Group will obtain ownership of the asset, the life of the asset, as set out in Note 2(h). Impairment losses are accounted for in accordance with the accounting policy as set out in Note 2(k). Finance charges implicit in the lease payments are charged to profit or loss over the period of the leases so as to produce an approximately constant periodic rate of charge on the remaining balance of the obligations for each accounting period. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

(iii) Operating lease charges

Where the Group has the use of assets held under operating leases, payments made under the leases are charged to profit or loss in equal instalments over the accounting periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the leased asset. Lease incentives received are recognised in profit or loss as an integral part of the aggregate net lease payments made. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

(iv) Lease prepayments

Lease prepayments represent the costs of acquiring the land use rights. Land use rights are carried at cost less accumulated amortisation and impairment losses (see Note 2(k)(iii)). Amortisation is charged to profit or loss on a straight-line basis over the period of the land use rights.

2 Significant accounting policies (continued)

(k) Impairment of assets

(i) Impairment of investment in debt and equity securities and other receivables

Investment in debt and equity securities and other current and non-current receivables that are stated at cost or amortised cost or are classified as available-for-sale securities are reviewed at the end of each reporting period to determine whether there is objective evidence of impairment. Objective evidence of impairment includes observable data that comes to the attention of the Group about one or more of the following loss events:

- significant financial difficulty of the debtor,
- a breach of contract such as a default or delinquency in interest or principal payments,
- it becoming probable that the debtor will enter bankruptcy or other financial reorganisation,
- significant changes in the technological, market, economic or legal environment that have an adverse effect on the debtor, and
- a significant or prolonged decline in the fair value of an investment in an equity instrument below its cost.

If any such evidence exists, any impairment loss is determined and recognised as follows:

- For investments in associate and joint ventures accounted for under the equity method in the consolidated financial statements (see Note 2(e)), the impairment loss is measured by comparing the recoverable amount of the investment with its carrying amount in accordance with Note 2(k)(ii). The impairment loss is reversed if there has been a favourable change in the estimates used to determine the recoverable amount in accordance with Note 2(k)(ii).
- For trade and other current receivables carried at amortised cost, the impairment loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate (i.e. the effective interest rate computed at initial recognition of these assets), where the effect of discounting is material. This assessment is made collectively where these financial assets share similar risk characteristics, such as similar past due status, and have not been individually assessed as impaired. Future cash flows for financial assets which are assessed for impairment collectively are based on historical loss experience for assets with credit risk characteristics similar to the collective group.

2 Significant accounting policies (continued)

If in a subsequent period the amount of an impairment loss decreases and the decrease can be linked objectively to an event occurring after the impairment loss was recognised, the impairment loss is reversed through profit or loss. A reversal of an impairment loss shall not result in the asset's carrying amount exceeding that which would have been determined had no impairment loss been recognised in prior years.

- For available-for-sale securities, the cumulative loss that has been recognised in the fair value reserve is reclassified to profit or loss. The amount of the cumulative loss that is recognised in profit or loss is the difference between the acquisition cost (net of any principal repayment and amortisation) and current fair value less any impairment loss on that asset previously recognised in profit or loss.

Impairment losses recognised in profit or loss in respect of available-for-sale equity securities are not reversed through profit or loss. Any subsequent increase in the fair value of such assets is recognised in other comprehensive income.

Impairment losses are written off against the corresponding assets directly, except for impairment losses recognised in respect of trade and other receivables whose recovery is considered doubtful but not remote. In this case, the impairment losses for doubtful debts are recorded using an allowance account. When the Group is satisfied that recovery is remote, the amount considered recoverable is written off against trade and other receivables directly and any amounts held in the allowance account relating to that debt are reversed. Subsequent recoveries of amounts previously charged to the allowance account are reversed against the allowance account. Other changes in the allowance account and subsequent recoveries of amounts previously written off directly are recognised in profit or loss.

(i) Impairment of other assets

Internal and external sources of information are reviewed at the end of each reporting period to identify indications that the following assets may be impaired or an impairment loss previously recognised no longer exists or may have decreased:

- property, plant and equipment
- construction in progress
- lease prepayments
- intangible assets
- other non-current assets (excluding receivables), and
- investment in subsidiaries, associates and joint ventures in the Company's statement of financial position.

2 Significant accounting policies (continued)

If any such indication exists, the asset's recoverable amount is estimated

- Calculation of recoverable amount

The recoverable amount of an asset is the greater of its fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of time value of money and the risks specific to the asset. Where an asset does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the smallest group of assets that generates cash inflows independently (i.e. a cash-generating unit).

- Recognition of impairment losses

An impairment loss is recognised in profit or loss whenever the carrying amount of an asset, or the cash-generating unit to which it belongs, exceeds its recoverable amount. Impairment losses recognised in respect of cash-generating units are allocated to reduce the carrying amount of the assets in the cash-generating unit (or group of units) on a pro rata basis, except that the carrying value of an asset will not be reduced below its individual fair value less costs of disposal (if measurable) or value in use (if determinable).

- Reversals of impairment losses

An impairment loss is reversed if there has been a favourable change in the estimates used to determine the recoverable amount.

A reversal of an impairment loss is limited to the asset's carrying amount that would have been determined had no impairment loss been recognised in prior years. Reversals of impairment losses are credited to profit or loss in the year in which the reversals are recognised.

(c) Interim financial reporting and impairment

Under the Listing Rules, the Group is required to prepare an interim financial report in compliance with IAS 34 Interim financial reporting in respect of the first six months of the financial year. At the end of the interim period, the Group applies the same impairment testing, recognition, and reversal criteria as it would at the end of the financial year (see Notes 2(k)(i) and (ii)).

2 Significant accounting policies (continued)

(j) Inventories

Coal inventories are physically measured or estimated and valued at the lower of cost and net realisable value.

Cost is calculated using the weighted average cost formula and comprises all costs of purchase, an appropriate portion of fixed and variable overhead costs including the stripping costs incurred during the production phase and other costs incurred in bringing the inventories to their present location and condition.

Net realisable value is the estimated future sales price of the product the Group expects to realise when such item is sold or processed, less estimated costs to complete and bring the product to sale.

When coal inventories are sold, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

Inventories of ancillary materials, spare parts and small tools used in production are stated at cost less impairment losses for obsolescence.

(m) Trade and other receivables

Trade and other receivables are initially recognised at fair value and thereafter stated at amortised cost using the effective interest method less allowance for impairment of doubtful debts (see Note 2(k)(i)), except where the receivables are interest-free loans made to related parties without any fixed repayment terms or the effect of discounting would be immaterial. In such cases, the receivables are stated at cost less allowance for impairment of doubtful debts.

(n) Interest-bearing borrowings

Interest-bearing borrowings are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, interest-bearing borrowings are stated at amortised cost with any difference between the amount initially recognised and redemption value being recognised in profit or loss over the period of the borrowings, together with any interest and fees payable, using the effective interest method.

(o) Trade and other payables

Trade and other payables are initially recognised at fair value and subsequently stated at amortised cost unless the effect of discounting would be immaterial, in which case they are stated at cost.

2 Significant accounting policies (continued)

(p) Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and in hand, demand deposits with banks and other financial institutions, and short-term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value, having been within three months of maturity at acquisition.

(q) Employee benefits

(i) Short-term employee benefits and contributions to defined contribution retirement plans

Salaries, annual bonuses, paid annual leave, contributions to defined contribution retirement plans and the cost of non-monetary benefits are accrued in the year in which the associated services are rendered by employees. Where payment or settlement is deferred and the effect would be material, these amounts are stated at their present values.

(ii) Share-based payments

The fair value of share options granted to employees is recognised as an employee cost with a corresponding increase in other reserve within equity. The fair value is measured at grant date using Black-Scholes option pricing model, taking into account the terms and conditions upon which the options were granted. Where the employees have to meet vesting conditions before becoming unconditionally entitled to the options, the total estimated fair value of the options is spread over the vesting period, taking into account the probability that the options will vest.

During the vesting period, the number of share options that is expected to vest is reviewed. Any resulting adjustment to the cumulative fair value recognised in prior years is charged/credited to the profit or loss for the year of the review, unless the original employee expenses qualify for recognition as an asset, with a corresponding adjustment to the other reserve. On vesting date, the amount recognised as an expense is adjusted to reflect the actual number of options that vest (with a corresponding adjustment to the other reserve) except where forfeiture is only due to not achieving vesting conditions that relate to the market price of the Company's shares. The equity amount is recognised in the other reserve until either the option is exercised (when it is transferred to the share premium account) or the option expires (when it is released directly to retained earnings).

(iii) Termination benefits

Termination benefits are recognised at the earlier of when the Group can no longer withdraw the offer of those benefits and when it recognises restructuring costs involving the payment of termination benefits.

2 Significant accounting policies (continued)

(r) Income tax

Income tax for the year comprises current tax and movements in deferred tax assets and liabilities. Current tax and movements in deferred tax assets and liabilities are recognised in profit or loss except to the extent that they relate to items recognised in other comprehensive income or directly in equity, in which case the relevant amounts of tax are recognised in other comprehensive income or directly in equity, respectively.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.

Deferred tax assets and liabilities arise from deductible and taxable temporary differences respectively, being the differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets also arise from unused tax losses and unused tax credits.

Apart from certain limited exceptions, all deferred tax liabilities, and all deferred tax assets to the extent that it is probable that future taxable profits will be available against which the asset can be utilised, are recognised. Future taxable profits that may support the recognition of deferred tax assets arising from deductible temporary differences include those that will arise from the reversal of existing taxable temporary differences, provided those differences relate to the same taxation authority and the same taxable entity and are expected to reverse either in the same period as the expected reversal of the deductible temporary difference or in periods into which a tax loss arising from the deferred tax asset can be carried back or forward. The same criteria are adopted when determining whether existing taxable temporary differences support the recognition of deferred tax assets arising from unused tax losses and credits, that is, those differences are taken into account if they relate to the same taxation authority and the same taxable entity and are expected to reverse in a period, or periods, in which the tax loss or credit can be utilised.

The limited exceptions to recognition of deferred tax assets and liabilities are those temporary differences arising from the initial recognition of assets or liabilities that affect neither accounting nor taxable profit (provided they are not part of a business combination) and temporary differences relating to interests in subsidiaries to the extent that, in the case of taxable differences, the Group controls the timing of the reversal and it is probable that the differences will not reverse in the foreseeable future, or in the case of deductible differences, unless it is probable that they will reverse in the future.

The amount of deferred tax recognised is measured based on the expected manner of realisation or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the balance sheet date. Deferred tax assets and liabilities are not discounted.

2 Significant accounting policies (continued)

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and is reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the related tax benefit to be utilised. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profit will be available.

Additional income taxes that arise from the distribution of dividends are recognised when the liability to pay the related dividend is recognised.

Current tax balances and deferred tax balances and movements therein, are presented separately from each other and are not offset. Current tax assets are offset against current tax liabilities, and deferred tax assets against deferred tax liabilities if, the Company or the Group have the legally enforceable right to set off current tax assets against current tax liabilities and the following additional conditions are met:

- in the case of current tax assets and liabilities, the Company or the Group intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously, or
- in the case of deferred tax assets and liabilities, if they relate to income taxes levied by the same taxation authority on either:
 - the same taxable entity, or
 - different taxable entities, which, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered, intend to realise the current tax assets and settle the current tax liabilities on a net basis or realise and settle simultaneously.

(5) Provisions and contingent liabilities

Provisions are recognised for liabilities of uncertain timing or amount when the Group has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

2 Significant accounting policies (continued)

(i) Obligations for reclamation

The Group's obligations for reclamation consist of spending estimates at its mines in accordance with the relevant rules and regulations in Mongolia. The Group estimates its liabilities for final reclamation and mine closure based upon detailed calculations of the amount and timing of the future cash spending to perform the required work. Spending estimates are escalated for inflation, then discounted at a discount rate that reflects current market assessments of the time value of money and the risks specific to the liability such that the amount of provision reflects the present value of the expenditures expected to be required to settle the obligation. The Group records a corresponding asset associated with the liability for final reclamation and mine closure, which is included in the mining properties. The obligation and corresponding asset are recognised in the period in which the liability is incurred. The asset is depreciated on the units-of-production method over its expected life and the liability is accreted to the projected spending date. As changes in estimates occur (such as mine plan revisions, changes in estimated costs, or changes in timing of the performance of reclamation activities), the revisions to the obligation and the corresponding asset are recognised at the appropriate discount rate.

(ii) Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable. Provided it is probable that the economic benefits will flow to the Group and the revenue and costs, if applicable, can be measured reliably, revenue is recognised in profit or loss as follows:

(i) Sale of goods

Revenue associated with the sale of coal is recognised when the risks and rewards of ownership of the goods have been passed to the customer. Revenue excludes value added tax or other sales taxes and is after deduction of any trade discounts and volume rebates.

(ii) Interest income

Interest income is recognised as it accrues using the effective interest method.

(iii) Translation of foreign currencies

The presentation currency of the Group is USD. The functional currency of the Company and the investment holding companies is USD and the functional currency of other group entities located in Mongolia is Mongolian Tugrog ("MNT"). Foreign currency transactions during the year are translated at the foreign exchange rates ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the foreign exchange rates ruling at the balance sheet date. Exchange gains and losses are recognised in profit or loss.

2 Significant accounting policies (continued)

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates.

The results of operations in Mongolia are translated into USD at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Statement of financial position items are translated into USD at the foreign exchange rates ruling at the balance sheet date. The resulting exchange differences are recognised in other comprehensive income and accumulated separately in equity in the exchange reserve.

On disposal of a foreign operation, the cumulative amount of the exchange differences relating to that foreign operation is reclassified from equity to profit or loss when the profit or loss on disposal is recognised.

(w) Borrowing costs

Borrowing costs that are directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial period of time to get ready for its intended use or sale are capitalised as part of the cost of that asset. Other borrowing costs are expensed in the period in which they are incurred.

The capitalisation of borrowing costs as part of the cost of a qualifying asset commences when expenditure for the asset is being incurred, borrowing costs are being incurred and activities that are necessary to prepare the asset for its intended use or sale are in progress. Capitalisation of borrowing costs is suspended or ceases when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are interrupted or complete.

(x) Non-current assets held for sale

A non-current asset is classified as held for sale if it is highly probable that its carrying amount will be recovered through a sale transaction rather than through continuing use and the asset is available for sale in its present condition.

Immediately before classification as held for sale, the measurement of the non-current assets is brought up-to-date in accordance with the accounting policies before the classification. Then, on initial classification as held for sale and until disposal, the non-current assets (except for certain assets as explained below) are recognised at the lower of their carrying amount and fair value less costs to sell. The principal exceptions to this measurement policy so far as the financial statements of the Group and the Company are concerned are deferred tax assets, assets arising from employee benefits, financial assets (other than investments in subsidiaries, associates and joint ventures) and investment properties. These assets, even if held for sale, would continue to be measured in accordance with the policies set out elsewhere in Note 2.

2 Significant accounting policies (continued)

Impairment losses on initial classification as held for sale, and on subsequent remeasurement while held for sale, are recognised in profit or loss. As long as a non-current asset is classified as held for sale the non-current asset is not depreciated or amortised.

(v) *Related parties*

- (a) A person, or a close member of that person's family, is related to the Group if that person
- (i) has control or joint control over the Group,
 - (ii) has significant influence over the Group, or
 - (iii) is a member of the key management personnel of the Group or the Group's parent
- (b) An entity is related to the Group if any of the following conditions applies.
- (i) The entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others)
 - (ii) One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member)
 - (iii) Both entities are joint ventures of the same third party
 - (iv) One entity is a joint venture of a third entity and the other entity is an associate of the third entity
 - (v) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group
 - (vi) The entity is controlled or jointly controlled by a person identified in (a).
 - (vii) A person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity)

Close members of the family of a person are those family members who may be expected to influence, or be influenced by that person in their dealings with the entity.

2 Significant accounting policies (continued)

(z) Segment reporting

Operating segments and the amounts of each segment item reported in the financial statements, are identified from the financial information provided regularly to the Group's most senior executive management for the purposes of allocating resources to, and assessing the performance of, the Group's various lines of business and geographical locations.

Individually material operating segments are not aggregated for financial reporting purposes unless the segments have similar economic characteristics and are similar in respect of the nature of products and services, the nature of production processes, the type or class of customers, the methods used to distribute the products or provide the services, and the nature of the regulatory environment. Operating segments which are not individually material may be aggregated if they share a majority of these criteria.

3 Accounting judgements and estimates

In determining the carrying amounts of certain assets and liabilities, the Group makes assumptions of the effects of uncertain future events on those assets and liabilities at the balance sheet date. These estimates involve assumptions about such items as risk adjustment to cash flows or discount rates used, future changes in salaries and future changes in prices affecting other costs. The Group's estimates and assumptions are based on the expectations of future events and are reviewed periodically. In addition to assumptions and estimations of future events, judgements are also made during the process of applying the Group's accounting policies. In addition to those disclosed in Note 28 about equity-settled share-based payment transactions and in Note 32(c) about the environmental contingencies, other significant accounting estimates and judgements were summarised as follows:

(a) Critical accounting judgements in applying the Group's accounting policies

(i) Fair value of buildings and plants, machinery and equipment classified as property, plant and construction in progress

As set out in Note 2(c), the Group has changed its accounting policy for its buildings and plants, machinery and equipment, and such class of items under construction status from cost model to valuation model with effect from 31 December 2016. Buildings and plants, machinery and equipment classified as property, plant and construction in progress were revalued by an external appraiser as at 31 December 2016 (see Notes 14 and 15). Such valuations were based on certain assumptions which are subject to uncertainty and might materially differ from the actual results. Judgement is required in relation to the selection of assumptions in arriving at the fair values and the determination of the frequency of performing a revaluation with sufficient regularity.

3 Accounting judgements and estimates (continued)

(i) Reserves

The Group estimates and reports Mineral Resources and Ore Reserves, commonly referred to as Coal Resources and Coal Reserves in the coal mining industry, meeting requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") and subsequently the Australian Guidelines for the Estimation and Classification of Coal Resources (2014) to which are referred.

The JORC Code is a professional code of practice that sets minimum standards for Public Reporting of minerals Exploration Results, Mineral Resources and Ore Reserves. The JORC Code provides a mandatory system for the classification of minerals Exploration Results, Mineral Resources and Ore Reserves according to the levels of confidence in geological knowledge and technical and economic considerations in public reports.

Responsibility for demonstrating the required transparency and materiality in the estimation of Coal Resources and/or Coal Reserves required by the JORC Code lies with the "Competent Person". A Competent Person is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy (the "AusIMM") or of the Australian Institute of Geoscientists (the "AIG") or of a Recognised Professional Organisation, as included in a list available on the JORC website. These organisations have enforceable codes of ethics, including disciplinary processes with powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.

A "Coal Reserve" is the economically mineable part of a Measured and/or Indicated Coal Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

A "Probable Coal Reserve" is the economically mineable part of an Indicated, and in some circumstances, a Measured Coal Resource. The confidence in the Modifying Factors applying to a Probable Coal Reserve is lower than that applying to a Proved Coal Reserve. A "Proved Coal Reserve" is the economically mineable part of a Measured Mineral Resource. A Proved Coal Reserve implies a high degree of confidence in the Modifying Factors.

"Modifying Factors" are considerations used to convert Coal Resources to Coal Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors. Modifying Factors may change from one estimation to the next, where the materiality of such changes is demonstrable. Such changes may be as result of variation to any of the mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, governmental or other factors.

3 Accounting judgements and estimates (continued)

Because the Modifying Factors used to estimate Coal Reserves may change from one estimate to the next, estimates of Coal Reserves may change from one period to another. Changes in reported Coal Reserves thus may affect the Group's financial results and financial position in a number of ways, including the following:

- Asset recoverable amounts may be affected due to changes in estimated future cash flows
- Depreciation, depletion and amortisation charged in the income statement may change where such charges are determined on the units of production basis or where the useful economic lives of assets change
- Overburden removal costs recorded on the statement of financial position or charged to the income statement may change due to changes in stripping ratios or the units of production basis of depreciation
- Reclamation and mine closure provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities
- The carrying amount of deferred tax assets may change due to changes in estimates of the likely recovery of the tax benefits

(i.) Useful lives of property, plants and equipment

Management determines the estimated useful lives of and related depreciation charges for its property, plant and equipment. This estimate is based on the actual useful lives of assets of similar nature and functions. It could change significantly as a result of significant technical innovations and competitor actions in response to industry cycles. Management will increase the depreciation charges where useful lives are less than previously estimated lives, or will write-off or write-down technically obsolete or non-strategic assets that have been abandoned or sold.

(iv) Impairment of assets

The Group reviews the carrying amounts of the assets at each balance sheet date to determine whether there is objective evidence of impairment. When indication of impairment is identified, management prepares discounted future cash flow to assess the differences between the carrying amount and value in use and provided for impairment loss. Any change in the assumptions adopted in the cash flow forecasts would increase or decrease in the provision of the impairment loss and affect the Group's net asset value.

In relation to trade and other receivables (including the value-added tax ("VAT") receivables), a provision for impairment is made and an impairment loss is recognised in profit or loss when there is objective evidence (such as the probability of insolvency or significant financial difficulties of the debtor) that the Group will not be able to collect all of the amounts due under the original terms of the invoice. Management uses judgment in determining the probability of insolvency or significant financial difficulties of the debtor.

An increase or decrease in the above impairment loss would affect the net profit in future years.

3 Accounting judgements and estimates (continued)

(v) Obligation for reclamation

The estimation of the liabilities for final reclamation and mine closure involves the estimates of the amount and timing for the future cash spending as well as the discount rate used for reflecting current market assessments of the time value of money and the risks specific to the liability. The Group considers the factors including future production volume and development plan, the geological structure of the mining regions and reserve volume to determine the scope, amount and timing of reclamation and mine closure works to be performed. Determination of the effect of these factors involves judgements from the Group and the estimated liabilities may turn out to be different from the actual expenditure to be incurred. The discount rate used by the Group may also be altered to reflect the changes in the market assessments of the time value of money and the risks specific to the liability, such as change of the borrowing rate and inflation rate in the market. As changes in estimates occur (such as mine plan revisions, changes in estimated costs, or changes in timing of the performance of reclamation activities), the revisions to the obligation will be recognised at the appropriate discount rate.

(vi) Recognition of deferred tax assets

Deferred tax assets in respect of unused tax losses and tax credit carried forward and deductible temporary differences are recognised and measured based on the expected manner of realisation or settlement of the carrying amount of the assets, using tax rates enacted or substantively enacted at the balance sheet date. In determining the carrying amounts of deferred assets, expected taxable profits are estimated which involves a number of assumptions relating to the operating environment of the Group and require a significant level of judgement exercised by the Directors. Any change in such assumptions and judgement would affect the carrying amounts of deferred tax assets to be recognised and hence the net profit in the future years.

(vii) Derivative financial instruments

In determining the fair value of the derivative financial instruments, considerable judgement is required to interpret market data used in the valuation techniques. The use of different market assumptions and/or estimation methodologies may have a material effect on the estimated fair value amounts.

(viii) Exploration and evaluation expenditure

The application of the Group's accounting policy for exploration and evaluation expenditure requires judgement in determining whether it is likely that future economic benefits will flow to the Group. It requires management to make certain estimates and assumptions about future events or circumstances, in particular, whether an economically viable extraction operation can be established. Estimates and assumptions made may change if new information becomes available. If, after expenditure is capitalised, information becomes available suggesting that the recovery of expenditure is unlikely, the amount capitalised is written off in profit or loss in the period when the new information becomes available.

3 Accounting judgements and estimates (continued)

(ix) Capitalised stripping costs

The process of removing overburden and other mine waste materials to access mineral deposits is referred to as stripping. In open-pit mining, stripping costs are accounted for separately for each component of an ore body unless the stripping activity provides improved access to the whole of the ore body. A component is a specific section within an ore body that is made more accessible by the stripping activity. The identification of components is dependent on the mine plan.

There are two types of stripping activity:

- Development stripping is the initial overburden removal during the development phase to obtain access to a mineral deposit that will be commercially produced; and
- Production stripping is the overburden removal during the normal course of production activity.

Development stripping costs are capitalised as a stripping activity asset, in construction in progress and forming part of the cost of constructing the mine, when:

- It is probable that future economic benefits associated with the asset will flow to the entity; and
- The costs can be measured reliably.

Capitalisation of development stripping costs ceases and these costs are transferred to mine properties in property, plant and equipment when the ore body or component of ore body is ready for its intended use.

Production stripping can give rise to two benefits being the extraction of ore in the current period and improved access to the ore body or component of ore body in future periods. To the extent that the benefit is the extraction of ore, the stripping costs are recognised as an inventory cost. To the extent the benefit is improved access to the ore body or component of ore body in future periods, the stripping costs are capitalised as mine properties in property, plant and equipment, if the following criteria are met:

- It is probable that the future economic benefit (improved access to ore) will flow to the Group;
- The ore body or component of the ore body for which access has been improved can be identified; and
- The costs relating to the stripping activity can be measured reliably.

Production stripping costs are allocated between the inventory produced and the mine properties capitalised using a life-of-component waste to ore strip ratio. When the current strip ratio is greater than the life-of-component ratio, a portion of the stripping costs is capitalised to the existing mine properties.

3 Accounting judgements and estimates (continued)

The development and production stripping assets are depreciated using the units of production method based on the proven and probable mineral reserves of the relevant ore body or component of ore body

(x) Taxation

The Group is subject to various taxes and levies in the jurisdictions where it has operations. The Group makes payments and determines the provision for tax and levy liabilities primarily based on the computations as prepared by the Group. Nevertheless, judgement is required in determining the provision for taxes and levies as there are many transactions and calculations for which the ultimate determination is uncertain during the ordinary course of business, there are possible cases of disagreements with the relevant authorities on treatment of certain items included in the computations and certain non-routine transactions. The Group uses its best judgement to determine the probability although it is typically very difficult to determine the timing and ultimate outcome of each case. If the Group considers it probable that these judgement will result in different positions, the most likely amounts of the outcome will be estimated and adjustments to the liabilities will be made in the period in which such determination is made. Due to the inherent uncertainties related to the eventual outcome of each case, it is probable that certain matters may be resolved for amounts materially different from any estimated provisions or previous disclosures.

(b) Sources of estimation uncertainty

Other than requiring critical accounting judgements, assumptions concerning the future and other major sources of estimation uncertainty at the end of the reporting period are required in relation to the Group's accounting policies on "obligations for reclamation", "recognition of deferred tax assets" and "derivative financial instruments". Information about the assumptions and their risk factors are set out in Notes 3(a) (v), (vi) and (vii).

4 Revenue

The Group is principally engaged in the mining, processing, transportation and sale of coal products. Revenue represents the sales value of goods sold to customers exclusive of value added or sales taxes and after deduction of any trade discounts and volume rebates. The amount of each significant category of revenue recognised in revenue during the year is as follows:

	2017 USD'000	2016 USD'000
Self-produced coal		
Washed hard-coking coal ("HCC")	466,430	119,313
Washed thermal coal	9,148	715
Washed semi-soft coking coal	722	-
Raw thermal coal	64	-
	<u>476,364</u>	<u>120,028</u>

4 Revenue (continued)

Revenue during the year ended 31 December 2017 include approximately USD 397,222,000 (2016: USD69,783,000) which arose from sales of coal products to customers through agent sales arrangements for diversifying and expanding the Group's sales channels.

During the year ended 31 December 2017, the Group had two customers that individually exceeded 10% of the Group's revenue from sales of goods and referring of services, being USD182,947,000 and USD45,631,000. During the year ended 31 December 2016, the Group had four customers that individually exceeded 10% of the Group's revenue from sales of goods and referring of services, being USD15,657,000, USD14,798,000, USD13,440,000 and USD13,380,000.

Details of concentrations of credit risk arising from these customers are set out in Note 31(b).

6 Cost of revenue

	2017 USD'000	2016 USD'000
Mining costs	93,758	33,802
Processing costs	37,758	12,953
Transportation costs	88,834	20,683
Provision losses on coal inventories (Note 21(b))	-	4,315
Others (Note (i))	53,447	22,919
Cost of revenue during mine operations	273,797	94,662
Cost of revenue during idled mine period (Note (ii))	-	25,664
Cost of revenue	273,797	120,346

Notes:

- (i) Others include royalty tax on the coal sold.
- (ii) Cost of revenue during idled mine period for the year ended 31 December 2017 includes nil (2016: USD18,149,000) of mining contractor costs and depreciation expense related to idled plant and equipment.

6 Profit/(loss) before taxation

Profit/(loss) before taxation is arrived at after charging/(crediting):

(a) Net finance costs:

	2017 USD'000	2016 USD'000
Interest income	(48)	(1,186)
Finance income	(48)	(1,186)
Interest on bank and other borrowings	3,255	16,379
Interest on liability component of Senior Notes (Note 25)	38,460	57,724
Transaction costs	236	2,469
Unwinding interest on - Accrued redemption on obligations (Note 29)	373	336
Net interest expense	42,323	76,929
Net change in fair value of derivative component of Senior Notes and Senior Loan	7,835	-
Foreign exchange loss, net	896	45,776
Finance costs	51,053	122,705
Net finance costs	51,006	121,519

Note

* No borrowing costs have been capitalised for the years ended 31 December 2017 and 2016

(b) Staff costs:

	2017 USD'000	2016 USD'000
Salaries, wages, bonuses and benefits	16,948	10,775
Retirement scheme contributions	2,238	1,362
Equity-settled share-based payment expenses (Note 28)	1,355	1,195
	20,541	13,352

Pursuant to the relevant labor rules and regulations in Mongolia, the Group participates in defined contribution retirement benefit schemes (the "Schemes") organised by the GoM whereby the Group is required to make contributions to the Schemes at a rate of 7% of the eligible employees' salaries. Contributions to the Schemes vest immediately.

The Group has no other material obligation for the payment of pension benefits beyond the annual contributions described above.

6 Profit/(loss) before taxation (continued)

(c) Other items:

	2017 USD'000	2016 USD'000
Selling and distribution costs (Note (i))	<u>56,631</u>	<u>17,654</u>
Depreciation and amortisation	<u>51,014</u>	<u>32,707</u>
Provision for impairment losses on trade and other receivables (Note 22(b))	-	(436)
Provision for impairment loss on non-financial assets (Note (i))	<u>-</u>	<u>-</u>
	<u>-</u>	<u>(436)</u>
Operating lease charges: - minimum lease payments - hire of plant and machinery - hire of other assets (including property rentals)	<u>668</u> <u>538</u>	<u>262</u> <u>510</u>
	<u>1,206</u>	<u>772</u>
Net gain on disposals of property, plant and equipments and assets held for sale	<u>(90)</u>	<u>(524)</u>
Auditors' remuneration: - audit services - tax and other services	<u>608</u> <u>7</u>	<u>428</u> <u>132</u>
	<u>615</u>	<u>560</u>
Cost of inventories (Note (iii))	<u>273,797</u>	<u>120,346</u>

6 Profit/(loss) before taxation (continued)

Notes

(i) Selling and distribution costs

Selling and distribution costs represent fees and charges incurred for importing coal into the People's Republic of China (**PRC**), logistics and transportation costs, governmental fees and charges and fixed agent fees associated with sales activities in inland PRC.

(ii) Impairment of non-financial assets

Given the fact that the carrying amount of the Group's net assets exceeded the Group's market capitalisation as at 31 December 2017, according to IAS 36, Impairment of assets, the management has performed impairment assessment on the carrying amount of the Group's property, plant and equipment, construction in progress, intangible assets and long-term prepayments related to the Ukhag Khudag ("**UHG**") mine and Baruun Naran ("**BN**") mine operations (collectively referred to as "**UHG and BN Assets**"). For the purpose of this, the UHG and BN Assets are treated as a cash generating unit (**CGU**).

The recoverable amount of the CGU was based on value in use, determined by discounting the future cash flows to be generated from the continuing use of the UHG and BN Assets. The key assumptions used in the estimation of value in use were as follows:

- Recoverable reserves and resources

Economically recoverable reserves and resources represent management's expectations at the time of completing the impairment testing, based on reserves and resource statements and exploration and evaluation work undertaken by appropriately qualified persons.

- Growth rate

Instead of using a steady growth rate over the estimation period longer than five years, the cash flow projection made at the year end of 2017 and the year end of 2016 followed the same mechanism based on as coal product price consensus and life-of-mine ("**LOM**") production plan.

Coal prices

The coal price assumptions are management's best estimate of the future price of coal in China. Coal price assumptions for the next five years are built on past experience of the industry and consistent with external sources. These prices are adjusted to arrive at appropriately consistent price assumptions for the different qualities and type of coal.

6 Profit/(loss) before taxation (continued)

Preparation basis used for the coal price assumptions for the next five years estimated at the year end of 2017 is consistent with that at the year end of 2016, which was also updated with reference to the latest market forecast. The coal price estimation over a period longer than five years contains no growth rate, except for annual inflation rate. The treatment was consistent among estimations made at the year end of 2017 and the year end of 2016.

- Sales quantity/production profile

Sales quantity is in line with production profile. Estimated production volumes are based on detailed LOM plans and take into account development plans for the mines agreed by management as part of the long-term planning process. Production volumes are dependent on a number of variables, such as the recoverable quantities, the production profile, the cost of the development of the infrastructure necessary to extract the reserves, the production costs, and the contractual duration of mining rights and the selling price of the coal extracted. The production profiles used were consistent with the reserves and resource volumes approved as part of the Group's process for the estimation of proved and probable reserves.

- Operating costs

Operating cost assumptions are based on management's best estimation of the costs to be incurred at the date of impairment testing. Costs are determined after considering current operating costs, future cost expectations, as well as the nature and location of the operation. The estimation also takes future mining contractor arrangements into consideration, and the Directors are of the opinion that such mining contractor arrangements are in line with the Group's business plan.

- Capital expenditure

Future capital expenditure is based on management's best estimate of required future capital requirements. It has been determined by taking into account all committed and anticipated capital expenditure adjusted for future cost estimates.

- Discount rate

This discount rate is derived from the Group's weighted average cost of capital ("WACC"), with appropriate adjustments made to reflect the risks specific to the OGU. The WACC takes into account both debt and equity, weighted based on the Group and comparable peer companies' average capital structure. The cost of equity is derived from the expected return on investment by the Group's investors based on publicly available market data of comparable peer companies. The cost of debt is based on the borrowing cost of interest-bearing borrowings of the Group that reflects the credit rating of the Group.

Post-tax discount rate of 15% was applied to the future cash flows projection at the year end of 2017 (2016, 20%). The Directors believe that the post-tax discount rate was matching with the latest cash flow projection modelling.

6 Profit/(loss) before taxation (continued)

Based on above-mentioned impairment assessment, the carrying amount of the CGU has not exceeded its recoverable amount as at 31 December 2017, and has not resulted in the identification of an impairment loss for the year ended 31 December 2017. The Directors are of the opinion that the impairment provision is adequate as at 31 December 2017 and no additional or reversal of impairment provision is needed in respect of the Group's non-financial assets in this regard.

The Directors believe that the estimates and assumptions incorporated in the impairment assessment are reasonable, however, the estimates and assumptions are subject to significant uncertainties and judgements. It is estimated that adverse changes in the key assumptions would lead to the recognition of an impairment provision against the CGU as follows:

	USD'000
1% decrease in long-term coal price	10,000
1% decrease in the estimated production volume	27,000
1% increase in the estimated operating costs	41,000
One percentage point increase in post-tax discount rate	84,000
20% increase in the estimated capital expenditure	36,000

This assumes that the adverse change in the key assumption occurs in isolation of changes to other key assumptions and that no mitigating action is taken by management.

(iii) Cost of inventories

Cost of inventories includes USD58,752,000 (2016: USD34,954,000) relating to personnel expenses, depreciation and amortisation and operating lease charges which are also included in the respective amounts disclosed separately above for each of these types of expenses. Also cost of inventories includes transportation and stockpile gains amounted to USD2,953,000 (2016: transportation and stockpile losses: USD670,000).

7 Gain from the Debt Restructuring

The Group was due to redeem the senior notes issued by the Company with a principal amount of USD600,000,000 on 29 March 2017. The Group was due to repay the secured interest-bearing borrowings from BNP Paribas Singapore Branch and Industrial and Commercial Bank of China Limited (collectively, the "Lenders") with a principal amount of USD93,000,000 (the "BNP and ICBC Facility") within the year ended 31 December 2016. The Group was in payment default of interest under the senior notes with principal amount of USD600,000,000 and also in payment default of the BNP and ICBC Facility. In addition, the Group was overdue in repaying promissory notes of USD72,216,000 to QGX Holding Ltd ("QGX"). The Group commenced the Debt Restructuring with the holders of the senior notes, Lenders and QGX (collectively "Creditors") in 2016.

7 Gain from the Debt Restructuring (continued)

On 4 May 2017, the Group completed the Debt Restructuring and the outstanding principal and accrued interest of the senior notes, BNP and ICBC Facility and the promissory notes issued to OGX were restructured to (i) 1,029,176,615 shares of the Company (Note 30(a)) booked at its market value of USD30,255,066 based on the closing price of the Company's shares of HKD0.229 on 4 May 2017, (ii) perpetual notes with principal amount of USD195,000,000 (Note 30(f)) booked at its fair value of USD75,897,000, (iii) first ranking senior secured facility with principal amount of USD31,200,000 (the "Senior Loan") (Note 24) initially recognised at its fair value of USD30,960,000, including a derivative component of interest rate linked to the benchmark coal price index initially recognised at its fair value of USD1,754,000, and (iv) new senior secured notes with principal amount of USD412,465,892 (the "Senior Notes") (Note 25) initially recognised at its fair value of USD425,267,000, including a derivative component of interest rate linked to the benchmark coal price index initially recognised at its fair value of USD9,481,667 and a derivative component of cash sweep premium initially recognised at its fair value of USD37,789,333.

The excess of carrying value of the restructured financial liabilities over the fair value of the consideration to settle the restructured financial liabilities, amounting to approximately USD262,968,000, net of expenses incurred in relation to the Debt Restructuring of USD30,185,000, has been recognised by the Group as a gain from the Debt Restructuring and credited to profit or loss during the year ended 31 December 2017.

8 Income tax

(a) Income tax in the consolidated statement of comprehensive income represents:

	2017 USD'000	2016 USD'000
Current tax		
Provision for the year (Note 27(a))	6,446	615
Deferred tax		
Origination and reversal of temporary difference (Note 27(b))	19,367	2,035
	<u>25,813</u>	<u>2,650</u>

8 Income tax (continued)

(b) Reconciliation between tax expense and accounting profit/(loss) at applicable tax rates:

	2017 USD'000	2016 USD'000
Profit/(loss) before income tax	<u>336,119</u>	<u>(151,342)</u>
Notional tax on profit/(loss) before taxation	95,606	3,246
Tax effect of non-deductible items (Note (iii))	23,880	4,789
Tax effect of non-taxable items (Note (iv))	(33,675)	(5,436)
Tax losses not recognised	<u>2</u>	<u>51</u>
Actual tax expenses	<u>25,813</u>	<u>2,650</u>

Notes:

- (i) Pursuant to the prevailing income tax rules and regulations of Mongolia, the Group is liable to Mongolian Corporate Income Tax at a rate of 10% of first MNT3 billion taxable income and 25% of the remaining taxable income for the years ended 31 December 2017 and 2016. According to the Corporate Income Tax Law of China, the Company's subsidiary in China is subject to statutory income tax rate of 25%.
- (ii) Pursuant to the rules and regulations of the Cayman Islands, the Group is not subject to any income tax in the Cayman Islands. The Group is not subject to Hong Kong and Luxembourg profits tax as it has no assessable income arising in or derived from Hong Kong and Luxembourg during the years ended 31 December 2017 and 2016.
- (iii) Non-deductible items mainly represent the non-deductible expenses which are non-deductible pursuant to the income tax rules and regulations of Mongolia during the years ended 31 December 2017 and 2016.
- (iv) Non-taxable items mainly represent the net unrealised exchange gains which are non-taxable pursuant to the income tax rules and regulations of Mongolia during the years ended 31 December 2017 and 2016.

9 Earnings/loss per share

(a) Basic earnings/loss per share

The calculation of basic earnings per share is based on the profit attributable to ordinary equity shareholders of the Company of US\$311,013,000 (2016: loss attributable to ordinary equity shareholders of the Company of US\$154,248,000) and the 10,291,787,865 ordinary shares (2016: 9,292,591,250 ordinary shares) in issue during the year. In calculating the earnings/loss per share, the weighted average number of shares outstanding during the years ended 31 December 2017 and 2016 were calculated as if the bonus elements without consideration included in the shares issue had existed from the beginning of the comparative year.

(b) Diluted earnings/loss per share

For the years ended 31 December 2017 and 2016, basic and diluted earnings/loss per share are the same.

The equity-settled share-based payment transactions (see Note 28) are anti-dilutive and therefore not included in calculating diluted earnings/loss per share for the years ended 31 December 2017 and 2016.

10 Directors' remuneration

Details of the Directors' remuneration disclosed are as follows:

	1990	1995	2000	2005	2010	2015
Executive decisions	100	100	100	100	100	100
Non-executive decisions	100	100	100	100	100	100
Independent non-executive decisions	100	100	100	100	100	100

10 Directors' remuneration (continued)

	2017					
	Basic salaries and allowances	Discretionary bonuses	Retirement scheme contributions	Equity-settled share-based payment expenses	Other benefits	Total
Executive directors	1,000,000	1,000,000	100,000	100,000	100,000	3,300,000
Non-executive directors	100,000	100,000	10,000	10,000	10,000	330,000
Independent non-executive directors	100,000	100,000	10,000	10,000	10,000	330,000
	2,100,000	2,100,000	210,000	210,000	210,000	6,830,000

No emoluments have been paid to the Directors as an inducement to join or upon joining the Group or as compensation for loss of office during the years ended 31 December 2017 and 2016.

11 Individuals with highest emoluments

The number of directors and non-directors included in the five highest paid individuals is set forth below:

	2017	2016
Directors	2	1
Non-directors	3	4
	5	5

The emoluments of the Directors are disclosed in Note 10. The aggregate of the emoluments in respect of the remaining highest paid individuals are as follows:

	2017	2016
Basic salaries, allowances and benefits in kind	744	931
Discretionary bonuses	2,140	51
Retirement scheme contributions	194	66
Equity-settled share-based payment expenses (Note)	567	483
	3,635	1,531

11 Individuals with highest emoluments (continued)

The emoluments of the remaining individuals with the highest emoluments are within the following band.

	2017	2016
HKD 2,500,001 to HKD 3,000,000	-	1
HKD 3,000,001 to HKD 3,500,000	-	3
HKD 3,500,001 to HKD 4,000,000	1	-
HKD 4,000,001 to HKD 4,500,000	1	-
HKD 4,500,001 to HKD 5,000,000	1	-

No emoluments have been paid to these individuals as an inducement to join or upon joining the Group or as compensation for loss of office during the years ended 31 December 2017 and 2016.

Note:

These represent the estimated value of share options granted to the key management under the Group's share option scheme. The value of these share options is measured according to the Group's accounting policies for share-based payment transactions as set out in Note 2(q)(ii) and, in accordance with that policy, included adjustments to reverse amounts accrued in previous years where grants of equity instruments are forfeited prior to vesting.

The details of these benefits in kind, including the principal terms and number of options granted, are disclosed under the paragraph "Share Option Scheme" in Note 28.

12 Other comprehensive income

	2017 USD'000	2016 USD'000
Exchange differences on translation of		
- financial statements of overseas subsidiaries	(1,481)	117,812
- net investment	23,179	(166,897)
Surplus on revaluation of plants, buildings, and machinery and equipment	-	341,810
Reclassification adjustments for amounts transferred to profit or loss.		
- disposals of net investment	-	1,581
	<u>21,698</u>	<u>294,315</u>

12 Other comprehensive income(continued)

Notes

- (i) Exchange differences on re-translation mainly resulted from the fluctuation of MNT exchange rate against USD during the respective reporting periods.
- (ii) The components of other comprehensive income do not have any significant tax effect for the years ended 31 December 2017 and 2016.

13 Segment reporting

The Group has one business segment, the mining, processing, transportation and sale of coal products. The majority of its customers are located in China. Based on information reported to the chief operating decision maker for the purpose of resource allocation and performance assessment, the Group's only operating segment is the mining, processing, transportation and sales of coal products. Accordingly, no additional business and geographical segment information are presented.

14 Property, plant and equipment, net

	Buildings and plants USD 000	Machinery and equipment USD 000	Motor vehicles USD 000	Office equipment USD 000	Mining properties USD 000	Total USD 000
Cost:						
At 1 January 2018	220,437	146,857	36,020	4,018	284,622	691,952
Additions	-	78	388	848	20,066	21,190
Transfer to assets held for sale	(141)	-	-	-	-	(141)
Disposals	(1,141)	(278)	(6,708)	(421)	-	(8,548)
Surplus on revaluation	228,507	189,744	-	-	-	418,251
Exchange adjustments	(43,680)	(28,310)	(8,640)	(887)	(58,158)	(139,675)
At 31 December 2018	403,982	308,181	25,138	3,577	245,483	986,154
Representing						
Cost	-	-	25,138	3,577	245,483	273,979
Adoption of revaluation – 2018	403,982	308,181	-	-	-	712,173
At 1 January 2017	403,982	308,105	25,138	3,577	245,483	986,154
Additions	146	1,830	420	198	47,282	49,876
Transfer from construction in progress	58,078	6,816	-	1	-	65,692
Transfer to assets held for sale	(195)	-	-	-	-	(195)
Disposals	(77)	(383)	(734)	(112)	-	(1,306)
Exchange adjustments	18,760	7,877	868	88	8,548	25,968
At 31 December 2017	473,632	324,227	26,473	3,562	288,283	1,126,177
Representing						
Cost	-	-	26,473	3,562	288,283	318,318
Adoption of revaluation – 2017	473,632	324,227	-	-	-	797,869

14 Property, plant and equipment, net (continued)

	Buildings and plants USD'000	Machinery and equipment USD'000	Motor vehicles USD'000	Office equipment USD'000	Mining properties USD'000	Total USD'000
Accumulated amortisation and depreciation:						
At 1 January 2018	31,577	54,724	28,440	3,028	32,489	151,258
Charge for the year	8,957	14,019	3,987	254	5,089	32,296
Transfer to assets held for sale	(10)	-	-	-	-	(10)
Written back on disposals	(120)	(145)	(3,458)	(358)	-	(4,081)
Adjustment on revaluation	24,331	39,312	-	-	-	63,643
Exchange adjustments	(7,221)	(12,773)	(5,910)	(588)	(7,110)	(33,602)
At 31 December 2018	57,705	95,136	24,061	2,390	30,428	209,690
Representing:						
Accumulated depreciation	-	-	24,061	2,390	30,428	56,879
Adoption of constitution – 2018	57,705	95,136	-	-	-	152,841
At 1 January 2017	57,705	95,136	24,061	2,390	30,428	209,690
Charge for the year	13,912	21,200	814	771	14,368	50,315
Transfer to assets held for sale	(12)	-	-	-	-	(12)
Written back on disposals	(20)	(214)	(731)	(91)	-	(1,056)
Exchange adjustments	1,627	2,560	618	62	852	5,719
At 31 December 2017	73,212	118,882	24,582	2,552	45,648	264,857
Representing:						
Accumulated depreciation	-	-	24,582	2,552	45,648	72,783
Adoption of constitution – 2017	73,212	118,882	-	-	-	191,894
Carrying amount:						
At 31 December 2017	401,420	205,545	911	1,000	253,844	861,520
At 31 December 2018	348,277	213,057	1,078	1,017	215,036	778,464

Notes:

- Majority part of the Group's property, plant and equipment are located in Mongolia
- Mining properties as at 31 December 2017 include stripping activity assets carrying book value of USD228,752,000 (2016: USD190,400,000) and application fee for the mining rights of USD728,000 (2016: USD651,000) in relation to the Group's mine deposits
- The addition of mining properties for the year ended 31 December 2017 include the increase in reclamation provision of USD19,000 (2016: increase in reclamation provision of USD2,805,000) (see Note 29).

14 Property, plant and equipment, net (continued)

- (d) As at 31 December 2017, certain of the Group's borrowings were secured by the Group's coal handling and preparation plant-modules I and II, power plant and certain water supply infrastructure assets with a net book value of USD201,849,000, USD67,453,000 and USD4,484,000, respectively. As at 31 December 2016, no borrowings were secured by the Group's property, plant and equipment.
- (e) As at 31 December 2017, the Group is in the process of applying for the ownership certificates for certain of its buildings. The aggregate carrying value of such properties of the Group as at 31 December 2017 is approximately USD10,152,000 (2016: USD10,086,000). The Directors are of the opinion that the Group is entitled to lawfully occupy or use of these properties.

(f) Fair value measurement of property, plant and machinery

(i) Fair value hierarchy

The following table presents the fair value of the Group's property, plant and machinery measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13, *Fair value measurement*. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2 valuations: Fair value measured using Level 2 inputs i.e. observable inputs which fail to meet Level 1 and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available.
- Level 3 valuations: Fair value measured using significant unobservable inputs.

14 Property, plant and equipment, net (continued)

	Fair value as at 31 December 2017 JSD'000	Fair value measurements as at 31 December 2017 categorized into		
		Level 1 USD'000	Level 2 USD'000	Level 3 JSD'000
Recurring fair value measurement				
Buildings and plants	400,490	-	-	400,490
Machinery and equipment	205,545	-	-	205,545
Buildings and plants, machinery and equipment under construction	15,970	-	-	15,970
Total	621,905			621,905

	Fair value as at 31 December 2016 USD'000	Fair value measurements as at 31 December 2016 categorized into		
		Level 1 JSD'000	Level 2 JSD'000	Level 3 JSD'000
Recurring fair value measurement				
Buildings and plants	346,277	-	-	346,277
Machinery and equipment	213,057	-	-	213,057
Buildings and plants, machinery and equipment under construction	77,544	-	-	77,544
Total	636,878			636,878

During the year ended 31 December 2017, there were no transfers between Level 1 and Level 2, or transfers into or out of Level 3. The Group's policy is to recognize transfers between levels of fair value hierarchy as at the end of the reporting period in which they occur.

14 Property, plant and equipment, net (continued)

As at 31 December 2016 buildings and plants as well as machinery and equipment were revalued and such valuation was carried out by a firm of external appraisers, Duff and Phelps Corporation, who has among their staff fellows of the American Society of Appraisers, Royal Institute of Chartered Surveyors, Chartered Certified Accountant, Chartered Financial Analyst and Financial Risk Manager with recent experience in the mining property valuation worldwide including valuation of coal mines. The Group's property manager and the chief financial officer have discussion with the appraisers on the valuation assumptions and valuation results when the valuation is performed. At each following interim and annual reporting date the management reviewed the key indicators adopted in the revaluation assessment as at 31 December 2016 and concluded there was no major change.

The subject properties are purpose-built industrial facilities including buildings and plants, machinery and equipment and construction in progress located in South Gobi of Mongolia. They are operated according to their highest and best use for coal mining and processing. There is no other alternative use of the subject properties. Upon consideration of all relevant facts it was concluded that the properties subject to valuations are specialised properties.

Depreciated replacement cost is defined by IVS as 'the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization'. Depreciated replacement cost application for major assets classes briefly described below:

- Buildings and plants and such items under construction status.
 - Reproduction cost new ('RCN') estimation for the buildings and structures were calculated using indexing method.
 - Indices were applied to the historical cost. The indices were obtained from recognised sources such as Chinese indices (Rider Levett Bucknall), F.M Global BMT Construction costs, Bureau of Labor Statistics of the Department of Labor, AUS Consultants, etc.
 - Physical depreciation was applied using straight line method based on the economic useful life of production, auxiliary administrative facilities, land improvements, transfer devices.
 - There was no any functional obsolescence revealed.

14 Property, plant and equipment, net (continued)

- Machinery and equipment

- Machinery RCN was estimated based on the actual machinery quotations received from purchase department of the Company. These estimates were adjusted with installation expenses, engineering expenses and interest during construction. Estimated RCN was compared to indexed historical cost and considered to be relevant. Additionally, unitary reproduction cost (USD/kg of equipment weight) of major and most expensive equipment appraised such as crushers, screens, spirals and flotation cells was compared with unitary cost range of similar equipment recently purchased by other mining companies and considered to be in line with these data. Overall Processing plant modules unitary cost parameter (USD/ton of processing capacity) is in the middle of the range of recently constructed coal processing plants.
- Engineering and general administrative expenses estimated as average of several recently constructed coal mines and equal to 7% of RCN.
- Interest during Construction estimated equal to 7.8% of RCN based on the actual interest paid during Processing Plant module 1 construction.

(ii) Information about Level 3 fair value measurements

IAS requires that for a private sector entity with specialised assets, a valuation assessed by depreciated replacement cost must be subject to a test of profitability in relation to the whole of the assets held by the entity or the cash-generating unit. For the purpose of profitability test, the Company was considered as a single cash-generating unit.

In testing profitability, the impact that current economic conditions may potentially have on the Company's operations' financial performance, expectations of financial performance or financial conditions is considered. Such impact was assessed with the use of financial models, which make use projections of operating activities and financial performance of the Company provided by the Management. No economic obsolescence for the Group was indicated by the profitability test.

14 Property, plant and equipment, net (continued)

(iii) Depreciated cost of properties held for own use carried at fair value

Had the revalued properties held for own use been carried at cost less accumulated depreciation, the carrying amounts would have been:

	2017 USD'000	2016 USD'000
Buildings and plants	159,317	142,301
Machinery and equipment	49,626	62,625
Buildings and plants, machinery and equipment under construction (Note 15)	<u>6,616</u>	<u>41,774</u>
	<u>215,559</u>	<u>246,700</u>

15 Construction in progress

	2017 USD'000	2016 USD'000
At 1 January	79,976	55,164
Additions	486	12
Transfer to property, plant and equipment (Note 14)	(65,692)	-
Disposals	(480)	(2,806)
Revaluation gain	-	35,770
Exchange adjustments	<u>1,720</u>	<u>(8,164)</u>
At 31 December	<u>16,010</u>	<u>79,976</u>

The construction in progress is mainly related to Coal Handling and Preparation Plant and other mining related machinery and equipment

16 Lease prepayments

	2017 USD'000	2016 USD'000
Cost:		
At 1 January	63	78
Exchange adjustments	<u>2</u>	<u>(15)</u>
At 31 December	<u>65</u>	<u>63</u>
Accumulated amortisation:		
At 1 January	10	10
Change for the year	1	1
Exchange adjustments	<u>-</u>	<u>(1)</u>
At 31 December	<u>11</u>	<u>10</u>
Net book value:	<u>54</u>	<u>53</u>

Lease prepayments comprise interests in leasehold land held for own use under operating leases located in Mongolia with original lease period from 15 years to 60 years.

17 Intangible assets

	Acquired mining right USD'000	Software USD'000	Total USD'000
Cost:			
At 1 January 2016	701,557	4,475	706,032
Exchange adjustments	-	(887)	(887)
At 31 December 2016	701,557	3,588	705,145
At 1 January 2017	701,557	3,588	705,145
Exchange adjustments	-	91	91
At 31 December 2017	701,557	3,679	705,236
Accumulated amortisation and impairment loss:			
At 1 January 2016	195,203	449	195,652
Amortisation charge for the year	-	420	420
Exchange adjustments	-	(148)	(148)
At 31 December 2016	195,203	721	195,924
At 1 January 2017	195,203	721	195,924
Amortisation charge for the year	331	366	697
Exchange adjustments	-	20	20
At 31 December 2017	195,534	1,107	196,641
Carrying amount:			
At 31 December 2017	506,023	2,572	508,595
At 31 December 2016	506,354	2,867	509,221

Acquired mining right represents the mining right acquired during the acquisition of BH mine

16 Interests in subsidiaries

The following list contains only the particulars of subsidiaries which principally affected the results, assets or liabilities of the Group. The class of shares held is ordinary unless otherwise stated.

Name of company	Place of incorporation and business	Particulars of issued and paid up capital	Equity attributable to the Company		Principal activities
			Direct	Indirect	
Mongolian Coal Corporation Limited	Hong Kong	1 share of HKD1 each	100%	-	Investment holding
Mongolian Coal Corporation S.à.r.l	Luxembourg	5,712,559 shares of USD10 each	-	100%	Investment holding
Energy Resources Corporation LLC	Mongolia	10,800,000 shares of USD1 each	-	100%	Investment holding
Energy Resources LLC	Mongolia	117,473,410 shares of USD2 each	-	100%	Mining and trading of coals
Energy Resources Rail LLC	Mongolia	15,300,000 shares of MNT1,000 each	-	100%	Railway project management
Tarvan Tolgoi Airport LLC	Mongolia	5,795,521 shares of MNT1,000 each	-	100%	Airport operation and management
Erwe technology LLC	Mongolia	374,040,073 shares of MNT1,000 each	-	100%	Coal plant management
Uchuu Khudag Water Supply LLC	Mongolia	66,016,661 shares of MNT1,000 each	-	100%	Water exploration and supply management
United Power LLC	Mongolia	100,807,648 shares of MNT1,000 each	-	100%	Power supply project management
Khonged Exploration LLC	Mongolia	34,532,399 shares of USD1 each	-	100%	Exploration and development of coal mine
Beroun Haren S.à.r.l	Luxembourg	24,913,384 shares of EUR1 each	-	100%	Investment holding
Tianjin Zhengchang Import and Export Trade Co., Ltd.	China	2,035,896 shares of RMB1 each	-	51%	Trading of coals and machinery equipment
Inner Mongolia Fangchang Trade Co., Ltd.	China	RMB1,000,000	-	51%	Trading of coals and machinery equipment

Note: The Group merged Transgobi LLC, Energy Resources Mining LLC and Gobi Road LLC into Energy Resources LLC in February 2017.

19 Interest in associates

The following table contains only the particulars of material associates, all of which are unlisted corporate entities whose quoted market price is not available

Name of associate	Form of business structure	Place of incorporation and business	Particulars of issued and paid up capital	Equity attributable to the Company		Principal activity
				Group's effective interest	Held by a subsidiary	
International Technical College LLC	Incorporated	Mongolia	913,500 shares of MNT 1,000 each	33.33%	33.33%	Technical education services (Note (ii))
Gashuun Sukhait Road LLC	Incorporated	Mongolia	100,000 shares of MNT 1,000 each	40.00%	40.00%	Paved road maintenance services (Note (ii))

Notes:

- (i) The investment in International Technical College LLC enables the Group to be equipped with the long-term availability of skilled technical workforce.
- (ii) The principal activities of Gashuun Sukhait Road LLC are supplying safety, readiness, protection, repair and maintenance service for paved road operations from UHG to GS. The investment in Gashuun Sukhait Road LLC enables the Group to monitor the usage situation of the aforementioned paved road

All of the above associates are accounted for using the equity method in the consolidated financial statements

19 Interest in associates (continued)

Summarised financial information of associates, adjusted for any differences in accounting policies and reconciled to the carrying amounts in the consolidated financial statements, are disclosed below:

	<i>Interglobal Technical College LLC</i>		<i>Gashuun Sukhraf Road LLC</i>	
	2017 USD'000	2016 USD'000	2017 USD'000	2016 USD'000
Gross amounts of associates:				
Current assets	8	2	970	505
Non-current assets	36	55	189	45
Current liabilities	1	9	701	510
Equity	41	48	458	40
Revenue	4	3	2,777	4,044
(Loss)/profit from continuing operations	(8)	(14)	460	-
Total comprehensive income	(8)	(14)	414	-
Reconciled to the Group's interests in associates:				
Gross amounts of net assets of associates	41	48	458	40
Group's effective interest	33%	33%	40%	40%
Group's share of net assets of associates	13	16	183	16
Carrying amount in the consolidated financial statements	13	16	183	16

20 Other non-current assets

	2017 USD 000	2016 JSD 000
Prepayments in connection with construction work, equipment purchases and others	51,883	60,456
Financial assets available-for-sale (Note 1)	<u>1,456</u>	<u>1,415</u>
	<u>53,339</u>	<u>61,917</u>

Note

The Group has an investment in International Medical Centre LLC (the "IMC") and has 51.13% interest. The principal activities of IMC are the provision of health care, diagnostic and treatment services. With no significant influence, the Group accounted for its interest in IMC as financial assets available-for-sale and using the cost method in the consolidated financial statements.

21 Inventories

(a) Inventories in the consolidated statement of financial position comprise:

	2017 USD 000	2016 JSD 000
Coal	60,472	37,600
Materials and supplies	<u>15,710</u>	<u>15,012</u>
	77,182	52,619
Less: Provision on coal inventories	<u>(10,437)</u>	<u>(10,437)</u>
	<u>66,745</u>	<u>42,181</u>

(b) The analysis of the amount of inventories recognised as an expense and included in profit or loss is as follows:

	2017 USD 000	2016 JSD 000
Carrying amount of inventories sold	273,797	90,367
Write down of inventories	<u>-</u>	<u>4,315</u>
	<u>273,797</u>	<u>94,682</u>

As at 31 December 2017, certain of the Group's borrowings were secured by the Group's coal inventory of USD60,039,000 (31 December 2016: USD26,358,000) (see Note 24).

22 Trade and other receivables

	2017 USD'000	2016 USD'000
Trade receivables (Note (a))	13,552	11,807
Other receivables (Note (c))	58,823	46,944
	<u>72,375</u>	<u>58,751</u>
Less: allowance for doubtful debts (Note (b))	<u>-</u>	<u>-</u>
	<u>72,375</u>	<u>58,751</u>

(a) Ageing analysis

As of the end of the reporting period, the ageing analysis of trade debtors and bills receivable (which are included in trade and other receivables), based on the invoice date and net of allowance for doubtful debts is as follows:

	2017 USD'000	2016 USD'000
Within 90 days	13,506	11,786
90 to 180 days	43	-
180 to 365 days	-	-
Over 365 days	<u>-</u>	<u>21</u>
	<u>13,552</u>	<u>11,807</u>

(b) Impairment of trade receivables

Impairment losses in respect of trade receivables are recorded using an allowance account unless the Group is satisfied that recovery of the amount is remote, in which case the impairment loss is written off against trade receivables directly (Note 2(k)(i)).

The movement in the allowance for doubtful debts during the year is as follows:

	2017 USD'000	2016 USD'000
At 1 January	-	436
Amounts reversed	<u>-</u>	<u>(436)</u>
At 31 December	<u>-</u>	<u>-</u>

As at 31 December 2017, no allowance for doubtful debts (2016: nil) was made on a collective basis in respect of the Group's trade receivable balances outstanding at the balance sheet date.

22 Trade and other receivables (continued)

(c) Other receivables

	2017 USD'000	2016 USD'000
Amounts due from related parties (Note (i))	1	1
Prepayments and deposits (Note (ii))	40,858	20,623
VAT and other tax receivables (Note (iii))	16,593	15,547
Others	1,373	778
	<u>58,823</u>	<u>46,944</u>

Notes

- (i) Amounts due from related parties are unsecured, interest-free and have no fixed repayment terms (see Note 33(a)).
- (ii) At 31 December 2017 and 2016, prepayments and deposits mainly represent the prepayments made to the Group's mining contractor.
- (iii) VAT and other tax receivables include amounts that have been accumulated to date in certain subsidiaries and were due from the Mongolian Taxation Authority. Based on current available information the Group anticipates full recoverability of such amounts. Further details are stated in Note 31(b).

All other receivables were aged within one year and expected to be recovered or expensed off within one year.

23 Cash and cash equivalents and other cash flow information

(a) Cash and cash equivalents comprise:

	2017 USD'000	2016 USD'000
Cash in hand	7	5
Cash at bank	<u>7,453</u>	<u>12,263</u>
Cash at bank and in hand	7,460	12,268
Less: time deposits with original maturity over three months	<u>-</u>	<u>-</u>
Cash and cash equivalents in the consolidated cash flow statement	<u>7,460</u>	<u>12,268</u>

As at 31 December 2017, certain of the Group's borrowings were secured by the Group's cash at bank of JSD'46 (31 December 2016: USD1,000) (see Note 24).

23 Cash and cash equivalents and other cash flow information (continued)

(b) Reconciliation of liabilities arising from financing activities

The table below details changes in the Group's liabilities from financing activities including both cash and non-cash changes. Liabilities arising from financing activities are liabilities for which cash flows were or future cash flows will be classified in the Group's consolidated cash flow statement as cash flows from financing activities.

	Bank loan related other borrowings* \$'000 (Note 24)	Pre-restructuring senior notes* \$'000 (Note 25)	Senior Notes* \$'000 (Note 25)	Promissory notes** \$'000 (Note 26)	Total \$'000
At 1 January 2017	101,714	561,965	-	76,569	740,248
Changes from financing cash flows:					
Interest paid	(1,169)	-	(76,438)	-	(77,607)
Total changes from financing cash flows	(1,169)	-	(76,438)	-	(77,607)
Changes in fair value	180	-	7,843	-	8,023
Other changes:					
Interest expenses (note 8) and interest capitalized as principal	1,255 (600)	308	18,152 (17,900)	-	41,715 (16,600)
Changes in the Debt Restructuring* Gains	(79,259) (135)	(669,274)	425,261 (1,664)	(76,569)	(320,815) (1,999)
Total other changes	(67,723)	(668,966)	407,357	(76,569)	(339,611)
At 31 December 2017	32,191	-	44,845	-	77,036

Notes

* Liabilities include accrued interest as disclosed in Note 25

** As stated in Note 7, the Group completed the Debt Restructuring on 4 May 2017 and the outstanding principal and accrued interest of the pre-restructuring senior notes, the BNP and ICBC Facility and the promissory notes issued to QGX were restructured

24 Borrowings

(a) The Group's long-term interest-bearing borrowings comprise:

	2017 USD'000	2016 USD'000
Senior Loan	31,753	-
Bank loan	-	93,000
Less: Current portion of long-term borrowings	<u>(7,500)</u>	<u>(93,000)</u>
	<u>24,253</u>	<u>-</u>

On 4 May 2017, the Group issued the Senior Loan with principal amount of USD31,200,000 and with fair value of USD30,960,000. The Senior Loan bears interest, ranging from 5% to 8% per annum based on the benchmark coal price index, payable semi-annually. The Senior Loan is repayable in quarterly instalment of USD7,500,000 starting from 31 December 2018 with the remaining principal repayable upon maturity in September 2019.

The Senior Loan has been accounted for as a hybrid financial instrument containing a derivative component and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognised at its fair value of USD1,754,000. The fair value of the derivative component of interest rate linked to the benchmark coal price index as at 31 December 2017 was USD1,934,000. The liability component was initially recognised at its fair value of USD29,206,000 and will be accounted on amortised cost subsequently.

The Group pledged collection accounts and certain coal stockpiles under the Senior Loan. In addition, the Group pledged debt reserve account, certain assets (Note 14) and share capital of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S à r l, Enrestechology LLC, Ukhuaa Khudag Water Supply LLC and United Power LLC, which are shared among the creditors of the Senior Loan and the Senior Notes (Note 25).

The Group's long-term borrowings are repayable as follows:

	2017 USD'000	2016 USD'000
Within 1 year or on demand	7,500	93,000
After 1 year but within 2 years	24,253	-
After 2 years but within 5 years	<u>-</u>	<u>-</u>
	<u>31,753</u>	<u>93,000</u>

24 Borrowings (continued)

(b) The Group's short-term interest-bearing borrowings comprise:

	2017 USD'000	2016 USD'000
Current portion of long-term borrowings		
– Bank loan	-	53,000
– Senior Loan	7,500	
Less: Unamortised transaction costs	-	-
	<u>7,500</u>	<u>53,000</u>

The current portion of the long-term borrowings as at 31 December 2016 consisted of USD53.0 million due under the BNP and ICBC Facility which was fully restructured by the Debt Restructuring (Note 7).

25 Senior Notes

	2017 USD'000	2016 USD'000
Senior Notes	436,563	-
Pre-restructuring senior notes	-	599,692
	<u>436,563</u>	<u>599,692</u>

On 4 May 2017, the Group issued the Senior Notes with principal amount of USD412,465,892 and with fair value of USD435,267,000. The Senior Notes bear interest ranging from 5% to 8% per annum based on the benchmark coal price index payable semi-annually, and due in September 2022.

The Senior Notes have been accounted for as a hybrid financial instrument containing a derivative components and a liability component. The derivative component of interest rate linked to the benchmark coal price index was initially recognised at its fair value of USD9,481,667 and the derivative component of cash sweep premium was initially recognised at its fair value of USD37,789,333. The fair value of the derivative component of interest rate linked to the benchmark coal price index, the derivative component of cash sweep premium and the derivative component of early redemption option as at 31 December 2017 was USD8,580,000, USD45,345,800 and nil respectively. The liability component was initially recognised at its fair value of USD377,966,000 and will be accounted on amortised cost subsequently.

25 Senior Notes (continued)

Fair value of the Senior Loan and the Senior Notes were valued by the Directors with the reference to a valuation report issued by an external valuer based on the discounted cash flow method.

The Group pledged debt reserve account, certain assets (Note 14) and share capital of Mongolian Coal Corporation Limited, Mongolian Coal Corporation S.A r.l., Enreestonology LLC, Ukhad Khudag Water Supply LLC and United Power LLC, which are shared among the creditors of the Senior Loan (Note 25) and the Senior Notes.

26 Trade and other payables

	2017 USD'000	2016 USD'000
Trade payables (Note (i))	135,847	104,579
Receipts in advance (Note (ii))	37,757	41,038
Amounts due to related parties (Note (i-v))	18,607	14,680
Payables for purchase of equipment	1,347	2,643
Security deposit on construction work	50	355
Interest payable (Note (iv))	8,987	61,248
Other taxes payables	20,275	9,777
Promissory Notes	-	72,216
Others (Note (v))	9,641	18,062
	<u>222,731</u>	<u>342,196</u>

Notes:

- (i) As of the end of the reporting period, the ageing analysis of trade creditors and bills payable (which are included in trade and other payables) based on the invoice date is as follows:

	2017 USD'000	2016 USD'000
Within 90 days	60,759	27,458
90 to 180 days	13,734	3,831
180 to 365 days	1,735	2,514
Over 365 days	<u>59,598</u>	<u>70,776</u>
	<u>135,847</u>	<u>104,579</u>

- (ii) Receipts in advance represent payments in advance made by third party customers in accordance with the terms set out in respective sales agreements.

26 Trade and other payables (continued)

(iii) Amounts due to related parties represent contractual service fee payable and payables for equipment and construction work, which are unsecured, interest-free and have no fixed terms of repayments (see Note 33(a))

(iv) As at 31 December 2016, interest payable related to BNP and ICBC Facility, pre-restructuring senior notes and promissory notes are amounting to US\$219,000, US\$69 274,000 and US\$4 353,000 respectively

As at 31 December 2017, interest payable related to Senior Loan and Senior Notes are amounting to US\$38,000 and US\$8,249,000 respectively

(v) Others represent accrued expenses, payables for staff related costs and other deposits

All of the other payables and receipts in advance are expected to be settled or recognised in profit or loss within one year or are repayable on demand

27 Income tax in the consolidated statement of financial position

(a) Tax payable in the consolidated statement of financial position represents:

	2017 USD'000	2016 USD'000
At 1 January	269	144
Provision for the year (Note 8(a))	6,446	615
Offsetting with other tax receivables	(2 292)	(277)
Income tax paid	(191)	(3)
Exchange adjustments	67	(210)
At 31 December	4,299	269

27 Income tax in the consolidated statement of financial position (continued)

(b) *Deferred tax assets and liabilities recognized*

The components of deferred tax assets/(liabilities) recognised in the consolidated statement of financial position and the movements during the year are as follows:

[illegible](c) **Deferred tax asset not recognized**

In accordance with the accounting policy set out in Note 2(r) the Group has not recognised deferred tax assets in respect of cumulative tax losses of USD395,851,000 as at 31 December 2017 (2016: USD406,116,000) as it is not probable that future taxable profits against which the losses can be utilised will be available in the relevant tax jurisdiction and entity. According to the new amendment to Mongolian Corporate Income Tax Law which is effective on 1 January 2010, for entities engaged in mining or infrastructure construction, the tax losses generated after 1 January 2010 will expire in four to eight years after the tax losses generated under current tax legislation. Tax losses of other entities will expire in two years after the tax losses generated.

27 Income tax in the consolidated statement of financial position (continued)

Expiry of unrecognised tax losses of Group entities located in Mongolia

	2017 USD 000	2016 USD 000
Year of expiry		
2017	-	10 666
2018	477	465
2019	119	100
2020	-	-
	<u>596</u>	<u>11 231</u>

In relation to group entities located in the jurisdictions other than Mongolia, the tax losses amounting to USD395 355 000 as at 31 December 2017 do not expire under current tax legislations (31 December 2016: USD394 885 000).

(d) Deferred tax liabilities not recognised

At 31 December 2017, temporary differences relating to the undistributed profits of subsidiaries amounted to nil (2016: nil). Deferred tax liabilities of nil (2016: nil) have not been recognised in respect of the tax that would be payable on the distribution of these retained profits as the Company controls the dividend policy of these subsidiaries and it has been determined that it is probable that profits will not be distributed in the foreseeable future.

28 Equity-settled share-based payment transactions

The Company has a share option scheme ("Share Option Scheme") which was adopted on 17 September 2010 whereby the board of Directors of the Group are authorised, at their discretion, invites eligible participants to receive options to subscribe for shares subject to the terms and conditions stipulated therein as incentives or rewards for their contributions to the Group.

Under the Share Option Scheme, the Company may grant options to employees and Directors, suppliers, customers and professional advisers of the Group to subscribe for shares of the Company. The exercise price of the options is determined by the board of Directors of the Company at the time of grant, and shall be the highest of the nominal value of the shares, the closing price of the shares at the date of grant and the average closing price of the shares for the five business days immediately preceding the date of grant. The Share Option Scheme remains in force for a period of 10 years commencing on its adoption date and will expire on 12 October 2020.

26 Equity-settled share-based payment transactions (continued)

(a) The terms and conditions of the grants are as follows:

Grant Date	Number of options '000	Vesting conditions	Contractual life of options
12 October 2011	8,800	12 October 2011 to 12 October 2012	12 October 2011 to 12 October 2019
12 October 2011	8,800	12 October 2011 to 12 October 2013	12 October 2011 to 12 October 2019
12 October 2011	8,800	12 October 2011 to 12 October 2014	12 October 2011 to 12 October 2019
12 October 2011	8,800	12 October 2011 to 12 October 2015	12 October 2011 to 12 October 2019
28 November 2012	5,688	28 November 2012 to 28 November 2013	28 November 2012 to 28 November 2020
28 November 2012	5,688	28 November 2012 to 28 November 2014	28 November 2012 to 28 November 2020
28 November 2012	11,374	28 November 2012 to 28 November 2015	28 November 2012 to 28 November 2020
10 June 2015	38,688	10 June 2015	10 June 2015 to 10 June 2020
10 June 2015	38,688	10 June 2015 to 10 June 2016	10 June 2015 to 10 June 2020
10 June 2015	38,687	10 June 2015 to 10 June 2017	10 June 2015 to 10 June 2020
10 June 2015	38,687	10 June 2015 to 10 June 2018	10 June 2015 to 10 June 2020
8 May 2017	28,000	1 July 2017	1 July 2017 to 8 May 2022
8 May 2017	28,000	8 May 2017 to 8 May 2018	8 May 2017 to 8 May 2022
8 May 2017	28,000	8 May 2017 to 8 May 2019	8 May 2017 to 8 May 2022
8 May 2017	28,000	8 May 2017 to 8 May 2020	8 May 2017 to 8 May 2022
8 May 2017	28,000	8 May 2017 to 8 May 2021	8 May 2017 to 8 May 2022
Total share options	<u>352,700</u>		

28 Equity-settled share-based payment transactions (continued)

(b) The movement of the number and weighted average exercise prices of share options are as follows:

	2017		2016	
	Weighted average exercise Price HKD	Number of options '000	Weighted average exercise Price HKD	Number of options '000
Outstanding at 1 January (Note)	1.50	217,210	1.21	225,210
Granted during the year	0.24	138,200	-	-
Forfeited during the year	0.45	(125)	0.45	(8,000)
Outstanding at 31 December	0.91	355,285	1.50	217,210
Exercisable at 31 December	1.51	209,585	2.01	145,560

Note

As a result of the rights issue completed on 29 December 2014, adjustments were made to the exercise price and the number of Shares falling to be issued upon the exercise of the Share Options in accordance with the terms of the Share Option Scheme and the supplementary guidance issued by the Stock Exchange on 5 September 2005 regarding the adjustment of share options under Rule 17.03(13) of the Listing Rules.

A total of 342,850,000 Options are outstanding under the Share Option Scheme as at the completion of the rights issue. The exercise price and the number of the Shares falling to be issued under the outstanding Share Options have been adjusted pursuant to Clause 11 of the Share Option Scheme (the "Option Adjustments"), with effect from 1 January 2015, and such adjustments have been reviewed and confirmed by the independent financial adviser of the Company, Somerley Capital Limited, as follows:

28 Equity-settled share-based payment transactions (continued)

The expected volatility is based on the historic volatility of entities in the same industry (calculated based on the weighted average remaining life of the share options), adjusted for any expected changes to future volatility based on publicly available information. Expected dividends are based on management's estimates. The risk-free interest rate is based on the yield of Hong Kong Exchange Fund Notes corresponding to the expected life of the options as at the grant date. Changes in the subjective input assumptions could materially affect the fair value estimate.

Share options were granted under a service condition. The condition has not been taken into account in the grant date fair value measurement of the services received. There was no market condition associated with the share option grants.

29 Provisions

	2017 USD'000	2016 USD'000
Accrued reclamation obligations	14,327	13,585
Others	<u>1,500</u>	<u>1,500</u>
	15,827	15,085
Less: Current portion	<u>(1,500)</u>	<u>(1,500)</u>
	<u>14,327</u>	<u>13,585</u>

The accrual for reclamation costs has been determined based on management's best estimates. The estimate of the associated costs may be subject to change in the near term when the reclamation on the land from current mining activities becomes apparent in future periods. At the end of each reporting period, the Group reassessed the estimated costs and adjusted the accrued reclamation obligations, where necessary. The Group's management believes that the accrued reclamation obligations at 31 December 2017 are adequate and appropriate. The accrual is based on estimates and therefore, the ultimate liability may exceed or be less than such estimates. The movement of the accrued reclamation cost is as follows:

	2017 USD'000	2016 USD'000
At 1 January	13,585	13,567
Increase for reassessment of estimated costs (Note 14(c))	19	2,605
Accretion expense (Note 6(a))	373	338
Exchange adjustments	<u>350</u>	<u>(3,125)</u>
At 31 December	<u>14,327</u>	<u>13,585</u>

Accrued reclamation costs change during the years ended 31 December 2017 and 2016 resulted from the reassessment of estimated costs.

30 Capital, reserves and dividends

(a) Movements in components of equity

The reconciliation between the opening and closing balances of each component of the Group's consolidated equity is set out in the consolidated statement of changes in equity. Details of the changes in the Company's individual components of equity between the beginning and the end of the year are set out below.

	Note	Share capital USD 000 (Note 30(a)(i))	Share premium USD 000 (Note 30(a)(ii))	Other reserve USD 000 (Note 30(a)(iii))	Accumulated losses USD 000	Perpetual notes USD 000 (Note 30(b))	Total equity USD 000
At 1 January 2016		92,626	241,527	58,254	(207,088)	-	585,319
Changes in equity for 2016:							
Total comprehensive income		-	-	-	(67,781)	-	(67,781)
Equity-settled share-based transactions	28	-	-	1,199	-	-	1,199
At 31 December 2016		<u>92,626</u>	<u>241,527</u>	<u>59,453</u>	<u>(374,869)</u>	<u>-</u>	<u>486,733</u>
At 1 January 2017		92,626	241,527	59,449	(374,869)	-	486,733
Changes in equity for 2017:							
Issuance of shares		18,292	19,993	-	-	-	38,285
Issuance of perpetual notes		-	-	-	-	75,497	75,497
Total comprehensive income		-	-	-	193,977	-	193,977
Equity-settled share-based transactions	28	-	-	1,355	-	-	1,355
At 31 December 2017		<u>102,918</u>	<u>261,520</u>	<u>21,804</u>	<u>(181,292)</u>	<u>15,497</u>	<u>787,847</u>

(b) Dividends

The board of Directors of the Company does not recommend the payment of a final dividend in respect of the year ended 31 December 2017.

30 Capital, reserves and dividends (continued)

(c) Share capital

The Company was incorporated on 18 May 2010 with an authorised share capital of USD50,000 comprising 5,000,000 ordinary shares of USD0.01 each. On 18 May 2010, MCS Mining Group Limited acquired its initial share of one share of USD0.01. By an ordinary resolution passed at the annual general meeting held on 23 August 2010, the Company's authorised ordinary share capital was increased to USD50,000,000 by the creation of an additional 5,995,000,000 ordinary shares of USD0.01 each, ranking pari passu with the existing ordinary shares of the Company in all respects.

On 4 May 2017, a total number of 1,029,176,615 shares were allotted and issued at the subscription price of HKD0.229 per share, the closing price of the Company's shares on 4 May 2017, for net proceeds of USD30,285,066 which have been credited to share capital and capital premium accounts.

The new shares were allotted and issued under the general mandate granted to the Directors at the annual general meeting of the Company held on 31 May 2016. No cash proceeds were received by the Company in consideration for the issue of the new shares which are being issued as part of the Debt Restructuring to refinance certain of the Company's then-existing indebtedness.

(d) Issuance of shares under rights issue

On 29 December 2014, 5,567,554,750 ordinary shares were issued pursuant to the rights issue on the basis of three rights shares for every two existing shares at HKD0.28 each. Total net consideration amounted to USD195,453,000, of which USD55,576,000 was credited to share capital and the remaining proceeds of USD139,877,000 was credited to the share premium account. The Company's authorised ordinary share capital was increased to USD150,000,000 by the creation of an additional 9,000,000,000 ordinary shares of USD0.01 each, ranking par with the existing ordinary shares of the Company in all respects.

The aggregate amount of share capital of the companies now comprising the Group after elimination of interests in subsidiaries, was included in other reserve during the years ended 31 December 2017 and 2016 (Note 30(e)(ii)).

30 Capital, reserves and dividends (continued)

Authorised:

	2017		2016	
	No of shares (000)	USD 000	No of shares (000)	USD 000
Ordinary shares	<u>15,000,000</u>	<u>150,000</u>	<u>15,000,000</u>	<u>150,000</u>

Ordinary shares, issued and fully paid:

	2017		2016	
	No of shares (000)	USD 000	No of shares (000)	USD 000
Ordinary shares	<u>10,291,768</u>	<u>102,918</u>	<u>9,262,581</u>	<u>92,626</u>

(a) Nature and purpose of reserves

(i) Share premium

Under the Companies Law of the Cayman Islands, the share premium account of the Company may be applied for payment of distributions or dividends to shareholders provided that immediately following the date on which the distribution or dividend is proposed to be paid, the Company is able to pay its debts as they fall due in the ordinary courses of business.

(ii) Other reserve

The other reserve comprises the following:

- the aggregate amount of share capital and other reserves of the companies now comprising the Group after elimination of the investments in subsidiaries, and
- the portion of the grant date fair value of unexercised share options granted to Directors and employees of the Company that has been recognised in accordance with the accounting policy adopted for share-based payments in Note 2(q)(ii).

(iii) Exchange reserve

The exchange reserve comprises all foreign exchange adjustments arising from the translation of the MNT denominated financial statements of the Group's operations to the Group's presentation currency. The reserve is dealt with in accordance with the accounting policy set out in Note 2(v).

30 Capital, reserves and dividends (continued)

(iv) Property revaluation reserve

The property revaluation reserve has been set up and is dealt with in accordance with the accounting policies adopted for land and buildings held for own use in Note 2(h).

The property revaluation reserve of the Group is distributable to the extent of USD341,625,000 (2016: USD 341,819,000).

(f) Perpetual notes

The Company issued perpetual notes which were listed on the Singapore Exchange Securities Trading Limited on 4 May 2017, with principal amount of USD195,000,000 and with fair value of USD75,897,000.

The perpetual notes have no fixed maturity and are redeemable at the Company's option. The distribution payments can be deferred at the discretion of the Company. So long as the perpetual notes are outstanding, the Company shall not declare or pay any dividend or make any distribution on or with respect to its capital shares; or redeem, reduce, cancel, buy-back or acquire for any consideration any of its capital shares.

Fair value of the perpetual notes was valued by the management with the reference to a valuation report issued by an independent valuer based on the discounted cash flow method.

(g) Distributability of reserves

Pursuant to the Companies Law, Cap.22 (Law 3 of 1961, as consolidated and reserved) of the Cayman Islands, share premium of the Company is distributable to the shareholders. Other than the share premium, there is no other amount available for distribution to equity shareholders of the Company as at 31 December 2017.

(h) Capital management

The Group's primary objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so that it can continue to provide returns for shareholders and benefits for other stakeholders. The Group defines the capital as total shareholders' equity plus loans and borrowings.

The Group actively and regularly reviews and manages its capital structure to maintain a balance between the higher shareholder returns that might be possible with higher levels of borrowings and the advantages and security afforded by a sound capital position.

The gearing ratio (calculated as total bank and other borrowings divided by total assets) of the Group as at 31 December 2017 was 28.7% (2016: 43.9%).

31 Financial risk management and fair value of financial instruments

(a) Financial risk management objectives and policies

Management has adopted certain policies on financial risk management with the objective of:

- (i) ensuring that appropriate funding strategies are adopted to meet the Group's short-term and long-term funding requirements taking into consideration the cost of funding, gearing levels and cash flow projections of each project and that of the Group; and
- (ii) ensuring that appropriate strategies are also adopted to manage related interest and currency risk funding

(b) Credit risk

The Group's credit risk is primarily attributable to cash at bank, trade and other receivables. Management monitors the exposures to these credit risks on an ongoing basis.

Substantially all of the Group's cash at bank are deposited in the reputable banks which management assessed the credit risk to be insignificant.

Trade receivables are presented net of allowance for doubtful debts. In order to minimise the credit risk, the credit management committee, comprising the senior management team of the Group, has established a policy for determining credit limits, credit approvals and other monitoring procedures to ensure that follow-up action is taken to recover overdue debts. The credit management committee also evaluates and reviews the credit quality and the recoverable amount of each individual trade debt on an ongoing basis. These evaluations and reviews focus on the customer's past history of making payments when due and current ability to pay, and take into account information specific to the customer as well as pertaining to the economic environment in which the customer operates. The Group establishes an allowance for doubtful debts that represents its estimate of losses in respect of trade receivables. The components of this allowance are a specific loss component that relates to individually significant exposures and a collective loss component established for groups of similar assets. At the balance sheet date, the Group believes that adequate allowance for doubtful debts has been made in the consolidated financial statements. In this regard, the Directors consider that the Group's credit risk is significantly reduced. The Group does not hold any collateral as security for these receivables. The Group has a certain concentration credit risk as two customers accounted for 93.9% (2016: 90.8%) of the total trade receivables as at 31 December 2017.

The Group closely monitors the amount due from related parties.

31 Financial risk management and fair value of financial instruments (continued)

VAT receivables include amounts that have been accumulated to date in various subsidiaries. According to the prevailing tax rules and regulations in Mongolia, a taxpayer may offset future taxes and royalties payable to the GoM against VAT amounts receivable from the GoM. In July 2009, the Mongolian Tax Laws were amended to preclude producers and exporters of unfinished mineral products from claiming back VAT and any VAT amounts impacted is prospective from the effective date of the law on 16 August 2009. On 10 November 2010, the GoM defined finished mineral products as products which qualify for claiming back VAT. During the year ended 31 December 2017, the Group offset current income tax and other tax payable (air pollution fee, royalty tax payable and payables due to suppliers owing of USD6,739,000, USD2,631,000, USD11,197,000 and nil, respectively) against its VAT receivable balance. Based on currently available information, the Group anticipates full recoverability of amounts due on account primarily relating to finished mineral products at 31 December 2017. Verification by the Mongolian Taxation Authority of the collectability of the taxes is conducted on a regular basis and any outstanding VAT receivable amounts at 31 December 2017 will be available to the Group to offset future taxes and royalty tax or will be refunded by the Mongolian Taxation Authority.

Further quantitative disclosures in respect of the Group's exposure to credit risk arising from trade and other receivables are set out in Note 27.

(c) Foreign currency exchange risk

The Group is exposed to currency risk primarily through sales, purchases and borrowings which give rise to receivables, payables, borrowings and cash balances that are denominated in a foreign currency, i.e. a currency other than the functional currency of the operations to which the transactions relate. The functional currency of the Group's Mongolian entities is MNT and of the Group's overseas entities is USD. The currencies giving rise to this risk are primarily RMB, USD and HKD.

31 Financial risk management and fair value of financial instruments (continued)

(i) Exposure to currency risk

The following table details the Group's exposure at the balance sheet date to currency risk arising from recognised assets or liabilities denominated in a currency other than the functional currency of the entity to which they relate. For presentation purpose, the amounts of the exposure are shown in USD, translated using the spot rate at the year-end date.

Exposure to foreign exchange (denominated in United States Dollars)						
	2017			2016		
	Renminbi USD'000	United States Dollars USD'000	Hong Kong Dollars USD'000	Renminbi USD'000	United States Dollars USD'000	Hong Kong Dollars USD'000
Trade and other receivables	14,049	56,390	-	8,158	24,472	187
Cash at bank and in hand	330	41	8	1,373	14	3
Trade and other payables	(51,987)	(107,838)	(180)	(17,155)	(100,891)	(8)
Short-term borrowings and current portion of long-term borrowings	-	(7,608)	-	-	-	-
Bank loan	-	(24,253)	-	-	-	-
Senior Notes	-	(434,643)	-	-	-	-
Long-term receivables	-	64,568	-	-	-	-
Long-term payables	-	-	-	-	(43,894)	-
Net exposure arising from Recognised assets and liabilities	<u>(37,318)</u>	<u>(174,890)</u>	<u>(172)</u>	<u>(7,822)</u>	<u>(120,278)</u>	<u>184</u>

(ii) Sensitivity analysis

An 5% strengthening/weakening of other currency against functional currencies defined in Note 2(v) as at the respective balance sheet dates would increase/(decrease) gain/(loss) after taxation by the amount shown below. This analysis assumes that all other risk variables remained constant.

	2017 USD'000	2016 USD'000
Profit/(Loss) for the year		
5% increase in RMB	(1,641)	79
5% decrease in RMB	1,641	(79)
5% increase in USD	(20,233)	(4,199)
5% decrease in USD	20,233	4,199
5% increase in HKD	(9)	9
5% decrease in HKD	9	(9)

31 Financial risk management and fair value of financial instruments (continued)

(d) Interest rate risk

The Group's interest rate risk arises primarily from short term borrowings, long term borrowings and convertible bond. Borrowings issued at variable rates expose the Group to cash flow interest rate risk and fair value interest rate risk, respectively.

The following table data is the profile of the Group's net borrowings (interest-bearing financial liabilities less interest-bearing financial assets) at the balance sheet date. The detailed interest rates and maturity information of the Group's and the Company's borrowings are disclosed in Note 24.

	2017 USD'000	2016 USD'000
Net fixed rate borrowings:		
Pre restructuring senior notes		599,692
Promissory notes	-	72,216
Less: Bank deposits	(5,578)	-
	<u>(5,578)</u>	<u>671,908</u>
Net floating rate borrowings:		
Borrowings	-	83,000
Senior Loan	31,753	-
Senior Notes	435,563	-
Less: Bank deposits	(1,875)	(12,263)
	<u>466,441</u>	<u>80,737</u>
Total net borrowings:	<u>460,863</u>	<u>752,645</u>

At 31 December 2017, it is estimated that a general increase/decrease of 100 basis points in interest rates, with all other variables held constant, would have decreased/increased the Group's profit after taxation and retained earnings by approximately USD3,313,000 (31 December 2016: USD820,000).

The sensitivity analysis above indicates the instantaneous change in the Group's profit after taxation that would arise assuming that the change in interest rates had occurred at the balance sheet date and had been applied to re-measure those financial instruments held by the Group which expose the Group to fair value interest rate risk at the balance sheet date. In respect of the exposure to cash flow interest rate risk arising from floating rate non-derivative instruments held by the Group at the balance sheet date, the impact on the Group's profit after taxation and retained profits and other components of consolidated equity is estimated as an annualised impact on interest expense or income of such a change in interest rates.

31 Financial risk management and fair value of financial instruments (continued)

(e) Liquidity risk

Liquidity risk is the risk that the Company will not be able to settle or manage its obligations associated with financial liabilities. The Company's objective is to maintain a suitable level of liquidity to finance the daily operation, capital expenditure and repayment of borrowings. The Group's policy is to regularly monitor current and expected liquidity requirements to ensure that it maintains sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet its liquidity requirements in the short and longer term. Note 2(b) explains management's plans for managing the liquidity needs of the Group to enable it to continue to meet its obligations as they fall due.

The following table details the remaining contractual maturities at the balance sheet date of the Group's financial liabilities, which are based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on rates current at the balance sheet date) and the earliest date the Group can be required to pay.

	2017					
	Contractual undiscounted cash outflow					
	within 1 year USD 000	After 1 year but within 2 years USD 000	After 2 years but within 3 years USD 000	After 3 years USD 000	Total contractual undiscounted cash flow USD 000	Balance sheet carrying amount USD 000
Borrowings (Note 24)	9 372	25 674	-	-	35 046	31 753
Senior Notes (Note 25)	24 748	32 297	511 437	-	568 482	436 563
Trade and other payables (Note 26)	222 731	-	-	-	222 731	222 731
	<u>256 851</u>	<u>58 671</u>	<u>511 437</u>	<u>-</u>	<u>826 959</u>	<u>691 047</u>

	2018					
	Contractual undiscounted cash outflow					
	within 1 year USD 000	After 1 year but within 2 years USD 000	After 2 years but within 3 years USD 000	After 3 years USD 000	Total contractual undiscounted cash flow USD 000	Balance sheet carrying amount USD 000
Borrowings (Note 24)	93 000	-	-	-	93 000	93 000
Pre-structuring senior notes (Note 25)	600 000	-	-	-	600 000	599 692
Trade and other payables (Note 26)	367 074	-	-	-	367 074	342 136
	<u>1 060 074</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1 060 074</u>	<u>1 034 828</u>

31 Financial risk management and fair value of financial instruments (continued)

(f) Fair value measurement

(i) Financial assets and liabilities measured at fair value

- Fair value hierarchy

The following table presents the fair value of the Group's financial instruments measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13, Fair value measurement. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows.

- Level 1 valuations: Fair value measured using only Level 1 inputs i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date
- Level 2 valuations: Fair value measured using Level 2 inputs i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available
- Level 3 valuations: Fair value measured using significant unobservable inputs

The Group has a team headed by the finance manager performing valuations for the financial instruments, derivative components of the Senior Notes and derivative component of the Senior Loan. The team reports directly to the chief financial officer. A valuation report with analysis of changes in fair value measurement is prepared by the team at each interim and annual reporting date, and is reviewed and approved by the chief financial officer. Discussion of the valuation process and results with the chief financial officer is held twice a year, to coincide with the reporting dates.

		Fair value measurements as at 31 December 2017 categorised into		
	Fair value at 31 December 2017 USD'000	Level 1 USD'000	Level 2 USD'000	Level 3 USD'000
Recurring fair value measurements				
Financial liabilities				
- Derivative components of Senior Notes	54,928	-	-	54,928
- Derivative components of Senior Loan	1,934	-	-	1,934

During the year ended 31 December 2017, there were no transfers between Level 1 and Level 2, or transfers into or out of Level 3 (2016: nil). The Group's policy is to recognise transfers between levels of fair value hierarchy as at the end of the reporting period in which they occur.

31 Financial risk management and fair value of financial instruments (continued)

- Information about Level 3 fair value measurements

	Valuation techniques	Significant unobservable inputs	Weighted average
Derivative components of Senior Notes	Discounted cash flow method	Bond yield	8.1%
Derivative component of Senior Loan	Discounted cash flow method	Bond yield	6.98%
		Coal price index	USD115 to USD163

The fair value of derivative components of the Senior Notes is determined using discounted cash flow method and the significant unobservable input used in the fair value measurement is bond yield and coal price index. The fair value measurement is negatively correlated to the bond yield. As at 31 December 2017, it is estimated that with all other variables held constant, a increase/decrease in bond yield by 100bps would have decreased/increased the Group's net finance costs by USD321,000/USD343,000 respectively. The fair value measurement is correlated to the coal price index. As at 31 December 2017, it is estimated that with all other variables held constant, a increase/decrease in coal price index by 1% would have decreased the Group's net finance costs by USD86,800/USD1,925,800 respectively.

The fair value of derivative component of the Senior Loan is determined using discounted cash flow method and the significant unobservable input used in the fair value measurement is bond yield and coal price index. The fair value measurement is negatively correlated to the bond yield. As at 31 December 2017, it is estimated that with all other variables held constant, a increase/decrease in bond yield by 100bps would have decreased/increased the Group's net finance costs by USD22,000 respectively. The fair value measurement is correlated to the coal price index. As at 31 December 2017, it is estimated that with all other variables held constant, a decrease/increase in coal price index by 1% would have decreased the Group's net finance costs by nil/USD148,000 respectively.

The movement during the period in the balance of Level 3 fair value measurements is as follows:

	USD'000
Derivative components of Senior Notes	
At 4 May 2017	47,271
Changes in fair value recognised in profit or loss during the period	<u>7,655</u>
At 31 December 2017	<u>54,926</u>
Total losses for the period included in profit or loss for liabilities held at the end of the reporting period	<u>7,655</u>

31 Financial risk management and fair value of financial instruments (continued)

USD'000

Derivative component of Senior Loan:

At 4 May 2017 1,754

Changes in fair value recognised in profit or loss during the period 180

At 31 December 2017 1,934

Total losses for the period included in profit or loss for liabilities held at the end of the reporting period 180

The net unrealised losses resulting from the remeasurement of the derivative components of the Senior Notes and derivative component of the Senior Loan are recognised in net finance costs in the consolidated statement of profit or loss

(a) Fair value of financial assets and liabilities carried at other than fair value

The carrying amounts of the Group's financial instruments carried at cost or amortised cost were not materially different from their fair values as at 31 December 2017 except for the following financial instruments, for which their carrying amounts and fair value are disclosed below:

	At 31 December 2017	
	Carrying amount USD'000	Fair value USD'000
Liability component of Senior Notes	381,637	370,307
Liability component of Senior Loan	29,819	29,653

32 Commitments and contingencies

(a) Capital commitments

Capital commitments outstanding at respective balance sheet dates not provided for in the financial statements were as follows:

	2017 USD'000	2016 USD'000
Contracted for	4,639	510
Authorised but not contracted for	<u>17,337</u>	<u>-</u>
	<u>22,036</u>	<u>510</u>

(b) Operating lease commitments

- (i) At 31 December 2017, the total future minimum lease payments under non-cancellable operating leases are payable as follows:

	2017 USD'000	2016 USD'000
Within 1 year	85	209
After 1 year but within 5 years	<u>-</u>	<u>-</u>
	<u>85</u>	<u>209</u>

- (ii) The Group leases certain buildings through operating leases. These operating leases do not contain provisions for contingent lease rentals. None of the agreements contain escalation provisions that may require higher future rental payments.

(c) Environmental contingencies

Historically, the Group has not incurred any significant expenditure for environmental remediation. Further, except for the accrued reclamation obligations as disclosed in Note 29 and amounts incurred pursuant to the environment compliance protection and precautionary measures in Mongolia, the Group has not incurred any other significant expenditure for environmental remediation, is currently not involved in any other environmental remediation, and has not accrued any other amounts for environmental remediation relating to its operations. Under existing legislation, the Directors believe that there are no probable liabilities that will have a material adverse effect on the financial position or operating results of the Group. Environmental liabilities are subject to considerable uncertainties which affect the Group's ability to estimate the ultimate cost of remediation efforts. The outcome of environmental liabilities under future environmental legislations cannot be estimated reasonably at present and which could be material.

33 Material related party transactions

(a) Transactions with related parties

Related parties refer to enterprises over which the Group is able to exercise significant influence or control during the year. During the year, the Group entered into transactions with the following related parties:

<i>Name of party</i>	<i>Relationship</i>
MCS (Mongolia) Limited ("MCS")	Shareholder of MMC
MCS Holding LLC	Subsidiary of MCS
MCS Estates LLC	Subsidiary of MCS
Unitel LLC	Subsidiary of MCS
Uniservice Solution LLC	Subsidiary of MCS
MCS Property LLC	Subsidiary of MCS
MCS International LLC	Subsidiary of MCS
M Armor LLC	Subsidiary of MCS
MCS Coca Cola LLC	Subsidiary of MCS
Univision LLC	Subsidiary of MCS
Market Gate LLC	Subsidiary of MCS
International Medical Centre LLC	Subsidiary of MCS
Premium Concrete LLC	Subsidiary of MCS
Shangri-La Ulaanbaatar Hotel	Subsidiary of MCS
Chinggis Eco Tour LLC	Subsidiary of MCS
Shangri-La Ulaanbaatar LLC	Subsidiary of MCS
Gashuun Sukhait Auto Zam LLC	Associate of MMC
Gashuun Sukhait Railway LLC	Associate of MMC
International Technical College LLC	Associate of MMC

Particulars of significant transactions between the Group and the above related parties during the year ended 31 December 2017 are as follows:

	2017 USD'000	2016 USD'000
Ancillary services (Note (i))	13,456	10,210
Sales of property, plant and equipment (Note (ii))	8	264
Lease of property, plant and equipment (Note (iii))	420	451

33 Material related party transactions (continued)

Notes:

- (i) Ancillary services represent expenditures for support services such as cleaning and canteen expense, and power and heat generation, distribution and management fees paid to Uniservice Solution LLC, MCS International LLC, MCS and its affiliates. The service charges are based on comparable or prevailing market rates, where applicable.
- (ii) Sales of property, plant and equipment represent sale to MCS and its affiliates. The sales are carried out at comparable or prevailing market rates, where applicable.
- (iii) Lease of property, plant and equipment represents rental paid or payable in respect of properties and office equipment leased from Shangri-La Ulaanbaatar LLC, MCS and its affiliates. The rental charges are based on comparable or prevailing market rates, where applicable.

The Directors of the Company are of the opinion that the above transactions were conducted in the ordinary course of business on normal commercial terms and in accordance with the agreements governing such transactions.

Amounts due from/to related parties

	2017 USD'000	2016 USD'000
Other receivables (Note 22(c)(i))	<u>1</u>	<u>1</u>
Other accruals and payables (Note 26(i)(i))	<u>(18,897)</u>	<u>(14,680)</u>

33 Material related party transactions (continued)

(b) Key management personnel remuneration

Key management personnel are those persons holding positions with authority and responsibility for planning, directing and controlling the activities of the Group, directly or indirectly, including the Group's Directors.

Remuneration for key management personnel, including amounts paid to the Company's Directors as disclosed in Note 10, and certain of the highest paid employees as disclosed in Note 11, is as follows:

	2017 USD'000	2016 USD'000
Salaries and other emoluments	2,199	1,464
Discretionary bonus	2,211	68
Retirement scheme contributions	287	98
Equity-settled share-based payment expenses	1,104	1,017
	<u>5,801</u>	<u>2,647</u>

(c) Applicability of the Listing Rules relating to connected transactions

Certain related party transactions in respect of (a) above constitute connected transactions or continuing connected transactions as defined in Chapter 14A of the Listing Rules. The disclosures required by Chapter 14A of the Listing Rules are provided in section headed 'Connected transactions and continuing connected transactions' of the Directors' Report.


34 Ultimate controlling party

As at 31 December 2017, the Directors consider the ultimate controlling party of the Group to be MCS (Mongolia) Limited, which was incorporated in British Virgin Islands. This entity does not produce financial statements available for public use.

35 Company-level statement of financial position

	At the	2017	2016
		USD 000	USD 000
Non-current assets			
Interests in subsidiaries		788,422	1,321,286
Total non-current assets		<u>788,422</u>	<u>1,321,286</u>
Current assets			
Trade and other receivables		40	7,705
Cash at bank and in hand		245	4,518
Total current assets		<u>285</u>	<u>12,223</u>
Current liabilities			
Short-term borrowings and current portion of long-term borrowings		-	99,000
Pre-restructuring senior notes		-	599,892
Trade and other payables		860	154,064
Total current liabilities		<u>860</u>	<u>846,756</u>
Net current liabilities		<u>(575)</u>	<u>(834,533)</u>
Total assets less current liabilities		<u>787,847</u>	<u>486,733</u>
Total non-current liabilities		<u>-</u>	<u>-</u>
NET ASSETS		<u>787,847</u>	<u>486,733</u>
CAPITAL AND RESERVES	30(a)		
Share capital		102,918	92,628
Reserves		684,929	394,107
TOTAL EQUITY		<u>787,847</u>	<u>486,733</u>

Approved and authorised for issue by the board of directors on 22 March 2018


Odjargal Jambaljamts
Chairman


Battseengel Gotov
Chief Executive Officer

36 Major non-cash transactions

According to the relevant tax regulations in Mongolia, the income tax payable can be offset by the VAT receivables. During the year ended 31 December 2017, the Group offset the VAT receivables of USD6,238,000 (2015: USD1,471,000), USD2,631,000 (2015: USD550,000), USD11,197,000 (2015: USD1,691,000) and nil (2015: USD4,780,000) with income tax, air pollution fee, royalty tax payable and payables due to suppliers, respectively.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2017

Up to the date of issue of these financial statements, the ASB has issued a number of amendments and new standards which are not yet effective for the year ended 31 December 2017 and which have not been adopted in these financial statements. These include the following which may be relevant to the Group:

	Effective for accounting periods beginning on or after
IFRS 9, <i>Financial instruments</i>	* January 2018
IFRS 15, <i>Revenue from contracts with customers</i>	* January 2018
Amendments to IFRS 2, <i>Share-based payment: Classification and measurement of share-based payment transactions</i>	* January 2018
Amendments to IAS 40, <i>Investment property: Transfers of investment property</i>	* January 2018
IFRIC 22, <i>Foreign currency transactions and advance consideration</i>	* January 2018
IFRS 16, <i>Leases</i>	* January 2019

The Group is in the process of making an assessment of what the impact of these amendments, new standards and interpretations is expected to be in the period of initial application. So far the Group has identified some aspects of the new standards which may have a significant impact on the consolidated financial statements. Further details of the expected impacts are discussed below. While the assessment has been substantially completed for IFRS 9 and IFRS 15, the actual impacts upon the initial adoption of the standards may differ as the assessment completed to date is based on the information currently available to the Group, and further impacts may be identified before the standards are initially applied in the Group's interim financial report for the six months ending 30 June 2018. The Group may also change its accounting policy elections, including the transition options, until the standards are initially applied in that financial report.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2017 (continued)

IFRS 9, Financial instruments

IFRS 9 will replace the current standard on accounting for financial instruments, IAS 39, Financial instruments: Recognition and measurement. IFRS 9 introduces new requirements for classification and measurement of financial assets, including the measurement of impairment for financial assets and hedge accounting. On the other hand, IFRS 9 incorporates without substantive changes the requirements of IAS 39 for recognition and derecognition of financial instruments and the classification and measurement of financial liabilities.

IFRS 9 is effective for annual periods beginning on or after 1 January 2018 on a retrospective basis. The Group plans to use the exemption from restating comparative information and will recognise any transition adjustments against the opening balance of equity at 1 January 2018.

Expected impacts of the new requirements on the Group's financial statements are as follows:

- Impairment

The new impairment model in IFRS 9 replaces the 'incurred loss' model in IAS 39 with an 'expected credit loss' model. Under the expected credit loss model, it will no longer be necessary for a loss event to occur before an impairment loss is recognised. Instead, an entity is required to recognise and measure either a 12-month expected credit loss or a lifetime expected credit loss, depending on the asset and the facts and circumstances. The Group expects that the application of the expected credit loss model will result in earlier recognition of credit losses. However, based on the assessments undertaken to date, the Group does not expect material change of the loss allowance for the Group's trade receivables held at amortised cost.

IFRS 15, Revenue from contracts with customers

IFRS 15 establishes a comprehensive framework for recognising revenue from contracts with customers. IFRS 15 will replace the existing revenue standards: IAS 18, Revenue, which covers revenue arising from sale of goods and rendering of services, and IAS 11, Construction contracts, which specifies the accounting for revenue from construction contracts.

Based on the assessment completed to date, the Group has identified the following areas which are expected to be affected:

(a) Timing of revenue recognition

The Group's revenue recognition policies are disclosed in Note 2(u). Currently, revenue from the sale of goods is generally recognised when the risks and rewards of ownership have passed to the customers.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2017 (continued)

Under IFRS 15, revenue is recognised when the customer obtains control of the promised good or service in the contract. IFRS 15 identifies 3 situations in which control of the promised good or service is regarded as being transferred over time.

- (i) When the customer simultaneously receives and consumes the benefits provided by the entity's performance as the entity performs;
- (ii) When the entity's performance creates or enhances an asset (for example work in progress) that the customer controls as the asset is created or enhanced;
- (iii) When the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date.

If the contract terms and the entity's activities do not fall into any of these 3 situations, then under IFRS 15 the entity recognises revenue for the sale of that good or service at a single point in time, being when control has passed. Transfer of risks and rewards of ownership is only one of the indicators that will be considered in determining when the transfer of control occurs.

The Group has assessed that the new revenue standard is not likely to have significant impact on how it recognises revenue from sales of coal products.

(b) Significant financing component

IFRS 15 requires an entity to adjust the transaction price for the time value of money when a contract contains a significant financing component, regardless of whether the payments from customers are received significantly in advance or in arrears.

Currently, the Group would only apply such a policy when payments are significantly deferred, which is currently not common in the Group's arrangements with its customers. Currently, the Group does not apply such a policy when payments are received in advance.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2017 (continued)

(c) Sales with a right of return

Currently when the customers are allowed to return the Group's products, the Group estimates the level of expected returns and makes an adjustment against revenue and cost of sales.

The Group has assessed that the adoption of IFRS 15 will not materially affect how the Group recognises revenue and cost of sales when the customers have a right of return. However, the new requirement to recognise separately a return asset for the products expected to be returned will impact the presentation in the consolidated statement of Financial position as the Group currently adjusts the carrying amounts of inventory for the expected returns instead of recognising a separate asset.

IFRS 16. Leases

As disclosed in Note 2(j), currently the Group classifies leases into finance leases and operating leases and accounts for the lease arrangements differently, depending on the classification of the lease. The Group enters into some leases as the lessee.

IFRS 16 is not expected to impact significantly on the way that lessors account for their rights and obligations under a lease. However, once IFRS 16 is adopted, lessees will no longer distinguish between finance leases and operating leases. Instead, subject to practical expedients, lessees will account for all leases in a similar way to current finance lease accounting, i.e. at the commencement date of the lease the lessee will recognise and measure a lease liability at the present value of the minimum future lease payments and will recognise a corresponding right-of-use asset. After initial recognition of this asset and liability, the lessee will recognise interest expense accrued on the outstanding balance of the lease liability and the depreciation of the right-of-use asset, instead of the current policy of recognising rental expenses incurred under operating leases on a systematic basis over the lease term. As a practical expedient, the lessee can elect not to apply this accounting model to short-term leases (i.e. where the lease term is 12 months or less) and to leases of low-value assets, in which case the rental expenses would continue to be recognised on a systematic basis over the lease term.

37 Possible impact of amendments, new standards and interpretations issued but not yet effective for the year ended 31 December 2017 (continued)

IFRS 16 will primarily affect the Group's accounting as a lessee of leases for properties, plant and equipment which are currently classified as operating leases. The application of the new accounting model is expected to lead to an increase in both assets and liabilities and to impact on the timing of the expense recognition in the statement of profit or loss over the period of the lease. As disclosed in Note 32(b), at 31 December 2017 the Group's future minimum lease payments under non-cancellable operating leases amount to \$85,000, all of which is payable within 1 year after the reporting date. Some of these amounts may need to be recognised as lease liabilities, with corresponding right-of-use assets, once IFRS 16 is adopted. The Group will need to perform a more detailed analysis to determine the amounts of new assets and liabilities arising from operating lease commitments on adoption of IFRS 16, after taking into account the applicability of the practical expedient and adjusting for any leases entered into or terminated between now and the adoption of IFRS 16 and the effects of discounting.

IFRS 16 is effective for annual periods beginning on or after 1 January 2019. The standard offers different transition options and practical expedients, including the practical expedient to grandfather the previous assessment of which existing arrangements are, or contain, leases. If this practical expedient is chosen, the Group will apply the new definition of a lease in IFRS 16 only to contracts that are entered into on or after the date of initial application. If the practical expedient is not chosen, the Group will need to reassess all of its decisions about which existing contracts are, or contain, leases, using the new definition. Depending on whether the Group elects to adopt the standard retrospectively or follow a modified retrospective method of recognising a cumulative-effect adjustment to the opening balance of equity at the date of initial application, the Group may or may not need to restate comparative information for any changes in accounting resulting from the reassessment.

Reference No. GC-2019
17th January 2020

Dr Battsengel Golov
Executive Director and Chief Executive Officer
Mongolian Mining Corporation
9th Floor, Central Tower
Great Chinggis Khaan's Square, SMO-B,
Ulaanbaatar-210024, MONGOLIA

Dear Sir

SUBJECT: Baruwan Naman Coal Deposit (BNM) – Statement of Open Cut Coal Reserves as at 1st January 2019

Glogex Consulting LLC ("GLOGEX") has been commissioned by MMC to complete an independent estimate, hereafter referred to as the "Statement", of the Open Cut Coal Reserves for the BNM coal deposit. The Statement reports the Coal Reserves as at 01 January 2019 and has been undertaken in compliance with the requirements of the reporting guidelines of the 2012 Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia ("JORC Code"). Detailed data, model, and results in the Glogex report "Statement of open pit coal reserves as at 01 January 2019, Baruwan Naman Coal Deposit" dated 15 January 2020.

GLOGEX has adopted the following terms for the reporting of Coal Reserves:

- **Coal Resources** as used in this report are the same as "Mineral Resources" in The JORC Code and "Geological Resources", a common term used in the industry. Coal Resources refers to coal in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, geological characteristics and continuity are known, estimated or interpreted from specific geological evidence or knowledge, including sampling.
- The **Coal Resources** are subdivided, in order of increasing geological confidence, into **Inferred, Indicated and Measured Resources** to reflect the confidence in the underlying resource data.

- **Coal Reserves** as used in this report are the same as "Ore Reserves" in The JORC Code and "recoverable" coal which are terms in common use in the coal industry. Coal Reserves are the economically mineable part of a Measured and/or Indicated Mineral Resources. The Coal Reserves include diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include the application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.
- **Coal Reserves** have been subdivided in order of increasing confidence into **Probable Coal Reserves and Proved Coal Reserves** to reflect the confidence in the underlying resource data and mine planning detail. A Proved Coal Reserve can only be based on a Measured Coal Resource. Probable Reserves can be based on Measured and/or Indicated Resources. Inferred Coal Resources cannot be included as a Coal Reserve.
- **Marketable Coal Reserves** allow for practical yields in a beneficiation plant, which is commonly known in the industry as "product coal".

Geological exploration at BN has identified a total Coal Resource of 326 Mt (as received measure basis) of which 250 Mt is classified as Measured, 51 Mt as Indicated and 25 as Inferred to a depth of 400 m as specified under the Australian Code for Reporting of Mineral Resources and Ore Reserves 2012 Edition (The JORC Code 2012) (M. Unrug-Golov, Ltd. (MUG), December 2018). Coal quality studies have identified the potential to produce semi-hard coking, semi-soft coking, and thermal coal products. Since completion of the previous Coal Resource estimate, no further resource exploration data has been incorporated into structural or coal quality geological models. To produce the updated Coal Resource estimate, topographic survey information was updated to account for depletion as result of mining between 1 July, 2015, and 31 December, 2018.

As at 1 January 2019, the BN total Open Cut Coal RCRM reserves of 175 Mt are shown in Table 1 and the total Marketable reserve of 91 Mt are shown in Table 2. In this study topographic survey information was only updated to account for depletion as result of 31 December, 2018 and no other changes have been done from previous reserves report.

The previous Coal Reserves Statement for BN was published as at 01 January 2018 by Glogex Consulting LLC ("GLOGEX"). The Coal Reserves estimated in that Statement were 176 Mt. The comparison between two estimates is outlined below in Table 3.

Table 1. Total coal reserves as at 01 January 2019 (RDM)

Coal type	Reserve category (Mt)		
	Proved	Probable	Total (Proven+Probable)
Coking Coal	153	12	165
Thermal Coal	0	0	0
Total	153	12	165

Notes:

- Estimate has been rounded to reflect accuracy
- Coking coal reserves total reserves is 2.5%
- Coal reserves above 400m depth and below topographical surface

Table 2. Total Marketable reserves as at 01 January 2019

Coal type	Reserve category (Mt)		
	Proved	Probable	Total (Proven+Probable)
Coking Coal	65	5	71
Metallurgical	19	1	20
Thermal Coal	0	0	0
Total	85	6	91

Notes:

- Estimate has been rounded to reflect accuracy
- Proved Coking coal total reserves is 0%, All - 10.2% (all)
- Proved Metallurgical total reserves is 0%, All - 10% (all)

Table 3. Comparison of Coal Reserves to Previous Coal Reserves Statement (Mt)

Coal Reserves as at 01 January 2018 (RDM)		
Coal Mined and depleted 01 January 2019 to 01 January 2019		-1
Increase in Coal Reserves identified in the 2019 Reserves estimate that are economically viable for mining at 01 January 2019		0
Coal Reserves as at 01 January 2018 (RDM)		175

Notes:

- Estimate has been rounded to reflect accuracy
- Reserve is above 400m depth and below topographical surface
- The estimate of Coal Reserves presented in Table 1, Table 2 and Table 3 has been carried out in accordance with the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The ACR Code (2012). Technical information in the 01 Coal Reserves estimate has been compiled by Mr. Nandhuvar Lunday, who is a Member of the Australian Institute of Mining and Metallurgy (AIMM/MIM No. 128666). He is a principal shareholder of Glogex Consulting LLC and also serves as General Director and Executive Consultant of the company. He is holder of mining related management and master of business administration in field of financial management. He has extensive experience in the mining industry working for over 15 years with major mining companies and mining consultants. During this time, he has either managed or contributed significantly to numerous mining studies related to the exploration, optimization, mine planning, assessment, evaluation and economic evaluation of coal in Mongolia, this is sufficient experience which is relevant to the style of mine plan and type of deposit under consideration and to the activity he is undertaking to qualify him as a Competent Person as defined under the ACR Code (2012). Mr. Lunday consents to the inclusion in the release of the material based on this information in the form and content in which it appears.

Best Regards,



Nandhuvar Lunday
General Director and Executive Consultant
Competent Person (Member of AIMM #128666)

CONCLUSIONS

This report has been prepared by or on behalf of Glogex Consulting LLC ("Glogex") solely for Mongolia Mining Corporation ("Client"). The Client's use and disclosure of this report is subject to the terms and conditions under which Glogex prepared the report. Glogex prepared this report for the Client only. If you are not the Client:

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Report No.	GG-02
Revision No.	1

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**STATEMENT OF OPEN CUT COAL RESERVES
AS AT 1ST JANUARY 2019**

**BASULI MURAM AND
TSASHUR KINLOAG COAL MINE**

**Prepared for
MONGOLIAN MINING CORPORATION**

**Report No: GG-02
Date: 28th February, 2019**

**Prepared by
GLOGEX CONSULTING LLC**

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40°	• Windfall High wind (windy)
35°	• Windfall Low wind (Sunny)
30°	• Windfall High wind (windy)
25°	• Windfall Low wind (Sunny)
20°	• Windfall High wind (windy)
15°	• Windfall Low wind (Sunny)
10°	• Windfall High wind (windy)
5°	• Windfall Low wind (Sunny)

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Appendix C – Reporting Exploration Results
Appendix D – Estimation and Reporting of Mineral Resources
Appendix E – Estimation and Reporting of Coal Reserves

1. Introduction

1.1 Overview

Integration Mining Corporation (IMC) is a Hong Kong Stock Exchange listed mining company with high quality coal assets in Mongolia, where it is a leading coal and thermal coal producer and exporter. It owns and operates the Ulaan Khudag (UKD) and Baramba (BRM) open-pit coal mines located within the Tavan Tolgoi coal region in South Gobi desert in Mongolia.

In June 2011, IMC acquired a 100% interest in Open Coal Ltd and subsequently merged subsidiary Integrated Exploration LLC, the holder of mining license BM-14483 for the BRM coal deposit, with IMC Mining. The BRM mining license covers an area of 4,886 hectares and is valid for a period of 20 years until December 2028. IMC was granted a new mining license BM-017528 on 24 June 2017 by the Mineral Resources Authority of Mongolia (MARM). The new license covers the western extension of the deposit over an area called Tugayg Khudag (THK), which is located entirely within IMC's current exploration license. It covers an area of 1,400 ha and is valid for 20 years from the date of approval to approximately June 2049.

Geotec Consulting LLC has been co-sponsored by IMC to complete an independent estimate, known as referred to as the 'State Report', of the Open Coal Reserve for the BRM coal deposit. The State Report refers to the Coal Reserve as at 31 January 2018 and has been undertaken in compliance with the requirements of the reporting guidelines of the 2012 Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (AIMM-COA).

GLOBEX has adopted the following terms for the reporting of Coal Reserve

- Coal Reserves as used in this report are the same as 'Mineral Reserves' in The AIMM-COA and 'Geological Resource', a common term used in the industry. Coal Reserves refer to coal in situ (form, quality and quantity) that there are reasonable prospects for eventual economic extraction. The location, quantity, geological characteristics and continuity (as known), estimated or interpreted from specific categories of evidence or knowledge, including sampling
- The Coal Reserves are sub-divided, in order of increasing degree of confidence, into defined, Indicated and Measured Reserves to reflect the confidence in the underlying estimate data

- Coal Reserves are used in this report as the term as "On Reserve" in The JORC Code are "proven" coal which are listed in common use in the coal industry. Coal Reserves are also commonly acceptable part of a Mineplan under Independent Reporting. The Coal Reserves include mining activities and planning techniques, which may occur when the exploration results confirmed and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include the application of Mining Factors. Such studies demonstrate that, in the case of Reported, additional coal resources may be justified.
- Coal Reserves have been subdivided in order of increasing confidence into Available Coal Reserves and Proved Coal Reserves to reflect the confidence in the underlying geological data and mine planning tool. A Proved Coal Reserve can only be based on a Measured Coal Resource. Probable Reserves can be based on Measured and Indicated Resources. Inferred Coal Reserves cannot be included as a Coal Reserve.
- Marketable Coal Reserves allow for potential yields in a beneficiation plant, which is normally given in the industry as proved coal, and
- Coal Reserves are reported irrespective of Coal Reserves, that is, Coal Reserves are not adjusted to Coal Reserves).

五、本行在报告期内无其他重大事项。

- **Geographical Model for T's Star Model:** is the Comprehensive-Active-dimensional representation of the coal deposit based on topographic survey data, coal seam data, derived from seismic, drill hole at three (3) points, including coal thickness and quality.
- **Optimizing the use of Results Optimizer software** applied to the package of models to determine the economic potentials for the application of such factors as price of minerals, mining technologies, geological and mining elements, geometrical shape, design and construction system.
- **Optimized for T's Star** is the three-dimensional economic potential determined using the **Minimize Objective**.

五、

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- **affordable** PPT should be based on the right method of deal with modification to business (it is a practical job design using Microsoft software).
- **affordable** In **IBM Cool** (year-2000) (technology) we used in this report is we only deal value for **non-value** of deal and
- **deal of value** (History Cool year-2000) (technology) we used in this report is deal in the **non-value** of deal (it is application of geology of deal mining (value, cost and deal) together with IBM Cool) may include some **Informed Cool** Response is **non-value** cost, is cost not yet assigned any **Value** and **deal** item.

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11. What is the purpose of the study?

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criteria such as geological criteria and technical mining feasibility, a series of pit shells were defined for mining reserve study.

4. A pit shell (Optimised Pit Shell) was selected and mining requirements made (as necessary) to form potential pit designs (Pitshell Pit Design). These pit shells formed the basis of the subsequent reserve estimates.

5. The Mineable Pit Shells were delineated into a series of steps, benches to form a block reserve delineation of operations and crushing. The sequencing of these blocks was undertaken in three sections.

6. The Coal Reserve's geological confidence level of Measured, Indicated and Inferred were supplied as a field in the original main block model provided by MRG and were re-organised into the Mineable Pit Shell model during the conversion from Reserve to RCAD model. Mineable Reserve's RCAD model is converted into blocks to require a block model. These blocks were used to report Reserves' known by characterisation within the Mineable Pit Shell while Inferred Reserves were assigned reserves in the B4 LOM Study pit operation. As Inferred Reserves or estimated known have been reported as Reserves in this statement.

7. The Coal Reserve was then categorised as Proved or Probable based on the Coal Reserves confidence and the level of detail in the mine planning using Mine software.

8. Once the reserve calculation and results and supporting information are documented in this report.

1.3. Relevant Reports and Studies

The following reports, documents and studies were used as references supplied in the preparation of the Statement

1. "B4 Revised Design (B4 Rev 1) (LOM study)", MRG Consultants Pty Ltd February 2013
2. "Baram Murut Coal Project – Mine Pre-Feasibility Study", BMR (formerly Manganese-Mine-Consulting) May 2008

MR-00000000-01-004

The material was prepared exclusively using documents supplied in accordance with the mining reserve calculation criteria outlined in this study statement.

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3. "Statement of Coal Reserves – Baram Murut Coal Project", MCBM Bryan, Geological Services Pty Ltd February 2008

4. "MRG Reserve Report – Baram Murut Coal Project, Malaysia", SRG Consulting (July 2010)
5. "Baram Murut Coal Project Feasibility Study", SRG Consulting (June 2011)
6. "Baram Murut Coal Project Feasibility Study (JMS) – 24 June 2010", Manganese-Mine-Consulting (June 2010)
7. "Baram Murut Mine Waste Management", Aggreko Pty November 2009
8. "Final geological assessment of Baram Murut Coal Project" by Sandstone Geosciences Pty Ltd November 2007
9. "MRG (2012) Standard Reserves (Statement of Baram Murut Mining License (446204) and Coalmining Mining License (M417538) prepared by Manganese Mining Corporation (June 2012)

10. "Baram Murut (As at 2010 Study) prepared by Range Projects Malaysia (August 2013)
11. "Price Forecast for MRG (Sulphur Fertiliser) prepared by Straits Finance (December 2012)
12. "Asset Table (LMS Plant as at 2010) prepared by Manganese Mining Corporation (January 2013)
13. Coal Reserves Statement for (B4) as at 31 January 2013 by Range Projects Malaysia (2013)

1.4. Prepared Coal Reserves Statement

The previous Coal Reserve Statement was the Statement of Open-Cut Coal Reserves as at 31 January 2013 for B4, prepared by Range Projects Malaysia (as referenced above)

2. Completed Physical Mining

The information in this report, to which this statement is attached, that relates to the Coal Reserves of Manganese Mining Corporation – Baram Murut Coal Project, a limited or information completed and reviewed by Mr. Manganese Mining, who is a member of the Australian Institute of Mining and Metallurgy (AustIMM) (27/08/07)

He is a principal consultant of Global Consulting II, and also serves as General Director and Executive Consultant of the company. He is holder of mining industry experience and holder of business related issues a full of technical management. He has extensive experience in the mining industry, working for over 16 years with major mining companies and mining consultants. During this time, he has either managed or contributed significantly to numerous mining studies related to the evaluation, development, and

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data planning, investment, evaluation and economic evaluation of coal in Mongolia. We had sufficient experience which is relevant to the type of investment and type of deposit under consideration and to the activity in undertaking to quantify our Coal Resource as defined under the JORC Code (2007) for Landing contracts in the outcome of the review of the system based on the information on the form and certified in place it appears



Navidkhan Lurdiyev

General Director and Executive Consultant

Competent Person (Johannes 8535549)

The statement of Coal Resource presented in the Statement has been prepared in accordance with the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (December 2012)

The above-mentioned person has reviewed the statement in the report, which is reported and will give up material for the preparation of the Coal Resource Statement. (GloDEX Consulting LLC will receive a professional fee for the preparation of this statement)

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The statement is a summary of the information provided in the statement and is not intended to be a statement of fact. It is not intended to be a statement of fact.

3. Project Description

3.1. Mineral Background

Integration Mining Corporation (IMC) is a Hong Kong Stock Exchange listed mining company with high quality coal assets in Mongolia, where it is a coal producer and exporter. It owns and operates the Ulaan Khuduk (UHC) and Bannu-Huon (BHU) open cut mining coal fields located within the Tseljav (Tseljav) region in the South Gobi desert of Mongolia.

In June 2011, IMC acquired a 100% interest in Open Coal (OC) and subsequently merged subsidiary (Integrated Exploration LLC, the holder of mining license IMC 14482) for the Bannu-Huon coal deposit, from Bannu Mining. The Bannu-Huon license covers an area of 1,000 hectares and is valid for a period of 20 years until December 2030. IMC was granted a new mining license IMC 17228 on 24 June 2017 by the Mineral Resources Authority of Mongolia (MRA). The new license covers the western extension of the deposit over an area called Tseljav Khuduk (TKH), which is located entirely within IMC's current exploration license. It covers an area of 1,000 hectares and is valid for 20 years from the date of approval to approximately June 2040.

GloDEX Consulting (GDC) has been commissioned by IMC to complete an independent estimate, hereafter referred to as the 'Statement', of the Open Coal Coal Resources for the Bannu-Huon deposit. The Statement reports the Coal Resource as at 31 January 2018 and has been undertaken in compliance with the requirements of the reporting guidelines of the 2012 Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC Code). Detailed data, model and results in the 'GloDEX report' Statement of open pit coal resource as at 31 January 2018, Bannu-Huon Coal Deposit dated 28 February 2018.

Geological exploration at OC has identified a total Coal Resource of 227 Mt (as measured maximum estimate) of which 125 Mt is classified as Measured, 51 Mt as Indicated and 51 Mt as Inferred. Further drilling has identified a total Coal Resource of 1,100 Mt (as measured) in a depth of 100 m as reported under the Australian Code for Reporting of Mineral Resources and Ore Reserves 2012 Edition (The JORC Code 2012) for (Integrated Coal Ltd, IMC, June 2018). Coal quality studies have identified the presence of bituminous coal in the field, which is a high quality coal (thermal coal) suitable for the power sector. In December 2017, an eight-party agreement was signed between IMC and Bannu Mining on commercial agreement after coal reached UHC OHP.

It is noted that such work conducted at the UHC Coal Handling and Processing Plant from 2014 to 2016 and January 2018. A plan of work primarily comprised of UHC handling coal includes including 2A, 4A, 4B, 4C, 4D, and 4E, including 40-45% of the total coal mined. A summary of 2018 was composed of 14 Mt in the

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purpose of this test was to investigate a potential of blending Hsawen with the UHG HCC. During a test period ER team (geologists, process engineers, chemists, and quality assurance associates) carefully monitored a quality of the primary product, particularly for a product with an increased volatile matter. The result showed a minimum of 23.6%, maximum of 25.61%, average of 25% volatile matter below a required product specification.

The BN deposit is a moderate to steeply dipping high quality coal deposit, consisting predominantly of hard and semi-hard coking coal. BN mine production is conducted by utilizing conventional surface mining techniques with hydraulic excavators and trucks to exploit the complex and highly faulted coking and thermal coal deposit. First production commenced in December 2011 with a small-scale coal production of its higher quality H and I seams. Due to market downturn, MMC has suspended its operations at BN mine in 2013 and resumed its operations from October 2017. Fluctuations (FLOM) cumulated coal production of 1.4 Mt was reported by mine survey measurement until end of 2017. As such, the production activity between 2011 and 2017 has depleted the stated BN ROM Coal Reserve by 1.4 Mt, according to mine survey measurement, and is considered to impact no material change.

In line with studies reported previously by RangePhoscoMinerals (RPM), MMC has adopted strategy to blend BN coal with UHG coal prior to processing by its Coal Handling and Processing Plant located at UHG mine (UHG CHPP) and semi-hard coking coal seams from BN were identified as a suitable for blending with hard coking coal from UHG to deliver uniform washed hard-coking coal product. Thus H-seam coal bulk washing by blending with UHG coal was already conducted at the UHG CHPP during 2012 and after returning BN mine operations similar bulk test washing was undertaken during the period from 23 to 31 January, 2018.

A plant feed was primarily composed of UHG hard coking coal seams including 3A, 4A, 4B, 003, and 0B, making 80-90% of the in-feed coal blend. A remaining 10-20% was composed of H-seam. The purpose of this test was to investigate the potential of blending Hsawen with the UHG HCC. During the test period MMC's team (geologists, process engineers, chemists, and quality assurance associates) carefully monitored a quality of the primary product, particularly for a product with an increased volatile matter. The result showed a minimum of 23.6%, maximum of 25.61% and an average of 25% volatile matter on dry ash-free basis (daf) meeting a required product specifications.

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The reported data represents Mongolia Mining Corporation's and its wholly owned subsidiaries the Mongolian Coal Development Company's ownership of the project.

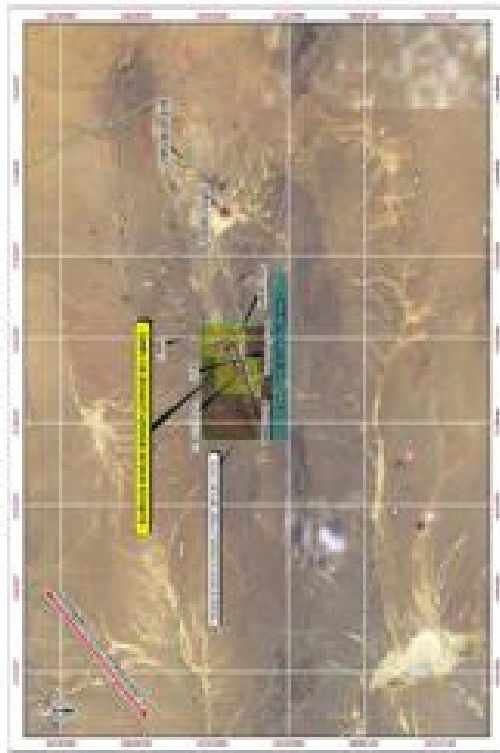
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3.2 Location and Titles

MMC's BN Project is located in southern Mongolia, (as shown in Figure 3-1) in the Aimag (province) of Uvsaigor approximately 500 km south of Ulaanbaatar, the capital of Mongolia. The town of Dalanzadgad (population 10,000), the provincial capital, is located approximately 80 km to the west of BN. BN is located approximately 20 km by road southwest of UHG and 20 km southwest of the Tavan Tolgoi operation. It is also located 150 km north of the Oyu Tolgoi copper/gold deposit.

The nearest Chinese border is located approximately 240 km to the south. The border is called Gashuan Subhai/Gashua Mada. Gashuan Subhai is the name of the Mongolian side of the border, and Gashua Mada is the name of a town on the Chinese side of the border. The site is located approximately 20 km by road west of Ulaan Khudag (UHG), an open pit coal mine also owned and operated by MMC.

Figure 3-1 Bursan narvan project location



In 2006, MMC was granted a mining license for the nearby UHG coking coal deposit. Waste mining for the hot coal commenced in October 2008 and coal mining commenced in April 2009. MMC acquired 100% interests in QGT Coal Ltd and its indirectly owned subsidiary Khongor Exploration LLC in June 2011. The

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holder of mining license M/14453 for the BH coking coal deposit. Mining commenced at the Project in December 2013. Energy Resources LLC, 80% subsidiary of MMC is responsible for operations of the BH site, with assistance under an alliance ship contract for mining and technical services with mining contractors Vekov Mining Partner LLC and UABPP LLC.

4. Geology, Coal quality and Coal Resource Estimate

4.1 Introduction

The BH coal deposit occurs to the west of the Tavan Tolgoi coalfield, which is in south-central Mongolia, within the Ulaanum Valley of the Gobi Desert. The deposit contains both coking and thermal grade coal.

Coal quality analysis has been conducted for BH to estimate density, moisture (for dried and total), raw ash, volatile matter, chlorine value, sulphur and CO₂ with G-indices analysed in composite samples. Coal quality in the BH Microzone block model supplied by MMC, which was provided on an as received basis with a weight average total moisture of 2.0%, include in situ density (g/cc), raw ash (%), total moisture (%), fixed carbon (%), chlorine value (ppm) and sulphur (%). When the model was converted to a Microzone ROM model (weight average total moisture was 2.55%. After Glogex converted Microzone ROM model into White ROM model, a weight average total moisture of 2.55%.

The most variable feature within the deposit is ash, which ranged from approximately 15% to 55% in the Micro ROM model with an overall weight average ROM ash for all seams at 42%. Ash content was higher in the original in situ model, however MMC incorporated a maximum ash cut-off at 55% (bit) when generating the BH Resource model. The ROM model has higher ash content than the Resource model however, due to the application of seam aggregation and losses and dilution, which adjusts the model to include partings and dilution with default ROM ash content of 31.96% (w).

Geological exploration at BH has identified a total Coal Resource of 227 Mt (as received moisture basis) of which 251 Mt is classified as Measured, 51 Mt as Indicated and 25 as Inferred. Tradether Consulting has identified a total Coal Resource (T3 Mt inferred) to a depth of 400 m as specified under the Australian Code for Reporting of Mineral Resources and Ore Reserves 2012 Edition ("The JORC Code 2012") (see Lithology-Outer Coal, MMC, June 2015). Coal quality studies have identified the potential to produce semi-hard coking, semi-soft coking and thermal coal products.

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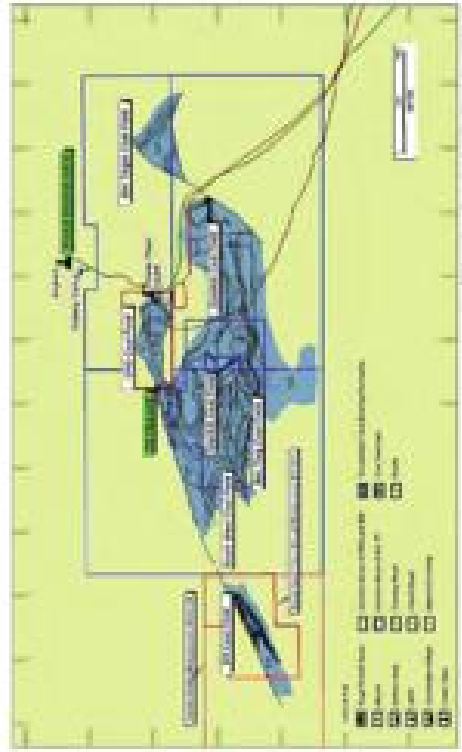
The report has been prepared by Tradether Consulting and has been used to develop and submit the BH mine plan. Additional details are available in the full report.

4.2 Geology Overview

"JORC Standard Resource Estimation Report for the Barun Naur Coal Mine" (MMC, June 2015) provides a comprehensive summary of the geology at BH and regionally. The following summary is based upon extracts from this report.

BH consists of 2 mining licenses, BH mining license (144501A) (1455.65 hectares), and THC mining license (M/0177203) (8240.01 hectares). Both licenses are valid for 30 years and can be extended twice more for 20 years each (BH) occurs within an Upper Permian clastic sedimentary unit known as the Tavan Tolgoi (TT) formation. The same formation also hosts the large TT coking and thermal coal deposit. An east-northeast trending belt of TT formation crops out in the Barun Naur valley representing the western continuation of the Ulaan Naur coal basin. The Ulaan Naur basin is an asymmetrical fault bounded east-northeast trending syncline, with a very steep northern limb (overturned in part) and more gently dipping southern limb. In addition to this folding of the coal bearing strata, seams are truncated by faults in the north, west and south west. Deformation of Permian sediments occurred during the early Mesozoic era. Basement rocks are Carboniferous age on the northern margin of the valley and Devonian in the southern limb. The earliest deposited coal seams are lens sedimentary and on top onto other basement rocks.

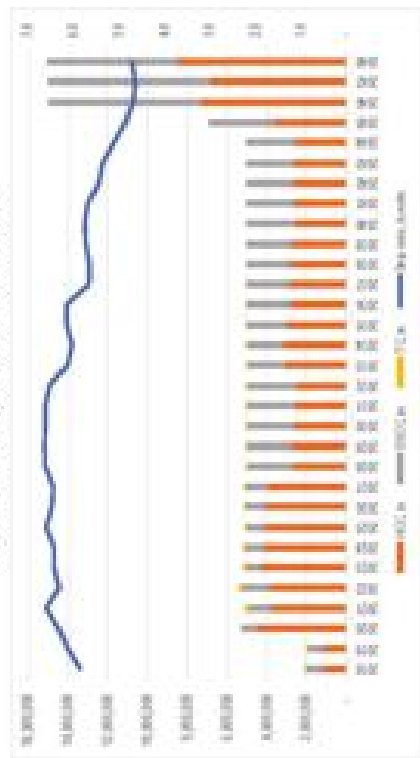
Figure 4-1. Regional geology



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The report has been prepared by Tradether Consulting and has been used to develop and submit the BH mine plan. Additional details are available in the full report.

Graph 3-1: BM ROM coal quantity and scheduling



Source: BM LCM Study, February 2016 By GLGEX

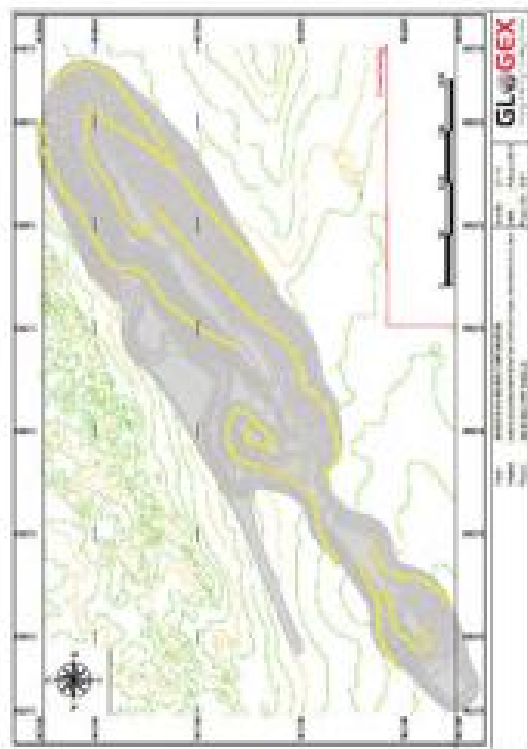


Figure 3-1: Final PM Design

The Competent Person for the Coal Reserves Statement conducted a site visit in February 2017 and again in January 2018. The completed person believes a further site visit was warranted in 2018, as based upon review of the latest mining survey data and production results, it was determined that site conditions had materially changed with mining progress that had occurred since the site visit of February 2017.

3.3 Geotechnical Criteria

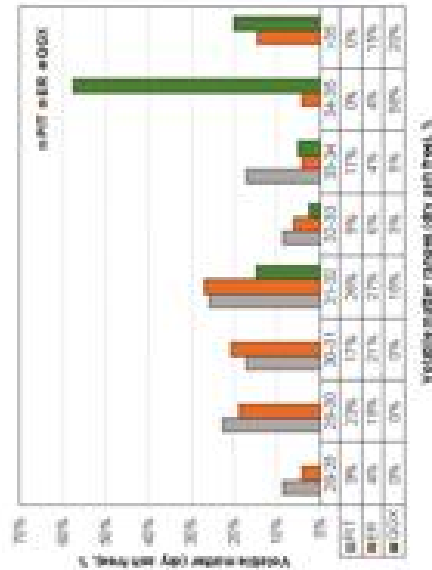
The slope design criteria was recommended by Australian Mining Consultants (AMC) as part of its geotechnical assessment with overall pit wall slopes of between 30° and 45°.

- West pit High wall (north) 45°
- West pit Low wall (South) 30°
- East pit High wall (north) 30°
- East pit Low wall (South) 30°
- East Wall (north) 30°
- East wall (south) 35°

3.3.1 Geotechnical Criteria

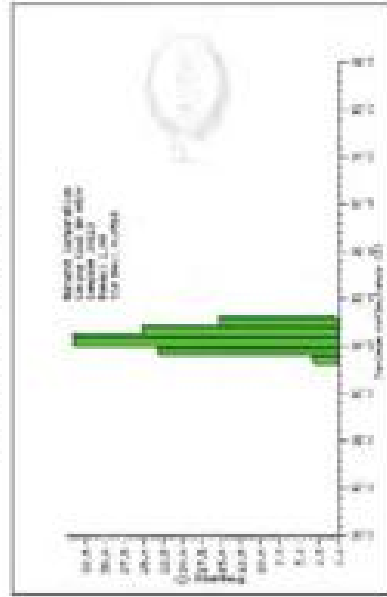
The report has been prepared in accordance with the requirements and best practice in the industry and is not a guarantee of the coal resources.

Figure 5.2. Volatile matter comparison



Aside from technical analysis, petrographic characteristics of the coal seams was tested and it showed H seam with an average 1.04 mean maximum volatile reflectance (Figure 5.2). A combination volatile matter and petrographic characteristics suggested a potential of H seam at least partially being classified as a hard caking coal. Therefore, arguably H seam can be partially blended with hard-caking coal seams of the UHG due to their closely associated ranks.

Figure 5.3. H seam volatile reflectance



H seam test work was conducted at the UHG Coal Handling and Processing Plant from 29th to 31st of January, 2016. A plant feed was primarily composed of UHG hard-caking coal seams including 3A, 4A, 4B, OQ, and H, making 80-90% of the selected coal blend. A remaining 10-20% was composed of H seam. The purpose of this test was to investigate a potential of blending H seam with the UHG HCO. During a test period ER tests (grainlets, process engineering, chemistry, and quality assurance associated) carefully monitored a quality of the primary product, particularly for a product with an increased volatile matter. The result showed minimum of 20-50%, maximum of 25-30%, average of 25% volatile matter before a required product specification.

The Normal 7500 Ash – Yield curves required to achieve caking product specification was at a cut-point density of 1.40. As the thermal coal will not be processed. These curves defined the coal product calculations incorporated into the final Whole Pit Optimiser and which the final SPH pit shed design was based upon.

Table B-6: Coding Cost / RCMA Add = Total / Service (Block Plant) - LAR (Coal-Fired (Dewey))

Item	Coding Parameters		Revised Rate PS/mwh	Revised Rate
	Initial Add - Total Basis	Project/Rate PS/mwh		
Segment V	$0.0778 \times \text{RCMA/mwh} + 0.0288$	PS	PS	Segment V
Segment U	$0.065 \times \text{RCMA/mwh} + 0.0235$	PS	PS	Segment U
Segment T	$0.0008 \times \text{RCMA/mwh} + 0.0001$	PS	PS	Segment T
Segment R	$0.0134 \times \text{RCMA/mwh} + 0.0079$	PS	PS	Segment R
Segment Q	$0.0127 \times \text{RCMA/mwh} + 0.0033$	PS	PS	Segment Q
Segment M	$0.0127 \times \text{RCMA/mwh} + 0.0098$	PS	PS	Segment M
Segment K	$0.0123 \times \text{RCMA/mwh} + 0.0033$	PS	PS	Segment K
Segment J	$0.0111 \times \text{RCMA/mwh} + 0.0257$	PS	PS	Segment J
Segment I	$0.0129 \times \text{RCMA/mwh} + 0.0034$	PS	PS	Segment I
Segment H	$0.0039 \times \text{RCMA/mwh} + 0.0031$	PS	PS	Segment H
Segment F	$0.0074 \times \text{RCMA/mwh} + 0.0280$	PS	PS	Segment F
Segment E	$0.0074 \times \text{RCMA/mwh} + 0.0380$	PS	PS	Segment E
Segment D	$0.0145 \times \text{RCMA/mwh} + 0.0087$	PS	PS	Segment D

(Source: Internal)

Table B-7: Additions Cost / RCMA Add = Total / Service (All Coal-Fired (Dewey))

Item	Secondary Additions (Revised)		Revised Rate PS/mwh
	RCMA/mwh - Total Cost		
Segment V	$0.0001 \times \text{RCMA/mwh} + 0.0034$		PS
Segment U	$0.0001 \times \text{RCMA/mwh} + 0.0035$		PS
Segment T	$0.0001 \times \text{RCMA/mwh} + 0.0036$		PS
Segment R	$0.0001 \times \text{RCMA/mwh} + 0.0041$		PS
Segment Q	$0.0001 \times \text{RCMA/mwh} + 0.0038$		PS
Segment M	$0.0001 \times \text{RCMA/mwh} + 0.0037$		PS
Segment K	$0.0001 \times \text{RCMA/mwh} + 0.0044$		PS
Segment J	$0.0001 \times \text{RCMA/mwh} + 0.0039$		PS
Segment I	$0.0001 \times \text{RCMA/mwh} + 0.0046$		PS
Segment H	$0.0002 \times \text{RCMA/mwh} + 0.0035$		PS
Segment F	$0.0004 \times \text{RCMA/mwh} + 0.0031$		PS
Segment E	$0.0004 \times \text{RCMA/mwh} + 0.0034$		PS
Segment D	$0.0009 \times \text{RCMA/mwh} + 0.0039$		PS

Revised rates are based on the following parameters:

- In July 2016, the rate was adjusted.
- Product / thermal - no adjustment.
- Product / HCC (coding) PS.
- Product / SBC (coding) PS.
- Product / Additions PS (based on the revised rate of coding)

U.S. Coal Parameters

The mining, loading, processing, handling, transportation, sequestration, storage, and disposal of coal changes costs were adjusted from an actual cost incurred in 2017, year to date (U.S. Department of Energy 2017) to a revised rate of \$0.0035 per kWh. Coal and waste mining cost is based on a revised rate of \$0.0035 per kWh. The revised rate of \$0.0035 per kWh is based on the revised rate of \$0.0035 per kWh.

services: Coal handling, processing and transportation cost of ENL-UEG and UHG-DM port is based on coal transportation service agreement price between Energy Resources and Khongal Exploration LLC.

The input costs are summarized in Table 5.5

Table 5.5. PM Optimization Input Costs

Item	Unit	Rate
Coal Mining cost	USD/tBCH	2.51
Coal Mining cost vertical	USD/tBCH	0.00887
Waste mining cost	USD/tBCH	2.51
Waste mining cost vertical	USD/tBCH	0.00700
Air pollution fee	USD/tBCH	0.42
Coal handling and processing cost	USD/tBCH	6.35
Administration cost	USD/tBCH	1.00
Transportation cost (BNU-UEG)	USD/tBCH	1.04
Transportation and logistic cost (UEG-DM)	USD/t product	4.06
Custom duty (at DM port)	USD/t product	0.64

5.7 Marketing and Revenue Parameters

MMC is the closest coking coal producer in Enkhov in Inner Mongolia, which is the closest railway transportation hub providing access from Mongolia to the largest steel producing provinces in China. In December 2017, Shanshi Fenwei completed an independent market study for both UHG, BNU and identified principal coking and thermal coal markets 2016-2022 in Mongolia and China.

Coal historical price and benchmark price forecast (DAF Gangsuoobu port, China)

Unit	2016**	2017**	2018**	2019**	2020**	2021**	2022**	Average	Rate
MMC-MH+HCC	65.8	133.5	145.7	140.0	134.4	130.6	125.8	132.2	average 2016-2022
MMC-IGM+POG	114.2	80.9	80.9	80.9	80.9	80.1	80.1	80.8	average 2016-2022
MMC-6000caking	11.5	11.2	87.4	41.0	40.8	39.8	39.0	41.8	average 2016-2022
MMC-5000caking		20.8	21.0	20.2	20.5	20.8	20.8	20.8	average 2016-2022

Note: **MMC actual price provided by MMC. **Price forecast by Fenwei Energy

DAF prices coal quality of MMC coals at Gangsuoobu (near) stations duty, VAT and prices prior to inspection)

MMC product	MMC-MH	MMC-IGM	MMC-6000caking	MMC-5000caking	DAF	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ
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Source: Fenwei Energy

The coal selling prices for Hard Coking Coal were estimated based on 7 years average of 2016-2017 historical prices and price forecast 2018-2022, as provided to MMC by Shanshi Fenwei Energy Consulting Co Ltd ("Shanshi Fenwei") product value at the DAF Gangsuoobu port of China.

The coal selling prices for Semi-soft coking coal, Middlings coal and Thermal coal were estimated based on 9 year average of price forecast 2016-2022, as provided to MMC by Shanshi Fenwei Energy Consulting Co Ltd ("Shanshi Fenwei") product value at the DAF Gangsuoobu port of China.

The coal selling prices assigned to each product, were

- Hard coking coal < 10.5% ash (ad): USD102.28 product (ad)
- Semi-soft coking coal < 0.5% ash (ad): USD104.54 product (ad)
- Middlings coal - benchmark CV 6,000 kcal/kg (ad): USD41.81 product (ad)
- Thermal coal - benchmark CV 4,000 kcal/kg (ad): USD39.88 product (ad)

The royalty provided by MMC was assigned as a percentage of revenue generated by the product coal

Graph 5-3. Pit Optimisation - Coal Price Sensitivity (Movable pit shell)

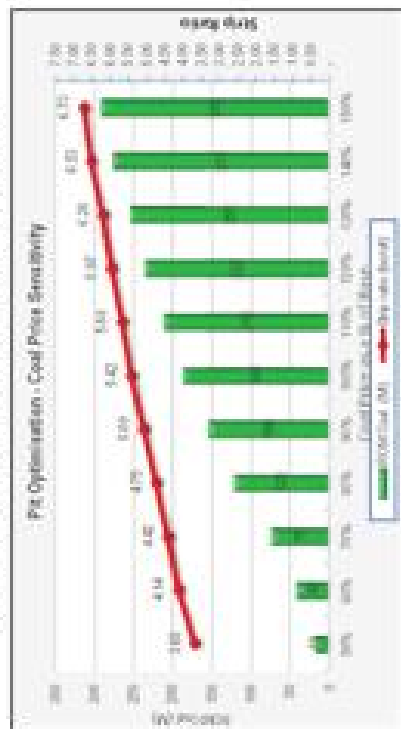


Figure 5-4 Optimised Pit Shell

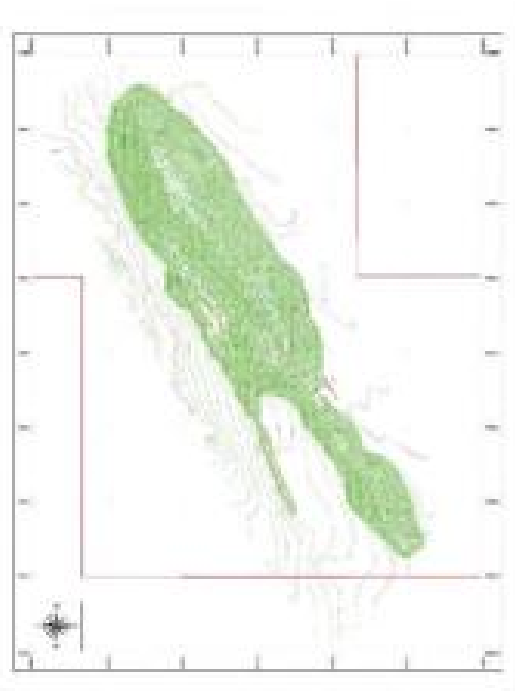
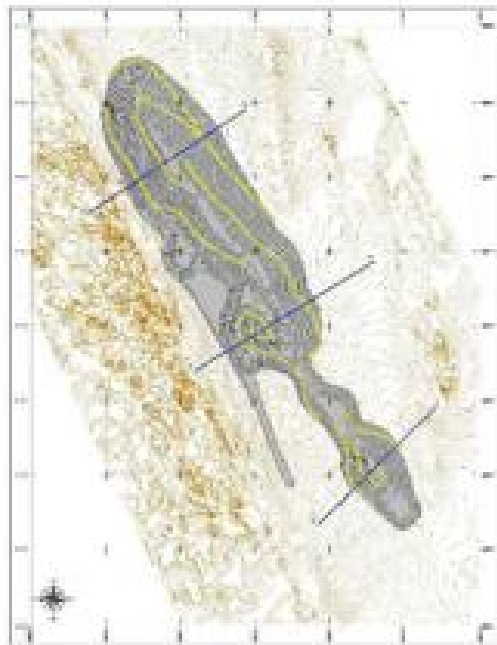


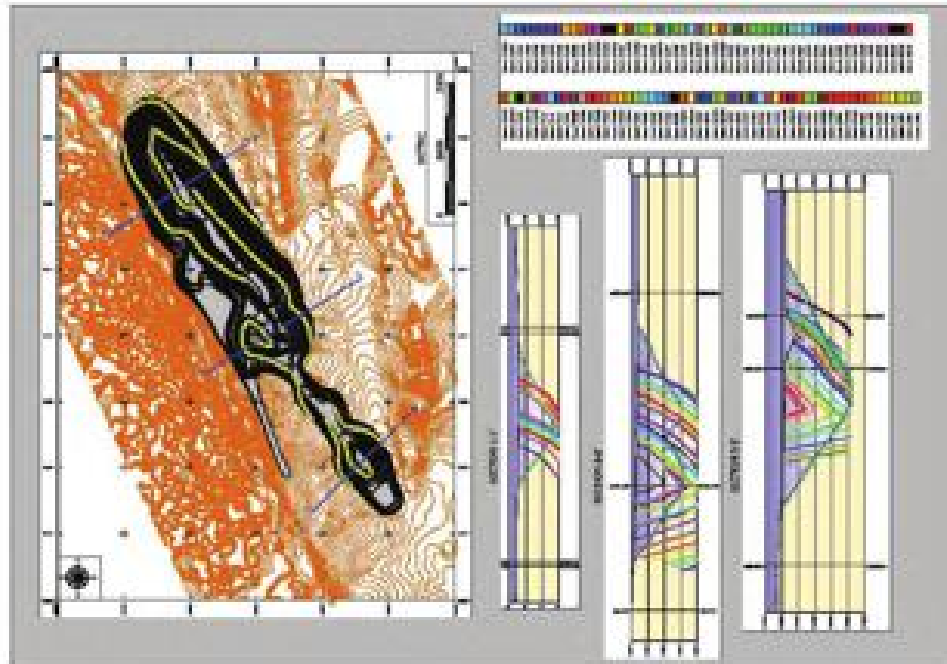
Figure 5-5. Movable Pit Design (Mining)



Graph 5-7. Factors Influencing Pit Optimisation results (for ROM Coal)



Figure 3.6, PG Design - cross section



GLG-0000000000000000

The report has been prepared by the company's Mining Geologists and is not intended to be used as a basis for making any decisions or taking any action.

3.3. Classification

Measured and Indicated Coal Reserves within the Mineable Pit Shells were classified as Coal Reserves. Figure 5.1 to Figure 5.14 contained in Appendix A illustrates the Measured and Indicated Reserves polygons for the majority within each main group of BR within the boundary of the Mineable Pit Design.

Coal Reserves have been classified based on the confidence of the Coal Reserves and the level of detail in the mine planning. Measured Reserves within the pit shells have been classified as Proved Reserves. All Indicated Reserves have been classified as Probable Reserves. While Inferred Reserves were assigned revenue in the BR LDM Study pit optimiser to generate and define the Mineable Pit Shells, no Inferred Reserves have been reported as Reserves in this statement.

3.10. Audits and Reviews

The JORC Code (2012) provides guidelines which set out minimum standards, recommendations and guidelines for the Public Reporting of exploration results, Mineral Reserves and Ore Reserves. Within the code is a 'Checklist of Assessment and Reporting Criteria' (Table 1 - JORC Code), encompassing Section 1 - Sampling Techniques and Data, Section 2 - Reporting Exploration Results, Section 3 - Estimation and Reporting of Mineral Reserves, and Section 4 - Estimation and Reporting of Ore Reserves.

Sections 1, 2 and 3 of Table 1 have been extracted from the Coal Resource report (JORC (2012) Standard Resource Estimation (Brunau North Coal Mine Licence M40034), MMC, June 2015) which describes in full detail the source of the Resource estimate used for the Reserve estimate.

The CP (Reviewed) has previously discussed the Resource estimate with the CP (Reserves) and is satisfied that Sections 1, 2 and 3 have been appropriately considered in the Reserve estimate. Those sections are attached to this Reserve Statement as Appendix B, C, and D respectively. Section 4 of Table 1, completed by the CP (Reviewed), is attached to Appendix E.

3.11. Results

The Proved Open Cut Coal Reserves for BRs of 164.4 Mt are shown in Table 5.8, the Probable Open Cut Coal Reserves of 62.4 Mt are shown in Table 5.9 and the Total Open Cut Coal reserves of 326.8 Mt are shown in Table 5.10. The Proved, Probable and Total Coal Reserves are also shown by major seam group in the tables.

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The report has been prepared by the company's Mining Geologists and is not intended to be used as a basis for making any decisions or taking any action.

Table 3.4 Annual Open Cut Coal Reserves by Seam

Seam	Proved reserve		Approx. reserve remaining
	#(Mm Cu) (M)	Time (years)	
A	0	0	0
B	0	0	0
C	0	0	0
D	0	0	0
E	0	0	0
F	0	0	0
G	0	0	0
H	0	0	0
I	0	0	0
J	0	0	0
K	0	0	0
L	0	0	0
M	0	0	0
N	0	0	0
O	0	0	0
P	0	0	0
Q	0	0	0
R	0	0	0
S	0	0	0
T	0	0	0
U	0	0	0
V	0	0	0
W	0	0	0
X	0	0	0
Y	0	0	0
Z	0	0	0
TOTAL	0	0	0

GL#GEX

Table 3.4 Annual Open Cut Coal Reserves by Seam

Table 3.5 Annual Open Cut Coal Reserves by Seam

Seam	Proved reserve		Approx. reserve remaining
	#(Mm Cu) (M)	Time (years)	
A	0	0	0
B	0	0	0
C	0	0	0
D	0	0	0
E	0	0	0
F	0	0	0
G	0	0	0
H	0	0	0
I	0	0	0
J	0	0	0
K	0	0	0
L	0	0	0
M	0	0	0
N	0	0	0
O	0	0	0
P	0	0	0
Q	0	0	0
R	0	0	0
S	0	0	0
T	0	0	0
U	0	0	0
V	0	0	0
W	0	0	0
X	0	0	0
Y	0	0	0
Z	0	0	0
TOTAL	0	0	0

GL#GEX

Table 3.5 Annual Open Cut Coal Reserves by Seam

Table 5.16: Total Open Cell Cores Reserves by Size

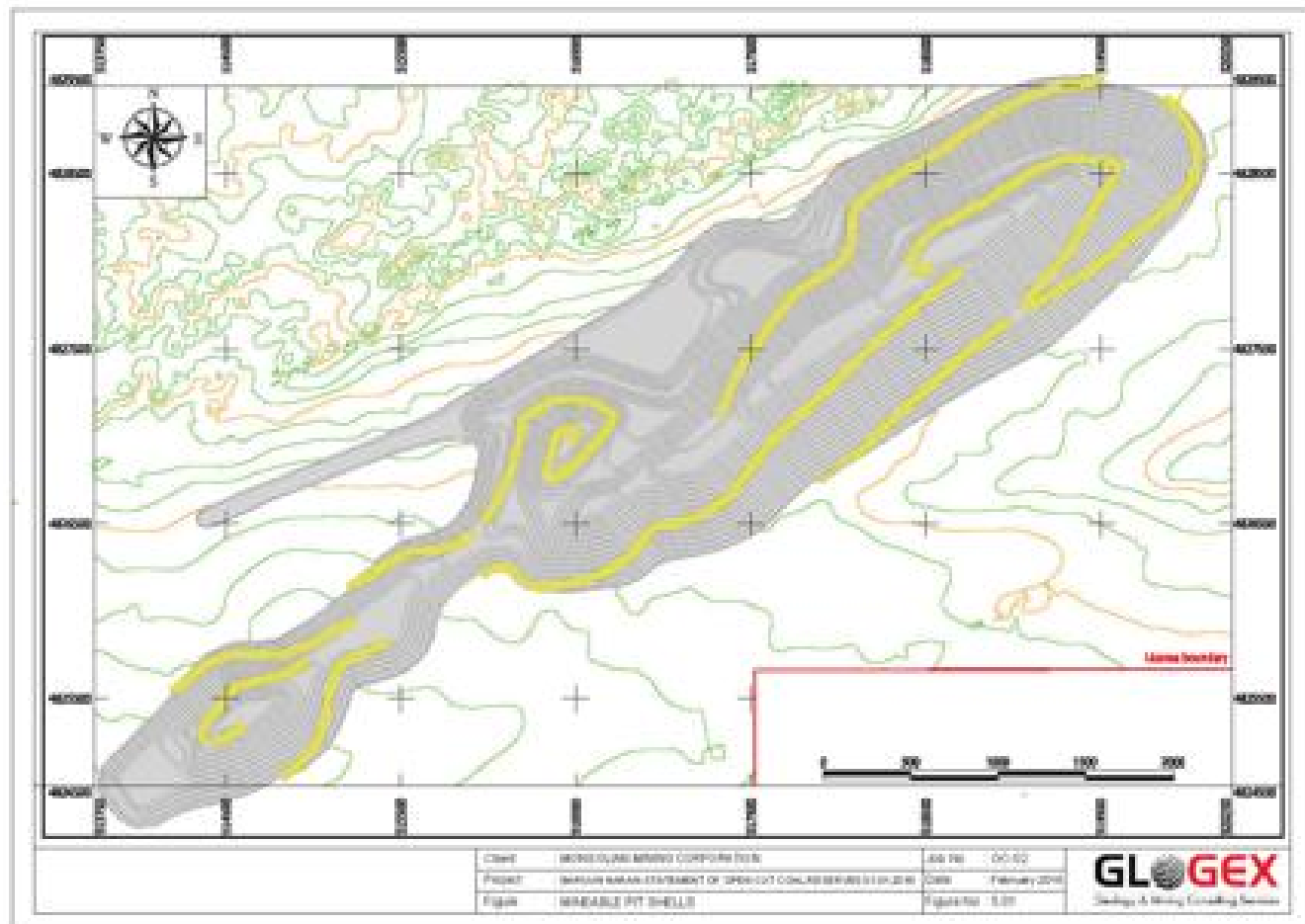
Open Cell Cores Reserves by Size (Percent of Reserves)				
Size	Open Cell (ft)	Total Minimum	Attn (%)	Calculated Value (ft)
1	1.0	1.0	1.0	1.0
2	2.0	2.0	2.0	2.0
3	3.0	3.0	3.0	3.0
4	4.0	4.0	4.0	4.0
5	5.0	5.0	5.0	5.0
6	6.0	6.0	6.0	6.0
7	7.0	7.0	7.0	7.0
8	8.0	8.0	8.0	8.0
9	9.0	9.0	9.0	9.0
10	10.0	10.0	10.0	10.0
11	11.0	11.0	11.0	11.0
12	12.0	12.0	12.0	12.0
13	13.0	13.0	13.0	13.0
14	14.0	14.0	14.0	14.0
15	15.0	15.0	15.0	15.0
16	16.0	16.0	16.0	16.0
17	17.0	17.0	17.0	17.0
18	18.0	18.0	18.0	18.0
19	19.0	19.0	19.0	19.0
20	20.0	20.0	20.0	20.0
21	21.0	21.0	21.0	21.0
22	22.0	22.0	22.0	22.0
23	23.0	23.0	23.0	23.0
24	24.0	24.0	24.0	24.0
25	25.0	25.0	25.0	25.0
26	26.0	26.0	26.0	26.0
27	27.0	27.0	27.0	27.0
28	28.0	28.0	28.0	28.0
29	29.0	29.0	29.0	29.0
30	30.0	30.0	30.0	30.0
31	31.0	31.0	31.0	31.0
32	32.0	32.0	32.0	32.0
33	33.0	33.0	33.0	33.0
34	34.0	34.0	34.0	34.0
35	35.0	35.0	35.0	35.0
36	36.0	36.0	36.0	36.0
37	37.0	37.0	37.0	37.0
38	38.0	38.0	38.0	38.0
39	39.0	39.0	39.0	39.0
40	40.0	40.0	40.0	40.0
41	41.0	41.0	41.0	41.0
42	42.0	42.0	42.0	42.0
43	43.0	43.0	43.0	43.0
44	44.0	44.0	44.0	44.0
45	45.0	45.0	45.0	45.0
46	46.0	46.0	46.0	46.0
47	47.0	47.0	47.0	47.0
48	48.0	48.0	48.0	48.0
49	49.0	49.0	49.0	49.0
50	50.0	50.0	50.0	50.0
51	51.0	51.0	51.0	51.0
52	52.0	52.0	52.0	52.0
53	53.0	53.0	53.0	53.0
54	54.0	54.0	54.0	54.0
55	55.0	55.0	55.0	55.0
56	56.0	56.0	56.0	56.0
57	57.0	57.0	57.0	57.0
58	58.0	58.0	58.0	58.0
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60	60.0	60.0	60.0	60.0
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62	62.0	62.0	62.0	62.0
63	63.0	63.0	63.0	63.0
64	64.0	64.0	64.0	64.0
65	65.0	65.0	65.0	65.0
66	66.0	66.0	66.0	66.0
67	67.0	67.0	67.0	67.0
68	68.0	68.0	68.0	68.0
69	69.0	69.0	69.0	69.0
70	70.0	70.0	70.0	70.0
71	71.0	71.0	71.0	71.0
72	72.0	72.0	72.0	72.0
73	73.0	73.0	73.0	73.0
74	74.0	74.0	74.0	74.0
75	75.0	75.0	75.0	75.0
76	76.0	76.0	76.0	76.0
77	77.0	77.0	77.0	77.0
78	78.0	78.0	78.0	78.0
79	79.0	79.0	79.0	79.0
80	80.0	80.0	80.0	80.0
81	81.0	81.0	81.0	81.0
82	82.0	82.0	82.0	82.0
83	83.0	83.0	83.0	83.0
84	84.0	84.0	84.0	84.0
85	85.0	85.0	85.0	85.0
86	86.0	86.0	86.0	86.0
87	87.0	87.0	87.0	87.0
88	88.0	88.0	88.0	88.0
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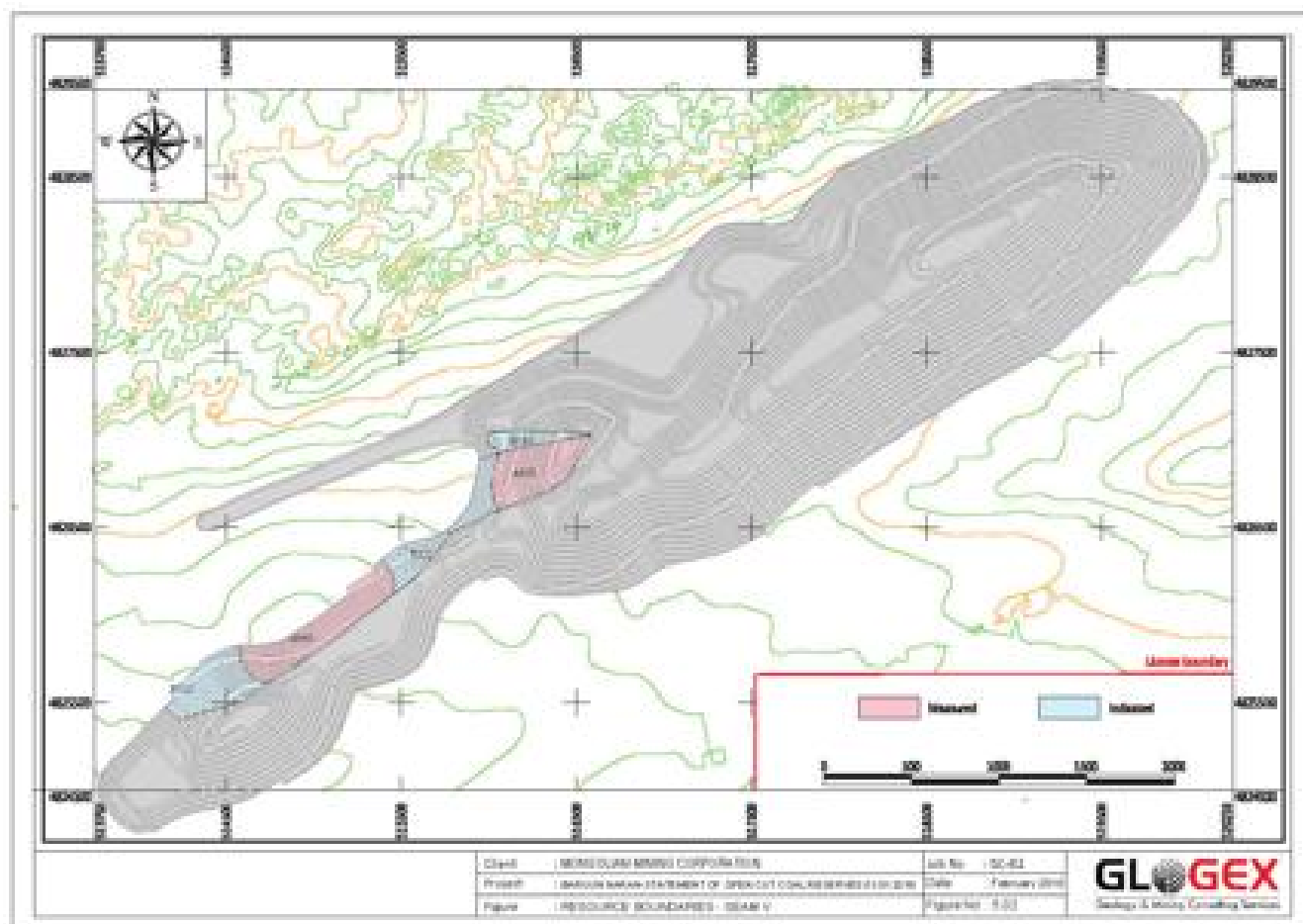
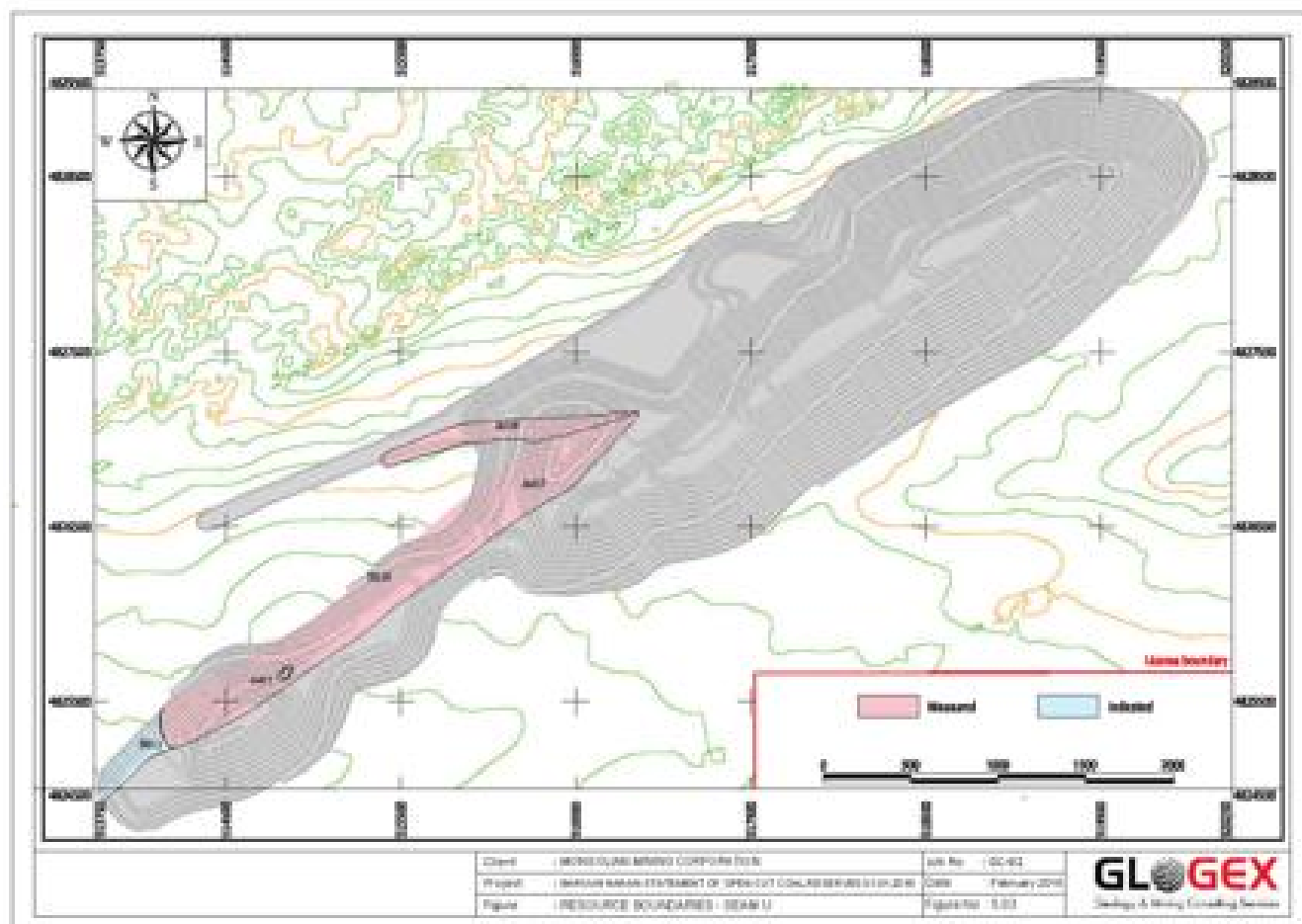
Appendix A – Resource Polygons

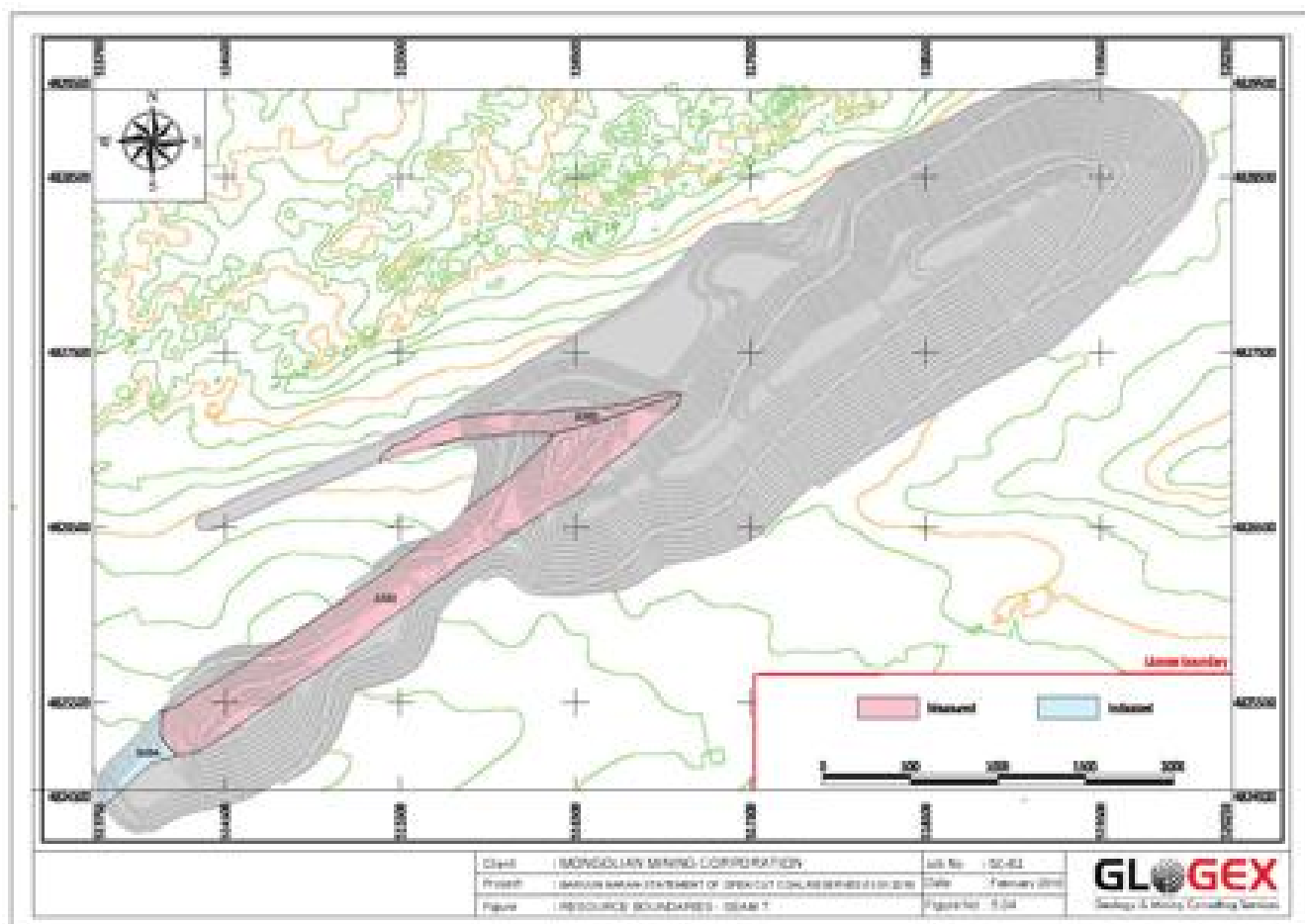
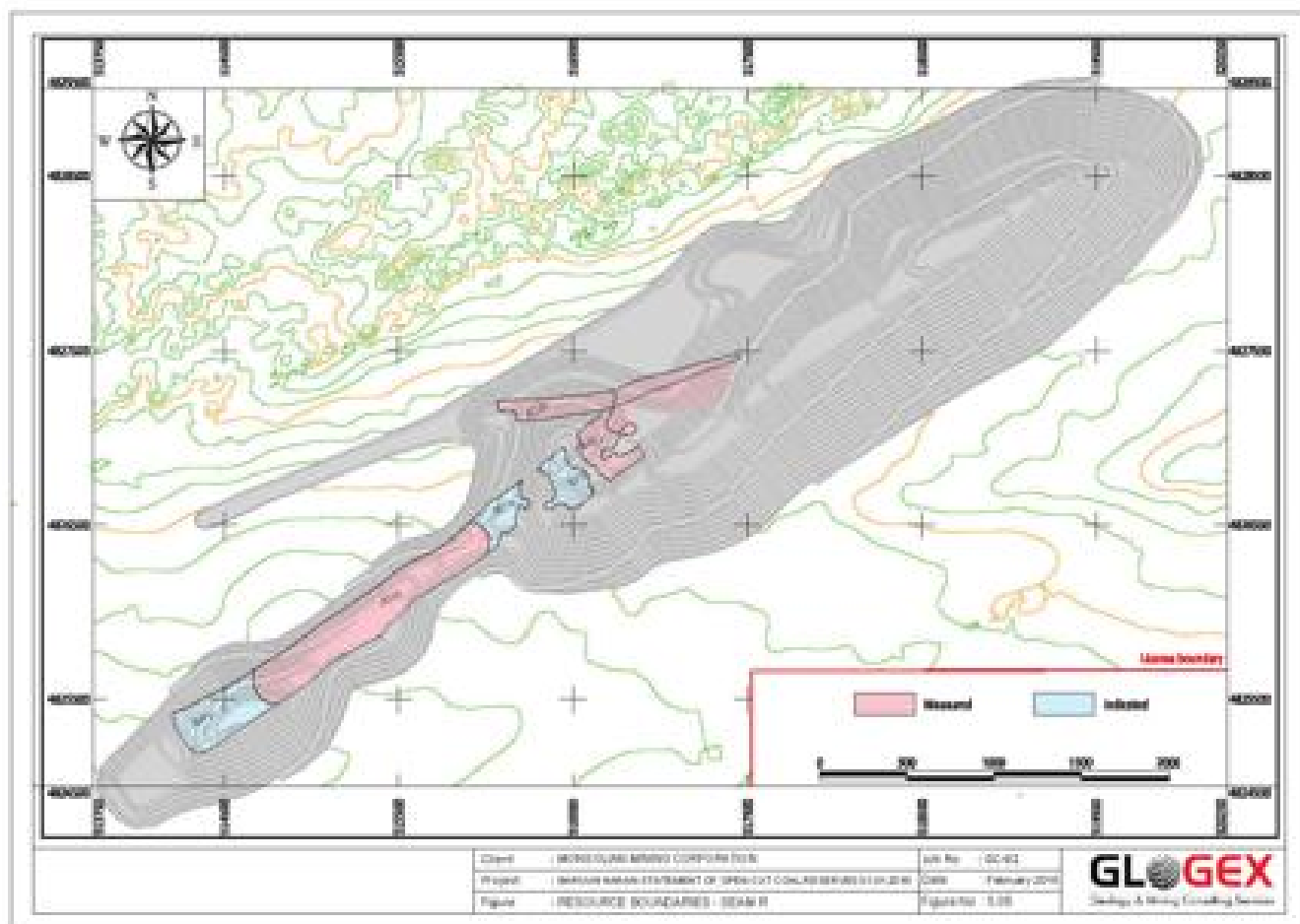
Measured and Indicated Resource Polygons for the major pit or pits within each Section Group at BNC.

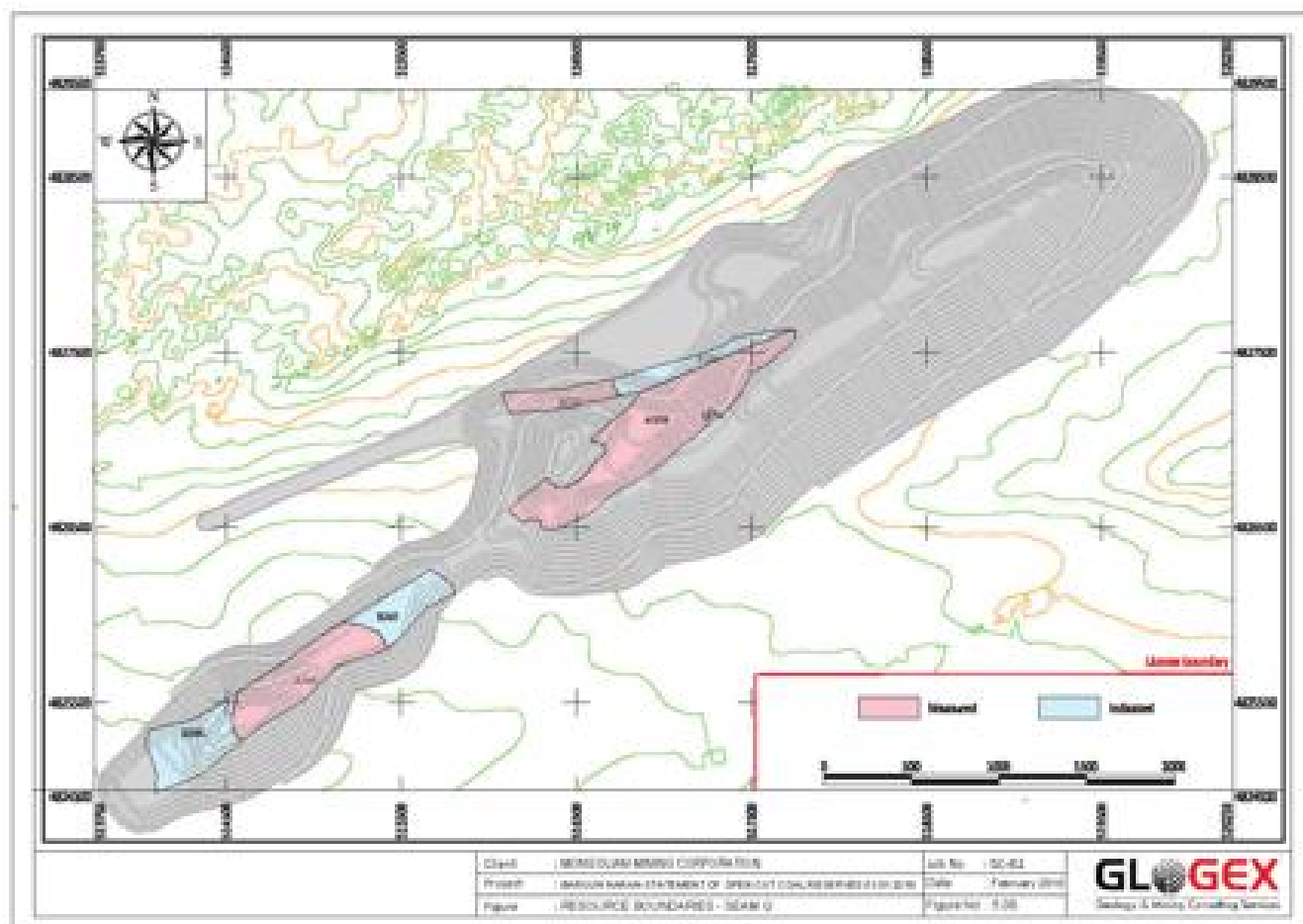
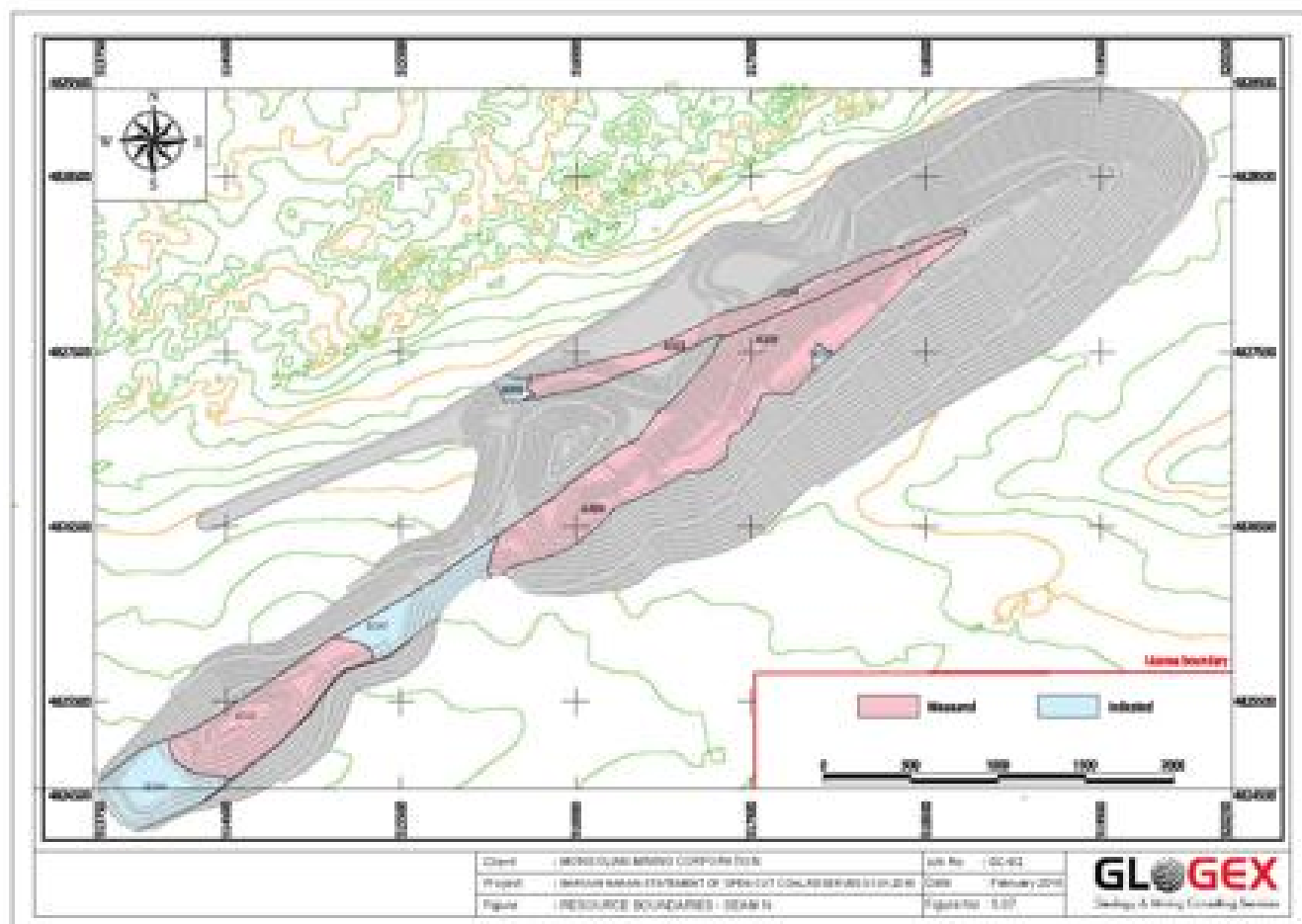
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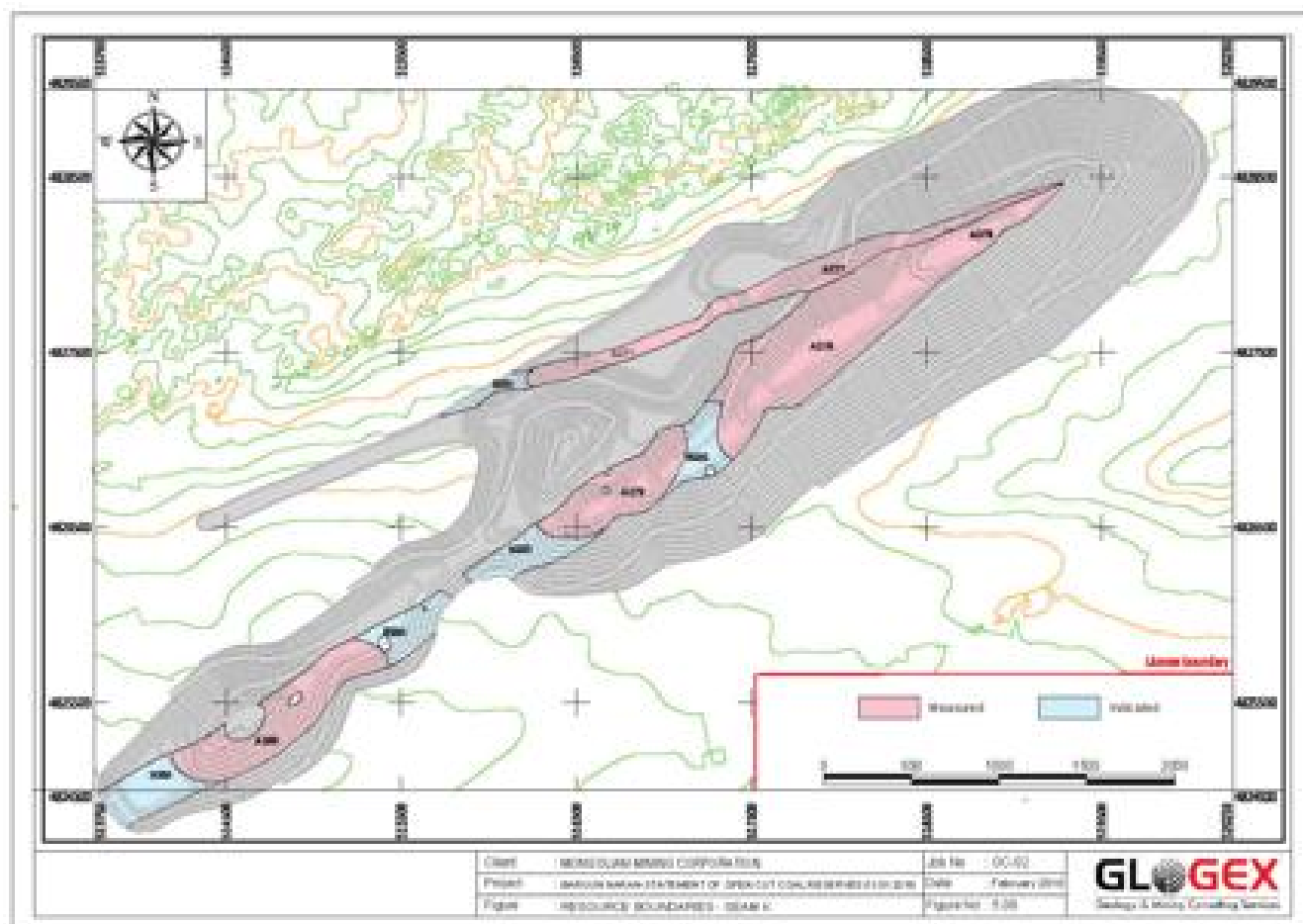
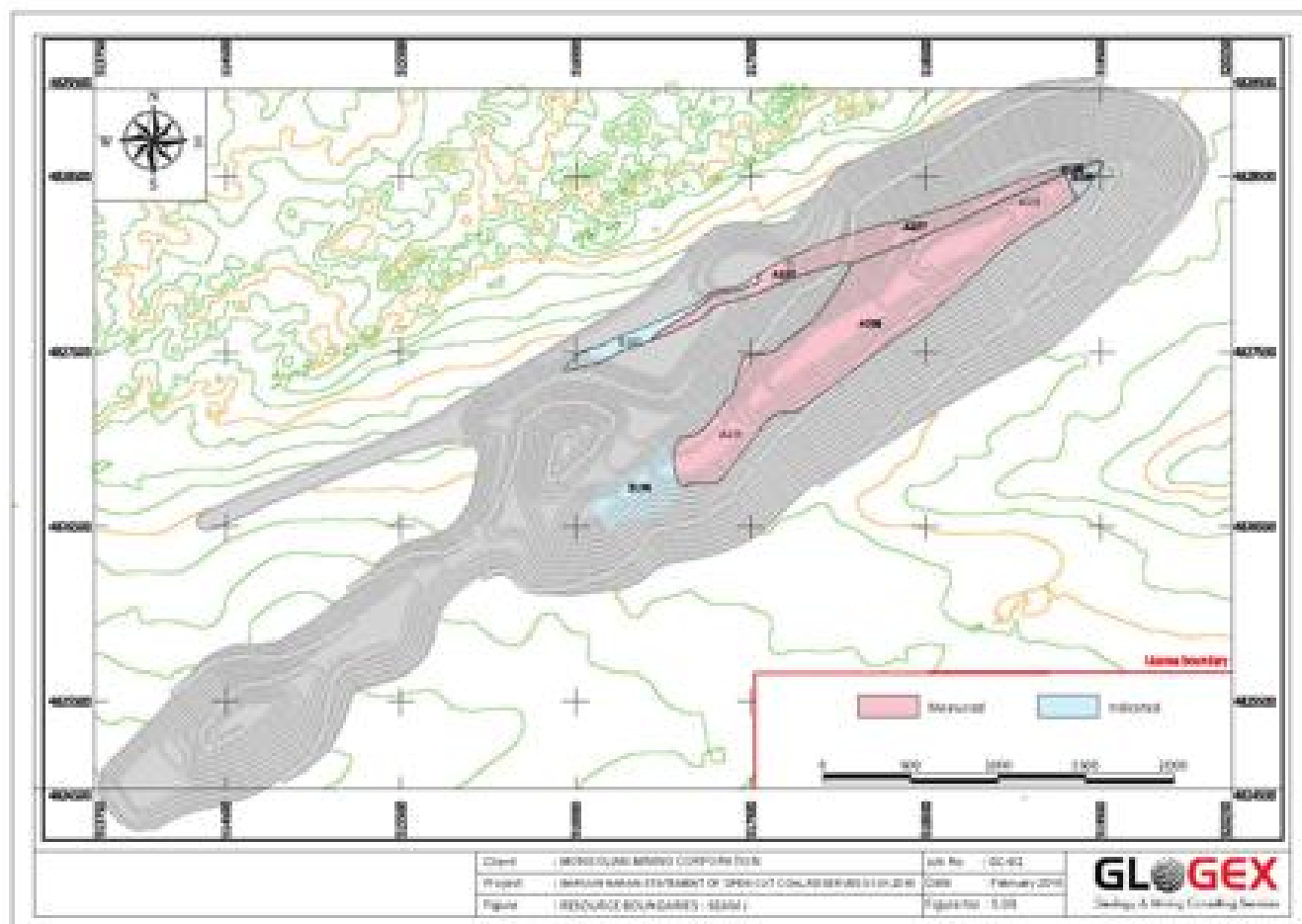
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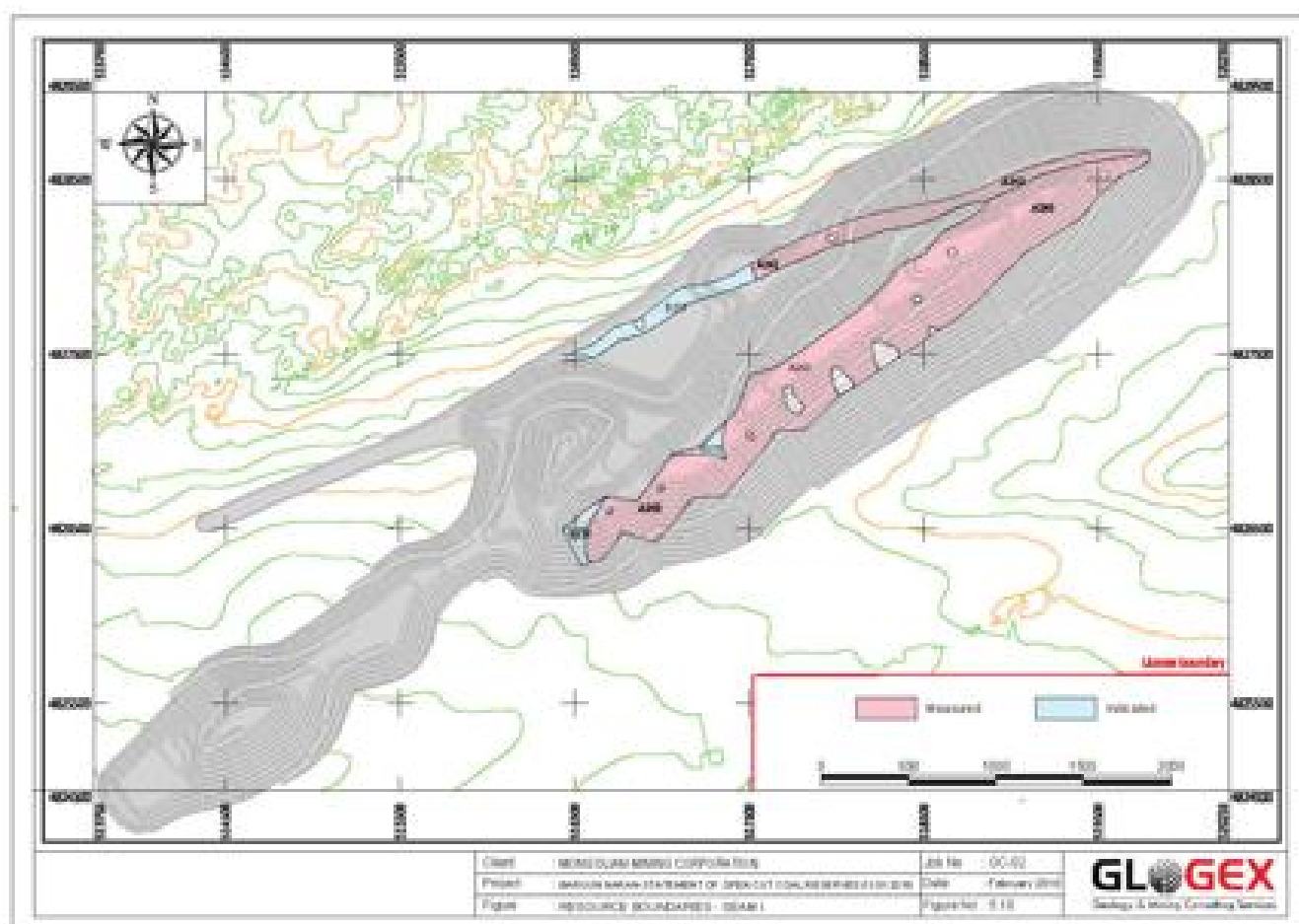
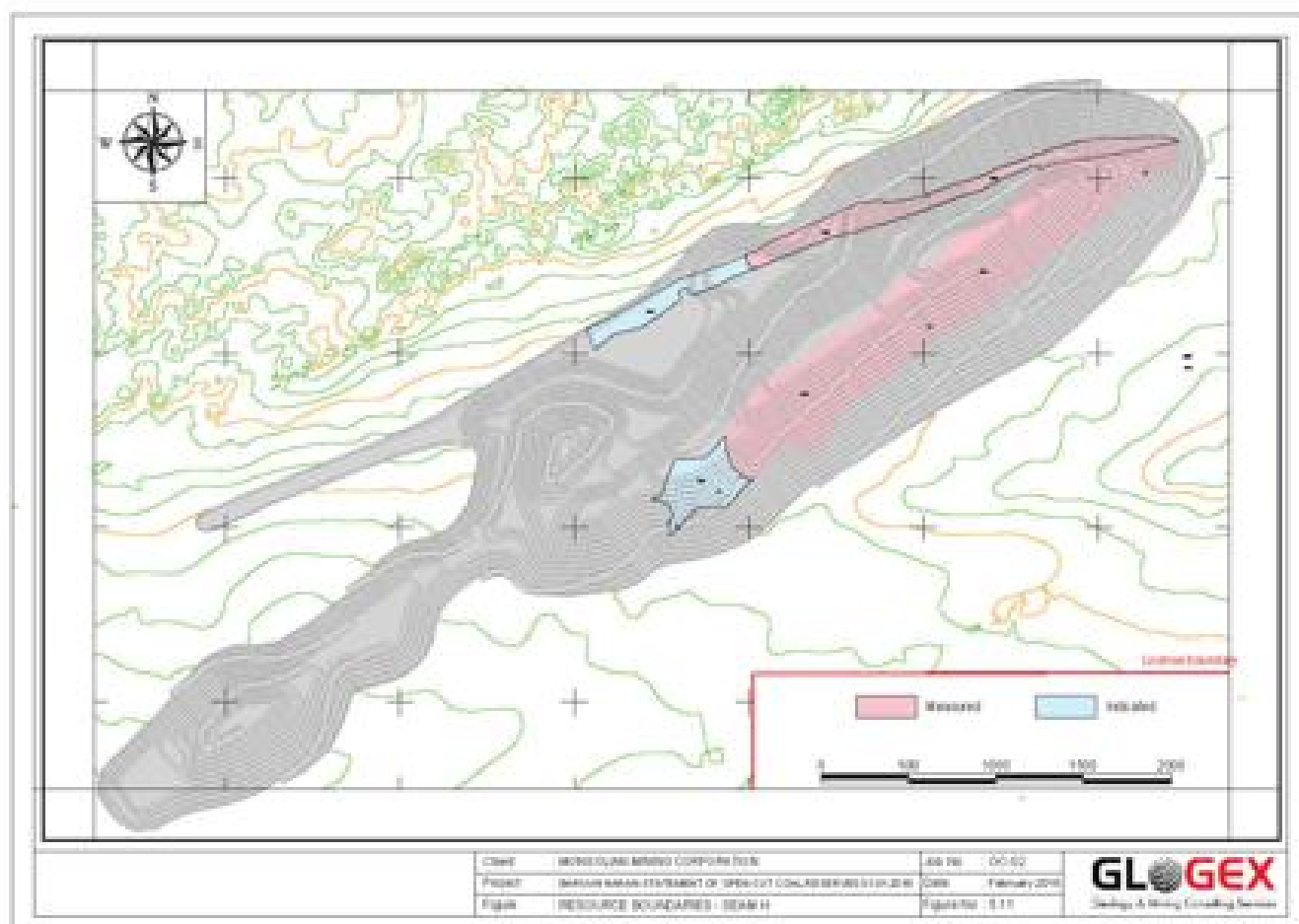


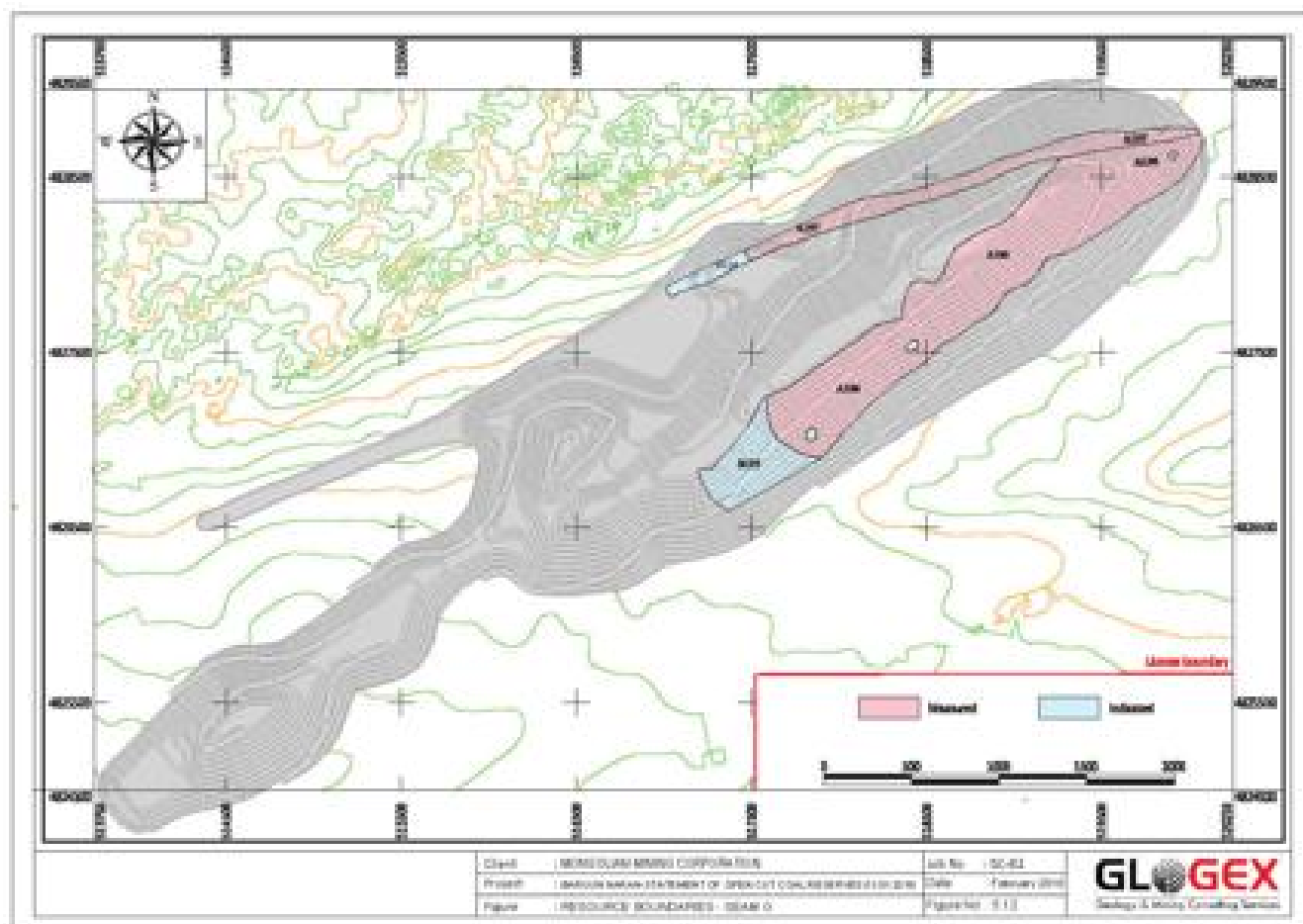
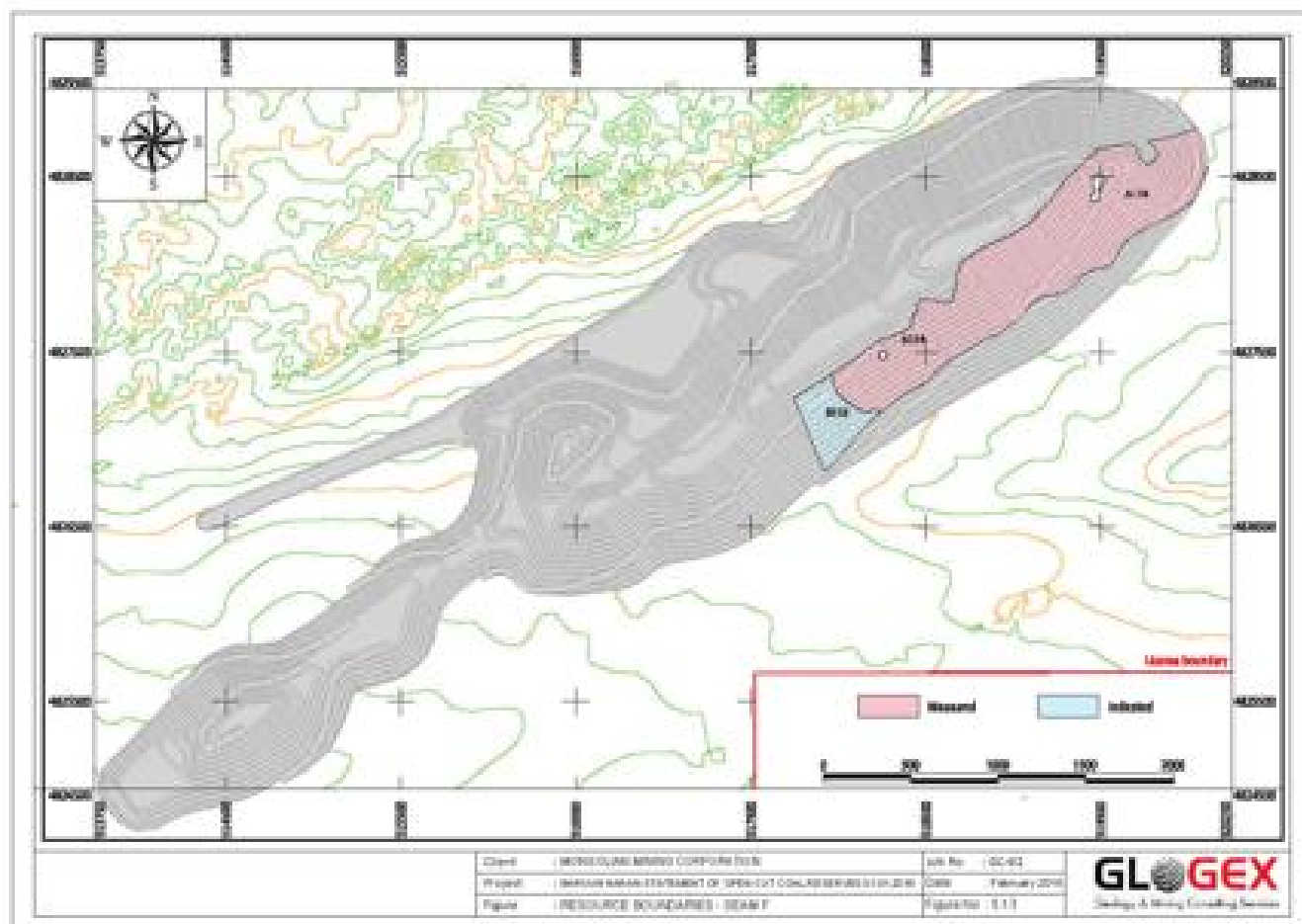












CHECKLIST OF ASSESSMENT AND REPORTING CRITERIA* (TABLE 1 - JORS CODE)

Section 4: Sampling Techniques and Data Science. JACQ (2013) Standard Practice Estimation of Baseline Mine Mining License 44634, and Tailings Storage Mining License M-01708

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The authors have no conflict of interest. The authors have read and approved the final manuscript.



APPENDIX C: REPORTING EXPLORATION RESULTS

"CHECKLIST OF ASSESSMENT AND REPORTING CRITERIA" (TABLE 1 – JORC CODE)

Section 2: Reporting Exploration Results (Guideline – JORC [2012] Standard Resource Estimation of Barau Naman Mining License –144034 and Taishan Huadong Mining License M4J017338)

SC-00188684-011-2016

This report has been prepared by the reporting entity and is not intended to be used as a basis for any other report or for any other purpose.

SC-00188684-011-2016

This report has been prepared by the reporting entity and is not intended to be used as a basis for any other report or for any other purpose.

APPENDIX E: ESTIMATION AND REPORTING OF ORE RESERVES

"CHECKLIST OF ASSESSMENT AND REPORTING CRITERIA" (TABLE 1 – JORC CODE)

Section-4: Estimation and Reporting of Ore Reserves (Source: JORC (2007) Standard Reserves (Estimation of Barun Naran Mining License -14483A and Taelikhar Khuding Mining License M-017336)

Section-4: Estimation and Reporting of Ore Reserves (Source: JORC (2007) Standard Reserves (Estimation of Barun Naran Mining License -14483A and Taelikhar Khuding Mining License M-017336)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate conversion to Ore Reserves	<ul style="list-style-type: none"> Description of the Mineral Resource estimate used in a claim for the conversion to an Ore Reserve Clear statement as to whether the Mineral Resource estimate is reported additional to, or in addition to the Ore Reserves 	<ul style="list-style-type: none"> The Mineral Resource estimate used in the claim for the Coal Reserve Statement is "JORC (2007) Standard Resource Estimation Barun Naran Mining License -14483A and Taelikhar Khuding Mining License M-017336" prepared by Mongolian Mining Corporation, Energy Resources LLC, Geology Department, June 2015 The Competent Person for the Mineral Resource estimate was Mr. Lorigmaa Ochoo. Said a full-time employee of Mongolian Mining Corporation in the position of General Manager of Technical Services. Mr. Ochoo graduated in 2005 with a "Bachelor of Geology" from the "School of Geology and Petroleum Engineering, Mongolian University of Science and Technology", and is a Member of the Australian Institute of Mining and Metallurgy (AIMM). The Coal Reserves are reported in addition to the Mineral Resource estimate to produce the Coal Reserves
Uncertainty	<ul style="list-style-type: none"> Comment on any other risk undertaken by the Competent Person and if no risk is to have been undertaken indicate why this is because 	<ul style="list-style-type: none"> The Competent Person Mr. Lorigmaa Ochoo conducted a risk visit in February 2017 and again in January 2018 The competent person believes a further risk visit was warranted in 2018, as latest open pit production results, it was determined that the conditions had materially changed with mining progress that had occurred since the risk visit of February 2017

[illegible]

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

THE

<p>Comments</p>	<ul style="list-style-type: none"> The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners. 	<ul style="list-style-type: none"> The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners.
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The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners.

<p>Comments</p>	<ul style="list-style-type: none"> The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners. 	<ul style="list-style-type: none"> The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners.
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The company is currently undergoing a restructuring of its business, which is expected to be completed by the end of 2019. The company is currently in the process of raising capital to fund its operations and is seeking to attract new investors. The company is also looking to expand its operations into new markets and is currently in the process of negotiating with potential partners.

<p>The Group is a shareholder in the following listed entities and is a shareholder in the following private entities:</p> <ul style="list-style-type: none"> The Group is a shareholder in the following listed entities and is a shareholder in the following private entities: 	<ul style="list-style-type: none"> The Group is a shareholder in the following listed entities and is a shareholder in the following private entities:
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as at 1 January 2017

The figures are based on the information provided by the companies and are subject to audit by the auditors of the companies.

<p>The Group is a shareholder in the following listed entities and is a shareholder in the following private entities:</p> <ul style="list-style-type: none"> The Group is a shareholder in the following listed entities and is a shareholder in the following private entities: 	<ul style="list-style-type: none"> The Group is a shareholder in the following listed entities and is a shareholder in the following private entities:
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as at 1 January 2017

The figures are based on the information provided by the companies and are subject to audit by the auditors of the companies.

<p>Economic</p>	<ul style="list-style-type: none"> The results of the economic analysis do not include the net present value (NPV) of the study, the costs and confidence of these economic inputs including estimated erosion discount rate at 10% range and sensitivity to variations in the significant assumptions and inputs 	<ul style="list-style-type: none"> The economic analysis
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05-01-2015/01/2015

The report has been prepared for Magellan Mining Corporation and must be read in its entirety and subject to the Magellan disclaimer which is included in the body of this report

<p>Legal</p>	<ul style="list-style-type: none"> The status of agreements with key stakeholders and matters relating to social licence to operate 	<ul style="list-style-type: none"> All key stakeholder agreements are in place providing a social licence to operate
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05-01-2015/01/2015

The report has been prepared for Magellan Mining Corporation and must be read in its entirety and subject to the Magellan disclaimer which is included in the body of this report

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THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

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Abstract The purpose of this study was to determine the effect of a 12-week, low-intensity, supervised exercise program on the physical and psychological health of sedentary, middle-aged, obese women. The study was a randomized, controlled trial. The subjects were randomly assigned to either an exercise group or a control group. The exercise group performed a 12-week, low-intensity, supervised exercise program. The control group did not exercise. The subjects were assessed at baseline and at 12 weeks. The exercise group showed significant improvements in physical and psychological health compared to the control group. The exercise group showed significant improvements in body mass index, waist circumference, and blood pressure. The exercise group also showed significant improvements in self-esteem, body image, and quality of life. The control group showed no significant changes in any of the variables measured. The results of this study suggest that a 12-week, low-intensity, supervised exercise program can improve the physical and psychological health of sedentary, middle-aged, obese women.

Reference No. GC-0119
17th January 2020

Dr Battsengel Goltov
Executive Director and Chief Executive Officer
Mongolian Mining Corporation
9th Floor, Central Tower
Great Chinggis Khaan's Square, SMO-8,
Ulaanbaatar-210024, MONGOLIA

Dear Sir

SUBJECT: Ukhra Mining Coal Mine (UMM) – Statement of Open Cut Coal Reserves as at 1st January 2019

Glogex Consulting LLC ("Glogex") has been commissioned by MMCC to complete an independent estimate, hereinafter referred to as the "Statement", of the Open Cut Coal Reserves for the UHG coal deposit. The Statement reports the Coal Reserves as at 01 January 2019 and has been undertaken in compliance with the requirements of the reporting guidelines of the 2012 Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia ("JORC Code"). Detailed data, model, and results in the Glogex report "Statement of open pit coal reserves as at 01 January 2019, Ukhra Mining Coal Mine" dated 15 January 2019.

GLOGEX has adopted the following terms for the reporting of Coal Reserves:

- **Coal Resources** as used in this report are the same as "Mineral Resources" in The JORC Code and "Geological Resources", a common term used in the industry. Coal Resources refers to coal in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, geological characteristics and continuity are known, estimated or interpreted from specific geological evidence or knowledge, including sampling.
- The **Coal Resources** are sub-divided, in order of increasing geological confidence, into **Indicated and Measured Resources** to reflect the confidence in the underlying resource data.
- **Coal Reserves** as used in this report are the same as "Ore Reserves" in The JORC Code and "economisable" coal which are terms in common use in the coal industry. Coal Reserves are the

economically mineable part of a Measured and/or Indicated Mineral Resources. The Coal Reserves include diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include the application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

- **Coal Reserves** have been sub-divided in order of increasing confidence into **Provable Coal Reserves** and **Proved Coal Reserves** to reflect the confidence in the underlying resource data and mine planning detail. A Proved Coal Reserve can only be based on a Measured Coal Resource. Provable Reserves can be based on Measured and/or Indicated Resources. Inferred Coal Resources cannot be included as a Coal Reserve.
- **Marketable Coal Reserves** allow for practical yields in a beneficiation plant, which is commonly known in the industry as "product coal".

Estimate of the Coal Resource of UHG deposit has been updated as of 31 December, 2019 by MMCC. In this statement UHG has identified a Coal Resource of 663 Mt (as received moisture basis) of which 324 Mt is classified as Measured, 276 Mt as Indicated and 113 Mt as Inferred Geological Resources to a depth of up to 600 m as specified under the Australian Code for Reporting of Mineral Resources and Ore Reserves 2012 Edition (The JORC Code 2012) (Mt Ukhra-a-Che-Said, MMCC, competent person). Coal quality studies have identified the potential to produce both hard and semi-soft coking coal and thermal coal products. Since completion of the previous Coal Resource estimate, no further exploration data has been incorporated into structural or coal quality geological models. To produce the updated Coal Resource estimate, topographic survey information was updated to account for depletion as result of mining between 1 January, 2015, and 31 December, 2019.

UHG is a complex and highly faulted coal deposit, with moderate to steeply dipping seams of predominantly hard coking coals.

As at 01 January 2019, the UHG total Open Cut Coal RCM reserves of 324 Mt are shown in Table 1 and the total Marketable reserve of 191 Mt are shown in Table 2. In this study topographic survey information was only updated to account for depletion as result of 31 December, 2019 and no other changes had been done from previous reserves report.

The previous Coal Reserves Statement for UHG was prepared as at 01 January 2018 by Glogex Consulting LLC ("Glogex"). The comparison between two statements is outlined in Table-3.

Table 1. Total coal reserve as at 01 January 2019 (RCM)

Coal type	Reserve category (Mt)		
	Proved	Probable	Total (Proved+Probable)
Coking Coal	194	117	311
Thermal Coal	11	3	13
Total	205	119	324

Notes:

- Estimate has been rounded to reflect accuracy
- Coking coal is cbb. total reserves is 311%
- Thermal coal is cbb. total reserves is 13%
- Coal Reserves above 400m depth and below 800m depth surface

Table 2. Total Marketable reserve as at 01 January 2019

Coal type	Reserve category (Mt)		
	Proved	Probable	Total (Proved+Probable)
Coking Coal	95	99	193
Medium	35	9	45
Thermal Coal	11	2	13
Total	122	89	191

Notes:

- Estimate has been rounded to reflect accuracy
- Proved Coking coal total reserves is 95%, Ash - 10.0% (cbb)
- Proved Medium total reserves is 35%, Ash - 10.0% (cbb)
- Proved Thermal total reserves is 11%, Ash - 10.0% (cbb)

Table 3. Comparison of Coal Reserves to Previous Coal Reserves Statement (RCM)

Coal Reserves as at 01 January 2019 (RCM)	323
Coal Mine and depleted 30 January 2019 to 01 January 2019	0
Increase in Coal Reserves identified in the 2018 Reserves estimate that are economically viable for mining at 01 January 2019	0
Coal Reserves as at 01 January 2019 (RCM)	324

Notes:

- Estimate has been rounded to reflect accuracy
- Coal Reserves is above 400m depth and below 800m depth surface
- The estimate of Coal Reserves presented in Table 1, Table 2 and Table 3 has been carried out in accordance with the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code 2012). Technical information in the 2018 Coal Reserves statement report has been compiled by Mr. Naranbhai Lundy, who is a Member of the Australian Institute of Mining and Metallurgy (AIMM) (2004-2018). He is a principal shareholder of Glogex Consulting LLC and also serves as General Director and Executive Consultant of the company. He is a member of the Australian Institute of Mining and Metallurgy (AIMM) (2004-2018) and has extensive experience in the mining industry, working for over 17 years with major mining companies and mining consultants. During this time, he has offered management and technical support to numerous mining studies related to the exploration, development, mine planning, assessment, evaluation and economic evaluation of coal in Mongolia. He has sufficient experience which is relevant to the state of reserve situation and type of deposit under consideration and the activity he is undertaking to qualify him as a Competent Person as defined under the JORC Code (2012). Mr. Lundy's comments for the inclusion in the estimate of the market based on this information in the form and content in which it appears.

Best Regards,



Naranbhai Lundy
General Director and Executive Consultant
Competent Person (member of AIMM #33546)

DISCLAIMER

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STATEMENT OF OPEN CUT COAL RESERVES

AS AT 1ST JANUARY 2018

UKHAA KHUDAG COAL MINE

Prepared for

MONGOLIAN MINING CORPORATION

Report No: GC-01

Date: 20 February 2018

Prepared by

GLOGEX CONSULTING LLC ("GLOGEX")



Statement of Open Cut Coal Reserves
As at 1st January 2018, GLOGEX and GLOGEX Coal Mine

Document Control Sheet

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Name	Position	Authorizations	Signature	Date
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Organization	Recipient	No. Of Hard copies	No. Of Electronic Copies	Comment
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GC-01/00000001-2018

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Total Operating Capital Assets \$114.4

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1-800-547-7662

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17. **What are the major components of the human immune system?**

[illegible]

3.2. Location and Title

The UHG coalfield is located in the mining (province) of Umnogovi, approximately 500 km south of Ulaanbaatar, the capital of Mongolia, as shown in Figure 3-1.

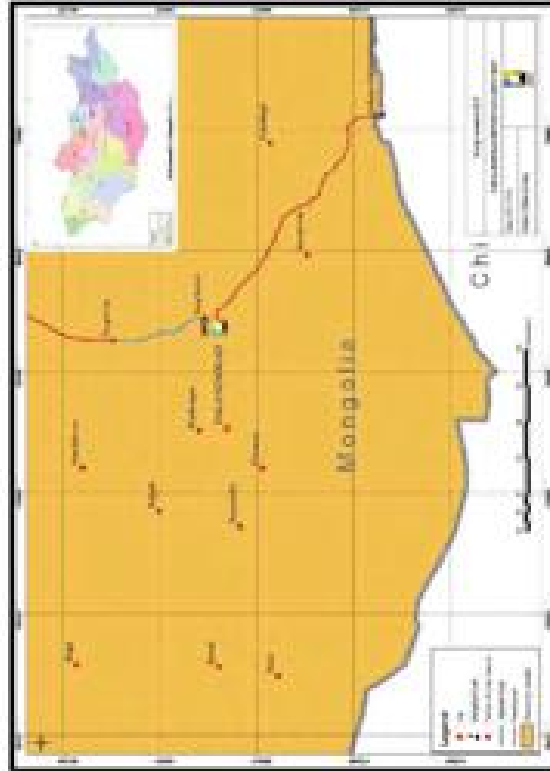


Figure 3-1. Regional Location of Umnogovi Coalfield

The town of Dalanzadgad (population of 10,000), the provincial capital, is located 450 km to the east of the property, and the Oya Tolgoi copper/gold deposit is located 150 km to the south west.

The nearest Chinese border port is located approximately 240 km to the south. The border is called Gashuan Subdai - Gashuan Subdai. Gashuan Subdai is the name of the Mongolian side of the border, and Gashuan Subdai is the name of a town on the Chinese side of the border.

The site is located approximately 30 km by road west of Bannan Tumen (BNT), an existing open pit coal mine also owned and operated by MMC, and adjacent to Enkhsum Tseelger LLC's Enkhsum coal mine.

MMC's wholly-owned subsidiary ERH Ltd (the mining license holder) for UHG, covering 2,960 hectares across the UHG deposit, effective for 20 years from 25 August 2008, extendable twice by 20 year periods. ERH is responsible for operation of the UHG site, with assistance under an alliance style contract for mining and technical services with mining contractor Tseem Mongolia LLC ("Tseem").

4. Geology, Coal quality and Coal Resource Estimate

4.1. Introduction

The UHG coalfield is a subfield located in the north-eastern extension of the greater Tavan Tolgoi coalfield, which is in south-central Mongolia, within the Umnogovi Valley of the Gobi Desert. The deposit contains both coking and thermal grade coal.

Coal quality analysis has been conducted for UHG to estimate density, moisture (as dried and total), new ash, volatile matter, calorific value, sulphur and CO₂ with Gindex analysed as composite samples. Coal qualities in the UHG Microscopic block model supplied by MMC, which was provided on an as received basis with a weight average total moisture of 3.4%, include in situ density (g/cc), new ash (%), total moisture (%), fixed carbon (%), calorific value (kcal/kg) and sulphur (%). In turn the model was converted to a Microscopic ROM model, weight average total moisture was 3.16%. After Gindex converted Microscopic ROM model into Micro ROM model, a weight average total moisture of 3.17%.

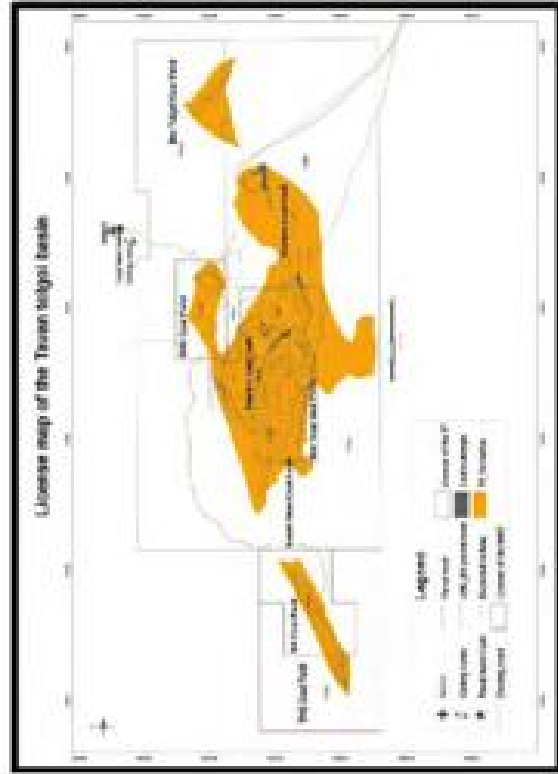
The most variable feature evident in the deposit is ash, which ranged from approximately 21% to 28% in the Micro ROM model with an overall weight average ROM ash for all seams of 32.73%. Ash content was higher in the original in situ model, however MMC incorporated a maximum ash cut-off of 50% (50) when generating the UHG Resource model. The ROM model has higher ash content than the Resource model however, due to the application of seam aggregation and losses and dilution, which adjusts the model to include partings and dilution with default ROM ash content of 32.03% (see Table 5.3).

MMC completed the Statement of Coal Resources in December 2014 for UHG which then identified a Coal Resource of 691.7 Mt (as received moisture basis) comprising 265.9 Mt of Measured, 245.6 Mt of Indicated, and 115.2 Mt of Inferred Geological Resources to a depth of up to 800 m as specified under the Australian Code for Reporting of Mineral Resources and Ore Reserves 2012 Edition ("The JORC Code 2012").

4.2. Geology Overview

"JORC Standard Resource Estimation Report for the Umnogovi Coal Mine" (MMC, December 2014) provides a comprehensive summary of the geology of UHG and regionally. The following summary is based upon outputs from this report.

The UHG deposit forms part of the Umnogovi coal-bearing depression in the South Gobi coal-bearing basin also known as the Tavan Tolgoi F. coalfield as shown in Figure 4.1. UHG is approximately 25.6 km² in area and represents about 13% of Tavan Tolgoi which covers an area of approximately 200 km². The Tavan Tolgoi coalfield is a pointed ridge seven spurs a distance, namely Tavan, South, East, West, South, East, Umnogovi, East, East, East and East.



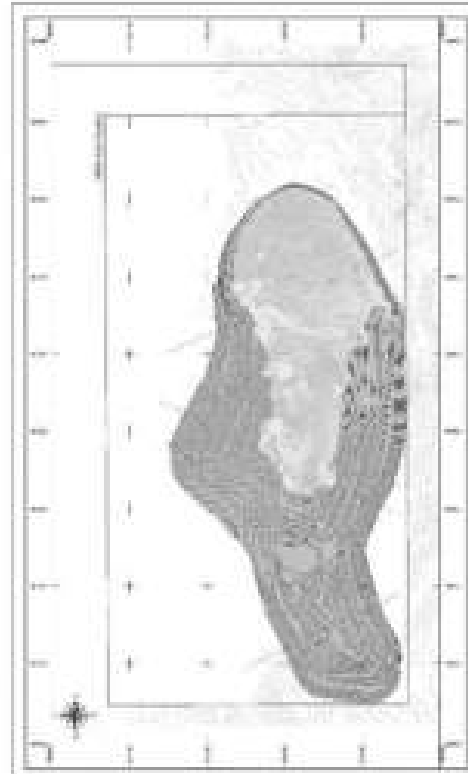


Figure 5.1: Final P8 Design

The Conceptual Plan for the Coal Reserve Statement made is this dated in February 2017 and signed in January 2018. This is important given the fact that further to this visit will be in 2018, an initial upon review of the latest mining survey data and production results, it is considered that the conditions have materially changed with mining progress that had occurred since the site visit of February 2017.

5.3. Geotechnical Criteria

Geotechnical stability slope parameters for UHG were defined during the UHG Plan and its update in 2015, on advice provided by UHG project geotechnical consultants Australian Mining Consultants (AMC) as per table 5.3.

Table 5.4: P8 Optimum Geotechnical Parameters

P8 Highwall	Corresponding Ground Control District	Maximum Overall Exposure Angle (°)
Weathered	WOB	37.0
North P8 Highwall Angle	NE04	32.0
North East P8 Highwall Angle	NE00	30.0
East P8 Highwall Angle	ELW	30.0
South East P8 Highwall Angle	SE01	26.0
South P8 Highwall Angle	SE02	24.0
South West P8 Highwall Angle	SE03	32.0
West P8 Highwall Angle	NE05	26.0
North West P8 Highwall Angle	NE04	32.0

(Source: Australian Mining Consultants (AMC))

5.4. Mining Factors

The selected mining method is an 'open cut, multi zone, track and hydraulic excavator mining method' with both in pit and in pit dumping of waste. The mining factors applied to the Coal Reserve model, which it is provided, for deriving ROM Coal quantities were selected based on the use of excavators and trucks. The assumption is that these accurate mining practices will be adopted.

In the previous UHG LOM study is completed by RangerFlood Minerals in November 2013, MMC provided RangerFlood Minerals with a series of polygons for each major zone group which defined 2 areas within the deposit that have been more significantly affected by faulting and other geological processes. These areas were referred to as 'Affected Zones', as mining of the coal was anticipated to be more difficult in these zones. On the basis of actual mining cost recovery reconciliation results supplied by MMC for an 18 month period from January 2014 to June 2016, RangerFlood Minerals accepted the discontinuation of fault affected zones for 2015 LOM study. Glogex accepted the discontinuation of fault affected zones for this study.

The key findings identified by MMC from the cost recovery reconciliation analysis were:

- Within the 'Affected Zones' the total coal recovery amounted to 34.4% of that modelled.
- Outside of the 'Affected Zones' total coal recovery improved to 69.4% of that modelled.
- If Scams SA, SA and TA were included from the evaluation, considering (i) the total tonnage actually mined, and (ii) the impact on recovery due to variation in position of sub crop (to be considered for part of the globally averaged loss on basis of 'Mining and Geological Issues'), then the total coal recovery improves to 105.2%, and
- That on the basis that 1% global loss applied, further application of coal losses inside or outside of 'Affected Zones' is not considered necessary.

The energy flows are shown in the following table. The flows are shown in the following table.

- **Minerals Mining (MMA):** Coal mining is shown in the following table. The flows are shown in the following table.
- **Minerals Processing (MP):** Coal processing is shown in the following table. The flows are shown in the following table.
- **Coal and Power Plants:** Coal and power plants are shown in the following table. The flows are shown in the following table.
- **Coal and Power Plants:** Coal and power plants are shown in the following table. The flows are shown in the following table.
- **Coal and Power Plants:** Coal and power plants are shown in the following table. The flows are shown in the following table.
- **Coal and Power Plants:** Coal and power plants are shown in the following table. The flows are shown in the following table.
- **Coal and Power Plants:** Coal and power plants are shown in the following table. The flows are shown in the following table.

Table 4-2. Summary of Global Mining and Processing Flows

Flow	Value (TWh)	Value (TWh)	Value (TWh)
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100
Coal	100	100	100

By comparison, the

The flows are shown in the following table. The flows are shown in the following table.

Table 4-3. Global Mining and Processing Flows

Flow	Value (TWh)	Value (TWh)
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100
Coal	100	100

From 2000 to 2010, Global Mining and Processing Flows

Global Mining and Processing Flows

The global flows of coal and coal products are shown in the following table. The flows are shown in the following table.

The flows are shown in the following table. The flows are shown in the following table.

The flows are shown in the following table. The flows are shown in the following table.

By comparison, the

The flows are shown in the following table. The flows are shown in the following table.

Table 3.4: Hard Feeding Coal - 2004 Data - Yearly Current Month - All Sub Areas Combined

Year	2004											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.4

Table 3.5: Hard Feeding Coal - 2004 Data - Yearly Current Month - All Sub Areas Combined

Year	2004											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.5

Discussion

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Table 3-10. PG Optimisation Results - Coal Price Sensitivity

Coal Price as % of Base Price	Waste Mtpa	Coal Mt ROM	Sale Ratio to net ROM
50%	142.87	742.7	1.92
55%	158.21	69.31	2.50
60%	387.21	125.06	2.91
65%	411.15	134.73	3.03
70%	505.63	152.66	3.38
75%	582.06	187.43	3.48
80%	1150.33	262.57	4.38
85%	1239.76	282.12	4.38
90%	1350.27	300.32	4.45
95%	1638.73	335.98	4.98
100%	1787.72	375.44	4.84
105%	2728.71	476.25	4.97
110%	3084.18	478.62	4.98
115%	2937.80	473.18	4.96
120%	2930.48	474.58	4.98
125%	2212.09	437.34	5.05
130%	2224.52	436.26	5.07
135%	2233.42	440.26	5.07
140%	2242.64	441.82	5.08
145%	2282.12	447.85	5.10
150%	2308.26	450.23	5.13

Graph 3.5 illustrates that the URG deposit, while not overly sensitive to an increase in coal sales price, is more sensitive to a drop in coal sales price below the base price. This is evident by the more rapid rate of decrease in ROM coal quantities at coal prices below 50% of the base price, as opposed to the rate of increase in ROM coal quantities at coal prices above 100% of the base price.

Graph 3-2. PG Optimisation - Coal Price Sensitivity

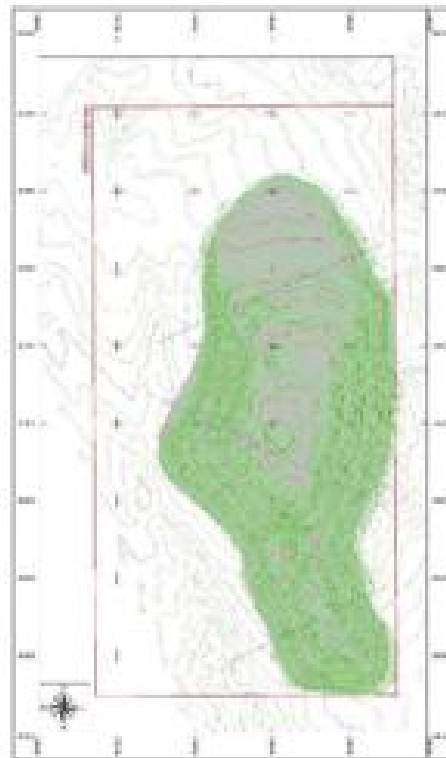
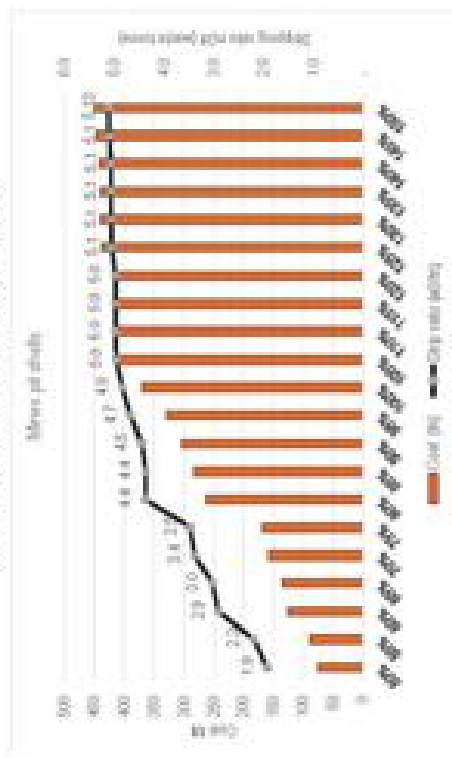
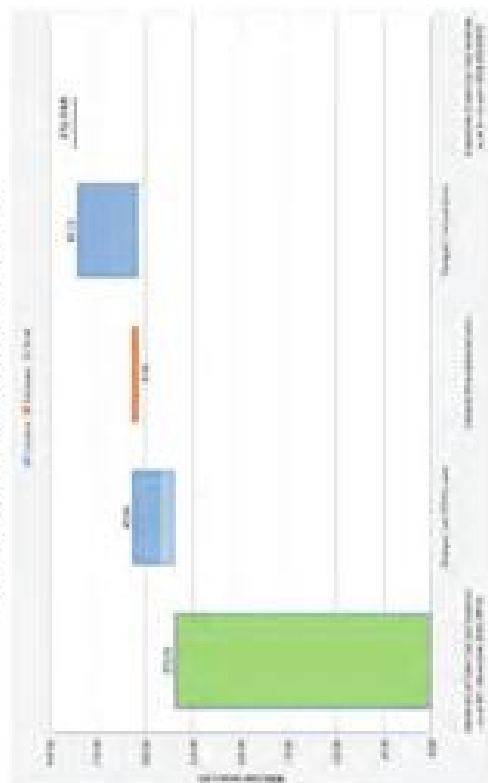


Figure 3-2. PG Optimisation result

Graph 8-1: Factors influencing Pit Optimisation results



8.9 Classification

Measured and Indicated Coal Resources within the Mineable Pit Shells were classified as Coal Resources. Figure 8.1 to Figure 8.21 contained in Appendix A illustrates the Measured and Indicated Resource polygons for the major pit within each seven group of UGMR within the boundary of the Mineable Pit Shells.

Coal Resources have been classified based on the confidence of the Coal Resources and the level of detail in the mine planning. Measured Resources within the pit shells have been classified as Measured Resources. All Indicated Resources have been classified as Probable Resources. While Inferred Resources were assigned to the UGMR LOM Study pit options to generate and define the Mineable Pit Shells, no Inferred Resources have been reported as Resources in this statement.

8.10 Audits and Reviews

The JORC Code (2012) provides guidelines which set out minimum standards, recommendations and guidelines for the Public Reporting of exploration results, Mineral Resources and Ore Reserves. Within the code is a 'Checklist of Assessment and Reporting Criteria' (Table 1 – JORC Code), encompassing Section 1 – Sampling Techniques and Data, Section 2 – Reporting Exploration Results, Section 3 – Estimation and Reporting of Mineral Resources, and Section 4 – Estimation and Reporting of Ore Reserves.

Sections 1, 2 and 3 of Table 1 have been extracted from the Coal Resource report (JORC (2012) Standard Resource Estimation (Open Pit Coal Mine Licence 11980A), MMG, November 2010) which describes in full detail the source of the Resource estimate used for this Resource estimate.

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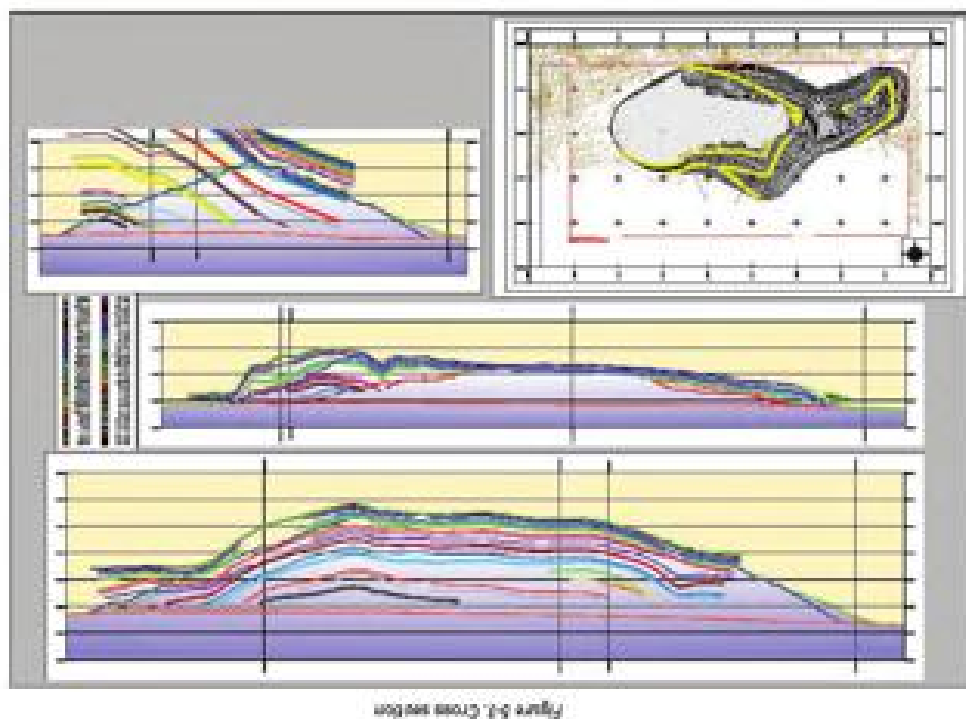


Figure 8-1: Cross section

The following table shows the results of the analysis for the various cases. The values in parentheses are the values for the case where the total mass of the system is 1000 kg. The values in brackets are the values for the case where the total mass of the system is 1000 kg and the total volume is 1000 m³.

5.11 Summary

The following table shows the results of the analysis for the various cases. The values in parentheses are the values for the case where the total mass of the system is 1000 kg. The values in brackets are the values for the case where the total mass of the system is 1000 kg and the total volume is 1000 m³.

Table 5.11: Proved Open Cut Coal Reserves By State

State	Proved reserves			
	Known Coal (Mg)	Total Reserves %	Anth. %	Calorific Value (Gcal/Mg)
AL	19	1	21	11.5
CA	1	0.1	21	11.5
CO	1	0.1	21	11.5
GA	1	0.1	21	11.5
IL	1	0.1	21	11.5
IN	1	0.1	21	11.5
MD	1	0.1	21	11.5
MT	1	0.1	21	11.5
NE	1	0.1	21	11.5
ND	1	0.1	21	11.5
OK	1	0.1	21	11.5
SC	1	0.1	21	11.5
TX	1	0.1	21	11.5
WV	1	0.1	21	11.5
WY	1	0.1	21	11.5
Total Coal (Mg)	216.2	1.91	21.7	11.5
Total Calorific (Mg)	200.9	1.83	21.1	11.5
Total Thermal (Mg)	41.3	1.40	42.1	4.668

Source: U.S. Geological Survey, 1980, p. 100.

Table 5.12: Proved Open Cut Coal Reserves By State

State	Proved reserves			
	Known Coal (Mg)	Total Reserves %	Anth. %	Calorific Value (Gcal/Mg)
AL	19	1	21	11.5
CA	1	0.1	21	11.5
CO	1	0.1	21	11.5
GA	1	0.1	21	11.5
IL	1	0.1	21	11.5
IN	1	0.1	21	11.5
MD	1	0.1	21	11.5
MT	1	0.1	21	11.5
NE	1	0.1	21	11.5
ND	1	0.1	21	11.5
OK	1	0.1	21	11.5
SC	1	0.1	21	11.5
TX	1	0.1	21	11.5
WV	1	0.1	21	11.5
WY	1	0.1	21	11.5
Total Coal (Mg)	113.8	1.15	21.7	11.5
Total Calorific (Mg)	107.5	1.07	21.1	11.5
Total Thermal (Mg)	21.4	1.25	42.1	4.668

Source: U.S. Geological Survey, 1980, p. 100.

Table 6-13 Total Open-Pit Coal Reserves by Seam

Seam	Total Reserve (Mg)	Measured (Mg)	Anticipated (Mg)	Geologic Value (Reserve) (Mg)
A	1,111	1,111	0	1,111
B	1,111	1,111	0	1,111
C	1,111	1,111	0	1,111
D	1,111	1,111	0	1,111
E	1,111	1,111	0	1,111
F	1,111	1,111	0	1,111
G	1,111	1,111	0	1,111
H	1,111	1,111	0	1,111
I	1,111	1,111	0	1,111
J	1,111	1,111	0	1,111
K	1,111	1,111	0	1,111
L	1,111	1,111	0	1,111
M	1,111	1,111	0	1,111
N	1,111	1,111	0	1,111
O	1,111	1,111	0	1,111
P	1,111	1,111	0	1,111
Q	1,111	1,111	0	1,111
R	1,111	1,111	0	1,111
S	1,111	1,111	0	1,111
T	1,111	1,111	0	1,111
U	1,111	1,111	0	1,111
V	1,111	1,111	0	1,111
W	1,111	1,111	0	1,111
X	1,111	1,111	0	1,111
Y	1,111	1,111	0	1,111
Z	1,111	1,111	0	1,111
Total Coal (Mg)	33,333	33,333	0	33,333
Total Coal (Mg)	33,333	33,333	0	33,333
Total Thermal (Mg)	13,333	13,333	0	13,333

Notes: 1. All values are in millions of metric tonnes (Mg).

Table 6-14 Total Open-Pit Coal Reserves by Seam

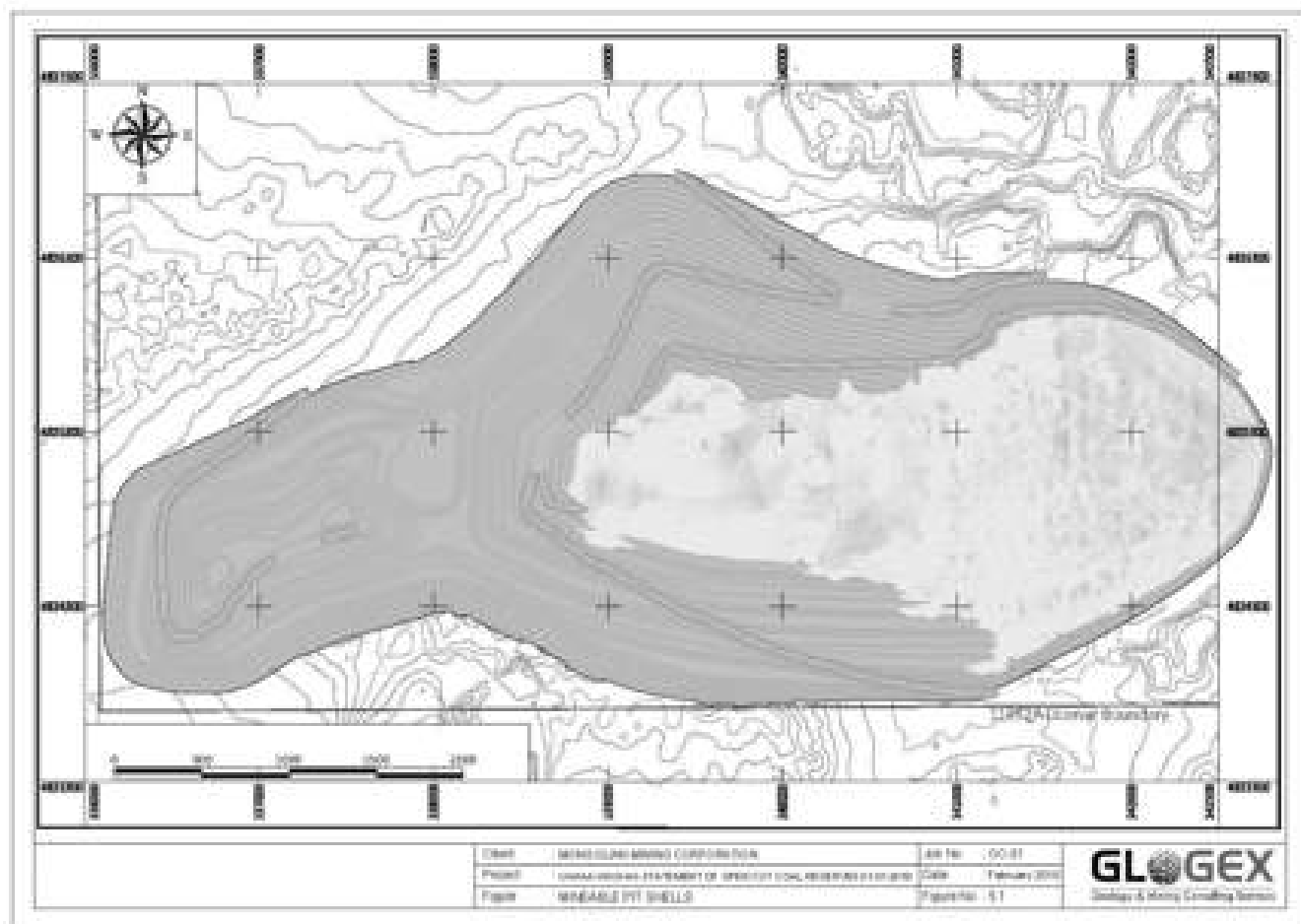
Table 6-14 Total Open-Pit Coal Reserves by Seam

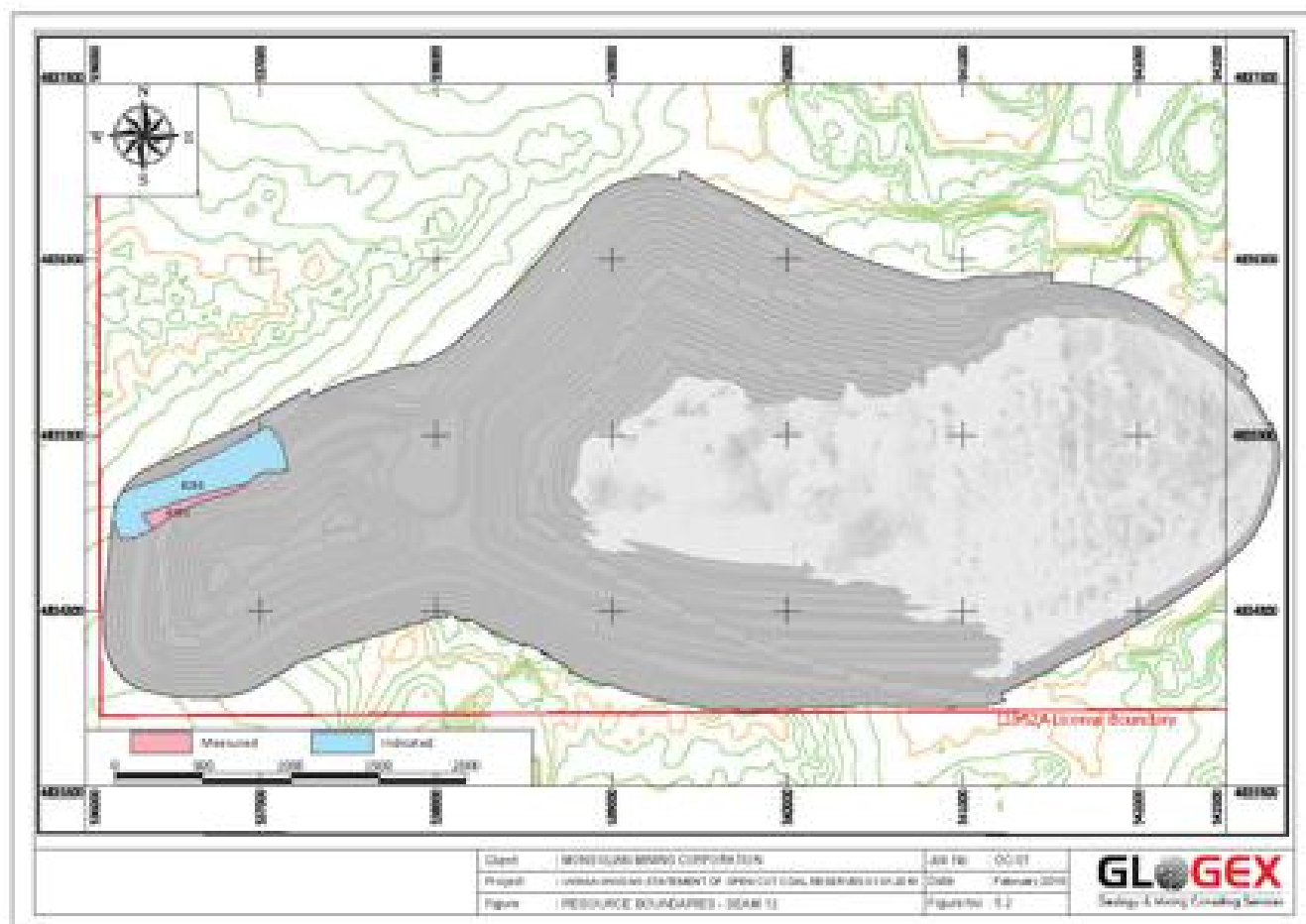
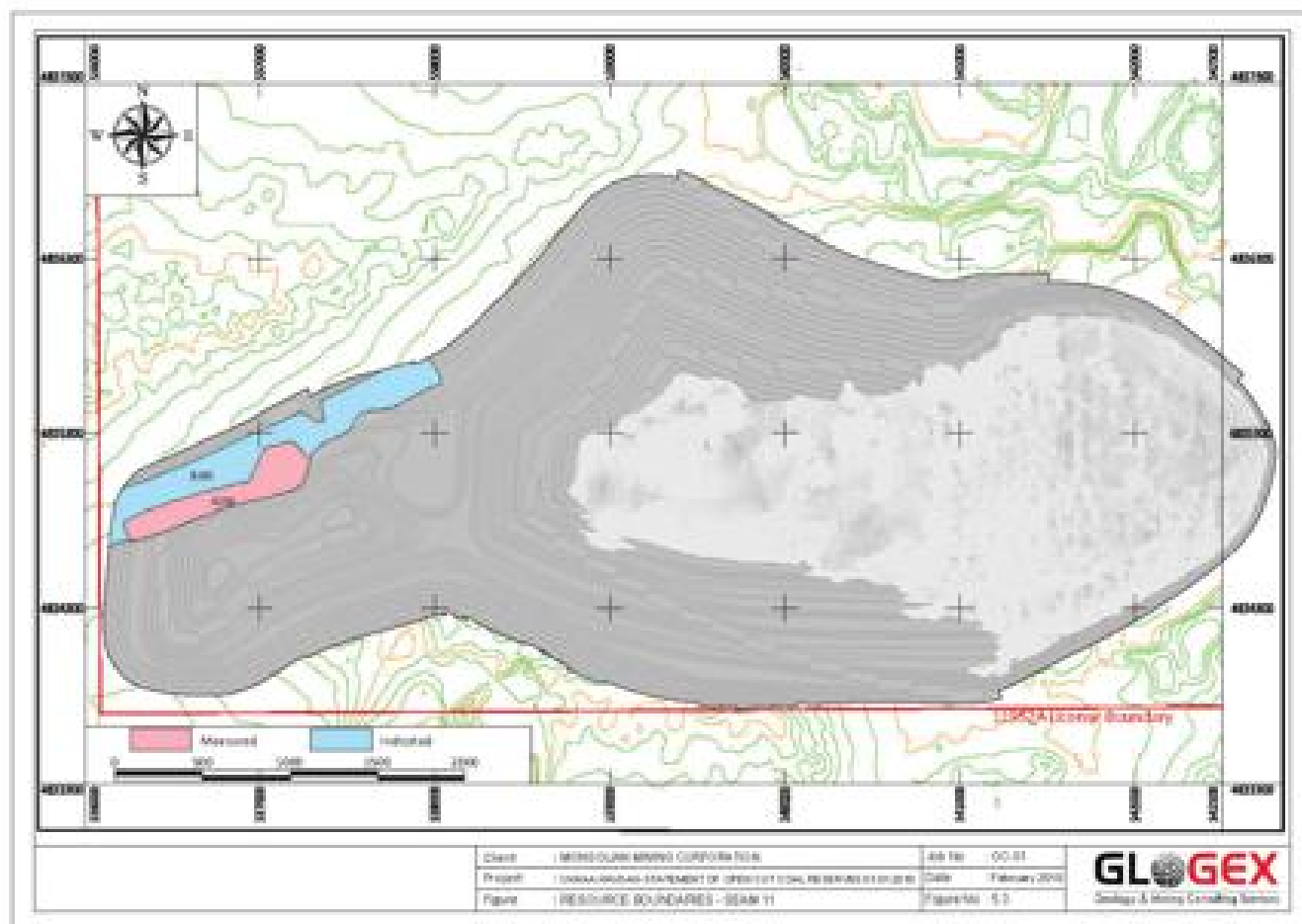
Seam	Total Reserve (Mg)	Measured (Mg)	Anticipated (Mg)	Geologic Value (Reserve) (Mg)
A	1,111	1,111	0	1,111
B	1,111	1,111	0	1,111
C	1,111	1,111	0	1,111
D	1,111	1,111	0	1,111
E	1,111	1,111	0	1,111
F	1,111	1,111	0	1,111
G	1,111	1,111	0	1,111
H	1,111	1,111	0	1,111
I	1,111	1,111	0	1,111
J	1,111	1,111	0	1,111
K	1,111	1,111	0	1,111
L	1,111	1,111	0	1,111
M	1,111	1,111	0	1,111
N	1,111	1,111	0	1,111
O	1,111	1,111	0	1,111
P	1,111	1,111	0	1,111
Q	1,111	1,111	0	1,111
R	1,111	1,111	0	1,111
S	1,111	1,111	0	1,111
T	1,111	1,111	0	1,111
U	1,111	1,111	0	1,111
V	1,111	1,111	0	1,111
W	1,111	1,111	0	1,111
X	1,111	1,111	0	1,111
Y	1,111	1,111	0	1,111
Z	1,111	1,111	0	1,111
Total Coal (Mg)	33,333	33,333	0	33,333
Total Coal (Mg)	33,333	33,333	0	33,333
Total Thermal (Mg)	13,333	13,333	0	13,333

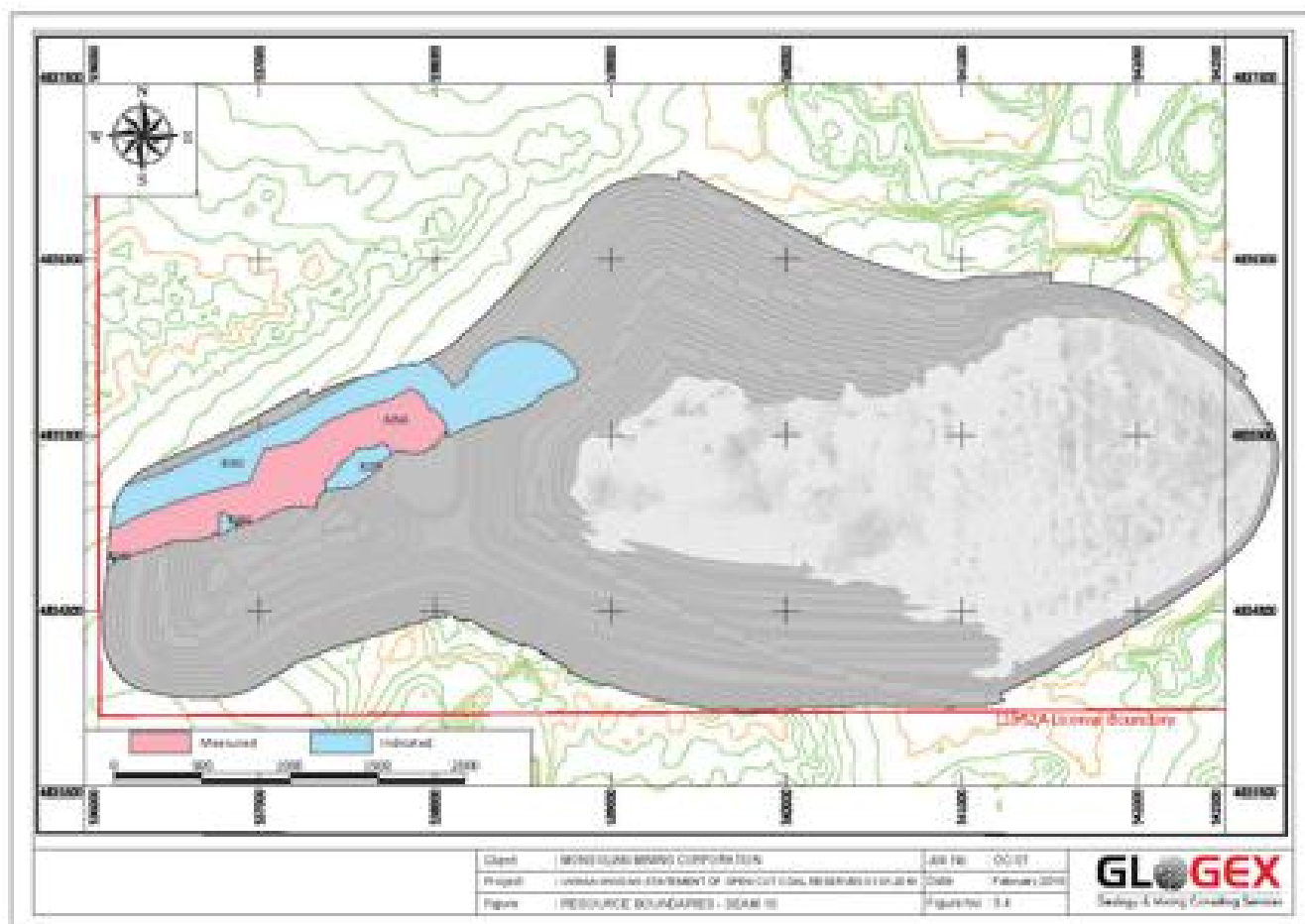
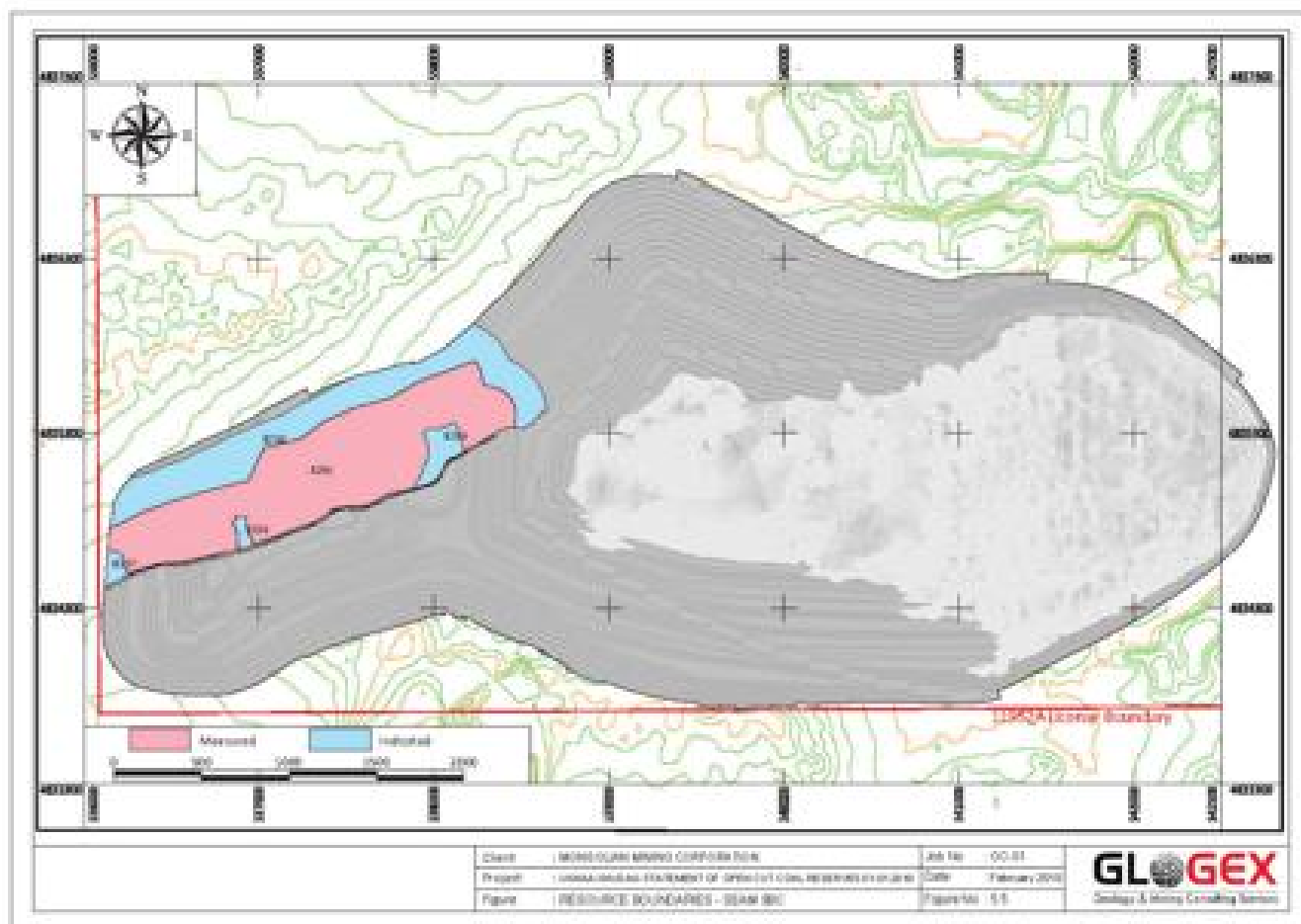
Notes: 1. All values are in millions of metric tonnes (Mg).

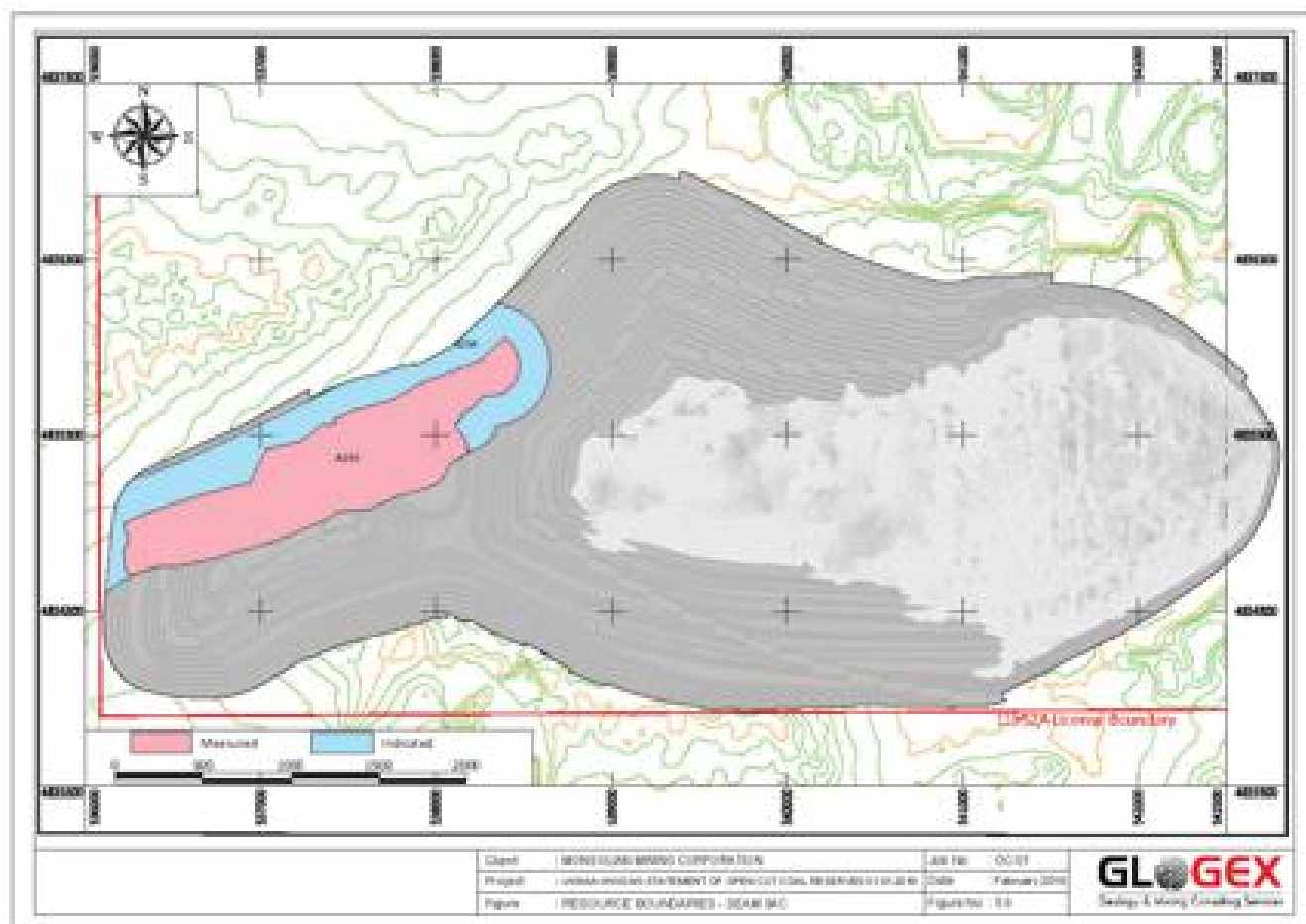
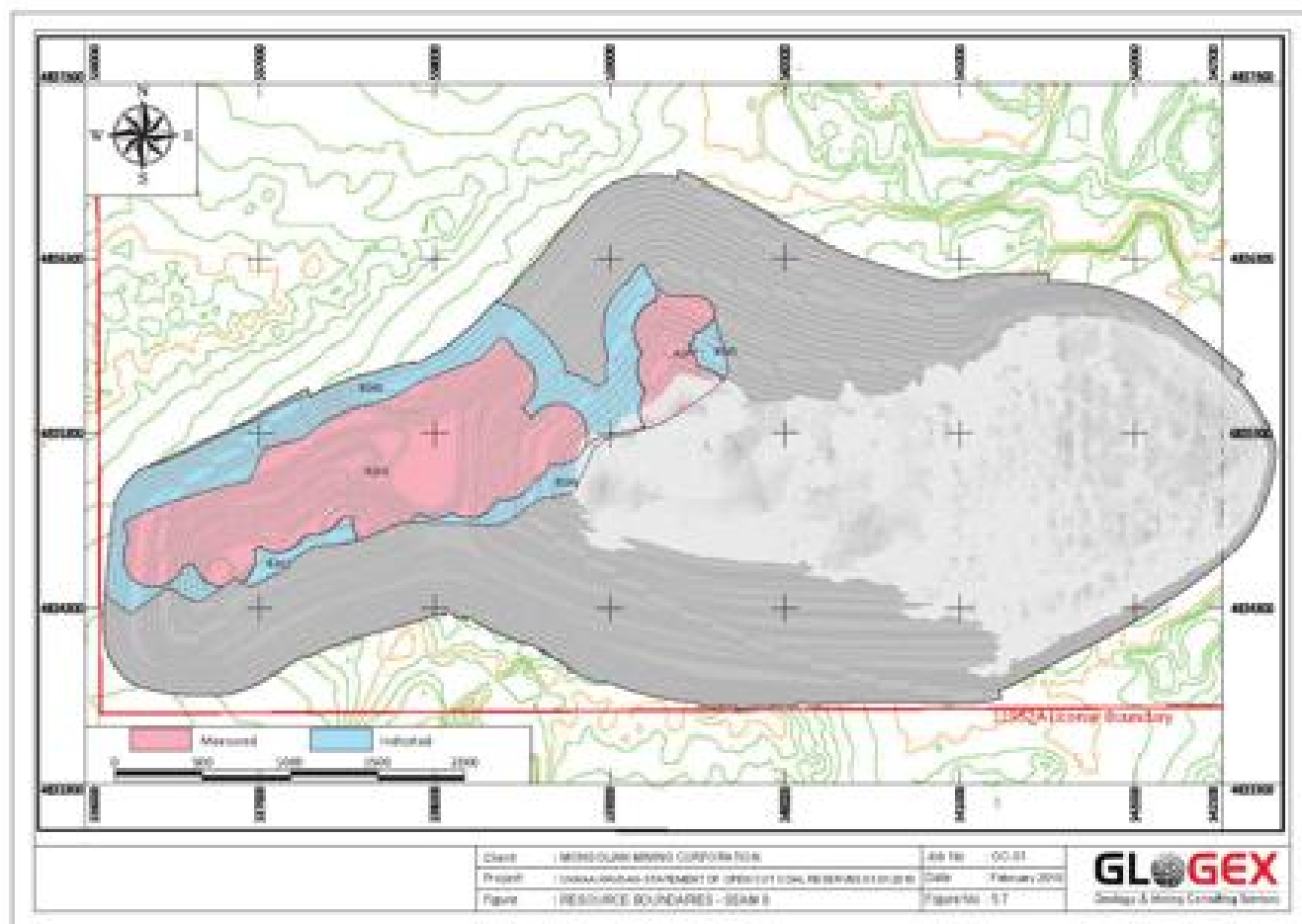
Appendix A - Resource Polygons

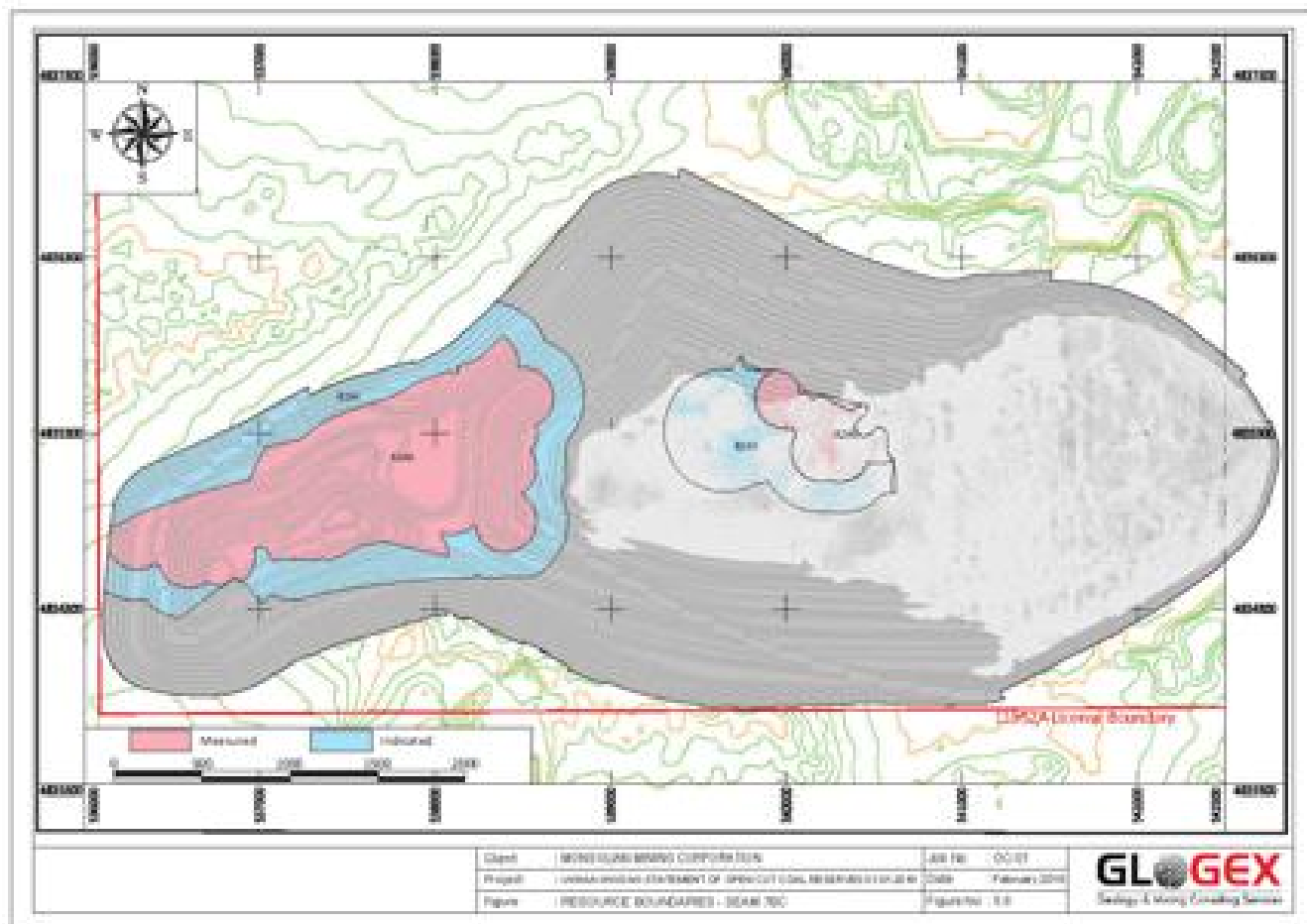
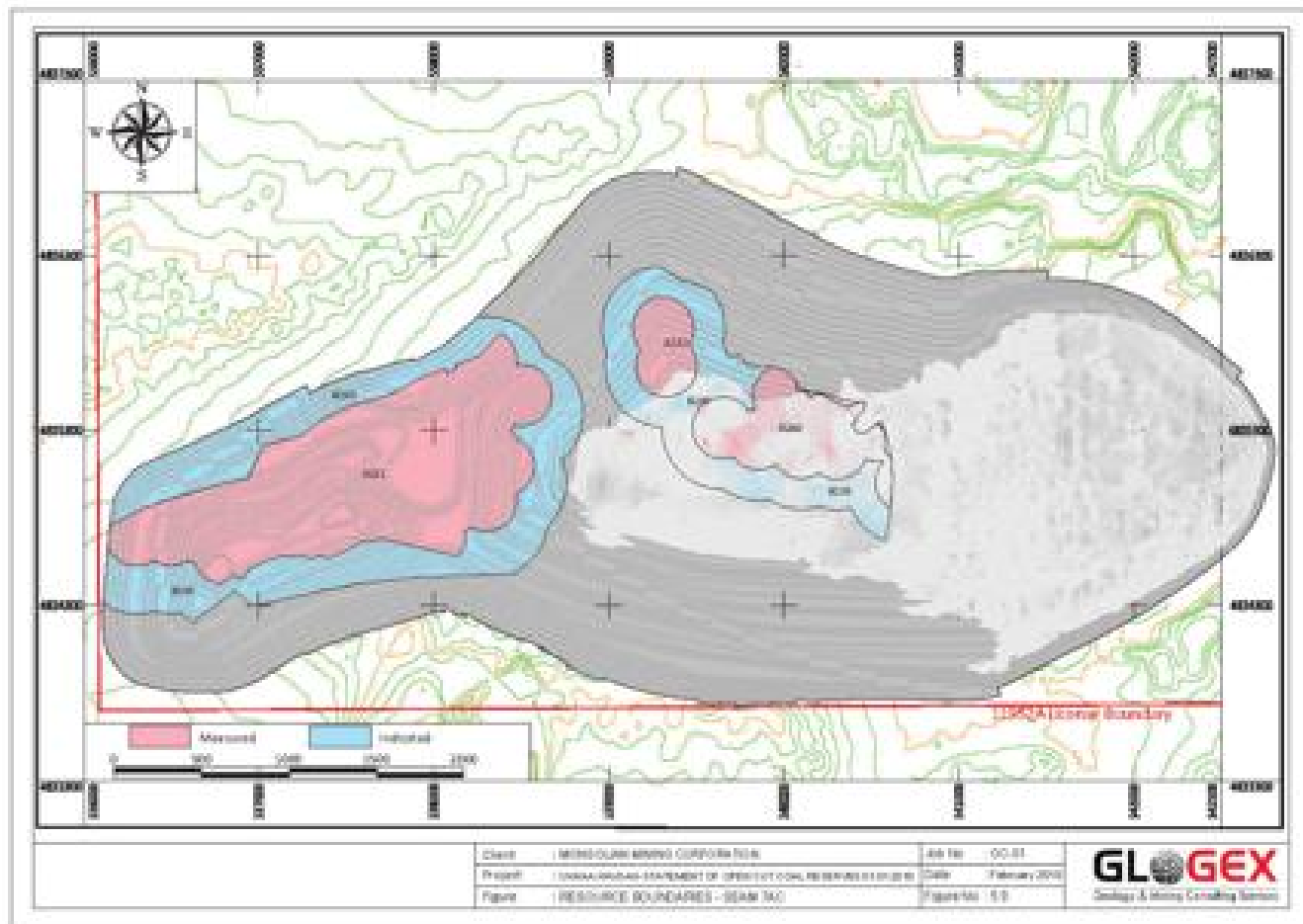
Measured and Indicated Resource polygons for the major pit within each main group of UGQ within the
boundary of the Mineable Pit Shells.

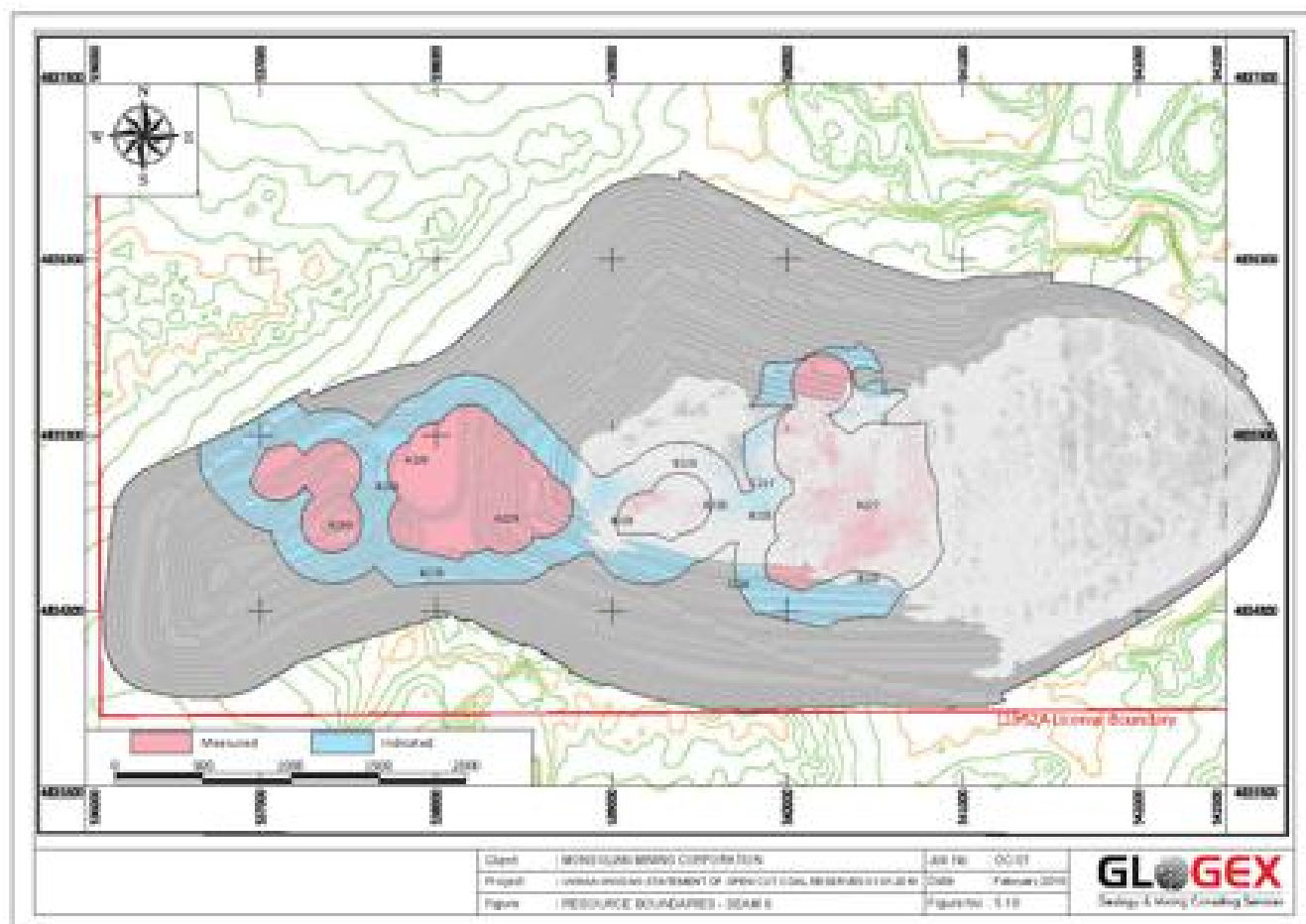
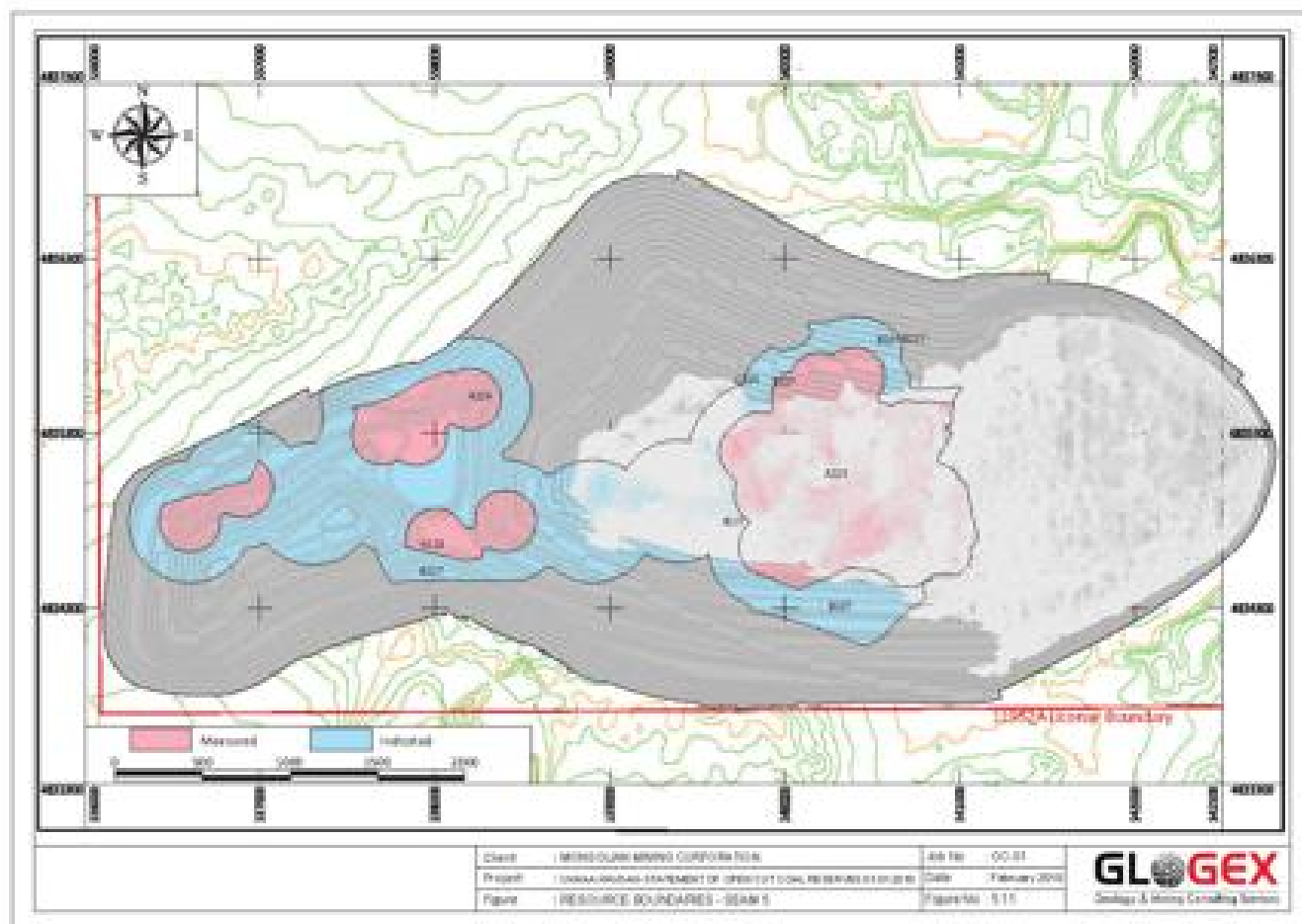


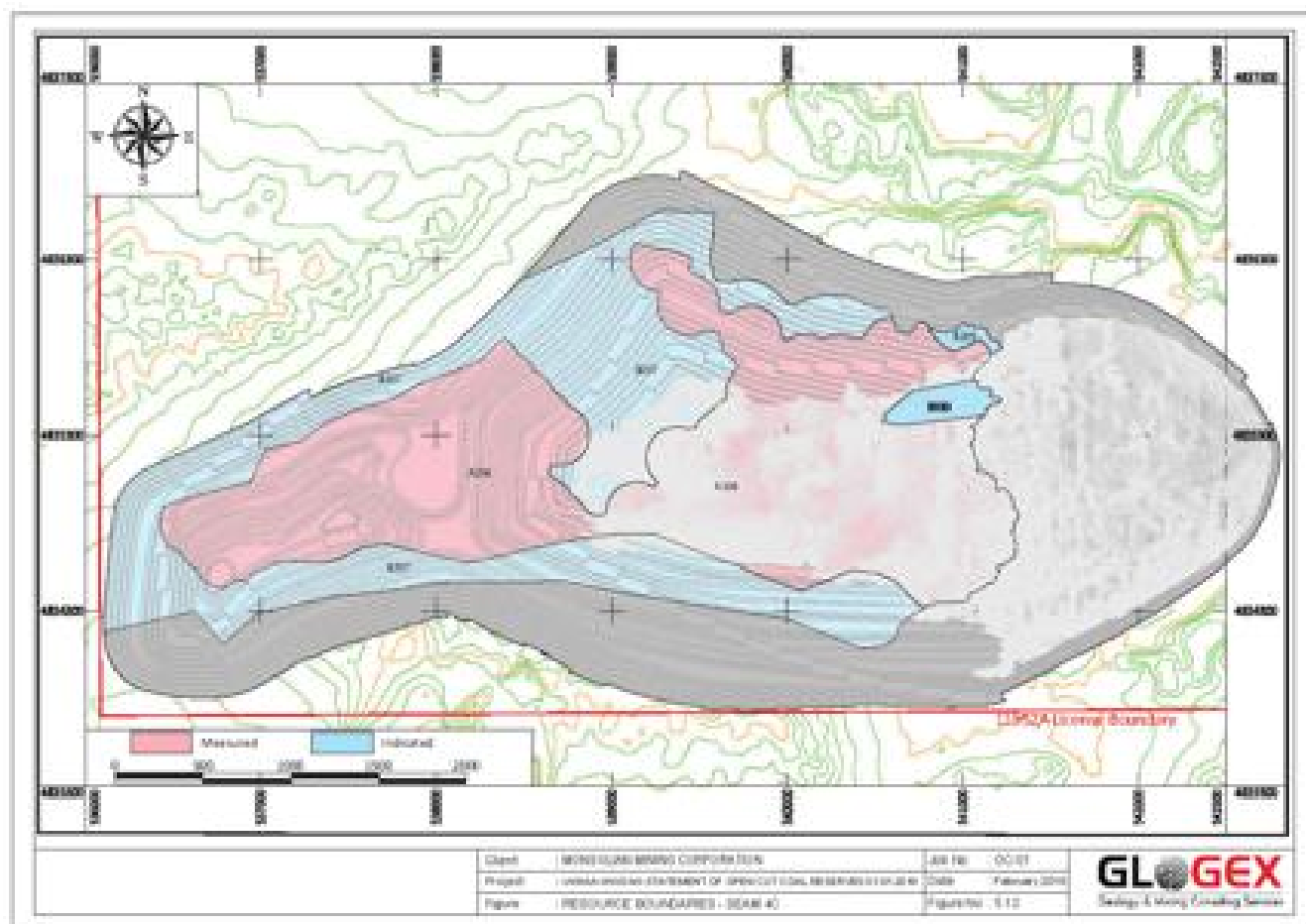
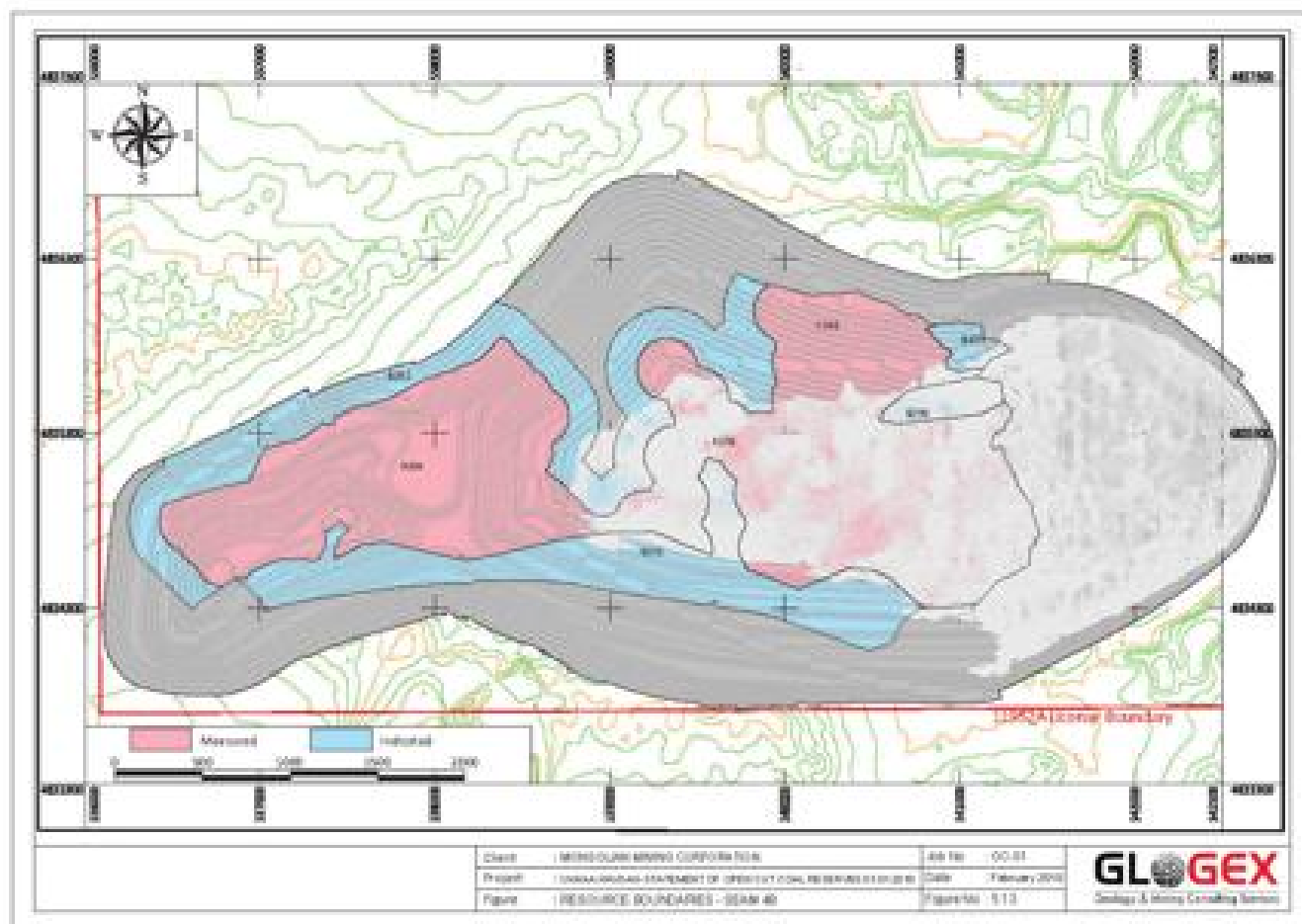


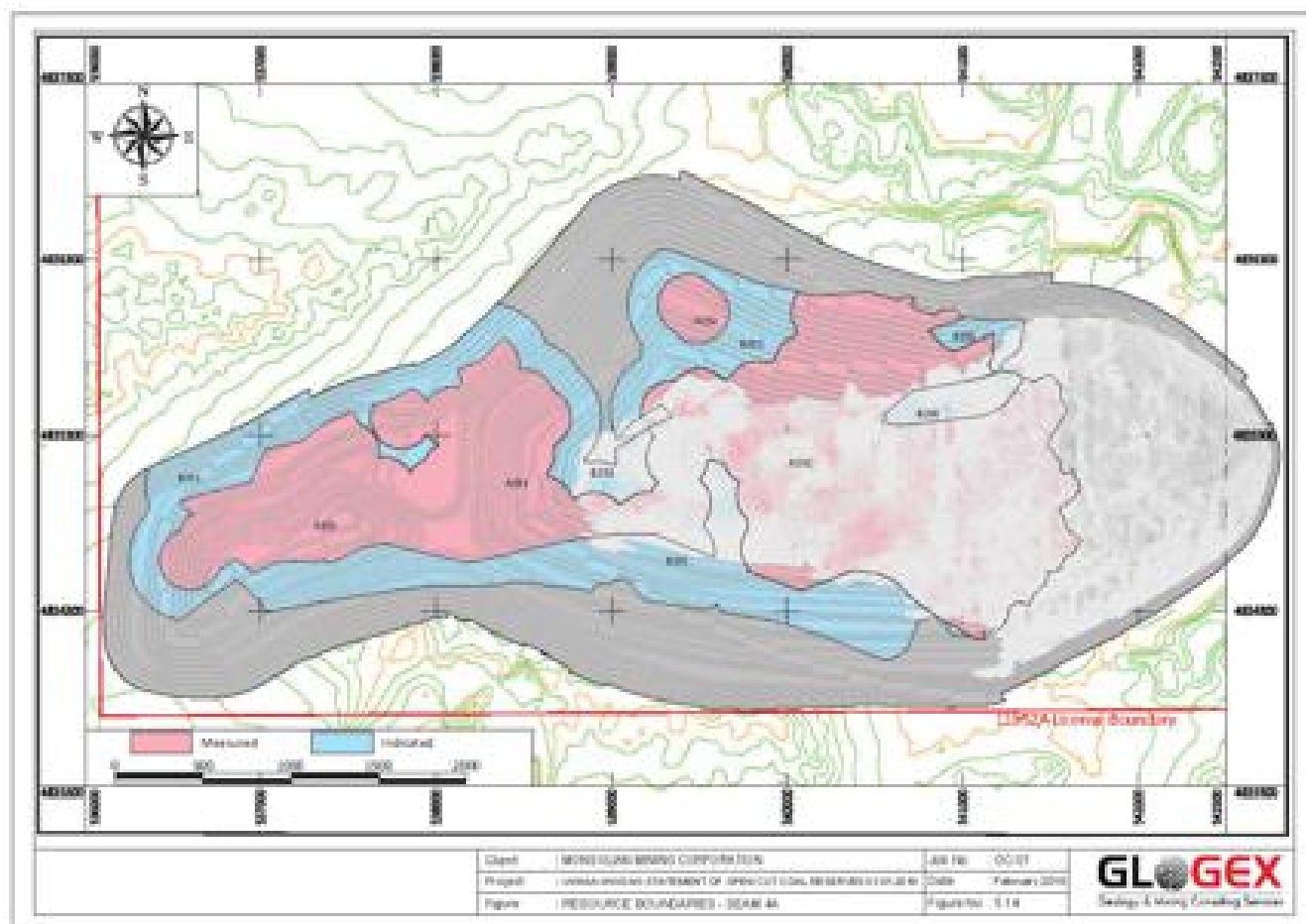
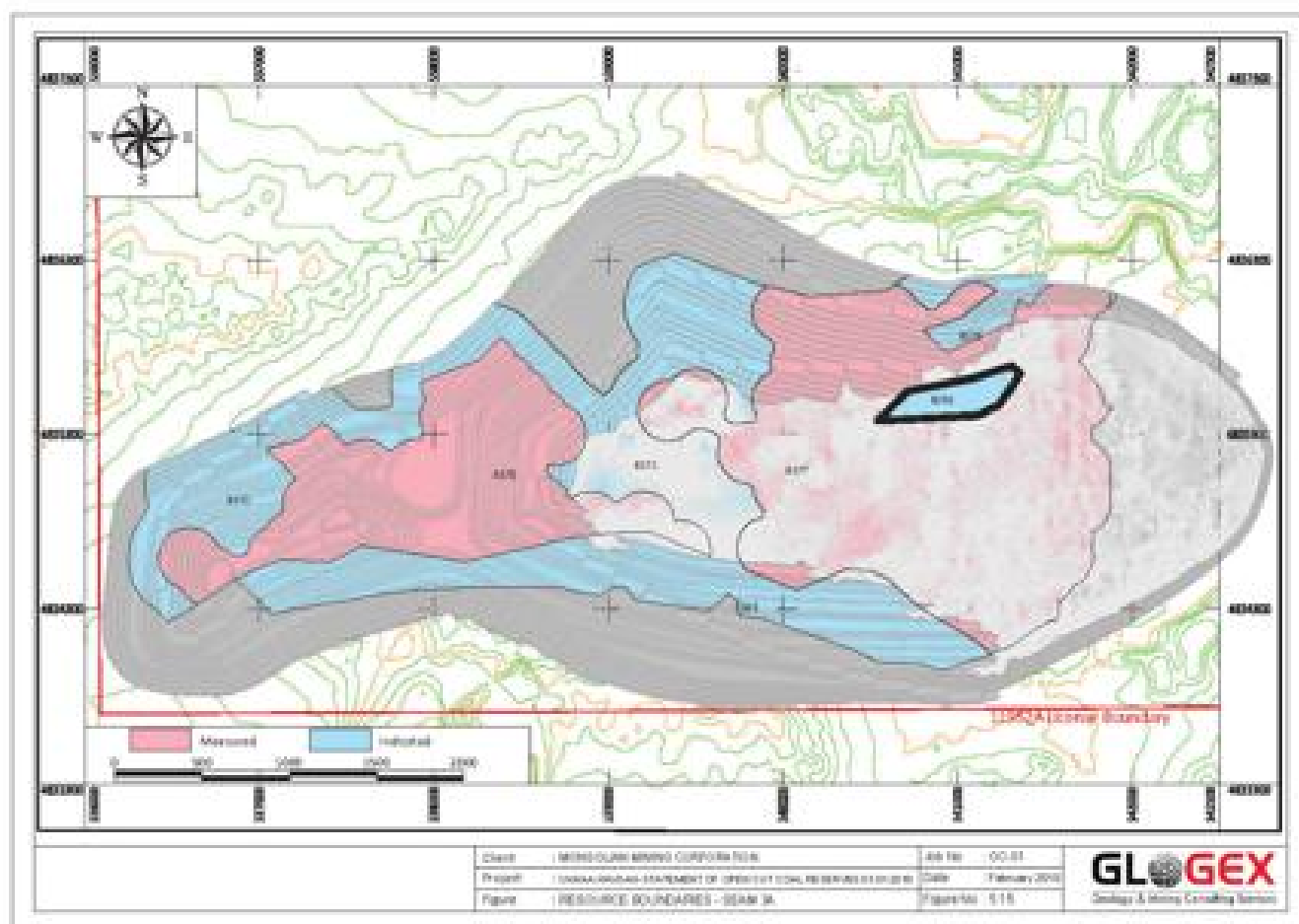


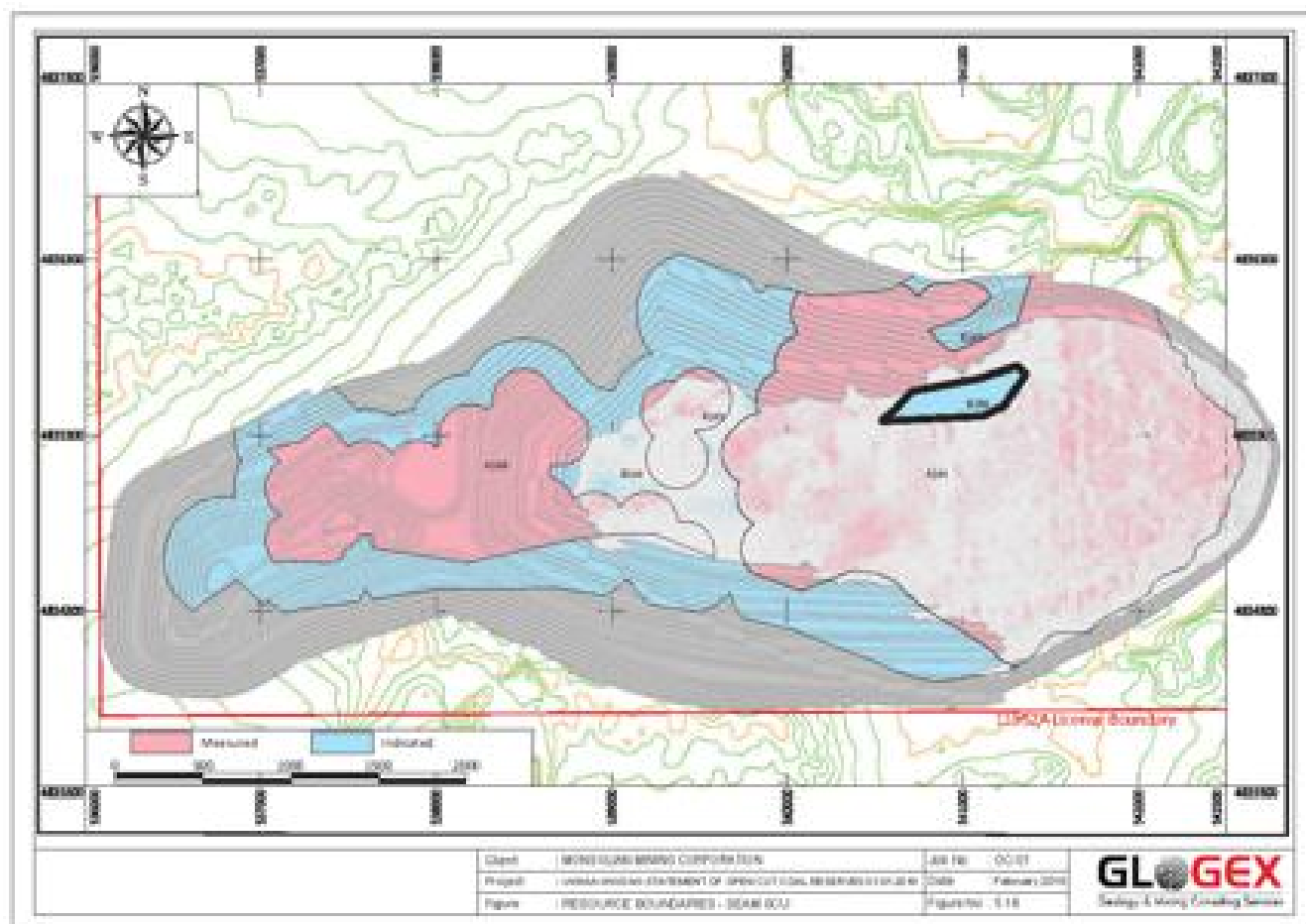
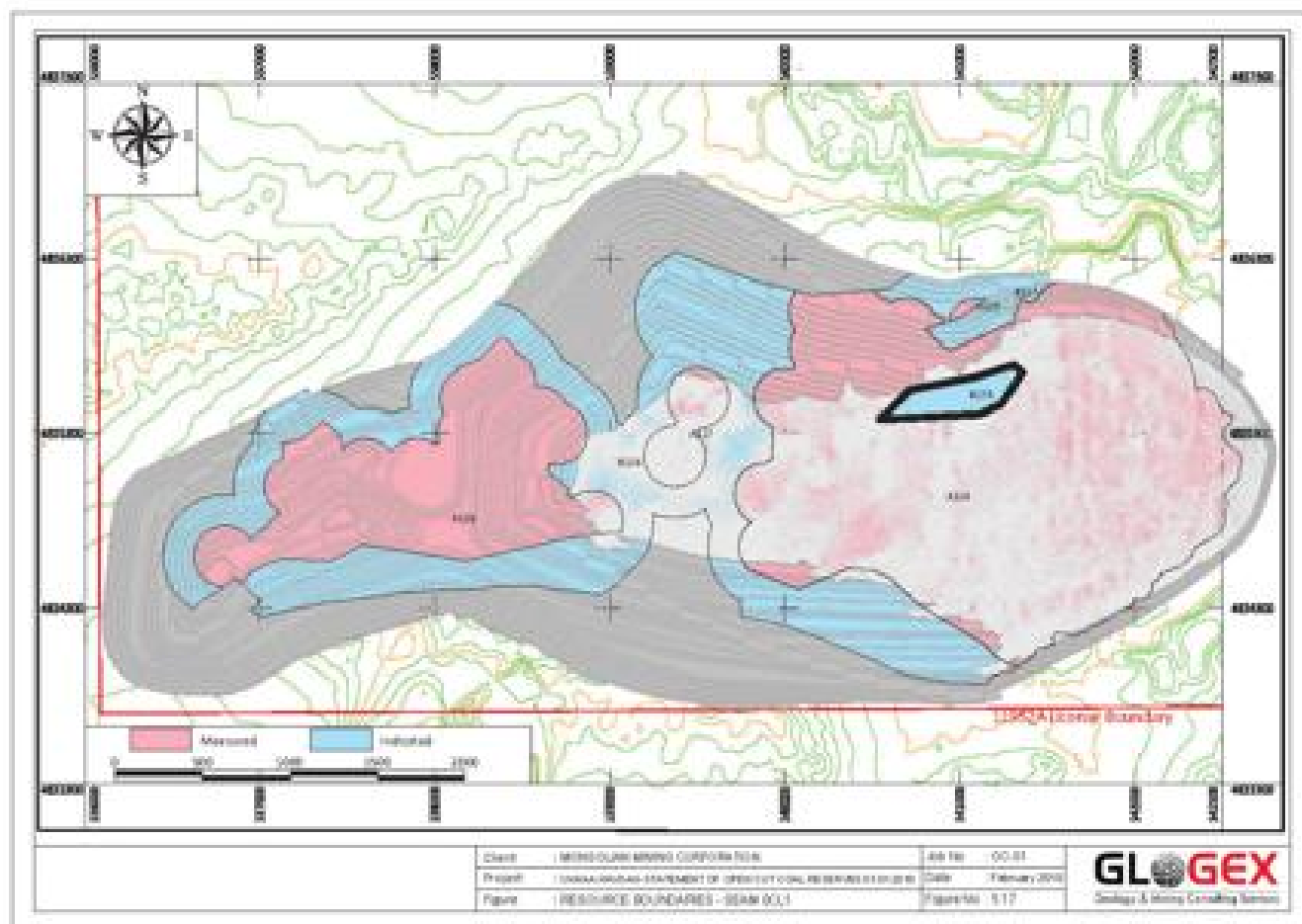


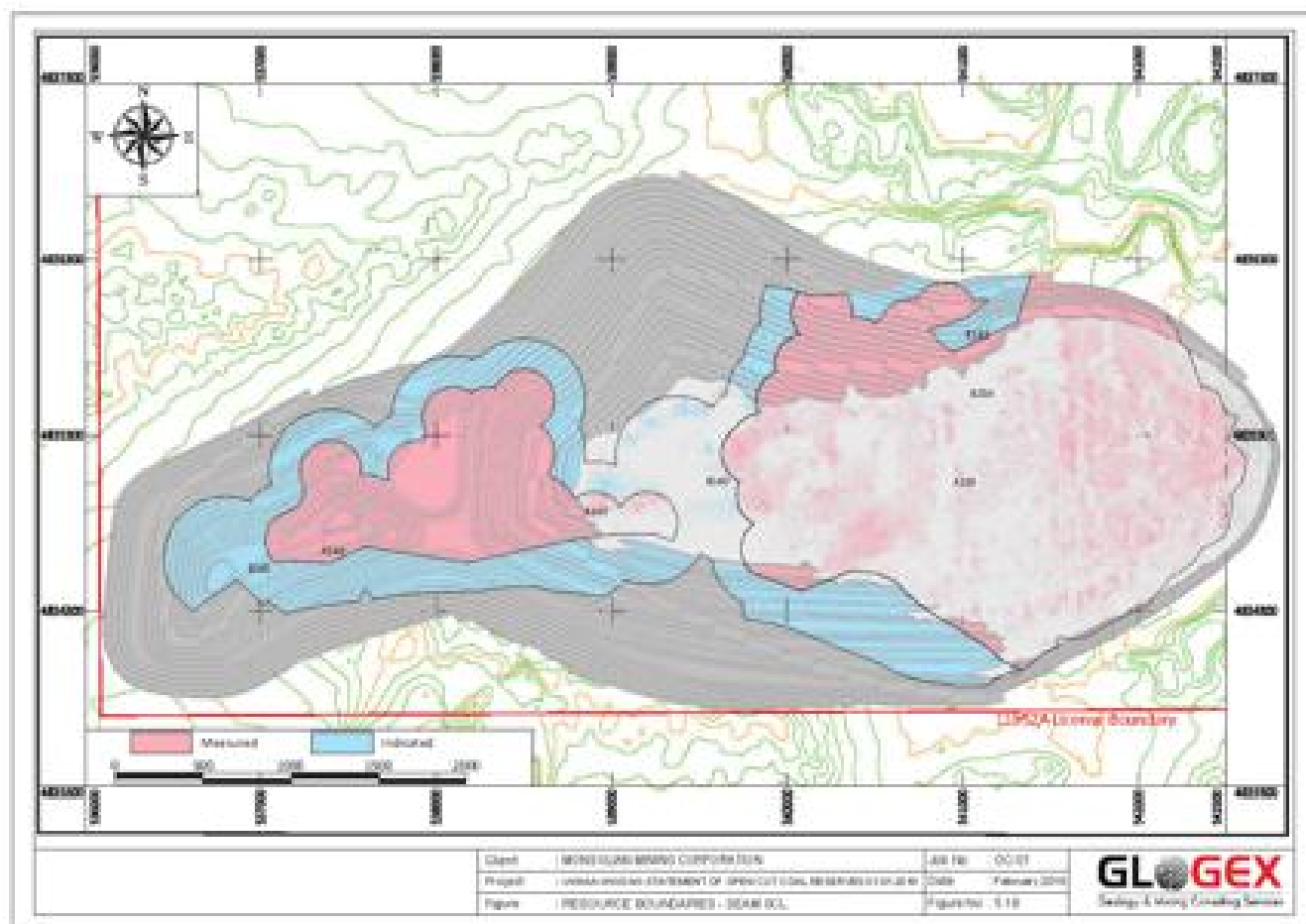
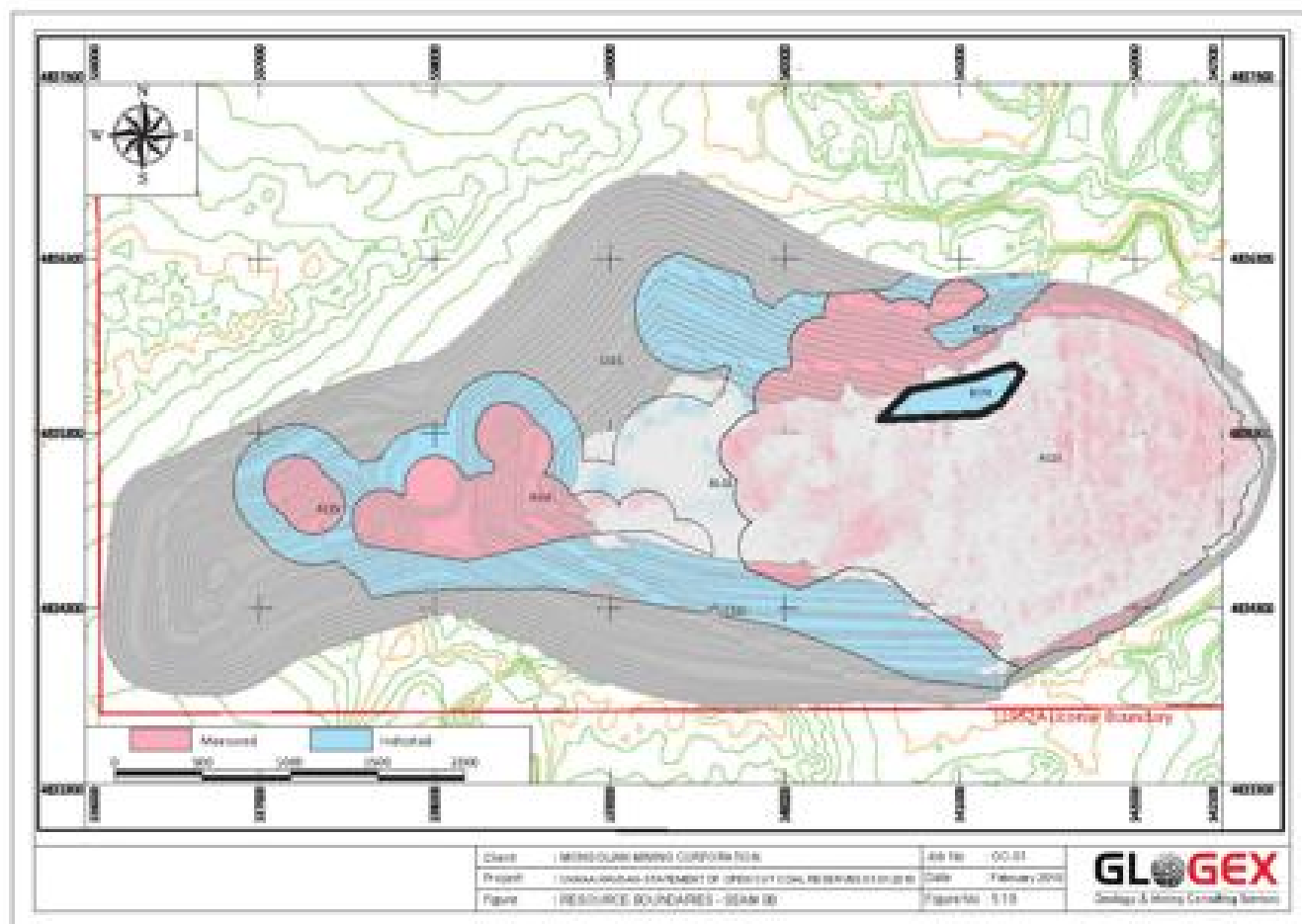


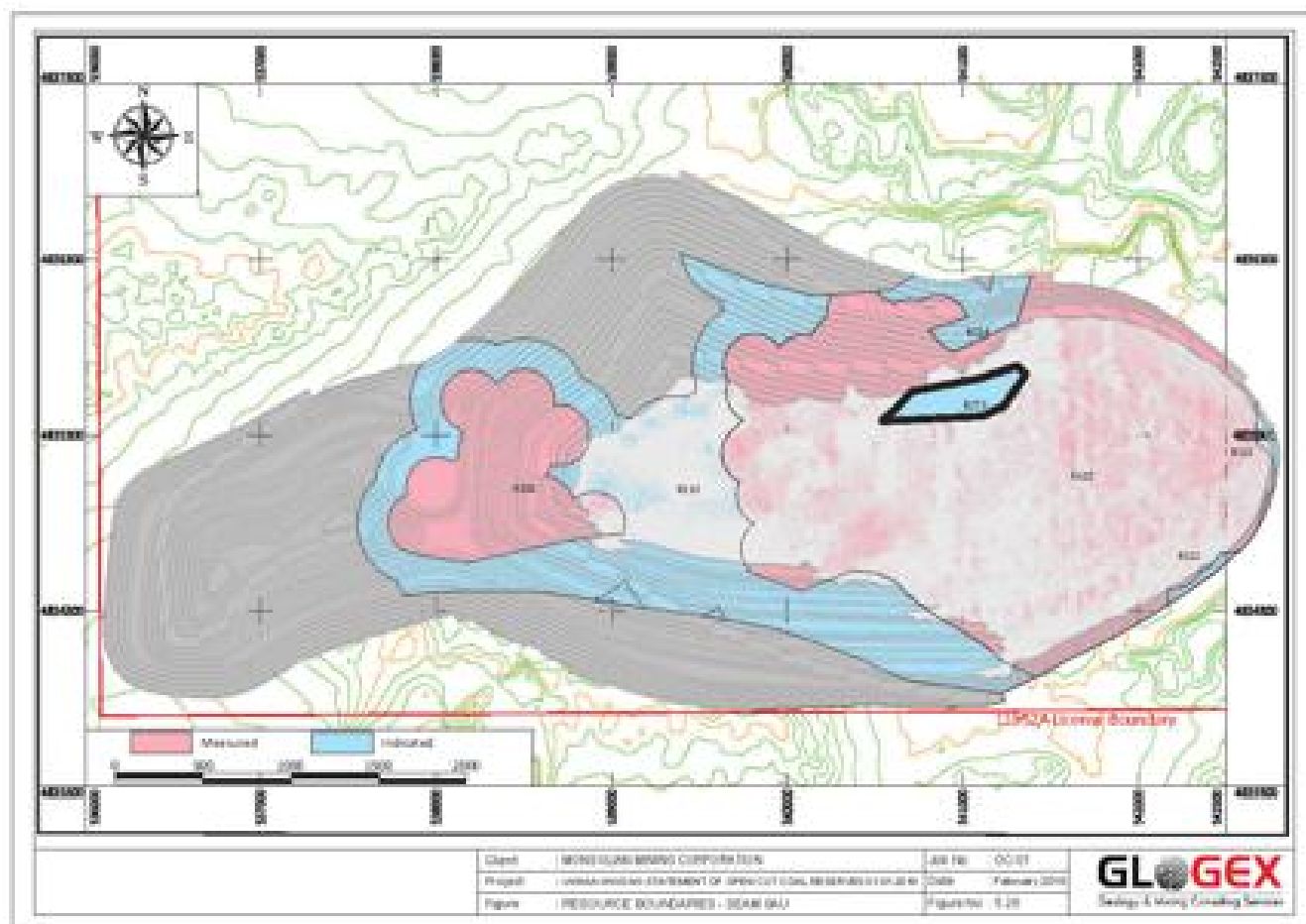
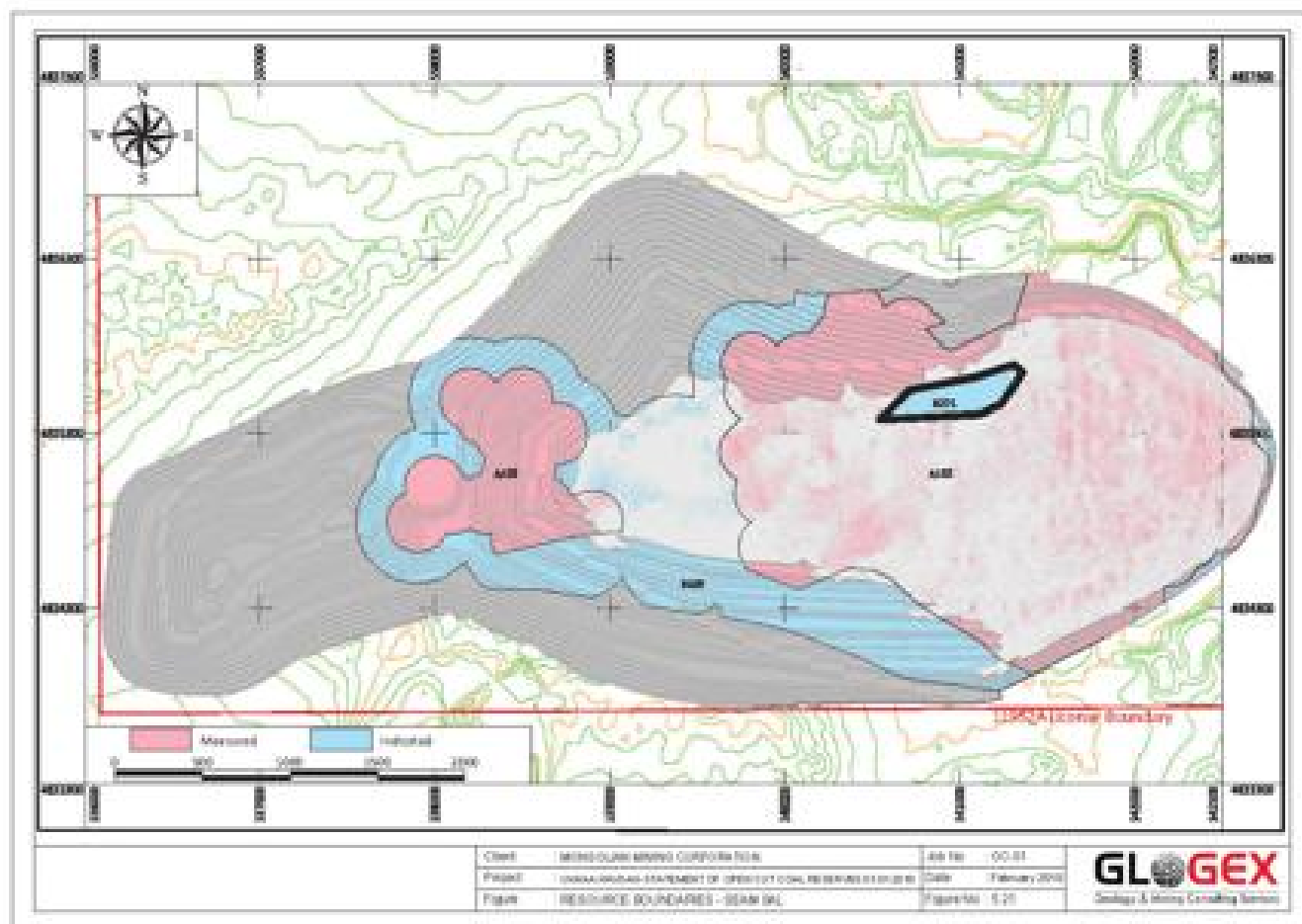












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Assignment 8: Business Techniques and Data

Keywords: Sampling Techniques; Coal; Data Collection; JORC (2012) Standard Resource Estimates; China; Xinjiang Coal Mine Disaster; ASAC December 2014

Object	GEMS-type amphibolite	Cumatecmy
<p>Sampling methodology</p>	<p>• <i>Number and quality of sampling</i></p>	<ul style="list-style-type: none"> • Core quality variables were collected from mid and lower PZ sized diamond core. Core samples were collected from sites in adjacent to cumatecmy and required for analysis. • Drill core (10 m) was (1) 100% (2) 100% (3) 100% (4) 100% (5) 100% (6) 100% (7) 100% (8) 100% (9) 100% (10) 100% (11) 100% (12) 100% (13) 100% (14) 100% (15) 100% (16) 100% (17) 100% (18) 100% (19) 100% (20) 100% (21) 100% (22) 100% (23) 100% (24) 100% (25) 100% (26) 100% (27) 100% (28) 100% (29) 100% (30) 100% (31) 100% (32) 100% (33) 100% (34) 100% (35) 100% (36) 100% (37) 100% (38) 100% (39) 100% (40) 100% (41) 100% (42) 100% (43) 100% (44) 100% (45) 100% (46) 100% (47) 100% (48) 100% (49) 100% (50) 100% (51) 100% (52) 100% (53) 100% (54) 100% (55) 100% (56) 100% (57) 100% (58) 100% (59) 100% (60) 100% (61) 100% (62) 100% (63) 100% (64) 100% (65) 100% (66) 100% (67) 100% (68) 100% (69) 100% (70) 100% (71) 100% (72) 100% (73) 100% (74) 100% (75) 100% (76) 100% (77) 100% (78) 100% (79) 100% (80) 100% (81) 100% (82) 100% (83) 100% (84) 100% (85) 100% (86) 100% (87) 100% (88) 100% (89) 100% (90) 100% (91) 100% (92) 100% (93) 100% (94) 100% (95) 100% (96) 100% (97) 100% (98) 100% (99) 100% (100) 100% (101) 100% (102) 100% (103) 100% (104) 100% (105) 100% (106) 100% (107) 100% (108) 100% (109) 100% (110) 100% (111) 100% (112) 100% (113) 100% (114) 100% (115) 100% (116) 100% (117) 100% (118) 100% (119) 100% (120) 100% (121) 100% (122) 100% (123) 100% (124) 100% (125) 100% (126) 100% (127) 100% (128) 100% (129) 100% (130) 100% (131) 100% (132) 100% (133) 100% (134) 100% (135) 100% (136) 100% (137) 100% (138) 100% (139) 100% (140) 100% (141) 100% (142) 100% (143) 100% (144) 100% (145) 100% (146) 100% (147) 100% (148) 100% (149) 100% (150) 100% (151) 100% (152) 100% (153) 100% (154) 100% (155) 100% (156) 100% (157) 100% (158) 100% (159) 100% (160) 100% (161) 100% (162) 100% (163) 100% (164) 100% (165) 100% (166) 100% (167) 100% (168) 100% (169) 100% (170) 100% (171) 100% (172) 100% (173) 100% (174) 100% (175) 100% (176) 100% (177) 100% (178) 100% (179) 100% (180) 100% (181) 100% (182) 100% (183) 100% (184) 100% (185) 100% (186) 100% (187) 100% (188) 100% (189) 100% (190) 100% (191) 100% (192) 100% (193) 100% (194) 100% (195) 100% (196) 100% (197) 100% (198) 100% (199) 100% (200) 100% (201) 100% (202) 100% (203) 100% (204) 100% (205) 100% (206) 100% (207) 100% (208) 100% (209) 100% (210) 100% (211) 100% (212) 100% (213) 100% (214) 100% (215) 100% (216) 100% (217) 100% (218) 100% (219) 100% (220) 100% (221) 100% (222) 100% (223) 100% (224) 100% (225) 100% (226) 100% (227) 100% (228) 100% (229) 100% (230) 100% (231) 100% (232) 100% (233) 100% (234) 100% (235) 100% (236) 100% (237) 100% (238) 100% (239) 100% (240) 100% (241) 100% (242) 100% (243) 100% (244) 100% (245) 100% (246) 100% (247) 100% (248) 100% (249) 100% (250) 100% (251) 100% (252) 100% (253) 100% (254) 100% (255) 100% (256) 100% (257) 100% (258) 100% (259) 100% (260) 100% (261) 100% (262) 100% (263) 100% (264) 100% (265) 100% (266) 100% (267) 100% (268) 100% (269) 100% (270) 100% (271) 100% (272) 100% (273) 100% (274) 100% (275) 100% (276) 100% (277) 100% (278) 100% (279) 100% (280) 100% (281) 100% (282) 100% (283) 100% (284) 100% (285) 100% (286) 100% (287) 100% (288) 100% (289) 100% (290) 100% (291) 100% (292) 100% (293) 100% (294) 100% (295) 100% (296) 100% (297) 100% (298) 100% (299) 100% (300) 100% (301) 100% (302) 100% (303) 100% (304) 100% (305) 100% (306) 100% (307) 100% (308) 100% (309) 100% (310) 100% (311) 100% (312) 100% (313) 100% (314) 100% (315) 100% (316) 100% (317) 100% (318) 100% (319) 100% (320) 100% (321) 100% (322) 100% (323) 100% (324) 100% (325) 100% (326) 100% (327) 100% (328) 100% (329) 100% (330) 100% (331) 100% (332) 100% (333) 100% (334) 100% (335) 100% (336) 100% (337) 100% (338) 100% (339) 100% (340) 100% (341) 100% (342) 100% (343) 100% (344) 100% (345) 100% (346) 100% (347) 100% (348) 100% (349) 100% (350) 100% (351) 100% (352) 100% (353) 100% (354) 100% (355) 100% (356) 100% (357) 100% (358) 100% (359) 100% (360) 100% (361) 100% (362) 100% (363) 100% (364) 100% (365) 100% (366) 100% (367) 100% (368) 100% (369) 100% (370) 100% (371) 100% (372) 100% (373) 100% (374) 100% (375) 100% (376) 100% (377) 100% (378) 100% (379) 100% (380) 100% (381) 100% (382) 100% (383) 100% (384) 100% (385) 100% (386) 100% (387) 100% (388) 100% (389) 100% (390) 100% (391) 100% (392) 100% (393) 100% (394) 100% (395) 100% (39

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Criteria	2020 Task explanation	Commentary
	<ul style="list-style-type: none"> Abundance Index to monitor sample recovery and assess representative nature of the sample. 	<ul style="list-style-type: none"> Mineral dating supported and mineral coal of this was related High quality drilling data, drilling was in line with report Estimated high data recovery probability of 100% was related with drilling performance Mineralogy assessed with low 200-250% was related Core samples collected on a 1m scale and displayed clearly to my geological observation
	<ul style="list-style-type: none"> Drilling + geophysical data (seismic) support recovery and depth and another sample has been collected due to performance of the sample. 	<ul style="list-style-type: none"> High data was recovered and maximum 100% has been, sampling sample has been to sample main core. Core photography and good surface geophysics contained high data was assessed, was a related with representative of maximum sample was collected for the study.
Logging	<ul style="list-style-type: none"> Drilling was not only sample but also geologically and geologically logged in a form of data to support representative nature of the sample. A series of data was collected and analysed. Drilling data is geophysical data (seismic) is a series of data to support recovery and depth. The data depth and percentage of the sample is related to the sample. 	<ul style="list-style-type: none"> All data was logged geologically and geologically and was related to hard copy and electronic form to COMLOG standard Geological and geophysical logging was qualitative with series used to describe the different geological and geophysical aspects of the core as per COMLOG standard Research core was photographed 1 or 2 m scale (depending on HQ or HQ) on a mill scale and then, when necessary, the entire core All data was fully assessed and logged to COMLOG standard. All logged data was fully sampled including each passing 10 m series

Criteria	2014 Coal Exploration	Commentary
	<ul style="list-style-type: none"> Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols 	<ul style="list-style-type: none"> The pre-2008 primary data (including coal quality) was in the form of hardcopy volumes of hand-drawn detailed graphic profiles with all survey, drilling, sampling, geologic, climatic, geophysical, raw, intermediate, interpreted information and final information. These volumes are securely stored in the company's long-term storage archive. For volumes were scanned, transferred, coded and uploaded in the LogCheck data management software. Coal quality records were provided as hard-copy laboratory certificates. These hardcopies are securely stored in the company's long-term storage archive. The data was entered into Excel spreadsheets and/or tabulated and loaded into the LogCheck data management software. The 2008 primary data was in the form of surveys but a copy (survey, drilling and geologic logs, geophysical geophysical and LAM logs) logs that was not quality. In Excel spreadsheets. The hardcopy logs were already in digital form in Excel spreadsheets. These were re-created as spreadsheets and with LAM data, uploaded into LogCheck data management software. The coal quality results were built into the existing LAM Excel spreadsheets for verification and uploaded into the LogCheck data management software. The survey data for 2008 - 2014 was original hard copy records for survey, drilling, geologic, geophysical, geophysical, geophysical and coal quality. This data is securely stored in filing cabinets in the main office of the mine site. All data also in a digital and has been entered and validated by the LogCheck data management software. This data is also in a company server where the company IT department controls the security. Furthermore, all data was scanned and entered into the company server database stored on the Microsoft (MS) system. All data appears to be shared with the COALLOG mining and lease system. All data from all exploration either entered in current has been coded and converted into the COALLOG mining and lease system and results are on database.

Criteria	2014 Coal Exploration	Commentary
		<ul style="list-style-type: none"> Hard copy data from the pre-2008 program with geologic and geologic data entered into the LogCheck data management software. The hard copy geophysical logs were tabulated and then digitized and LAM files created and uploaded into the LogCheck data management software. All data was not quality records, were entered into Excel spreadsheets and data tabulated and loaded into the LogCheck data management software. Results for stream geophysical survey as adjustments were made for the coal quality data. The 2008 program coded digital data was transferred and re-coded and uploaded into the LogCheck data management software. The LAM geophysical logs were tabulated and uploaded into the LogCheck data management software. The coal quality results were re-created as Excel spreadsheets and were built into the existing LAM Excel spreadsheets for verification and uploaded into the LogCheck data management software. Results for stream geophysical survey as adjustments were made for the coal quality data.
<ul style="list-style-type: none"> Review of Reserve/Value 		<ul style="list-style-type: none"> A number of pre-2008 reserves were reviewed by the Mine and the drilling program. Coal/Reserve intervals were checked with a high level of agreement. Due to poor core recovery many of the pre-2008 boreholes were not accepted for points of observation but due to the good agreement of coal reserve thickness the boreholes were generally used for trend estimation and continuity. Many of the pre-2008 boreholes were located with only a few separating which may represent the quality of observation. Some were also in the 2008 program which were quality observations. Some were up to a 20% error which is relative density and bit. A few numbers of boreholes from the 2008 program were located in the main coal and Reserve intervals and coal quality had good agreement. All boreholes in the program where they were good of observation questions were used for the Reserve estimate. A few more bore of boreholes from the 2008 program was located in the main coal and Reserve intervals and coal quality had good agreement. All boreholes in the program where they were good of observation questions were used for the Reserve estimate.

Observations	CHC's explanation	Commentary
Accuracy of data points	<ul style="list-style-type: none"> Accuracy and quality of surveys used to locate still active facilities and domestic surveying, location, water readings and other location data is limited by the quality of the data. 	<ul style="list-style-type: none"> The topographic and location data survey was carried out by CHC's own survey team using a total station. Data collection was carried out using a Global Positioning System (GPS) which has a global positioning and survey accuracy of about 10 cm (100 mm), an RTK (Real Time Kinematic) positioning accuracy of about 10 cm (100 mm) and an RTK (Real Time Kinematic) positioning accuracy of about 10 cm (100 mm). Following a review of the data received by the CHC, the Contractor found that the data was not as accurate as the data received from the CHC's own survey team.
	<ul style="list-style-type: none"> Accuracy of the data received 	<ul style="list-style-type: none"> The data received from the CHC is not as accurate as the data received from the CHC's own survey team.
	<ul style="list-style-type: none"> Quality and integrity of the data received 	<ul style="list-style-type: none"> The topographic survey was carried out by CHC's own survey team using a total station. The data received from the CHC is not as accurate as the data received from the CHC's own survey team. A difference was observed between the data received from the CHC and the data received from the CHC's own survey team. The difference was about 10 cm (100 mm) and was not as accurate as the data received from the CHC's own survey team.
Water quantity and distribution	<ul style="list-style-type: none"> Data received from the CHC is not as accurate as the data received from the CHC's own survey team. 	<ul style="list-style-type: none"> The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team. The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team. The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team.

Observations	CHC's explanation	Commentary
	<ul style="list-style-type: none"> CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team. 	<ul style="list-style-type: none"> The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team. The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team. The CHC's data received from the CHC is not as accurate as the data received from the CHC's own survey team.

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Criteria	2000 Code explanation	Comments
		<p>The random deposit area covering the sample is not level less than 10m. This 10m is not considered as a 10m area for staking out 10m x 10m quadrats for the top 10m of the sample area. The sample is not a 10m x 10m quadrat area of 10m x 10m.</p> <ul style="list-style-type: none"> The staking program that covered the period 2012-2014 was an extension of the random deposit area at level of the sample area. The program was signed by the random area and not different as a 10m x 10m quadrat area of 10m x 10m. The quadrat boundaries were clearly for the area and LDC work as only extended the field line across the location. The sample is not a 10m x 10m. The quadrat boundaries were clearly for the area and LDC work as only extended the field line across the location. The sample is not a 10m x 10m.
	<p>Whether the data spacing and distribution is sufficient to maintain the degree of quadrat and such randomly appropriate for the future research and the future estimate precision and classification.</p>	<ul style="list-style-type: none"> The data spacing is sufficient to maintain a high degree of quadrat and such randomly appropriate for the future research and classification. The data spacing is sufficient to maintain a high degree of quadrat and such randomly appropriate for the future research and classification.
	<p>Whether sample spacing has been applied</p>	<ul style="list-style-type: none"> Sample within plot was composed for quadrat of distribution for the future research and classification. The only sample composition made by the future research was for the future research.
<p>Whether the data spacing and distribution is sufficient to maintain the degree of quadrat and such randomly appropriate for the future research and the future estimate precision and classification.</p>	<p>Whether the data spacing and distribution is sufficient to maintain the degree of quadrat and such randomly appropriate for the future research and the future estimate precision and classification.</p>	<ul style="list-style-type: none"> All quadrat within the future research were filled with a random distribution. The future research was for the future research. Following a review of the LDC research for the future research, the LDC research was for the future research.

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Appendix C: Reporting Exploration Results

Section C: Reporting Exploration Results (Owner: JPMC (Pty) Limited) issued pursuant to the Mining Code after receiving Coal Mine Licence (CML) Number 1010

Criteria	JPMC Code exploration	Commentary
General statement and brief reserve status	<ul style="list-style-type: none"> JPMC, following completion of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa. 	<ul style="list-style-type: none"> The results of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa. The results of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa.
	<ul style="list-style-type: none"> The results of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa. 	<ul style="list-style-type: none"> The results of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa.

Criteria	JPMC Code exploration	Commentary
		<ul style="list-style-type: none"> The results of the JPMC (Pty) Limited, is a company registered in the Republic of South Africa, with its head office in Johannesburg, South Africa. The company is a subsidiary of JPMC (Pty) Limited, which is a company registered in the Republic of South Africa.

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http://jiv.sagepub.com

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REFERENCES

INTERNAL NAME: FUEL, Fuel Storage, Storage

Object	JOAC Code explanation	Summary
		Joacac program measures 16 parameters (H ₂ O, NH ₄ , NO ₃ , NO ₂ , Fe, Cu, Zn, Pb, Cd, Ni, Mn, Co, Cr, Se, As, Hg) with 200 maximum value channels and using spreads as the scores
Background	<ul style="list-style-type: none"> a. The theory and scope of chemical pollution and the health related references in health references in large-scale chemical drilling 	a. An explanation of the background
	<ul style="list-style-type: none"> a. Diagrams clearly highlighting the areas of possible pollution, including the main pollution receptors and future drilling areas, provided this information is not commercially sensitive 	b. No consideration is required

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> The team confirm the work outlined above meets the requirements for sampling that adequately address the JORC (2007) (table 1) and JORC (2012) (table 1) criteria and objectives outlined above and therefore justify claims made above. 	<ul style="list-style-type: none"> The industry standard against the geology in this RD is not applied using the Pappas 5 metre formulae and used to account for any relative density to un-mineralised (or other) relative density.
	<ul style="list-style-type: none"> Mineral concentrations for each density indicator used in the statistical control of the different materials. 	<ul style="list-style-type: none"> Portage within the waste bank has different and usually more than defined and usually un-defined (used to not usually defined) (Table not defined in the report in Table 6.2)
Accuracy	<ul style="list-style-type: none"> The team do not consider that the Mineral Resource and sample confidence categories. 	<ul style="list-style-type: none"> The team do not consider that the Mineral Resource is better than previous from the the studies Coal Geology (2014) The level of the classification confidence category for the level of the results of an investigation of samples used for the JORC parameters through the use of Confidence Category Classification
	<ul style="list-style-type: none"> Whether appropriate account has been taken of all relevant factors (in addition confidence in sample grade) geologically, variability of input data, confidence in quality of sample and sample related quality, density and composition of the waste 	<ul style="list-style-type: none"> Exploration prior to 2010 had been done to good geological standards however, not always to JORC standards. The geological teams of the are aware and aware in the collection of geological information and the information has been used effectively to the current Resource estimates and have assisted greatly in the preliminary understanding of waste composition variability and quality and boundary limits Since 2010 having a higher standard than is considered and standard sampling depth and quality standards and improved geological standards, high quality 3D models, good levels control for accurate resource and exploration, a complete quality assurance (QA) system and having an active quality team, plus a good geological map of the reliability. However, variability in the report is highly variable As a further measure to understand the confidence in the estimate the high level consistency check on the estimate recorded over the estimate over used as an aid to understanding the quality of the estimate used for

Criteria	JORC Code explanation	Commentary
	<p>Sampling must include enough samples are provided when sampling Mineral Resources may not be able to represent waste as in the case, this should be reported with an explanation of the state of the sampling appropriate to the study</p>	<p>exploration process, mineral and coal and base sampling and analysis was done completely Resource estimates of Mineral</p>
Sampling/Source of sample	<ul style="list-style-type: none"> The team do not consider in conditions requiring stratigraphic variability of the waste necessary as part of the process of determining resource category for several economic activities to provide relative stratigraphic methods but the variations regarding stratigraphic in different areas are not relevant waste is being reported Mineral Resources may not always be reported (where there is the case this should be reported with an explanation of the state of the stratigraphic accuracy made) 	<ul style="list-style-type: none"> The report is under 2.2.20 shows typical production figures from the GWP. Depending on which areas is being worked and what blocks are being reported these data are provided. It does not have the data, which is not, (Table) the data used for mining profile and high- level mining for the Mineral Resource The Mineral Resource is a estimate for the report but not an assumption made as an estimate for development
Environmental Issues or sample	<ul style="list-style-type: none"> A statement made regarding sample waste and process waste disposal system. It is not necessary as part of the process of determining resource category for several economic activities to provide the relative stratigraphic methods but the variations regarding stratigraphic in different areas are not relevant waste is being reported Mineral Resources may not always be reported (where there is the case this should be reported with an explanation of the state of the stratigraphic accuracy made) 	<ul style="list-style-type: none"> All environmental issues are managed by the company's environmental department which has been able since the start of mining Is mining waste no mining waste have an used environmental conditions which have been not relevant in data (they are relevant in the quantities to ensure that a safe material is not managed and that waste and profiles are not made in the area can used for the rehabilitation process Quality of the waste waste waste waste as positive environmental effects of sampling sampling waste waste waste as data (they are relevant)
Rock density	<ul style="list-style-type: none"> Whether account is taken of the sample and waste by any sampling (1) sampling, the sample and sample and the density of the stratigraphic, the Mineral and the stratigraphic of the sample 	<ul style="list-style-type: none"> The Mineral Resource was sampled by the GWP samples, (2) the use of all samples (GWP 2017) (2018). The sampling system sample was not sufficient using the sample (2) a waste (waste) (2012) (2014) for an of the stratigraphic methods An industry standard method for estimating the RD was applied using the Pappas 5 metre formulae and used to account for any relative density to un-mineralised (or other) relative density

Appendix E: Estimation and Reporting of the Response Function in the Estimation of the Response

Area	2004 Work explanation	Commentary
Mineral Resource estimate for coal reserves in the Mazon	<ul style="list-style-type: none"> • Description of the Mineral Resource estimate used as a basis for the assessment in the Mazon • Other attempts to do whether the Mineral Resource estimate is sufficient to, or in excess of, the Coal Reserves 	<ul style="list-style-type: none"> 1. The Mineral Resource estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 2. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 3. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004.
Minerals	<ul style="list-style-type: none"> • Comments on the data used in the estimate by the Coal Reserves • Any data used in the estimate is not used in the estimate 	<ul style="list-style-type: none"> 1. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 2. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 3. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004.
Coal Reserves	<ul style="list-style-type: none"> • The data used in the estimate is not used in the estimate • The Coal Reserves estimate is not used in the estimate 	<ul style="list-style-type: none"> 1. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 2. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004. 3. The Coal Reserves estimate used as the basis for the Coal Reserves, submitted in 1994 (MRE) is based on Resource Estimate Review K being conducted by the Mazon 1994 MRE prepared by Morgan Stanley Corporation, Energy Resources, LLC, Chicago Department on 2004.

Claims	2016 Code explanation	Commentary
	<ul style="list-style-type: none"> The program must clearly identify all claims to cover all prior activities and 2-3rd. This also allows the program to be subject to technical and economic evaluation. Documentation should include appropriate rules and the procedure used. 	<ul style="list-style-type: none"> The program must clearly identify all claims to cover all prior activities and 2-3rd. This also allows the program to be subject to technical and economic evaluation. All appropriate and necessary for the program must be documented with the appropriate rules and the procedure used.
	<p>These activities of review, accuracy and verification of the results must be complete and properly done, they must be</p>	<p>These activities of review, accuracy and verification of the results must be complete and properly done, they must be</p>

Comments on the reserves valuation	Comments
	<ul style="list-style-type: none"> Where appropriate a discussion of the reserve accuracy and confidence level of the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the reserve accuracy of the estimate will be considered. Confirming as it may be appropriate a set-point approach, a qualitative discussion of the quality of the data and the reserve estimate and confidence of the estimate. The statement should specify whether it relates to global or local estimation, and if local state the reserve category a risk should be estimated between local and global estimation. Documentation should include assumptions made and the procedures used. Specify the confidence statement about reserve to include discussion of any known sampling / assay that may have a material impact on Ore Reserve estimate, or for which there are reliability levels of accuracy of the current study stage. It is suggested that this may not be possible or appropriate in all circumstances. Where discussion of reserve accuracy and confidence of the estimate should be completed with production data, where available.

Comments	Comments
<ul style="list-style-type: none"> The level for the classification of the Ore Reserve is not clearly defined/consistent. Where the level is not clearly defined/consistent, the Competent Person's view of the level. The presence of Probable Ore Reserve that have been defined from Mineral Reserve/Resource (MRR). 	<ul style="list-style-type: none"> Mineral Reserves have been classified as Probable Reserves. Inferred Reserves have been classified as Probable Reserves. No Probable Reserves have been defined from Mineral Reserves. The Mineral Reserves have been converted to Probable Reserves. Mineral Reserves have been converted to Probable Reserves. Mineral Reserves have been converted to Probable Reserves. The level for the classification of the Ore Reserve is not clearly defined/consistent.
<ul style="list-style-type: none"> The level of the Ore Reserve is not clearly defined/consistent. 	<ul style="list-style-type: none"> The level of the Ore Reserve is not clearly defined/consistent.

JORC (2012) Standard Resource Estimation

Baruun Naran Mining Licence [14493A]

And

Tsaikhar Khudag Mining License [MV-017336]



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JUNE 2015

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[illegible]

What Is a Trench Box?

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139.99km was core and 31.70km was openhole. In addition, during 2011, Polaris Seismic International completed for the BN license, a 2D high definition seismic program recording 39 lines totalling 73.51km using Roll On and Roll Off methodology and dynamic at the source.

All QA/QC methods for drilling, borehole surveys, geophysics, logging and sampling were reviewed against current procedures that meet JORC (2012) standards. The analytical methods were also investigated. The QOX analyses were completed by SGS Laboratories, Tianjin, China and ACTRL in the USA. The ER program the analyses were completed by the smaller Energy Resources Central Chemical Laboratory (ERCCCL). All laboratories were accredited to the standards of the day with the ERCCCL laboratory holding a current accreditation to ISO/IEC 17025:2005 (EN ISO/IEC 17023:2007). The ERCCCL laboratory since its inception has undergone 2 audits with both delivering favourable responses. In addition, duplicate samples were sent to 2 laboratories, the Ulaanbaatar based ALS and the Mining Institute (UIIR) laboratory. The ERCCCL laboratory generally reported the coal quality parameters lower than the ALS laboratory and generally higher than the UIIR laboratory with varying degrees of reproducibility between laboratories.

The BN and THO resource estimates were carried out using Micromine’s a COALMASCORE version 15.0.1 and LogCheck version 6.16 using the COALLOG geology data format to the database. The resource estimates were carried out using the Points of Observation (POO) data supplied by the CP.

The method used for estimating resources for BN and THO was the same. It involved modelling an elevation grid for a major ply and then modelling thickness grids for the other plies and partings. These thickness grids for the plies and partings were then stacked on top or below of the elevation grid to form a 3D block model. Gridling with exact interpolation using ordinary kriging was used to generate grids for the deviation of the mid-point of the plies and inverse distance weighting (IDW) with a power of two was used to generate grids for the thicknesses of the plies and partings. The base of weathering surface, the base of Quaternary and the topographic surface grids were also produced using IDW with a power of two.

The block model used for resource classification, seam coding and grade interpolation was limited vertically by the base of weathering grid or limit of oxidation (LOO) lines where they were present. The block model was limited laterally by basement faulting and the subcrop. Each ply was limited to its own inferred resource boundary or other defined limits.

Measured Resources were limited to circles with a radius of 250m, indicated Resources by a circle with a radius of 500m and Inferred Resources by a circle with a radius of 1000m. For seam coding there was no maximum seam thickness, a minimum seam thickness of 0.5m to 400m depth, a maximum parting thickness of 0.5m, and an ash content cut-off greater than 50% (dry basis). In addition, core recovery was applied where it was greater than or equal to 95 percent (%) for moderate or high potential coking coal seams and greater than or equal to 90% for low potential or no coking potential coal seams. Coal quality data was interpolated into the block model using IDW with a power of two.

The total resources for the BN license are shown on an in-received basis in Table 10-1 and on an air-dry basis in Table 10-2. It should be noted that these figures have been

rounded to reflect the fact that they are estimates and as a result this may cause figures not to sum correctly.

Table 1-1: Total Resources on an As-Received (AR) Basis

Resource Category	Area (km²)	Thickness (m)	Volume (m³)	Weight (t)	Uranium (t)	Thorium (t)	Total (t)
Measured	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Inferred	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Indicated	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Total	20.2	1.0	10.10	2.02	0.02	0.02	0.04

Table 1-2: Total Resources on an Air-Dry (AD) Basis

Resource Category	Area (km²)	Thickness (m)	Volume (m³)	Weight (t)	Uranium (t)	Thorium (t)	Total (t)
Measured	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Inferred	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Indicated	10.1	0.5	5.05	1.01	0.01	0.01	0.02
Total	20.2	1.0	10.10	2.02	0.02	0.02	0.04

The total resources for the TRS license are shown on an as-received basis in Table 10-13 and on an air-dry basis in Table 10-24. It should be noted that these figures have been rounded to reflect the fact that they are estimates and as a result this may cause errors not to sum correctly.

Table 1-3: Total Resources on an As-Received (AR) Basis

Investing Company (a)	Market Capitalization	Revenue (\$ mil.)	Operating Margin (%)	Total Assets (%)	Equity Ratio (%)	ROE (%)	ROIC (%)	ROIC/ROE	ROIC/ROE
1.1	22	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.2	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.3	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.4	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.5	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.6	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.7	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.8	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
1.9	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.0	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.1	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.2	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.3	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.4	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.5	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.6	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.7	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.8	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
2.9	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.0	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.1	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.2	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.3	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.4	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.5	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.6	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.7	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.8	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
3.9	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.0	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.1	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.2	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.3	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.4	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.5	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.6	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.7	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.8	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
4.9	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
5.0	1.0	1.0	33.3	2.0	20.0	1.0	1.0	1.0	1.0
5.									

Tobias et al. / Community-Based Interventions 1,177

Table 1-4: Total Resources on an Air-Cry (AD) Basis

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1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

In view that this Resource estimate forms the basis of a Reserves update, the following recommendations for the project area include, but are not limited to:

1. Drill closely spaced boreholes to determine remaining seam LGW lines.
2. Complete a series of bulk samples for volatility tests on all potential coking seams with blending options with URG seams.
3. Adopt recommendations from the peat review.
4. A better understanding of the spatial distribution of the coking characteristics of the coal and the geological parameters that affect the coking characteristics will be beneficial for mine planning and production scheduling in order to produce a consistent product and maximising the value of the deposit.
5. A review should be completed where there was some variation in the deviations of the topography survey and the collar survey.
6. The Seismic data is high level data that has been important in locating and defining structural style, but it is highly recommended that mine geologists continue to map and monitor faults within the pit.
7. Continue infill drilling programme in front of mining.

5. 结论

[illegible]

The Chicago Office will be the Company's Office for the Region for several years. The Company's Chicago Office will be the Company's Office for the Region for several years. The Company's Chicago Office will be the Company's Office for the Region for several years.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

San Antonio judges on 12 employees was responsible for the civil penalty paid in the lawsuit.

Mr Todd Schwartz completed a site visit at the ERF parking lot on central logging facility located at Ethos Trading Depot (ETD) in June 2012. He provided an independent field review of processing practices and processes, which he will discuss in his report to the Assembly (A1).

Mr. Blumstein worked as an independent consultant employed by Geo-Chart, Inc., working in Manhattan projects as a real estate firm, from March 1980 to June 1981. From July 1981, he worked for GE management team as a real estate manager in the position, Executive General Manager for Exploration and Consulting. Mr. Blumstein's responsibilities are to provide consulting services, development and marketing for GE current projects here. In addition, he provides assistance and peer review for GE for this current research activities, approving forecasts data for reporting to shareholders with the HONG KONG (HKL) and other companies and supporting the company's business development and research.

An added by the HONC (2012) reads : The Code requires in Clause 18, 27 and 31 that reporting of fire can be manually changed (Defendants' Reply, Plaintiff's Response to Defendants' Reply, and Plaintiff's Motion for Summary Judgment). Plaintiff's Motion for Summary Judgment is supported by a voluminous array of evidence showing that the HONC's Code 1 as it now appears, have as an appendix to the Public Report. The HONC Code 1 can be viewed for this report is accurate is:

1997

THE UNIVERSITY OF CHICAGO

- Will all internal procedures meet for ISO and provide procedures training and monitoring for ISO 9001 compliance.
- Design and budget an implementation program that meets previous objectives. Implementation is built starting at the quality, sales, marketing, technical and in support of customers.
- Develop budget and implement a high level program ISO 9001 program to align with the business objectives for structure and team management.

- Assist with design and implementation of the course curriculum.
- Perform QAPC analysis, document the laboratory process and determine deviations to be used in the course syllabus.
- Complete depth adjustment and room record sheet.
- Maintain points of chemistry (POC).
- Complete course evaluation.
- Write the QAPC (QAPC) standard report including QAPC Table 1.
- Other duty includes such as legal drinking, environmental, processing, state of metals and safety for students of this course of work.

Case Study

[illegible]

3 Location, Access and Licence Information

3.1 Project Location

The BND is approximately 12,8km² in area and located in south-central Mongolia within the Ulaan Nuur Valley of the Gobi Desert. The coalfield is situated within the Khalkhongor aima, Orkhongol Aimag (South Gobi province) about 81km west of Dalanzadgad the provincial capital and around 890km south of Ulaanbaatar, the national capital (Figure 3-1). The coalfield is 236km from the Gashun aulail border of the People's Republic of China to the south.

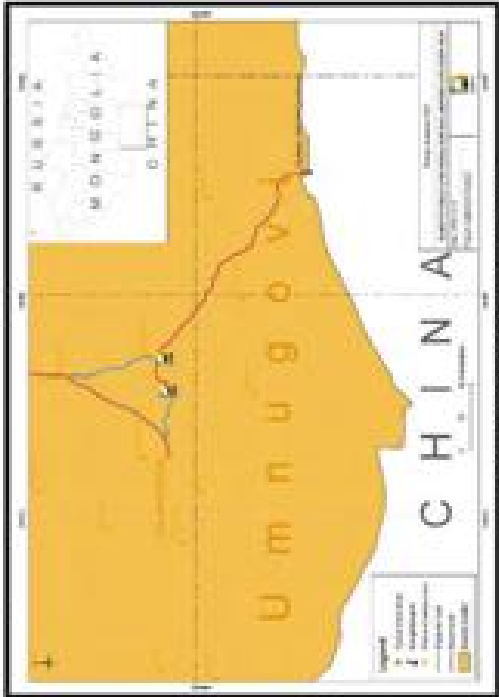


Figure 3-1: Location of Barun Naran deposit

(Source: BHP Assurance LLC)

3.2 Project Access and Infrastructure

The project can be accessed by direct flights or road. Regular direct flights (duration approximately 1 hour) from Ulaanbaatar are available to the Tuvshar Tolgoi airport (Figure 3-2), located 35km from the Barun Naran mine site. Other flights to Dalanzadgad (duration approximately 1 hour) are made with an approximately 90 minute drive to the mine site over unsealed roads. By road the site can be reached (duration approximately 8 hours) from Ulaanbaatar via a 300km sealed road from Ulaanbaatar to Dursgovi along and then the remaining distance on a good unsealed road.



Figure 3-2: Tuvshar Tolgoi airport

(Source: BHP Assurance LLC)

Dalanzadgad is the administrative centre of the “Orkhongol” Aimag and as such contains the region’s major government agencies, transport links, services and industries. The town has a power station, food and produce market as well as smaller businesses such as supermarkets, hotels and restaurants.

Electricity is supplied to Dalanzadgad by the town’s thermal coal-fired power station. This power station is supplied by coal from the “small” TT mine which is not owned by ER, but is on a separate mining licence to the east of BND.

Overburden removal commenced in October 2010 at BND with coal extraction commencing in 1 January 2012. Mining facilities, offices, contractor camp, BOM stockpiles are located on site (refer Figure 3-3), the CHPP and load out facility is located at the UBEG coking coal mine (refer Figure 3-4). Both mines have excellent communications with full coverage for mobile phone services and high speed internet.



Figure 3-3: BND Infrastructure

(Source: Energy Resource Ltd)

A fully sealed 20km two-lane road from BND to UHG was constructed to transport ROM coal to UHG for beneficiation (Figure 3-3). A 240km two-lane highway was constructed by ER to take coal from UHG to Gashuan substation, the Mongolian coal port 20km from the Chinese border. Currently a 240km railway line is under construction.



Figure 3-4: UHG Infrastructure

(Source: Energy Resource Ltd)

Togtohool is a small town that is located 7km from the UHG mine and 20km from the BND. The town had basic facilities at the start of mining at UHG but now is growing very quickly. ER has invested in the town infrastructure to accommodate the majority of staff, their families and supporting businesses that service UHG and BND. The town has water and power, communications and high speed internet. The worker's camp constructed early in the development of UHG remains in operation, providing full service accommodation to the remaining portion of fly-in fly-out employees (Refer Figure 3-5).



Figure 3-5: UHG Camp and Town

(Source: Energy Resource Ltd)

A new school, kindergarten and dormitory complex, was constructed and put into operation as part of the company's corporate social responsibility commitment. Jointly financed by ER and the local government, the new school and kindergarten complex is a modern facility, comprising a secondary school for 640 children, a kindergarten for 1-44 children and a dormitory for about 100 children (Figure 3-6). In addition to providing direct educational access to the company employees, the new complex is expected to make a significant contribution in raising the quality of education in the region in which it operates.

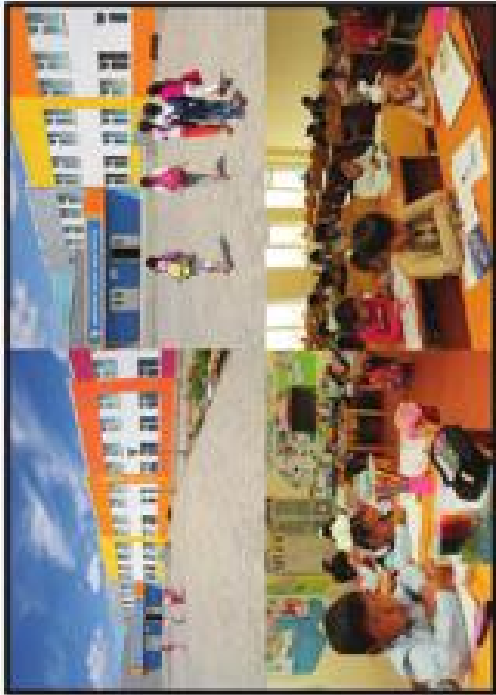


Figure 3-4: 'Dream' education complex

(Source: Energy Resources)

To facilitate the relocation of employees from Ulaanbaatar to Tugthotol, ER has also built an apartment complex named 'Tuitthar'. To date, more than 500 families have moved into fully-furnished apartments (Figure 3-7). Given the expanding presence in Tugthotol town of Orogobi mining, ER sees the new facilities as part of its growing commitment to make substantial contribution to the social and educational well-being of the local community. While encouraging the company employees to move and settle in South Gobi by providing them with complete and comfortable living conditions, the investment is expected to bring lasting value in the host communities where existing social infrastructure is very limited.



Figure 3-7: 'Tuitthar' apartment complex

(Source: Energy Resources)

3.3 Physiography and climate

The Baruan Nuran area is characterised by gently rolling desert plains with scattered small hills and ridges. The elevations in the region range from 1500m to 1700m. The higher elevations occur on a number of small hills that surround the area, which is a continuation of the Altai mountain range, which contains mountains with elevation around 3000m such as Gobi Charyn, Severt, Noyon, Bogd, Noyon, Tsol, Noyon and Altai Uul Giltout. Also, in this area is the 800m high and 150km long Khongor sand dune (Figure 3-8).

The ERD is located within a discrete, east-northeast-trending valley, herein referred to as the Baruan Nuran valley. This valley, from which the coal deposit takes its name, is approximately 22km long and 2 to 3km wide. The floor of the valley is relatively flat and is bounded to the north and south by low hills and ridges that rise approximately 25m to 100m above the valley floor.

“Even though Orinogoldi along doesn’t have any big lakes and rivers, it has beautiful oases and small lakes and ponds. The area has many springs such as Khusha, Zaulun, Nenege, Zaulun, Tager, Bulren and Tunkhar cold springs. Ejen and Solkhil hot springs. By 2007, the national water department had registered, 3 rivers, 2 lakes, 581 springs, and 1 medical spring. From regional hydrology investigations it had been estimated that underground water reserves are of the order of 260.3 million cubic meters.”¹



Figure 3-4: Gobi desert landscape

Source: Google Earth (2012)

“The deposits located in the Gobi Desert, where the climate is generally hot and dry in the summer and cold and dry in the winter. The annual average maximum temperatures are 36°C and 31°C respectively.

The maximum temperature can reach from 32.6°C to 39.9°C in the rest of the spring. The whole area of the mining is located in a dry climatic region, and average humidity is around 29% to 30% during the warm season and 50% to 73% during the cold seasons.

Average precipitation received in Dulanmadu, Nopon, Qarvantes, Khundhongor, Bulgan and Mandal soums is around 162.1 to 132.9mm, in Bayan-Ovoo and Namgan soums is around 63.2 to 79.9mm and in the rest of the soums is around 40 to 100mm. Monthly average wind speed is the highest in spring and lowest in winter and summer seasons. Average wind speed is 7.3 m/sec and maximum speed is 39.0 m/sec.”²

¹ “Statement of Coal Resources, Baraman Narain Coal Project 2007” by McElroy Bryan Geological Services Pty Ltd.

“Medicinal herbs are found in the area and total about 250 species of small leafed, nutritious, short plants and vegetation’s that are resistant to hot and dry weather of the desert. Desert and desert steppe plants like alga, straw, chlorogloss, psammochloa, sphodra, xanthoxylon, anabasis, ceratoides, ulula etc. are found in the area. Plants and vegetation that local people use in their lives are cynomorium, ribaria and a Mongolian onion (refer figure 3-9).

World and subarctic endangered species like Argali the wild sheep, ibex, leopard, black tailed antelope, marmots the Gobi bear, marbled polecat, wildcat, lynx, rock marten, gopher, antelope etc. inhabit the area (refer figure 3-9).

Sparse, small semi desert shrubs and grasses are typical of the vegetation throughout the region and the soil profile in this area is poorly developed. The thickness of soil cover or other artificial deposits at Baraman Narain typically is only about 4cm to 6cm thick.”³



Figure 3-9: Gobi desert fauna and flora

Source: Google Earth (2012)

² “Statement of Coal Resources, Baraman Narain Coal Project 2007” by McElroy Bryan Geological Services Pty Ltd.

3.4 Ownership and Mineral Tenure

Initially, April 2013 the following two licenses in the area of BND were transferred to ER from QON.

- 1. 14493A- Barun Narin mining license (total area 4483.65 hectare)
- 2. 4026X- Tsakhir Khudag exploration license (total area 90772.55 hectare)

The BNS mining license 14493A was converted to a mining license on 1 December 2008.

On 9 May 2013, based upon part of 4026X, TRG exploration license, ER applied to the Mineral Resources Authority for granting mining licenses and was granted by decision No.270 of the Head for Geology, Mining Cadastre Unit of the Mineral Resources Authority on 24 August 2013. These licenses were granted based upon the 1997 Mineral Law. The remaining part of the license area remained as it was until 23 April 2014 when it expired.

BND now consists of 2 mining licenses, BNS mining license [14493A] which covers an area of 4483.65 hectare, and TRG mining license [MV-017336] which covers an area of 8340.01 hectare (Figure 3-11). Both licenses are valid for 30 years and can be extended twice more for 20 years each.

Licenses are held by ER, the Mongolian operating company of MMC, a BVI incorporated company, listed on the HK Stock Exchange (refer Figure 3-10).

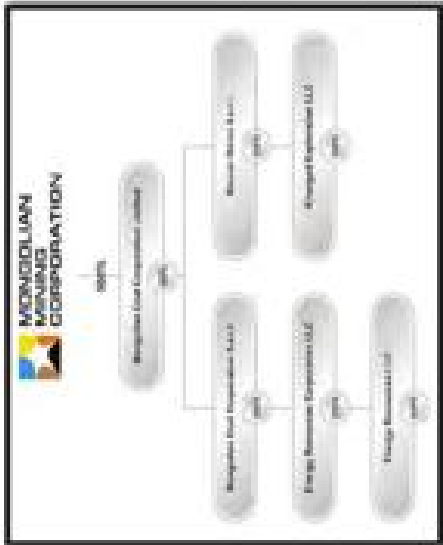


Figure 3-10: MMC Ownership

(Source: Company Resources Ltd)

BND licenses can be viewed in Appendix 1-Mineral Tenure Certification.

The geographical coordinates for BNS mining license [14493A] is shown in Table 3-1 and Figure 3-11.

Table 3-1: Geographical Coordinates of license 14493A

Point Number	Longitude Degree	Longitude Minute	Longitude Second	Latitude Degree	Latitude Minute	Latitude Second
1	105°	13'	1.84"	47°	36'	1.42"
2	105°	10'	1.20"	47°	36'	1.42"
3	105°	10'	1.20"	47°	37'	1.42"
4	105°	13'	1.84"	47°	37'	1.42"
5	105°	13'	1.20"	47°	38'	1.42"
6	105°	14'	1.20"	47°	38'	1.42"
7	105°	14'	1.20"	47°	39'	1.42"
8	105°	13'	1.20"	47°	39'	1.42"

(Source: Company Resources Ltd)

The geographical coordinates for TRG mining license [MV-017336A] is shown in Table 3-12 and Figure 3-11.

Table 3-2: Geographical Coordinates of license MV-017336A

Point Number	Longitude Degree	Longitude Minute	Longitude Second	Latitude Degree	Latitude Minute	Latitude Second
1	105°	10'	1.23"	47°	37'	1.42"
2	105°	10'	1.23"	47°	36'	1.42"
3	105°	13'	1.23"	47°	36'	1.42"
4	105°	13'	1.23"	47°	37'	1.42"
5	105°	16'	1.23"	47°	37'	1.42"
6	105°	16'	1.23"	47°	38'	1.42"
7	105°	5'	43.23"	47°	38'	1.50"
8	105°	5'	43.23"	47°	36'	1.42"
9	105°	13'	1.23"	47°	36'	1.42"
10	105°	13'	1.23"	47°	37'	1.42"

(Source: Company Resources Ltd)

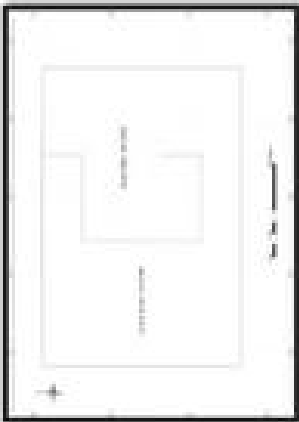


Figure 3-11: Barun Narin and Tsakhir Khudag Mineral Tenure

(Source: Company Resources Ltd)

4 Exploration History

4.1 Previous Regional Exploration

The following summary was taken from: • Ch. Guekhuyag, Tugder 2.5 and others Report of mineral exploration first mining area of the Dundobi deposit of Tavan Tolgoi coal deposit Mongolia in 1985.

- The Tavan Tolgoi group (77) of deposits of fluvial coal was discovered and exploited by the local people since early 17th century.
- The first official information on the deposit appears in reports by geologist A.Z. Boronov, who studied the coal in a small opened pit in 1940. The coal of the deposit was surveyed and tested by the geologist A.A. Morozov in 1942-1951. Analysts concluded that the coal of the deposit had good coking properties. In 1953-1956 the western part of the TT deposit of an area of 35 km² was explored and 18 seams with total of 2.8 billion tons of reserves were identified (Oshchepov, 1957).
- In 1973, from shaft sunk in the deposit, 3 semi-industrial (polyplant work) samples were taken from seams 44, 45, 64, 65, 82, 94, 98, 99 by Bulgarian geologists. Their tests showed that the deposit bore high value as a source of metallurgical coals, which however, was characterized by "moderately difficult" and "slight" workability.
- In 1977 at the request of the Government, MPR (Mongolian People's Republic), "LUMENPROGIMHT" conducted technical and economic assessment for detailed exploration upon the condition that the cost of all seams is coking. Relying on the results of incomplete exploration works. The assessment established that it would be feasible to operate on optical mine with the capacity of 20 Mt, if suitable reserves of 700-800 Mt of coking coal are to be produced from the lower seams. Also the assessment received the intent of centralized water supply. The assessment had also recommended continuing the exploration works.
- The protocol of the 20th session of the COMECON Council for Mutual Economic Assistance) Standing Committee for Cooperation on Planned Activities envisaged that MPR completes the exploration of the deposit in 1981 and update the Technical and Economic Assessment by GUPR-COMMINT Institute against the findings of the exploration works by first quarter of 1982.
- In 1979, D. Mergel and A. Toynevaev conducted ground geophysical survey around Baram Murun area and identified 3 coal seams.
- In 1982-1983, 1:50000 scale mapping and preliminary exploration works were conducted around Baram Murun area. As a result they identified major coal seams in upper Arxian subunit and evaluated some seams by core borehole. (P. Dondogor et al., 1983)
- In 1989-1990 "9th branch" of "Central Geological Expedition" conducted exploration and evaluation work in Baram Murun. Coal seams were evaluated by core boreholes to identify detailed information of the deposit and considered with high perspective.

- In 1990-1993, two additional phases of drilling were completed in Baram Murun area by Soviet-Mongolian team. The drilling identified 12 seams ranging from 1 to 30 m in apparent thickness, four of which were reported as having metallurgical coal. The Soviet geologists recognized the deformation present in the coal beds, given the angle of the beds to the vertical drill holes. However, they did not have sufficient information to constrain the geometry, and drew an anticline where the anticline is found, as well as several other folds.

4.2 Previous BM Exploration

The following summary was taken from: • Baram Murun Geology Report, Internal QGX report, Margaret E. Venable (2010).

4.2.1 Past Exploration (Pre-QGX)

- 30000 scale mapping
 - Aeromagnetic survey
 - 1:50000 trenching
 - Over 3700 m drilling, 24 holes
 - Results: Discovery of Baram Murun deposit, identification of metallurgical quality coal
- Baram Murun was first discovered by the Soviets in 1951, when air photo interpretation and 1:50000 mapping was followed up by a drill program consisting of three vertical holes of about 30 m depth accompanied by 1740 m of trenching. This program identified six coal seams with apparent thickness of up to 4 m. An aeromagnetic survey was also flown in the 1950s, at a height of about 400 m with a line spacing of 2 km.
- This was followed in 1959 and 1968 by drill programs consisting of an additional 21 vertical drill holes ranging from 23 to 362m in depth and totaling about 3500m. Portions of these were inside the current mining concession, the other east of it in the adjacent concession. These holes were drilled at a spacing of 250 to 500 m along sections about 5 km apart trending NW (perpendicular to the axis of the valley, see Table 4.1, Figure 4-1).

Table 4-1: Drilling summary of Soviet-Mongolian exploration program

Year	Company	Drilling type	Borehole	Total depth (m)
1968	Soviet	Vertical holes	3	70
1960-1968	Soviet-Mongolian	Vertical holes	21	3500
Total			24	3570

Source: JORC

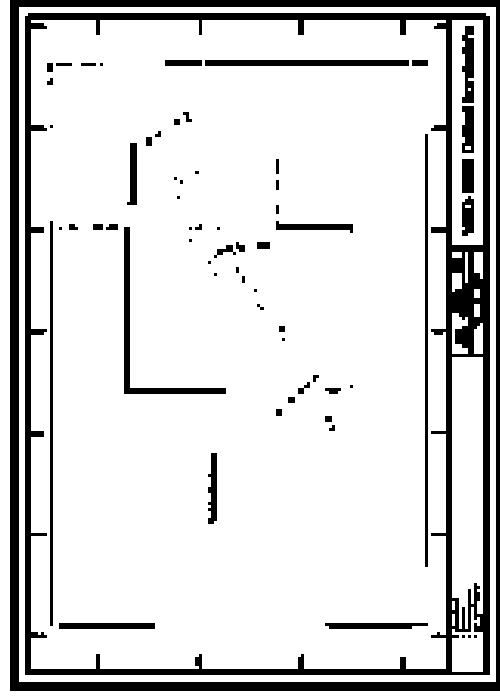


Figure 2-1: Generalized, Typical Model

This drilling strategy is more risky than z to z because apparent thicknesses, δ , of which were reported on having geological cost. The General geological interpretation of the apparent position in the coal field from the angles of the beds to the vertical and beds. However, they did not have sufficient information to combine the geometry, and drive on whether where the specimen is found, or used as several other fields. The error was in fact due to drilling over of their design holes and one of the only two holes drilled in the near vertically dipping north limb of the arching straight down the north-east without encountering coal. The error could easily be avoided if the design was deeper than anything drilled by GSW alone, and provide reliable information about the area beneath the coal field and confirm that the coal-bearing sequence does not continue to further depths in that area.

[illegible]

- 1000' grade mapping
- 3000' scale mapping up to 1000' contour
- 3000' scale mapping at 1:5000 scale
- Over 18,000' in total length
- Over 30,000' in drilling, 150' hydro
- Gravel/crump roadways survey
- Acoustic delineation of density of species, estimates of seed quality data
- Constructing subsurface models

[illegible]

The 2000 program of Barton Haven patients (fracture drilling, drilling, and osteoporosis). The treatment was found on April 10 just prior to the drilling, in order to better understand the local climate in the coastal belt, and was conducted concurrently with drilling through August 2000, with a total of just over 10,000 m. Drilling was done with a bore hole to depths of 2 to 7 m, and most of the 1,000 m² surface was done from the surface for safety reasons, with construction of material collected by the researcher approximately every 1 m. Some oceanic ranges were dug to increase key features. The usefulness of the treatment was limited by three factors: 1) In some cases, the weather was too dry to observe the underlying formation. 2) Local weather did not always appear to be cool on surface due to weathering and some construction support on construction machinery or even resistance, and 3) structural deformation ultimately was hindered by changing and rising drilling, probably due to first failure or other surface processes in the vicinity. Probably the treatment was placed out due to observations on the part of the local population and the success of the treatment survey that was changed in July 2001.

Dredging commenced April 20, 2003 with three barge dredgers to clear the four South Abasco. Proactive monitor removed QCR to add an additional rig, and three more rigs as the year progressed. The dredging on the south side of the riverine community led to an improvement of the deposit as it tends to moderately deposit materials, but the north still has trained the side of the pipeline, and the combination of the observation with direct data allowed a model of the deposit as a plugging problem to emerge. This was confirmed by subsequent drilling and was elegantly depicted by the results of the numerous surveys over the years (see Figure 4-4).

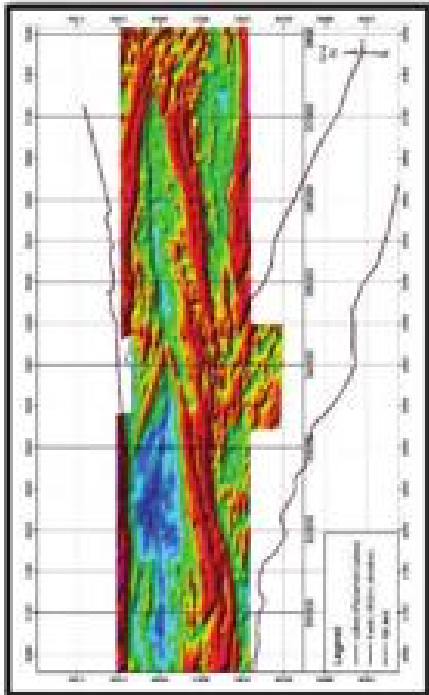


Figure 4-2: Radiativity Survey

(Source: JORC)

Drilling began to be focused on drilling out two major coal seams, R500 and T200, on both limbs along the length of the syncline. By the end of 2000, a total of 34,204 m had been drilled in 117 holes, including HQ coring, PCD open-hole poly-crystalline diamonds), and RC (pressure conventional) drilling (See Table 4-2 and Figure 4-3).

Table 4-2: Drilling summary of GGX 2006 exploration program

Year	Company	Drilling type	Borehole	Total depth (m)
2006	GGX	Core	137	34026.1
		Function Borehole	31	1900
		Total	168	36126.1

(Source: GGX)



Figure 4-3: 2006 Boreholes by Type

(Source: Energy Resources Ltd)

This was followed in 2006 by an additional program of 41,342 m of drilling of 213 holes, including HQ coring and PCD (which proved more effective than RC as a drill method given the water encountered in deeper holes). Please refer to Table 4-3, Figure 4-4). While the holes were largely designed to better define the geometry of the syncline and provide better coal quality data, twenty-two of the holes were drilled outside of the main syncline to test the valley up to 1 km east (2 holes), 3 km west (10 holes) and 4 km southeast (2 holes) of the main deposit. These holes showed some scrapier coal to the east, resembling the "zone" found on the south side of the deposit and roughly on strike with it, and no coal to the southeast, while to the west coal got thicker and scrapier and eventually disappeared.

Table 4-3: Drilling summary of GGX 2006 exploration program

Year	Company	Drilling type	Borehole	Total depth (m)
2006	GGX	Core	213	60142.7
		Function Borehole	213	60142.7
		Total	213	60142.7

(Source: GGX)

Table 4.4: Drilling summary of GDX 2008 exploration program

Year	Company	Drilling Type	Borehole	Total depth (m)
2008	GDX	Structure borehole	38	1533
Total			38	1533

(Sheet = GDX)

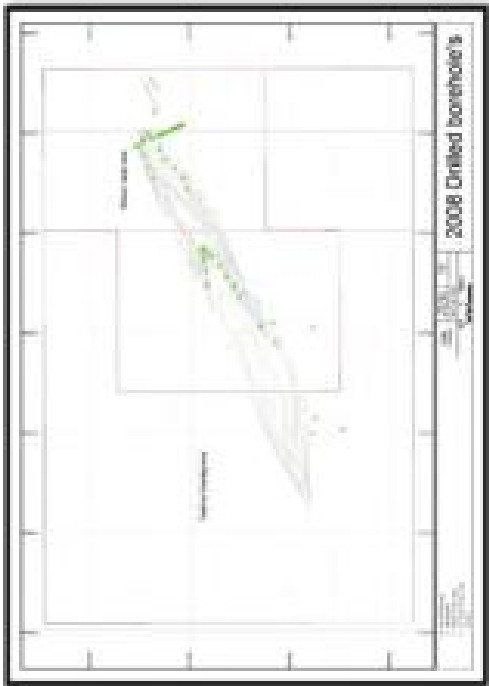


Figure 4.6: 2008 Boreholes by Type

(Sheet = GDX)

4.2.5 2009 Exploration

- 13,200 m drilling in 71 holes on main deposit
 - Result: Better understanding of geometry of deposit especially around the periphery, additional coal quality samples
 - LD program of about 1,000 m in 11 holes, 6" and 12" diameter
 - Result: Bulk coal sample to compare with slow core results
 - 2,400 m drilling in 10 holes for regional drilling program
 - Result: Elimination any strong prospect of additional coal on exploration license
 - 2,400 m drilling, 800 m remaining for dewatering assessment
 - Result: Understanding of dewatering strategy for open pit mine
- Additional drilling was undertaken in the spring and summer of 2009. This program consisted of four parts. In the main body of the drill program, a series of 13 NG core holes (3,200 m) was done to collect coal quality samples (21 holes plus 4 re-drills) and

structural/geotechnical data (10 holes). There was also almost 8,000 m of ACD drilling with 36 holes (eight of which had short core segments to ensure bedding angles) to collect additional data about the geometry of the deposit around the periphery of the syncline (see Table 4.3, Figure 4.6).

Table 4.5: Drilling summary of GDX 2009 exploration program

Year	Company	Drilling type	Borehole	Total depth (m)
2008	GDA	Coal	45	5000
		Structure borehole	46	10400
		Large diameter	11	1000
Total			102	16400

(Sheet = GDX)

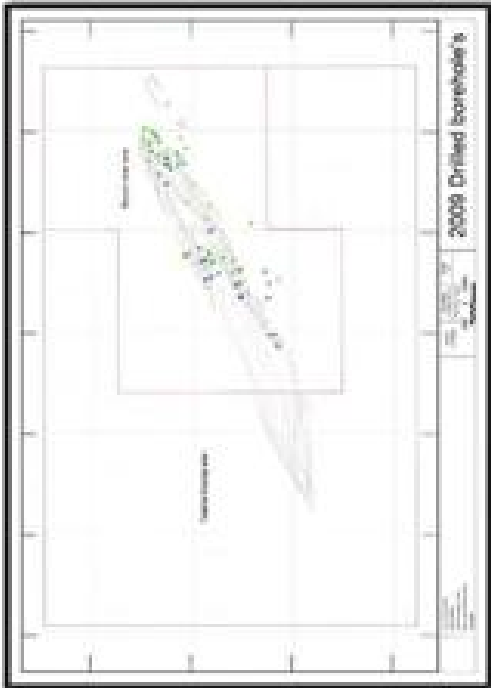


Figure 4.6: 2009 Boreholes by Type

(Sheet = GDX)

Seven of the holes (six PGD and one core hole) were actually re-entries of old 2003 and 2006 drill holes, with the objective of obtaining samples of and assessing the geometry and continuity of the lower seams (E400 and F500).

A large diameter (LD) drilling program of about 1,000 m including eight 6-inch diameter holes on seam H500 and two 12-inch diameter holes and one 6-inch

diameter hole on seam T500 was done in order to collect bulk samples for coal quality testing. The holes for each seam were clustered around a 2006 coal quality hole, and the object was to compare the bulk sample to the results of the RQ (core) samples.

A series of 10 RCD holes (with some small segments of core) was done to explore some adjacent areas believed to have coal potential, with 7 holes drilled in an area about 10 km west of the deposit and 3 holes in an area 12 km SE of the deposit (see section on regional exploration below).

Finally, a series of water bore were drilled and monitored to better assess the dewatering needs for the open pit, including 2406 m of RC drilling and 321 m of reaming of old holes from the previous water bore program (2007).

4.3 Previous Resource and Reserve Estimates

4.3.1 Barman Moran License

McElroy Bryan Geologic Services (MBGS) estimated, according to MRS-101 standards, the in-place surface mineable coal Resources as of July, 2007, as indicated in Table 4-6.

Table 4-6: Total In Place Resources

Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
93.3	159.6	11.1	264.0

Resource stated by Licensee

During February 2010, MBGS estimated, according to JORC (2004), the in-place surface mineable coal Resources, as indicated in Table 4-7.

Table 4-7: Total In Place Resources

Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
209	72.6	0.5	282.1

Resource stated by Licensee

During March 2011, SRK Consulting estimated, according to JORC (2004), the coal Reserves, as indicated in Table 4-8.

Table 4-8: Total In Place Reserves

Provable (Mt)	Proved (Mt)	Total (Mt)
37.3	148.0	185.3

Resource (Mt)

4.3.2 Tsalkhar Khudag License

During April 2013, MBGS estimated, according to JORC (2004), the in-place surface coal Resources, as indicated in Table 4-9.

Table 4-9: Total In Place Resources

Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)
0	0	55	55.0

Resource stated by Licensee

No Reserves have been previously estimated for THD.

4.1 Previous Production

No mining at the BMD had taken place prior to October 2010, which was the start of overburden removal at the BN mine. The following lists the year by year mining schedule achieved by ER to 1st of January 2014 at which point the mine has been on care and maintenance due to short term market conditions.

- October 2010 to end 2011 - 0.021 Mt ROM coal
- 2012 - 0.82 Mt ROM coal
- 2013 - 1.3 Mt ROM coal
- Total to 1st of January 2014 = 2.125 Mt ROM

Resource stated by Licensee

5 Geology

5.1 Regional Geology

The BNSD forms part of the Ulaanuur coal bearing depression which is found in the South Gobi coal bearing basin or otherwise known as the Tavan Tolgoi (TT) coalfield. An east-northeast trending belt of TT formation crops out in the Barun Narin valley representing the western continuation of the Ulaanuur depression.

The Ulaanuur depression includes the north-eastern continuation of the Khobutbulai hills which are located between the mountains of Tostai and Khobutbulai in the south and Tagaun Ovoo and Narin Har Narin in the north (Said L. et al, 2011) and the Permian continental depositional basin in the Ulaan Narin basin. This sedimentary sequence is typical fluvial to swamp conditions, with strata including conglomerates, sandstones, shales, mudstones and coal.

CBDO is also owned and operated by Mongolian Mining Corporation (refer Figure 5-1) through Energy Resources LLC.

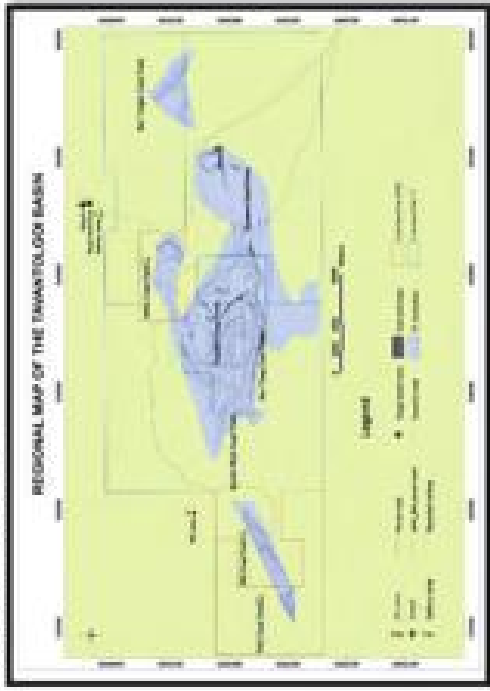


Figure 5-1: Regional map of the Tavan Tolgoi coal basin

Source: Energy Resources LLC

¹ EN_Geology Report, Margaret E. Venable

5.2 Regional Stratigraphy

BNSD occurs within an Upper Permian clastic sedimentary unit known as the Tavan Tolgoi formation. The same formation also hosts the large TT coking and thermal coal deposit. An east-northeast trending belt of TT formation crops out in the Barun Narin valley representing the western continuation of the Ulaan Narin coal basin. The Ulaan Narin basin is an asymmetric fault bounded east-northeast trending syncline with a very steep northern limb (overturned in part) and more gently dipping southern limbs. In addition to this folding of the coal bearing strata, strata are truncated by faults in the north, west and south west. Deformation of Permian sediments occurred during the early Mesozoic era. Basement rocks are Carboniferous age on the northern margin of the valley and Devonian on the southern limb. The earliest deposited coal seams are lens extensive and overlap onto older basement rocks.

QOIX LLC drilling at the northeast end of the Barun Narin valley has shown that the coal bearing sequence is unconformably overlain by a 10 to 30 meter sequence of siliceous alluvium and mudstones of unknown age that are interpreted to be reworked volcanic rock. The basal contact of this unit appears to be an angular unconformity and the unit clearly post-dates folding of the TT formation. Barun Narin valley is covered by up to 5m of unconsolidated Quaternary material. Weathering of the underlying Permian strata is variable and early modelling was set at 30 m below the surface level.

The following geological description included within Sections 5.2.1 through 5.2.9 are taken from the 'Report of detailed exploration for mining area of the Tashkui deposit of Tavan Tolgoi coal deposit Mongolia' (Dorzhbayar C. and Tsolbaatar Z. (2008) and translations from the 'Detailed Exploration Results and Resource Estimation of Ulaan Khuding Coking Coal deposit' (Said L. et al, 2011). Refer to Figure 5-2 for a regional geological map.

5.2.1 Devonian system

5.2.1.1 Tashkui sandstone formation (D3-Sds)

Sediments of this age are distributed only in a small area at the north-west edge of the Ulaan Khuding deposit where they were observed in conjunction with the volcanics of Tavan Tolgoi formation and with coal bearing sediments of Tavan Tolgoi formation. The rocks of this formation are siliceous, clay-siliceous sandstones, siliceous clastic stones with horizontal layer, and tuff and breccias.

5.2.2 Upper Carbonaceous-lower Permian

5.2.2.1 Dushan Ovoo formation (C₂-P₁ds)

Sediments of the Dushan Ovoo formation are described as volcanogenic rocks and are distributed throughout the deposit as elevated areas. They were identified as natural outcrop and in borehole cores. They underlie the Zhogantuu, Dorvoh and Tavan Tolgoi formations. The rocks of this formation consist of light-grey, fine-grained igneous, dark-igneous porphyry, dark-grey and greenish-grey andesite and andesite porphyry.



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Table 6.1 - Generalized Sociogeographic Columns, Tawana Telofoa

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5.1 Local Stratigraphy

The Stratigraphic sequence of BND includes fragments of the Tuvun Tolgoi series of upper Permian age. Underlying these sediments are the lower and middle Devonian, upper Carboniferous and lower Permian aged sediments. In some places they are covered with rock sediments of Triassic and Cretaceous systems, and of middle-upper Oligocene, Miocene, Pliocene and Quaternary ages.

The reference for the detailed descriptions of these formations comes from previous work (P. Khudoyev, B. Dyanbata, Ts. Dooj, P. Tarnatbaatar "Tuvantolgoi Region 1:50 000 scale mapping and preliminary exploration from 1983-1984, Book 1, p23-227).

The formations that have been identified through mapping and bore cores were, Tuvantolgoi formation (D-3-GS), Dushin cross formation (C-P1-GS), Tuvun Tolgoi formation (P-GS) and Quaternary sediments (Q-4) (refer Figure 5-3).

The detailed geology of BN and THO can be viewed in Figures 5-4 and 5-5 respectively.

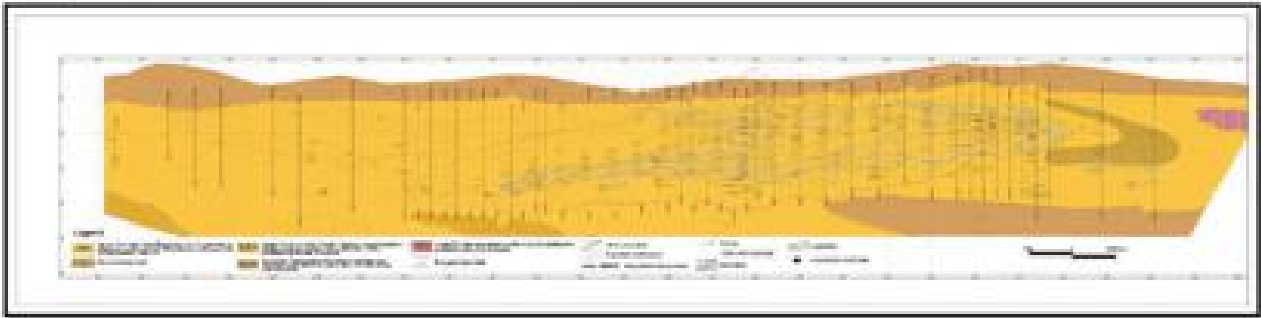


Figure 5.3 Geological map of Barusan Marms and Tualihur Khudug Licenses

Source: Geology Resource (2012)

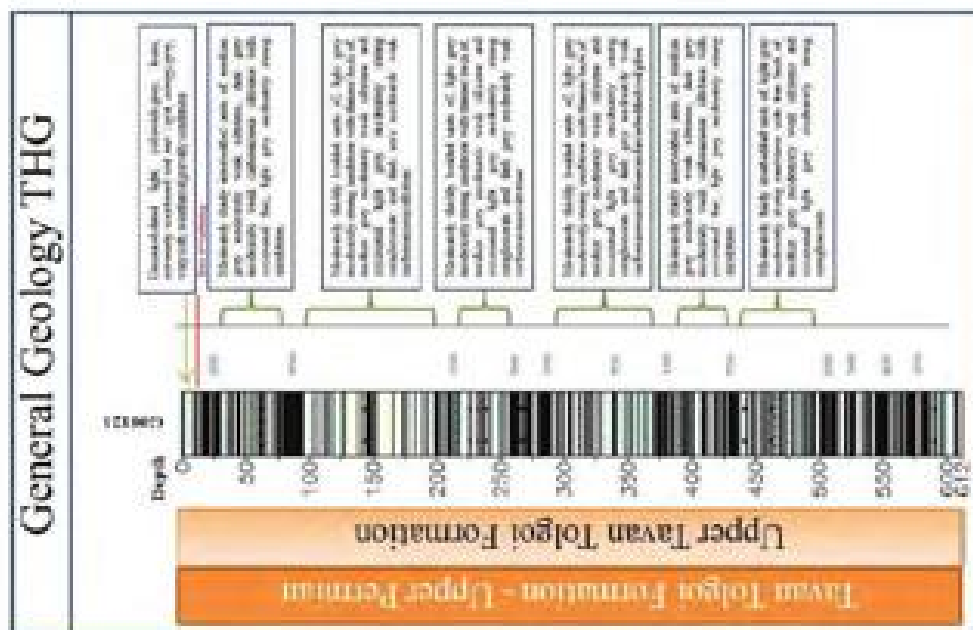


Figure 4. Control of the Cell Cycle

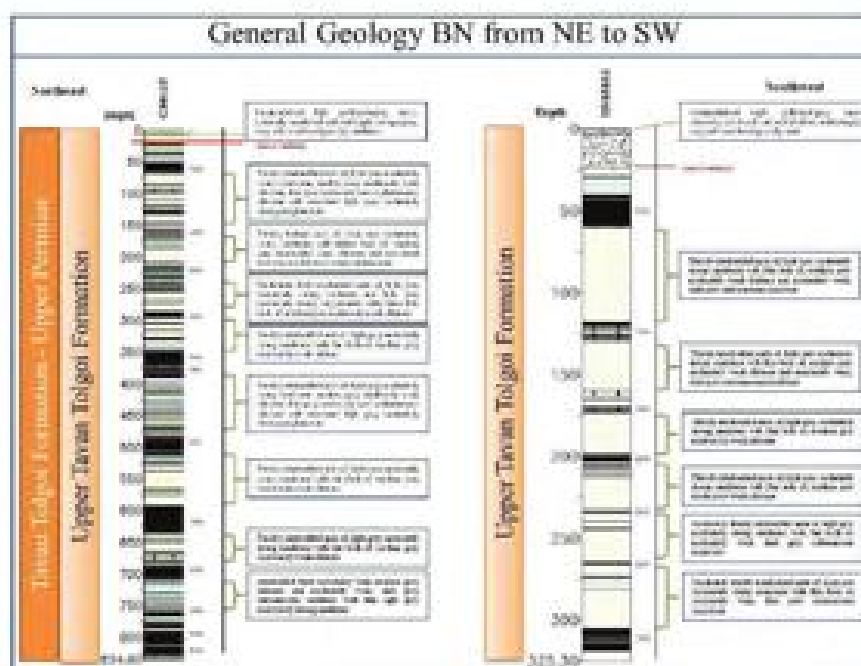


Figure 5-4: General Geology BN from Northeast to Northwest

5.0.1.0 Acute Group 10

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.1 Acute Group 11

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.2 Acute Group 12

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.3 Acute Group 13

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.4 Acute Group 14

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.5 Acute Group 15

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.6 Acute Group 16

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.7 Acute Group 17

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.8 Acute Group 18

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.9 Acute Group 19

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

5.0.1.10 Acute Group 20

This group has only been investigated at 100 and 1200 Hz. It is found in the 1st order plane of the 1st order plane. It consists of 2 main parts, 1000 and 1200. It is found in the 1st order plane and 1200 has a 1st order plane. This group has not been observed, it is not considered to be a part of the 1st order plane.

2.6.1.98 Seem Group 'U'

This group was intercepted at BN and THG licenses. The group outcrops about the axis of the major deposit synformal fold but on the fold limbs is truncated at depth by structure. The group continues at depth, folded about the main basin synformal axis that plunges south-west (BN) and north-east (THG). It consists of 2 master seams, U500 and U500. U500 has 2 first order plices and 8 second order plices. U500 has 1 first order ply. The group has had minor exploitation as part of extractions of the second target seam "T" which has good continuity. The group has moderate coking properties and when blended with "T" seam delivers a high volatile, low ash coking primary product with a high ash thermal secondary product.

2.6.1.97 Seem Group 'V'

This group was intercepted at BN and THG licenses. The group outcrops about the axis of the major deposit synformal fold but on the fold limbs is truncated at depth by structure. The group continues at depth, folded about the main basin synformal axis that plunges south-west (BN) and north-east (THG). It consists of 3 master seams, V500, V600 and V500. V500 has 1 first order ply. V600 has 5 first order plices and V500 has 4 first order plices with 12 second order plices. The group has not been exploited. The group is relatively continuous and at best will likely make a blended thermal product.

2.6.1.96 Seem Group 'W'

This group has only been intercepted at the THG license. The group outcrops about the axis of the major deposit synformal fold but on the fold limbs is truncated at depth by structure. The group continues at depth, folded about the main basin synformal axis that plunges north-east at THG. It consists of 1 master seam, W500 which has 8 first order plices. This group has not been exploited. The group is relatively continuous and at best will likely make a blended thermal product.

2.6.1.99 Seem Group 'X'

This group has only been intercepted at the THG license. The group outcrops about the axis of the major deposit synformal fold but on the fold limbs is truncated at depth by structure. The group continues at depth, folded about the main basin synformal axis that plunges north-east at THG. It consists of 2 master seams, X400 and X500. X400 has 2 first order plices and X500 has 13 first order plices. The group has not been exploited. The group is relatively continuous and at best will likely make a blended thermal product.

2.6.1.20 Seem Group 'Y'

This group has only been intercepted at the THG license. The group outcrops about the axis of the major deposit synformal fold but on the fold limbs is truncated at depth by structure. The group continues at depth, folded about the main basin synformal axis that plunges north-east at THG. It consists of 1 master seam, Y400 which has 2 first order plices. The group has not been exploited. The group is relatively continuous and at best will likely make a blended thermal product.

Table 6-2: Seem Hierarchy for BN

Seam Name	Pit Order P1	Seam Order P2	Minimum Seams Thickness (m)	Average Seams Thickness (m)	Days points	Seam Group	Seam Recovery Threshold
V500	V505		1.20	0.40	6.75	V500	>>96
			3.15	0.27	1.60		
			1.75	0.45	1.09		
			1.88	0.50	1.11		
	V506		1.15	0.65	1.72		
			5.12	0.40	1.71		
			2.45	0.30	0.97		
			2.10	0.30	1.17		
			5.16	0.30	2.13		
			4.00	0.19	1.60		
U500	U505		3.80	0.23	1.56		
			4.12	0.60	1.87		
			2.17	0.50	1.17		
			3.80	0.30	1.71		
	U506		5.10	1.18	3.45		
			3.10	0.52	1.88		
			8.10	0.30	1.95		
			3.16	0.50	1.68		
			6.10	0.30	1.75		
			5.60	0.40	1.88		
X500	X506		12.87	0.10	2.18		
			8.60	0.10	2.72		
	X505						

Subs Matrix	First Order Ft	Second Order Ft	Maximum Subs Problems 1st	Minimum Subs Problems 1st	Average Subs Problems 1st	Extra points	Subs Group	Sums Recovery Threshold
		U5054	2.80	0.55	1.35	4		
	U504		8.96	0.20	2.59	84		
	U5016		2.60	0.01	0.58	60		
	U501		2.07	0.01	0.65	54		
	U5012		0.26	0.10	0.18	5		
TS00	TS04		3.01	0.61	0.97	2	TS00	>>>95
	TS05		4.10	0.25	1.43	111		
	TS04		4.20	0.18	1.45	111		
	TS03		0.45	0.40	0.43	2		
	TS07		5.45	0.44	2.43	111		
	TS06		2.99	0.25	1.34	112		
	TS04		4.13	0.36	1.32	107		
	TS005		4.05	0.17	1.47	105		
	TS058		6.30	0.27	2.03	111		
	TS017		3.50	0.21	1.52	111		
	TS044		1.30	0.29	1.38	110		
	TS05		4.05	0.30	1.49	107		
RS00	RS04		6.09	0.02	1.85	110	RS00	>>>95
	RS051		3.18	0.21	1.26	108		
	RS04		4.91	0.65	2.16	111		
	RS06		11.07	0.49	3.03	79		
RS00			14.34	0.30	2.43	94	RS00	>>>95
RS00			8.80	0.20	2.43	91	RS00	>>>95

Subs Matrix	First Order Ft	Second Order Ft	Maximum Subs Problems 1st	Minimum Subs Problems 1st	Average Subs Problems 1st	Extra points	Subs Group	Sums Recovery Threshold
R000	R006		4.00	0.10	1.27	74	R000	>>>95
	R005		8.10	0.40	2.48	45		
	R004		3.30	0.04	1.18	33		
	R003		3.21	0.25	1.25	25		
	R000		1.25	0.60	0.59	2		
OS00	OS002		5.05	0.35	1.71	77	OS00	>>>95
	OS005		6.27	0.14	1.38	73		
	OS005		7.60	0.42	1.29	31		
	OS002		4.50	0.20	1.80	29		
	OS00		5.80	0.10	1.82	57		
OS00	OS00		1.82	0.63	1.15	5	OS00	>>>95
RS00	RS007		2.75	0.10	0.90	15	RS00	>>>95
	RS005		14.10	0.31	4.93	34		
	RS005		11.98	0.24	2.63	96		
	RS004		10.53	0.79	2.64	89		
	RS00		12.87	0.10	2.70	25		
RS00	RS005		5.40	1.25	3.98	6	RS00	>>>95
	RS004		9.40	0.35	2.80	73		
	RS004		4.70	0.25	1.58	70		
	RS003		7.00	0.23	2.45	93		
	RS00		6.25	0.27	2.25	57		
RS00	RS06		35.0	3.81	3.16	2	RS00	>>>95
RS00	RS05		15.88	0.10	1.44	93		

Subs. Marine	Perf. Order Pt.	Second Order Pt.	Maximum Subs Problems (m)	Minimum Subs Problems (m)	Average Subs Problems (m)	Est. points	Subs Gross	Scores Recovery Threshold
		P5064	14.05	0.25	2.92	80		
	P504		9.45	0.15	2.80	88		
	P5036		3.55	0.20	0.88	22		
	P5031	P5035	9.60	0.15	1.11	30		
P400	P407		3.79	0.20	1.35	62		<=95
	P406		2.46	0.15	0.87	55	P400	
	P405		3.70	0.10	1.30	50		
	P404		2.31	0.14	1.27	9		
805			1.30	0.10	0.59	11	805	<=95
			9.40	0.30	3.13	122	804	<=95
			2.70	0.10	0.82	60	800	<=95
	P506		9.65	0.01	1.80	118		
500	P505		17.80	0.03	4.18	121	500	<=95
	P504		1.25	0.40	0.85	4		
	P503		9.60	0.50	0.55	8		
	P406		9.09	0.10	1.24	63		
400	P405		3.21	0.01	1.23	57	400	<=95
		P5046	17.00	0.07	1.55	135		
1500	P506	P5065	7.25	0.07	1.80	139	1500	<=95
	P505		17.60	0.40	3.97	145		
P500	P5036		10.74	0.01	2.13	190		
	P5035		9.50	0.01	2.88	135	P500	<=95
	P5037		234.15	0.01	5.83	199		

Subs. Marine	Perf. Order Pt.	Second Order Pt.	Maximum Subs Problems (m)	Minimum Subs Problems (m)	Average Subs Problems (m)	Est. points	Subs Gross	Scores Recovery Threshold
	P5035		40.23	0.01	4.17	199		
	P5036		34.60	0.22	3.86	189		
	P504		15.56	0.28	3.04	154		
	P503		15.90	0.28	3.30	195		
	P502		2.82	0.01	0.49	114		
	P501		1.05	0.01	0.34	71		
P600	P506		2.13	0.07	0.44	63		<=90
	P505		8.16	0.38	2.01	150		
	P504		9.62	0.16	1.51	148		
		P5005	5.25	0.15	1.71	145		
	P503		3.20	0.10	1.28	140		
		P5034	2.98	0.04	0.88	95		
		P5032	3.74	0.08	0.45	12		
	P502		5.25	0.04	0.96	114		
P400	P501		5.85	0.01	1.23	105		<=90
		P5015	3.30	0.01	0.85	98		
		P407	0.47	0.48	0.47	2		
	P403		4.31	0.20	1.04	74		
		P405	0.65	0.20	0.39	13		
	P406		4.32	0.14	1.20	94	P400	
	P407		12.45	0.01	1.49	100		
	P405		5.90	0.10	1.15	105		
P405			9.05	0.15	1.21	128		

Surf Miner	Per Order Qty	Second Order Qty	Maximum Surfs Produced (t)	Minimum Surfs Produced (t)	Average Surfs Produced (t)	Est. days	Surfs Gross	Surfs Recovery Threshold
P400	P404	P405	12.50	0.28	1.79	135	P500	
	P404	P404	11.34	0.58	2.18	130		
	P405	P405	3.15	0.05	0.67	117		
	P404	P404	9.60	0.40	2.27	132		
P500	P504		8.53	0.10	1.54	74	P600	
	P504		5.50	0.20	2.12	6		
	P505		9.30	0.15	3.14	69		
	P504		23.29	0.55	4.68	66		
P600	P604		8.70	0.10	2.14	47	P700	
	P604		4.99	0.28	2.20	11		
	P605		14.56	0.34	3.77	40		
	P604		16.20	0.30	2.98	39		
P500	P504		9.90	0.13	3.20	36	P500	
	P504		1.19	0.95	1.93	2		
	P504		5.11	0.44	2.54	6		
	P505		10.15	0.45	3.12	15		
P500	P504		8.80	0.25	3.14	9	P500	
	P504		5.21	1.07	2.33	5		
	P504		11.38	0.50	3.73	4		
	P504		7.65	1.00	3.25	3		
P400	P404		2.70	0.40	1.55	2	P400	
	P505		0.55	0.53	0.54	2		
P500	P504		1.04	0.95	1.10	2	P500	
	P504							

Surf Miner	Per Order Qty	Second Order Qty	Maximum Surfs Produced (t)	Minimum Surfs Produced (t)	Average Surfs Produced (t)	Est. days	Surfs Gross	Surfs Recovery Threshold
P500	P502		2.95	0.58	0.77	2	P500	
	P507		1.15	0.55	0.75	3		
	P506		1.65	1.50	1.57	3		
	P505		1.90	1.20	1.47	3		
P600	P604		4.75	0.51	2.15	4	P600	
	P603		1.75	1.10	1.49	3		
P400	P405		2.95	0.47	1.71	2	P400	
	P605		3.55	3.05	3.30	2		
P500	P505		3.95	2.55	3.94	4	P500	
	P504		3.95	2.10	3.03	2		
	P503		1.80	1.00	1.00	2		
	P405		2.40	0.60	1.60	2		
P400	P404		3.25	0.80	2.09	2	P400	
	P403		2.80	0.50	1.25	2		
P500	P506		1.85	1.51	1.68	2	P500	
	P505		5.80	0.80	3.18	5		
	P504		1.85	0.60	1.37	4		
	P503		2.68	0.70	1.45	4		
P500	P502		1.83	0.60	1.04	3	P500	
	P504		14.00	1.30	5.39	3		
P400	P403	P4035	1.55	0.33	0.80	2	P400	
	P403	P4034	2.10	0.17	0.97	3		
P400	P405		2.00	0.75	1.54	3	P400	
	P405							

Seam Marker	First Order Pt	Second Order Pt	Maximum Seam Thickness (m)	Minimum Seam Thickness (m)	Average Seam Thickness (m)	Grid points	Seam Grout Status	Seam Recovery Threshold
A000	A404		0.31	0.30	0.31	2		
	A026		1.90	2.10	2.00	3		
	A004		0.06	0.30	0.52	3		
	A008		1.26	0.90	1.10	3	A000	>90
	A002	A0026 A0004	1.00	0.50	0.80	3		

Seam: Barman Marine

Table 8-3: Seam Hierarchy for THG

Seam Marker	First Order Pt	Second Order Pt	Maximum Seam Thickness (m)	Minimum Seam Thickness (m)	Average Seam Thickness (m)	Grid points	Seam Grout Status	Seam Recovery Threshold
V400	V404		1.09	0.50	0.95	2		
	V408		1.00	0.20	0.60	2		>90
V500	V513		5.47	0.47	1.50	6		
	V512		2.49	0.40	0.82	5		
	V511		3.05	0.20	1.26	5		
	V510		3.46	1.40	2.43	5		
	V509		5.32	1.30	3.13	6		
	V508		5.48	1.44	3.56	6		
	V507		1.80	0.40	0.99	6		
	V506		2.55	0.25	1.29	6		
	V505		1.66	0.52	0.95	5		

Seam Marker	First Order Pt	Second Order Pt	Maximum Seam Thickness (m)	Minimum Seam Thickness (m)	Average Seam Thickness (m)	Grid points	Seam Grout Status	Seam Recovery Threshold
	A504		1.10	0.29	0.65	6		
	A500		1.45	0.39	0.65	6		
	A502		4.55	0.25	0.98	7		
	A502		1.30	0.14	0.63	7		
V400	V405		2.00	0.40	1.05	5		
	V404		2.38	0.65	1.64	7		
	V403		4.17	0.18	1.83	6		>90
	V402		6.59	0.90	2.70	6		
	V401		1.90	0.62	1.18	6		
V500	V508		1.10	0.58	0.78	3		
	V507		1.51	0.25	0.86	4		
	V506		2.85	0.23	1.46	5		
	V505		4.40	0.74	2.55	5		>90
	V504		0.83	0.14	0.48	4		
	V503		1.97	0.40	1.21	3		
	V502		3.88	0.21	2.05	2		
	V501		0.55	0.49	0.52	2		
V600	V609	V5009	2.15	0.40	1.48	3		
	V608	V5008	1.80	0.50	0.75	4		
	V607	V5007	1.85	1.60	1.79	2		
	V606	V5006	3.15	0.80	2.08	2		
	V605	V5005	5.23	1.85	2.82	3		
	V604	V5004	2.45	0.80	1.63	2		

Subs. Marine	Port Order No.	Second Order No.	Maximum Subs Problems Log	Minimum Subs Problems Log	Average Subs Problems Log	Est. points	Subs Gross	Score Recovery Threshold
	V500	V5009	2.28	0.35	0.65	4		
		V5005	6.79	0.65	3.15	13		
		V5007	4.00	0.30	1.60	14		
		V5006	3.00	0.37	1.44	14		
		V5005	4.20	0.55	1.39	14		
		V5004	3.00	0.44	1.23	15		
	V500	V5003	0.74	0.60	0.67	3		
		V5004	6.40	0.24	1.67	9		
		V4005	2.20	0.35	1.12	9		
		V4004	4.30	0.10	2.50	11		
		V4001	6.51	0.40	1.89	11	V4000	<0.95
		V4002	3.81	0.45	1.79	7		
	V500	V4001	3.00	0.30	0.96	8		
		V3007	2.69	0.15	0.77	7	V3000	<0.95
		V5004	1.10	0.75	0.98	2		
		V5003	1.60	0.80	1.07	3		
		V5007	2.30	0.60	1.34	5		
		V5006	6.10	0.74	2.77	11		
	V500	V5003	3.50	1.86	2.75	11	V5000	<0.95
		V5004	5.06	1.30	3.10	8		
		V5005	5.30	0.90	2.28	8		
		V5004	6.62	0.25	1.89	10		
		V5003	9.00	0.25	1.73	8		

Subs. Marine	Port Order No.	Second Order No.	Maximum Subs Problems Log	Minimum Subs Problems Log	Average Subs Problems Log	Est. points	Subs Gross	Score Recovery Threshold
	V500	V5002	2.40	0.40	1.47	6		
		V4005	8.25	0.25	2.80	14		
		V4004	12.80	0.54	3.07	13		
		V4005	7.17	0.57	2.54	13		
		V4002	8.13	0.30	2.32	6		
		V5003	5.95	0.40	1.87	15		
	V500	V5005	4.10	0.15	1.21	26		
		V5004	2.74	0.18	1.09	24		
		V5003	4.70	0.18	1.33	15		
		V5002	10.80	0.25	2.20	17		
		V5005	5.00	0.14	1.44	15		
		V5003	10.73	0.50	2.58	15		
	V500	V5007	6.18	0.30	1.77	24		
		V5007	2.30	0.40	1.40	11		
		V5006	1.80	0.16	1.07	6		
		V5005	3.00	1.05	1.78	7		
		V5004	6.30	0.54	2.04	13		
		V5007	2.40	0.69	1.51	9		
	V500	V5006	4.21	0.52	1.32	12		
		V5005	5.10	0.46	1.88	10		
		V5004	2.57	0.81	1.66	9		
		V5003	4.37	0.46	1.05	12		
		V5004	3.46	0.82	2.01	16		

Seam Marker	First Order Pt	Second Order Pt	Maximum Seam Problems Log	Minimum Seam Problems Log	Average Seam Problems Log	Extra points	Seam Group	Seam Recovery Threshold
B500	B507		8.30	0.20	1.81	18	B500	<>95
	B506		10.87	0.44	3.10	26		
	B505		5.52	0.40	2.03	11		
	B504		1.59	0.46	0.75	6		
	B503		2.10	0.63	1.09	4		
B400	B408		4.01	0.30	1.50	17	B400	<>95
	B407		6.06	0.50	1.67	12		
	B406		2.41	0.75	1.28	9		
	B405		2.07	0.15	1.00	7		
	B404		2.40	0.30	1.12	4		
B300	B306		2.10	0.28	1.00	6	B300	<>95
	B305		2.26	0.04	1.42	3		
B200	B206		4.01	0.60	2.21	6	B200	<>95
C500	C504		1.86	0.15	0.78	12	C500	<>95
	C503		4.40	0.44	1.16	12		
	C504		3.35	0.46	1.52	7		
	C508		4.05	0.20	1.23	15		
	C505	C5055	1.01	0.57	0.75	5		
C600	C605	C6054	2.00	0.30	2.13	4	C600	<>95
	C604		1.45	0.50	0.99	5		
	C603		1.54	0.57	0.93	3		
	C602		1.40	0.60	1.00	3		
B600	B608		7.40	0.24	1.31	9	B600	<>95

Seam Marker	First Order Pt	Second Order Pt	Maximum Seam Problems Log	Minimum Seam Problems Log	Average Seam Problems Log	Data points	Seam Group	Seam Recovery Threshold
	B607		1.66	0.28	0.81	8		
	B606		7.29	0.45	1.91	12		
	B605		11.86	0.37	4.90	7		
	B604		14.14	0.55	7.82	7		
	B603		12.97	1.10	7.31	4		
B400	B408		4.31	0.45	1.63	6	B400	<>95
	B407		1.70	0.40	1.17	6		
	B406		5.14	0.50	2.00	6		
	B405		5.05	0.50	2.95	9		
	B404		7.36	0.57	4.31	8		
	B403		12.10	0.40	3.75	8		
	B402		1.77	0.35	1.26	3		
	B506		5.46	0.70	1.32	3		
B600	B605	B6055	5.87	3.15	4.50	3	B600	<>95
	B605	B6054	1.45	0.55	1.05	3		
	B604		6.45	1.18	5.26	4		

5.6.2 Coal Quality

This section was prepared by Tullaghan Affairs under the guidance and instructions of Mr Said (Competent person) and Mr Bullantine (Department Head).

As discussed in section 4 (Exploration history) there were 2 main periods of exploration drilling conducted at the BND. QCRS LLC organized drilling from 2003 to 2010 with a total of 2679 samples for BN and 185 samples for THG collected and tested. From 2011 until present the ER geology team conducted drilling in this area with a total of 8720 samples for BN and 5824 THG collected and tested.

5.6.2.1 Database

The following two Excel files contain the original analytical database and were used for this discussion of the coal quality on a sample basis:

- “BN_model_CQ_ALL” with 11,399 ply samples, which are referred to as the BN, ER and QCRS data;
- “THG_Model_CQ_all” with 4009 ply samples, which are referred to as THG, ER and QCRS data.

A number of corrections were made to borehole and sample numbers as requested by Mr Said and Mr Bullantine to the BN coal quality database. Laboratory certification can be found for the QCRS and ER data in Appendix 5.

The BN original laboratory database, number of samples and the available laboratory determined analytical results are summarized in Table 5-4.

Table 5-4: Summary of the BN original analytical database.

Type	Number	%
Total number of ply samples	11,399	100
True relative density	9,996	87.7
Apparent relative density	2,670	23.4
Total moisture	11,163	97.9
Air-dry moisture	9,996	87.7
Ash	11,399	100
Volatile matter	9,786	85.7
Calorific value	4,790	41.8
Total sulphur	11,399	100
Free swelling index	8,776	77
G index	2,929	25.7

Source: Tullaghan

The THG original laboratory database, number of samples and the available laboratory determined analytical results are summarized in Table 5-5.

Table 5-5: Summary of the THG original analytical database.

Type	Number	%
Total number of ply samples	4,009	100
True relative density	3,968	99
Apparent relative density	184	4.6
Total moisture	3,996	99.7
Air-dry moisture	3,968	99
Ash	4,008	100
Volatile matter	3,967	99
Calorific value	3,719	92.8
Total sulphur	3,081	76.9
Free swelling index	-	-
G index	-	-

Source: Personnel

In addition, during the drilling period from 2003 to 2013 samples were analysed at 3 international laboratories. QCRS samples were delivered and tested at SCOS and A/C/D/L. International laboratories and ER samples were tested at the company’s internal ER/CCL. Results from all laboratories are summarized in Table 5-6.

Table 5-6: Summary of the BN original analytical database.

Laboratory	Moisture (%)	Moisture (g/g)	Ash (%)	Ash (g/g)	Volatile matter (%)	Volatile matter (g/g)	Calorific value (kJ/kg, as)	Calorific value (kJ/kg, ad)	Total sulphur (%)	Total sulphur (g/g)	Total moisture (%)	Total moisture (g/g)	Free swelling index	Free swelling index, ad
SCOS	1199	189	1356	189	9	189	9	1599	1199	189	189	9	1599	9
A/C/D/L	1387	1389	1387	1389	2387	1389	764	765	2389	2389	2389	2389	2387	2387
ER	8677	873	8677	873	8677	8677	8718	2596	8677	873	873	8696	9	9

Source: Tullaghan

It was identified that as-received and air-dried moisture values from the BN exploration analytical results was significantly higher than ER’s. The following paragraphs are the investigation that followed to determine the discrepancy. In addition, only the BN area was investigated due to sufficient data but the results were applied to the THG data as the same discrepancy occurred.

Since there was such a clear disparity of the old QCN data compared with the newer ER data with the actual QCN values being clearly out of alignment with the coal rank and with such a large (greater than 50%) discount of the newer ER data representing the whole database, a decision was made by the CP to transform the QCN moisture data to fit the ER data. The BN coal measures is quite thick and as rank is related to coal depth each seam was treated individually. In addition, for each seam, coal and rock were also treated individually based on coal being less than or equal to 50% ASH dry basis. The transformation compared the mean and standard deviation of the QCN data and transformed it to fit the mean and standard deviation of the ER data for each seam. This allowed the relative quantitative values to be maintained (i.e. large values = large values, small values = small values). The following formula was applied.

$$Q_{trans} = m_{new} + sd_{new} * ((x_{old} - m_{old}) / sd_{old})$$

Appendix 7b contains the seam histograms which were used in the transformations. The following figures (Figure 5-9 - 5-16) and equations illustrate the histograms used for the H seam transformation as an example.

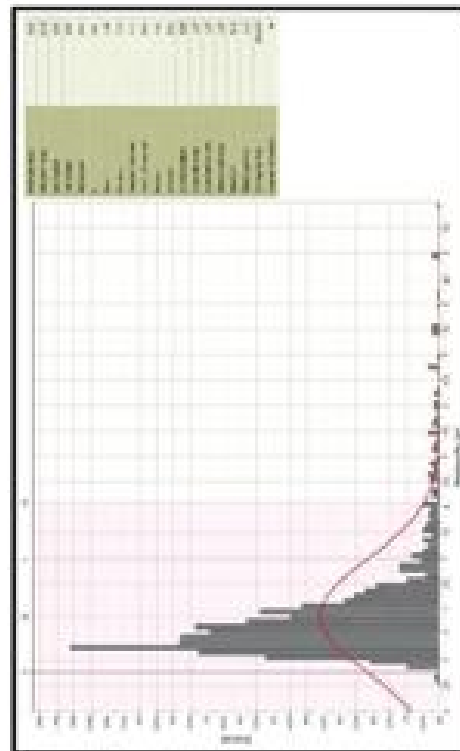
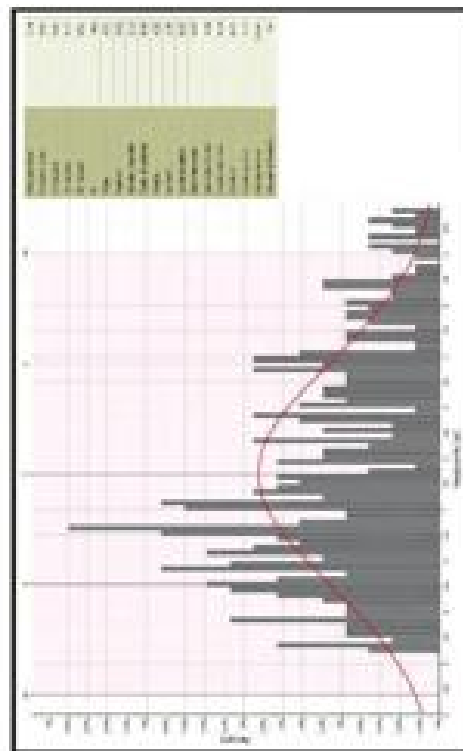


Figure 5-9: BN area ER Histogram - H seam coal sample moisture (as-received)

(Data not shown)



$$X_{trans} = 1.86 + (1.11 * ((M_{Mar} - 4.71) / 2.16))$$

Figure 5-10: BN area QCN Histogram - H seam coal sample moisture (as-received)

(Data not shown)

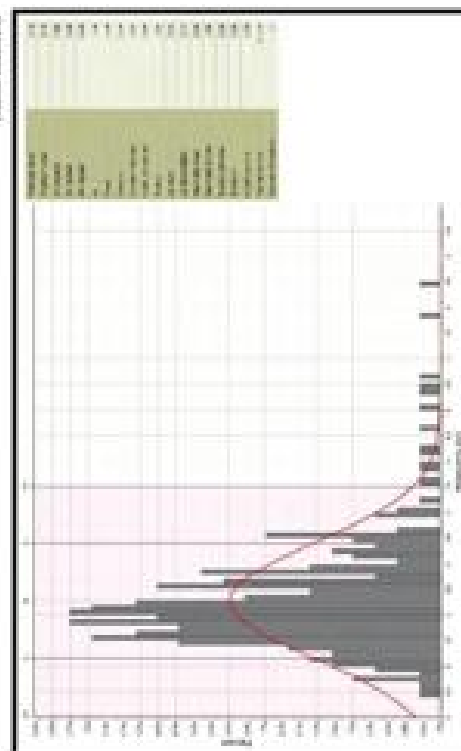


Figure 5-11: BN area ER Histogram - H seam rock sample moisture (as-received)

(Data not shown)



$$X_{trans} = 2.28 + [1.11 \times ((Mar - 5.35) / 2.25)]$$

Figure 6-12: BN area GDX Histogram - H seam rock sample moisture (as-received)

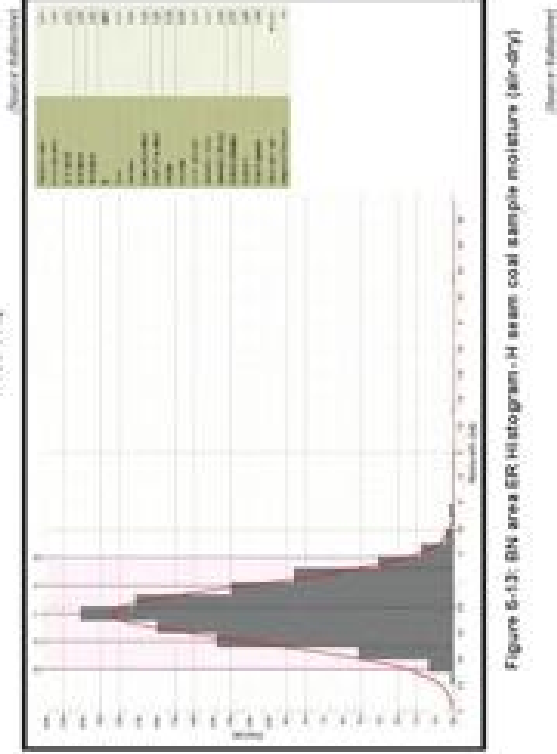
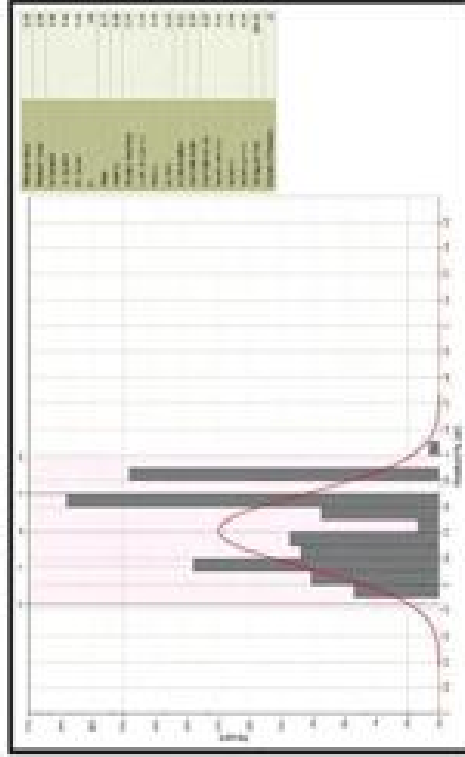


Figure 6-13: BN area ER Histogram - H seam coal sample moisture (air-dry)



$$X_{trans} = 0.75 + [0.22 \times ((Mad - 1.42) / 0.29)]$$

Figure 6-14: BN area GDX Histogram - H seam coal sample moisture (air-dry)

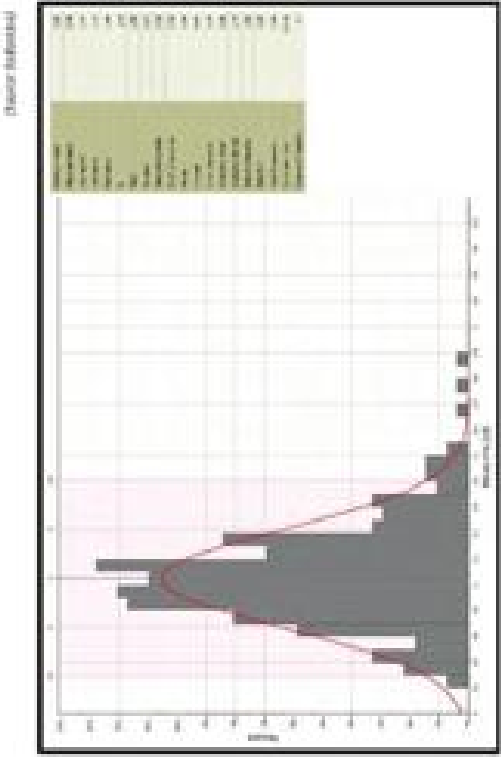
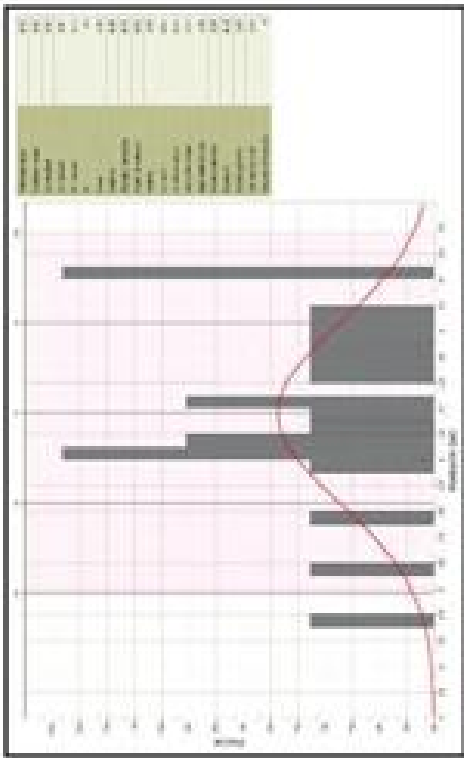


Figure 6-15: BN area ER Histogram - H seam rock sample moisture (air-dry)



$$X_{trans} = 1.05 + (0.38 \times [(Mad - 2.36)/0.70])$$

Figure 8-16: BN area QGX Histogram - H seam rock sample moisture (air-dry)
(Source: Informatica)

Once the QGX moisture data for in-received and air-dry basis was determined, coal quality for the corresponding basis were adjusted. The resulting dataset was then used for the BN resource estimation (refer Appendix (a & b)). Adjusted/Transformed coal quality database is summarized in Table 5-7.

Table 5-7: Summary of the BN Transformed analytical database

Type	Number	%
Total number of ply samples	11,209	100
Total relative density	9,963	87.4
Total moisture	11,121	97.6
Air-dry moisture	9,996	87.7
Ash	11,314	99.3
Volatile matter	9,933	87.3
Calorific value	4,717	41.4
Total sulphur	11,314	99.3
Price swelling index	8,276	77
Q index	2,929	25.7

(Source: Informatica)

Ply samples mentioned in above tables include a further 8776 samples were analysed for CSS and 2929 samples were analysed for the Chinese Q Index.

The objective of this section of the report is to give an overview of the coal quality database with general remarks regarding coal quality characteristics. This is on a sample basis and the methodology used to estimate missing values in order to provide a full set of analytical data for each of the 11,408 samples. This approach maximises the use of the coal quality data and ensures that a full coal quality data set is available at each point of observation, which is used for estimating the coal resource and coal quality. Estimating missing values did not include CSS and Chinese Q Index.

For additional coal quality information in particular washability results, the reader is referred to the MB-05 Barman Main ROMC resource estimation (2012).

The sampling procedure for the QGX and ER data required in-seam rock partings were not included with coal samples, but sampled separately. The procedure also required sampling of the immediate roof and floor of each coal seam and it must be noted that the analytical data includes a relatively large number of separate rock sample analyses. These in-seam partings and roof and floor samples were generally analysed for relative density, ash, moisture and total sulphur.

The BN QGX and ER data sets were compared by means of a number of cross plots shown in Figures 5-17 to 5-21. TBIG QGX and ER datasets are shown in Figures 5-22 to 5-26.

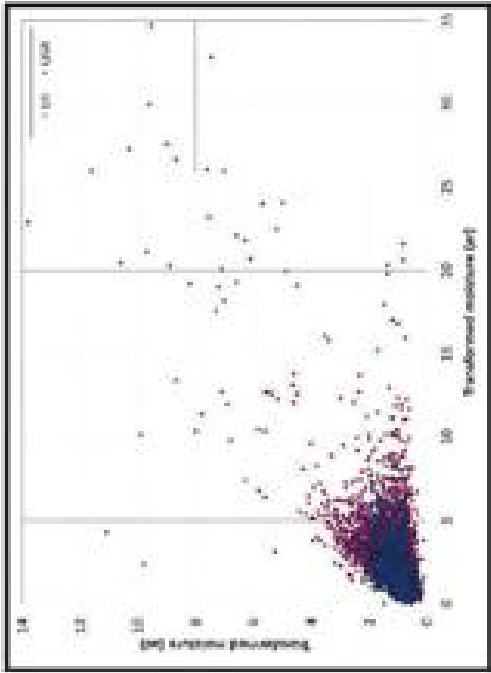
Figure 5-17 shows that the BN transformed analytical database with both of the QGX (SCS and ACBCL) and ERCC3 moisture results. Most of the 11,209 samples, the air-dry moisture is less than 4% and the total moisture is less than about 13%. Figure 5-17 also shows a number of values outside the ranges mentioned, but in relation to the total population, it is a small percentage. QGX transformed moisture are now showing good correlation with ER moisture, which is proving further the coal quality properties in relation with moisture of BN will be unambiguous.

Figure 5-18 shows the relationship between ash and true relative density for the two data sets. The QGX data shows greater variation in relative density than the ER data. The ER data shows a much better correlation between ash and relative density. In addition, 2005 and 2006 QGX drilling campaign samples were tested for apparent relative density instead of true relative density. Therefore calculation for converting apparent relative true relative density was the main cause of variations. The ER data shows a number of anomalous relative density values that are less than expected for ash values greater than 50%.

In Figure 5-19 the relationship between ash and volatile matter shows some variation in volatile matter. Variation is also possibly caused by analytical data transformation. Again, the ER data shows a number of high volatile matter values for ash values greater than about 40%. This observation illustrates the problem of premature composition determinations on non-coal samples.

Figure 5-20 shows the relationship between ash and calorific value. The data shows a good correlation between these two parameters. However, a number of samples show anomalous high calorific values. As a percentage of the total population the number is relatively small. A greater number of samples show low calorific values in relation to the ash content and could be indicative of some degree of weathering.

Figure 5-21 shows the relationship between ash and total sulphur. The differences between the data sets are probably a result of different methods for the determination of total sulphur. The QOX and ER data for sulphur is generally less than 2.5%. However, a number of samples show anomalous high chloride values. As a percentage of the total population the number is relatively small.



(Data in Tullihur)

Figure 5-17: BH Relationship between total moisture and air-dry moisture.

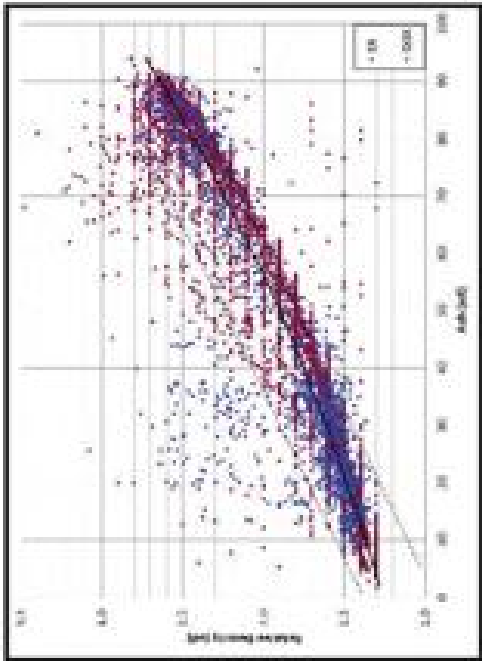


Figure 5-18: BH Relationship between ash and true relative density.

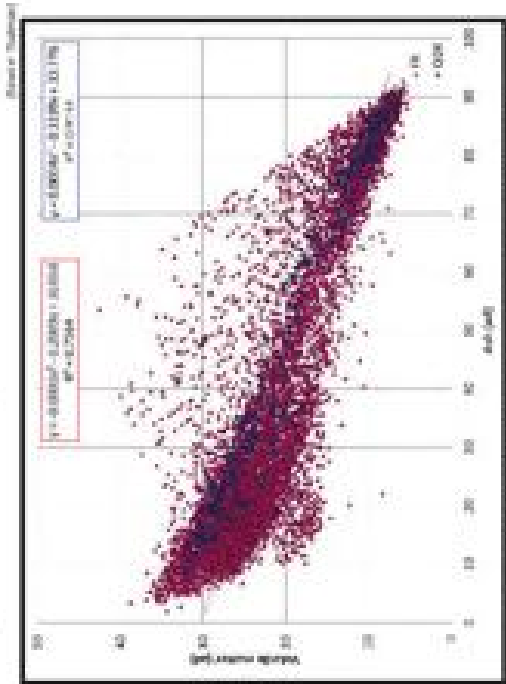


Figure 5-19: BH Relationship between ash and volatile matter.
(Data in Tullihur)

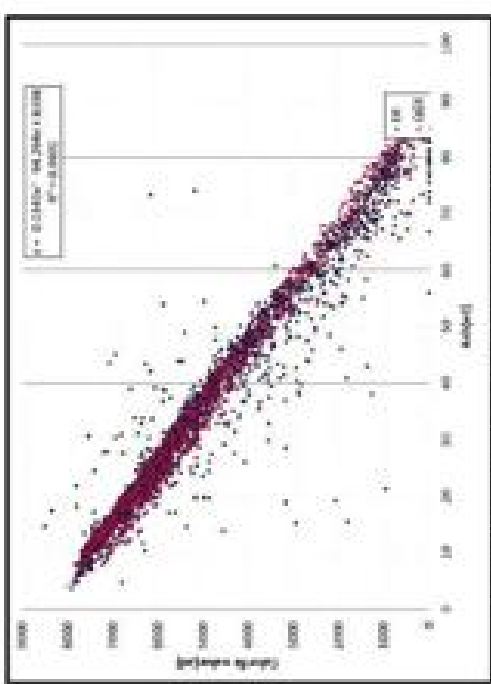


Figure 5-20: BA Relationship between ash and calorific value.

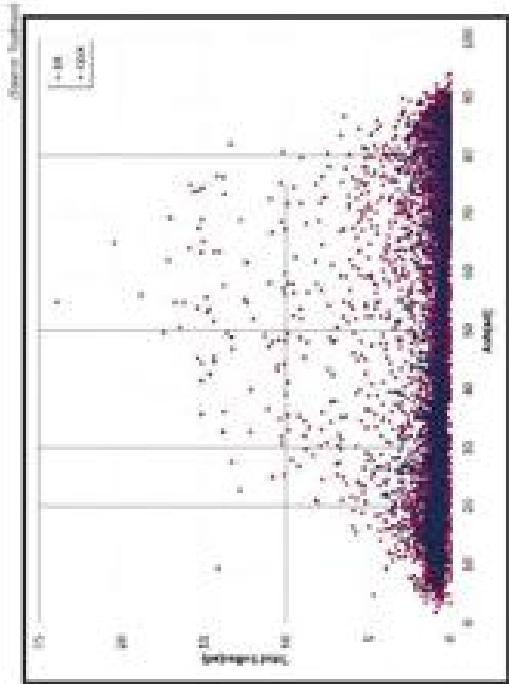


Figure 5-21: BA Relationship between ash and total sulphur.

Figure 5-22 shows that the THG transformed analytical datasets with both of the QON (SGS and ACTRI) and ERGCL moisture results. Most of the samples, the air-dry moisture is less than 6% and the total moisture is less than about 10%. Figure 5-22 also shows a number of values outside the ranges mentioned, but in relation to the total population, it is a small percentage. QON transformed moisture are now showing good correlation with ER moisture.

Figure 5-23 shows the relationship between ash and true relative density for the two data sets.

In Figure 5-24 the relationship between ash and volatile matter shows some variations in volatile matter.

Figure 5-25 shows the relationship between ash and calorific value. The data shows a good correlation between these two parameters. However, a number of samples show anomalous high calorific values. As a percentage of the total population the number is relatively small. A greater number of samples show low calorific values in relation to the ash content and could be indicative of some degree of weathering.

Figure 5-26 shows the relationship between ash and total sulphur. The differences between the data sets are probably a result of different methods for the determination of total sulphur. The QON and ER data for sulphur is generally less than 2.5%. However, a number of samples show anomalous high calorific values. As a percentage of the total population the number is relatively small.

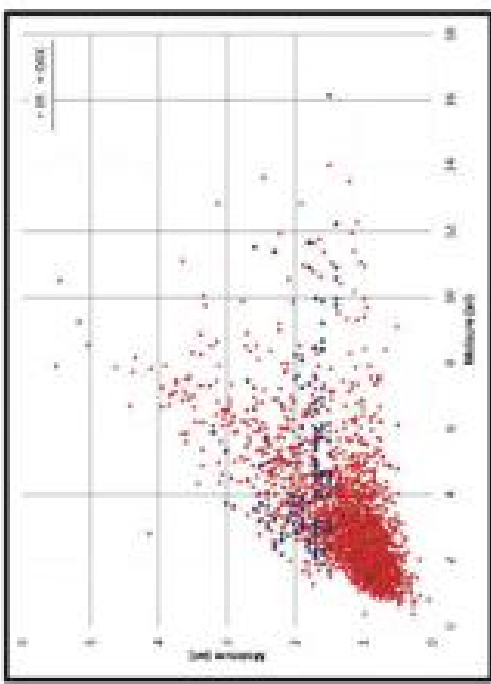


Figure 5-22: THG Relationship between moisture as received and air dry.

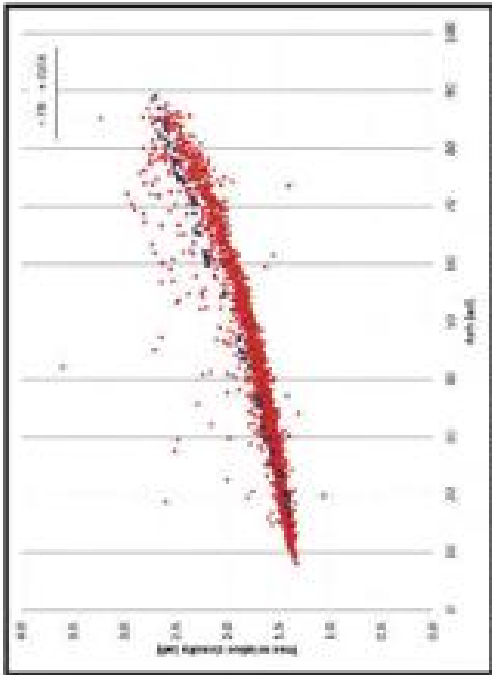


Figure 5-33: THG Relationship between ash and true relative density.

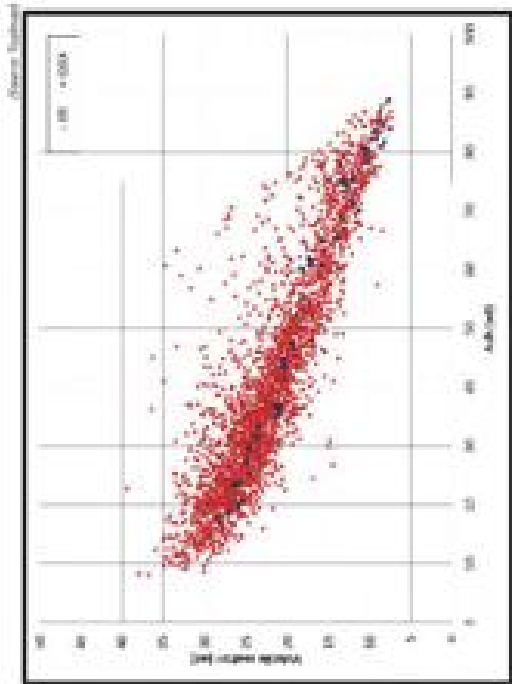


Figure 5-34: THG Relationship between ash and volatile matter.

(Source: National)

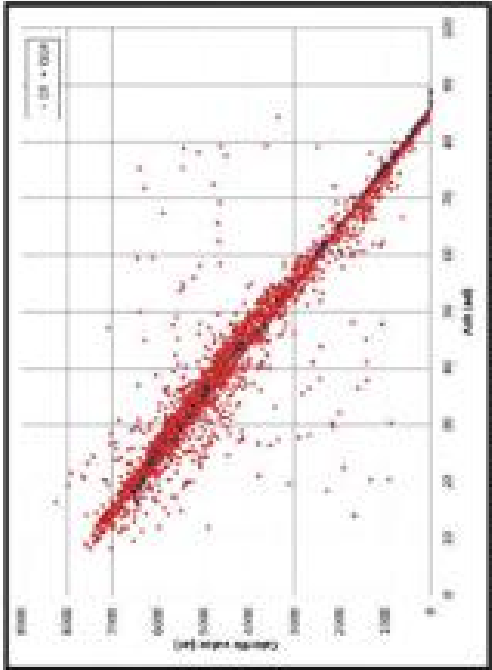


Figure 5-35: THG Relationship between ash and calorific value.

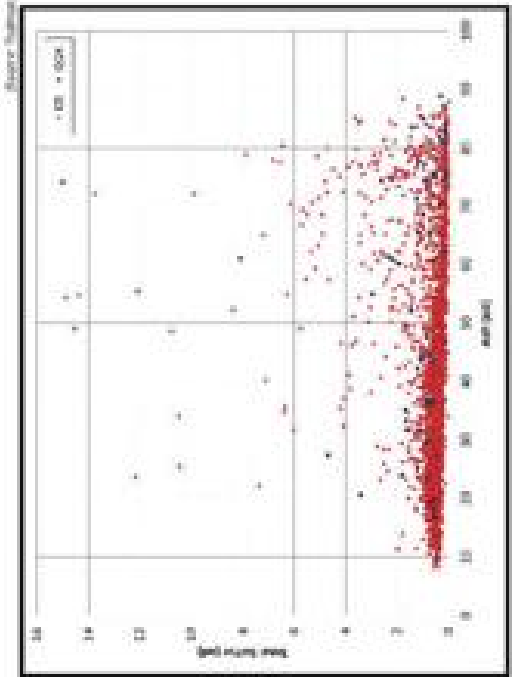


Figure 5-36: THG Relationship between ash and total sulfur.

(Source: National)

- *As-received* – as received dry ash calculated on transformed moisture
- *Plant/Feed* – as received dry volatile matter calculated on transformed moisture
- *PClact/PClact* – as received dry fixed carbon calculated on transformed moisture
- *CPact/CPact* – as received dry calorific value calculated on transformed moisture
- *TGact/TGact* – as received dry total sulfur calculated on transformed moisture
- *TGact/TGact* – as received dry true relative density calculated on transformed moisture

4. **Estimate missing transformed moisture values**

Seam group average transformed air-dry and as-received moisture was used for the missing moisture values for the QOX borholes. In order to be more accurate, samples with a dry basis ash greater than 50% were removed from the calculation.

Where there was insufficient data for a seam the global averages for the coal quality were used. Tables 5-9 and 5-10 show the values used for the missing moisture for each seam.

Table 5-9: Missing moisture as-received values

Seam	Coal	Rock
D	1.5	2.68
E	0.71	2.49
F	1.37	2.37
H	2.12	2.48
I	2.32	2.36
J	2.05	3.26
K	1.67	3.62
M	1.62	3.34
Q	1.46	3.56
R	1.97	2.97
T	1.38	2.34
U	2.33	2.58

(Barrow Mosaic)

Table 5-10: Missing moisture air-dry values

Seam	Coal	Rock
D	1	1.9
E	0.98	1.96*
F	0.81	1.28
G	0.73	1.21
H	0.75	1.09
I	0.81	1.36
J	0.92	1.41
K	0.93	1.68
M	0.98	1.69
Q	1.11	1.9
R	1.06	1.69
T	1.2	1.23
U	1.18	1.47

(Barrow Mosaic)

5. Calorific value calculation

The combination of all QGX and ER data was used to create the following regression in order to calculate the missing calorific values for the BV dataset (Figure 5-29).

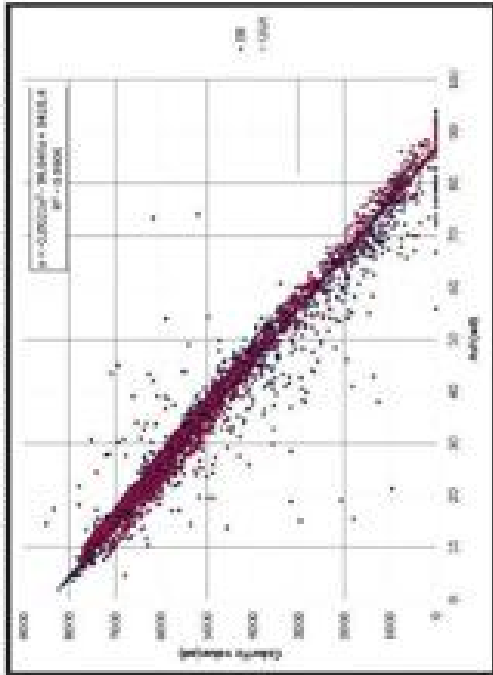


Figure 5-29: BV ash versus calorific value regression.

(Source: Tailored)

o $CV_{ash} = 0.00021 \times Ash_{wt}^2 - 96.646 \times Ash_{wt} + 8428.4$

6. Volatile matter calculation

BV ash and volatile matter regression was created to estimate missing volatile matter data. Volatile matter results were missing only in the QGX dataset, therefore the QGX regression was used for the calculation (Figures 5-30 and 5-31).

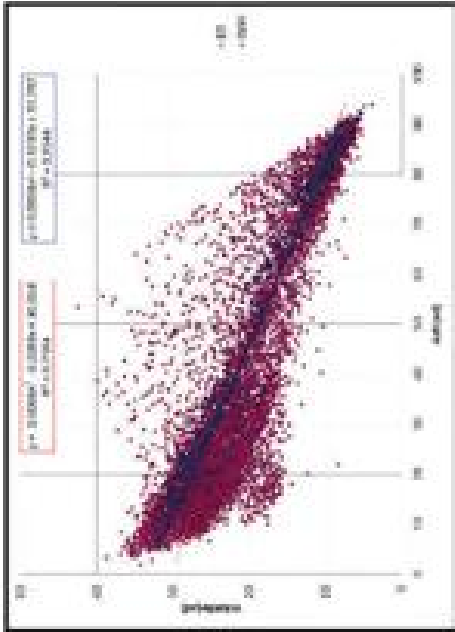


Figure 5-30: All data, ash versus volatile matter regression.

(Source: Tailored)

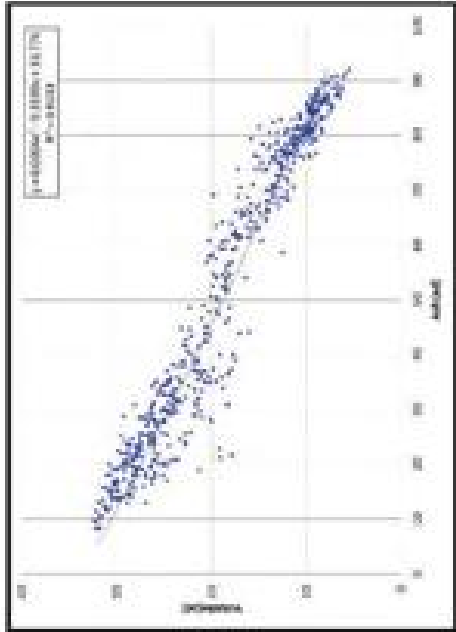


Figure 5-31: THQ All data, ash versus volatile matter regression.

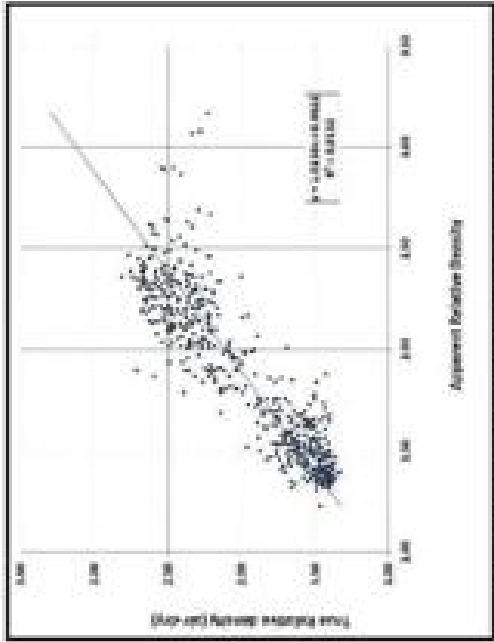
(Source: Tailored)

o $V_{ash} = 0.0004x_{ash} + 0.3199x_{ash} + 33.776$

7. True relative density estimation

QCON true relative density (TRD) of 2003 and 2006 was not tested and applied to ER. Instead apparent relative density (ARD) was tested. Testing method of these 2 types of density is slightly different and there is no direct conversion to estimate true relative density from apparent relative density. For the resource estimate a regression was calculated for the QCON data density and calculated TRD from ARD.

Figure 5-32 shows regression between ARD and TRD from Andrius Perforius.



(Source: Perforius)

Formula used:

• $TRD_{\text{Andri}} = 1.0138 \times Ardri + 0.0822$

(Source: Perforius)

All coal quality datasets for the ash and TRD regression was created to estimate missing values after converting all ARD into TRD. However, it was observed that a number of suspicious values were in the data, which were ignored for this process and most likely were the result of previous calculations.

Figure 5-33 shows the ash versus TRD regression with variables and Figure 5-34 shows datasets used for the calculation.

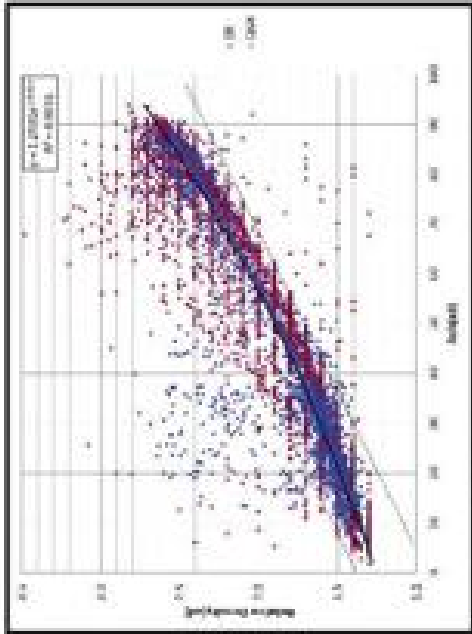


Figure 5-33: BN all data ash and true relative density regression

(Source: Tschikar)

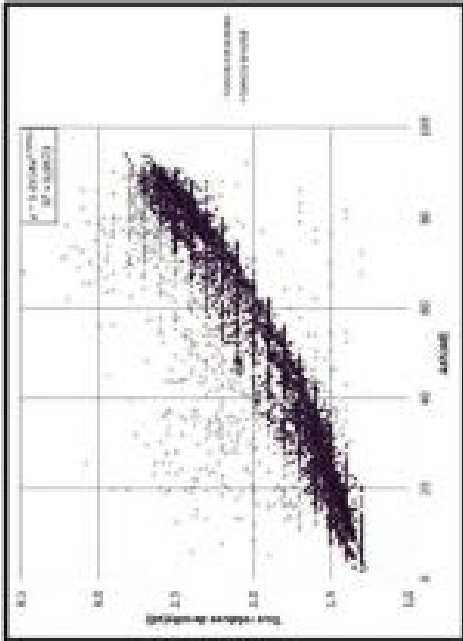


Figure 5-34: BN sample results selected for calculation of missing data

(Source: Tschikar)

• $TRD_{\text{Andri}} = 1.2518 \times \text{exp} + 0.0081 \times Ardri$

Table 3.1.2 shows that some teams have higher percentages of high CSN values and some teams have less of the higher CSN values.

The data in Table 3.12 is illustrated in the diagram in Figure 3.36 where the states are coded according to the distribution of CSM values as follows:

- Steam groups F, E and D have very low CSR values, most likely with no potential for coking coal.
- Steam groups L, H and J have high percentages of high CSR values and are most likely the best coking steams of the deposit. These steams are grouped together as a group of steams with the best potential for coking coal (Figure 5-27).
- Steam groups G, V, U, R, Q, K, N and J forms a transition group of steams with a medium potential for coking coal.

Table 8-12: Cumulative percentage distribution of CIGW values.

[illegible]

Source: *Trifonov*

Figure 4.37 shows the three groups of men based on their potential for coloring coal.

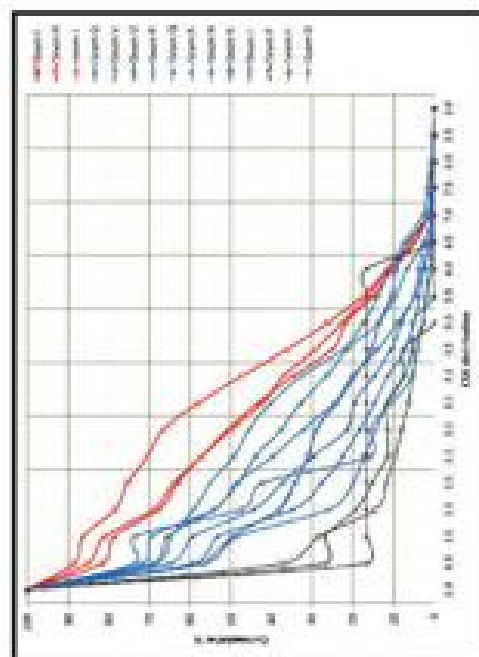


Figure 6-38: Cumulative percentage distribution of CMI values.

1

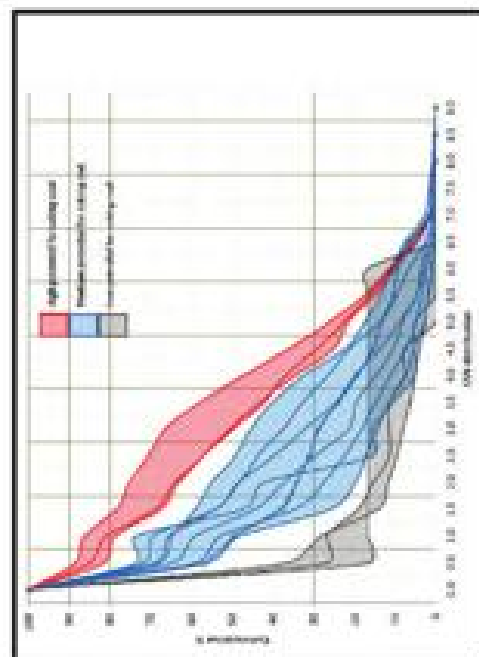


Figure 4-37: Three groups of teams according to call distributions.

1

5.6.2.3 Washability and Coke Testing

QCON commissioned Bob Leach in 2010 to complete a coal quality report which focused on seams H and T. The results of this report were then used in a further study by Sedgeman in 2011 which focused on the washability of the coal. Both these reports can be found in Appendix 7b.

However, coal mined from BN has been blended with UBGO coal and the final product is based on the UBGO products. To better understand the UBGO products please refer to the report, 'JORC (2012) Standard Resource Estimation Uthmaniyah Kishbeg Coal Mine'.

5.7 Outcrop, sub-crop and oxidation

The coking characteristics of a coking coal are very sensitive to oxidation and the coal will lose its coking propensity when the coal is even slightly oxidised as shown by the position of (A), the limit of oxidation (refer Figure 5-28). This point will be indicated by an increase in the moisture content and a sharp drop in the crosible swelling index (CSI) of the coal. In the case of a coking coal prospect, the depth of weathering at the limit of oxidation (LOX) would be (X) at a point (A) in the diagram.

In the transition zone the coal is only partially affected by weathering and most of the coal mass will still have its combustion properties (volatile matter) un-affected, but with a slightly higher moisture content and slightly weaker in its strength. A thermal coal is less sensitive to oxidation and it is expected that the depth of weathering, shown as (Y) will be less than the depth of weathering for a coking coal, which is (X) in the example.

Beyond point (B), in the shallow weathered zone, the weathered coal will be a dark soft clayey material with very high moisture and all its combustion properties destroyed by weathering.

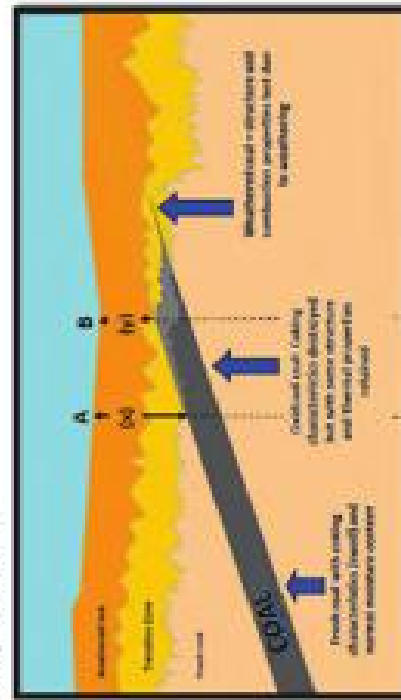


Figure 5-28: Determining Limits of weathering

(Source - Sedgeman)

Closely spaced optechic drilling was used to determine the zone of oxidation and weathering. For the current program, 0.5m chip samples were taken and tested for CSI. Where CSI had values above 1 and then dropped to zero, this was the depth defined as the base of oxidation for coking coal ("A" in Figure 5-28). Where the seam thickness has weathered to half the true thickness of the seam, this was defined as the base of weathering and the limit of the Resource ("B" in Figure 5-28). The coal between points "A" and "B" (Figure 5-28), was deemed as thermal coal. Further sampling at the mine face once seams were exposed confirmed the final base of weathering.

5.8 Geochemistry

To the knowledge of the Competent Person no specific work was completed for BN or Tullaghan for geochemistry, however, a comprehensive study was completed for UBGO by Environmental Geochemistry International Pty Ltd (EGCI), April 2012. Since the coal mined from BN was blended and washed with UBGO coal and the sediments for BN and Tullaghan are of a similar nature to UBGO then the findings of EGCI would mostly hold true for BN.

The following paragraphs were cited from the 'Geochemical Assessment of Overburden/Interburden from the Uthmaniyah Kishbeg (UBOK) Coal Project' completed by Environmental Geochemistry International Pty Ltd (EGCI), April 2012. The complete report can be reviewed in Appendix 21.

EGCI was commissioned by BN in September 2010 to carry out geochemical assessment of overburden/interburden at UBOK mine. The objectives of this work were to: assess the acid rock drainage (ARD), solubility and alkalinity solubility (including neutral mine drainage, NMD) potential of overburden/interburden materials; identify any geochemical issues; and provide recommendations for materials management and any follow-up test work required.

A total of 431 samples were tested from these holes, including coal and parting samples. All holes were sampled continuously except where there were mining intervals. Sample intervals were selected by site geologists in conjunction with EGCI to match geological boundaries, with intervals ranging from less than 0.5m to over 1m. Standard ARD testing was carried out on these samples by the Standard Methods LLC Uthmaniyah Laboratory, with EGCI providing advice on testing methods and carrying out quality control and specialised testing on a sub set of 42 samples.

Results indicate that the vast majority of overburden/interburden and part floor materials represented by the samples tested are unlikely to be acid producing or release significant acidity. The two acid forming (PAF) overburden/interburden has excess acid neutralising capacity (ANC), providing a high factor of safety and offering a potential source of materials to mitigate ARD from potentially acid forming (PAF) waste materials. PAF low capacity (PAF-LC) samples made up only 2 percent of samples tested and PAF samples accounted for 0.3 percent. PAF/PAF-LC materials occur in the immediate 0.5m of a number of coal seams, and could potentially produce localized ARD if not managed effectively with the PAF overburden/interburden. Near surface (within 5 to 10m of surface) materials have higher acidity due to sulfidation.

5.3 Geotechnical Review

As part of the procedures adopted for JCRAC compliance data collection, all core was tagged for selected features including joints, bedding levels, slivers and bed to bed (BtB) (Appendix 2 - Bedrock). Bed samples were taken and kept air and water tight for future testing of major rock mass units. This data will be in the geotechnical database.

Once testing begins, a geotechnical engineering was commissioned to provide consulting services for the BNP area. The group was ARAC consultants and the leader of this team is John Lillis. The latest report on geotechnical issues at BNP will be in Appendix 15. The following is a list of issues as of March 2015 from ARAC consultants.

5.3.1 Introduction

This report is a compilation of data, observations, measurements, and modelling carried out during 2011 and 2012 and is designed to indicate where Burren National Park (BNP) stands at present with regards to geotechnical issues and where critical and high risk areas are required.

The main aim is to look at the numerous faults, rock slivers, observations, and direct and indirect data from the BNP area. The last few months we will be highlighting key areas of concern at BNP.

The main issues considered are as follows:

- Site risk observations to assess pit and dump conditions
- Rock analysis of recent failures to identify rock strength properties
- Rock mass characterisation of the western Overland Circuit (OCC) at BNP
- Geological lineaments analysis to better quantify the structure for each OGC
- Pit slope stability analysis to identify analysis and where limit equilibrium analysis required
- Review of pit slopes and waste dump design requirements
- An assessment of building ramp design requirements
- Review of progress in the completion of the Burren Ground Stability Management Plan (GSM)
- Review of pit slope stability monitoring methods
- Geotechnical training and testing
- Future work required

5.3.2 Pit Safety Observations

The major stability mechanism involves observed at BNP, namely:

- Composite failure of the weathered pre-bedrock containing planes of clay along steeply dipping bedding planes and cleavage planes through basal bed weathered coverstones. This problem is exacerbated by the steep batter angles

- Failure along steep bedding planes and bedding planes slivers, as shown in the accompanying diagram of Duffin Hill (22m) beds of bedrock (Duffin Hill core)

The nature of the BNP deposit indicates that conditions will be very different as the construction pit will be compared to the weathered area. This is due to the pit walls and bedding being mostly parallel to the bedding and bedding planes slivers on the weathered side, and perpendicular to the bedding. On the weathered side of the pit the slivers formed by the beds of the pit will be used to substantially more stable. This is illustrated in Figure 5-30.

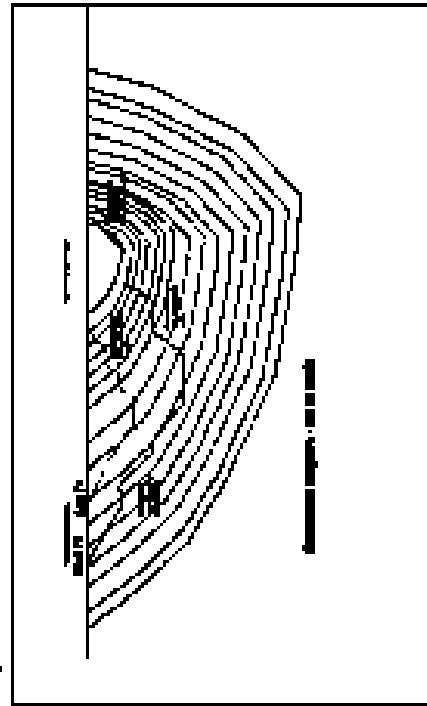


Figure 5-30: 300 Bedding Structure: Bedding Planes and Bedding Planes Slivers (Bedrock)

Source: ARAC

5.3.3 Wind Pit

The slivers parallel to bedding that occurred in early July 2012 has been back analysed. Of interest is the fact that the slivers were actually from the top of the bedding planes slivers along which it occurred. The mechanism is thought to be that the bedding planes slivers acted as a release plane and that the subsequent bed of the wind pit to the west of the bedding planes was then subjected to some bedding or sliver failure through the wind pit and the top of the bed. This would be more likely where the wind pit is not very strong as is the case for wind. The slivers were then "pulled" and the slivers were then "pulled" in the case of the wind pit (bedding rock) which is relatively free of other defects.

It is noted as this stage whether bedding slivers back substantially show that the bedding will completely eliminate this problem. This would require either the frequency. The angle is which this type of failure could be prevented will be more likely to be observed, but it may be as this or it to be substantially stable.

Table 5-17: Summary of Current BH/Pa Slope Design Specifications

Revised Specifications	
(Minimum depth 30 m) Maximum batter of 40° or bedding dip (whichever is the lower) and maximum 10 m wide south berm at base of overburden	
Bank Specifications	
Full width and face width, overall slope angles, batter angles, and batter heights	
Bank face	Maximum overall slope angle 30° with maximum batter angle of 30° Maximum batter height 20 m and berm width 1 m
Bank toe	Maximum overall slope angle 30° with maximum batter angle of 40° or bedding dip (whichever is the lower) Maximum batter height 20 m and berm width 1 m
Face width	Maximum overall slope angle 30° with maximum batter angle of 40° or bedding dip (whichever is the lower) Maximum batter height 20 m and berm width 1 m
Bedding dip (steeper than 30°)	Reduce batter height from 20 m to 10 m to allow for increased chance of toppling failure
Reactive beds and walls and face width (barrens areas)	Bedding dip 0° to 30° maximum overall slope angle (OSAA) 30° Bedding dip 30° to 35° follow bedding. Bedding dip > 30° maximum OSAA 30°
High walls (maximum overall slope angle 30° with maximum batter angle of 30°. Maximum batter height 20 m and berm width 1 m)	
Batter wall angles: Under review	

(Source: JOMC)

Table 5-17 is under review, new modelling is to be carried out by end January 2013 with updated rock mass data. This table was modified to agree with the naming convention used by Range Process Minerals for a fit-to-former (JOMC) optimization study during February 2013.

This revised design table is shown in Table 5-18 and shows changes to the naming convention used in the original geotechnical design report (Speedman, 2010).

Table 5-18: BH Geotechnical Design Table for LOM Study (February 2013)

Revised Specifications	
(Minimum depth 30 m) Maximum batter of 40° or bedding dip (whichever is the lower) and maximum 10 m wide south berm at base of overburden	
Bank Specifications	
High walls, overall slope angles, batter angles, and batter heights	Maximum overall slope angle 30° with maximum batter angle of 30° Maximum batter height 20 m and berm width 1 m Where bedding dip >40° reduce batter height from 20 m to 10 m to allow for increased chance of toppling failure
Bank and Bank Line	
Face width, overall slope angles, batter angles, and batter heights	Bedding dip 0° to 30° Maximum overall slope angle 30° Bedding dip 30° to 35° following parallel to bedding Bedding dip >40° maximum OSAA 30° Maximum batter angle of 40° or bedding dip (whichever is the lower) Maximum batter height 20 m and berm width 1 m
Bank and Bank Line	
Full width, overall slope angles, batter angles, and batter heights	Maximum overall slope angle 30° with maximum batter angle of 40° or bedding dip (whichever is the lower) Maximum batter height 20 m and berm width 1 m
Bank face	
Bank toe	Maximum overall slope angle 30° with maximum batter angle of 40° or bedding dip (whichever is the lower) Maximum batter height 20 m and berm width 1 m
Face width, overall slope angles, batter angles, and batter heights	Overall slope angle not to exceed 30° or dip of the open face (whichever is the lower) This term is defined by the dip of the face along the axis of the erector (roughly oriented 100° to 180°)
Bank and Bank Line	
Batter wall angles: Under review	

(Source: JOMC)

In the 2010 report the term South Limb was used to describe the shallower dipping (southern) side of the syndine (mean dips 30° to 70° to the north). This area is now referred to as North Limb LW and South Limb LW (Edwards' Reference source not found).

In the 2010 report, the term North Limb was used to describe the (northern) steeper dipping side of the syndine (mean dips 70° to vertical). This area is now referred to as South Limb HW and North Limb HW.

5.7.2 Mining Potential

Barun Complex

5.7.3 Coal Reserves

The Resource study (ADG-27-0002a, March, August 2012) under Appendix 2a) completed by BPC in January 2012, shows, based on an integrated CBO and BQ analysis under the following assumptions: 10% of under 1.0Mt is recoverable.

Based upon the projected development program and all support and operating costs supplied by BPC, the integrated CBO and BQ project NPV was estimated at US\$222.2m at a discount rate of 10%. Reserves were developed on the basis of an Open-Pit coal project. The key findings were:

- Integrated CBO and BQ total study NPV of US\$222.2m at 10% discount rate.
- Total integrated Capital Cost of US\$220.1m, with Mining Equipment (fixed and replacement) making up 87% at US\$220.
- Total average Revenue of US\$104/mtpa product and average Cash Cost of US\$40/mtpa product to deliver average pre-tax margin of US\$64/mtpa product.
- Mining operation includes loader and coal washing, shifft and blast, support and coal storage, for approximately 90% of the Total Integrated Operating Cost.
- Life Project life of 20 years (from 1 January 2012) including mine closure, with mining Mining commencing in December 2012).
- Maximum 8,240 coal production of NPV of 6.0 mtpa producing approximately 12.4Mtpa recoverable product.
- Average BQ product cost output of 3.6 mtpa comprising of 1.2Mtpa of BQ coal (10% coal), 1.3 Mtpa of BQ coal (10% coal), 0.6 Mtpa of thermal coal (10% coal) and 0.5 Mtpa of thermal coal (10% coal).

7 Exploration

7.1 Drilling

7.1.1 Historical Drilling at BND

7.1.1.1 Mongolian-Russian Drilling

During the initial exploration work of BND in 1983, there were three shallow vertical boreholes (approximately 70 meters each) drilled. Six coal seams with apparent thicknesses of up to 4 meters were identified in the programme. The resulting "prognostic resource" calculation included values of 86 million ton and 10.9 million ton underlying area of 19.2 square km (Chubakov et al., 1983).

From 1983 to 1993, 21 vertical boreholes (depths range from 33 to 362 m) with a total of 2500 meters depth were drilled on the BND. Borehole spacing generally ranged from 250-500m on five north-westerly trending exploration lines spaced approximately 30m. Downhole resistivity, caliper, gamma and density surveys were completed on 19 boreholes. 9 boreholes intersected significant coal thickness. Total 12 coal seams with apparent thickness of 1 to 30 meters were identified. 4 of these seams reported metallurgical quality (Gunkhbayar, 1996). (BND-101 Technical Report, 2007)

7.1.1.2 QGX drilling

7.1.1.2.1 2003-2006 drilling

QGX conducted a drilling program at BND from April 24, 2003 by 2 contractor companies, AUDD and Major drilling company of Mongolia. They used UDB-250, UDB- 3000 and Longwell 44 rigs to drill the deposit. The purpose of this program was to address the issues identified in the previous section and bring the bulk of the BND resource to a level of geological confidence.

By December 15, 2003, QGX had drilled 137 boreholes totalling 34204.3m, using BQ3 core, open-hole poly-crystalline diamond (PCD), and reverse circulation (RC) drilling methods. Coral meters totalled 11,036.0 meters. (BND-101 Technical Report, 2007)

By December 3, 2006, QGX had drilled an additional 213 boreholes totalling 49,382.7 meters using BQ3 core and openhole PCD drilling methods. Coring totalled 3,014 meters. Most of these boreholes were drilled in the Norwest program included a total of 121 holes, eight designed to intersect the seams at as close to right-angles as possible, attempting to minimize apparent seam thickness issues. Given the near vertical steepness of the seams in the northern flank comprised of 17 slim gauge core holes (BQ-BQ3), 99 slim rotary of the spudcove, this was not always possible. Downhole surveys were carried out every 50 m, and these surveys, combined with either the dip of beds in the core, extrapolated from cross sections, and were used to ascertain the true thickness for each seam cut by the boreholes.

Drilling the 2003-2006 drilling programs a total of 550 boreholes were drilled in BND totalling 95,747m, of which 16,066m was coral. (BND-101 Technical Report, 2007).

The details of these programs are shown in Table 7-1. The map in Figure 7-1, illustrating the borehole positions for this program. All coordinates are in Universal Transverse Mercator (UTM) WGS 1984.

Table 7-1: QGX 2003-2006 borehole data summary

Total	Company	Drilling type	Borehole	Total depth(m)
2003	QGX	Core	137	34204.3
2006	QGX	Structure borehole	31	1972
	QGX	Core	213	61512.7
	Total		381	97687

(Source: QGX and International, 2007)

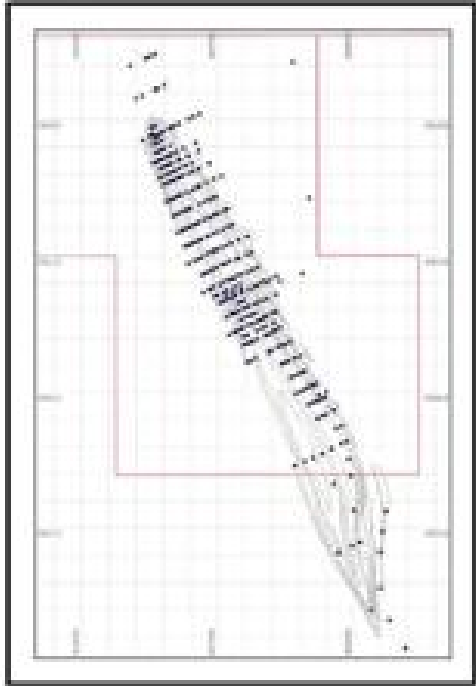


Figure 7-1: QGX 2003-2006 boreholes

(Source: QGX and International, 2007)

7.1.1.2.2 2007-2009 drilling

In 2007 a drilling program was carried out to assess water availability in the region to support mining/coal processing operations. (Baruan Naman JORC reserve report SRK, 2010). QGX had drilled a total 34 boreholes totalling 9,150m. 3 of these boreholes were drilled within the current BN mining license, 9 holes were drilled in the southern part of exploration license, and the remaining 22 holes were drilled beyond the exploration license. Major Drilling was the drilling contractor and used a Longyear 41 drill rig to drill the boreholes. The program defined an adequate water source for a mining operation and yielded further regional geological information including delineating some areas then considered prospective for covered Permian sedimentary rocks and coal.

An oxidation drilling program was completed during 2008. (Baruan Naman JORC reserve report SRK, 2010). Major Drilling completed 38 boreholes totalling 1,535m using RC (reverse circulation). This program defined the limits of coal oxidation and improved understanding and definition of details of the deposit geometry.

Considerable exploration was carried out in the main deposit during 2009. (Baruan Naman JORC reserve report SRK, 2010). During this program QGX drilled 71 boreholes totalling 13,200m. This included 35 RC core holes totalling 5,200m, 36 PCD openholes totalling 8,000m. QGX also drilled 11 large diameter boreholes totalling 1,000m for stability and core testing from 1050 and 1500 minus QGX contracted AEDD and Trans Impact companies as drilling contractors. They used UDB- 650 and YDX- 3L drill rigs to drill boreholes. The details of these programs are shown in Table 7-2. The maps in Figures 7-2 and 7-3 illustrate the borehole positions for this program. All coordinates are in Universal Transverse Mercator (UTM) WGS 1984.

Table 7-2: QGX 2007- 2009 borehole data summary

Drilling Test	Core	Drilling Method		IC	IC/PA
		PCD	RC		
2007	0	0	9,150.00	9,150.00	0
2008	0	0	1,535.00	1,535.00	0
2009	6,300.00	12,400.00	0	0	18.6
Total	6,300.00	12,400.00	10,685.00	10,685.00	17,283.00

Source: QGX Reserve (2010)



Figure 7-2: QGX 2008 boreholes

Source: QGX Reserve (2010)

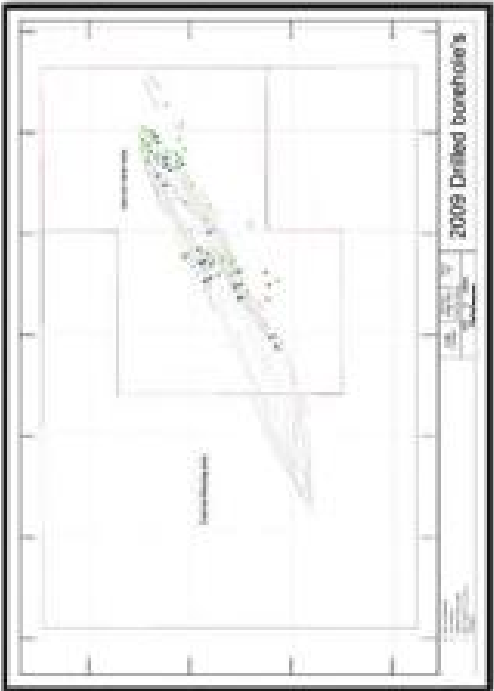


Figure 7-3: QGX 2009 boreholes

Source: QGX Reserve (2010)

7.1.2 Current Drilling

The geology department of ER conducted an infill drilling program at BND. Infill drilling was carried out in the deposit area from July 10, 2011 for CTL and variability analysis. Total 10 bulk boreholes were drilled and logged. All samples were collected with special care and sent to the laboratory.

From August 19, 2011, 16 boreholes were drilled by RC method and to confirm the seam H model for the new box-out. All boreholes were logged and sampled; samples were sent to ER/CCL.

From the drilling results, a detailed model for seams H and G was constructed and passed the planning engineers.

In 2011, 26 boreholes were fully cored (100%) to identify better define structure.

In 2012, an infill drilling program was completed in the BND mining area to support concurrent mining operations. 33 fully cored boreholes totalling 10,395m were drilled. 2011- 2012 exploration work is summarized in Table 7-3. Figures 7-5 and Figure 7-6 illustrates boreholes drilled from 2011 to 2012.

The 2011-2012 drilling program included a total of 124 holes and 37,873.2m drilled.

Table 7-3: Energy Resources 2011- 2012 borehole data summary

Site	Year	Company	Drilling type	Borehole	Total metre
BN	2011	ERAC	Large diameter	10	651.5
		ERAC	Structure borehole	20	3700
	2012	ERAC	Cone	33	10395
		ERAC	Cone	33	12537
TTH	2012	ERAC	Cone	30	9051.7
		Total		124	37873.2

Source: Energy Resources Ltd

The geology team had responsibility for exploration, pit grade-control and setting up of the BND/CCL laboratory. Later the laboratory was able to be managed by its own team. Over time other roles have been started on an as-needs basis. These are reconciliation (to support mining), Geotech (to support mining) and cost quality (to support mining and the CHPP at URB). The Geotech role is now a department by itself. Figure 7-4 illustrates the roles that were introduced to cover "all bases" with exploration and mining.

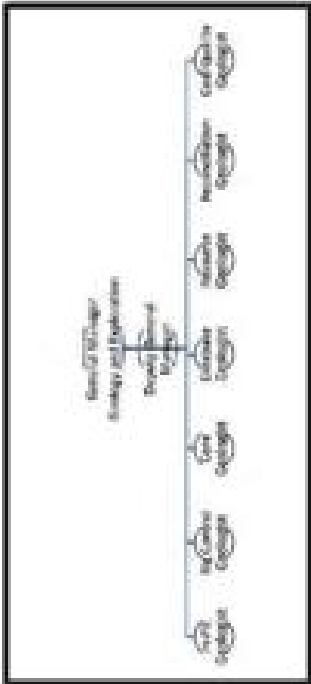


Figure 7-4: MM/C Geology department role structure

Source: Energy Resources Ltd

The results of the 2011 program showed that even in the mine were very complex in regards to continuity and coal quality. Further work was necessary to understand this complexity and location, versus the remaining deposit and how this would affect future mining and planning.

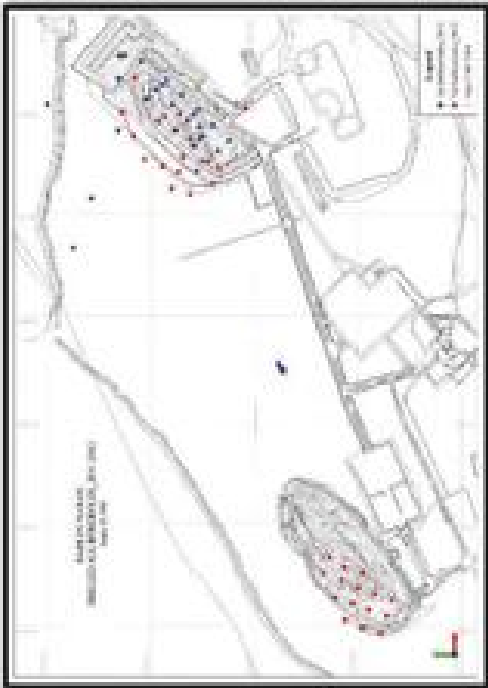


Figure 7-5: 2011-2012 boreholes for BN

Source: Energy Resources Ltd

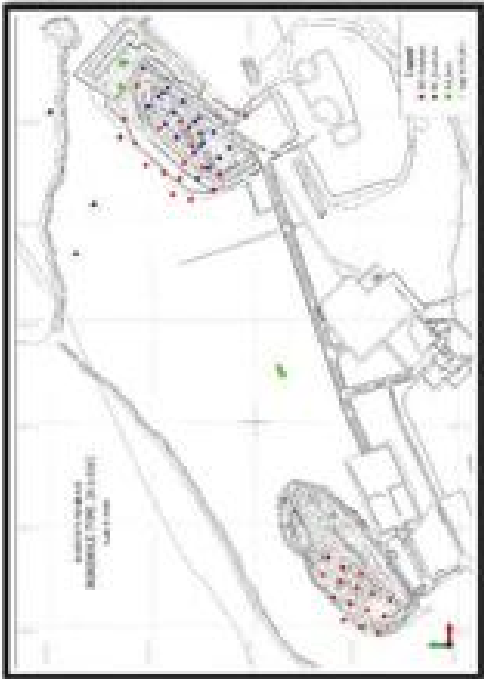


Figure 7-6: 2011-2012 boreholes by borehole type for BMA

Source: Energy Resources Ltd.

Including all available data over the various periods of exploration, the database available for modelling the resource estimate consisted of 362 boreholes (refer Figure 7-7). The approximate amount of drilled metres over this period was 171,696.2m of which approximately 150,094.2m was cored and 31,702m was openhole.

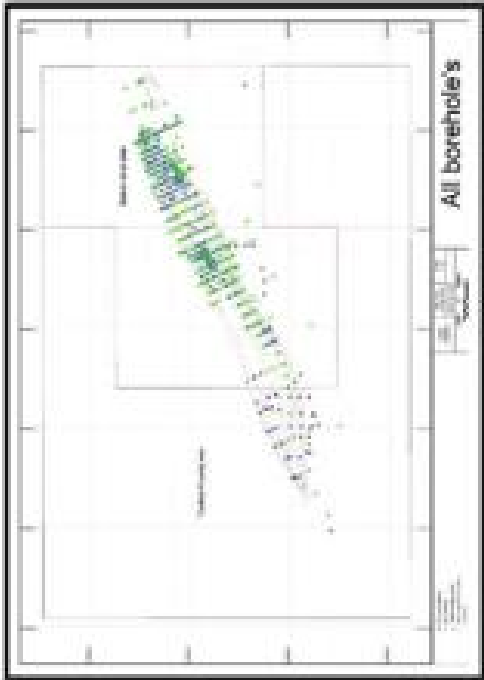


Figure 7-7: All boreholes BMA and THG

Source: Energy Resources Ltd.

During 2011, a 2D seismic program was trialled using a Canadian based company, Proton International (Proton), to collect the data and Velocity Pty Ltd (Velocity) based in Australia to design, process and interpret the results. The trial was very successful in demonstrating that the area was conducive to acquisition of high resolution 2D seismic. 73,51km of 2D high resolution seismic data was collected in 2011 (refer Figure 7-8 – angled grey lines).

The combined results of the drilling and seismic have provided great confidence with the seam correlations and continuity for this resource estimate. Appendix 13 contains the final reports from Velocity and Proton for the overall seismic program.

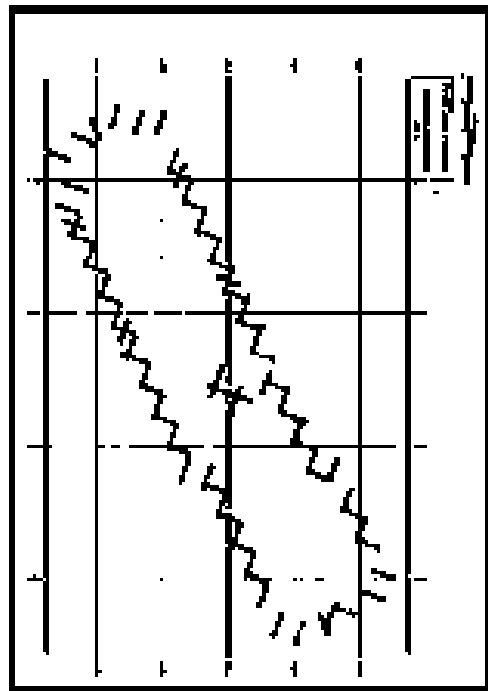


Figure 7.10: Seismic program for 30A

source array sensor is 100

7.2 Geophysics

7.2.1 Seismic survey

Polaris Seismic International was awarded the contract to conduct 3D land high resolution seismic survey of 30A in 2011. The 3D effort was to gain information regarding the stratigraphy and structure of the survey area and areas adjacent to the area, as represented in particular by the 30A, 30B and 30C areas. A particular aim of the interpretation was to determine any major structural or stratigraphic features which could help explain the changes in resistance and currents.

The survey area comprises a highly folded and fractured sequence, with very steeply dipping limbs and an isolated fold axis. In part within the northern limb which may be associated in place.

The 3D B3M 2011 seismic program recorded 39 dynamic lines totaling 73.31km using dual Qm and dual CQm technology and operated in the manner under Figure 7-10. The reports for both programs can be referred in Appendix 13.

Once the raw seismic data was collected, it was passed onto Velocity Processing Pty Ltd for speed processing and integration with subsequent interpretation. All the final interpreted seismic lines are shown in Appendix 14. The final report for this contract can be found in Appendix 15.

7.2.2 Gravity Geophysics

All geophysical datasets include gravity surveys of 30A-30C drilling were conducted by Macdonald LLC with the 2011 program completed by Macdonald LLC. The gravity system used by Macdonald and Colgate were made by Aerlog Pty Ltd (Macdonald) and the full details of the equipment can be found in Appendix 16. The geophysical data produced include gravity, density, resistivity and collapse. Hard copy logs were supplied to the field geologists with a set of digital Log ASCII Standard (LAS) files. The standard of this service has been average of best.

7.2.3 Gradient array resistivity survey

A gradient array resistivity survey was undertaken by Geosystems LLC in July 2011 with more than 12km along the 30A valley. Macdonald, a surveying company from Queensland, managed the grid lines.

The program was activated in 2008 to include the gradient array survey over shallow terrain adjacent to the end of the 30A valley. This survey revealed another 12.1km² area. The results were high level and provided some guidance with understanding the deposit.

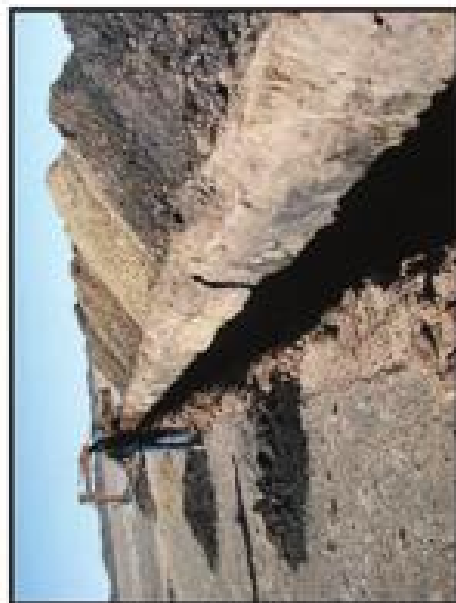


Figure 8-1: GGG trenching at Barua Marine

Source: ORR

8.4.1 Trenching ER (2007-2012)

No trenches were excavated in BN area during ER exploration work. However, in 2012 a total of 3,330.5m which included 7 trenches were excavated in the THG area to understand the structural setting of the coal outcrop.

8.4 Borehole Collar and Topography Survey

8.4.1 Survey Method prior to 1983 (Khoshtabar et al)

The Tullihua Teller deposit area was provided with topographical map of 1:100,000 scale with relief contours in each 25m. In the areas of prospective deposits there were several category points of the national ground triangulation. Moreover, in this area mapping of 1:25,000 scale had been carried out involving an area of 700km² with horizontal relief sections provided to 5 metre intervals. Topographical maps of the Tullihua Block. The Eastern and Southern deposits were drafted from an enlargement of the regional 1:25,000 scale topographic map. All geology-exploration work was coordinated in accordance to GDSK of MPR (Coordinate catalogue) and was captured using the "Type 020a" category Densitometer and theodolite station method of mapping.

8.4.2 Survey Method GGG (Norwest 2006)

Microtop Engineering Services Co. Ltd. (Microtop) was used for all survey requirements for this program. Microtop is a reputable Mongolian land survey company. The surface topography data was comprised of digital AutoCAD format surface contours at 2m elevation intervals. The data was spatially referenced using the UTM (WGS84 projection) and all elevation contours were in meters above mean

sea level. Topographic data was obtained using real time kinematic GPS ground survey on a dense grid and closely spaced data points on crests and toes of surface showing more than the relatively flat relief characteristic of the resource area.

During the 2008 drilling program Norwest geologists conducted field surveys to confirm the surface exposure (or absence) of coal bearing sediments as mapped and interpreted by previous geologists. Norwest did not identify any surface geology that departed from available geological maps and interpretations. Publicly available satellite imagery (Google Earth) was used in validating the previous Russian surface geology mapping. Additionally, approximately 80% of the historic Russian drill locations were relocated during field mapping and added for GPS base station surveys along with the borehole locations from the 2008 program.

8.4.3 Survey Method 2009 - present

The topographic and borehole collar survey was carried out by ER Mining's own survey team using Trimble equipment. The topographic survey was carried out in 2008 and the borehole collar survey was carried out during the exploration period in 2009-2014. Figure 8-2 and 8-3 shows a difference map computing the grid based on borehole collars and the grid based on topography.

Most differences in BN are less than 1.5m, which is acceptable with a few areas greater than this around a couple of borehole sites and the boundaries where there is no borehole control, specifically in 2 pits. It is recommended that the few areas where there is a larger than 1.5m difference be resurveyed for topography and borehole collar (Figure 8-2).

There is no difference in more than 1.5m in the THG area, which is very acceptable. It is not recommended to resurvey borehole collars in THG area (Figure 8-3).

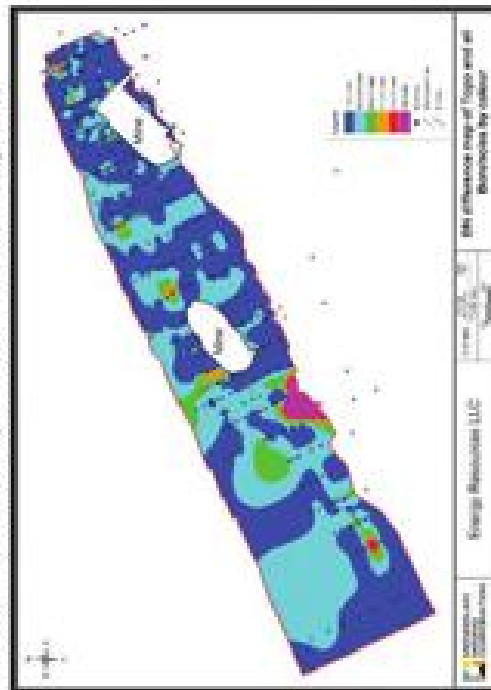


Figure 8-2: Difference map of Collar survey and Topography survey
Geophysics of BN

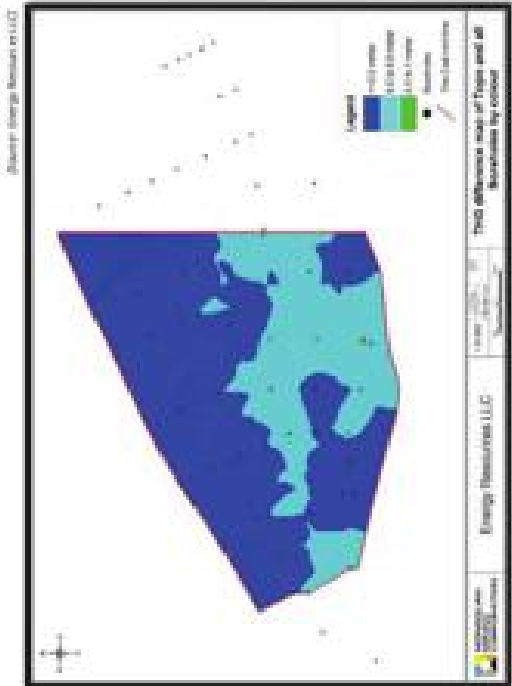


Figure 8-3: Difference map of Collar survey and Topography survey Geophysics at THQ

8.5 Geophysics

8.5.1 Geophysics Method prior to 1993

Surveys of areas were carried out with utilization of logging station ST-1-7a combined with stationary apparatus and equipment. Cable of K72-0-180 type graduated with depth identifiers for every 10 m. Calibration and graduation of indicator (KUR-2) and inclinometer apparatus were made in conformity with instruction for geo-physical survey of boreholes, so calibrations were made once a quarter or after each repair. Diagrams were registered in 1:200 surveyed scale and in 1:50 detailed scale. Quality and accuracy of measurements were evaluated visually in comparison with basic examination records. Records on examinations of gradation were made once a quarter in presence of officials from geological team of the crew. Logging surveys were carried out to decide the following geological tasks:

Identification of coal seams within the boreholes sections and definition of thickness and depth of their location.

- Determination of symmetry of coal seams and correlation of the sections.
- Lithological differentiation of seam rocks.
- Study of the tectonic conditions of borehole's wall.

- Determination of spatial location of borehole's zone.

To decide the above geological tasks following sets of geophysical methods were used:

- Method of pseudo resistance (PS).
- Method of natural radioactivity (NR).
- Method of induced gamma ray (IGR-P).
- Inclino-meter (IM).
- Zero-meter (ZM)

After completion of measurements in boreholes, preliminary data related to depth and structure of coal seams was given to geological authority and then results of the complete interpretation of logging diagrams as geology-geophysical sections for each borehole were transformed within the defined form of time.

8.5.2 Geophysics Method QCR

8.5.2.1 Geophysics QCR 2005-2009

In April 25, 2003, drillholes BMD001VC through BMD004VC were logged for downhole gamma, density, resistivity and caliper using casing equipment and staff provided by Montarozzi, a wire-line logging company based in Montarozzi. In July 3, 2003, all drillholes were subsequently logged using digital downhole technology provided by Aulog, an Australian wire-line logging company. M-Corr Brazil of Aulog trained Montarozzi surveyed all holes using Aulog digital equipment. This system has remained standard throughout the rest of the 2003 and 2006 drilling campaigns. Some post-processing of these logs has been carried out using Wellcat software to standardize their appearance and minimize the dampening effect of density logs having been run inside the drilling rods. (M 43-101, Technical Report, 2007).

8.5.2.2 Geophysics QCR 2007-2009

Geophysical logging of the exploration boreholes between 2007- 2009 were also measured by Montarozzi LLC. Since with the previous years of exploration, gamma, density, resistivity, caliper and inclination were measured. QCR followed the rule of not inserting radio-active elements using equipment without metal pipe, therefore all radio-active equipment was inserted within pipes into the ground.

8.5.3 Geophysics Method BR 2011 - 2012

Geophysical logging was carried out by Montarozzi LLC in 2011 and Lubbeiro LLC in 2012. The curves that were used were natural gamma, gamma-gamma, density, resistivity, sonic and caliper.

The consistency of all geophysical data in LAS format supplied by both companies was reviewed prior to being processed in LogCheck software. This generally occurs through various audit functions within LogCheck software. The audit revealed that

the LAC data resolution varied between 3m, 5m and 3m for the various parameters.

LACs (Landscape for various used resources) were then compared to the landscape layer (landscape, just when accuracy cost was photography). Where there were differences, the landscape data was corrected (adding one layer to match the LACs). Minimum for various used areas to ensure the landscape data matched the LACs. In general, this would mean the addition of a core loss code to match the original landscape layer was not always a very "square" answer. The drilling records were also referenced to ensure fidelity to the local production of the landscape layer.

Two additional variables (1/20/2003) and 2000/2003) were added to regularity for all logging levels as they occur on the site and at regular intervals (which is more).

8.6. Software

In 2011, 2D landscape resource study was done in the BMD. Patients Service (Landscape) LLC (Landscape) was used to acquire the data from BMD from August to September 2011 and completed 30 observations with total length of 73,100 (1 year 2-4). All new observations were processed and categorized by Volume Processing (by from September to November 2011).

For LACs, the 2D landscape resource study was done in the BMD. Patients Service (Landscape) LLC (Landscape) was used to acquire the data from BMD from August to September 2011 and completed 30 observations with total length of 73,100 (1 year 2-4). All new observations were processed and categorized by Volume Processing (by from September to November 2011).

For additional information, please refer Appendix A and B.

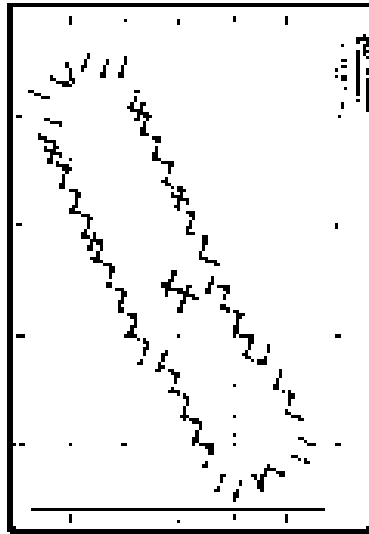


Figure 8.1: Landscape for various used resources

8.7. Geological Logging and Sampling

8.7.1. Geological Logging and Sampling prior to 1980

Geological logging and sampling prior to 1980 was done in the BMD. Patients Service (Landscape) LLC (Landscape) was used to acquire the data from BMD from August to September 2011 and completed 30 observations with total length of 73,100 (1 year 2-4). All new observations were processed and categorized by Volume Processing (by from September to November 2011).

For LACs, the 2D landscape resource study was done in the BMD. Patients Service (Landscape) LLC (Landscape) was used to acquire the data from BMD from August to September 2011 and completed 30 observations with total length of 73,100 (1 year 2-4). All new observations were processed and categorized by Volume Processing (by from September to November 2011).

samples, labelling and packing into the synthetic bags was made. Selected samples were sent monthly to laboratory.

8.7.2 QCR Logging and Sampling

All field logging and sampling was undertaken and supervised by QCR. Only borehole core samples were wrapped. Coal samples were separated into the following:

- Field samples, usually no more than 0.1m of core length.
- Incremental samples consisting of condensed groups of field samples based on consistent lithological units interpreted from core and geophysical log.
- Physical composite samples, consisting of condensed incremental sample intervals representing logical mining or industrial coal seam units.
- Large diameter (1.50m) core samples of key seams for weatherability analysis, processing plant simulation and metallurgical characterisation.
- Geotechnical rock strength samples taken of waste (non-coal) and coal com.
- Acid Generating Potential (AGP) samples taken of waste (non-coal) core.

All coal quality analyses of incremental and physical composite samples were performed by QCR Laboratories, Tianjin, China and ACORE, QCR Tianjin was also charged with the weatherability and metallurgical characterisation analysis.

8.7.3 BR Exploration-Logging and Sampling

Core logging and sampling procedures were developed by Mr Ballantine and include procedures for drilling, core handling, geological and geotechnical logging, sampling and data recording and data entry (Appendix 2).

The following process was carried out by the Energy Resource Geologists:

- Core pumped into PVC split.
- Core marked up (if drilling at night and coal is intersected core marked in the PVC split to be processed the next day in better light).
- Core cleaned.
- Recovery measured.
- Core geologically and geotechnically logged.
- Core photographed wet and dry in core box.
- Coal, rock (Geotech), roof and floor samples collected.
- Geophysically logged.
- Reconciled coal depths and sample intervals against the geophysical log.

8.7.3.1 Geological Logging

Geologists carried out detailed lithological and coal logging, which included descriptions of the depth, lithotype, colour, estimated strength, weathering, bedding, sedimentary structures, fossils and minerals (Appendix 2). Photographs were taken of all the core sections. An example can be viewed in Figure 8-5.



Figure 8-4: Example of core photographs

(Source: Energy Resource Ltd.)

Once all logging was completed and corrected to the geophysical data such that the two datasets were consistent, the downhole coal data was correlated by the CP to ensure that coal seams were consistently correlated across the deposit. This process is generally a sectional process where the various boreholes were plotted along section lines and the neighbouring holes were checked for seam correlation. The correlation is built up in a multi-directional sense to ensure that the seam correlation is valid in all directions. The LogCheck software is a very powerful tool for doing this work quickly and accurately. Northeast-southeast sections created from LogCheck can be viewed in Appendix 9.

8.7.3.2 Sampling

Coal intervals of 0.50m or less, not including any rock partings, were considered to be coal piles and were sampled. Each coal sample and rock parting was sampled separately. Individual coal samples (without rock partings) had a maximum length of 2.0m. Coal samples were selected on coal brightness to reflect differences in CQ.

The geological procedures (Appendix 2) required rock partings of 0.02m to be sampled with the coal and rock partings over 0.02m were to be sampled separately. Rock partings equal to or less than 0.02m with coal on either side were considered to be in-seam rock partings and were to be sampled. Rock partings greater than 0.50m in thickness were considered to be a parting between two coal seams and were not sampled. In addition, a 0.50m sample of the immediate roof and the immediate floor of each coal seam were collected. These were analysed to estimate the effect of diluting the coal if some roof or floor rock was mixed with the coal. This data will be used in the reserve estimate.

All samples were wrapped in double plastic bags, which were securely closed with zip ties. The plastic bags were marked with the borehole number, the sample number, the sample interval and the sample type (i.e. rock or coal). A sample ticket with the same information was also placed between the two sample bags. The samples were stored in a freezer (Figure 8-6) before being analysed by the outside ER laboratory.



Figure 8-4: Photograph of freezer where coal samples were stored while waiting for analysis

Source: Energy Museum (11.11.17)

Lithology logs were updated with the sample number so dispatched to the laboratory. These sample numbers were then cross referenced (by depth and thickness) to the coal quality data once it was received from the laboratory. For further information review Appendix 1.

8.8 Analytical Method

8.8.1 Analysis before ERP

Research of coal quality of BND before ERP was executed by SGS Laboratory in Tianjin, China and ACTRL in USA. Detailed coal analysis, including characteristics was also tested in SGS and ACTRL.

Crushing and processing of coal samples were carried out in the SGS and ACTRL in accordance with the scheme developed in advance and immediately sent to the coal chemical division and to the section responsible for enrichment. Thereafter crushing and processing backup samples were selected from the original ones which were kept at the storage of central geological crew.

Coal and petrographic examinations of coal were executed by American accredited petrographers at ACTRL laboratory.

8.8.2 Analysis of Energy Resources

All samples were analyzed at the Energy Resources Control Chemical Laboratory (ERCCCL), which is located inside at ER and UBO. With respect to sample preparation, the top one of the sample was reduced and split into two quarters and one half portions. The sample preparation took into account the top size of the sample material required for each of the analytical determinations. One of the quarter portions was used for analysis and the remaining portions were retained.

Coal samples were analyzed for:

- True relative density GB/T 217-2008
- Total moisture MNS ISO 589:2003
- Analytical moisture MNS ISO 331:2003
- Ash MNS ISO 1171:2009

- Volatile matter MNS ISO 562:2001
- Calorific value MNS ISO 1924:2009
- Total sulphur ASTM D4239:05
- Creosote swelling number MNS ISO 501:2003
- Caking index MNS ISO 333:2003

Rock samples were analysed for:

- True relative density GB/T 217-2008
- Total moisture MNS ISO 589:2003
- Analytical moisture MNS ISO 589:2003
- Ash MNS ISO 1171:2009
- Total sulphur ASTM D4239:05
- Volatile matter MNS ISO 562:2001

Under instruction from the Competent Person the coal quality data was checked for basic integrity, typing errors and poor data in general. Poor data was retested using residual sample material.

8.8.3 Accreditation

The ER Control Chemical Laboratory was accredited to ISO/IEC 17025:2005(MNS ISO/IEC 17025:2007) standard in May 2012, which will expire unless renewed in July 2017. Laboratory audits were completed in October 2013 and March 2012 by competent independent bodies to assure testing standards and procedures were being met. These audits are described in the following section and the full reports appear in Appendix 11. Figure 8-7 is the current accreditation certificate provided from The Mongolian Accreditation System.



Figure 8-7: Laboratory Accreditation Certificate

(Source: Author)

8.9 Laboratory Inspection

The Competent Person for the Tullius Khudag deposit initiated and then managed the setup of the ER on the laboratory. All pit, stockpile and core samples collected were analysed using the onsite laboratory.

The Competent Person thought it prudent to have lab audits done as he was not a laboratory expert and an independent party should provide this service. The laboratory was audited twice during the exploration program to provide confidence in the laboratory results. The laboratory was accredited to ISO/IEC 17025:2005/MS ISO/IEC 17025:2007 standard in May 2012 (refer Figure 8-7). A summary of these inspections follow and the full reports from these inspections are found in Appendix 12.

8.9.1 Laboratory Inspection October 2010

The first audit was carried out between 12th – 14th October 2010 by John Strijdom, QMS Manager from Stewart Inspection and Analysis B.V. located at Rotterdam, the Netherlands and part of the Stewart Group. John Strijdom leads the quality team in the Netherlands which are ISO 17025 accredited on Solid Fuels by the Dutch Accreditation Council as from 27 June 2003.

The general results from the inspection follow and the whole report can be viewed in Appendix 12.

- I was impressed by the structured way of working and documenting. (This help should apply for an accreditation it would probably be crafted with only some small adjustments which have to be made.
- The objectives as mentioned in the introduction can be concluded as follows:
- Procedure and manuals are present for all machines, even, older and methods. These procedures have also been evaluated and found in accordance with the present standards.
- All procedures as set on paper are carried out as mentioned by the analyst. All is done in a very clean environment which is cleaned on a regular basis by a special crew. (Health & Safety is a big item in which everybody has to work with the rules set by Energy Resources LLC).
- Machines are not older than 2 years and therefore in perfect condition. All analysts have had sufficient training before performing analysis on their own.
- The packing of the tubes, samples outside and the open window in the preparation shed are the only majors which we can address while an analyst result can never be accurate if the sample is contaminated by outside influence.
- Therefore if we look back to the key objective we can say that with reference to our recommendations the quality level is already on a high level and would only be even better when our recommendations are followed up.

8.9.2 Laboratory Inspection March 2012

The second audit was carried out between 12th – 13th March 2012 by Barry Dren, Project Manager, from A.L.S. Mongolia, located in Ulaanbaatar, Mongolia and A.L.S. Coal Brisbane, located at Richmond's, Australia.

The purpose of this visit was to evaluate the methods and quality system used at the laboratory in preparation for the upcoming application for ISO/IEC accreditation. This report will focus on the methods used at the Central Coal Laboratory. The key objective in this work was to provide Energy Resources LLC with recommendations in order to improve their business practices and to help achieve their ISO/IEC accreditation. Within this objective the following tasks were set up:

- Audit the existing procedure for sample preparation and analysis to the relevant standards.
- Audit the procedures against the actual work in progress.

The general results from the inspection follow and the whole report can be viewed in Appendix 12.

- Work being performed at the Central Coal Laboratory was generally of excellent standard. I would like to thank all staff there, especially Mr. Gerdan, Mrs. Khambhai and Mrs. Zemsuren whom assistance was much appreciated.
- I was most impressed with the dedication to accuracy and proper adherence to standard methods. The laboratory also has a well set out documentation layout which was examined and details provided in a separate audit.
- Staff was very friendly and it was a pleasure working with them.

- When this Laboratory applies for accreditation, I have no doubt that it will meet likely be certified with minor changes being required. If the work practices in the existing laboratory are carried over to the new site, Barog Resources will certainly have a high class facility for their quality testing.

8.10 Reproducibility of Analyses between Laboratories

8.10.1 Database

ERM Laboratory prepared and analysed a number of samples and submitted duplicates of these samples for analysis at the SM Laboratory (41.5) (100 samples) and the UTM (Mining Institute) Laboratory (615 samples).

The ERM analytical results were compared to the other laboratories by means of cross-plots and basic statistical parameters tabulated in Tables 8-2 to 8-4.

8.10.2 ERM Laboratory compared with SM Laboratory

The average, minimum and maximum values reported by the two laboratories for 100 samples are shown in Table 8-1. The average values and ranges of values compare as expected and both data sets show wide ranges in total sulphur values.

Table 8-1: ERM Laboratory and SM Laboratory compared.

Dry basis	ERM Laboratory			SM Laboratory		
	Avg	Min	Max	Avg	Min	Max
Analysis results	8.98	0.07	3.12	1.08	0.00	2.34
Ash	31.54	7.39	80.34	32.81	7.63	80.80
Volatiles matter	19.99	8.90	31.66	19.42	8.62	31.13
Total sulphur	1.12	0.15	14.76	1.21	0.15	25.19
Calorific value	57.56	10.63	89.40	58.74	1.09	78.88
True relative density	1.65	1.35	2.81	1.76	1.39	3.06
Free swelling index	2.3	0.0	7.0	2.6	0.0	7.5

Note: True Swelling Index (TSI) = Cross Swelling Index (CSI)

Source: Reported

Table 8-2 shows the average values reported by ERM and the percentage point differences between the ERM and SM values. A negative average difference indicates that the ERM values are higher, or over stated when compared to the SM values.

Table 8-2 shows that the ERM values for volatile matter were over stated and all the other parameter values were under stated when compared with the SM results.

Table 8-2: Average ERM values and differences compared.

	Average value	Average difference *	Minimum difference	Maximum difference
Analysis results	8.98	8.28	-1.07	1.08
Ash	31.54	8.47	-1.00	3.61
Volatiles matter	19.99	-6.48	-1.40	0.72
Total sulphur	1.12	0.89	-2.86	19.62
Calorific value	57.56	1.40	-3.03	58.66
True relative density	1.65	0.84	-0.08	-0.24
Free swelling index	2	0	-2	3
*Negative difference = ERM values are lower				

Note: True Swelling Index (TSI) = Cross Swelling Index (CSI)

Source: Reported

Various analytical standards list the limits of acceptable differences of analytical results between laboratories.

For a comparison of the analytical results, the limits of acceptable differences between laboratories as shown in Table 8-3 were used (Queensland Coals, Physical and chemical properties and coking and company information, 12th edition).

Table 8-3: Reproducibility limits between laboratories.

Analytical parameter	AS 1038	AS 1039	ISO
Ash (10+20%)	0.25	0.40	% of sample
Volatiles matter (% dry)	1.00	1.00	0.50
Sulphur (% dry)	0.08	0.10	0.10
Calorific value	12	12	12
True relative density	0.01		
CSI	1	1	1.2

Note: Cross Swelling Index (CSI) = Cross Swelling Index (TSI)

Source: Reported

Note that these limits apply to certain ranges – only ash values in the range 10 – 20% are compared and values should be reproducible within 0.25 percentage points according to AS 1038.

Table 8-4 shows the percentages of the values that are within the acceptable limits of reproducibility of analyses between laboratories. In Table 8-4, the second column shows “n”, which indicate the number of samples that were used according to the applicable ranges shown in the first column. As an example, in Table 8-4 for ash value n = 42. This indicates that 42 of the 100 samples have ash between 10 and

26% and that 32%, 31% and 83% of the results are within the acceptable range of reproducibility defined by the three standards respectively.

In theory all the samples should fall within the limits of reproducibility. However, the relative results indicate a high level of confidence (say about 90%) for sulphur reproducibility and a moderate level of confidence (say about 50%) for ash, volatile matter, and CSS reproducibility. The confidence in the reproducibility of the true relative density and calorific value is poor. On average the ERM Laboratory under states three quality parameters, except volatile matter, when compared to the SM Laboratory.

Table 8-4: Reproducibility of results between ERM and SM

Analytic parameter	n	AS 1008	BS 1066	ISO
Ash (10 - 30%)	42	52	51	83
Volatile matter (10%)	95	83	83	48
Sulphur (1.5%)	87	90	92	92
Calorific value	77	39	39	39
True relative density	100	32		
CSS	100	86	86	66

Notes: Quality handling Number (QHN) = Average value (AV)

(Source: Internal)

The ERM values are on average lower than the SM Laboratory results (except volatile matter), and are therefore considered to be more conservative or probably under estimated in the Coal Resource and Coal Quality Statement.

8.10.2.1 Analysis moisture

Figure 8-8 shows a comparison of analysis moisture determinations. Analysis moisture is the moisture content (air-dry) of the coal sample at the time of the analysis.

The average analysis moisture value reported by the ERM Laboratory is 0.90% and the SM Laboratory reported values that are on average 0.20 percentage points higher. In the range of 0 to 1.9% analysis moisture, the SM Laboratory reported higher moisture values and in the range 1.5 to 3.9% the SM laboratory reported lower moisture values

It can be expected that the reproducibility of analysis moisture values in different laboratories will vary according to the prevailing humidity conditions at the time of analysis. It is therefore necessary to compare the rest of the analyses on the same moisture level – in this exercise the coal quality parameters will be compared on a dry basis to exclude the effect of varying moisture content. The true relative density values were adjusted according to the Preston Sanders formula from an air-dry to a dry basis.

8.10.2.2 Ash

Figure 8-9 shows a comparison of ash determinations. The average ash value reported by the ERM Laboratory is 34.54% and the SM Laboratory reported values that are on average 0.47 percentage points higher. Of the total number of samples there were 2 samples that the SM Laboratory reported values that were more than 2 percentage points different from the ERM Laboratory results.

8.10.2.3 Volatile matter

Figure 8-10 shows a comparison of volatile matter determinations. The average volatile matter value reported by the ERM Laboratory is 19.90% and the SM Laboratory reported values that are on average 0.42 percentage points lower.

8.10.2.4 Total sulphur

Figure 8-11 shows a comparison of total sulphur determinations. The average sulphur value reported by the ERM Laboratory is 1.12% and the SM Laboratory reported values that are on average 0.09 percentage points higher. It appears that one of the laboratories made a typing error in the sulphur value for sample G332A-50P – a difference of 19.62 percentage points.

8.10.2.5 Calorific value

Figure 8-12 shows a comparison of calorific value determinations. The average calorific value reported by the ERM Laboratory is 5,736 cal/g and the SM Laboratory reported values that are on average 140 cal/g higher. There are 8 samples with differences between 1,000 and 6,000 cal/g.

8.10.2.6 True relative density

Figure 8-13 shows a comparison of true relative density determinations. The average true density value reported by the ERM Laboratory is 1.64 and the SM Laboratory reported values that are on average 0.04 units higher.

8.10.2.7 Free Swelling Index (Equivalent of CSS)

Figure 8-14 shows a comparison of CSS values. The average CSS reported by the ERM Laboratory is 2.0 and the SM Laboratory reported values that are on average 0.3 units higher. All the SM Laboratory values differ by at least 1 unit from the ERM Laboratory values.

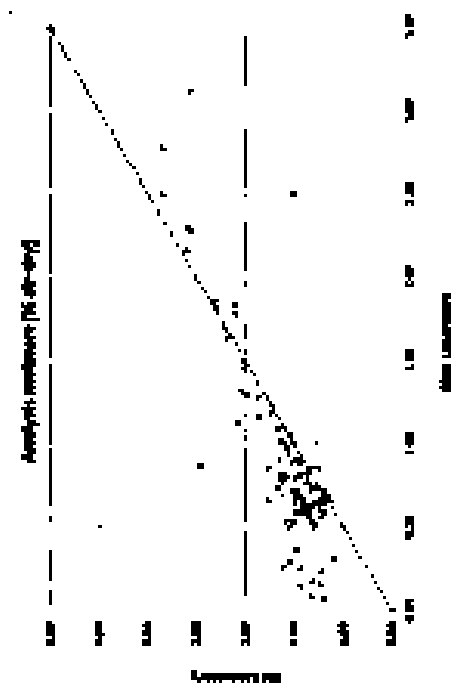


Figure 8.4: Comparison of multiple metal elements (µg/dry)

Source: Authors

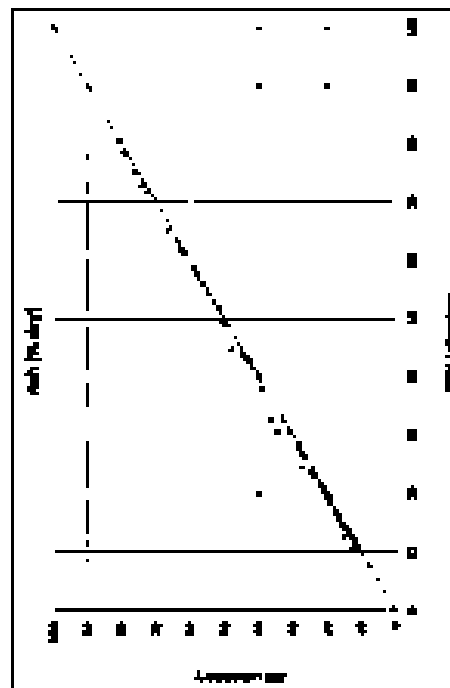


Figure 8.5: Comparison of ash concentrations

Source: Authors

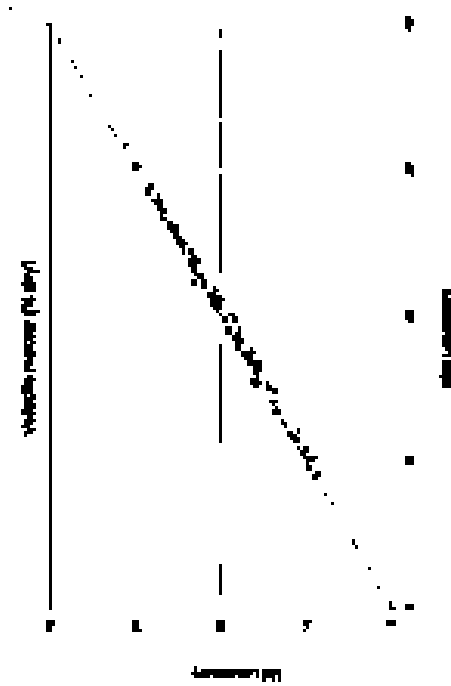


Figure 8.6: Comparison of volatile matter elements (dry)

Source: Authors

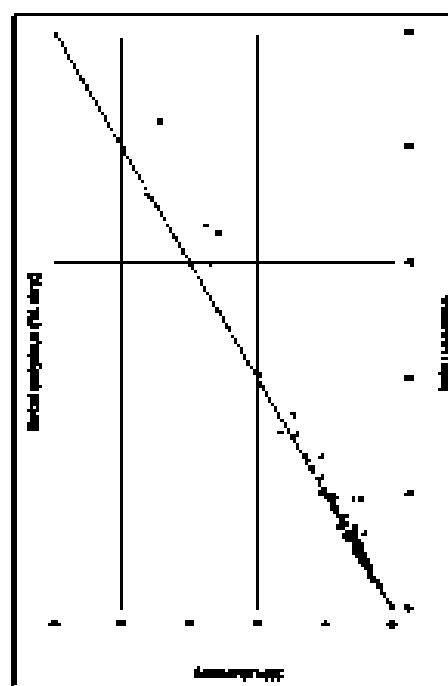


Figure 8.7: Comparison of total sulphur elements (dry)

Source: Authors

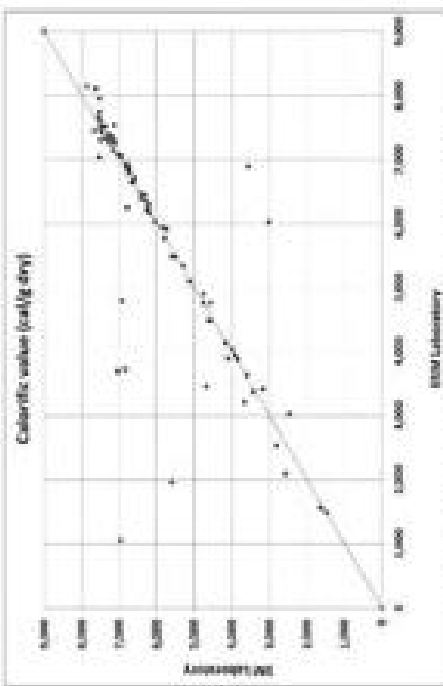


Figure 8-12: Comparison of calorific value determinations.

(Source: Provided)

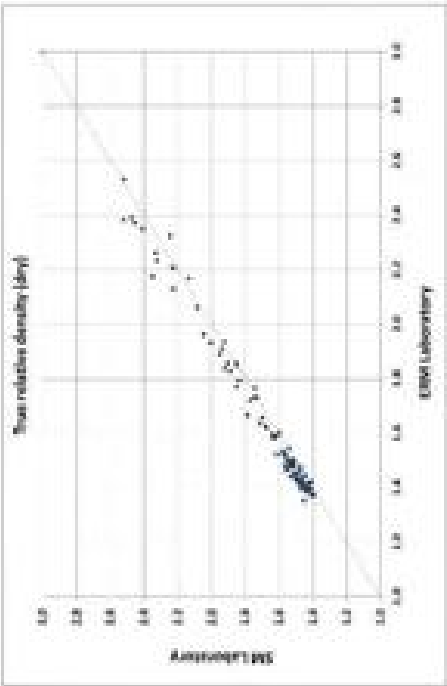


Figure 8-13: Comparison of true relative density values.

(Source: Provided)

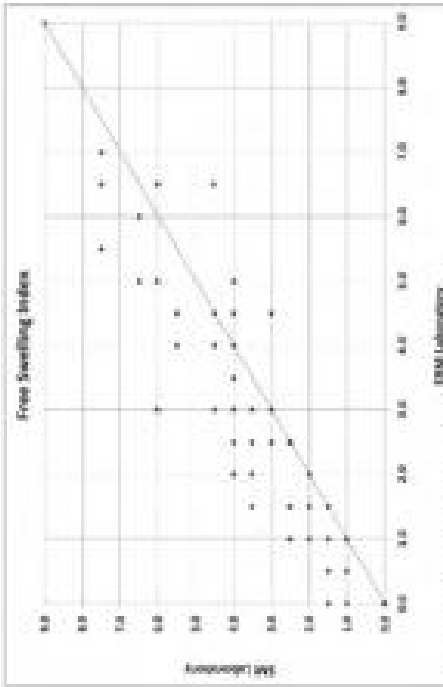


Figure 8-14: Comparison of Free Swelling Index determinations.

(Source: Provided)

8.10.3 ERM Laboratory compared with UM Laboratory
The average, minimum and maximum values reported by the two laboratories for 613 samples are shown in Table 8-5. The average values and ranges of values compares as expected, but the ERM shows a very wide range in total sulphur values.

Table 8-5: ERM Laboratory and UM Laboratory compared

Dry basis	ERM Laboratory			UM Laboratory		
	Ave	Min	Max	Ave	Min	Max
Analysis minimum	0.97	0.11	5.49	0.98	0.10	5.73
Asb	43.43	6.15	93.96	45.73	6.02	96.79
Volatil matter	20.10	3.22	39.40	19.71	2.02	35.16
Total sulphur	1.04	0.02	21.77	0.49	0.12	3.99
Calorific value	5363	442	7913	4863	409	7693
True relative density	1.56	1.34	3.30	1.55	1.16	3.41
Free swelling index	2.2	0.0	6.0	1.6	0.0	6.3

*Note: Free Swelling index (FSI) = (Free Swelling Swollen) (FSW)

(Source: Provided)

Table 8-6 shows the average values reported by ERM and the percentage point difference between the ERM and UUIB values. A negative average difference indicates that the ERM values are higher, or over stated when compared to the UUIB values.

Table 8-6 shows that the ERM values for analysis moisture, volatile matter, total sulphur, calorific value, true relative density and CSR are higher or probably over stated when compared with the UUIB results.

Table 8-6: Average ERM values and differences compared.

	Average value	Average difference *	Minimum difference	Maximum difference
Analysis moisture	0.97	-0.01	-0.86	0.90
Ash	45.43	0.40	-8.34	15.57
Volatile matter	20.10	0.40	-5.18	6.07
Total sulphur	0.73	0.31	-3.20	1.15
Calorific value	52.63	-1.93	-0.08	19.11
True relative density	1.86	0.03	-0.31	2.37
True crushing index	2	-1	-7	6

*Note: True heating index (PS) = (PS) x (True heating index) (2%)

(Source: Internal)

Also note that the ERM values for sulphur included a number of very high values above 4% dry for which UUIB reported values less than 1.5%. Three samples listed in Table 8-7 were excluded from the comparison of differences in Table 8-6.

Table 8-7: Samples excluded from the comparison in Table 8-6.

Borehole number	Sample number	Sulphur (% dry)	
		ERM lab	UUIB lab
011001	011001_14	13.1	0.50
011001	011001_23	6.26	0.70
011001	011001_30	4.34	0.9
011001	011001_10	8.55	0.30
011001	011001_29	5.13	0.25
011004	011001_20	4.75	0.49
011040	011045_34	4.70	0.40
000201	000201_8	8.1	0.66
000201	000201_2	7.0	0.41
000201	000201_3	3.02	0.33
000201	000201_3	4.01	0.24
000201	000201_3	5.17	0.47
011071	000201_3	21.33	0.42
000201	000201_3	13.1	0.57
020066	020066_6	13.12	0.49
020066	020066_12	8.34	0.38
020066	020066_23	21.62	0.52
020066	020066_24	3.41	0.21

(Source: Internal)

Table 8-8 shows the percentages of the values that are within the acceptable limits of reproducibility of analyses between laboratories. In Table 8-8, the second column shows "n", which indicates the number of samples that were used according the applicable ranges shown in the first column. As an example, in Table 8-8 for ash values n = 156. This indicates that 156 of the 613 samples have ash between 10 and 30%, and that 49%, 69% and 71% of the results are within the acceptable range of reproducibility defined by the three standards respectively.

In theory all the samples should fall within the limits of reproducibility. However, the relative results indicate a high level of confidence (at almost 90%) for volatile matter. The reproducibility of ash and PS (equivalent of CSR) between the two laboratories is poor (at about 70%) and the reproducibility of sulphur, calorific value and true relative density are very poor.

The ERM values are on average higher than the UUIB values (except for ash) and are therefore considered to be less conservative or probably over estimated in the Coal Resource and Coal Quality statement.

Table 8-8: Reproducibility of results between ERM and UUIH

Analytic parameter	n	AS 1018	BS 1016	LSO
Ash (10 – 20%)	156	49	49	71
Volatiles matter (% dry)	516	88	88	84
Sulphur (% dry)	437	14	17	17
Calorific value	464	20	20	20
True relative density	614	36		
Free Swelling Index	615	69	69	58

Source: Free Swelling Index (FSI) = Charles Swelling Number (CSN)

(Source: Resource)

8.10.3.1 Analysis moisture

Figure 8-15 shows a comparison of analysis moisture determinations. Analysis moisture is the moisture content (air-dry) of the coal sample at the time of the analysis.

The average analysis moisture value reported by the ERM Laboratory is 0.97% and the UUIH Laboratory reported values that are on average 0.01 percentage points lower. It can be expected that the reproducibility of analysis moisture values in different laboratories will vary according to the prevailing humidity conditions at the time of analysis. It is therefore necessary to compare the rest of the analyses on the same moisture level – in this exercise the coal quality parameters will be compared on a dry basis to exclude the effect of varying moisture content. The true relative density values were adjusted according to the Preston-Sanders formula from an air-dry to a dry basis.

8.10.3.2 Ash

Figure 8-16 shows a comparison of ash determinations. The average ash value reported by the ERM Laboratory is 43.43% and the UUIH Laboratory reported values that are on average 0.36 percentage points higher. Although the correlation between the two data sets is generally moderate, there are a number of anomalous values, which could indicate errors.

8.10.3.3 Volatile matter

Figure 8-17 shows a comparison of volatile matter determinations. The average volatile matter value reported by the ERM Laboratory is 20.10% and the UUIH Laboratory reported values that are on average 0.40 percentage points lower.

8.10.3.4 Total sulphur

Figure 8-18 shows no comparison of total sulphur determinations, even after the -0.07% values were removed from the ERM data set. The average sulphur value

reported by the ERM Laboratory is 0.73% and the UUIH Laboratory reported values that are on average 0.31 percentage points lower.

8.10.3.5 Calorific value

Figure 8-19 shows a comparison of calorific value determinations. The average calorific value reported by the ERM Laboratory is 2383 cal/g and the UUIH Laboratory reported values that are on average 190 cal/g lower.

8.10.3.6 True relative density

Figure 8-20 shows a comparison of true relative density determinations. The average true density value reported by the ERM Laboratory is 1.88 and the UUIH Laboratory reported values that are on average 0.02 unit points lower.

8.10.3.7 Free Swelling Index (equivalent of CSN)

Figure 8-21 shows a comparison of CSN values. The average CSN reported by the ERM Laboratory is 2.0 and the UUIH Laboratory reported values that are on average 1 unit points lower. All the UUIH Laboratory values differ by at least 1 CSN unit from the ERM Laboratory values.

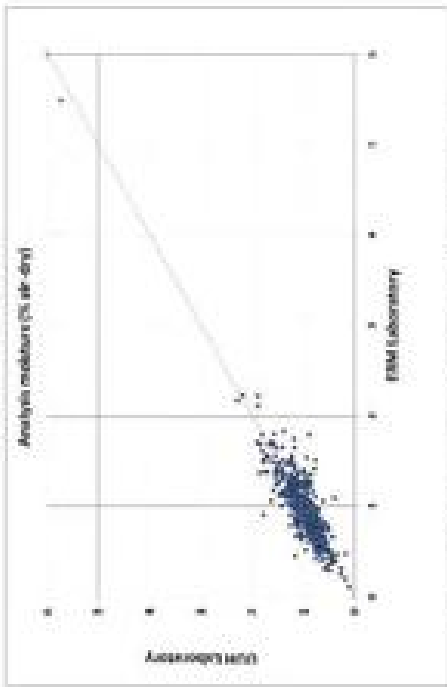


Figure 8-15: Comparison of analysis moisture determinations.

(Source: Resource)

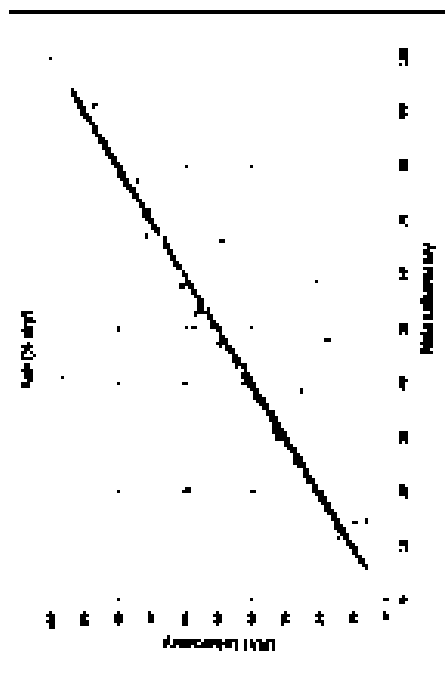


Figure 6.14 Comparison of ash determination

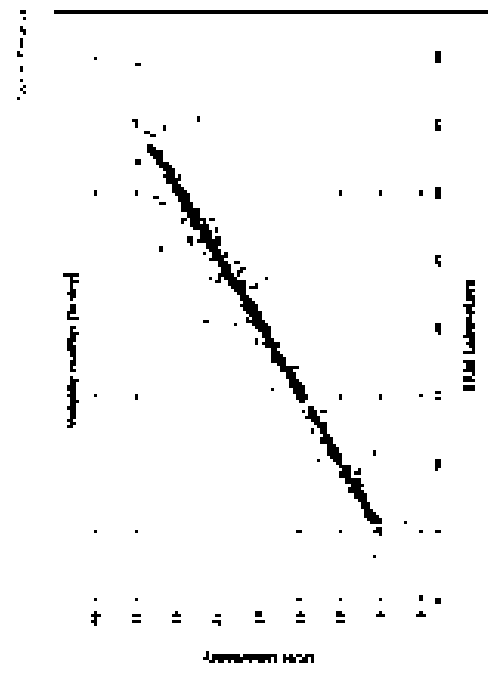


Figure 6.15 Comparison of sulfate major determination

continued



Figure 6.16 Comparison of total and phos determination

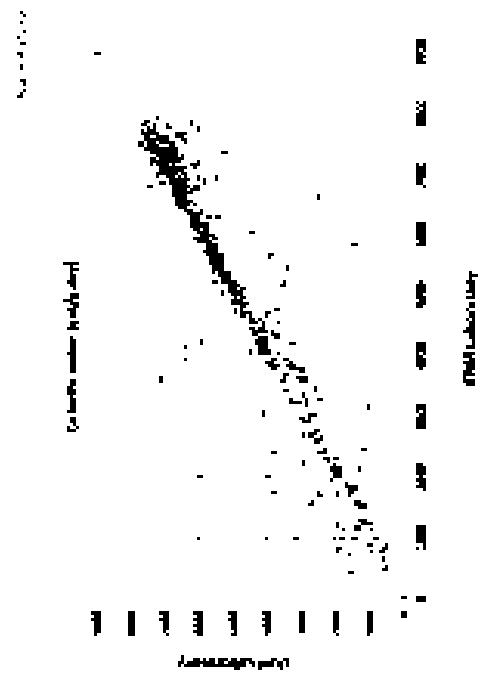


Figure 6.17 Comparison of sulfate minor determination

continued

8.17 Point of Observation definition and calculation

Under the JORC code a POO has a very clear definition to allow it to be used as a valid data point for estimation and modelling purposes.

A POO for this resource estimate for BMD was based on:

1. A sample of 100m³ leg for a borehole
2. Complete LRS data including Chiller, Diesel Oil, and Grease as well as data for a borehole
3. Ability to cover the lithology leg to the LRS data using core photos and other data
4. Boreholes to be fully sampled including all down depths
5. Complete (and corrected) coal quality data for the entire drilled
6. Equal to, or greater than, 60% core recovery in coal zones deemed adequate for high potential coking coal and equal to, or greater than 50% core recovery in coal zones deemed low potential coking coal
7. Adequate washing, washing and chiller level data for all boreholes collars
8. Adequate topography data for the project area derived by Corralera

Normally the JORC code and coal production sections 99% to greater limits than recovery in coal. This mentioned figure is however a guideline, but if for some the CP's experience over many projects, where coking coal is involved, 90% lower than recovery or greater should be mandatory, while for thermal coal a 50% or greater lower core recovery is sufficient. The reasoning for this is coking coal has very bright and shiny material, referred to as 'fines'. It is this 'fines' that leads the coking potential of the coal and is normally very fine in size. It is also this 'fines' that is mostly lost in the sorting process, hence lowering the coking potential and the burning rate of the coal sample. Thermal coals tend to be darker and stronger and maintain very little loss due to the sorting process.

The CP determined the acceptable lower core recovery for a point of observation based on the potential for coking coal (Figure 8.34) and is shown in Tables 8.3 and 8.3.

8.18 Use of Conditional Simulation Geostatistics to determine the expected error of estimation in the field in the understanding of confidence in the classification categories

Under the newly released version of the Estimation and Classification of Coal Resource 2014 edition (The Guidelines), which JORC (2012) refers to, it is expected that the Computer Power provides an estimate of confidence in the classification categories used. The Guidelines provide a number of geostatistical methods that can be used to aid the estimation and classification of coal resources.

Once the geological data has been collected, corrected and finally reported in accordance with the JORC Code, an understanding is required as to what error is the estimate to reflect spatial features for classification purposes can be obtained. This step estimates the cumulative error of all the processes involved in the JORC Resource estimate. These include geological procedures, geological capability in following these procedures, drilling, sampling, laboratory and modelling/reporting errors.

The result will be an expected error for each parameter used, as it is important that parameters critical to the estimate are identified. Geostatistical techniques can be very complex and many parameters are very dependent on data quality and the number of data points. The use of variograms in geostatistics is a critical step but their interpretation can be more in that of what is important in recognising geostatistical techniques can have limitations but as often, a very good aid in checking category classification results are realistic and suitable.

The approach undertaken for this report was to take the same with the greatest number of data points by area that formed a consistent area. (Inputted field data/variogram). From BMD, this means that all areas were bid form under similar circumstances and have had a similar history to be reported to have a similar variability to 50m (500). In addition, volume and tonnage are critical values for any in-situ estimate, the parameters focused on were mass fractions (volume), total moisture (moisture), relative density (density) and ash (ash).

For Australia having experience in this type of evaluation undertaken the study with each step reported by the Computer Power, Mr Brad Luntin (Geoscientist for LRS, who has a Masters in Geostatistics from Stanford University), provided expert guidance and advice, in particular, the variogram interpretation. The techniques used were Sequential Conditional Simulation.

The software used was STATISTICAL version 2.0, which is standard geostatistical modelling software.

The method used is described in the following of our

- Data preparation and input into STATISTICAL
- Data analysis and modelling
- Checking for consistency
- BMD data transformation
- CRF creation
- Conditional variogram interpretation on resulting transformation (due to no alternative methodology)

- Sequential Gaussian Simulations (300 simulations);
- Checking results of simulations;
- Data masking;
- Calculating e-type average;
- Calculating expected error at 95 percent confidence for drill hole spacing from 50m to 1000m in 50m increments;
- Taking the simulated results for seam thickness (volume) and relative density, and average the results to calculate another simulated result; and
- Calculating 'loss' factor (maximum error) for each category.

The results are illustrated in Figure 8-22. The associated variograms are shown in Appendix 24.

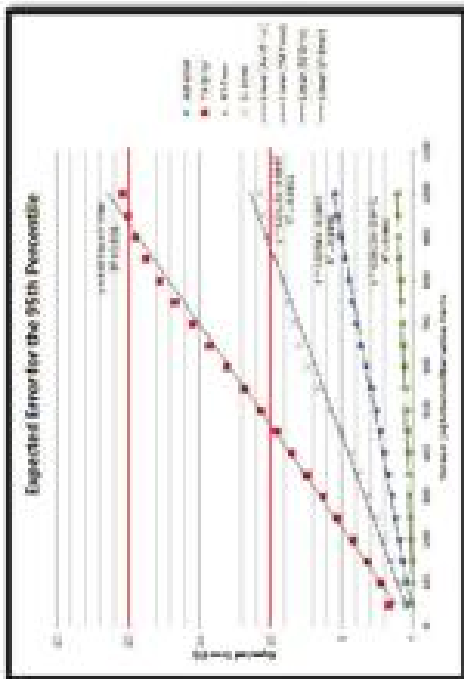


Figure 8-22: Expected error for seam H450 for the 95th Percentile

The total moisture proved to have the greatest expected error and relative density the least expected error. This followed logic as the moisture in the field whilst collecting coal samples is an area of high inaccuracy due to numerous outside influences. Relative density is a reasonably reliable and repeatable test so should have less variability. Seam thickness also gave a good result which makes sense as seam thickness is corrected against downdraft geophysics minimising observational and

procedural error. Ash has the second highest error and would follow that it has a number of sources of error greater than seam thickness and relative density.

Once the expected error is reasonably known, the issue becomes how to use it. The Guidelines removed the suggested recommended maximum distances as they proved to be confusing due to critical variables differ between deposits and how these variables vary in space will differ between deposits. As stated by the Guidelines 'By removing suggested maximum distances between points of observation for each confidence category in the Coal Guidelines, the responsibility is placed back with the Competent Person to determine the criteria for classification'. Using expected error as a guide for spatial control for categories and not just arbitrary ('gut feel') measurements, there becomes a more consistent and impartial way of determining spatial control.

Mr Mark Biggs (BDM Resources), a very senior and well respected coal geologist and a member of the committee revising the Australian Coal Guidelines, produced a graph of expected error and resource classification for an early draft of the Guidelines (Biggs 2013). It represents the culmination of results of approximately 50 projects that he had recently worked on, with the resulting expected error and associated resource classification (refer Figure 8-23). This can be used as a guide in justifying expected error results and spatial limits on resource classifications. The focus of this study is on the Measured and Indicated categories only, as these are the categories converted to Reserves requiring the highest confidence. The inferred category was decided by the Competent Person that not only the expected error was an influence but also the broader geologic continuity needed to be taken into consideration.

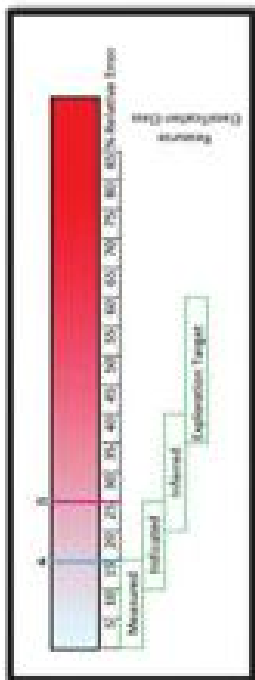


Figure 8-23: Biggs 2013 expected error

Referring to Figure 8-23, at point (A), this represents 1.5 percent error and is the maximum error for the Measured category. The location at point (B) represents 2.5 percent error and is the minimum error for the Indicated category. The values in Figure 8-23 at points (A) and (B) were used as guides to compare with the category distances being applied to the RM model. The results of expected error at the 95th percentile with the corresponding probabilities at points (A) and (B) from Figure 8-23 is shown in Figure 8-24.

It was observed in Figure 8-24 that the corresponding point (A) matches well with the Measured category distance of 500m, point (C). In the corresponding point (B), the indicated category distance of 1000m, point (D), meets all variables except total moisture. Since for high rank Coal Measures, moisture is a small component (average 3 percent) of the total material then this distance is acceptable.

The Inferred category was not determined using this method as the narrow dimensions in the west of the deposit may impact the result as a variogram can only be inferred about half the distance of the data points. The Inferred category was reduced to 2,000m data spacing and in most cases is truncated by the deposit boundary well before the limit.

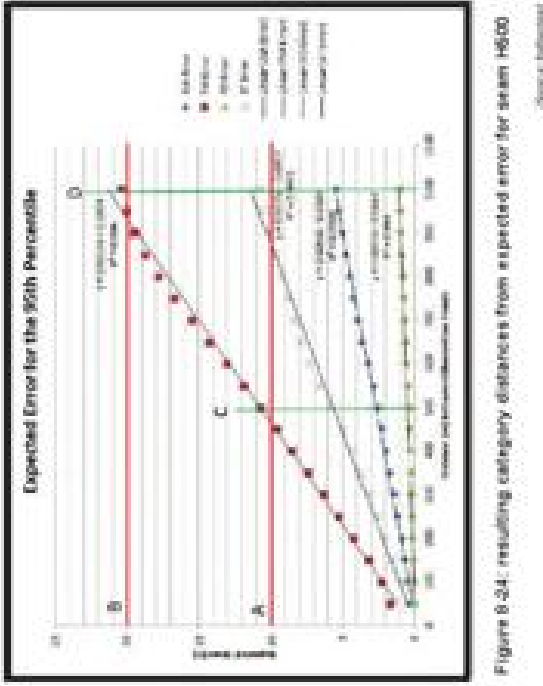


Figure 8-24: resulting category distances from expected error for seam H600

It is important to note, total moisture is the absolute maximum for expected error at the 95 percent level of confidence and the other variables are less than the maximum. The 'average' of the errors could be used but, care is required as there is a question of whether averaging the errors makes sense. This comes back to what is referred to as a 'loss' function for each variable. Essentially this is an estimate of how much it will impact the result if a variable is in error, as a function of the error, in that variable. Investigating the 'loss' function is a way of determining maximum overall error for the category result. Since the result of most interest in a resource statement is the tonnage and tonnage is 'area' multiplied by 'volume' multiplied by 'relative density'. If the 'area' can be assumed to have no error (high quality precision survey) then only the expected error for 'volume' (seam thickness) and 'relative density' needs to be investigated. One approach could be just averaging the resulting expected error

curves in Figure 8-24 however, a better method is to average the simulated realisations for 'volume' (seam thickness) and 'relative density' and calculate a resulting set of realisations. From this a new curve for expected error can be determined. The result of this exercise is found in Figure 8-25.

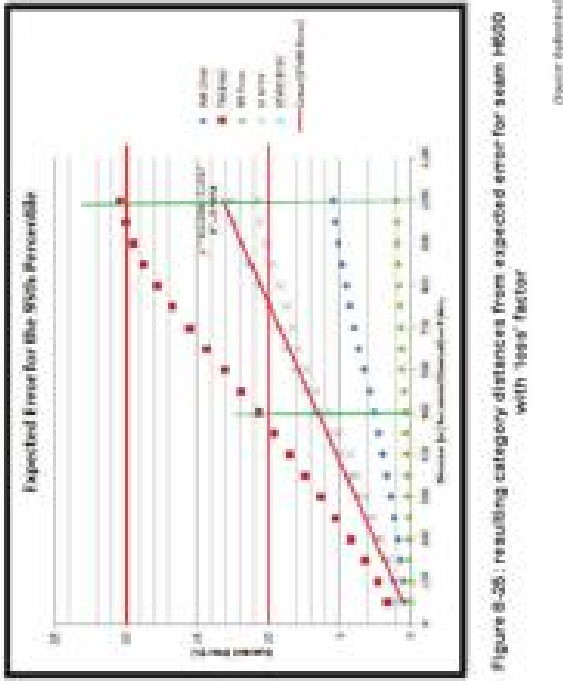


Figure 8-25: resulting category distances from expected error for seam H600 with 'loss' factor

It is noted from Figure 8-25 that the maximum expected error for the Measured category result is 6 percent and for the Inferred category result is 1.3 percent. For inferred, using the regression for 'loss' factor and applying it to the Inferred category distance the maximum expected error is 26 percent. All of the resource category maximum error numbers fit well within the ranges suggested in Figure 8-23.

Using expected error to determine spatial category requirement and then calculating resulting maximum error has been a good exercise in determining confidence. It is recommended that this should now be expanded to the other major seam groups to compare with the assumption made for Seam H500.

9 Resource Estimation Methodology

9.1 Resource Estimation Methodology - BN

The method used for estimating resources at BN involved modelling an elevation grid for the major piles, G403, G503, B307, B505, B506, B504, N504, Q500, B400, T507, U504 and V504, and modelling thickness grids for the other piles and partings. These thickness grids for the piles and partings were then stacked on top or below of the elevation grids to form a 3D block model.

To create an accurate and reliable 3D model of the coal seams a kriging algorithm with semi-variogram modelling for the seam elevation was used. Kriging is a geostatistical gridding method for constructing a minimum-error-variance linear estimate at a location where the true value is unknown. This method produces accurate maps from irregularly spaced data, such as coal seam elevation points. Kriging attempts to model trends suggested in the data, so that, for example, low points might be connected along the bottom of the basin rather than isolated by high-eye type contours. Kriging is a very flexible gridding method that can be custom-fitted to any data set by specifying the appropriate semi-variogram model. Kriging incorporates anisotropy and underlying trends.

9.2 Software Used

The BN resource estimate was carried out using Micromine's COALMEASURE Version 13.0.4 and LogCheck Version 6.16 using the COALLOG geology data format as the database.

9.3 Database Compilation

The BNCO data were supplied by the Competent Person (Appendix 4a & 4b) in LogCheck format and a summary of the data is shown in Table 9-1. The explanation licence coordinates were supplied by the Competent Person (Appendix 1).

Table 9-1: Summary of Points of Observation File

Data type	Number of Records	
	Grids	
Intervals for modelling seam morphology		503
Intervals for modelling coal quality		9,327
Points for modelling base of weathering		2,196
Points for modelling Quaternary Surface		470
		442

[Source: Whangpu Exploration LLC]

9.4 Data Validation

The raw data was collected under the full supervision of the Competent Person, following the procedure in Appendix 2.

Following initial modelling, a review of the seam correlation was undertaken. Numerous boreholes and parts of boreholes were found to show anomalous thickness and elevations. This was due to failing to follow three piles were removed from the resource estimate. A list of these piles is shown in Appendix 17. The final validated data is shown in Table 9-2.

Table 9-2: Summary of data used for Resource Estimate

Data type	Number of Records	
	Grids	
Intervals for modelling seam morphology		503
Intervals for modelling coal quality		9,327
Points for modelling base of weathering		2,196
Points for modelling Quaternary Surface		470
		442

[Data is Whangpu Exploration LLC]

9.5 Exploratory Data Analysis

The summary statistics for all of the coal quality values is shown on an as-received and air-dry basis respectively in Table 9-3 and Table 9-3a.

Table 9-3: Summary statistics for As-Received Coal Quality

As-Received 16470725	RC (g/g)	TM (%)	A/P (%)	VM (%)	FC (%)	Gross CV	
						Mean	(%)
MINIMUM	1.27	0.00	5.39	7.05	2.47	34	0
MAXIMUM	2.57	30.81	86.5	33.56	64.19	1736	52.54
GLOBAL F20075	2.047	27.87	27.47	27.67	27.47	27.67	27.67
GLOBAL	1.56	2.1	27.44	25.37	40.50	5606	1.15
GLOBAL	0.02	2.40	958.47	10.66	65.40	1420740.8	0.36
STD. DEVIATION	0.16	1.56	12.43	4.32	9.25	1197.95	0.6

[Source: Whangpu Exploration LLC]

Table 9.4: Summary statistics for Air-Dry Coal Quality

Air Dry Statistics	BD (kg/m ³)	AD (t/m ³)	AD (t/m ³)	AD (t/m ³)	AD (t/m ³)	AD (t/m ³)	AD (t/m ³)	AD (t/m ³)
Mean	1.31	0.1	0.52	2.1	2.5	24	0	0
Median	2.8	11.6	87.42	30.4	65.25	1630	10.78	10.78
Number of points	3247	2747	2747	2747	2747	2747	2747	2747
Min	1.07	0.02	27.8	24.15	47.13	5745.5271	0.89	0.89
Max	0.03	0.20	158.72	18.98	87.82	14203.90.7	0.38	0.38
Std Deviation	0.16	0.03	12.6	4.38	9.37	1207.607	0.6	0.6

(Source: Energy Assessment LLC)

9.6 Data Processing

To create the block model an elevation grid was created for the major plies G803, Q205, R507, L505, L504, K504, Q250, R400, T507, U504, V504 and then the thickness grids for the other plies and partings were attached above or below this as required. In order to use this method each borehole needed to contain an interval for each ply and parting even if the ply or parting was 'pinched out' and was not intersected by that borehole.

Some plies were not intersected by the boreholes and so 'virtual' plies with a thickness of zero were inserted in order to model the seam morphology. The location of these virtual plies was determined by using the COALMEASURE interpolation tool, which uses Inverse Distance Weighting with a power of two.

This is shown in the example in Figure 9-1 where the temporary grids for all plies under ply R507 have been interpolated for borehole B506110 as per the seam hierarchy. Where boreholes intersected plies, but there plies were not present due to deformation as a result of changing sedimentary environments, these plies were inserted as zero thickness plies at the roof or floor of a logged ply as indicated in borehole B505118.

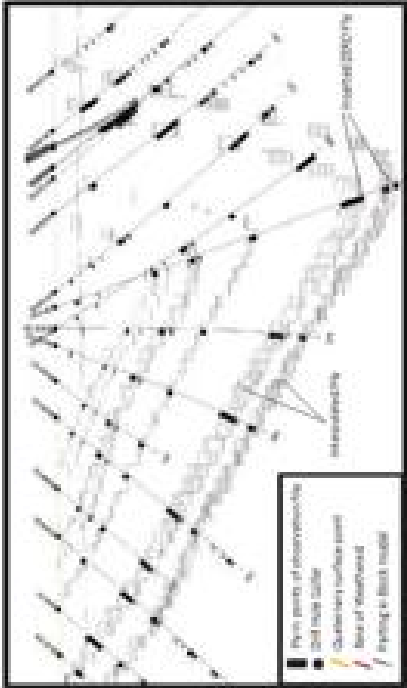


Figure 9-1: Interpolated virtual plies

(Source: Energy Assessment LLC)

Virtual plies inserted into the database by temporary grids, or zero thickness plies above and below existing plies, are contained in Appendix 1B.

Some parting intervals were logged in the raw database, but where they were missing they were added to all ply groups for each borehole even in cases where the parting thickness was zero.

As a result of this processing, each borehole contained intervals for all plies and all seam partings.

9.7 Model Geostatistics

When the kriging algorithm was used, the weights of the values on the distances beyond semi-variogram range were minimal if the semi-variogram was modelled using spherical, exponential or Gaussian models. Therefore the general linear model was used to model the semi-variograms for the seam elevations and thicknesses. Using this method, all of the values within the search ellipse will have some weight and hence used for the block estimation.

9.8 Gridding

In order to create a reliable model of the seam morphology a cell size of 10x10m was selected for gridding. Gridding with exact interpolation using ordinary kriging was used to generate grids for the division of the mid-point of the ply and Inverse Distance Weighting with a power of two was used to generate grids for the thicknesses of the plies. Exact interpolation will honour data points exactly only when the data point falls directly in the grid cell being interpolated. With kriging this means that the coincident data point carries a weight of essentially one and all other data points carry a weight of essentially zero. This means that if the intersection of the borehole and the ply falls within the interpolated cell, then this cell is populated with the value of that point.

To allow the grids to cover the necessary areas, a circular search radius of 3,000m with maximum of 20 points was used to create the elevation grids. The elevation grid for the reference ply H507 is shown in Figure 9-2 together with the data points used to make the grid. The thickness grids were created using a circular search radius of 3,000m with maximum of 20 points per sector.

The base of weathering grid was produced using kriging with search radius of 3,000m with maximum of 20 points per sector. The base of weathering grid was used in conjunction with mapped LON lines as the upper most cut-off for coking coal.

The base of Quaternary grid was produced using IDW² with a power of two. Weathered coal can be calculated between the base of weathering and base of Quaternary. This coal has been successfully mined and used for the on-site power station feed as well as commercial sold as Thermal coal. For the purpose of this resource estimate it has been included in the estimate but should be noted that it is a lower quality material.

A Topography surface grid was produced using IDW² with a power of two. This was then converted into a digital terrain (DTM) model.



Figure 9-2: Elevation grid for H507 ply (looking southeast) with boreholes

(Source: Geopac Resource Ltd)

9.9 Block Modelling

The 3D gridded seam block model was generated by stacking thickness grids on top or below of the major plies (G405, G606, H507, H508, H606, H607, H608, H609, H610, H611, H612, H613, H614, H615, H616, H617, H618, H619, H620, H621, H622, H623, H624, H625, H626, H627, H628, H629, H630, H631, H632, H633, H634, H635, H636, H637, H638, H639, H640, H641, H642, H643, H644, H645, H646, H647, H648, H649, H650, H651, H652, H653, H654, H655, H656, H657, H658, H659, H660, H661, H662, H663, H664, H665, H666, H667, H668, H669, H670, H671, H672, H673, H674, H675, H676, H677, H678, H679, H680, H681, H682, H683, H684, H685, H686, H687, H688, H689, H690, H691, H692, H693, H694, H695, H696, H697, H698, H699, H700, H701, H702, H703, H704, H705, H706, H707, H708, H709, H710, H711, H712, H713, H714, H715, H716, H717, H718, H719, H720, H721, H722, H723, H724, H725, H726, H727, H728, H729, H730, H731, H732, H733, H734, H735, H736, H737, H738, H739, H740, H741, H742, H743, H744, H745, H746, H747, H748, H749, H750, H751, H752, H753, H754, H755, H756, H757, H758, H759, H760, H761, H762, H763, H764, H765, H766, H767, H768, H769, H770, H771, H772, H773, H774, H775, H776, H777, H778, H779, H780, H781, H782, H783, H784, H785, H786, H787, H788, H789, H790, H791, H792, H793, H794, H795, H796, H797, H798, H799, H800, H801, H802, H803, H804, H805, H806, H807, H808, H809, H810, H811, H812, H813, H814, H815, H816, H817, H818, H819, H820, H821, H822, H823, H824, H825, H826, H827, H828, H829, H830, H831, H832, H833, H834, H835, H836, H837, H838, H839, H840, H841, H842, H843, H844, H845, H846, H847, H848, H849, H850, H851, H852, H853, H854, H855, H856, H857, H858, H859, H860, H861, H862, H863, H864, H865, H866, H867, H868, H869, H870, H871, H872, H873, H874, H875, H876, H877, H878, H879, H880, H881, H882, H883, H884, H885, H886, H887, H888, H889, H890, H891, H892, H893, H894, H895, H896, H897, H898, H899, H900, H901, H902, H903, H904, H905, H906, H907, H908, H909, H910, H911, H912, H913, H914, H915, H916, H917, H918, H919, H920, H921, H922, H923, H924, H925, H926, H927, H928, H929, H930, H931, H932, H933, H934, H935, H936, H937, H938, H939, H940, H941, H942, H943, H944, H945, H946, H947, H948, H949, H950, H951, H952, H953, H954, H955, H956, H957, H958, H959, H960, H961, H962, H963, H964, H965, H966, H967, H968, H969, H970, H971, H972, H973, H974, H975, H976, H977, H978, H979, H980, H981, H982, H983, H984, H985, H986, H987, H988, H989, H990, H991, H992, H993, H994, H995, H996, H997, H998, H999, H1000).

Once the block model was created any blocks above the modelled base of Quaternary surface were removed.

The block model was limited by the base of Quaternary when they were determined, the northern and southern fault boundaries, the license boundary and the current mine plan as at the 1st January 2014. Figure 9-3 shows the limits of ply H507.

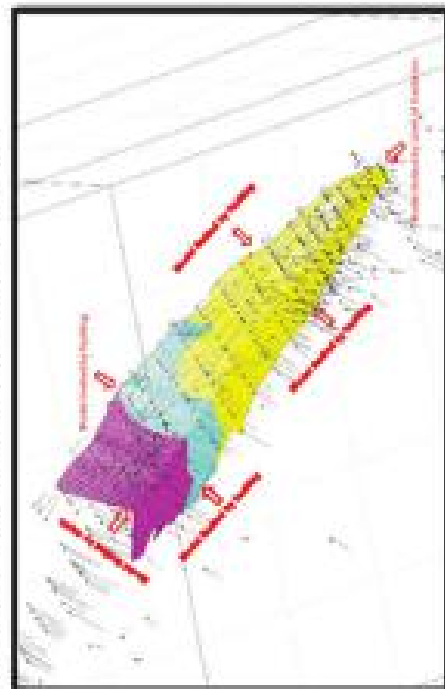


Figure 9-3: Model limits for ply H507 (looking southeast) with Resource categories (yellow=unmeasured, blue=measured and interpolated) and boreholes

(Source: Geopac Resource Ltd)

The northern boundary is fault bounded and southern boundary is a sheared fault zone boundary. Q40N in the 2008 resource estimate initially used the geology maps compiled by Durbidbord et al. from the 1989 work and simply applied the fault contact with a vertical limit. Changed Exploration from 2013 to 2014 exploration results was immediately useful in determining a more accurate surface limit and shape.

The final boundary which limited the block model was constructed by borehole information on the contact angle of basement and coal measure to create a wireframe to form a 3D shape. Once the block model was created it was cut by this wireframe to provide the final shape for the block model (Figure 9-4).

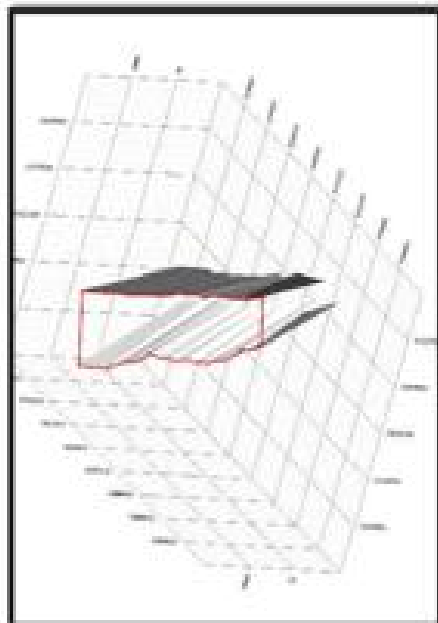


Figure 9-4: Wireframe constructed by borehole information on the contact angle of basement to limit the northern and southern boundary faults.

Source: Energy Resources Ltd.

The resulting block model which was used for the resource classification, seam coding and grade interpolation is shown in Figure 9-5.

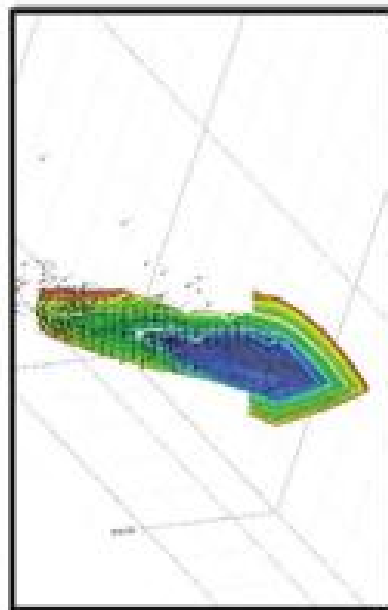


Figure 9-5: Block Model (looking northwest) for each ply with boreholes

Source: Energy Resources Ltd.

9.10 Resource Classification, Seam Coding and Grade Interpolation

The JORC Code and the Guidelines make no recommendations for Resource classifications and place the responsibility with the Competent Person to determine the criteria for classification.

The Competent Person for this estimate used the expected error in the estimate to support distances for Measured and Indicated categories. For Inferred category the narrow dimensions of the deposit may cause a misleading result using the expected error technique so the experience of the Competent Person and detailed knowledge of the deposit were sufficient for determining this category spacing.

In determining extrapolation beyond last data points, half the category distance was applied. Due to the data spacing and deposit dimensions this did not have a major effect.

The shapes for the categories was mostly automated with the Micromine software, however where this case was not true the edge of the data was manually edited by the Competent Person. In addition, due to major structure some areas were hard-wired for specific categories like Inferred and data spacing had no influence. The general approach adopted for the calculation of resources for BN follows:

1. **Measured** resources were estimated with points of observation at 500m and where appropriate were extrapolated half the distance from the last point.
2. **Indicated** resources were estimated with points of observation at 1000m and where appropriate were extrapolated half the distance from the last point.
3. **Inferred** resources were estimated with points of observation at 2000m and where appropriate were extrapolated half the distance from the last point.

The resulting resource category areas are contained in Appendix 19.

Seam coding was applied to composite plans into seams based upon a specified minimum coal thickness and a minimum parting thickness. The seams were also coded on the basis of resource classification so that only plans of the same resource classification were combined together with their partings. The following modifying factors were used for seam coding:

- No maximum seam thickness;
- Minimum seam thickness to be included in the Resource of 0.5m to 400m depth and then 1.5m below 400m;
- Minimum parting thickness to be included in the Resource of 0.5m; and
- Coal Quality limit with Ash content greater than 30 percent (DRI basis) being excluded from the resource estimate.

Following seam coding, coal quality interpolation was carried out. Only intervals that were marked as a PGO were used for coal quality interpolation. An IDW algorithm with a power of two was used to interpolate the coal quality into the empty block model.

Coal quality interpolation was conducted for each ply separately. One search run at 7,000m radius was used to interpolate all the blocks in each model. Filters were applied to make sure that only PGO for the selected ply were used for the interpolation of the blocks for that ply.

Partings within the model limits but without coal quality were given default coal quality parameters based on rock quality analysis. The default values used on an industry and as-received basis are shown in Table 9-5.

Table 9-5: Default coal quality values for partings

As Recd	As Recd	As Recd
ED	7.02	8.1
MA	2.05	194
ADP	94	4.39
VM	2.84	194
PC	0	PC
CV	0	CV
T	0.01	T

Source: adapted

9.11 Block Model Validation

The block model was firstly checked to ensure that all blocks were populated and that block values were within the same range as the input values. Following this a visual validation was conducted by loading the block model into the Micromine 3D viewer together with borehole traces, plans from the original PCO file, base of weathering, base of Quaternary and topographic surfaces. Each cross-section was then reviewed to check that the plans from the original PCO file agreed with the plans in the block model.

Figures 9-5 shows validation of the block model through a section containing holes RS001022, Q00103, RS005997, Q00103, RS009033 and RS001114. This image shows that the plans from the original PCO coincide with the plans in the block model.

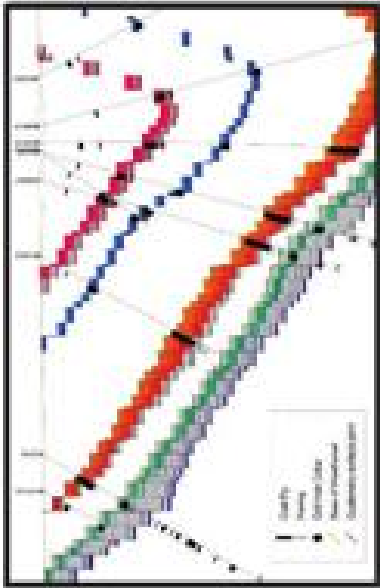


Figure 9-5: Block Model Validation

A further manual check was completed by the Competent Person where an area including boreholes Q00103, RS005033, RS001120 and RS00102 for the fly RS007 was compared with the block model. The manual result was within 3 percent in tonnage of the block model result. This comparison is within acceptable limits.

9.12 Resource Estimation Methodology - THG

The method used for estimating Resources at THG involved modelling an elevation grid for the major planes, K506, N506, Q506, RS06, TS13, U504, V505A, W506, N502, Y504 and modelling thickness grids for the other planes and partings. These thickness grids for the planes and partings were then stacked on top or below of the elevation grid to form a 3D block model.

To create an accurate and reliable 3D model of the coal seams a kriging algorithm with semivariogram modelling for the seam elevation was used. Kriging is a geostatistical gridding method for constructing a minimum-variance linear estimate at a location where the true value is unknown. This method produces accurate maps from irregularly spaced data, such as coal seam elevation points. Kriging attempts to model trends suggested in the data, so that, for example, low points might be connected along the bottom of the basin rather than isolated by bathymetry type contours. Kriging is a very flexible gridding method that can be custom-fitted to any data set by specifying the appropriate semivariogram model. Kriging incorporates anisotropy and underlying trends.

9.13 Software Used

The THG Resource estimate was carried out using Micromine's COALMEASURE Version 14.0.2 and LogCheck Version 6.1.47 using the COALLOG geology data format as the database.

9.14 Database Compilation

The PCO data were supplied by the Competent Person (Appendix 4a & 4b) in LogCheck format and a summary of the data is shown in Table 9-6. The exploration licence coordinates were supplied by the Competent Person (Appendix 1).

Table 9-6: Summary of Points of Observation File

Data type	Number of Records
Cells	515
Intervals for modelling seam morphology	9,327
Intervals for modelling coal quality	2,186
Points for modelling base of weathering	470
Plans for modelling Quaternary surface	442

(Source: adapted (Appendix 4a))

9.15 Data Validation

The raw data was collected under the full supervision of the Competent Person, following the procedures in Appendix 2.

Following initial modelling, a review of the seam correlation was undertaken. Numerous boreholes and parts of boreholes were found to show anomalous thickness and directions. This was due to faulting so these plies were removed from the resource estimate. A list of these plies is shown in Appendix 17. The final validated data is shown in Table 9-27.

Table 9-27: Summary of data used for Resource Estimate

Data type	Number of Records	
	Colliers	
Intervals for modelling seam morphology		99
Intervals for modelling coal quality		1090
Points for modelling base of overlying		604
Points for modelling Secondary Surface		53
		54

(Source: Integrated Exploration Ltd)

9.16 Exploratory Data Analysis

The summary statistics for all of the coal quality values is shown on an as-received and air-dry basis respectively in Table 9-48 and Table 9-36.

Table 9-48: Summary statistics for As-Received Coal Quality

As-Received Statistics	RD g/100	TM RD	AAS		VM		FC		Semi CV	
			RD	RD	RD	RD	RD	RD	RD	RD
Mean	1.36	0.4	12.91	8.38	8.97	0	0.83			
Max/Min	2.58	10.88	85.68	32.82	55.94	70.78	10.01			
90th/10th CP Percent	682	682	682	682	682	682	682			
Median	1.66	2.62	38.36	22.82	38.7	45.84	0.89			
Stdev/Coef	0.03	2.3	126.82	94.57	73.31	123.899	0.36			
95th/5th Percent	0.16	1.62	11.66	3.82	8.58	1145	0.6			

(Source: Integrated Exploration Ltd)

Table 9-49: Summary statistics for Air-Dry Coal Quality

Air-Dry Statistics	RD g/100	TM RD	AAS		VM		FC		Semi CV	
			RD	RD	RD	RD	RD	RD	RD	RD
Mean	1.36	0.08	13.11	8.38	7.11	0	0.83			
Max/Min	2.6	4.48	82.31	33.87	56.91	71.84	10.49			
90th/10th CP Percent	682	682	682	682	682	682	682			
Median	1.66	0.08	34.06	20.42	37.43	48.73	0.8			
Stdev/Coef	0.03	0.28	141.81	95.08	78.03	126.027	0.38			
95th/5th Percent	0.17	0.61	11.81	3.88	8.72	1166	0.62			

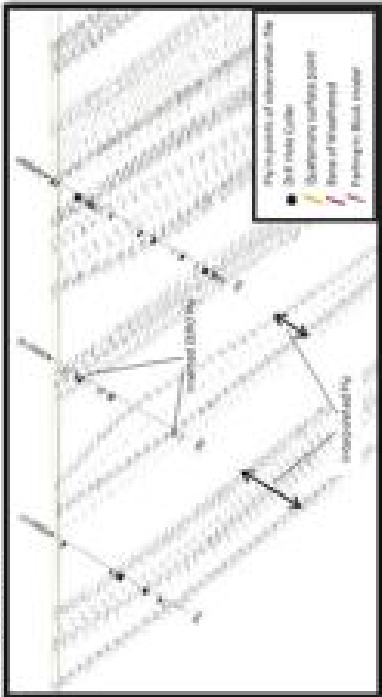
(Source: Integrated Exploration Ltd)

9.17 Data Processing

To create the block model an elevation grid was created for the major plies K506, K506, Q506, R506, T515, U504, V504A, W506, X502, Y404 and then the thickness grids for the other plies and partings were stacked above or below this as required. In order to use this method each borehole needed to contain an interval for each ply and parting even if the ply or parting was 'blacked out' and was not intersected by that borehole.

Some plies were not intersected by the boreholes and so 'virtual' plies with a thickness of zero were inserted in order to model the seam morphology. The location of these virtual plies was determined by using the COALMEASURE extrapolation tool, which uses Inverse Distance Weighting with a power of two.

This is shown in the example in Figure 9-17 where the temporary grids for all plies under ply Q506 have been interpolated for borehole G000991 as per the seam hierarchy. Where boreholes intersected plies, but these plies were not present due to distortion as a result of changing sedimentary environments, these plies were inserted as zero thickness plies at the roof or floor of a logged ply as indicated in borehole G00108.



(Source: Geopac Resources Ltd)

Figure 9-17: Interpolated virtual plies

Virtual plies inserted into the database by temporary grids, or zero thickness plies above and below existing plies, are contained in Appendix 18.

Stone parting intervals were logged in the raw database, but where they were missing they were added to all ply groups for each borehole even in cases where the parting thickness was zero.

As a result of this processing, each borehole contained intervals for all plies and all stone partings.

9.18 Model Geostatistics

When the kriging algorithm was used, the weights of the values on the distance beyond semivariogram range were minimal if the semivariogram was modelled using spherical, exponential or Gaussian models. Therefore the general linear model was used to model the semivariograms for the seam elevations and thicknesses. Using this method, all of the values within the search ellipsoid will have some weight and hence need for the block estimation.

9.19 Gridding

In order to create a reliable model of the seam morphology a cell size of 10x10m was selected for gridding. Gridding with exact interpolation using ordinary kriging was used to generate grids for the elevation of the midpoint of the piers and Inverse Distances Weighting with a power of two was used to generate grids for the thickness of the piers. Exact interpolation will honour data points exactly only when the data point falls directly in the grid cell being interpolated. With kriging this means that the estimated data point carries a weight of essentially one and all other data points carry a weight of essentially zero. This means that if the intersection of the borehole and the pier falls within the interpolated cell, then this cell is populated with the value of that point.

To allow the grids to cover the necessary areas, a circular search radius of 3,000m with maximum of 20 points was used to create the elevation grids. The elevation grid for the reference pier K306, N306, Q306, R306, T315, U304, V303A, W306, X302, Y404 are shown in Figure 9-2 together with the data points used to make the grid. The thickness grids were created using a circular search radius of 3,000m with maximum of 20 points per sector.

The base of weathering grid was produced using kriging with search radius of 3,000m with maximum of 20 points per sector. The base of weathering grid was used in conjunction with stripped LOX lines as the upper most cut-off for coking coal.

The base of Quaternary grid was produced using IDW with a power of two. Weathered coal can be calculated between the base of weathering and base of Quaternary. This coal has been successfully mined and used for the Onite PowerStation feed as well as commercial sold as Thermal coal. For the purpose of this resource estimate it has been included in the estimate but should be noted that it is a lower quality material.

A Topography surface grid was produced using IDW with a power of two. This was then converted into a digital terrain (DTM) model.

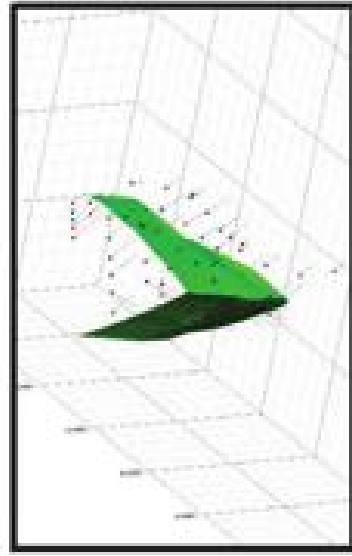


Figure 9-4: Elevation grid for T315 pier (looking east) with boreholes

(Source: Energy Resources Ltd)

9.20 Block Modelling

The 3D gridded seam block model was generated by stacking thickness grids on top or below of the major piers (K306, N306, Q306, R306, T315, U304, V303A, W306, X302, Y404) elevation grid. The centroid of the block East and North was the X and Y values from the grid file which was 10x10m (grid cell size), the centroid of the block RL was the Z value from the elevation grid and block size by RL was the Z value from thickness grids.

Once the block model was created any blocks above the modelled base of Quaternary surface were removed.

The block model was limited by the base of Quaternary where they were determined, the northern and southern fault boundaries and the license boundary. Figure 9-30 shows the limits of pier T315.

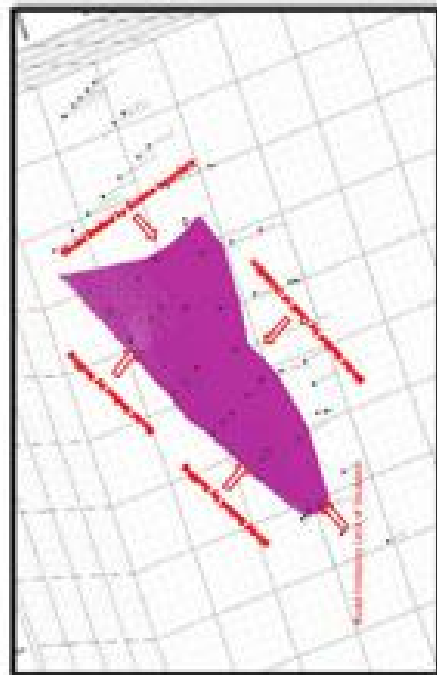


Figure 9-9: Model limits for Tullihur (looking southeast) with Resource category (purple-inferred) and boreholes.

(Source: Energy Resources Ltd.)

The northern boundary is fault boundary and southern boundary is oxidation zone boundary. QAN in the 2008 Resource Estimate initially used the geology maps compiled by Dabobord et al., from the 1980 work and simply applied the fault contact with a vertical limit. Khazana Exploration from 2013 to 2014 exploration results was immensely useful in determining a more accurate surface limit and shape.

The final boundary which limited the block model was constructed by borehole information on the contact angle of basement and coal measure to create a wireframe to form a 3D shape. Once the block model was created it was cut by this wireframe to provide the final shape for the block model (Figure 9-10).

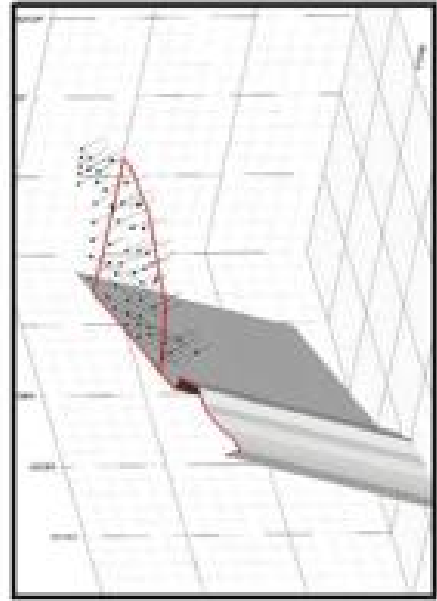


Figure 9-10: Wireframe constructed by borehole information on the contact angle of basement to limit the northern boundary fault.

(Source: Energy Resources Ltd.)

The resulting block model which was used for the resource classification, seam coding and grade interpolation is shown in Figure 9-11.

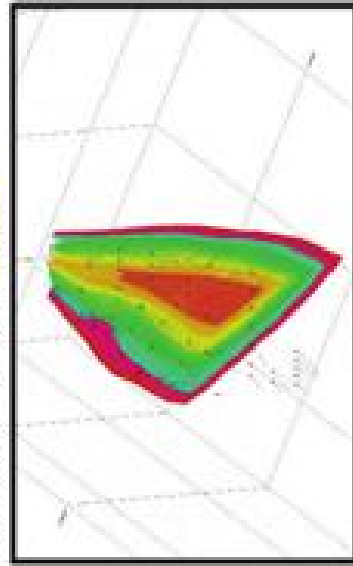


Figure 9-11: Block Model (looking northwest) for each ply with boreholes

(Source: Energy Resources Ltd.)

9.21 Resource Classification, Seam Coding and Grade Interpolation

The JORC Code and the Guidelines make no recommendations for Resource classifications and place the responsibility with the Competent Person to determine the criteria for classification.

For Inferred category the narrow dimensions of the deposit may cause a misloading result using the expected error technique on the experience of the Competent Person and detailed knowledge of the deposit were sufficient for determining this category grading.

In determining extrapolation beyond last data points, half the category distance was applied. Due to the data spacing and deposit dimensions this did not have a major affect.

The shapes for the categories was mostly automated with the Micromine software, however where this was not true the edge of the data was manually edited by the Competent Person. In addition, due to major structure some areas were hand-coded for specific categories like Inferred and data spacing had no influence. The general approach adopted for the calculation of resources for TIO follows:

- 4. Inferred resources were estimated with points of observation at 200m and where appropriate were extrapolated half the distance from the last point.

The resulting resource category areas are contained in Appendix 19.

Seam coding was applied to composite piles into seams based upon a specified minimum coal thickness and a maximum parting thickness. The seams were also coded on the basis of resource classification so that only piles of the same resource classification were combined together with their partings. The following modifying factors were used for seam coding:

- No maximum seam thickness;
- Minimum seam thickness to be included in the Resource of 0.5m to 400m depth and then 1.5m below 400m;
- Maximum parting thickness to be included in the Resource of 0.5m; and
- Coal Quality limit with Ash content greater than 30 percent (DRY basis) being excluded from the resource estimate.

Following seam coding, coal quality interpolation was carried out. Only intervals that were marked as a point of observation were used for coal quality interpolation. An IDW algorithm with a power of two was used to interpolate the coal quality into the empty block model.

Coal quality interpolation was conducted for each ply separately. One search run at 7,000m radius was used to interpolate all the blocks in each model. Filters were applied to make sure that only JORC for the selected ply were used for the interpolation of the blocks for that ply.

Partings within the model limits but without coal quality were given default coal quality parameters based on rock quality analyses. The default values used on an air-dry and as-received basis are shown in Table 9-5.

Table 9-10: Default coal quality values for partings

As Recv	DRY	As Received
0.01	2.60	2.43
0.01	2.18	2.3
0.01	0.4	0.08
0.01	2.66	2.44
0.01	0	0
0.01	0	0
0.01	0.01	0.01

(Source: Adapt)

9.22 Block Model Validation

The block model was firstly checked to ensure that all blocks were populated and that block values were within the same range as the input values. Following this a visual validation was conducted by loading the block model into the Micromine 3D viewer together with borehole traces, piles from the original PCO file, base of weathering, base of Quaternary and topographic surfaces. Each cross-section was then reviewed to check that the piles from the original PCO file agreed with the piles in the block model.

Figure 9-612 shows validation of the block model through a section containing holes G00114, B0060123, B006010 and G00121. This image shows that the piles from the original PCO coincide with the piles in the block model.

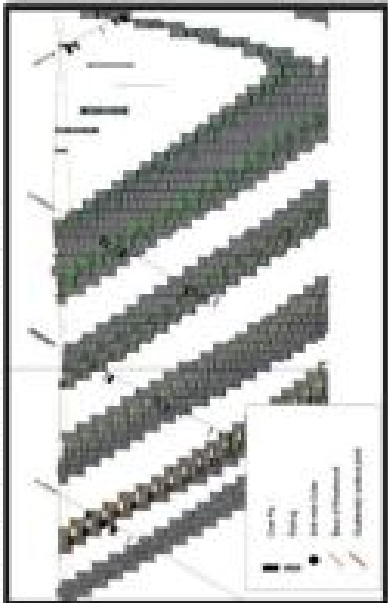


Figure 9-12: Block Model Validation

(Source: Comp. Assessment Ltd)

A further manual check was completed by the Competent Person where an area including boreholes G00123, G00076, B006012 and G00121 for the ply T315 was compared with the block model. The manual result was within 10.72 percent in tonnage of the block model result. This comparison is within acceptable limits.

Table 10-4: Comparison of Current with MBOS (adjusted) – Non-JORC

30 April 2013 - JORC (2004)					
Total Coal Resources		Resource Category (as modelled)			
Depth limits	Measured	Indicated	Inferred	Total (20-0)	Total (20-10)
Sub Total above 200m	0	0	48	0	48
Sub Total below 200m	0	0	7	0	7
Totals	0	0	55	0	55
JORC (2012) April 2013 - JORC (2012)					
Total Coal Resources		Resource Category (as modelled)			
Depth limits	Measured	Indicated	Inferred	Total (20-0)	Total (20-10)
Sub Total above 200m	0	0	54	0	54
Sub Total below 200m	0	0	19	0	19
Totals	0	0	73	0	73
Subcategory: MBOS JORC					
Total Coal Resources		Resource Category (as modelled) Totals			
Depth limits	Measured	Indicated	Inferred	Total (20-0)	Total (20-10)
Sub Total above 200m	0.0	0.0	6	0.0	6
Sub Total below 200m	0.0	0.0	12	0.0	12
Totals	0	0	18	0	18
Total Coal Resources		Resource Category (as modelled) percent			
Depth limits	Measured	Indicated	Inferred	Total (20-0)	Total (20-10)
Sub Total above 200m	0%	0%	1.2%	0%	1.2%
Sub Total below 200m	0%	0%	16.7%	0%	16.7%
Totals	0%	0%	3.3%	0%	3.3%

(Source: Group Resource Ltd)

There is moderate agreement with the two estimates with the current estimate having an increase of 33 percent. However, there were a number of materially positive aspects that occurred between the two estimates.

One of the main aspects in the current Resource estimate was completed under the new JORC (2012) Code which refers to the new Coal Guidelines (2014). It should be noted that the two documents are far more stringent and thorough than previous versions. The following is a list of changes that were applied with apparent effect to the current estimate.

- Application of new JORC (2012) Code which references the new Coal Guidelines (2014), (coal re-categorised).
- Updated ply correlation, (coal gained).
- Ash cut-off changed from >40% as-received to >50% dry basis, (coal lost).

One of the main aspects in the current Resource estimate was completed under the new JORC (2012) Code which refers to the new Coal Guidelines (2014). It should be noted that the two documents are far more stringent and thorough than previous versions. The following is a list of changes that were applied with apparent effect to the current estimate.

- Application of new JORC (2012) Code which references the new Coal Guidelines (2014), (coal re-categorised).
- Under JORC (2012) a more robust understanding of error and PGO data spacing. This process confirmed that the previously used categories were applicable and were not adjusted.
- Updated weathering information from Mine sampling, (coal lost).
- Updated base of weathering with new drilling, (coal lost).
- Change in upper Resource limit from base of weathering to base of Quaternary, (coal gain).
- Change in the understanding of the southern basement limit as a major shear zone, (coal gained).
- Ash cut-off changed from >50% as-received to >50% dry basis, (coal lost).

10.4 Comparison for THG model between New JORC (2012) - 30 June 2015 and Previous JORC (2004) - 30 April 2013 Resource Estimates to 400m

For the purposes of comparison, the two Resource estimates were un-adjusted for mining so only the models were compared and were not affected by outside influences such as mining dilution etc. This is not to be confused with the final Resource estimate in Table 10-3 and 10-4, which are final JORC (2012) Resource estimates and are adjusted to the mine survey pit shell.

The following table (Table 10-6) shows the Resources quoted on an as-received basis for the unadjusted previous MBOS JORC (2004) - 30 April 2013 and compared with the current Resource from this report. This table is non JORC and should be used for indicative comparative purposes only.

42 Disclaimer

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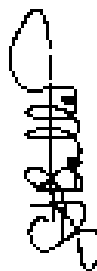
43 Date and Signature



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1.4 Statement of qualifications

L. Mearns-Gibbs has hereby certified that

- a. I reside at Door 107, Building 17, Albury Healthcare, Eagleby Street, 1st Floor, Eagleby Drive N, Murrumbidgee, NSW 2572
- b. I graduated in 2008 with a "Bachelor of geology" from the "School of Geology and Petroleum Engineering, Murrumbidgee University of Science and Technology" from 2006 with "Bachelor of geology" from "School of Geology and Petroleum Engineering, Murrumbidgee University of Science and Technology" since 2007, I am also student of "School of Geology and Mining, Murrumbidgee University of Science and Technology"
- c. I have been a Member of the Australian Institute of Mining and Metallurgy (AIMM) since 2013
- d. I have produced my coal geological profiled for a total of 8 years
- e. I readily by reason of my education, affiliation with a professional association, and past relevant work experience in the type and style of department I hold the responsibility to be a "Competent Person" for Coal Reserves
- f. I am a full-time employee of Murrumbidgee Engineering in the position of General Manager for Geology and Exploration
- g. I am not aware of any criminal, civil or contractual charges with respect to the subject matter of the evidence report that is not reflected in the evidence report.

1.6 Statement of independence

I am a full-time employee of AIMM in the position of General Manager for Geology and Exploration.

五、

- Kenned Corporation, 2016 May 2009) Appendix A - Urban Mining Technical Report
 Design and Cost Assessment Technical Report 1002
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 Mongolia Mining Corporation, 2017 June 2014, 2017 Report 2014, Mining Mining
 Coal Enterprises.

17. Geometry

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100	Estimation



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4th Vice President Committee

Mr. Lehmann-Osterwald (Component Person)

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Urban Housing Policy Statement 31 December 2011

Estimate of the ORC (2012) compliant Cool Resource within the Ukhta Khudag ("CUCR") deposit has been updated as of 31 December, 2018. Total estimate is now 663 Mt, comprising 360 Mt Measured, 216 Mt Indicated and 87 Mt Inferred component quantities.

This memo provides summary information regarding this update, and should be considered in conjunction with detail included in the "ORC Standard Resource Estimation Ullukukuk Coal Mine (License 1992A)" report, released documenting the previous Coal Resource estimate, dated as of 31 December, 2014.

Since completion of the previous Coal Resource estimate, no further exploration data has been incorporated into structural or coal quality geological models. To produce the updated Coal Resource estimate, topographic survey information was updated to account for degradation as a result of mining between 1 January, 2015, and 31 December, 2018.

The new Coal Resource estimate is included in Appendix 1, summarised in bottom depth cut-off intervals, with Coal Resource tonnage reported based upon in situ density on an unconsolidated basis.

Answers



Libavera-Coburn Said
Executive Chemical Manager and
Head of Mining and Processing

Appendix 1

UNIC mining division Coal Resources by depth and category, as at 31 December 2000:

[illegible]

10

[illegible]

^a Personal observations in the 1980s that Pycnonotus estimatus has been recently introduced by CAP-AR, Rehabilitation Services General Manager, for biocontrol against Galling, Abandonment, Mowing, Corporation, etc. Individuals are members of the Anti-invasive Species of Mowens and Laboratory Methods (WV) and his own studies of Pycnonotus estuensis in the field and the effect of mowing on vegetation and its ability to be controlled is equally as important. The study was supported by the American Club for Supporting Conservation Society, Atlanta, Georgia, and the U.S. Forest Service, Inc. (USFS) (July 2001).

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

JORC (2012) Standard Resource Estimation

Ukhua Khudag Coal Mine (License 11952A)



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Prepared by
MONGOLIAN MINING CORPORATION
ENERGY RESOURCES LLC
DECEMBER 2014

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世界工厂

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ET&B is now a world class mining operation utilizing conventional rock and concrete drilling methods. The mining operation is managed jointly under an officers' agreement with International Mining Controls Engineers LLC (IMCE), who provides the mining experience and a main contract of support personnel to the management, operations and technical staff. The site based mining related activities is managed directly by IMCE employees with an experienced operations and maintenance track-record supported directly by IMCE.

for Eastern European countries (Czech, Hungarian, Polish, Rumanian, and Soviet Republics) and for the Balkan countries (Bulgaria, Greece, Yugoslavia, and Turkey). The program also includes the countries of the Middle East (Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Oman, Saudi Arabia, Syria, and the United Arab Emirates).

On the other hand, the fact that the Commission has not yet received any information from the Government of the Republic of China (Taiwan) regarding the situation in the area of the border between the Republic of China (Taiwan) and the People's Republic of China (PRC) is a matter of concern.

The EIA, including cost estimation (now less charged with \$100,000), was completed by January 2012. The EIA, including cost estimation (now less charged with \$100,000), was completed by January 2012.

The UNED application procedures and process are extremely high quality, according both the Australian standards for total evaluation and sampling (AS 2500—1992 at 2.5.20.1—1992) and the benchmark total industry best practice (as measured by the SIRCUS—1992) in the Western Basin. The accurate and unbiased assignments of coal core loss is even higher, achieved by the UNED producers at commercial rates. The coding, for weighting of all registered flow based payments to the UNED and of 1996 market value based the stated 1 also demonstrates. The Exploration and Geology Department of a group of young enthusiastic producers who have been and trained and led by Gary Macdonald. I would have high confidence in the reasonably results obtained from the UNED evaluation procedure.

THE UNIVERSITY OF CHICAGO

- 1990-1997, where 111 coral herbaria were drilled by a Joint Commission-Brazilian Navy;
- 2000, where National collected 116 coral and epiphyte herbaria and five large diameter bulk sample sites;
- 2002-2003, where JZ collected 1,030 coral and epiphyte herbaria; and
- 2003-2004, the current program, where 24 coral and 37 epiphyte herbaria were collected.

Over the four campaigns a total of 212,039 marks was collected, of which approximately 128,500 marks was awarded 97,400 marks not awarded. The 40000 marks not awarded were awarded to the 10000 marks not awarded.

All Quality Assurance and Quality Control (QA/QC) methods for drilling, borehole access, sampling, logging and sampling were reviewed against current procedures and latest NRC (NRC) standards. The analytical methods were also investigated. All analytical methods were completed by the Central Analytical Laboratory in Manchester. For borehole analyses were completed by SGS Laboratories, Thame, Oxford, and for the 1000-3011, and the current program the analyses were completed by the Central Analytical Laboratory in Manchester.

All laboratories were controlled to the standards of the day with the EURL leading a control committee in 1982-83 (WHO/EMCC/EMCC/1982/0007). The EURL, underwritten this study during the previous campaign with funds allocated from the programme. In addition, significant support was sent to the Collaborator based A.L.S. Limited (A.L.S.) and the leading business (LUB) laboratory. The EURL, previously reported the total quality parameters lower than the A.L.S. laboratory and generally higher than the LUB laboratory with varying degree of reproducibility between laboratories.

and should continue to keep the public informed and involved in the decision-making process. The Commission will continue to work closely with the public and the private sector to ensure that the Commission's recommendations are implemented in a timely and effective manner.

[illegible][illegible]

Measured Resources were limited to points of observation at 300m, indicated Resources by points of observation at 300m and inferred Resources by points of observation at 1500m. Maps show from the estimate to have less confidence in the estimate for the 300m and 1500m Resource estimates were classified as inferred category.

For some ceilings there was no maximum span indicated, a minimum span indicated of 0.5 m or often, and 1.0 m for Rainscreen below 400 mm depth, a maximum purling distance of 0.5 m, and in all cases ceiling depth less than 50 mm (DIN 2452). In addition, cost recovery was applied when it was greater than or equal to 50 percent for modular or single purlined ceiling and more and greater than or equal to 50 percent for two purlins or no ceiling purlins and more. Cost quality data was incorporated into the black model using DIN 2452 with a bonus of two.

Under the newly released 'Australian Guidelines for the Estimation and Classification of Coal Resources' 2014 edition (The Guidelines), which IORC (2012) refers to, the Compliant Person is expected to provide an estimate of confidence in the classification categories used. This was done using conditional simulation geostatistics to aid in checking the category classification limits were sensible and determine the maximum expected error for each category. The maximum expected error for the measured category result is 6 percent, for the indicated category result 12 percent and the inferred category result 20 percent.

The total Resource estimate for UBC is shown on an as-received basis in Table 1-1 and on an air-dry basis in Table 1-2. It should be noted that these figures have been rounded to reflect that they are estimates and as a result this may cause figures not to add exactly correctly.

Table 1-1: Total Resource Cost in Aug 2004 (millions) (APR) (Billion)

[illegible]

100

Table 1.3: Total Resource on an Air-Dry (AD) Basis

[illegible]

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The volume of unclassified Resource is 33,157,938 m³. This unclassified material is available to be upgraded to RC/C. Resource classification with further future consideration.

In comparing the previous Resource estimate and the current Resource estimate, unadjusted for mining, so only the models were compared and were not affected by outside influences such as mining dilution, there is good agreement with the estimates with the current estimate having an increase of 3 percent in tonnes. In addition to the material increase, comparing expected mine results of the two models indicated the Measured category improved 1 percent and the Indicated category improved 6 percent in confidence. It is important to recognize, increases in tonnage and grade are advantageous but also an improvement in the confidence of the tonnage and grade stated makes more advantageous.

There was a number of materially positive and negative aspects that occurred between the previous (June 2012) and current (December 2014) Resource estimates. One of the main aspects is that the current Resource estimate was completed under the new 30CR Code (2012) which refines the new Code Guidelines (2014). It should be noted that the two documents are far more stringent and thorough than previous versions. The following is a list of changes that were applied with apparent affect to current estimates.

- + Apprehension of 2080 + 046 (2012) which addresses the new local conditions (2011) (available at enr.gov)
- + Trade the 2011 Code (2012), a more robust understanding of rules and possible of information data required. Consequently, broader ranging representation of the measured category has decreased from 100m to 50m. Indicated category decreased from 1000m to 200m and informed category decreased from 2000m to 1500m. Local level for local reports
- + Updated 2011 Code from 2000 sample (Local level)
- + Updated house of engineering and 1000m with new design (Local level)
- + Change in upper boundary level from base of engineering to base of (engineering, local plan)
- + Change in length of boundary on north and south side (engineering, local plan)
- + Add cut-off boundary from greater than 40 percent to increased base, to greater than 50 percent (local level)

In view of this, we present automatic kernel the basis for a Relevance update, the following

1. Continue to map 3000 acres within the more area and the drill clearly spaced holes to be determined approximately every 3000' (less in the NW of the deposit).
2. Plan and execute drilling 120 to 1200 cubic tonnage spore, boulders and in the middle area in form of mining for better mass deformation and coal quality to keep the mining with very reliable information.
3. Another task might want for the section area for sustainability and color testing so a full understanding of how these water behave so the current UPP project can be maximized and viable valuable products can be determined and included for the mining operation.
4. Expand the validation for expected area to all the other major area group.
5. Continue the understanding of the spatial distribution of the existing characteristics of the coal and the geological parameters that affect the coal characteristics, as there are beneficial for mine planning and production scheduling in order to produce a consistent product and maximizing the value of the deposit.
6. A survey should be completed where there was some variation in the dimensions of the topography, survey and the collar survey.
7. The primary data in high level data that has been important in modeling and defining structural style, but it is highly recommended that more geological continue to map and monitor faults within the pit.
8. It is recommended that for future programs that were just being completed on design boulders to develop an understanding of the potential for coal bed methane at UPP.

The 1981-1991 Table 1 financial report can be viewed in Appendix 2.

15/08/19 2

This report contains the results of the JUNE 2021 literature examination as of 11th December 2021. Of the 1161 deposit contained within JBrowse (1160/24) covered by ECR, 446/1160 (38.4%) had a link to a publication.

Mr. Sand is the Technical Advisor for this report and needs all requirements under the 10601-1-2006 (2012). Mr. Sand, an employee of EPA until February 2008, has been employed by the Institute, the Computer Program responsible for the program since 2008) is source report completed here. Mr. Mr. Sandman is among the previous explanation page and conducted from 2008-2011, and eventually, with the explanation page explanation page, it, based and developed the EPA, previous, from and needed with the setup of the same laboratory. Mr. Sand and Mr. Sandman have designed the explanation page and completed from 2012-2014 forming the basis for this source explanation page.

Mr. Sand was responsible for the revised team contribution and financial compensation. He identified and the overall resources definition. Mr. Adams was an ILL employee, was responsible for the cost quality section of the report. Mr. Wells provided a cost trial and provided an independent peer review of procedures. Mr. Adams was responsible for the June 2011 report which will control for the report.

Mr Pallantine worked as an unlicensed consultant employed by Glassbach Pty Ltd working on strategic projects in a paid capacity from January 2009 to June 2010. From July 2010 he joined the ERM management team as a full time employee in the position of Executive General Manager for Environment and Heritage. Mr Pallantine's responsibilities are to provide ongoing training, development and mentoring to the current strategy team. In addition he provides assistance and peer review for operational teams for the current Resource Estimate approving benefit/delta for reporting in accordance with the NRE Policy 2012-16, ensuring the project and management information and results.

[illegible]

2.1 Scope of Work

The following items make up the scope of work for the UHG deposit:

- Continue to develop an internal geological team for ER and review procedures, training and monitoring for reporting in accordance with the JORC Code (2012).
- Design and budget an exploration program that would provide geological information on Limits of Exploration (LOE) for some, infill drilling for coal quality, seam continuity, structure and an update of resources.
- Review, based on new data since June 2012, the high resolution 2D seismic data for structure and seam continuity.
- Review the quality coal laboratory.
- Perform QA/QC analysis, document the laboratory process and determine devices to be used in Resource estimation.
- Complete depth adjustment and seam correlation.
- Establish points of observation.
- Estimate expected error as support to Measured and Indicated classification category limits.
- Complete resource estimation.
- Write the JORC (2012) standard report.

Other study activities such as legal standing, environmental, processing, mine planning and safety are outside of this scope of work.

2.2 Reliance on Other Experts

Mr. Said has relied upon information that has been prepared by non-qualified persons during the preparation of this report. Mr. Said is not in a position to, and does not, verify the accuracy of, or adopt as his own, the information and data supplied by others. All information provided in this report with the exception of observations and interpretations made on the basis of the Competent Person, rely on such data as provided by non-qualified persons.

3 Location, Access and Licence Information

3.1 Project Location

The UHG deposit forms part of the northern extension of the greater TT coalfield. UHG is approximately 30 km² in area and represents about 13 percent of the TT coalfield, which covers an area approximately 220 km². The coalfield is located in south-central Mongolia within the Ulaan Nuur Valley of the Gobi Desert. The coalfield is situated within the Ömnögobi Aimag (South Gobi province) about 90 km east of Dalaanzadgal the provincial capital and around 350 km south of Ulaanbaatar, the national capital (Figure 3-1). The coalfield is 240 km from the border between Mongolia and the People's Republic of China (PRC) to the south.

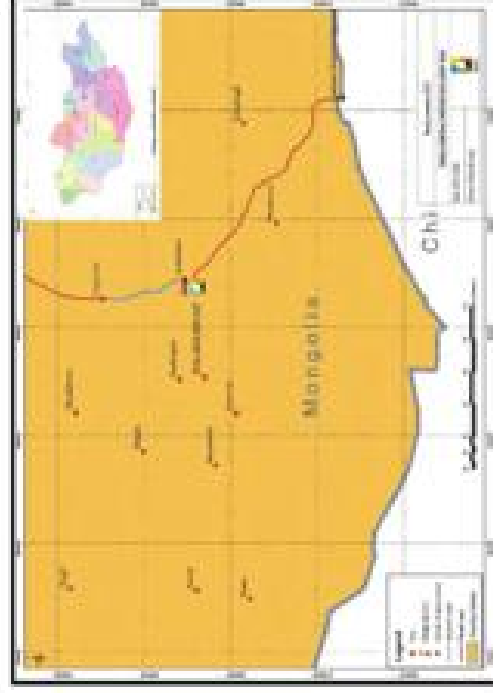


Figure 3-1: Location of Ulaan Khudag deposit

(Source: Pong Resources LLC)

3.2 Project Access and Infrastructure

UHG is located approximately 350 km south of the Mongolian capital city Ulaanbaatar and approximately 90 km east of the Ömnögobi Aimag centre Dalaanzadgal.

Regular direct commercial flights (duration approximately 1hr) from Ulaanbaatar are available to the Tavan Tolgoi airport (Figure 3-2), located approximately 16 km from the UHG mine site. Other regular commercial flights are available to Dalaanzadgal

(duration also approximately 1hr), from where access to the UHG site is possible via approximately 2 hour drive over mostly unsealed roads.

The site can also be accessed from Ulaanbaatar via a 350 km sealed road from Ulaanbaatar to Togh-Ovoo south of Urumqibai shing, with the remaining distance required to be traversed over unsealed road.



Figure 3-2: Tavan Tolgoi airport

(Source: Deep Resource LLC)

Dalaanagad is the administrative centre of the Omnogobi aimag, and as such contains the region's major government agencies, transport links, services and industries. The town has a power station, food and produce market as well as smaller businesses such as supermarkets, hotels and restaurants.

Electricity is mainly supplied to Dalaanagad by the town's thermal coal fired power station. This power station is supplied by coal from the small Tavan Tolgoi mine which is not owned by ER, and is on a separate mining licence to the west of the ER tenure, UHG).

Overburden removal commenced in October 2008 at UHG), with coal extraction commencing in April 2009. Workshop, office and accommodation facilities, offices, 18 MW Power station and 15 Mbps Coal Handling and Preparation Plant (CHPP) are the main infrastructures now located at UHG (Refer Figure 3-3). The UHG operation has excellent communications infrastructure, with full coverage for mobile phone services and high speed internet throughout the operation.



Figure 3-3: UHG infrastructure

(Source: Deep Resource LLC)

A fully sealed 2.4km two lane highway was constructed to take coal from UHG to Gashun Sukhai, the Mongolian coal port 30km from the Chinese border. Currently a 2.4km railway line is under construction.

Togotshait is a small town (town) that is located 5 km from the mine. The town had basic facilities but is growing very quickly. ER has invested in the towns infrastructure to accommodate the majority of staff, their families and supporting businesses. The town has water and power, communications and high speed internet. The worker's camp constructed early in the development of UHG remains in operation, providing full service accommodation to the remaining portion of fly-in fly-out employees (Refer Figure 3-4).



Figure 3-4: UMG Camp and Town

(Source: Jurg Roovers) (13)

A new school, kindergarten and dormitory complex was constructed and put into operation as part of the company's corporate social responsibility commitment. Jointly financed by ER and the local government, the new school and kindergarten complex is a modern facility, comprising a secondary school for 640 children, a kindergarten for 144 children and a dormitory for about 100 children (Figure 3-5). In addition to providing direct educational access to the company employees, the new complex is expected to make significant contribution in raising the quality of education in the region in which it operates.

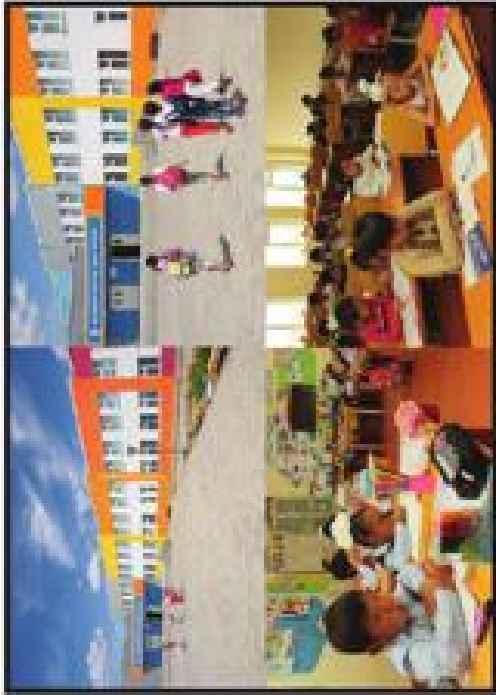


Figure 3-6: 'Dream' education complex

(Source: Jurg Roovers)

To facilitate the relocation of employees from Uthmaniyah to Tsoelikelei, ER has also built an apartment complex named 'Tsoelikelei'. To date, more than 500 families have moved into fully-furnished apartments (Figure 3-6). Given the expanding presence in Tsoelikelei town of Oranopole, ER sees the new facilities as part of its growing commitment to make substantial contribution to the social and educational well-being of the local communities. While encouraging the company employees to move and settle in South Gobi by providing them with complete and comfortable living conditions, the investment is expected to bring lasting value in the host communities where existing social infrastructure is very limited.



Figure 3-4: "Teetui" apartment complex

(Source: Dong Annuen) 112

3.3 Physiography and climate

The Tumen Tulpai area is characterized by gently rolling desert plains with minor topographic relief. The elevations in the region range from 1400m to 1500m. The higher elevations occur on a number of small hills that surround the area, which is a continuation of the Altai mountain range that contains mountains with elevation around 3000m such as Gobi Gurvan saikhan, Saaved, Noyon bogd, Nongon, Took, Nimgui and Altan Uud Gildend. Also, in this area is the 800m high and 140km long Khongor mud dune (Figure 3-7).

The following information was taken from the report "Detailed Exploration Results and Resource Estimation of Uthman Khudag Coal deposit".

"Even though Gobi-gobi among desert I have my big lakes and rivers, it has beautiful coasts and small lakes and ponds. The area has many springs such as Khudai, Zaidan, Nimgui, Zaidan, Eger, Bulun and Teibet cold springs, Eger and Galdai hot springs. By 2007, the national water department had registered 3 rivers, 2 lakes, 381 springs and 1 natural spring. From regional hydrology investigations it had been ascertained that underground water reserves are of the order of 200.3 million cubic meters".



Figure 3-7: Gobi desert landscape

(Source: Dong Annuen) 113

The annual average maximum temperature is around 20.4°C to 24°C during July and minimum temperature is around -11.4°C to -4.0°C during January, average annual temperatures can fluctuate every year.

The maximum temperature can reach from 32.0°C to 33.0°C in the rest of a year. The whole area of the desert is located in a dry climate region, and average humidity is around 28% to 30% during the warm season and 50% to 75% during the cold seasons.

Average precipitation received in Dolonodolod, Myon, Qarantay, Khundbogen, Bulgar and Akula is around 102.1 to 112.9mm, in Bayan-Onoo and Nongon is around 63.2 to 70.9mm and in the rest of the desert is around 50 to 100mm. Monthly average wind speed is the highest in spring and lowest in winter and summer seasons. Average wind speed is 7.3 m/sec and maximum speed is 55.0 m/sec.

Medicinal herbs are found in the area and total about 250 species of small leafed, without short plants and vegetation that are resistant to hot and dry weather of the desert. Desert and desert shrubs plants like steppe, shrubs, chrysanthemum, pomegranate, opium, sandalwood, amaranth, cornflower, salvia etc. are found in the area. Herbs and vegetation that local people use in their lives are cynomolgus, astragalus and a Mongolian onion (refer Figure 3-8).

Wild and nationwide indigenous species like Argali the wild sheep, ibex, leopard, black listed catfish, muskrat the Gobi bear, mottled polecat, wildcat, lynx, rook, marten, gopher, armadillo etc. inhabit the area (refer Figure 3-8).



Figure 3-8: Gobi desert fauna and flora

(Source: Energy Resources LLC)

Sparse, small semi desert shrubs and grasses are typical of the vegetation throughout the region and the soil profile in this area is poorly developed. The thickness of soil cover or other surficial deposits at Tenger Tolgoi typically is only about 4cm to 6cm thick.

3.4 Ownership and Mineral Tenure

Initially, on 2nd May 2005, the following six exploration licenses in the area of the TT coalfield were transferred to ER, based upon a merger of two license holding companies: Energy Resources LLC and Darkhadkham-Uul LLC:

1. 1900X – (Tavan Tolgoi-1) from Energy Resources LLC;
2. 1901X – (Tavan Tolgoi) from Energy Resources LLC;
3. 1901X-1 – (Ukhiaa Khudag) from Energy Resources LLC;
4. 3188X – (Bor Tolgoi) from Darkhadkham-Uul LLC;
5. 3189X – (Slaa Tsag) from Darkhadkham-Uul LLC;
6. 3190X – (Bor Tsag-1) from Darkhadkham-Uul LLC.

On 8th May 2006, based upon its six exploration licenses, ER applied to the Mineral Resources and Oil Authority for granting mining licenses, and six mining licenses (11933A, 11952A, 11953A, 11954A, 11955A, 11956A) were granted by the decisions

No.789 and 803 of the Board for Geology, Mining Cadastre Unit of the Mineral Resources and Oil Authority on 10th August 2006 and 17th August 2006 respectively. These licenses were granted based upon the 1997 Mineral Law.

With effectiveness of the newly approved 2006 Mineral law from 26th August 2006, ER negotiated with the Government of Mongolia reaching agreement to transfer five of its mining licenses to the State, and hold the remaining mining license over the UHG deposit, [No.11952A], with minor coordinate changes. The license was dated 23rd January 2007 and is for a period of 30 years.

In accordance with this consensus the License Transfer Agreement was signed on 21st March 2008 and the coordinates of license [No.11952A] was increased from 1011 Ha up to 2942 Ha. On the 1st April 2010, a further minor change to the license was made, which reduced the area to its now present 2960 Ha.

The license is held by ER, the Mongolian operating company of MMC, a JVT incorporated company, listed on the HK Stock Exchange (refer Figure 3-9). The UHG license is currently owned by ER (refer Appendix 1: Mineral Tenure Certificates).

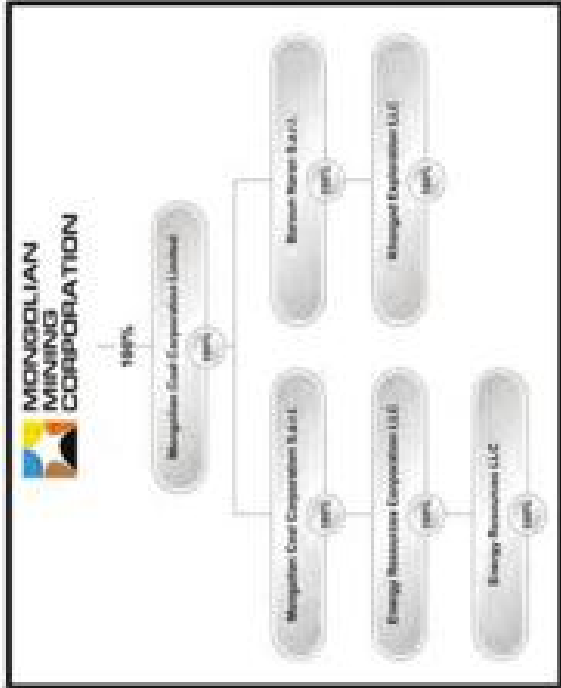


Figure 3-9: MMC Ownership

(Source: Energy Resources LLC)

The geographical coordinates for this license are shown in Table 3-1 and Figure 3-10.

Table 3-1: Geographical Coordinates of license 11962A.

Point Number	Longitude			Latitude		
	Degree	Minute	Second	Degree	Minute	Second
1	88°	32'	31.35"	40°	39'	19.4"
2	88°	26'	31.25"	40°	39'	19.42"
3	88°	26'	51.25"	40°	41'	23.42"
4	88°	32'	31.35"	40°	41'	23.4"

(Source: Survey Department, DGO)

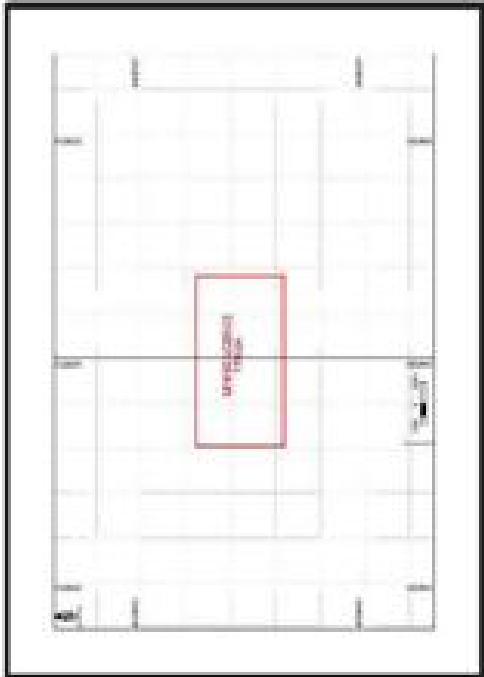


Figure 3-10: Ukhra Khadag Mineral Tenure

(Source: Survey Department, DGO)

4 Exploration History

4.1 Previous Exploration

The following summary was taken from the 'Report of detailed exploration first mining area at the Tumbi deposit of Tumbi Tugai coal deposit Mingshui in 1958' produced by Ch. Guohuayang, Tumbi, 2.5 and others:

- The Tumbi Tugai group (TT) of deposits of humiliated coal was discovered and explored by the local people since early 19th century.
- The first official information on the deposit appears in reports by geologist K.O.Iremashin, who studied the coal in a small opened pit in 1943. The coal of the deposit was surveyed and listed by the geologist N.A.Medvedev in 1945-1951. Analysis concluded that the coal of the deposit had good coking properties. In 1953-1956 the western part of the TT deposit of an area of 33 km² was explored and 18 seams with total of 2.8 billion tons of reserves were identified (Shchegolev, 1957).
- In 1973, from shaft sunk in the deposit, 3 iron-magmatic (gale-plat rock) samples were taken from seams 4A, 4B, 5A, 5B, 8C, 9A, 9B, 9C by Bulgarian geologists. Their tests showed that the deposit bore high value as a source of metallurgical coke, which however, was characterized by 'moderately difficult' and 'difficult' 'washability'.
- In 1977 at the request of the Government, MPR (Mongolian People's Republic), 'GEMPRIS-COILMPT' conducted technical and economic assessment for detailed exploration, upon the condition that the cost of all items is coking, relying on the results of incomplete exploration works. The assessment established that it would be feasible to operate an opened mine with the capacity of 20 Mt. of mineable reserves of 700-800 Mt of coking coal are to be produced from the lower seams. Also the assessment resolved the issues of concentrated water supply. The assessment had also recommended continuing the exploration works.
- The protocol of the 20th session of the COMECON (Committee for Mutual Economic Assistance) Working Committee for Cooperation in Planned Activities envisaged that MPR completes the exploration of the deposit in 1981 and update the Technical and Economic Assessment by GEMPRIS-COILMPT based on the findings of the exploration works by first quarter of 1983.
- With the view to implement this protocol recommendation, in 1978-1981 exploration-evaluation works were carried out throughout the TT deposit area, which resulted in the resource estimation, mainly in categories C3 and D1, beyond 3 billion tons. Besides, along with most foreseeable mining and geological conditions were identified to add to the prospective studies on the possibility to extract coking coal - Northern, North-Western (which later were merged with Tumbi area) and South Western. The exploration-evaluation works identified the spread of the coal reserve is 90 km², and fundamental features of the geological structure were clarified, and at the same time economic reserves and forecasting resources of (2.5%) and 2,100 Mt respectively) of which 684 Mt were coking coal.

1. In 1961 - 1962 a preliminary survey was conducted to a depth of 200 m from the surface within the boundaries of Thakla and Sarda Reserve parts of the deposit 133 and 4 km² respectively. The preliminary calculation of reserves which was made in accordance with the survey was listed in LIT Letter 214 June 1968). According to the preliminary survey report, economic reserves of coal in the Sarda 2 and 41 patches is categorized as 44.8+01+02 = 136.6 k Mt (including the 101.7 k tons of bedding coal). The 0.62 k tons (0.003% of the total reserves) of the USSR's estimated that only the beds of Sarda 2 and 4 were good for coking and quality of main coking coal was low. The manner of the rest of the layers were appropriate for energy production.
2. A detailed survey of the area of total exploitation, Thakla was carried out along with structural and economic evaluation made by geological specialists and at the order of the Committee of Ministers of USSR (Ministry People's Republic) a geomatics exploration program began in the summer of 1968 and finished in the third quarter of 1968. The materials of the detailed survey together with magnitude of the previous studies have been integrated in the present report (Table 1).
3. In 1961-1967 exploitation-evaluation work was conducted in areas directly connected to the Eastern, Bar Thakla and Eastern Thakla. More perspective and detailed surveying there was the area of Eastern Thakla, which comprises a preliminary survey in 1957. As a result of exploitation-evaluation work it was established that the area suitable coal occurs by quality and thickness are located within the Eastern Thakla deposit. Therefore, priority exploration work for the deposit was continued and in 1967 preliminary exploration had been carried out. Presently (1968) the deposit is evaluated by the core boundary which are located on 11 north-south exploration lines. Distances between exploration lines on the north-south are 112-300 m, while at crossways to 50-160 m for other areas of the deposit. Distance between crossways on the north-south is 250-300 m. Ignored part of the Bar Thakla formation exploration lines is 150-300 m. Ignored part of the Bar Thakla formation reserves of 800 m thickness contains 11 areas with total coal reserves of 31.64 m. At the Eastern Thakla deposit more industrial exploration is related to layers 3, 4, 5 and 8. According to information of the exploration work in Eastern Thakla deposit the total reserves and measures of coal with regard to categories B-01+02 = 288 (about 18-65.7 Mt), B-1+02 about 02-015 Mt, and bedding coal with regard to categories B-01+02 = 200 (about 13-48.1 Mt, 02-03.3).
4. In 1964-1967 structural testing of coal by the USSR's Federal Institute of Mining the Institute completed studies of the chemical characteristics of the coking coal for Thakla. A preliminary report of the coal from Eastern Thakla and Sarda Reserve Thakla.

The following summary was taken from the United States District Report: *Glenn and Carl Sawyer*, produced for Glenn Carpenter, 13th July 2006.

- The first systematic exploration of the area commenced in the 1930's. In total, approximately 3,000 boreholes (primarily cone holes) were drilled in the district and most of the coal core was subjected to thorough coal quality testing.
- In 1950 a major feasibility study was completed by the Government Institute of Geology, Ministry of the Interior of the Taiwan (Republic of China) and the Japanese Agency's Republic. In 1955, two confirmation drilling and testing projects were conducted, one by Taiwan as part of a preliminary feasibility study for the Abukuma Mining Corporation (Development and the other by JICA as part of their commitment to the Aburahi Resource Authority of Mongolia. However, drilling for boreholes, whereas stops entirely on Aburahi. Coal from these boreholes was subjected to various coal quality coal testing tests. In early 1997 the reader from these two projects were reported in Japanese (Availability study).
- JICA conducted a 10 borehole exploration project on their former exploration license at the site during the fall of 2002. Subsequently, JICA's produced a geologic model for the entirety of Aburahi. JICA drilled along with rebarbs examination for the various coalfields provided to JICA on January 24, 2008.
- Prior to 2008, the JICA coalfields had largely been explored by the Mongolian Russian Union of the 1930's as part of the larger effort to understand the Taiwan Region's deposit. Review of records and reports indicate exploration techniques of JICA included a combination of surface mapping, core drilling, geology and sampling. The historic exploration of mining activities identified a substantial coal resource in the JICA coalfield and more successful at developing the larger Aburahi coalfields with a few degree of uncertainty. The drilling data, however, was determined to be insufficient for defining medium-scale features within the coalfield and for determining detailed more comparison with a high degree of confidence throughout the property. Additionally, the JICA's coal quality data required reful and recent evaluation to provide an adequate database for assessing the resource coal quality to current international standards. JICA completed an initial testing and bulk sampling program at JICA in 2004 which was planned and managed by JICA. The purpose of this program was to address the mining industry's efforts and bring the bulk of the JICA resource to a level of geologic assurance sufficient for mine planning and feasibility level study. The primary objectives of JICA's 2004 exploration program were to:
 - o Develop the resources to a reasonable and reliable level of geologic assurance.
 - o Apply the JICA's in situ coal quality data resources.
 - o Upgrade the database on coal quality data.
 - o Improve the confidence of industrial sector and benefit correlations.
 - o Gather geotechnical data for ventilation and use in mine planning and for geotechnical.

4.2 Previous Resource and Reserve Estimates

4.2.1 May 21, 2010 - Reserve

The UICG air-dried coal resources as of 31st May 2010, were estimated according to JORC (2004) standards by Norwest as indicated in Table 4-1.

Table 4-1: Total air dried Resources – 300m depth limit, minimum apparent seam thickness of 0.6m

Category	Resource Volume m ³ /ton	Density at Depth (g/cm ³)	Total Tonnage (Mt)
Measured	132,043	1.52	208.9
Indicated	136,862	1.52	221.6
Inferred	2,241	1.52	11.0
Total	269,176	1.52	427.5

g/L Mt = Million metric tonnes (air dried)

Source: Norwest Geophysical

4.2.2 June 26, 2012 - ER

The UICG air-dried coal resources as of 30th June 2012 were estimated according to JORC (2004) standards by ER as indicated in Table 4-2.

Table 4-2: Total air dried Resources – 300m depth limit, minimum apparent seam thickness of 0.6m and maximum Ash cut-off of 50%

Category	Resource Volume m ³ /ton	Density at Depth (g/cm ³)	Total Tonnage (Mt)
Measured	186,036	1.56	287.9
Indicated	152,369	1.58	181.6
Inferred	42,305	1.59	68.9
Total	379,790	1.57	518.3

g/L Mt = Million metric tonnes (air dried)

Source: Norwest Geophysical

- o Gather hydrogeological data for use in mine planning and ground water management.
- o Collect bulk samples of top seams for detailed coal processing tests and characterisation of metallurgical properties.

- A total of 111 Russian holes were used in the JORC model, the majority being coal holes. The Norwest program included a total of 121 holes, comprised of 17 slim gauge core holes (PGHIC), 99 slim rotary holes (a 100mm) and 3 large diameter cone-hole sample locations. A ground total of 232 holes were used in the creation of the current (2008) geologic model with an average drilled depth of approximately 300m.
- The JORC program significantly increased the prior borehole density and utilised the historic Russian data to an extent sufficient for categorising the UICG mine area as a measured plus indicated resource according to the JORC Code and thereby permitting advanced mine planning and economic evaluations to be conducted at current international standards. The drilling plan will also contribute to a depth of 600m, thus bringing potentially underground renewable resources into a higher level of confidence.

Mining operation at UICG commenced in October 2008 based on the previous exploration work. During this time it became apparent that further work was required, and so during 2009-2011 ER extended the drilling with an additional 1,403 boreholes for 166,264 drilled metres. In addition to drilling, during 2010 and 2011, 71 km of 2D high resolution seismic data was collected. With the combination of very deep drilling in the west (over 700m) and the seismic data, an updated JORC (2004) Resource estimate was completed in June 2012, with JORC (2004) Reserve subsequently updated in December 2012.

4.2.1 January-01, 2010 – Range Project Reserve

Range/Reserve/Estimate (RRE) was commissioned by EAAC to complete Reserve estimates for UTR as at the 31st December 2012. The following paragraphs were taken from the final report (RPPV-017-000000, 2010, August 2013), which can be viewed in Appendix 22. The report was an integrated study involving both EAAC owned deposits UTR and Reserve Range (RR). However, for this report only the Reserve estimate for UTR is discussed below.

EAAC was commissioned by EAAC to undertake an update of the Reserve Determined for the UTR and RR deposits in addition to a UTR Study as a feasibility study and of economic viability. The overall objective of the UTR Study was to resolve the mining method of the moderate to deep-seated UTR deposits to determine the mining level requirements and generate practical UTR pit designs and mining attributes that can be used for the geotechnical planning and design purposes. EAAC by EAAC was to examine the UTR as part of an integrated mining schedule to determine the potential government rate for the handling of UTR coal in relation to delivering EAAC's economic proposition. The primary focus of this document in 2012 was only a summary provided for EAAC.

The UTR Study focused on the mining proposition in July 2012 by EAAC for UTR, which identified 2007 UTR as recovered resource. EAAC's UTR Coal Compound Resource, Individual and Refined Geophysical Resource Evaluation of the UTR in the resource parcels was difficult as part of the UTR Study with monthly UTR coal estimated at 24, 26 and 28 million tonnes of UTR coal in 2007, 2008 and 2009 respectively. The UTR coal resource in the resource parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

The average annual UTR coal production was between a minimum of 100,000 tonnes (Year 2007) and a maximum of 200,000 tonnes (Year 2008) with completion in 2009. The exact mining cost is provided through a Coal Handling and Preparation Plant (CHPP) owned by UTR, while the Thermal Cost will be provided through a AG Plant in operation at UTR in 2010.

4.2.2 Mining Method

The opening up of the first lease-out at UTR began in October 2008 with the top of coal being developed in April 2009. The UTR mine was conventional levels and recovery mining methods to mine coal and overburden has been a long operation.

A steady mine production ramp-up to the end of 2012 followed a production rate of 100,000 tonnes per year. The UTR mine was conventional levels and recovery mining methods to mine coal and overburden has been a long operation. The ramp up of UTR mine capacity continued into 2013, but due to difficulties of global mining and market conditions, addition of full available capacity has been delayed.

The ability to achieve higher production levels will depend on many factors including market conditions, availability of equipment and labour as well as geological conditions. The total UTR coal mine will start operations of production at UTR in 2014 December 2014 to 2015 2015 and the following schedule that the UTR coal mine per year:

- 2009 - 10 M UTR coal
- 2010 - 20 M UTR coal
- 2011 - 71 M UTR coal
- 2012 - 85 M UTR coal
- 2013 - 92 M UTR coal
- 2014 - 45 M UTR coal

Source: Olkaria UTR

5 Geology

5.1 Regional Geology

The UHG deposit forms part of the Ukhiaa Nuur coal bearing depression which is found in the South Gobi coal bearing basin or otherwise known as the TT coalfield. The Ukhiaa Nuur depression includes the south-eastern continuation of the Ichkhudai hills which are located between the mountains of Tostai and Ichkhudai to the south and Tsagaan Orovee and Narta Niar Nuran to the north (Said L., et.al, 2011).

TT coalfield is separated into seven separate subfields, namely Tsandchi, South-west, Bortog, Ukhiaa Khuding, Eastern, Bortolgoi and Barun Nuran (Figure 3-1). Barun Nuran is also owned and operated by Mongolian Mining Corporation (Figure 3-6) through Khangad Exploration LLC.

The coalfields are separated by either mean crop knits or block faulting. The boundaries between these seven subfields are not well defined, and have migrated somewhat in the Russian reports from the 1970's onwards. Generally, UHG represents the north-eastern extension of the greater Tuvan Tolgoi deposit (Norman 2009).

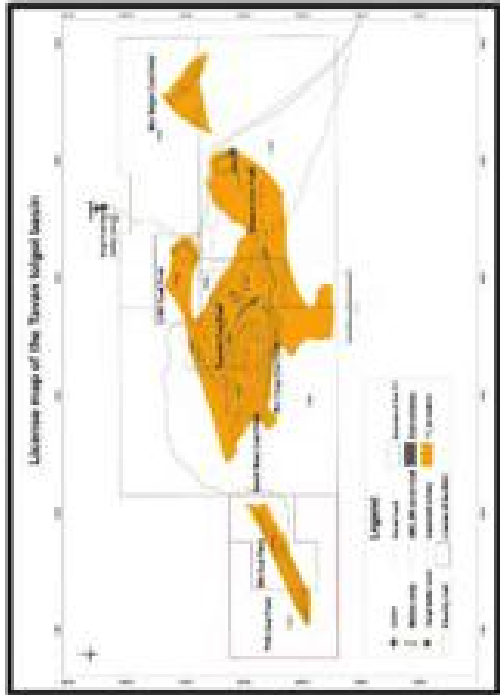


Figure 3-1: Regional map of the Tuvan Tolgoi coal basin

(from Jangp Burmaa LLC)

5.2 Regional Stratigraphy

UHG is located within the TT system, which is also a part of the South Gobi coal bearing basin. UHG is composed of the Tsandchi and Tuvan Tolgoi formations of upper Permian age. Underlying these formations are the volcanic and tuff-sediments of the Drushin Orovee and Tsoghtsidi formations of upper Carboniferous-lower Permian age.

Blocks of the latter two formations outcrop in the south-west and north-east parts of the deposit, forming mountain uplands surrounding the core of the syncline. These formations have been deformed by a number of faults. The north-west border of the deposit runs along the large Tsandchi thrust-fault (Tuvan Tolgoi Fault, refer Figure 3-2). Along this fault, upper Palaeozoic rocks overlap with Devonian rocks of the Tsoghtsidi formation.

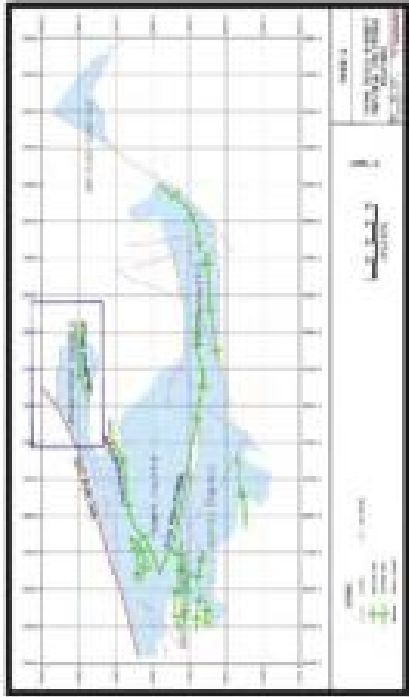


Figure 3-2: Regional map of the Tuvan Tolgoi basin Structural Features

(from Jangp Burmaa LLC)

The following petrological descriptions included within Sections 3.1.1 through 3.1.3 are taken from the 'Report of detailed exploration (not mining) area at the Tawala deposit of Tawala Talcum (not deposit) Al-Bahar' (Nashidhah 5 and Table 5, (1980) and translation from the 'Detailed Exploration Results and Resource Evaluation of Uthmaniyah Grouping Gypsum Deposit' (Gibad L. et al., 2011). Refer to Figure 3-3 for a regional geological map.

3.2.1 Descriptive system

3.2.1.1 Tawala Talcum formation (T400)

Subunits of this age are distributed only in a small area at the north-west edge of the Uthmaniyah deposit where they were observed in conjunction with the subunits of Duhail Gips Formation and with coal bearing subunits of Tawala Talcum formation. The rocks of this formation are relatively clay-saturated siliceous, siliceous clayey slates with horizontal layers, with light and medium.

3.2.2 Upper Carbonaceous-Tawala Formation

3.2.2.1 Tawala Talcum formation (T400)

Subunits of the Tawala Talcum formation are described as siliceous, sandy and are distributed throughout the deposit in a limited area. They are washed in natural outcrops and in borehole cores. They underlie the Tawala Talcum and Tawala Talcum formations. The rocks of this formation consist of light-grey, non-released limestones, dark-limestones, dark-grey and greenish grey sandstone and medium grey shale.

3.2.2.2 Tawala Talcum formation (T400)

Subunits of this formation cover a wide area of the deposit. They are found within the rocks of the Tawala Talcum formation in a regular sequence. The formation consists of light and dark grey, poorly sorted, clay-saturated, sandy, light brown and dark green colour, in bulk or light brown, sandy and siliceous with fine fragments. In the lower subunits there are thin light, light brown and siliceous of limestones. The thickness of the formation is variable (from 1 to 100 m) and averages around 30 to 50 m. The formation appears to be in the west with a maximum thickness of around 90 m.

3.2.3 Upper Permian

3.2.3.1 Tawala Talcum formation (T400)

Subunits of this formation cover a wide area of the deposit. They were described as sandy, dark, medium, interbedded with sandstone and shales of dark-grey and light-grey colour. Thickness of the formation is variable. At the Uthmaniyah deposit, this formation occurs in thickness from 1 to 40 m.

3.2.3.2 Tawala Talcum formation (T400)

Subunits of this formation have been investigated extensively. This formation consists of the coal-bearing strata. The order of distribution within the

Uthmaniyah deposit is 100 m, while within the Uthmaniyah deposit is 200 m. The formation is represented mainly with polymorphic, non-granular sandstone and shales, alternating with more conglomeratic, argillaceous, carbonaceous, and coal-bearing.

The Tawala Talcum formation has been identified into 3 sub-formations: Upper, Middle and Lower (see Table 3-1).

- Upper sequence of Tawala Talcum formation. Dark grey siliceous, sandstone and coal seams from about 10 to 15 m thickness with some in some locations, clay-saturated and siliceous.
- Middle sequence of Tawala Talcum formation. Greenish, irregular, greenish, conglomeratic, greenish-grey, light grey sandstone. Clay-bearing sand and shales in some, especially in some areas of the deposit.
- Lower sequence of Tawala Talcum formation. Dark grey siliceous, carbonaceous, argillaceous and shales, grey-colour, sandstone, light grey, and some greenish-grey, coal seams from 0.5 to 1.5 m (Gibad L. et al., 2011) and (Nashidhah 5) with some in some locations, with some in some locations.

Included in the formation is evidence of some coal-bearing in the beds associated with the formation of the deposit. At some sites, the beds are associated with the deposit. It is seen through the sequence of the Tawala Talcum formation, greenish, clay-bearing, sandy, siliceous, and the main cause (Gibad L. et al., 2011). The siliceous rocks appear to be in the west and where they have been identified in the west, the east and left. The thickness of the formation is variable (from 1 to 100 m). The thickness of the formation appears to be limited to the upper approximately 100 m of the formation.

3.2.4 Tawala Talcum (T)

Subunits of this system are mainly represented by conglomeratic red and medium-grey, coarse, fragmented rocks.

3.2.5 Descriptive system

3.2.5.1 Descriptive system (T400)

Subunits of the Tawala Talcum formation are described in the southern section of the Uthmaniyah deposit. They are not found in the Uthmaniyah deposit, in the Uthmaniyah deposit they have a sharp angular interbedding with the weathered upper Permian subunits. The formation is mainly represented by light-red, red and pink colour clay-sand and fine sand, thickness of sandstone-produced grains.

Table 5-4: Generalized Stratigraphic Column, Tavan Tolgoi

Period	Unit Name	Description	Thickness	
Lower Permian		Greenish gray siltstones and mudstones with interbedded yellow sandstones.	Varied	
		Conglomerates, conglomeratic sandstones, siltstone and mudstone	Varied	
Unconformity				
Upper Permian	Tavan Tolgoi Group	Upper Unit	Bark gray siltstone, sandstone, conglomeratic sandstone, minor calcareous beds, fine limestones. COAL, 30-400 m to 100 m	
		Upper Part	Greenish conglomerate and conglomeratic sandstone, light gray, poorly to well sorted sandstone. Gray and dark gray siltstone and claystone. Abundant fine limestones.	300 to 1,000 m
		Lower Unit	COAL, 30-400 m to 100 m	
	Tavishi Group	Lower Part	Bark gray to light gray sandstone, occasionally conglomeratic. Coaly sandstone. Abundant fine limestones and high water mudrocks.	
		Lower Unit	COAL, 30-400 m to 100 m	
		Tavishi Group	Var colored claystone, siltstone, sandy shale, sandstone and conglomeratic sandstone. Calcareous beds, limestone and argillite. Abundant fine limestones and high water mudrocks. Red to reddish brown conglomerate and breccia conglomerate, sandstone, argillite, light gray shale.	200 m to 250 m 300 m to 1,200 m
Unconformity				
Lower Permian	Tavishi Group	Siltstone with fine beds, argillite, breccia, sandstone and siltstone.	400 m to 800 m	
	Quana-Quana Group	Light green massive sandstone, breccia, siltstone, limestone, and argillite.	800 m to 1,100 m	

Source: Almaraz (2009)

5.2.6 Carbonaceous group (C4)

Within the context of these deposits are outlined paleozoic (lower middle-Upper Permian), Mesozoic (Upper Jurassic and Cretaceous) and Quaternary sediments.

5.2.7 Paleozoic system (P)

5.2.7.1 Lower and middle Oligocene (P₁₋₂)

Oligocene is attributed to mafic volcanic rocks which intersect upper Permian and lower Mesozoic sediments. The mafic volcanics are represented by olivine basalt with thickness a range of from 3 to 40 m. They are located at the Tavan Tolgoi hills.

5.2.8 Mesozoic system (M)

5.2.8.1 Mesozoic (M₁)

Roofs of this age are scattered as remnants at the Tavishi and the Eastern Tavishi formations. They are laid with an angle unconformably on the sediments of the Tavan Tolgoi formation. They mainly consist of red colour clays with lenses of sandstone-gravel materials and gypsiferous with a thickness less than 4.4 m.

5.2.8.2 Pliocene (M₂)

Pliocene sediments are widely distributed at the Eastern and Tavishi deposits. They are represented by light-grey fine-grained conglomerates of poor cementation, sandstones, red clays with mud lenses and mud clays. Thickness of the Mesozoic sediments varies greatly.

5.2.9 Quaternary sediments (Q₁₋₂)

Quaternary sediments were identified over the majority of the deposit. They are represented by yellowish-grey loams, sandy loams, sands and clays containing fragments of underlying rocks. The transition from unconsolidated sediments to bedrocks is gradual. The Quaternary sediment thickness ranges from 4 to 1m.

5.4

Deposit Type

The deposit type is an important section to be defined, as it comes under the JOMC section 'Competence and Responsibility' more importantly it is one of the defining criteria for the Competent Person:

A 'Competent Person' must have a minimum of five years' experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which that person is undertaking.

The late Palaeozoic was marked by the continental collision of a number of small micro-continents that came together as convergent margins. As the Siberian Craton and the North China block converged, accreted continental crust was thrust onto the continental margin and small island arcs, subduction wedges, and ophiolitic belts were accreted as pre-existing basement rock was deformed and faulted, and uplift initiated.

Island arc geometry, similar to how the Bowen Basin (Eastern Australia) was formed, coincides with the formation of the late Permian systems that formed the belt of Late Permian coal measures that are found in the south and south-west of Mongolia of which, the Tavan Tolgoi deposit forms one of. These types of deposits form large basins that have vast lateral continuity. Unfortunately, due to the collision of India in the Tertiary, these basins in the southern regions of Mongolia have undergone later stage deformation, which appears to be more severe in the west and moderate eastward. This also explains the close proximity of large younger rift type basins that contain thick lignite deposits close to these Permian basins.

The Competent Person has worked at UHG since February 2009 and is familiar with this deposit type. This style of deposit forms multi-seam environments that have extensive seam formation both along strike and down dip. They offer opportunities for large open-cut mines at shallow depths that allow access to deeper parts of the basin through underground rooms. Due to the complexity of the structure and multi seam environment, this deposit would be considered complex.

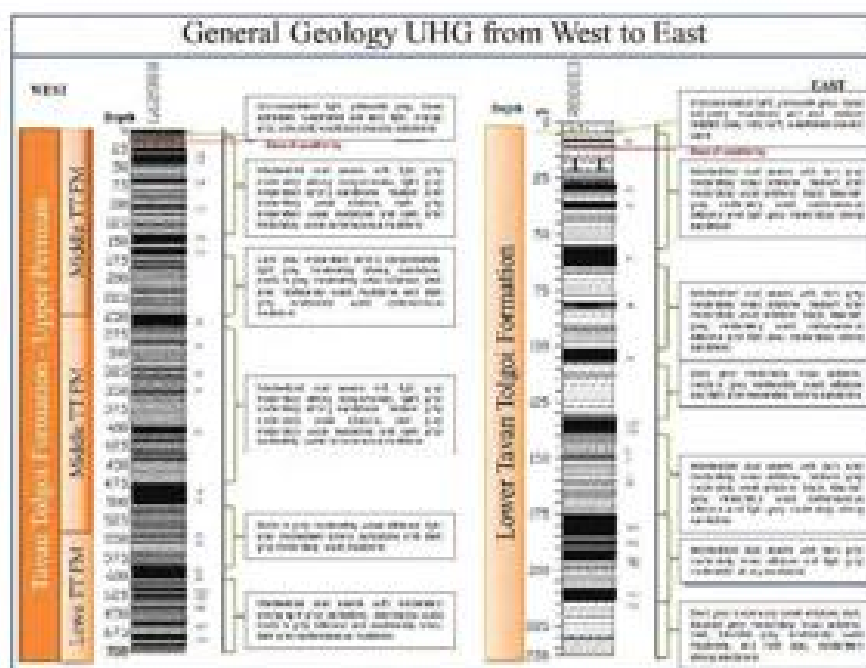


Figure 5-4: General Geology UHG from West to East.

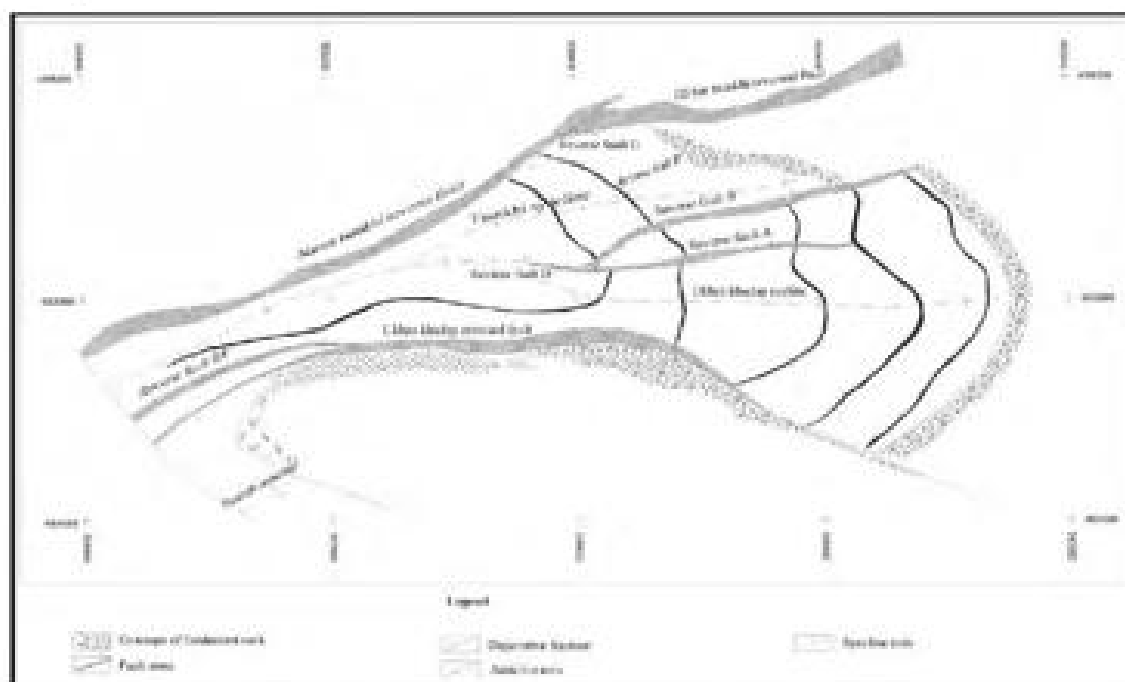


Figure 4-6: 1999 Structure map of the LHG deposit

© 2000 Blackwell Science Ltd

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Symptoms

The work, completed up until the end of 2003, was mainly mapping of surface geology and drilling of boreholes at regular intervals. At the conclusion of the work program by Dahlbäck *et al.* 1989, the following table and associated structure map was produced (refer to Table 3-2 and Figure 3-6)

Table 6-2: Characteristics of the dislocation dislocations at the LAG deposit

[illegible]

1000

At the completion of the Norwest Resources report 2008, it was quoted: "... rather than the more coalfield bounding fault, no readily identifiable fault displacements were identified in the 200m (average) spaced borehole data. However variations in seam thickness and/or partings suggest that faulting, if present, may be shallow (parallel to bedding) and similar to small scale intra-seam faulting. An alternative hypothesis is explaining the variation in seam thickness in the occurrence of elastic channeling that have occurred (around) the coal seams remaining in local mining of the coal seam."

Although this previous work by Euskehoof et al., and Barendt was done to a high standard and had its merits, it was more apparent to the mining operation and the ERB that the use of a single person was not the best solution. The ERB was looking for a more complex explanation than the Competent Person that faulting at L1002 was for more complex than first thought.

The results of the 2-D seismic program and additional drilling showed the deposit to be highly faulted with complex structures where previous work only indicated simple single faults. An example of this, (Figure 3-7 below) is a seismic section where the seismic line 10-05 and the Marston borehole line 2311-12 both intersect the fault labelled 'Reverse Fault A' (Figure 3-6). It is quite clear from the seismic profile that the nature of 'Reverse Fault A' is not a single thin fault but a complex fault zone. It is also interesting to note from this example that north (right) of 'Reverse Fault A' in the borehole section, there appears to be little or no displacement in the section. When observing this portion of the section is the seismic line, when noting the orange reflector (OCU level), this area is actually upthrown north of the fault.

Further evidence and comparison of the seismic results are illustrated in Figures 3-5 showing what the fluid system appears like, once mixed. The room in Figure 3-5 is the same room (34) lightly fluffed, rotated, duplicated and observed.

[illegible]



Figure 6-8: Fault Reverse Fault A' recently uncovered at LKHQ.

Source: Deep Resources (2012)

Boreholes alone were insufficient to determine accurately the nature, type and location of the fault systems involved. The addition of the seismic program proved invaluable in locating and understanding these fault systems but also, just as importantly, showed areas of little to no structure and this is one of the great positives in using seismic (refer Figure 3-2). Boreholes tend to be used in conjunction with seismic as they provide the identification and calibration for determining true depths for the seismic reflectors (coal seams). In addition, with the advent of the seismic program, the Competent Person has estimated that drill spacing can be increased saving the Company more than USD\$1M in drilling costs over the life of the mine. The result of this work will provide a very high level of confidence in the basement structure, above mine planning and scheduling. The seismic sections can be reviewed in Appendix 10.

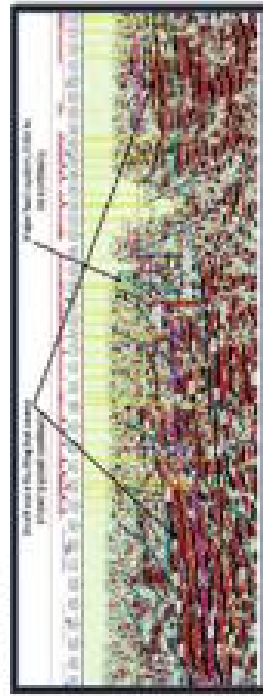


Figure 6-8: Balanced section showing seam continuity and complex fault system

Source: Deep Resources (2012)

Although the seismic program has determined areas of fault displacement, the resolution of the faults is still high level on the scale of the seismic data and the actual

near scale complexity must be determined from good geological mapping practices from the mine geology team with continuous updating of short term plans that incorporate these faults.

To illustrate the increase in knowledge and understanding of the structural regime for the Uthman Khudug deposit the following statements refer to Figure 5-10.

Figure 5-10 shows a comparison of the 1989 structural interpretation from Colbourn et al, which Norwest did not add to in the 2009 program and the ER work, completed early 2012. Two seismic lines 10-15' and 10-17' were used to do the comparison and are consistent with the other seismic lines (Appendix 10) of the deposit. To simplify the seismic lines for estimation purposes, the main faults were highlighted in red and blue with the faulted basement contact in orange. All the seismic profiles were mapped on the seismic lines, but the 3A and 4C lines were highlighted in purple and light blue respectively.

Two major faults were interpreted from the 1989 program as 'Reverse Fault B' and 'Reverse Fault A'. These were identified on the seismic lines as corresponding green and blue lines respectively. 'Reverse Fault A' is shown on the map and borehole sections (refer Figure 5-3) as a simple reverse fault covering a relatively small cross-sectional area. Both seismic lines show this fault zone as complex thrust systems propagating from the faulted basement boundary with associated smaller syn-synthetic normal and reverse faulting covering a wide area of disruption.

Associated with these 'Reverse Fault B & A' zones are a series of folds. The major syncline named Turbidity Syncline (dark blue vertical line - seismic lines, number 1-12 on the map), is associated with thrust faulting, which is identified in the seismic lines. The location of the Turbidity Syncline on the seismic lines matches closely with the 1989 program. The associated antiform structure labeled '2' on the map is very clear and was parallel to 'Reverse Fault B'. This would suggest this fold is very much related to the thrust faulting. At the point labeled '8' on the map, this antiform structure seems to develop into an overthrust structure and appears to line up with the 'Reverse Fault B'. This is best represented on the seismic line 10-14, which is illustrated in Figure 5-11 (refer Appendix 10).

The Uthman Khudug Syncline was another major feature in the deposit interpreted in the 1989 program. Its location is shown to be between 'Reverse Fault A' and the deposit boundary to the south. Illustrated on the seismic lines with a black vertical line is the location of the interpreted syncline. Upon inspection of both seismic lines there does not appear to be any indication of the syncline axis. However, a synformal structure (point 3 on the map), an antiformal structure (point 4 on the map) and a lesser antiformal structure (point 5 on the map), all demonstrate that this region has been folded and that this folding is associated with faults. In addition, these folds do not appear to extend any great distance and are contained within the limits of the oxidation of seams 3A to 4C.

Additional findings from the 2012 work derived from the close spaced drilling and resulting limits of oxidation (LCO) lines for each seam, is the extension of 'Reverse Fault A' at map point '7', and the extension of the thrust faulting environment at map point '8' from the extension of the Uthman Khudug reverse fault.

In summary, the basement contact appears to have acted as a major décollement plane, where subsidiary thrusts played as lateral ramps, often associated with back-thrusts and pop-up structures and folding (refer Figure 5-12).

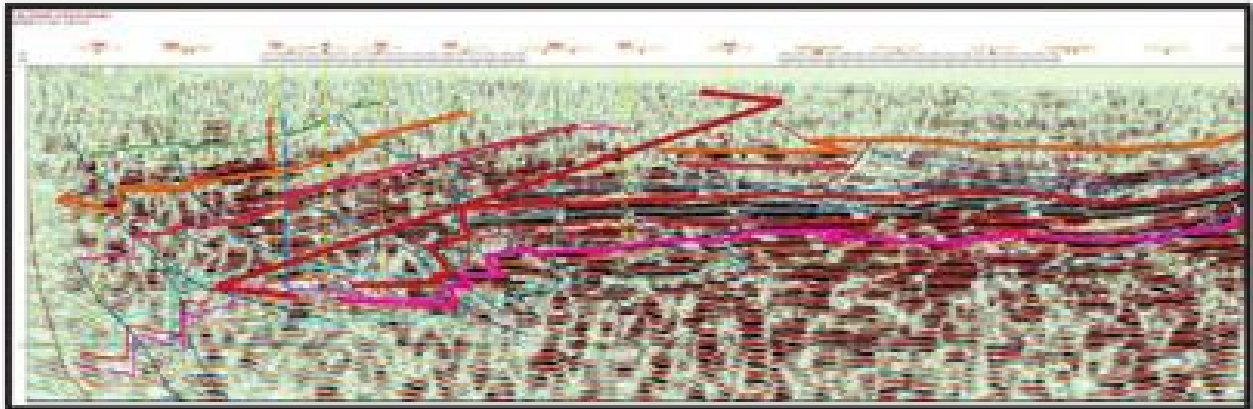


Figure 5-11: Seismic line 10-14 showing overthrust zone of 'Reverse Fault B'.

Draw: Peng Baiwen (10)

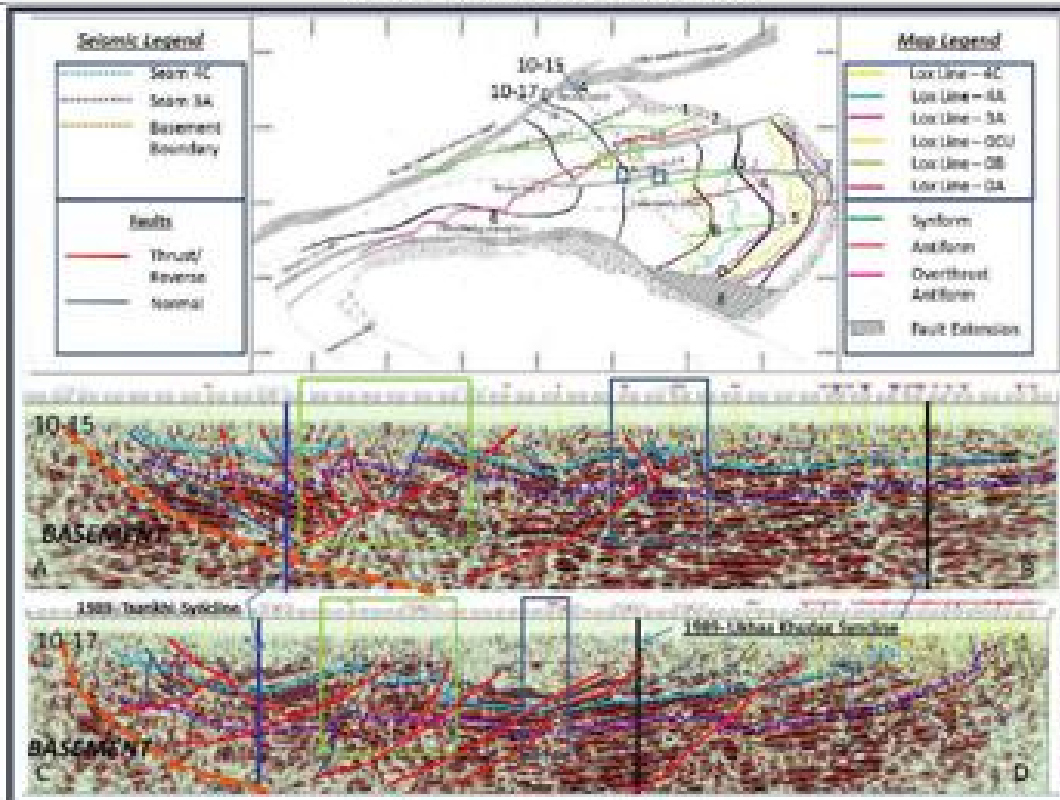


Figure 5-12: Structure comparison from 1989 MW with 2010 program

Draw: Peng Baiwen (10)

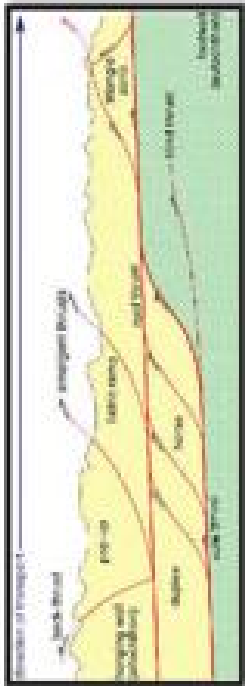


Figure 5-12: Imbricate structure

From Berg 1999

The suggested cause of such structures is due to major compressional forces on the deposit, which has been UFG transported some distance, indicated and confirmed by seismic over the boundary fault; 'Mount Dordoh Riverine Fault' and 'Ulukus Khudag Riverine Fault'. Once the 'block of rock' (UFG) became buoyed and stopped its movement, the compressional forces continued to ramp up into the coal measure creating numerous thrust ramps and associated structures. Many of these structures are low angle and would have occurred the weaker coal seams, which has been observed at bedding plane above in the coal.

The results of this activity is a series of up-dip blocks in the north-east that appear to have formed fold but are actually fault derived. A further implication resulting from this massive block about showing is shown in report section 5.7.2.2 - flexibility of the relative motion. It appears the heat which was generated from these block movement is such that the local geothermal gradient increased to such an extent that there has been coal rank upgrading and devolatilisation of the coal seams. Figures 5-14 and 5-23 best illustrate this observation.

From the detailed drilling and excellent seismic results, a high understanding of the structures has now been developed. This has provided very accurate and highly confident information for the Resource estimate and will form an important basis for subsequent Resource and mine planning. However, the seismic data is still high level and the need for continuous mapping and monitoring from mine geologists in the mine is fundamental and highly recommended.

Since the fault systems were mainly zonal, for purposes of the Resources where continuity is one of the main criteria, the seismic lines were found to be an important tool for checking zones continuity. In the following Figure 5-13, the seismic lines were categorised as clear (no faulting), continuous (simple faulting allowing some continuity) and non-continuous (good present but not continuous). The following map (Figure 5-13) was derived with the colour blue (clear) and purple (continuous) showing continuous areas and the orange areas showing non-continuous areas. The continuous areas will be modified under normal JCRG criteria; while the non-continuous areas will be mandatory 'deformed' category for Resources. The areas showing mandatory 'deformed' and 'bedded' categories for Resources are shown in Figure 5-14. The areas in the mandatory 'deformed' areas are still considered as Resources as there is still coal within these areas but, due to the flexibility and low

confidence to determine continuity no higher Resource category other than 'deformed' could be considered. These areas will still be mined and any coal mined will be considered as bonus.

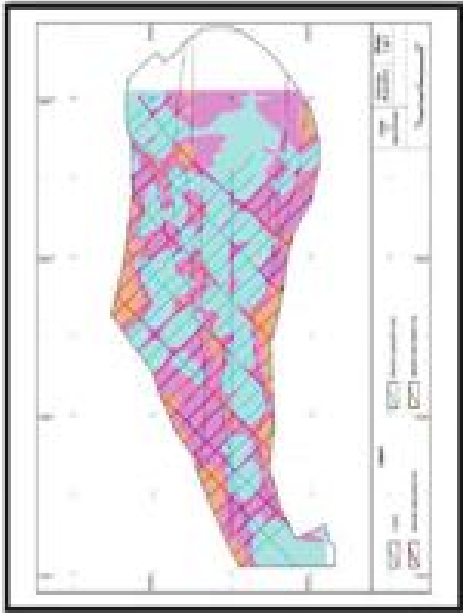


Figure 5-13: Fault area plan/seismic interpretation on the fault

From Berg 1999 (L.O)

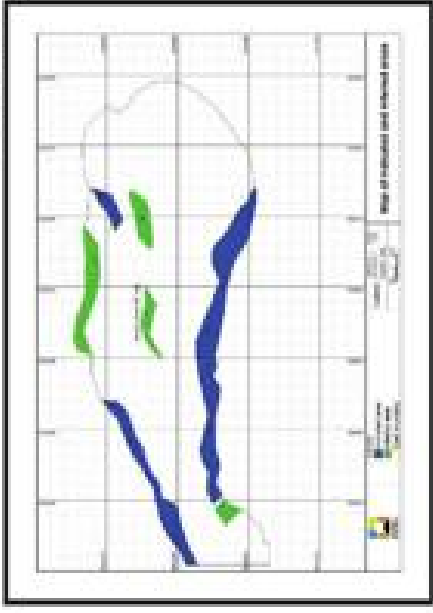
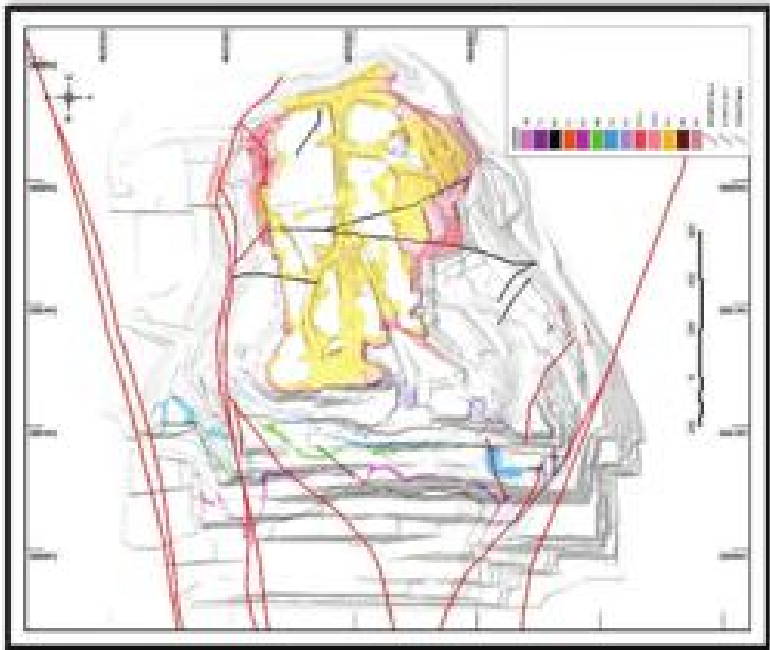


Figure 5-14: Mandatory areas for indicated and inferred based on structure.

From Berg 1999 (L.O)

Since June 2012, no further seismic work was completed, however the legacy seismic work of 2010 and 2011 is still providing sound information on structure. Detailed in-pit mapping has confirmed the major structural regimes in the mining area which were reflected by the seismic. The seismic work in a high level technique that for example, may show one major displacement, however once the detailed mapping results are reviewed in the same area this major structure may actually be a number of small displacement faults that cumulatively add up to the displacement first indicated by the seismic.

As part of the duties of the mine geology team, mapping and monitoring of faults within the pit has been ongoing. As the mine has progressed a good understanding now exists of three faults. The following figure (Figure 5-15) is the in-pit structural map constructed by the mine geology team.



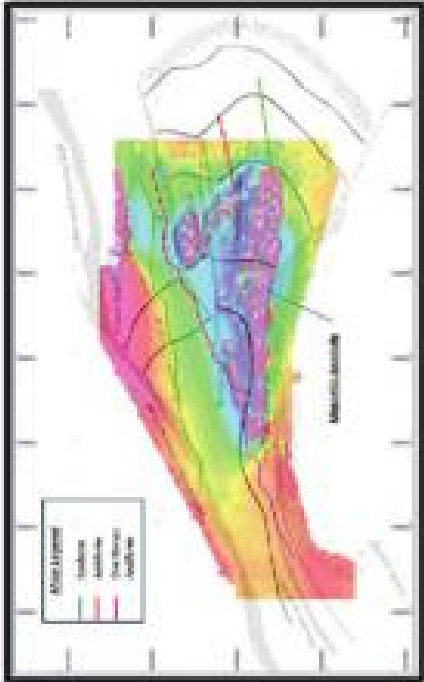
Source: Bang Myanmar LLC

Figure 5-15: UHG Mine Fault Map

5.6 Intrusives

The following paragraphs were taken from the UHG PORC (2004) Resource report June 2012:

There has been no evidence of volcanic dykes or sills within the coal measure recorded from surface mapping or boreholes. However, in early 2009 a magnetic survey was completed, which showed numerous magnetic anomalies (refer Figure 5-16).



Source: Bang Myanmar LLC

Figure 5-16: Magnetic anomaly map

As recent work was completed with drilling and mining, it is now thought that this magnetic anomaly is associated with hot magnetic hydrothermal fluids from either underlying volcanic rocks probably from the older Dailian Caves formation or the result of major crustal movement along the basement decollement plane and resulting tectonic ramp thrusts into the coal measure or both. These fluids are strongly magnetic (ferrous sulfides at present). They appear to leach rocks to a red colour and where intercept coal have burnt it, depositing a residue of Siderite clay or what is known as Poreclay (refer Figure 5-17).

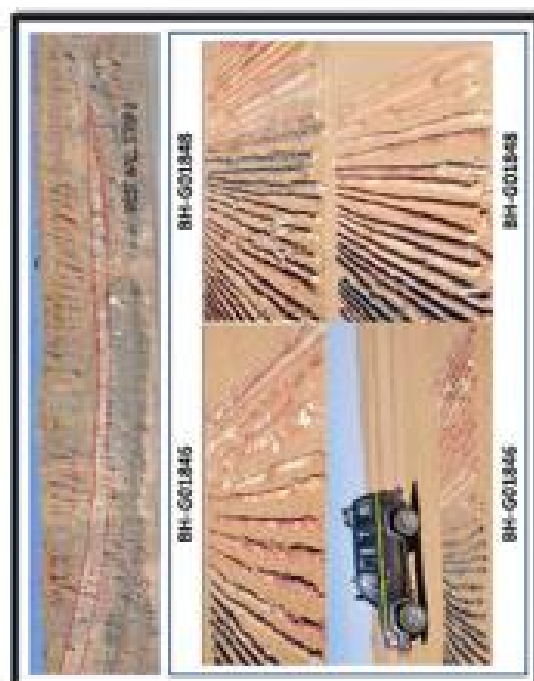


Figure 4-17: Hydrothermal leaching - first day

1

The magnetic anomaly appears to be confined to the shallow elevations of the coal measure (refer Table 3-3). Beneath that have intersected this anomaly can be observed in Table 3-3. Other effects on the coal are still under investigation but at this time it is not thought that these magnetic hydrothermal fluids have had a great effect.

Since finding the fireclay material an investigation was completed to determine the results of exploiting the fireclay as an industrial mineral in ceramics. A number of toothbrushes were sampled where fireclay was incorporated. These results were analyzed for the content of clay minerals.

The samples were determined to have approximately 10% of Al₂O₃, which compared well with commercial ceramic clays. With more detailed pit sampling and further sampling, it was determined that the material was too inconsistent to separate out by manual sorting and would impact severely in the coal mining operation.

Thus, in combination with there being no nearby customers, has resulted in the idea of selling of the diversity for commercial means has been (for now) abandoned.

Table 6.3: List of superheaters which have intersected the magnetic anomaly

[illegible]

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5.7 Coal quality

The following sections describe how the 2005 (2013) (2006) Standard Access Agreement 2013. The majority of observations have not changed and are still correct.

5.7.1 Assembly Hierarchy

The primary colliery coal seam considered for mining at 2005 are zones C2, A, 4, 8 and A. Of these, zones 3 and 4 are the developed, thickest and most continuous and contain substantial portions of the coking coal resource within the domain. These two zones, particularly zone A, were targeted for production early in the mine development. Zones 3 and 4 contribute to the majority of the currently identified coking coal resources in the western half of the property. The remaining areas contain little to no resource suitable for thermal power generation, or possibly as various types of blended colliery products (coking). Table 5.7.1 shows the seam hierarchy and basic seam statistics within C2/A2. A list of descriptions of these 13 seam groupings follows.

The mining conventional adopted for the seam groups stems from the depth and width above by the description of seam zones. However, with modern exploration techniques for these much more encompassing when point gate and merge regularly a more different mining system was adopted. The current program, that was based on a pit design, which is the most basic component of a coal seam. In addition, all the pit design were based and named. All previous work was reconsidered using the system (Appendix B). The database contains 30 basic pits and 45 pits that when merge and split make up 133 seams. The seam names summarised for the reports in the pit design pit 113, where C2A, A1, C2A2 are merged the resulting seam named will be C2A1/C2A2.

5.7.1.1 Seam Group 1

This group consists of first order pit 44, which is made up of 3 second order pits, first order pit 103, which is made up of 3 second order pits, first order pit 40, which is made up of 2 second order pits and third order pits.

It is continuous over most of the deposit and acts as a good marker for the bottom of the coal resource. It splits in the south-east and north-east of the deposit. C2 is continuous over the majority of the eastern and south-eastern parts of the deposit, splitting centrally to the north and west. C2 is very continuous with a very strong, moderately poor moderately negative bedding it may be sub-0.5, C2 is recognised by 2 second order pits, C2C1 and C2C2. C2C2 is continuous over the majority of the deposit only splitting into 2 first order pits in the pit 103 of the deposit. The C2C1 for most of the deposit is a series of thin coal bands, which develop in the west as a thick coal seam in the east the C2C1 pit continuing with the floor of C2C2.

C2, C2C1 and C2C2 were logged with mostly dark to some moderately bright lithology. However, considering the pit design as mostly thermal coal, which would be consistent with current findings. C2C2 was logged as moderately bright and was considered by Merwin as a lower coking coal, which is consistent with current findings. This pit is long, narrow and blends with seam groups 3 and 4 and needed to produce a hard coking coal product. C2, C2C1 and C2C2 have yet to be exploited.

At the time of writing this report C2, C2C1 and C2C2 remain yet to be exploited.

5.7.1.2 Seam Group 2

These seam pits were not really used for anthropogenic purposes. They are somewhat discontinuous and mainly non-coking, although in some areas where the seam groups merge, they are economic. They are mostly very continuous layers of variable thickness.

5.7.1.3 Seam Group 3

This group has 3 second order pits and splits centrally on the deposit to the west. At the east where pit 3 pits are merged the corresponding seam is well developed, continuous and of high quality. The seam, where considered, was logged with very bright lithology and had a very strong, moderately good moderately negative bedding it may be slightly. However, has identified this seam as one of the more hard coking seams and had the target seam to split the coal mine in April 2009. This seam was mostly named and sold as some hard coking coal (higher rank) and considered being named and was blended with other lower quality seams before washing to produce a hard coking coal product.

5.7.1.4 Seam Group 4

This group consists of first order pit 44, which is made up of 3 second order pits, first order pit 44C1 and 44C2, which only zone in the west of the deposit, first order pit 44, which is continuous over most of the deposit, but degraded into a carbonaceous deposit in the south-east and first order pit 40, which is continuous over most of the deposit, but from this to the west there is a small high rank development in the east.

44 is similar to seam group 3, in as much as in the west the 44 pits are continuous and form a well-developed seam, but some split, degraded in some thickness and quality. 44C2 appears to develop from carbonaceous layers starting in the eastern part of the deposit and after several north-west along dip and strike in the west the seam develops into a moderately thick seam. 44C2 develops close to the floor of the 44 pit forming in the central part of the deposit. It is mostly a similar horizon and is not economic. The pits 44C1 and 44C2 are very continuous throughout the deposit and merge into one thick seam (C2A1) in the south-east. C2 also produced a very good marker for seams. Where pits 44 and 44C2 are merged the resulting seams and directly adjacent regions are strongly recognizable.

Zone 44 where the second order pits have remained was logged with very bright lithology and was identified by Merwin as a good coking coal seam, which is consistent with current findings. This seam was mainly named and sold as C2A1 hard coking coal (higher rank) and considered being named and was blended with other lower quality lithologies before washing to produce a hard coking coal product. C2 is generally dark with some brighter levels. The pit has some coking properties and is generally being blended with other coking seams and seams to be sold as a blended hard coking product. C2 is a very brightly bedded coal and was identified by Merwin as a good hard coking coal pit, which is consistent with current findings. This pit is long, narrow and blends with other lower quality seams before washing to produce a hard coking coal product.

5.7.1.5 Seam Group 5

Zone 5 is quite variable in its development and distribution. It occurs as a small order split. The pits produce through the central parts of the deposit to economic

4.7.2 Coal Quality

This section was prepared by Mrs Auliya under the guidance and instructions of the Competent Person and Mr Ballentine. Acknowledgement should be made for the work Mr Andrew Proctorus completed for the June 2012 ANMC (2014) Resource report, of which this section has mostly been updated.

4.7.2.1 Database

The following Excel file contained the original analytical database and was used for this discussion of the coal quality on a sample basis:

- 'UHO_WSM Coal Quality_141121' contains three datasets, 36,139 ply samples from ER and ALS data, 381 ply samples from SCOS data and 108 ply samples from the VUHDN data.

A few corrections were made to benchside and sample numbers as requested by Mr Ballentine. Laboratory certificates can be found for the 'UHO_WSM Coal Quality_141121' data in Appendix 3. No laboratory certificates were supplied with the Norwest reports, only soft copy Excel spreadsheets. Hard copy reports from the Mongolian-Russian work are in Appendix 5.

The number of samples and the available laboratory determined analytical results are summarised in Table 4-6.

Table 4-6: Summary of the analytical database.

Type	Number	%
Total number of ply samples	37,540	100
True relative density	33,903	90.3
Total moisture	34,267	91.3
Air-dry moisture	37,410	99.3
Ash	37,054	99.3
Volatile matter	36,040	96.3
Calorific value	27,377	74.5
Total sulphur	34,376	91.6
CSN	29,699	79.3
Chinese G Index	1,599	4.3
Composite CSN	29,699	91.3
Composite Chinese G Index	19,317	51.3
Phosphorus	1,294	3.4

Figure Adapt

In addition to the ply samples mentioned in Table 5-5 a further 29,699 composite samples were analysed for CSN and 19,317 composite samples were analysed for the Chinese G Index.

The objective of this section of the report is to give an overview of the coal quality database with general remarks regarding coal quality characteristics. This is on a sample basis and the methodology used to estimate mining values in order to provide a full set of analytical data for each of the 37,540 samples. This approach maximises the use of the coal quality data and ensures that a full coal quality data set is available at each point of observation, which is used for estimating the coal resource and coal quality. Estimating mining values did not include CSN and Chinese G Index.

For additional coal quality information in particular washability results, the reader is referred to the 'Norwest Corporation Uthman Khuday Technical Report: Geology and Coal Resources and the Addendum to Uthman Khuday Technical Report: Final Model and Resources (2008)'.

The sampling procedure for the ER and ALS data required that in-situ rock partings were not included with coal samples, but sampled separately. The procedure also required sampling of the immediate roof and floor of each coal seam and it must be noted that the analytical data includes a relatively large number of separate rock sample analyses. These in-situ partings and roof and floor samples were generally only analysed for relative density, ash, moisture and total sulphur.

The three data sets were compared by means of a number of cross plots shown in Figures 5-18 to 5-22.

Figure 5-18 shows that for most of the 37,540 samples the air-dry moisture is less than 4 percent, and the total moisture is less than about 1.5 percent. Figure 5-19 also shows a number of values outside the ranges mentioned, but in relation to the total population, it is a small percentage. Samples analysed at the VUHDN laboratory do not include total moisture determinations.

Figure 5-19 shows the relationship between ash and true relative density for the three data sets. The ER and ALS data shows greater variations in relative density than the SCOS data. The SCOS data shows a much better correlation between ash and relative density. Both the ER and ALS data shows samples with a higher than expected density. The ER data shows a number of anomalous relative density values that are less than expected for ash values greater than 50 percent.

In Figure 5-20 the relationship between ash and volatile matter shows large variations in volatile matter. The variability of volatiles will be discussed in more detail later in this section of the report. Samples analysed at the VUHDN laboratory do not include volatile matter determinations. The SCOS data suggests that the volatile matter was estimated from a linear relationship between ash and volatile matter. Again, the ER data shows a number of high volatile matter values for ash values greater than about 40 percent. This observation illustrates the problem of proximate composition determinations on non-coal samples.

Figure 5-21 shows the relationship between ash and calorific value. The data shows a good correlation between these two parameters. However, a number of samples show anomalous high calorific values. As a percentage of the total population the number are relatively small. A greater number of samples show low calorific values in relation to the ash content and could be indicative of some degree of weathering.

Figure 5-22 shows the relationship between ash and total sulphur. The differences between the data sets are probably a result of different methods for the determination of total sulphur. The VUEEN data shows very low sulphur values, generally less than about 1.5 percent. The AL3 data shows slightly higher sulphur, up to about 2.5 percent with some scattered higher values. The AL2.5 data shows a maximum of 4 percent sulphur. The ER data generally shows sulphur values less than 4 percent for the low ash samples, and generally less than about 2.5 percent for the high ash samples. The ER data also shows number of samples with much higher sulphur values.

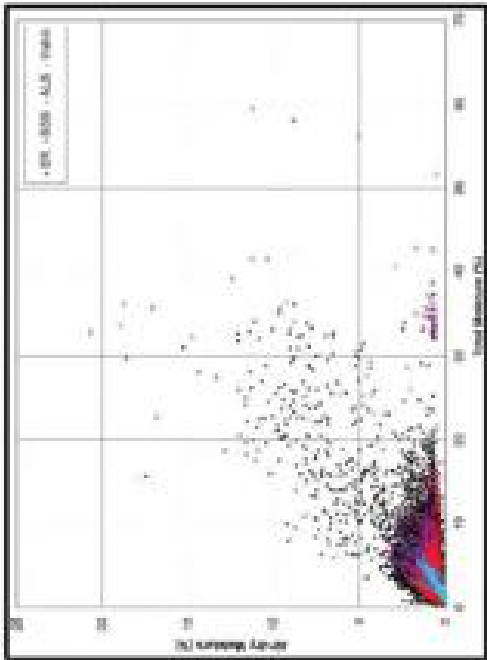


Figure 5-18: Relationship between total moisture and air-dry moisture.

Source: Adjust

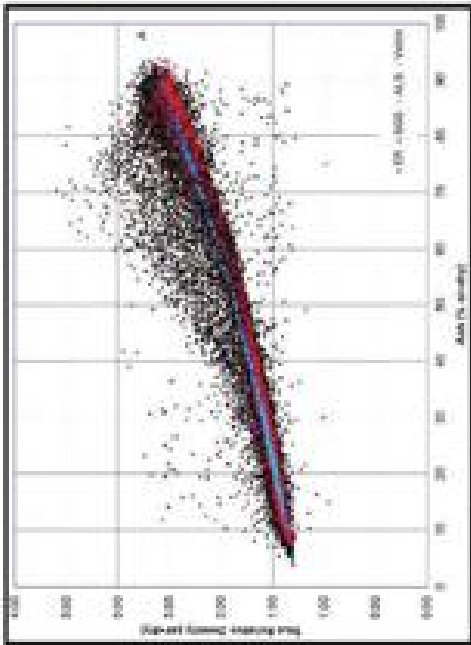


Figure 5-19: Relationship between ash and true relative density.

Source: Adjust

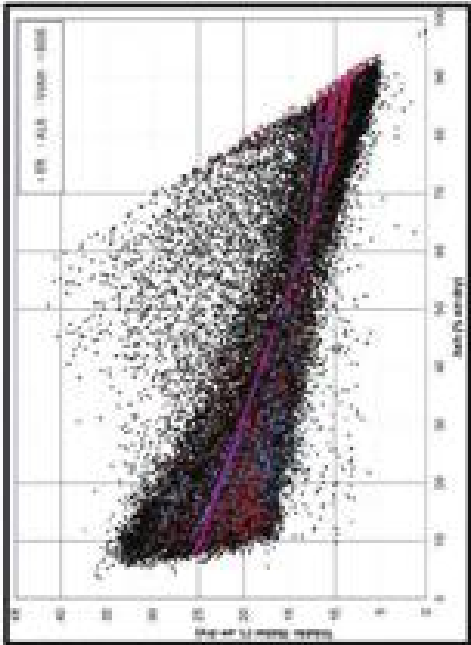


Figure 5-20: Relationship between ash and volatile matter.

Source: Adjust

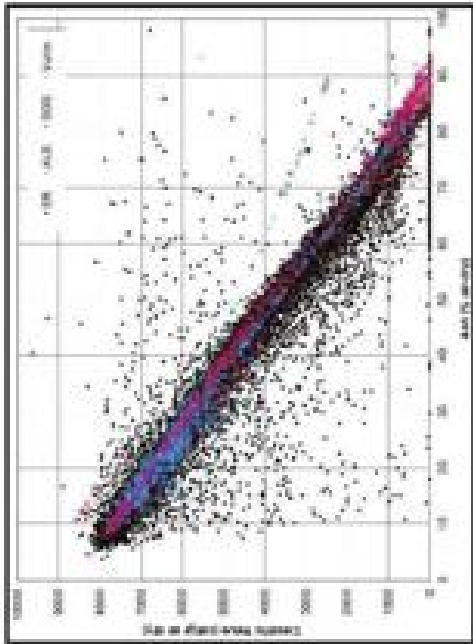


Figure 5-21: Relationship between ash and calorific value.

(Source: Adipal)

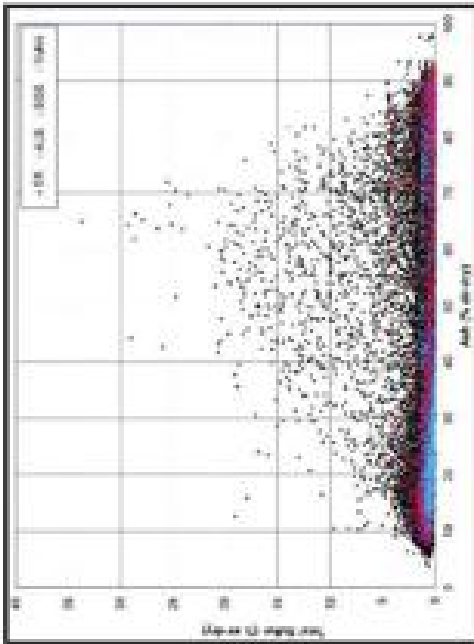


Figure 5-22: Relationship between ash and total sulphur.

(Source: Adipal)

The ER and ALS data comprises the bulk of the available analytical data and from the comparison of the three data sets it was noted that the variations in the ER and ALS data was not greater than any differences between the three data sets. For this resource estimate the three datasets are combined into one database.

5.2.2.2 Variability of the volatile matter

The relationship between the average ash (air-dry) and average volatile matter (air-dry) for each of the coal seams is illustrated in Figure 5-23. Only coal samples with less than 50 percent ash (dry basis) were selected for the data plot in Figure 5-23.

Figure 5-23 shows that the average volatile matter values for the lower seam groups, seams 0A to 6CU and 6, are less than 20 percent. The average volatile matter values for the middle seams, seams 3A to 7 (excluding 6) are in the range 20-25 percent volatile matter. The upper seams, seams 8 through 12 have the highest average volatile matter values, which are above 24 percent volatile matter.

Based on the above observations regarding the variability of the volatile matter (Figures 5-20 and 5-23) it was decided to do the regressions and estimates of analytical data on a seam by seam basis, rather than just one data set and cost out of regressions applicable for the whole deposit.

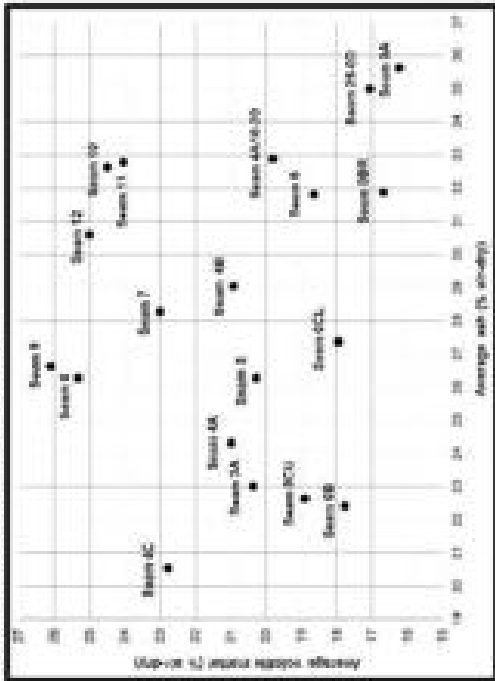


Figure 5-23: Relationship between ash and volatile matter on a seam basis.

(Source: Adipal)

It has been noted in the cores that there is evidence of hydrothermal rock alteration and it is possible that some of the coal of this deposit shows the effects of heat alteration or devolatilisation.

In South Africa, coal geologists generally accept that coal that has been affected by the heat from nearby dolerite intrusions, will have dry, ash-free volatile matter content less than about 25 percent.

When the 25 percent dry, ash-free rule was applied to the coal samples from this deposit, it was noted that most of the coal samples in boreholes were either above or below 25 percent dry, ash-free volatile matter and that boreholes with mixed results were in the minority. If these assumptions are valid, it appears as if the coal has been affected by a heat source situated below the coal seams resulting in a lower volatile matter in the lower coal seams and the higher volatile matter in the upper coal seams, as shown in Figure 5-23. The resulting devolatilisation of the coal also has a lateral component with the coal in the eastern portion of the deposit devolatilised and the coal in the western portion of the deposit not affected as shown in Figure 5-24.

The diagram in Figure 5-24 showing the lateral variability of the volatile matter on a dry, ash-free basis was constructed as follows:

The number of coal samples (less than 33 percent ash) collected from all seams intercepted, were determined for each borehole. The number of samples with less and with more than 25 percent dry, ash-free volatile matter was determined for each borehole. The boreholes were then classified as follows:

- If more than 70 percent of the coal samples had more than 25 percent dry, ash-free volatile matter, the borehole was considered not to be affected by devolatilisation.
- If more than 70 percent of the coal samples had less than 25 percent dry, ash-free volatile matter, the borehole was considered to be affected by devolatilisation.
- The remainder of the boreholes were considered to be in a transition zone between affected and non-affected coal.

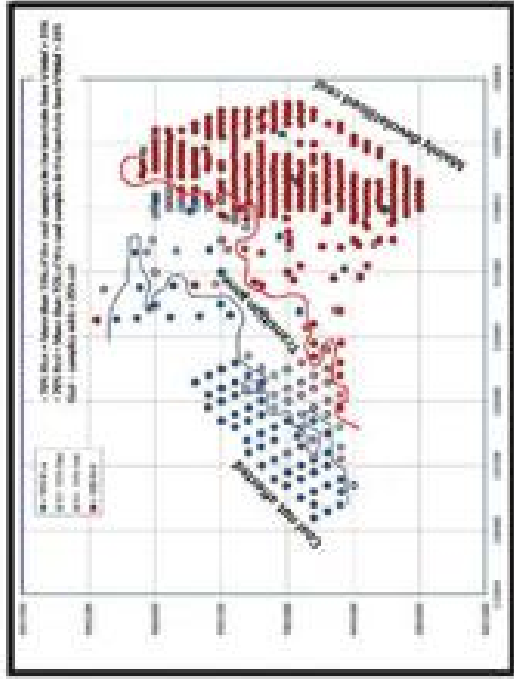


Figure 5-24: Areas of un-affected coal and devolatilised coal.

Shawn Robinson

A similar exercise was completed for Seams 4C in which the areas of un-affected and devolatilised coal of Seams 4C were identified.

The upper map in Figure 5-25 shows the areas of un-affected and devolatilised coal (Figure 5-24) superimposed on the regional structure of the area. The lower map shows the same distribution of un-affected and devolatilised coal, but only for seam 4C.

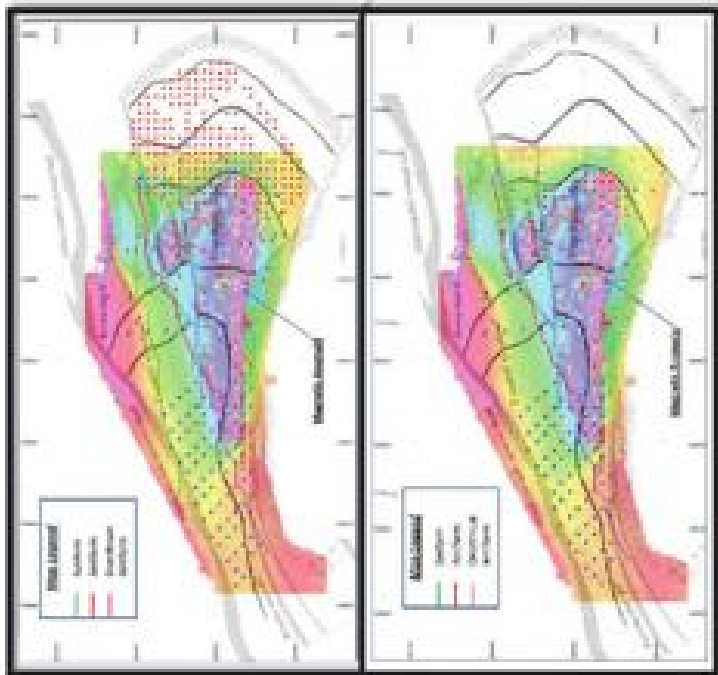


Figure 5-25: Structure and areas of devolatilisation. All coal seams in the upper map and Seam 4C in the lower map.

Source: Energy Resources Ltd

Both maps show an area of un-affected coal in the western portion of the deposit and an area of devolatilised coal in the eastern portion of the deposit separated by a transition area.

It is also noted (especially in the upper map of Figure 5-25) that the transition zone in volatile matter content coincide with the position of a major structure, the over thrust

uniform and the stratiform indicated by the pink and red line, which can be traced from the south-western to the north-eastern extent of the coal deposit.

It was recommended in the previous JORC (2004) Resource report issued June 2012 that the vertical and lateral components of the variable volatile matter and its relationship to the structure of the deposit be investigated in more detail. From the mine geology team's observations in the pit and during mining the conclusion is there is a direct relationship with complex structure and rank hence, volatile matter (dry ash free).

The above finding was made in the June 2012 JORC (2004) Resource report, and was strongly recommended to use in the 'dry to dry' mine geology tasks. This recommendation was implemented and has been a critical factor in mining selective blocks based on coal rank to define the end product. Figure 5-26 shows the resulting model based on volatile matter (dry ash free), used as a result of detailed in-pit sampling prior to mining for the seam 4C.

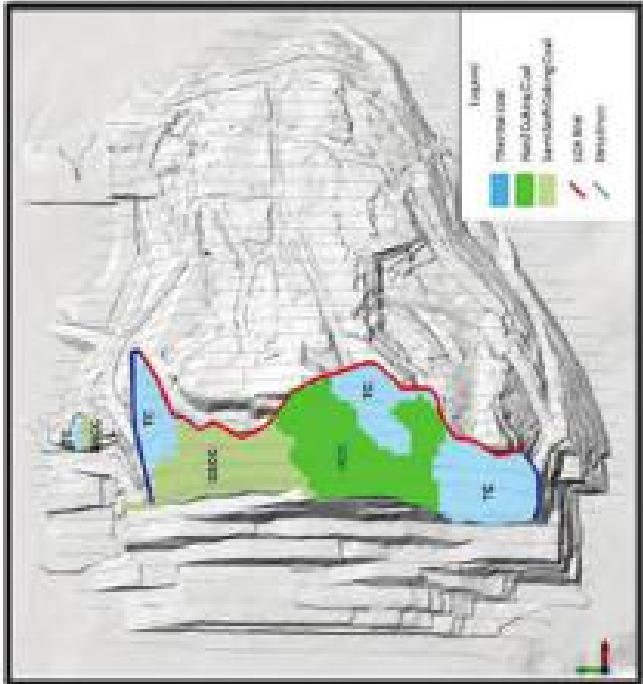


Figure 5-26: Product definition for Seam 4C from detailed in-pit sampling

Source: Energy Resources Ltd

3.2.2.1. Rank of the coal

The ASTM classification of coal is rank based, where the fixed carbon content on a dry mineral matter free basis and the volatile value is the basis for a coal's mineral matter free basis. This classification uses the bed moisture content of the coal, which includes the moisture of the coal and water in solid matter on the surface of the coal. It is accepted that the total moisture content reported for samples from the deposit is similar to the bed moisture, thus the rank of the coal (the dry 45 percent ash) can be estimated according to the ASTM classification as shown in Figure 3.22.

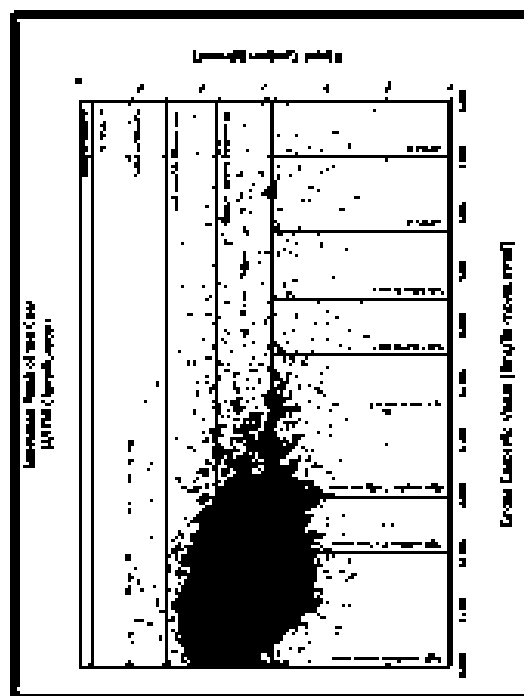


Figure 3.22 The ASTM classification of the coal based on rank.

Source: ASTM

The diagram in Figure 3.22 is in accordance with the widely used ASTM solid matter free-based method. According to the rank estimate shown in Figure 3.22, the coal is classified as ranging from high volatile (A) (between 10 to 15 volatile bituminous coal) with most samples in the medium volatile bituminous group.

3.2.2.2. Regression for rank to estimate moisture and quality data

As mentioned earlier, regression formulas were developed for a series of years from 1991 due to the variation in the volatile matter of the coal as shown in Figure 3.23. As an example of the method of formulae developed, Figure 3.24 through Figure 3.26 shows the Moisture level (moisture and hydrogen) for year 2003, which is the year with the most samples. Linear graphs and relationships were developed for the samples of the coal series and the moisture formulae for the coal quality parameters on a semi bituminous basis are listed in Table 3.6 and a full set of the formulae is on a semi bituminous basis and for each coal quality parameter is shown in Appendix C.

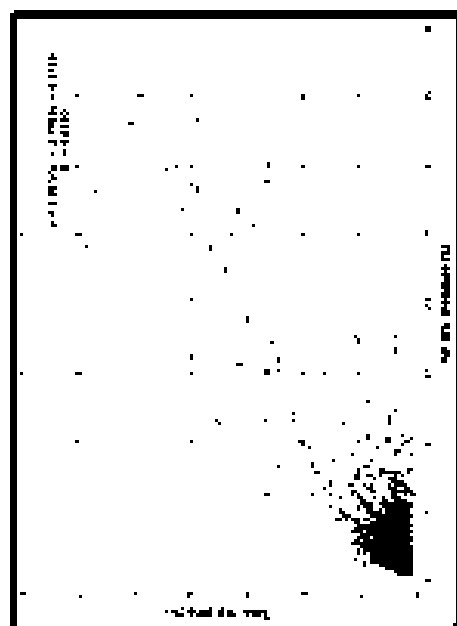


Figure 3.23 Relationship between primary moisture and total moisture for 2003

Source: Data

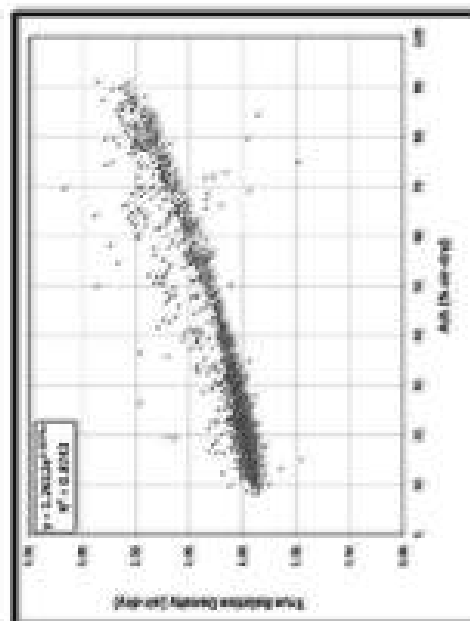


Figure 5-29: Relationship between ash and true relative density for Seam OCU.

(Name added)

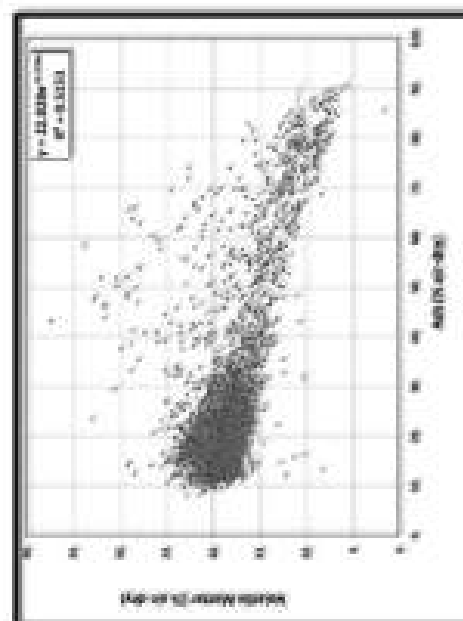


Figure 5-30: Relationship between ash and volatile matter for Seam OCU.

(Name added)

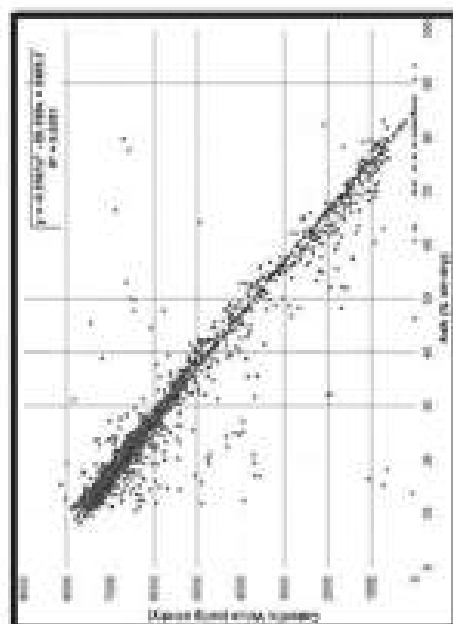


Figure 5-31: Relationship between ash and calorific value for Seam OCU.

(Name added)

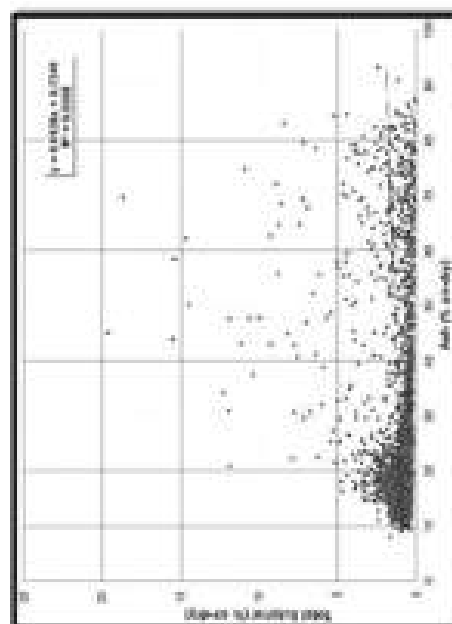


Figure 5-32: Relationship between ash and sulphur for Seam OCU.

(Name added)

[illegible]

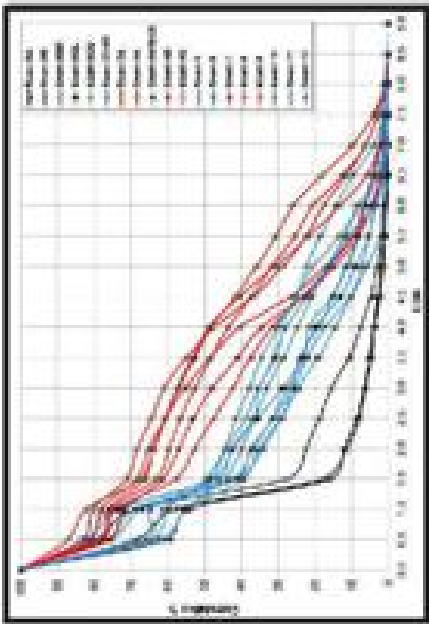
$\text{Zval} = 0.6697 \times 10^{-1} \times 0.0000000000000000$	$\text{R1} = 0.1458$
Scen 00A	
$\text{Zval} = 1.2650 \times 10^{-1} \times 0.0000000000000000$	$\text{R2} = 0.0744$
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.2012$
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$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0472$
Scen 00B	
$\text{Zval} = 1.9474 \times 10^{-1} \times 0.0000000000000000$	$\text{R2} = 0.0152$
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.1748$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.0425$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.0848$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0360$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0258$
Scen 00C	
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.0404$
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.7458$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.7664$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.0752$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0247$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.1138$
Scen 00D (Scenario plot)	
$\text{Zval} = 2.0000 \times 10^{-1} \times 0.0000000000000000$	$\text{R2} = 0.0743$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.0003$
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.5836$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.5151$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.8281$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0288$
Scen 00E	
$\text{Zval} = 1.5477 \times 10^{-1} \times 0.0000000000000000$	$\text{R2} = 0.0842$
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0851$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.4153$
$\text{Vval} = 24.2057 \times 10^{-1} \times 0.0000000000000000$	$\text{R2} = 0.7382$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0441$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0007$
Scen 00F	
$\text{V1} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.3908$
$\text{Vval} = 0.0000000000000000000000000000000000$	$\text{R1} = 0.0817$
$\text{Zval} = 0.0000000000000000000000000000000000$	$\text{R2} = 0.1018$

Table 5-48: Cumulative percentage distribution of CSM values.

CSM value	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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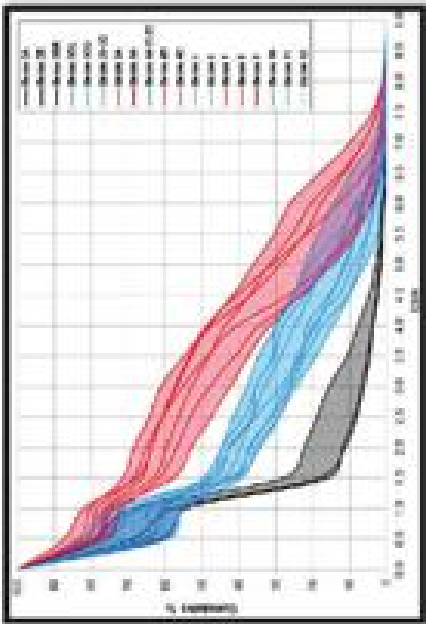
Source: Adapted

Figure 5-34 shows the three groups of seams based on their potential for coking coal. Note the overlap between the group with high potential and the group with medium potential for coking coal with CSM values equal to or greater than 4.



Source: Adapted

Figure 5-33: Cumulative percentage distribution of CSM values.



Source: Adapted

Figure 5-34: Three groups of seams according to CSM distributions.

The previous discussion of the variability of the volatile matter included Figure 5-23, which shows the relationship between ash and volatile matter on a seam by seam basis. The following diagram in Figure 5-35 combines the ash/volatile relationships of the individual seams with the CSM distributions of the individual seams.

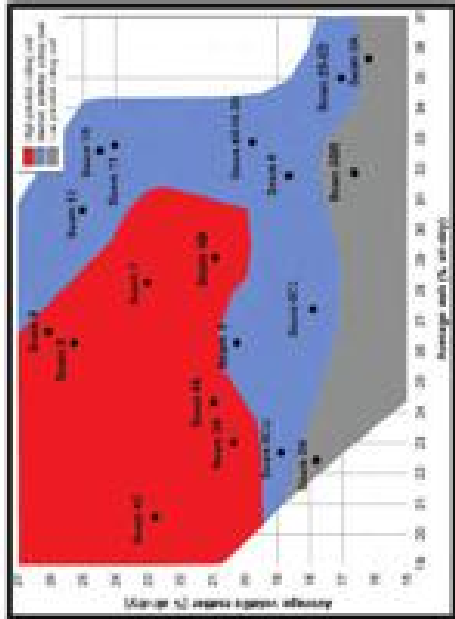


Figure 5-35: Ranking of the coal seams according to coking coal potential.

From report

Based on the discussion above, the coking potential of the coal seams are as follows (note: all below coal qualities are RAW coal qualities):

- Seams 0A, 0B and 01R have very low CSN values, most likely with low or no potential for coking coal. These seams are grouped together as a group of seams with no or little potential for coking coal. There is a wide range in ash content between 22 and 36 percent, and the volatile matter of this group is less than about 18 percent.
- Seams 3A, 4A and 4C have high percentages of high CSN values and are most likely the best coking seams of the deposit with ash between 20 and 24 percent, and volatile matter between 26 and 23 percent. These seams have the best potential for coking coal. Seam 4B in this group has a higher ash content of about 29 percent. Although Seams 7, 8 and 9 also show high percentages of high CSN values, the volatile matter is 26 percent and greater, so it is possible that these seams have a potential for soft coking coal rather than for hard coking coal.
- Seams 0CU, 0CL, 2A-0D, 4A10-20, 5, 6, 10, 11 and 12 forms a transition group of seams with a possible potential for coking coal. The ash content of these seams are also in the 22 to 35 percent range, but the volatile matter of seams 0CU, 0CL, 4A10-20, 5, 6 and 12-0D have less than 20 percent volatile matter and Seams 10, 11 and 12 have more than 24 percent volatile matter.

The reader is also referred to the work by Norwest in correlating CSN values with ash content. It must be emphasised that the CSN determinations were done on RAW coal and that the relationships discussed in this report might vary for washed coal.

5.7.2.8 Washability and Coke testing

For the previous Resources report 2012, Norwest had completed some washability and coke test work which formed the basis of the current CHRP design. It was recommended in this report that further work should be completed.

As recommended, a number of large diameter borehole samples were taken of the currently mined seams and were compared with the original Norwest results. This information is shown below in Table 5-9.

Table 5-9: Comparison of Bore sample Coke Tests

SEAM	SEAM NO.	Subsided March 2009				B4 August 2012			
		Sample	Maximum	CSN	CHP	Sample	Maximum	CSN	CHP
0C	04-2	64.2	32.5	60.5	25.3	86.0	34	27.1	65.0
1A	34-1	82.5	38.8	64.8	28.4	85.0	35	29.4	66.2
4B	36-1	68.2	29.9	60.4	24.1	82.0	32	26.5	61.5
4C	34-2	52.4	23.2	60.3	25.3	83.2	34	34.0	52.8
8	01-6	52.4	24.2	39.5	40.0				
9	01-0	51.5	24.0	40.4	40.0				

CSN and CHP between the 2 sets of data compare relatively well, except for seam 4C showing some downward change. It has been mentioned in the above sections, rank of the coal is variable, so individual results can also be expected to be variable.

With the CHRP and mining at UHG now having been active for some years, actual typical washed coal results can be reported. Table 5-10 shows some typical average CHRP washed coal results.

Table 5-10: Typical average CHRP washed coal product results

Seam	Product	Total (%)	CHP	CSN	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP	CHP
0C	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0B	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
0C	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Product	65.0	15	60	4.5	6.0	21.0	2.0	20.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

The hard coking coal product that UHG produces has had very good market acceptance from China, Japan and Germany. Table 5-11 shows a typical multi-laboratory testing with customer specifications acceptance that the UHG products undergo upon sale.

Table 5-41: Typical product testing prior to acceptance

Coal type	Company	Tested Lab	Quality	T	Mo	A4	VMd	A1	GR
<C	Chengde	Chengde	200	10	8.5	12.53	4.55	63.7	
			86	10	8.5	12.5	24.49	0.57	87
<C	Chengde	Chengde	200	2.15	10.2	11.1	5.05	52.7	
			87	10	8.5	12.48	24.4	0.58	87
<C	Chengde	Chengde	200	2.15	10.2	11.1	5.05	52.7	
			87	10	7.5	12.45	24.49	0.58	87.24

Further bulk sample work is recommended for the western area yet to be mined seams, for weatherability and coke testing so a full understanding of how these seams behave so the current CIPF performance can be ascertained and viable saleable products can be determined and scheduled for the mining operation.

5.8 Outcrop, sub-crop and oxidation

The coking characteristics of a coking coal are very sensitive to oxidation and the coal will lose its coking propensity when the coal is even slightly oxidised as shown by the position of (A), the limit of oxidation (refer Figure 5-36). This point will be indicated by an increase in the moisture content and a sharp drop in the crushable swelling index (CSI) of the coal. In the case of a coking coal prospect, the depth of weathering at the limit of oxidation (LOX) would be (x) at a point (A) in the diagram.

In the transition zone the coal is only partially affected by weathering and most of the coal seam will still have its combustion properties (volatile matter) un-affected, but with a slightly higher moisture content and slightly weaker in its strength. A thermal coal is less sensitive to oxidation and it is expected that the depth of weathering shown as (y) will be less than the depth of weathering for a coking coal, which is (x) in the example.

Beyond point (B), in the shallow weathered zone, the weathered coal will be a dark soft clayey material with very high moisture and all its combustion properties destroyed by weathering.

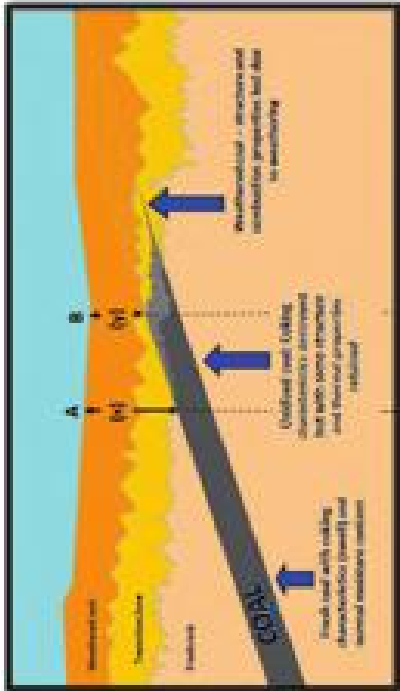


Figure 5-36: Determining Limits of weathering

(Source: Boller 2003)

Closely spaced openhole drilling was used to determine the zone of oxidation and weathering. For the drilling from 2009 to present, 0.2m chip samples were taken and tested for CSI. Where CSI had values above 1 and then dropped to zero, this was the depth defined as the base of oxidation for coking coal ('A' in Figure 5-36). Where the seam thickness has weathered to half the true thickness of the seam, this was defined as the base of weathering for coking coal ('B' in Figure 5-36). The coal between points 'A' and 'B' (Figure 5-36), was deemed as thermal coal and has been included as a Resource in the estimate.

Limit of oxidation (LOX) work has been completed for the immediate mining area for seam groups 0, 3, 4, 5 and 6 (refer Figure 3-37).

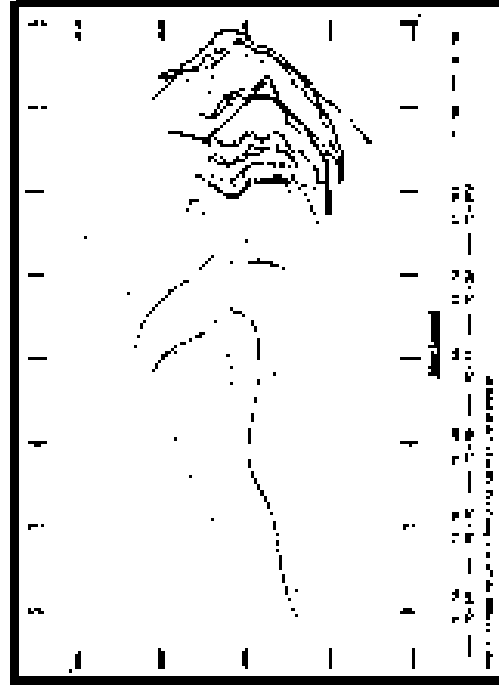


Figure 5-37 Current Limit of 15-Amps

22-5

from the base of webbing, with the following minimum, where 1.00, base = 0.00, determined the thermal conductivity was used and where where base had no 1.00 base determined as 0.00, then the base of webbing from the base of the base.

If it is recommended that 2.0% drilling is carried out as part of the ongoing exploration programme, an existing factor of safety of disturbed sampling of newly exposed seams should be compared to past values recorded in the last three planning cycles of all the boreholes available for use of monitoring, and the use of 'guard' boreholes, if necessary, is

ALFRED HENNING

[illegible]

the 1990s, the number of people in the world who are illiterate has increased from 1.2 billion to 1.5 billion. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015. The number of illiterate people in the world is expected to reach 1.7 billion by the year 2015.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

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 3. *What is the research design?*
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5.10 Geotechnical Issues

As part of the procedures adopted for JORC compliant data collection, all core was logged for mineral fractures including joints, bedding breaks, shear and faults (Refer Appendix 2 - Procedures). Rock samples were taken and kept air and water tight for future testing of major rock mass units. This data resides in the geological database.

Once mining began, AMC was commissioned to provide geotechnical consulting services at UIRG. The lead consultant working for AMC with ER is John Lattin. The following is a technical summary as at July 2014 from AMC, based upon the UIRG Mine Geotechnical Design Document (GD0) that is reproduced in full in Appendix 15.

5.10.1 Pit Slope Stability

Pit slope stability is chiefly impacted by the very complex geological structure. Secondary to the impact of structure is the rock mass strength, which is also generally weak, with a predominantly blocky fabric due to the folding and faulting common throughout the deposit. From a geotechnical perspective, the pit has been sub-divided into pit sectors as illustrated in Figure 5-38.

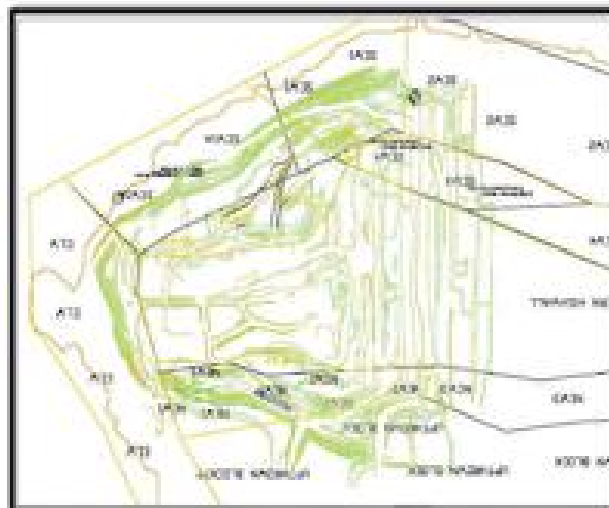


Figure 5-38: Revised geotechnical pit sectors (July 2014)

(Source: AMC Geotechnical)

5.10.1.1 Weathered Overburden

This 20 m to 30 m thick zone covers the whole mining area and is defined as the weathered material lying above the 'base of highly weathered overburden' line in the geological model. While traces of original rock structure are visible (e.g. bedding planes, jointing and faulting) the main failure mode is circular failure through the rock mass. Failure is mostly due to low rock strength and not structure.

It is possible to form very steep free-dig bottoms in the overburden but the steep bottom have a marked tendency to fail some time later. The slope design for the W/OB is mainly based on back analysis of circular failures.

5.10.1.2 Eastern Lowwall

The current low wall is non-permanent due to underlying seams still to be mined. It consists of weathered and moderately weathered overburden and the strata dips into the pit by about 5°. Eventually the low wall is planned to reach a depth of about 75 m.

5.10.1.3 Western Highwall

The western highwall is the chief coal producing area of the pit and is planned to reach a depth of 167 m by the end of 2014. The upper 20 m or so is highly weathered and below this the strata is slightly weathered for a further 10 m to 15 m. The coal seams generally dip into the face by between 3° and 17° although dips less than 6° are by far the most common.

While in-pit dumping is not planned in the short term, it will require investigation at some stage in future.

Faulting is not as common as it is on the eastwall but zones of thrust faulting and folding are present.

The present advancing highwall incorporates the western highwall and SEWA pit sectors. SEWA pit sector is described in the southern eastern part of this summary.

5.10.1.4 Northern Highwall

Lies outside the current planned (2014) mining area.

This pit sector is relatively narrow in the N-S direction and longer E-W. The strata dip steeply by 17° to 30° towards the north. Mining this area towards the north would result in the strata dipping into the slope. However, very steep pit floors would result and may need special treatment, especially if in-pit dumping is planned.

5.10.1.5 Northern Endwall

- NEW1

Northern End Wall 1 (NEW1): This temporary end wall runs parallel with fault zone which separates the main pit area from the upstream block along the northern flank of the reserves. It is currently the existing northern end wall and is characterised by coal seams dipping into the pit (to the north) by up to 10°. The strata dip out of the endwall and into the pit by roughly 5 to 10° and folding and thrust faulting has been observed in the sidewalls of the ramp. Slope failures have occurred towards the eastern end along a bedding plane close to the no 3A seam as well as along a fault zone at the switchback. In addition slope movement has been experienced beneath

the deposits either during 2013 and this was managed by better blinding and reducing total nitrogen.

• 30793

Low outside the current planned (2014) mining area.

This and 30792 were parallel with a set of beds with associated stream and deeper weathering which descends the northern flank of the pit. It is not being mined currently.

Building and house building is expected in this sector and it is likely that a significant portion of the coal will be left over will be formed within limited ground. Strata dip is expected to be quite flat at around 30 (perhaps), dipping out of the slope.

• 30793

This temporary natural river parallel with the river which separates the main pit and from the up stream block along the northern flank of the reservoir. It is to the west of the existing reservoir and will area (30791) and is characterized by coal seams dipping into the pit for the north by up to 10° and a limited area with relatively high enough and shallow.

• 30794

Low outside the current planned (2014) mining area.

This natural water flow for the west of 30793 and river parallel with a set of beds with associated stream and deeper weathering which descends the northern flank of the pit. It is not being mined currently. The water is characterized by coal seams dipping to the north by between 15° and 20° but the predominant river dip is between 30° and 35° and this might account for 10 percent of the area.

• 30795

Low outside the current planned (2014) mining area.

The stream in this well area features a system adjacent to a fault which dips steeply towards the pit. The slope for is proposed to be formed on the left hand of the position and south of the slope features building dipping steeply into the pit adjacent to the fault.

3079.1.0. Approximate Area

The system block lies between pit sectors 30791 / 30793 and 30791 / 30794 (between various faults A and B in the geological model). It is an area of relatively shallow dipping coal seams which lie at a higher elevation to the 30791 area. The coal seams have the appearance of a different block when viewed in a roughly N-S orientation.

The slope behaviour is dependent on the direction in which this block is mined.

In the event that it is mined from East to West the slope should be similar to the 30791 pit area. The mining block will be separated from the existing pit by the

separately and with sectors 30793 and 30794 but in this case the slope orientation through 30791 and 30793 will be roughly N-S.

If the reservoir are mined from South to North as a series of sub-sectors the area will dip out of the pit wall by around 15° to 10° as pit sector 30791 is approached. This configuration is similar to 30792 and 30793.

A relatively small area has been mined in this pit sector to date and it is located between the 307 and 30791 sample along the northern sector and for a distance of about 300m along the 307 range.

3079.1.7. Reservoir Block

• 30793 A

This material is up to 40m in height and runs parallel to the bedding which descends to the southern flank of the pit. This area dips out of the slope and into the pit by up to 10°. This well is highly to moderately weathered right down to, such as shown in the 307 area section. A major slope failure occurred in July 2013 due to slippage along bedding plane which coincided with the 30731 zone. High shear vibration levels are thought to have triggered the slippage along the bedding planes in this instance.

Inter-sect measurements and recommendations have been made for the recovery of coal around the major failure zone.

• 30793

This well is currently around 110m in height at its deepest point and generally runs parallel to the bedding which descends the southern flank of the pit. It is close to the boundary fault) the well is formed within the steeply dipping (30°) but has a high degree of variation elsewhere, the coal bedding seems dip into the pit by around 10° to 15° and significant areas of bedding plane fault lines are present. Occasional dips of have occurred in the past in the weathered overburden due to movement along bedding planes as well as subsidence along jointing.

• 30793

The well has only recently mined this pit sector where the steep dip is expected to be up to 10° into the pit to the south of the boundary fault.

The faulted zone itself is expected to have variable rock strength and structure and will form a significant proportion of the material.

• 30793

Low outside the current planned (2014) mining area.

This central sector has yet to be mined by the pit. 30791 dip is expected to be nearly in the range of 20° to 30° for around 100m of dip and well slope in this sector.

• 30794

This pit sector consists of a faulted area with a further area of relatively undisturbed ground to the south of it. Presently it forms part of the sector higher up but there is potential for it to form a temporary sub-sector in the event that only the western higher up is required for mining at some stage in the future.

existing design across building into limited area which contains final limits and means measured at varying dips.

3.10.3 Observations

The position of the water level (natural and beneath the slope has previously not been very well defined at UH60. This is an important input for local erosion models and represents the correct elevation (natural water level) prior to dewatering. Currently, water levels have been above or coinciding large water level data from other bays followed by interpretation of the data. This large water level data has not been as comprehensively measured as previous reports and as a result the location of the OUD is still with a water-level below detail (bathymetry).

The location of the water level (natural surface) below the slope can have a significant effect on the slope design of safety (SOS) as is illustrated in Figure 3.10. For example, a slope may need to be fixed from this 2.1' water on the right or above but could be designed to cover 30' if the planar surface is shown back to 100 m behind the slope.

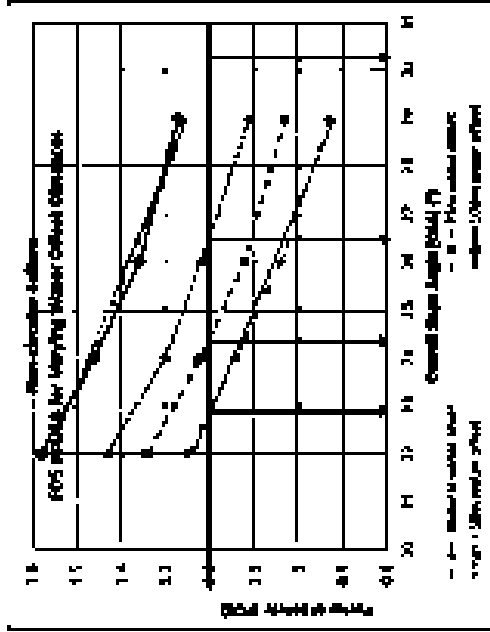


Figure 3.10: SOS vs. ODA for Water Level Effect

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3.10.3.1 Revised to the Water Level Model without Dewatering

Revised to the Water Level Model without Dewatering. The location of the water level (natural surface) below the slope can have a significant effect on the slope design of safety (SOS) as is illustrated in Figure 3.10. For example, a slope may need to be fixed from this 2.1' water on the right or above but could be designed to cover 30' if the planar surface is shown back to 100 m behind the slope.

The following simplified (generic) model for the depth of the water level is not water level is significant 4 m below slope on landform, 15 m below beach crest, 25 m below right side 1 m below the 100' of the pit.

3.10.3.2 Dewatering

A very important requirement is a review of the current dewatering program and where it may be possible to improve it to increase the water effect around the pit.

Three dewatering methods commonly used are: slope toe dewatering, horizontal dewatering, and vertical dewatering. It is likely that a combination of methods will be used within the UH60.

The current of natural drainage at UH60 is described as is indicated by the natural drainage from the UH60.

3.10.3.3 Water Elevation

Water elevation has been identified as being important to slope design along building planar surface at UH60 on both the North and South Road (UH60, 2008).

Water elevation is required, there is a very good case for reducing the PTV water level and possibly may be possible to improve the water level or building planar surface design (depth) and the pit level for the pit.

The varying conditions applied to various PTV conditions result in a wider range of results and the results are difficult to be used by the building designers. It may be better to model the PTV in design as changes in building as well as geological conditions between the water level and the area of interest and is very dependent on local conditions. A set of the specific conditions can only be derived from actual PTV values are measured in UH60.

The equation recommended by WYDOT at UH60 is described as the PTV for hydrological results in hydrological design.

$$PTV = 3 \times 1000 \times 1 \times 1$$

Where:

1.71 = Change weight per cubic foot

3 = Distance from water level to building planar surface of the water level

1.71 = Distance from water level to building planar surface of the water level

Water level is not used, have been used to determine the modified conditions for the equation proposed by WYDOT (2007) constant is used at -1.51. The PTV has been corrected distance (d) of 100 m, 200 m and 300 m was determined for both the UH60 and UH61. The distance between water level and weight per cubic foot is determined previously for both bays.

It was found that for the UH60 a value for UH60 (2007) PTV value is good agreement to the average values obtained at various distances from the land, the lower average values were obtained at UH60 values for both bays, the lower for the average values were found to be with a value of a 1.71 for constant 1.71 values at both bays, it is proposed that an average of these two values be used for the study 1.71. Other than the purchase of a photograph is placed in 2014, this photograph is used to produce a single (natural) and water level for use by the designers.

It is recommended that, in the location panel subcategory, data address also specific compliance to be (approximately) a modified version of specific proposed by Marine (2007) is used, and that the compliance is not in error at 1,400 and -1,50 respectively (modified liability).

4.10.6 Marine Dump Stability

Consistency of results in being placed on-pit and the design are required to be then with recommendations made by Marine. Prior to in full dumping filling plans extensive studies will be conducted to determine the likelihood of structural failure towards the in-pit design and to identify and other concerns.

Where dump design plan the system, a check-off distance between the planned final pit crest and the dump has been assigned to (only during 2014 and the results are included in the QED).

4.10.8 Mine Mapping

Monitoring data included part of the mine design process and includes the assessment of the stability of the slope and other design. In addition, it is also a vital tool from a mine safety perspective in identifying potential failure in an early stage thereby allowing mine and machinery to be repositioned to a safe place ahead of major slope movement.

4.10.9 Vents

Visual monitoring includes pit and ramp inspections by geotechnical and geotechnical personnel, and in the mine engineer it can only pick up changes visible to the human eye such as surface cracks, erosion, cracks, loose rock, potentially unstable geological structure, groundwater levels, and loose rock or debris. All slopes and bottom shore and bottom working areas are regularly inspected and conditions recorded.

4.10.10 Other Monitoring

Direct monitoring refers to continuous methods such as crack meters and hydraulic extensometers. There can be fairly simple manual reading installations readily made on the side of mine applications but require capability of reading off an electronic alarm data transfer digital levels are standard.

Currently, such minor measurements and plotting of information results in the mine safety and mine monitoring standard at 1,400.

Trigger system response plans (TARPS) have been developed on site to assess conditions and provide an increasing degree of control in conditions disturbance.

4.10.11 Other

Pit monitoring have been used with selected results and it is planned to improve on this technique in future. The possibility of sub-surface measurement monitoring will also be investigated.

4.10.12 Geotechnical Services

Three levels of geotechnical services are currently in place for UBC.

The use in the field geotechnical services which is supplied by us. The site Geotechnical Engineer (SGE) is monitored by a Principal Geotechnical Engineer (PGE) from ALAC Consultants in Brisbane, Australia and his duties include the following:

- Pit wall visual inspection and monitoring
- Slope control advice to production personnel
- Pit structural mapping and analysis
- Collection of stability data for back analysis
- Routine geotechnical logging and testing
- Training of production personnel
- Development of a Geotechnical Design Document (GDD) and Geotechnical Principal Engineer Management Plan (GEMMP).
- Monitoring compliance to GDD and GEMMP

The tool is provided by the Principal Geotechnical Engineer from ALAC Consultants Brisbane and consists of the following:

- Register site visits including
 - Monitoring the GDE,
 - Inspecting pit slopes, ramps and any other slope features
 - Checking GEMMP compliance
- Pit and waste dump slope design
- Keep up with new developments in open pit geotechnical design and engineering.
- Pit slope monitoring development
- Slope stability analysis and rock mass characterisation (strength and structure)

8.14.9 Training

Training is done in two distinct levels. The new level is ongoing training and monitoring of the team by the PRC. This combined skill level training of the team early in 2013 at ASAC in Brisbane and followed up by mentoring on and when required.

The other training consists of the development of training material and then conducting training for production personnel. The training material is to be completed during 2013 and following this training will be rolled out.

8.14.10 Operational/Technical Support Management Plan

UCCO has implemented a detailed and technical based Management Plan (MPP). This document lists all the ground related hazards associated with the UCCO Open Pit mining operation and the relative controls. It also details aspects to be considered during both design and implementation of the structure as well as monitoring compliance with the QMSD.

8.14.11 Compliance monitoring

A vital part of pit stability management is monitoring compliance with the provisions of the design design and criteria. This is being conducted by the PRC on a monthly basis and is checked by the PRC during its quarterly visit. Areas of non-compliance are identified and reported to the Td for investigation and remediation.

8.14.12 Operational Design Documents

The aim of the QSD is to provide as easy to use practical design guidelines document for use by the following staff personnel:

- Production Manager
- Technical Manager
- Qualified Engineers
- Planning Engineers
- Mining Engineers
- Supervisors

It is noted again detailed practical reports and recommendations from external professional consultants (provided in an 'external report report') as well as the current version of the Ground Stability Management Plan (GSMMP), (UGG, 2013).

The detailed external report requirements to clearly referenced in this document as any detailed discussion in the report is not included in this document. Any person wishing to study the reasoning and logic behind any design requirements should refer to the external report reports for more details. The contents of the QSD will be referred by the UCCO Qualified Engineers (QE) on receipt of any new external report report as that any changes are reflected internally. The QE must ensure that all affected persons are informed that a new QSD revision is in force and that previous copies are no longer reference.

A number of design design projects have been carried out for the old mine (LCCM) and that have planning purposes with the final pit in early 2013 (UGG, 2013). These are based on expected average conditions and as such the models are not considered to great detail. LCCM design documents are only carried out when required and may be considerably further apart than every year. The new level of design design is the

more detailed maximum of the pit design for each production year. This is done in the first month or so of each year and typically includes cross-sections for each planned mining step. Some priority is used as expected direction is made more site specific for this maximum level.

The direction of this document is designed to make information as easy to find as possible and also to allow for the identification of conditions which are outside the current design guidelines. An UCCO has been divided into a number of pit sections for design design purposes with pit section will have a separate design summary listing all considerations for this design.

- Expected geological outcomes
- Identified geological hazards
- Geotechnological model

8.14.13 Pit Layout Parameters

The following design table (Table 5.12) is derived from ASAC (2013a) which is referred to show the table level either applied in each case (from ASAC, 2013a). Note that this table is intended for information only. The detailed design guidelines for each individual pit section should be referred to for any design design work.

Table 5-10: LMS Slope Design for 2013 LOM Study - Showing Required Water Level Offset for Maximum Depth 300 m (JWC, 2013a and b)

Pile Number	Designation	Number of Piles in 2nd Wall	Max. Depth (m)	Permeable Slopes				Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Minimum required water level offset (m)	Head Penetration Depth (m)	Allowance Depth (m)
				Min. 200 m (m)	Min. 100 m (m)	Min. 50 m (m)	Min. 25 m (m)						
Pile 1	Designation												
	Designation												
	Designation												
	Designation												

Pile Number	Designation	Number of Piles in 2nd Wall	Max. Depth (m)	Permeable Slopes				Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Minimum required water level offset (m)	Head Penetration Depth (m)	Allowance Depth (m)
				Min. 200 m (m)	Min. 100 m (m)	Min. 50 m (m)	Min. 25 m (m)						
Pile 2	Designation												
	Designation												
	Designation												

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Table 5-11: LMS Slope Design for 2013 LOM Study - Showing Required Water Level Offset for Maximum Depth 300 m (JWC, 2013a and b)

Table 5-11: LMS Slope Design for 2013 LOM Study - Showing Required Water Level Offset for Maximum Depth 300 m (JWC, 2013a and b)

Pile Number	Designation	Number of Piles in 2nd Wall	Max. Depth (m)	Permeable Slopes				Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Min. 8 mers Depth (m)	Minimum required water level offset (m)	Head Penetration Depth (m)	Allowance Depth (m)
				Min. 200 m (m)	Min. 100 m (m)	Min. 50 m (m)	Min. 25 m (m)						
Pile 3	Designation												
	Designation												
	Designation												

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8.14.14 Rock strength conversion to geotechnical format

As there is not a good deal of actual laboratory data for UBCS and BN, the laboratory strength conversion needs to be used for the data from the field. The available rock strength data has been converted to order to determine suitable data-conversion strength values (AMC, 2013a). The revised material strength values for lower limit equilibrium (Gibson) models are shown in the following table have been determined considering the following data, in order of importance:

- a. Rock strength for UBCS and BN
- b. Average values for laboratory test results for Q10 and BN
- c. Quoted results from published and other sources for similar conditions previously for the Brown Book

The final revised rock strength for each geotechnical domain is the sum of the equilibrium weighting of UBCS are shown in Table 3.13 and previous values are shown in Table 3.14 as applicable.

It is important to note that as more data become available and additional experience in local conditions is gained further adjustments to the rock strength values will be made. This table should therefore be considered a work in progress.

Table 3.13: Revisited Rock Strength Values for Geotech. Mapping (Cost number 3013)

Unrevised Domain	Unit Weight (kN/m ³)	Cohesion (kPa)	Friction Angle (°)	Slope Height (m)	Unit Weight (kN/m ³)
Weathered material - changed	22.1	25	31	25	1
Material weathered material - unchanged	22.1	10	11.21	-	-
Trunk (weathered) - 1000 tonnes and below - changed	21	300	33	-	33
Trunk (weathered) - 1000 tonnes and below - unchanged	21	250	11.21	-	100
Explosion from previously mining (unchanged)	24.1	10	33	-	10
Trunk (weathered) - changed	18	40	22.3	-	28
Trunk (weathered) - unchanged	18	15	12.51	-	170
Trunk (weathered) - changed	18	15	33	-	28
Trunk (weathered) - unchanged	18	15	11.21	-	1
Material (weathered) - changed	21.1	10	33	-	-
Material (weathered) - unchanged	21.1	100	12.1	-	-
Material (weathered) - changed	18	17	12.1	-	-
Material (weathered) - unchanged	18	18	24	-	-
Material (weathered) - changed	25	10	12.1	-	28
Material (weathered) - unchanged	25	100	11.1	-	-
Trunk (weathered) - changed	22.1	10	33	-	33
Trunk (weathered) - unchanged	22.1	100	11.21	-	10
Trunk (weathered) - changed	25	10	1	-	-
Trunk (weathered) - unchanged	25	10	22.1	-	-
Trunk (weathered) - changed	18	15	34	-	-
Trunk (weathered) - unchanged	18	15	33	-	-
Trunk (weathered) - changed	24	100	23	-	-
Trunk (weathered) - unchanged	18	10	1	-	-
Trunk (weathered) - changed	18	10	1	-	-
Trunk (weathered) - unchanged	18	10	1	-	-
Trunk (weathered) - changed	24	100	23	-	-
Trunk (weathered) - unchanged	18	10	1	-	-
Trunk (weathered) - changed	18	10	1	-	-
Trunk (weathered) - unchanged	18	10	1	-	-

8.14.14 Overall Mine Stability

The design is used to implement or uncontrolled collapse of any portion of the mine. It is assumed that slope stability is defined by a limit state and uncontrolled collapse of the mine (LSC) will be accepted design methods. The uncontrolled collapse of the mine design element is UBCS (1000 tonnes). This element gives the current required slope design element and also the relative field the design values.

- a. The design element is designed by a GE using the following methodology:
 - Identify which geotechnical job within the slope data within
 - Determine the rock mass strength characteristics
 - Review geotechnical data for the slope mass
 - Obtain necessary ground level data

- Carry out immediate re-working of slopes to determine the maximum better and overall slope angles using Global software on individual
 - Carry out baseline stability analysis using Dipa software or equivalent
- Dump slope angles and height will be designed by a GSE taking into account the potential probability of the dump and spill.
- For slopes and waste dump slope designs should be reviewed every five years or after any significant slope failure.
- The following procedures will be taken to prevent failure of barriers, overall slopes and waste dumps
- The slope angles will be checked against the design requirements by the mine engineers at least every month
 - The slopes will be geotechnically mapped using photogrammetry or manually recorded as well as rock strength data will be gathered
 - A GSE selected, trained team will be mobilised and updated at least every three months
 - Where the mud flow from identified by the GSE or Technical Services Manager (TSM), significant monitoring plans will be set up and monitored by the mine engineers
- The following strategy will be applied to prevent people being injured by loose material on barriers
- Operators and supervisors to be reminded of the importance of adequate and sufficient debris clean-up during the loading cycle
 - Barrier angles to be checked by mine engineers
 - Mining supervisors shall be issued warning areas and declare them into
- The TSM must maintain a file of all geotechnical reports and any other geotechnical data and design documents.

8.16.16 Prevention of Mine Accidents / Eros

Waste access ramps and haul roads will be protected by the following means:

- Slopes above and beneath ramps are to be designed by a GSE and the engineer (a haul) checked by the mine engineers
- Protective vehicles will be placed at least 3 m away from slope crests to facilitate crash inspection
- Ramps situated beneath waste dumps will have 1 protective vehicle placed between the ramp and the top of the dump.
- GSE supervisors will carry out regular checks for cracks and other signs of ground instability on ramp surfaces
- GSE to inspect ramps quarterly

8.16.17 Mining Operations

Waste related hazards will be managed in the following manner:

- PG slopes will be checked during the loading cycle and operators and supervisors will be trained to recognise potential hazards and take immediate the importance of removing loose rock which may be a safety hazard
- PG supervisory staff will inspect the working area at start of shift and ensure that any rock related hazards are removed or demarcated prior to work commencing. Any 'hazard identified during shift and likewise be removed or demarcated and the supervisors to the following shift upon further notification of any rock related hazards in the working area.

8.16.18 Rock Spalling

The strategy to minimise blast induced damage and thus ensure slope stability include the slope face after blasting will be driven up by the Blasting Engineers and mine recovery at least the following aspects:

- Explosive type and loading system to be used
- Drilling patterns and required holehole accuracy
- Selecting the explosives and accessories required for each geotechnical job and/or
- Method of sequence and initiation of explosive charges
- Charging and stemming of blast holes

8.16.19 Impact on Neighbouring Areas

It is the opinion of the TSM, there is any chance of the mining operations at ORO impacting on any neighbouring mine, he must conduct a study to determine the extent of such impact and notify the manager of the neighbouring mine of the potential impact.

8.17 Meteorology

Engineering studies were completed by ORO by November 2008 and by 2009 Appendix 8.11.1. Both reports can be found in Appendix 23.

Work is completed by the mine established generally low permeability conditions west of the active mining area. Areas of moderate secondary permeability associated with breccias have been identified, largely associated with and in most tracking geological structures (fractured rock), and much of the active mining area.

In 2014 a number of exploration boreholes on the western side of the program, core completed for geological reasons, were converted into piezometers for monitoring the standing water height. As this is a recent trend no data is the time of writing the report was available.

5.12 Gas

No gas was reported as observed during any of the exploration campaigns on the 3m test report there has been no ventilation for gas contained in the project area.

For the safe start-up of the deposit and due to the high structural stability and lack of spreading of gas accumulation from the current operational operations, it would appear there is little concern for any gas traps during shallow exploratory mining operations.

If underground mining is ever considered for this project then investigation of gas will be an essential part of the early program undertaken prior to any mine planning.

It is recommended that for future programs that more gas testing is completed on deeper horizons to develop an understanding of the potential for coal bed methane in CBM.

5.13 Mining Potential

The USDO mine uses conventional levels and recoveries mining methods to mine coal and construction is a success with operations. The mining operations is managed jointly with an offshore site contract with independent mining contractor Logistics. Under the contract Logistics provide all mining equipment.

The site based mining job at work force is completed mostly of HR employees, and a small number of Logistics personnel in key management, supervision and technical roles. All equipment operators and maintenance responsibilities are supplied by EL.

The mining operations commenced with low-coal conversion resumed in October 2008, and coal mining commenced in April 2009 resulting in a total of 1.8 Mt of CBM coal added within the first year of production. Production output increased to 3.9 Mt in 2010, 7.1 Mt in 2011, 8.4 Mt in 2011, 9.2 Mt in 2012 and 4.0 Mt to the end of 2014.

The main production equipment currently utilized is USDO mine in process of replacing with production rate to 1.5 Mtpa includes:

- 2x Laidlaw 900 excavators
- 2x Laidlaw 6400 cutters
- 2x Shovel 3000 excavators
- 2x Laidlaw 900 cutters
- 2x Shovel 1200 excavators
- 2x Caterpillar 793 rear dump trucks
- 2x Caterpillar 750 rear dump trucks
- 2x Caterpillar 777 rear dump trucks

The typical mining process is outlined as follows:

- Topsoil is pushed up by dozers, before loaded by front end loader to load trucks for storage in temporary laydown stockpiles.

- Approximately 10-20t of overburden dug by excavator without blending, loaded into haul trucks and taken to on-site waste dump locations.
- Subsequent overburden and intermediate materials are drilled and blasted using JBLPD and traditional explosives, before removed by excavator and loaded to on-site waste dumps.
- Coal recovered is dug typically without blending by excavator, loaded into haul trucks and taken direct to the Coal Handling and Processing Plant or temporary waste stockpile nearby.
- Waste dumps when complete are regraded by dozers, before being returned from temporary stockpile for dumping and spreading across reclaimed overburden dump locations as part of rehabilitation works.

As of mid-2013, there 3 Mtpa capacity CAPP modules have been commissioned, including 15 Mtpa capacity CBM coal feed capacity. Logistics Pty Ltd of Australia designed the CAPP, and was involved with Engineering, Procurement, Construction & Management and Operation & Maintenance contracts until end of 2012. Since 2013 the operation and maintenance of this facility has been undertaken wholly by EL employees.

5.14 Coal Resources

The URS mine has operated since April 2006 on a positive cash basis. Due to the recent freight surge for the coal business, URSO will achieve a surplus (cash benefit) from the operations. Values from the URSAC "Market Review 30 June 2011", the Average Selling Price of primary product (washed hard coking coal) for the half year ending 30 June 2014 was US\$116.3 per tonne sold, while the "Total operating cash cost" was US\$30.45 per tonne sold.

The Reserve study (ADN-31-0440), RPA, August 2013, completed by RPA, 1st August 2013, stated, based on an integrated URSO and RPA mine with the following characteristics as this of value (URSO) economics:

Based upon the preferred development strategies and all capital and operating costs supplied by AAEC, the integrated URSO and RPA Project NPV was estimated at US\$7,724M at a discount rate of 10%. Earnings were developed on the basis of an Owner-Operated project. The key findings were:

- Integrated URSO and RPA NPV (Early NPV) of US\$1,724M of 10%-discounted rate
- Total integrated Capital Cost of US\$1,014M, with Mining Equipment (Fixed and Replacement) making up 67% at US\$673M
- Total average Revenue of US\$171M/tonne product and average Cash Cost of US\$38/tonne product to achieve average pre-tax Margin of US\$33/tonne product
- Mining operations activities (waste and rock mining, drill and blast, support etc.) costs account for approximately 31% of the Total Integrated Operating Cost
- URSO Project Lp of 28 years (from 1 January 2011) excluding mine closure, with mining bearing commencing in April 2009
- Maximum 20M cost production at URSO of about 12 Mtpa from 2009 onwards, producing approximately 7.1 Mtpa saleable product
- Average URSO product cost (output of about 10.2 Mtpa comprising 4.5 Mtpa of RPO under ESOC coal (10% cost), 4.6 Mtpa of Domestic coal (5% cost) and 1.2 Mtpa of washing coal (7% cost)

5 Post Review and Site Visits

5.1

Added Site Visit and ongoing Continued Process Model for AAEC 00410 Resource Estimate – June 2012

An initial site visit was completed by Mr Blundell when visiting as a consultant for AAEC on the 10 to 14 January 2009. The visit was commissioned by Mr Andrew Lobb, Technical Director (at the time) for AAEC.

The purpose of this visit was to: (i) audit the hydrogeological and geological data, (ii) assess the quality of the information recorded into the digital geological database, and (iii) to comment on the implications that this would have on the confidence in the geological model of the URSO coal deposit.

The visit used as reference the 'Australian standards for coal evaluation and sampling (AS 2339-1993 & AS 2617-1994)' to compare with the data collected and to reference to the standard.

The following recommendations were made at the end of this visit:

- All data drilling should be done on a regular basis or triangular grid.
- A proper line of definition drilling program with early testing should be implemented immediately.
- All drilling information as stated in the standard should be captured on all data drilling campaigns.
- All available Early Operational Results (EORs) should be tested and filed daily. Once acquired all data from these EORs should be captured.
- All rock type information as stated in the standard should be captured on all data drilling campaigns. In addition to this standard, the identification of preliminary structures should be added.
- Check with AAEC the code for weathered coal.
- All coal logging for future campaigns should be brightness logged to put the standard.
- All of the Random rock type data should be reviewed to correct transcription errors.
- All low-velocity geology rock should be tested and filed daily.
- All low-velocity rock-type information and digital LRS should be captured and filed on site.
- The digital LRS from boreholes URSO and URSO-01 should be re-sampled. The density LRS for boreholes URSO, URSO-01, URSO-02 and URSO-03 should be re-sampled including hand samples. The gamma LRS for URSO should be re-sampled including hand samples.
- The remaining Natural digital LRS should be modified to completed this and related errors highlighted.
- Develop an electronic geology and mineralogy sample storage system.
- Implement a hydrogeology program for future drilling campaigns where water levels are taken, recording water levels are measured at least at 10m after completion of drilling and make appropriate data for analysis.
- For all future exploration campaigns geotechnical data such as descriptions of weathering, bedrock, rock strength and other descriptions should be implemented.

- **Background, rationale and motivation** on rock and coal logging, hydrogeology, meteorology, and geotechnical logging should be immediately put in place that supports the structured for all exploration activities that work on the projects.
- **Summary of literature** that covers the available knowledge, progress and where possible, identifying appropriate areas with a standard layout.
- **Summary of highlights for new contributions.**
- **Cost of all highlights** have been corrected and updated, a structural geological review about the independent.
- **A plan for a long-term analysis and drilling program** to identify anomalies within the program area should be done.
- **This is exactly the work** for a review of coal structure.

From this initial base, regular bi-weekly commitment on site appointments are weekly for an initial period of three to four weeks, where the individuals visit the site to discuss completed progress and providing planning, judgement and timing for the next appointment. Following the initial visit (January 2009), the appointments are bi-weekly, during this time a dedicated support department made for the individuals, working with an established multi-disciplinary team to undertake their consultation.

In early July 2010, Mr Tallmore was employed directly by PR on a full time basis at a resulting annual turnover of Registration and Security Buildings, planning, planning and construction and overall an overall of approximately £1,100,000 and continued while Mr Tallmore has held the position.

For information of the reader, JUNE 1986, however, or where substantial changes in the information reported in the annual Report, require a level of independence to the reader that can be verified that the information is reported in accordance with the FRIC Code and that results are not compromised. An additional independent review, however, is not required (see 2011), though a practice to have an independent, independent and qualified reviewer, having experience of a Company Report (which is the standard practice). This was done by Mr. David Sweeney, senior consultant for Grant Thornton, a good practice with 18 years' good experience. Mr. Sweeney's full independent report can be found in Appendix 14, which includes his full and independent recommendations. The following is an extract from Mr. Sweeney's report, which supports the FRIC Code/FRIC Code:

[illegible]

1. 1990年12月29日，全国人大常委会通过了《中华人民共和国香港特别行政区基本法》（以下简称《基本法》），这是香港回归祖国后，在“一国两制”方针指导下，根据《基本法》和《基本法》附件所列法律，制定香港特别行政区法律制度的重要法律依据。

Figure 1. The effect of the number of trials on the mean accuracy of the responses ($n = 10$) as a function of the number of items presented at once ($n = 6$). The error bars represent the standard error of the mean.

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10/10/2014

Time: 10:00 - 12:00

3

Summary of findings, discussion and implications for
 future research - December 2014

So Radtke currently continues to remain employed by IBM in the position of Executive General Manager, Exploration and Geology, and has responsibility for worldwide planning, training and overall oversight of exploration at IBM. As part of the ongoing evolution of the IBM geology group and knowledge transfer, experienced and talented members of certain individuals is planned.

the employment process has also sped in the team that used to prepare the previous 1000- to 2000-page research reports to issue 2012, so the independent peer review by the Board of Directors is still relevant. So Ballentine took on board all of 300 team members to consider it. We studied each study that was relevant to the topic with a well-informed team. We studied each study that was relevant to the topic with a well-informed team. To prevent this, he chose frequent site visits with the team to compare data and support the team's different individual team members' capabilities across the individual team members.

As part of Mr. Tullman's work as monitor and external auditor, all first class, it is secure to believe, team vibrations, sampling intervals, and quality analysis, with survey and LMS quality are involved over the team. Inspired by the Compendium, Tullman has done the work. With the above process, a 10.10 Tullman's professional opinion is that there is a very high correlation with the team's results and 10.10's standards. Mr. Tullman has completed an analysis and internal audit with the Compendium Forum for every step of the three populations of the process of adaptation and the modeling of the data to the final estimate.

For the above discussion (theories, opportunities and compliance is concerned), however, the earlier survey is one that requires a crucial study. So, validation on the most recent trend in 1916 to mid-November 2011, modified the online survey for feasibility applied in the period of 2011 to 2011 with a latest held 100% Table 4-1 contains the results. The results are within acceptable limits.

7.1.2.2. Norwest Drilling

Prior to 2008, the UHG coalfield had largely been explored by the Mongolian-Russian teams of the 1980's as part of the larger effort to understand the Tavan Tolgoi deposit. Review of records and reports indicate exploration techniques at UHG included a combination of surface mapping, core drilling, trenching and imaging (Norwest 2008).

The historic exploration and mining studies identified a substantial coal resource in the UHG coalfield and were successful at delineating its larger structural characteristics with a fair degree of accuracy. The drilling density, however, was determined to be insufficient for defining smaller-scale features within the coalfield and for determining detailed seam correlations with a high degree of confidence throughout the property. Additionally, the Russian coal quality data required initial and modern validation to provide an adequate database for assessing the in-situ coal quality to current international standards (Norwest 2008).

ER conducted an initial drilling and bulk sampling program at UHG in 2008, which was planned and managed by Norwest. The purpose of this program was to address the issues identified above and test the bulk of the UHG resource to a level of geological assurance sufficient for mine planning and feasibility level study. The Norwest program included a total of 121 holes, comprised of 17 slim gauge core holes (PG-100), 99 slim rotary holes (1-100mm) and five large diameter corer bulk sample locations. A grand total of 232 holes were used in the creation of the Norwest geologic model with an average drilled depth of approximately 200m (Norwest 2008).

The details of these boreholes are shown in Table 7-2. The map in Figure 7-2, illustrates the borehole positions for this program. All coordinates are in UTM WGS 1984.

Table 7-2: Norwest borehole data summary

Drilling type	Number of Boreholes	Total Depth
Core drilling	17	5325
Open Hole drilling	115	11444
Total	132	14769

Source: Norwest Corporation

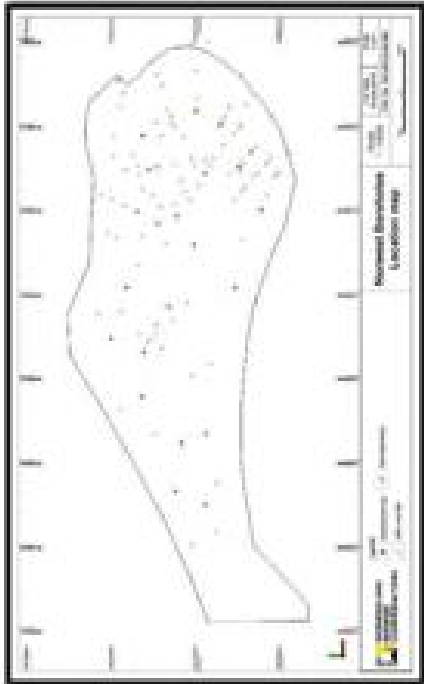


Figure 7-2: Norwest boreholes

Source: Norwest Corporation

7.1.2.3. ER Drilling 2009 to 2011

When the initial box cut for seam 3A was opened up in preparation to start mining by ER in October 2004, the previous works and planning based on the Norwest model were found to be insufficient.

Numerous small unidentified structures present had affected seam position and LOX lines, which caused the 'mine scale' planning to be inaccurate.

In January 2009, Mr Ballantine was contracted to provide an audit on the available underlying database and provide advice for future exploration requirements given the differences reconsidered between planned results and actual results. These differences are to be expected, going from a project scale exploration program where resources are estimated, to a mining scale, which requires much more detail.

An initial drilling program and LOX line program was recommended by the Mr Ballantine. It was shown that 30x50m drilling was required for bulk delineation and also for location of LOX lines. In addition to the drilling, 10x10m spaced sampling was required to determine the exact location of the LOX line, which was done on the surface of the coal seam once uncovered. This program was completed by the company with company staff trained geologists. At the time the company had no geology team. Mr Ballantine assembled a team of young geologists over the next 12 months and this has been ongoing. Training of skills and JORC procedures were implemented and as the resulting JORC Resource 2012 result was expected to vary from the maiden Norwest JORC Resource, an independent peer review by the senior geologist Mr Todd Sarcombe (also a Competent Person) was completed and can be reviewed in Appendix 14.

In addition, it was found after some time spent processing the available geological database received by Norwint that numerous inconsistencies were present in the Russian translation of the scanned data to coded data. After a full review of the Russian scanned data to the current data there were more than five thousand changes made. For interest a similar comparison was made with the Norwint data to the current dataset and there have been over two thousand five hundred changes made.

The geology team had responsibility for exploration, pit grade-control and setting up of the laboratory. Later the laboratory was able to be managed by its own team. Over time other geological roles were implemented on an as-needs basis. These were reconciliation (to support mining), Geochemical (to support mining) and coal quality (to support mining and the CHPP). The Geochemical role was transferred to its own department under the supervision and training of AMC in May 2012. Figure 7-5 illustrates the roles that were introduced to cover 'all bases' with exploration and mining (including Geochemical).

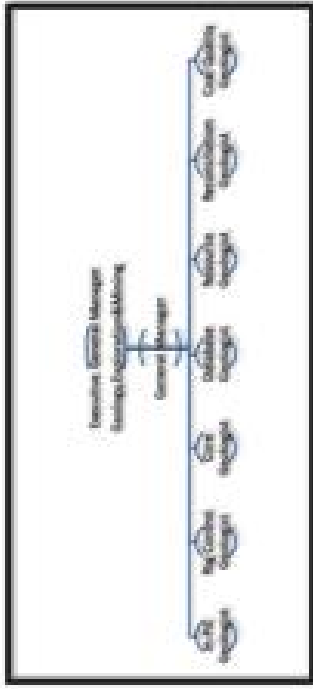


Figure 7-5: MMC Geology department role structure

Source: BHP Resource Ltd

The 2009 program was all about just staying in front of mining by understanding the LOX lines for box-cut positions for new pits, closer spaced drilling to understand seam continuity within the pit and controlling coal quality to maintain a R/AW hard coking coal product. Near the LOX lines, due to the faulting and folding, it was necessary to do close spaced (10x10m) sampling, which could only be efficiently and cost effectively done by in-pit geologists once the seam was exposed. This was setup at the start of uncovered coal and has proved very successful in controlling coal quality with respect to coal oxidation. This process has been established as an ongoing procedure and is now well entrenched.

The results of the 2009 program showed that areas in the mine were very complex in continuity and coal quality, whilst other areas showed good continuity and constant coal quality. Further work was necessary to understand this complexity and location, versus the remaining deposit and how would this affect future mining and planning.

The 2009 and 2011 programs focused on better understand the deposits structural regions and have a better understanding of the western area and in so doing, review and upgrade the Resource Estimate and provide a better understanding of the whole deposit for 'life of mine' planning and scheduling. It was realized at the end of the 2009 program that boreholes alone were not going to give sufficient information to understand the underlying structural regions, which was going to be necessary to have confidence in planning, scheduling and product control into the future. The boreholes drilled for 2009 through 2011 are shown in Figure 7-4.

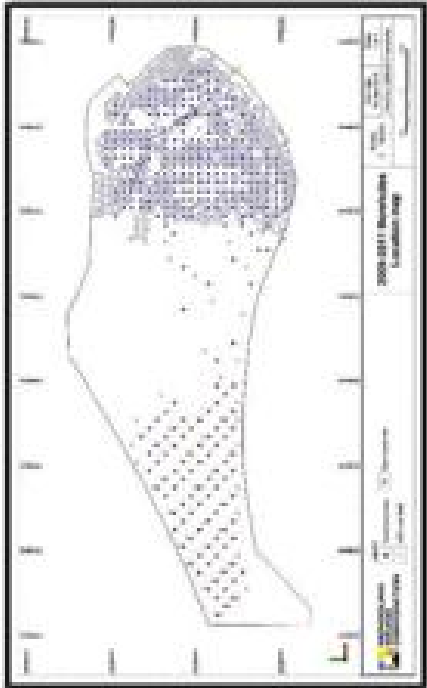


Figure 7-4: 2009-2011 boreholes

Source: BHP Resource Ltd

The 2009-2011 drilling program included a total of 1,435 boreholes and 166,384 metres drilled. Table 7-3 shows the total drilling results for this period. All coordinates are in UTM WGS 1984.

Table 7-3: Borehole data summary for 2009-2011

Period	Core Drills			Open Hole Drills	
	Meters in Boreholes	Total Depth (m)	Shallow Boreholes	Total Depth (m)	
2009-2011	443	81939	992	84425	
TOTALS	Boreholes			Total Depth (m)	
	1435			166384	

Source: BHP Resource Ltd

including all available data over the various periods of exploration. The database is suitable for modelling the resources at the end of 2011, based on 1,823 boreholes (refer Figure 7-1). The approximate amount of drilled metres over this period was 200,000 metres, of which approximately 99,000 metres was core and 101,000 metres was openhole. All coordinates are in UTM 30Q UTM 30Q 1984.

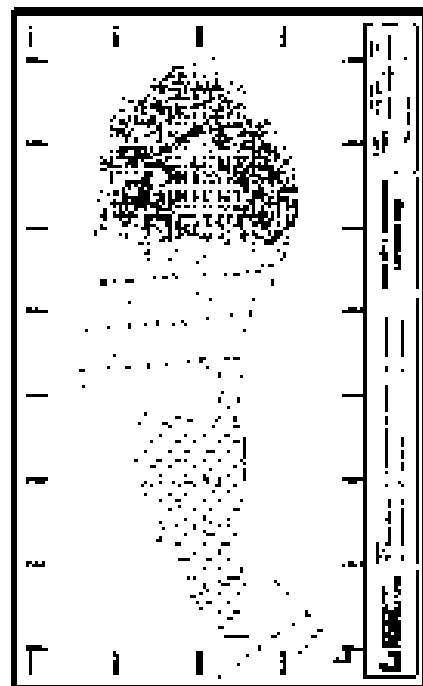


Figure 7-6 All boreholes end of 2011

Source: Reproduced by permission of the author.

During 2010, a 2D seismic program was included using a 4000m long, 200m wide, 10m interval profile. To collect the data and Velocities that the system is used in 3D include design process and interpret the results. The data was very successful in demonstrating that the data was sufficient to support a high resolution 2D seismic. Approximately 400m of 2D high resolution seismic data was collected in 2010 (refer Figure 7-7, North view).

The results of this first program confirmed the deposit was highly structurally deformed, but the line spacing was still not sufficient to confirm the major structural features. In addition, there was insufficient borehole control over the region, there is a need for more accurate and closely spaced boreholes to confirm the structure. It was decided by the Management Board to reduce the line spacing in the 2D seismic and to include the 2011 drilling program and process of all the seismic lines. A further approximately 200m of high resolution 2D seismic data was collected in 2011 (refer Figure 7-8, North view).

The 2011 program, with the additional boreholes, was successful in resolving the structural region and also resolved much of the strain conditions from fault to west, which change considerably. The confidence results of the drilling, east-west view, have provided more confidence with the strain conditions and confidence for the

100% (2000) Resource estimate June 2012. Appendix 11 continue the final reports from Velocities and boreholes for the overall program.

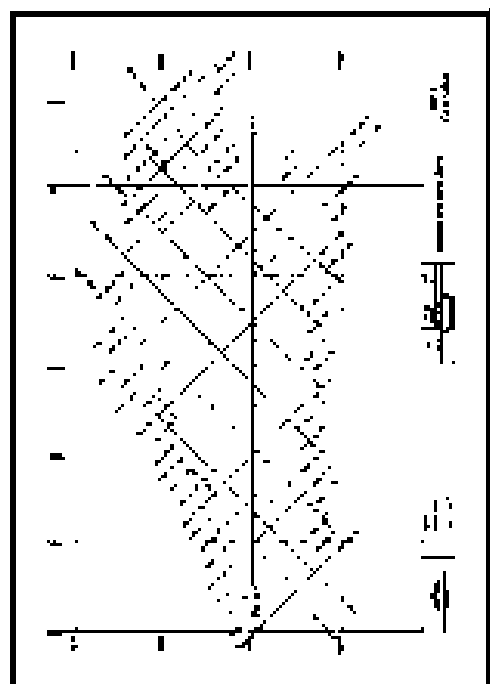


Figure 7-8 Seismic program for 2012 and 2011

Source: Reproduced by permission of the author.

7.4.2 JRC Mining program 2012 to 2014 (ongoing)

The previous program focused on the mine area and the western area (refer Figure 7-9). The last left a gap in the middle of the deposit. This gap will be explored as part of the ongoing exploration programs for 2014 and will also sufficiently in level of mining and will be the focus of future resource updates.

The geology team responsible for this program, which focus on the base of the new basement (basement apophysis) December 2011 has successfully not changed in personnel since the previous work completed in June 2012. The team has built on its experience and capabilities and now is a very effective and qualified person with a cumulative basement experience base of 20 years, achieved to develop a capability inherent with completed and is shown in Appendix 20. In addition, the latest result was received on the 20th July 2011 from 2D seismic borehole, oriented and shot perpendicular to basement apophysis, for a test for seismic propagation rate made in 2011 (refer Figure 7-10).



Figure 7-3: Email from Dr Genesee Hancock - Anglo-American

Boreholes drilled for the 2012-2014 campaign are shown in Figure 7-4.

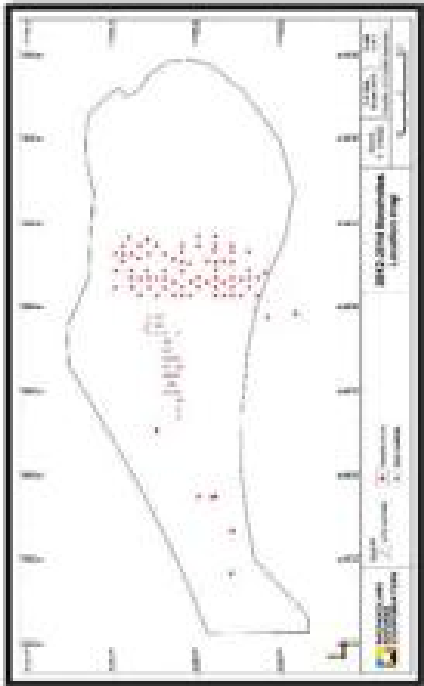


Figure 7-4: 2012-2014 boreholes

Genesee Deep Resources LLC

The 2012-2014 drilling program included a total of 121 boreholes and 24,000 metres drilled. Table 7-4 Borehole data summary for 2012-2014 7-4 shows the total drilling results for this period.

Table 7-4: Borehole data summary for 2012-2014

Period	Number Boreholes	Core drilling Time (in hrs)	Open hole drilling Time (in hrs)	Number Boreholes	Time (in hrs)
2012-2014	84	22,410	17	37	2,400
TOTALS					
	121				24,000

Genesee Deep Resources LLC

Including all available borehole data over the various periods of exploration, the database available for modelling the resources consist of 1,714 boreholes (refer Figure 7-9). The approximate amount of drilled metres over this period is 218,000 metres of which approximately 120,500 metres was cored and 97,500 metres was open hole.

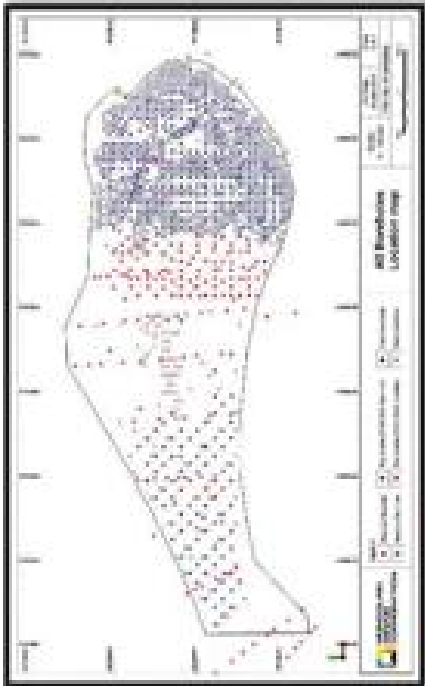


Figure 7-9: All boreholes end of 2014

Genesee Deep Resources LLC

8.2 Borehole Survey

8.2.1 Survey Method prior to 1989 (Dargahboud et al.)

The Tarsus Tilgus deposit area was provided with topographical map of 1:100000 scale with relief sections in each 20 m. In the area of prospect deposit there are second category points of the national ground triangulation. Moreover, in this area mapping of 1:25000 scale had been carried out involving an area of 700km² with horizontal relief sections provided to 5 metre intervals. Topographical maps of the Uthman Khudug, The Samsun and Borehole deposits were drafted from an enlargement of the regional 1:25000 scale topographic map. All geologic-exploration work was coordinated in accordance to GDSR of MPR (Coordinate catalogue) and was captured using the "QPS 0300" category theodolite and theodolite station method of mapping.

8.2.2 Survey Method Norwest (Norwest 2009)

Microtop Engineering, Service Co. Ltd. (Microtop) was used for all survey requirements for this program. Microtop is a reputable Norwegian land survey company. The surface topography data was comprised of digital AutoCAD format surface contours at 2m elevation intervals. The data was spatially referenced using the UTM (WGS84 projection) and all elevation contours were in meters above mean sea level. Topographic data was obtained using real time kinematic GPS ground survey on a dense grid and closely spaced data points on crests and toes of surfaces showing more than the relatively flat relief characteristic of the resource area.

During the 2008 drilling program Norwest geologists conducted field surveys to confirm the surface exposure for abundance of coal bearing sediments as mapped and interpreted by previous geologists. Norwest did not identify any surface geology that departed from available geological maps and interpretations. Publicly available satellite imagery (Google Earth) was used in validating the previous Russian surface geologic mapping. Additionally, approximately 80% of the historic Russian drill locations were revalidated during field mapping and marked for GPS base station surveys along with the borehole locations from the 2009 program.

8.2.3 Survey Method 2009 - 2014

The topographic and borehole collar survey was carried out by Energy Resources Mining's own survey team using Trimble equipment. The topographic survey was carried out in 2008 and the borehole collar survey was carried out during the exploration period in 2009-2014. Figure 8-3 shows a difference map comparing the grid based on borehole collars and the grid based on topography.

Most differences are less than 1.3m, which is acceptable with a few areas greater than this around the boundaries where there is no borehole control.

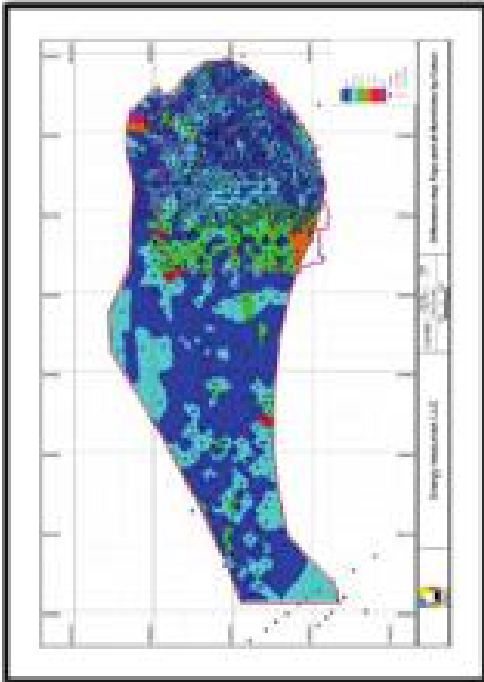


Figure 8-3: Difference map of Collar survey and Topography survey
Geophysics

(Source: Energy Resources Ltd.)

8.3 Geophysics

8.3.1 Geophysics Method prior to 1989 (Dargahboud et al.)

Surveys of seams were carried out with utilization of logging station 10C-1-74 combined with stationary apparatus and equipment. Cable of E72-67-180 type graduated with depth identifiers for every 10 m. Calibration and graduation of radiometer (RT-204-2) and meterometer apparatus were made in conformity with instruction for geo-physical survey of boreholes, as calibrations were made once a quarter or after each repair. Diagrams were registered in 1:200 survey scale and in 1:10 detailed scale. Quality and accuracy of measurements were evaluated visually in comparison with basic correlation records. Records on measurements of gradient were made once a quarter in presence of officials from geological team of the area. Logging surveys were carried out to decide the following geological tasks:

- Determination of symmetry of coal seams and correlation of the sections.
- Lithological differentiation of main rocks.
- Study of the tectonic conditions of borehole's wall.

- 300

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

- *Allylamine* is a colorless, volatile liquid with a strong, pungent odor.
- *Allylamine* is highly reactive and can form explosive mixtures with air.
- *Allylamine* is used in the synthesis of various organic compounds.
- *Allylamine* is a common reagent in organic chemistry.

the fact that the *in vitro* and *in vivo* results are in good agreement. The *in vitro* results are in good agreement with the *in vivo* results, which are in good agreement with the *in vitro* results.

THE UNIVERSITY OF CHICAGO

Concorde's 2004 drilling campaign comprised a combination of open hole, air core and large diameter core (LDC) weight drilling. All drilling was vertical and where possible, all holes were completed (logged by Marston Ltd.). A complete logging contractor allied with Analog, an Australian geophysical services company, logs and interprets the standard parameters for coal core logs, including natural gamma, resistivity, density, porosity and velocity.

譯者：王雲五

22 longitudinal leagues are carried out by simultaneously LLC in 2006-2011 and Prolego LLC in 2012-2014. The leagues were used by both companies were made by RUSPROF LLC of Novosibirsk. The leagues that were used by both companies are national leagues, it means that, usually, annually, some deviations and changes.

Following a review of the L-15 variance for the defendant state, the Competing Person (defendant) claims that borderers were notified for existing programs. This variance is the last variance of deviation of the borderers from the United States.

[illegible]

הוא יתן לנו תשובה על שאלתנו: האם ישנו קשר בין המצב הכלכלי של המשפחה לבין המצב הפסיכולוגי של הילד? תשובתו היא: כן, ישנו קשר בין המצב הכלכלי לבין המצב הפסיכולוגי של הילד. הקשר הזה יכול להיות חיובי או שלילי, תלוי במצב הכלכלי של המשפחה. אם המצב הכלכלי של המשפחה טוב, הילד ירגיש טוב יותר. אם המצב הכלכלי של המשפחה רע, הילד ירגיש רע יותר.

FA Geological Logging and Sampling

【例 1】某企业 2013 年 12 月 31 日结账前有关账户余额如下:

[illegible]

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. If there is a discrepancy, a problem is identified.

The Mongolian population's psychological distress was recorded on detailed semantic maps that were drawn to a high standard. However, most of the data for the Internet-based questionnaire on cultural differences in early life Mongolian-Burmese and the questionnaire on cultural differences in early life Mongolian-Burmese were difficult to compare. The Mongolian-Burmese people's data had been translated into English, but so previously mentioned, this was not done.

On being questioned upon the possibility that the FBI might be involved in the investigation, the FBI representative stated that the FBI was not involved in the investigation and that the FBI was not aware of any investigation being conducted by the FBI.

These were done using the Microstrat software to geo-reference the scanned files and then digitise the geophysical curves to create a LAS file. These LAS file were then imported into the LogCheck software, which held the geological database and hence all data was in the same format and platform. An example of a comparison of the typical scan data and the LogCheck typical output is shown in Figure 8-2

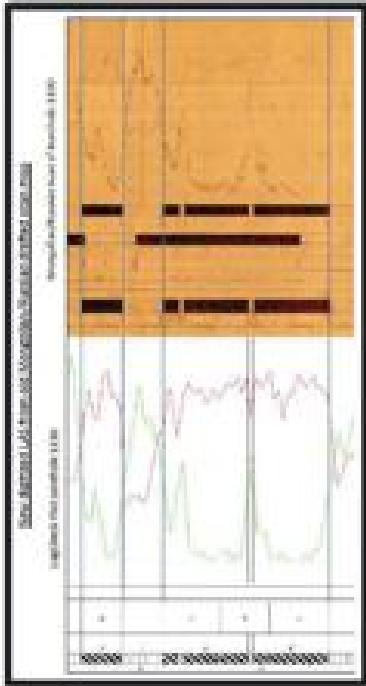


Figure 8-2: Example of a comparison of Scan data and LogCheck output

Source: Deep Resources LLC

8.4.2. Mine-Water Logging and Sampling (November 2009)

All field logging and sampling was undertaken and supervised by Minevent. Only borehole core samples were analysed. Coal assays were separated into the following:

- Field samples, usually no more than 0.5m of core length.
- Incremental samples consisting of combined groups of field samples based on measured lithological units interpreted from core and geophysical logs.
- Physical composite samples, consisting of combined incremental sample returns representing logical mining or retinal coal seam units.
- Large diameter (1.5m) core samples of key seams for weatherability analysis, precluding plant simulation and metallurgical characterisation.
- Geochemical rock strength samples taken of waste (non-coal) and coal core.
- Acid Generating Potential (AGP) samples taken of waste (non-coal) core.

All coal quality analysis of incremental and physical composite samples were performed by 2022 Laboratories, Tianjin, China. 2022 Tianjin was also charged with the weatherability and metallurgical characterisation analysis.

8.4.3. 2009-2014 Logging and Sampling

Core logging and sampling procedures were developed by Mr Bullentine and include procedures for drilling, core handling, geological and geochemical logging, sampling and data recording and data entry (Appendix 2).

The following process was carried out by the EBR Geologists:

- Core pumped into PVC split.
- Core marked up (if drilling at night and coal is interbedded core secured in the PVC split to be processed the next day in better light).
- Core cleaned.
- Recovery measured.
- Core geologically and geochemically logged.
- Core photographed wet and dry in core box.
- Coal, rock (Gneiss), roof and floor samples collected.
- Rock and coal parting samples were collected for acid rock drainage (ARD).
- Geophysically logged.
- Reconciled coal depths and sample intervals against the geophysical log.

8.4.3.1 Geological Logging

Geologists carried out detailed lithological and coal logging, which included descriptions of the depth, lithotype, colour, estimated strength, weathering, bedding, secondary structures, fossils and minerals (Appendix 2). Photographs were taken of all the core sections. An example can be viewed in Figure 8-3.



Figure 8-3: Example of core photographs

Source: Deep Resources LLC

Once all logging was completed and correlated to the geophysical data such that the two datasets were consistent, the downhole coal data was correlated by the Competent Person to ensure that coal seams were consistently correlated across the deposit. This process is generally a sectional process where the various boreholes

were plotted along section lines and the neighbouring holes were checked for consistency. The correlation is built up in a multi-directional sense to ensure that the main considerations are valid in all directions. The LogCheck software is a very powerful tool for doing this work quickly and accurately. East-west and north-south sections created from LogCheck can be viewed in Appendix 9.

8.4.3.2 Sampling

Coal intervals of 0.5m and thinner, not including any rock partings, were considered to be coal piles and were sampled. Each coal sample and rock parting was sampled separately. Individual coal samples (without rock partings) had a maximum length of 1.5m. Coal samples were selected on coal brightness to reflect piles.

The geological procedures (Appendix 2) required rock partings of 0.01m to be sampled with the coal and rock partings over 0.01 m were to be sampled separately. Rock partings equal to or less than 0.01 m with coal on either side were considered to be in-situ rock partings and were to be sampled. Rock partings, greater than 0.5m in thickness were considered to be a parting between two coal seams and was not to be sampled. In addition, a 0.5m sample of the immediate roof and the immediate floor of each coal seam were collected. These were analysed to estimate the effect of diluting the coal if mine roof or floor rock was mined with the coal. This data will be used in the Reserve estimate.

All samples were wrapped in double plastic bags, which were securely closed with zip ties. The plastic bags were marked with the barcode number, the sample number, the sample interval and the sample type (i.e. rock or coal). A sample ticket with the same information was also placed between the two sample bags. The samples were stored in a freezer (figure 8-4) before being analysed onsite at the ERM.

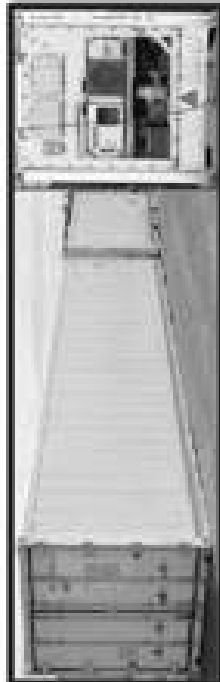


Figure 8-4: Photo graph of freezer where coal samples were stored while waiting for analysis

Lithology logs were updated with the sample number as dispatched to the laboratory. These sample numbers were then cross referenced (by depth and thickness) to the coal quality data once it was received from the laboratory. For further information review Appendix 2.

8.5 Analytical Method

8.5.1 Mongolian-Russian sample Analysis (Datchinbold et al. 1988)

Research of coal quality of Uthmaniyah was mostly executed by Central Geological Laboratory in Ulaanbaatar. The ERM (Russia) also made research by studying a limited number of samples.

Crushing and processing of coal samples were carried out in the Central Geological Laboratory in accordance with the scheme developed in advance and immediately sent to the coal chemical division and to the section responsible for enrichment. Then after crushing and processing bagging samples were selected from the original ones which were kept at the stage of central geological division. Bagging from investigated samples were stored in the Central geological laboratory.

Coal and petrographic explorations of coal were executed by Mongolian petrographers A. Davaasambuu and L. Ljuegal, and also by Soviet specialists V.P. Shorn and A.P. Dvornik (ERM). Coal samples were taken from 11 boreholes of the mining area for coal and petrographic exploration, 137 observations of X-ray fluorescence (Ro. 9). 80 estimations of more complete composition of coal were performed with regard to these samples. The ERM made exploration of Uthmaniyah (Russia) report with respect to two boreholes #1178 and #1181.

8.5.2 Moscow Analysis (November 2008)

All coal quality analysis of incremental and physical composite samples were performed by ERM Laboratories, Zhigals, China. ERM Zhigals was also charged with the suitability and metallurgical characterization analyses.

ISO standards were used for the analysis and evaluation of the coal quality samples. Additionally, certain analyses used in the Chinese metallurgical coal market (such as water and tap water/plasticity tests) were performed under the supervision of ERM. For further information the reader is referred to the Almarat Corporation, Uthmaniyah (Russia) technical report: Quality and Coal Resources, 2008.

8.5.3 2008-2014 Analysis

All samples were analysed at the ERM, which is located onsite at URM. With respect to sample preparation, the top side of the sample was reduced and split into two quarters and one half portion. The sample preparation took into account the top size of the sample material required for each of the analytical determinations. One of the quarter portions was used for analysis and the remaining portions were retained.

Coal samples were analysed for:

- True relative density GB/T 217-2008
- Total moisture MNS ISO 549:2003
- Analytical moisture MNS ISO 331:2003
- Ash MNS ISO 1171:2008
- Volatile matter MNS ISO 562:2001

- | | |
|-----------------------------|-------------------|
| • Calorific value | MNS ISO 1928:2009 |
| • Total sulphur | ASTM D4299-05 |
| • Crude oil swelling number | MNS ISO 540:2003 |
| • Caline index | MNS ISO 724:2004 |

Stock market gains reduced the

- | | |
|-------------------------|---------|
| • True relative density | EN 1753 |
| • Total moisture | EN 1753 |
| • Analytical moisture | EN 1753 |
| • Ash | EN 1753 |
| • Total sulphur | EN 1753 |
| • Volatile matter | EN 1753 |

Under instruction from the Competent Person the coal quality data was checked for basic integrity, typing errors and poor data in general. Poor data was rechecked using original sample material.

2.5.4. Accidents

The ERAJL was accredited to ISO/IEC 17023:2004(MPS ISO/IEC 17023:2007) standard in May 2012, which will expire unless renewed in July 2017. Laboratory audits were completed in October 2010 and March 2012 by competent independent bodies to assure training, standards and procedures were being met. These audits are described in the following section and the full reports appear in Appendix 12. Figure 6-3 is the current accreditation certificate provided from The Mongolian Accreditation System.



Figure 4. Laboratory Accreditation Certificate

1000

5.6 Laboratory Inspection

Mr. Ballentine assisted and then managed the setup of the EUMI, at UBC. All pit, stickpile and core samples collected were analysed using the onsite laboratory.

361 Laboratory Inspection October 2010

The first audit was carried out between 12th and 14th October 2010 by John Sijpestra, QMS Manager from Stevant Inspection and Analysis B.V., based in Rotterdam, the Netherlands, and part of the Stevant Group. John Sijpestra leads the quality team in the Netherlands, which are ISO 17025 accredited on Solid Fluids by the Dutch Accreditation Council, as from 23 June 2003.

The general results from the inspection follow and the whole report can be viewed in Appendix 12.

- I was impressed by the structured way of working and documenting. If this list should apply for an accreditation it would probably be certified with only some small adjustments which have to be made.
- The objectives as mentioned in the introduction can be concluded as follows:
 - Procedures and manuals are present for all machines, events, scales and methods. These procedures have also been evaluated and found in accordance with the current standards.

8.7 Reproducibility of Analyses between Laboratories

The following sections describe a duplicate sample testing program to compare the ERMIL laboratory with other commercial laboratories. This comparison was completed for the previous FORC (2004) Resource estimate – June 2002 report. The Competent Person believes the findings of this comparison are still valid for this report.

8.7.1 Database

ERMIL prepared and analysed a number of samples and utilised duplicates of these samples for analysis at the SM Laboratory (AL5) (100 samples) and the Mining Institute Laboratory (IUM) (613 samples). These laboratories were both located in Ulaanbaatar. The ERMIL analytical results were compared to the other laboratories by means of cross plots and basic statistical parameters tabulated in Tables 8-2 to 8-4.

8.7.2 Comparison of ERMIL and ALS laboratory results

The average, minimum and maximum values reported by the two laboratories for 100 samples are shown in Table 8-1. The average values and ranges of values compare as expected and both data sets show wide ranges in total sulphur values.

Table 8-1: ERM Laboratory and SM Laboratory compared.

Sample	ERM Laboratory			SM Laboratory		
	Min	Max	Avg	Min	Max	Avg
Analysis method	0.90	0.07	3.32	1.09	0.60	2.34
AsH	31.54	7.58	80.24	50.01	7.03	80.80
Sulphur content	18.90	8.90	31.66	18.42	8.62	31.13
Total Sulphur	1.12	0.15	14.76	1.21	0.15	25.19
Calcium	5736	1063	8143	5838	1478	7888
Thiophene	1.05	1.36	2.81	1.30	1.59	3.06
Other	2.5	0.0	7.0	2.5	0.0	2.5

Notes: The testing data (2012) is Overall testing results (2012)

Source: Pastoral

Table 8-2 shows the average values reported by the ERMIL, and the percentage point differences between the ERMIL and ALS values. A negative average difference indicates that the ERMIL values are higher, or over stated when compared to the ALS values.

Table 8-3 shows that the ERMIL values for volatile matter were over stated and all the other parameters values were under stated when compared with the ALS results.

- All procedures as set on paper are carried out as mentioned by the analysts. All is done in a very clean environment which is cleaned on a regular basis by a special crew. Health & Safety is a big item in which everybody has to work with the rules set by Energy Resources LLC.
- Machines are not older than 7 years and therefore in perfect condition. All analysts have had sufficient training before performing analysis on their own.
- The packing of the taken samples outside and the open window in the preparation shed are the only matters which we can address while an analyst result can never be accurate if the sample is contaminated by outside influences.
- Therefore if we look back to the key objective we can say that with reference to our recommendations the quality level is already on a high level and would only be even better when our recommendations are followed up.

8.6.2 Laboratory inspection March 2012

The second audit was carried out between 12th and 13th March 2012 by Barry Dyce, Project Manager with ALS Mongolia, located in Ulaanbaatar, Mongolia and ALS Coal Brisbane, located at Richlands, Australia.

The purpose of this visit was to evaluate the methods and quality system used at the laboratory in preparation for the upcoming application for 'ISO 17025' accreditation. This report will focus on the methods used at the Central Coal Laboratory. The key objective to this work was to provide ER with recommendations in order to improve their business practices and to help achieve their ISO 17025 accreditation. Within this objective the following tasks were set up:

- Audit the existing procedures for sample preparation and analysis to the relevant standards
- Audit the procedures against the actual work in progress

The general results from the inspection follow and the whole report can be viewed in Appendix 12.

- Work being performed at the Central Coal Laboratory was generally of excellent standard. I would like to thank all staff there, especially Mr Gombol, Mr Dambardul and Mr Tsumulen whose assistance was much appreciated.
- I was most impressed with the dedication to accuracy and proper adherence to standard methods. The laboratory also has a well set out documentation system which was examined and details provided in a separate audit.
- Staff was very friendly and it was a pleasant working with them.
- When this laboratory applies for accreditation, I have no doubt that it will meet likely be certified with minor changes being required. If the work practices in the existing laboratory are carried over to the new site, Energy Resources will certainly have a high class facility for their quality testing.

Table 8-2: Average ERM values and differences compared.

Test Item	Average value	Average difference	Maximum difference
Moisture moisture	0.90	0.20	-1.07
Ad	33.54	0.47	-1.00
Moisture ash	18.90	-0.48	-1.40
Total ash loss	1.12	0.09	-2.86
Calorific value	5796	347	-3333
True relative density	1.65	0.04	-0.08
Free swelling index	2.0	0.0	-2.0

* Negative difference = ERM values are lower

Notes: Free Swelling Index (FSI) = Crucible Swelling Index (CSI)

Various analytical standards list the limits of acceptable differences of analytical results between laboratories. For a comparison of the analytical results, the limits of acceptable differences between laboratories as shown in Table 8-3 were used (Quantum Coals, Physical and chemical properties and colliery and company information, 12th edition).

Table 8-3: Reproducibility limits between laboratories.

Analytical parameter	AS 1008	BS 1038	ISO
Ad (10 - 20%)	0.25	0.4	3% of average
Moisture ash (10%)	1	1	0.5
Ad (10-15%)	0.08	0.1	0.1
Calorific value	72	72	72
True relative density	0.03	-	-
CSI	1	1	1.0

Notes: Crucible Swelling Index (CSI) = Free Swelling Index (FSI)

Note that these limits apply to certain ranges. Only ash values in the range 10 - 20 percent are compared, and values should be reproducible within 0.25 percentage points according to AS 1008.

Table 8-4 shows the percentages of the values that are within the acceptable limits of reproducibility of analyses between laboratories. In Table 8-4, the second column shows 'n', which indicate the number of samples that were used according to the applicable ranges shown in the first column. As an example, in Table 8-4 for ash values n = 42. This indicates that 42 of the 100 samples have ash between 10 and 20 percent, and that 52 percent, 81 percent and 83 percent of the results are within the acceptable range of reproducibility defined by the three standards respectively.

In theory all the samples should fall within the limits of reproducibility. However, the relative results indicate a high level of confidence (up about 86 percent) for sulphur reproducibility and a moderate level of confidence (up about 80 percent) for ash, volatile matter, and CSI reproducibility. The confidence in the reproducibility of the true relative density and calorific value is poor. On average the ERM results under state three quality parameters, except volatile matter, when compared to the ALS laboratory.

Table 8-4: Reproducibility of results between ERM and 8M

Analytical parameter	n	AS 1008	BS 1038	ISO
Ad (10 - 20%)	42	52.00	81.00	83.00
Moisture ash (10%)	86	81.00	81.00	48.00
Ad (10-15%)	87	80.00	83.00	92.00
Calorific value	77	39.00	39.00	39.00
True relative density	100	12	-	-
CSI	100	86.00	86.00	66.00

Notes: Crucible Swelling Index (CSI) = Free Swelling Index (FSI)

The ERM results are on average lower than the ALS laboratory results (except volatile matter) and are therefore considered to be more conservative.

8.7.2.1 Analysis moisture

Figure 8-6 shows a comparison of analysis moisture determinations. Analysis moisture is the moisture content (air-dry) of the coal sample at the time of the analysis.

The average analysis moisture value reported by ERM was 0.9 percent, and the ALS laboratory reported values that are on average 0.2 percentage points higher. In the range of 0.0 to 1.5 percent analysis moisture, the ALS laboratory reported higher moisture values, and in the range of 1.5 to 3.5 percent analysis moisture the ALS laboratory reported lower moisture values.

It can be expected that the reproducibility of analysis moisture values in different laboratories will vary according to the prevailing humidity conditions at the time of analysis. It is therefore necessary to compare the rest of the analyses on the same moisture level. In this exercise the coal quality parameters will be compared on a dry basis to exclude the effect of varying moisture content. The true relative density values were adjusted according to the Priebe-Burrows formula from an air-dry to a dry basis.

(Source: Pastoral)

(Source: Pastoral)

1.7.2.7. Aft

Figure 8.7 shows a comparison of aft observations. The average aft value reported by FKM is 0.1 percent and the Aft laboratory reported value that are on average 2.5 percentage points higher. Of the total number of samples that were five samples, four the Aft laboratory reported values that were more than 2 percentage points different from the FKM results.

1.7.2.8. Younger mother

Figure 8.8 shows a comparison of young mother observations. The average young mother value reported by FKM is 1.09 percent, and the Aft laboratory reported value that are on average 0.5 percentage points lower.

1.7.2.9. Fetal death

Figure 8.9 shows a comparison of fetal death observations. The average fetal death value reported by the FKM is 0.0000000000 percent, and the Aft laboratory reported value that are on average 0.1 percentage points higher. In general, the rest of the observations made a report of zero is the original value for sample 100,000,000, which resulted in a difference of 0.0000000000 percent.

1.7.2.10. Gender male

Figure 8.10 shows a comparison of gender observations. The average gender value reported by FKM is 0.0000000000 percent, and the Aft laboratory reported value that are on average 0.0000000000 percent. There are eight samples with differences between 0.0000000000 and 0.0000000000.

1.7.3. True relative density

Figure 8.11 shows a comparison of true relative density observations. The average true relative density value reported by FKM is 1.06, and the Aft laboratory reported value that are on average 1.1 percentage points higher.

1.7.3.1. Pre-Schooling labor participation of CSB

Figure 8.12 shows a comparison of CSB values. The average CSB reported by FKM is 2.0, and the Aft laboratory reported value that are on average 0.5 times higher. All the Aft laboratory value differ by at least 1 unit from the FKM reported value.

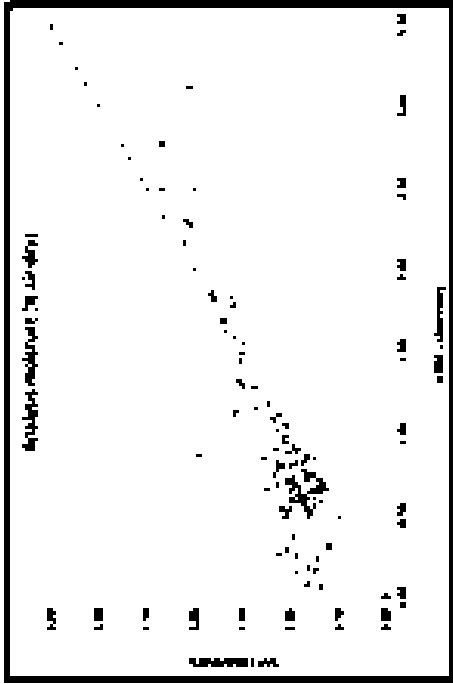


Figure 8.7: Comparison of aft observations

100 x 100

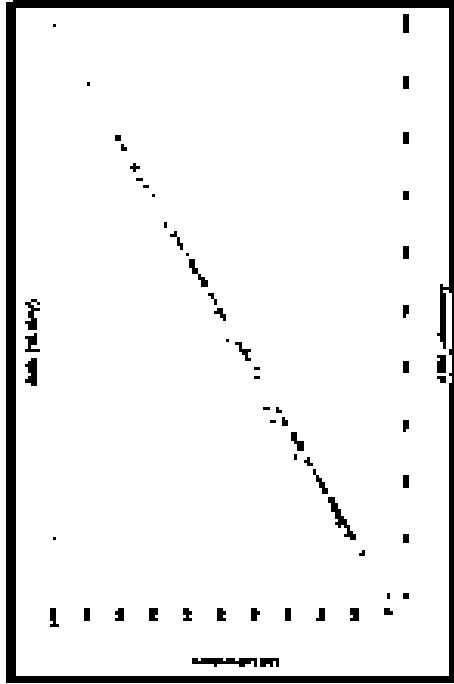


Figure 8.8: Comparison of young mother

100 x 100

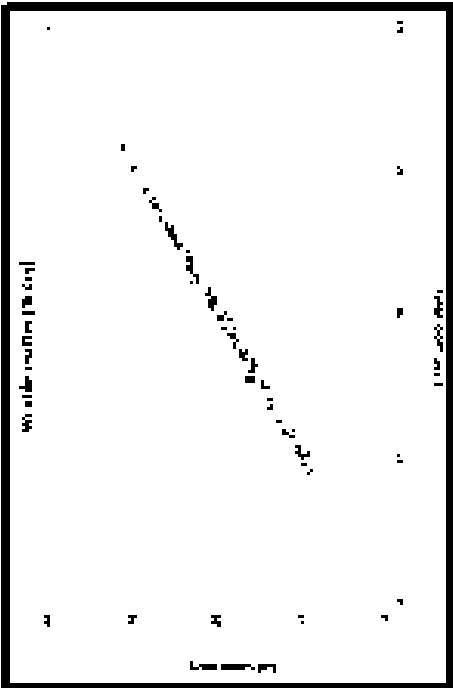


Figure 6: Comparison of in situ water density (kg/m³)

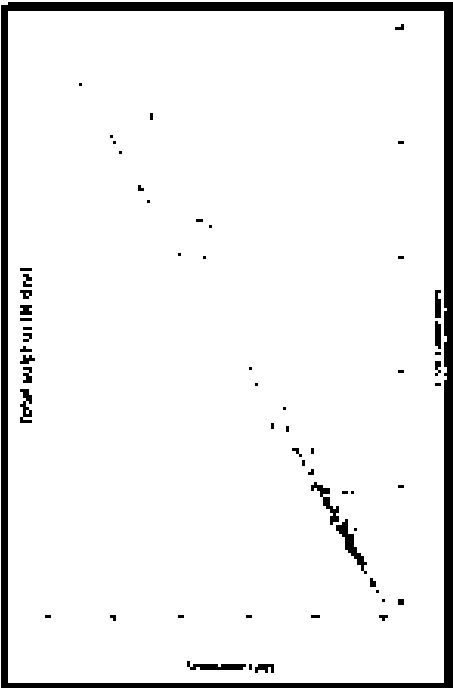


Figure 7: Comparison of total sulphur (M/dm³)

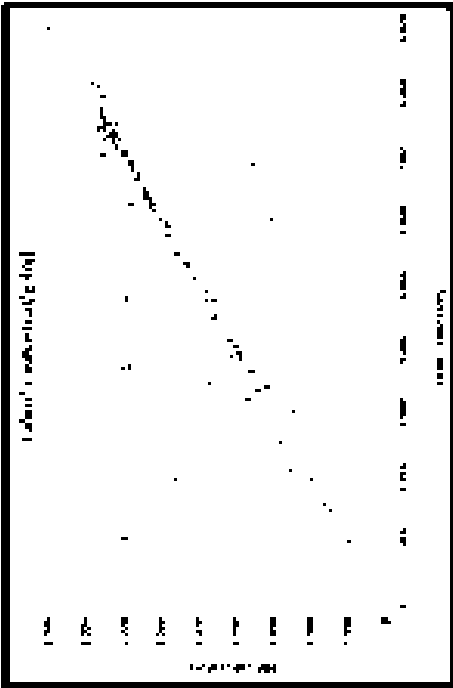


Figure 8: Comparison of total sulphate (kg/dm³)

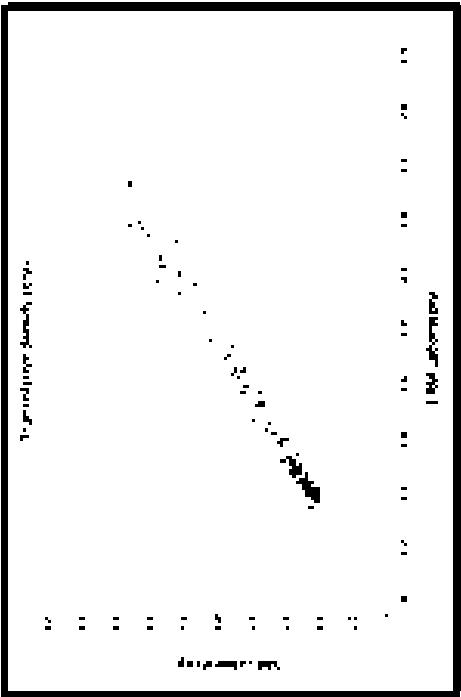
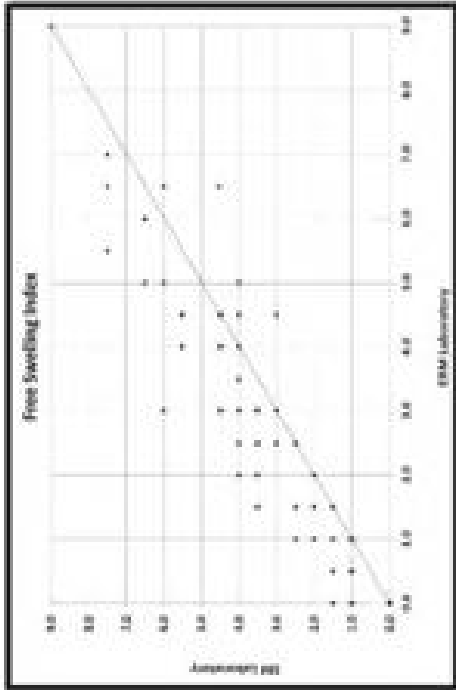


Figure 9: Comparison of total sulphate (kg/dm³)



Note: Free Swelling Index (FSI) = Charles Swelling Number (CSN)

Figure 8-12: Comparison of Free Swelling Index determinations.

(Source: Prepared)

8.7.2 Comparison of ERM, and UCL laboratory results

The average, minimum and maximum values reported by the two laboratories for 40.5 samples are shown in Table 8-3. The average values and ranges of values compares as expected, but the ERM results shows a very wide range in total sulphur values.

Table 8-3: ERM Laboratory and UCL Laboratory compared.

Dry Item	ERM Laboratory			UCL Laboratory		
	Av	Min	Max	Av	Min	Max
Asphalte moisture	0.97	0.11	5.49	0.98	0.10	5.73
Ash	43.43	6.15	93.90	43.73	8.00	96.79
Volatiles matter	20.10	3.22	38.48	18.71	3.00	35.16
Total sulphur #	1.04	0.02	21.27	0.49	0.12	1.95
Calorific value	5008	442	7913	4805	425	7603
Total volatile fraction	1.86	0.34	3.32	1.85	1.16	3.41
Free Swelling Index	2.0	0.0	4.2	1.5	0.0	6.5

Note: Free Swelling Index (FSI) = Charles Swelling Number (CSN)

(Source: Prepared)

Table 8-6 shows the average values reported by ERM, and the percentage point difference between the ERM, and UCL values. A negative average difference indicates that the ERM values are higher, or over stated when compared to the UCL values.

Table 8-6 shows that the ERM values for analysis moisture, volatile matter, total sulphur, calorific value, net relative density and CSN are higher or probably over stated when compared with the UCL results.

Table 8-6: Average ERM values and differences compared

Dry Item	Average value	Average difference	Minimum difference	Maximum difference
Asphalte moisture	0.97	-0.01	-0.86	0.80
Ash	43.43	0.30	-38.34	95.57
Volatiles matter	20.10	-0.40	-8.18	6.27
Total sulphur #	0.73	-0.31	-1.70	1.35
Calorific value	5203	-193	-4548	2611
Total volatile fraction	1.86	-0.02	-0.81	2.37
Free Swelling Index	2.0	-1.0	-7.0	5.0

* Significant difference = CSN values are lower

Note: Free Swelling Index (FSI) = Charles Swelling Number (CSN)

(Source: Prepared)

Also note that the ERM values for sulphur included a number of very high values above 4 percent dry for which UCL reported values less than 1.5 percent. These samples listed in Table 8-7 were excluded from the comparison of differences in Table 8-6.

Table 8-7: Samples excluded from the comparison in Table 8-6.

Sample name	Sample name	Sample name	Sample name
011901	011901_24	011901_24	011901_24
011901	011901_21	011901_21	011901_21
011901	011901_31	011901_31	011901_31
011901	011901_38	011901_38	011901_38
011901	011901_37	011901_37	011901_37
011901	011901_35	011901_35	011901_35
011901	011901_34	011901_34	011901_34
011901	011901_33	011901_33	011901_33
011901	011901_32	011901_32	011901_32
011901	011901_31	011901_31	011901_31
011901	011901_30	011901_30	011901_30
011901	011901_29	011901_29	011901_29
011901	011901_28	011901_28	011901_28
011901	011901_27	011901_27	011901_27
011901	011901_26	011901_26	011901_26
011901	011901_25	011901_25	011901_25
011901	011901_24	011901_24	011901_24

(Data Reported)

Table 8-4 shows the percentages of the values that are within the acceptable limits of reproducibility of analyses between laboratories. In Table 8-8, the second column shows 'n', which indicates the number of samples that were used according to applicable ranges shown in the first column. As an example, in Table 8-8 for ash values n = 136. This indicates that 136 of the 615 samples have ash between 10 and 20 percent, and that 49 percent, 69 percent and 71 percent of the results are within the acceptable range of reproducibility defined by the three standards respectively.

In theory all the samples should fall within the limits of reproducibility. However, the relative results indicate a high level of confidence (at almost 90 percent) for volatile matter. The reproducibility of ash and FSC (equivalent of CSR) between the two laboratories is poor (at about 70 percent) and the reproducibility of sulphur, calorific value and true relative density are very poor.

The ERM values are on average higher than the UUI values (except for ash) and are therefore considered to be less conservative or probably over estimated in the Coal Resource and Coal Quality statement.

Table 8-8: Reproducibility of results between ERM, and UUI

Analysis name	n	AS ERM	EE ERM	EO
Ash (air-dry)	136	69.00	69.00	71.00
Volatile matter (%)	566	88.00	88.00	94.00
Sulphur (%)	497	14.00	17.00	17.00
Calorific value	464	20.00	20.00	20.00
True relative density	494	34	-	-
Fixed carbon value	495	69.00	69.00	68.00

Note: For ashing tests (FSC) - Overall Ranking Number (OSR)

(Data Reported)

8.7.3.1 Analysis moisture

Figure 8-13 shows a comparison of analysis moisture determinations. Analysis moisture is the moisture content (air-dry) of the coal sample at the time of the analysis.

The average analysis moisture value reported by the ERM is 0.97 percent, and the UUI laboratory reported values that are on average 0.01 percentage points lower. It can be expected that the reproducibility of analysis moisture values in different laboratories will vary according to the prevailing humidity conditions at the time of analysis. It is therefore necessary to compare the rest of the analyses on the same moisture level - in this context the coal quality parameters will be compared on a dry basis to exclude the effect of varying moisture content. The true relative density values were adjusted according to the Preston Sanders formula from an air-dry to a dry basis.

8.7.3.2 Ash

Figure 8-14 shows a comparison of ash determinations. The average ash value reported by the ERM is 43.4 percent, and the UUI laboratory reported values that are on average 0.3 percentage points higher. Although the correlation between the two data sets is generally moderate, there are a number of anomalous values, which could indicate errors.

8.7.3.3 Volatile matter

Figure 8-15 shows a comparison of volatile matter determinations. The average volatile matter value reported by the ERM is 20.1 percent, and the UUI Laboratory reported values that are on average 0.4 percentage points lower.

8.7.3.4 Total sulphur

Figure 8-16 shows no comparison of total sulphur determinations, even after the samples with greater than 4.0 percent values were removed from the ERM data set. The average sulphur value reported by the ERM is 0.7 percent, and the UUI laboratory reported values that are on average 0.3 percentage points lower.

17.3.4. Comparison

Figure 17.3.4 shows a comparison of laboratory and field sedimentation data. The average sedimentation rates reported by the USGS and other data and our laboratory data are plotted against the sedimentation rates obtained

17.3.4.1. Regression analysis

Figure 17.3.4 shows a comparison of laboratory and field sedimentation data. The average sedimentation rates reported by the USGS and other data and our laboratory data are plotted against the sedimentation rates obtained

17.3.4.2. Data analysis

Figure 17.3.4 shows a comparison of laboratory and field sedimentation data. The average sedimentation rates reported by the USGS and other data and our laboratory data are plotted against the sedimentation rates obtained

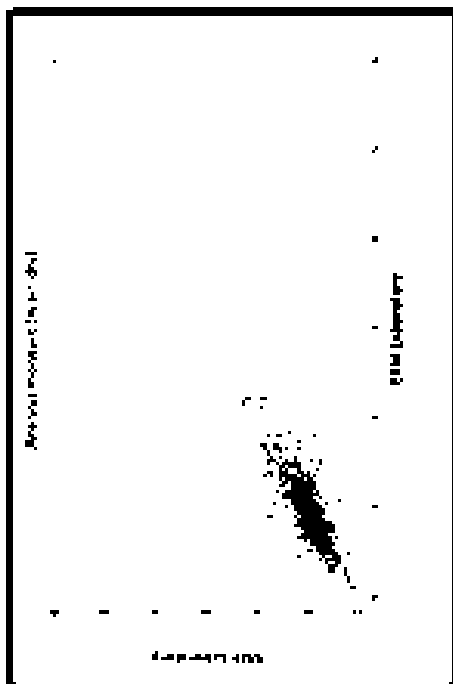


Figure 17.3.4 Comparison of multiple measurements

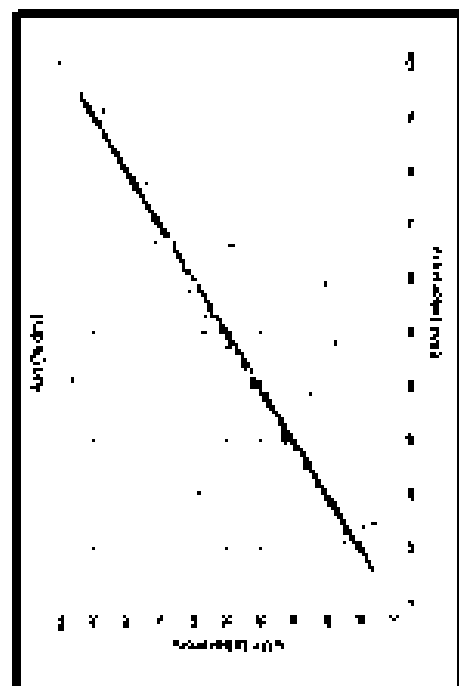


Figure 17.3.5 Comparison of data from multiple sources

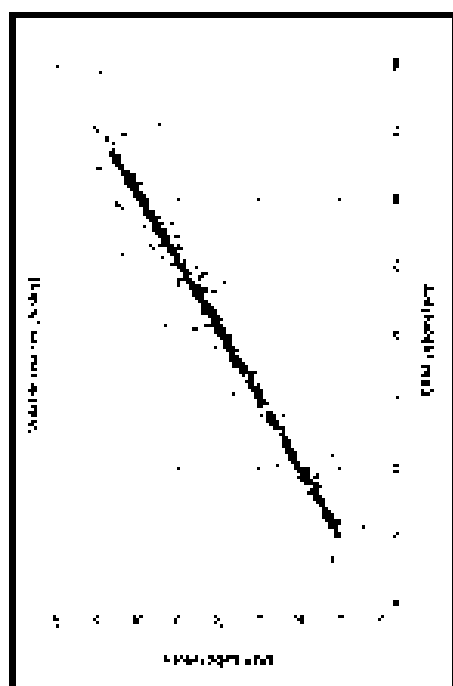


Figure 17.3.6 Comparison of data from multiple sources

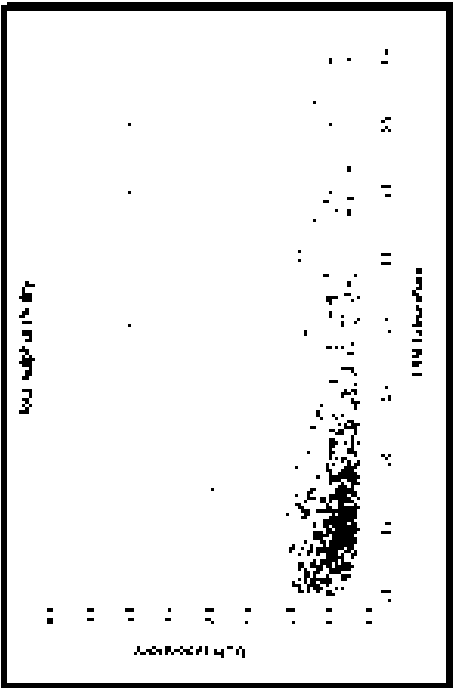


Figure A16 Comparison of bulk density determinations

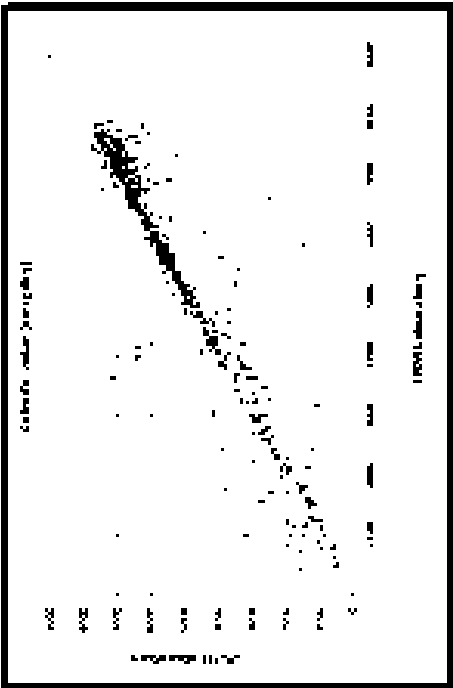


Figure B17 Comparison of bulk density determinations

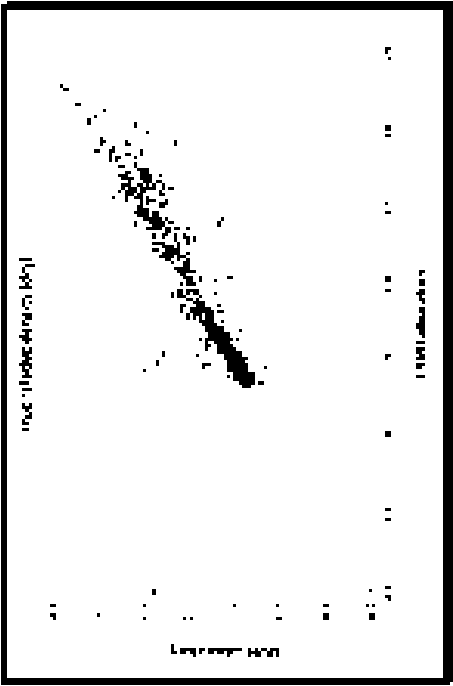


Figure B18 Comparison of bulk density determinations

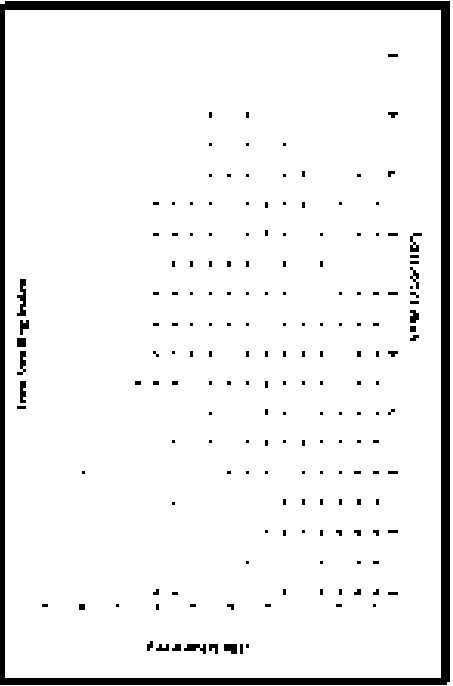


Figure A19 Comparison of Bulk density determinations

2.2.4 Conclusions for representability of samples between sites

The ES&M reported values are considered to be acceptable for the estimation of Coal Reserves and Coal Quality.

It is noted that the ES&M generally reported values of coal quality parameters lower than the ALB laboratory, and generally higher than the UTSE laboratory, with varying degrees of representability between laboratories.

Compared with the analytical results from the ALB laboratory, the ES&M reported an average:

- a higher volatile matter value (9.3 percentage points) with a reasonable representability level of about 30 percent;
- a lower wet value (0.5 percent wet points) with a reasonable representability level of about 30 percent;
- a lower ashlar value (0.1 percent wet points) with a good representability level of about 30 percent;
- a lower volatile value (0.40 vol%) with a poor representability of about 30 percent;
- a low in-line relative density (1.34 unit) with a poor representability of about 30 percent; and
- a lower CSM (1 unit) with a reasonable representability of about 30 percent.

Compared with the analytical results from the UTSE laboratory, the ES&M reported an average:

- a lower ash (0.3 percentage points) with a reasonable representability level of about 30 percent;
- a higher volatile matter value (4.4 percentage points) with a good representability level of about 30 percent;
- a higher volatile value (0.3 percentage points) with no representability between the two laboratories;
- a higher chlorine value (130 unit) with a poor representability of about 30 percent;
- a higher true relative density (0.40 units) with a poor representability of about 30 percent; and
- a higher CSM (1 unit) with a reasonable representability of about 30 percent.

The reported ashlar values from the UTSE laboratory need further investigation to determine the cause of the poor representability.

Point of Observation definition and calculation

Under the Compustat Process methodology, a point of observation (POO) is a very clear definition to where it is to be used as a valid data point for evaluation and modeling purposes.

A point of observation for this Resource Estimate for UTRCO was based on:

1. A complete lithology log for a borehole.
2. Complete L&S data including Caliper, Density, and Gamma as a solid mass for 1 borehole.
3. Ability to correct the lithology log to the L&S data using core photos and other data.
4. Sonar logs to fully sampled including all down postings.
5. Complete (and corrected) coal quality data set for seams defined.
6. Equal in, or greater than 25 percent core recovery for coal seams deemed inadequate to high potential coking coal and aged in, or greater than 50 percent core recovery for coal seams deemed low potential coking coal.
7. Adequate bedding, weathering and relative level data for all borehole sections.
8. Adequate topography data for the project area covered by boreholes.

Normally the NAAC Code and coal potential requires 50 percent or greater core recovery in coal. This standard often is however a guideline, but it has been the experience of the Compustat Process and its Evaluation core mining projects in boreholes where coking coal is involved, 75 percent there core recovery or greater should be satisfactory, while for thermal coal a 40 percent or greater lower core recovery is sufficient.

The reasoning for this is that coking coal has very high and brittle materials referred to as "beds". It is this "beds" that holds the coking potential of the coal and is normally very low in Ash. It is due to this "beds" that is mostly lost in the coking process, hence lowering the coking potential and also lowering Ash of the coking sample. Thermal coals tend to be duller and stronger coal and hence any value loss does not affect the overall coal quality.

The Compustat Process determined the acceptable lower core recovery for a point of observation based on the potential for coking coal (Figure 2-34) is shown in Table 2-9.

五、主要参考文献

Spore Group	Colony growth	Core Recovery Rate
1	Medium	20
2	Medium	50
3	Medium	40
4	High	30
5	High	20
6	High	50
7	High	30
8	Medium	50
9	Medium	20
10	High	30
11	High	20
12-19	Medium	20
20	High	50
21	High	30
22	High	20
23-29	Medium	20
30	Medium	20
31	Medium	20
32	Low	20
33	Low	20
34	Low	20

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Use of Conditional Inclusion Procedures to Determine the expected error of estimation as an aid in the understanding of confidence in the classification procedure.

Thanks also to newly released Victorian Guidelines for the Environment, and Climate Change and Civil Resources' 2014 edition (The Guidelines, which KRCG (ANZ) refers to, it is anticipated that the Companies Forum provides an instance of confidence in the climate-risk category and The Guidelines provide a number of practical advice that can be used to aid the identification and development of real scenarios.

On the budgeted data has been collected, recorded and fully reported in accordance with the KONG Code, in conformity to required or expected errors in the accounts to which reference is made in the construction of the accounts. The accounts to which reference is made in the construction of the accounts are the accounts to which reference is made in the construction of the accounts.

[illegible]

Although employed in the South Sea, a "white" man was not necessarily a "white" man, and a "black" man was not necessarily a "black" man. In fact, the concept of race was fluid and often changed over time. For example, a "white" man who married a "black" woman and lived with her for a long time might be considered a "black" man by the community. Similarly, a "black" man who married a "white" woman and lived with her for a long time might be considered a "white" man by the community. This fluidity of race was a key feature of the South Sea Islands and was a major factor in the development of the plantation system.

The approach undertaken in this report was to take the views of the greatest number of the public by using the Council's own (United Kingdom) Survey 4C. This consisted of 40 survey units (each about 100 people) in environmental conditions and have been made available to make requests to have a greater knowledge to item 4C. In addition, telephone and newspaper are critical sources for any further comments. The comments collected in this case are different (positive), and any further comments, relative changes (negative) and not (negative).

[illegible]

RECEPTION **Page 1** **Page 2** **Page 3** **Page 4** **Page 5** **Page 6** **Page 7** **Page 8** **Page 9** **Page 10** **Page 11** **Page 12** **Page 13** **Page 14** **Page 15** **Page 16** **Page 17** **Page 18** **Page 19** **Page 20** **Page 21** **Page 22** **Page 23** **Page 24** **Page 25** **Page 26** **Page 27** **Page 28** **Page 29** **Page 30** **Page 31** **Page 32** **Page 33** **Page 34** **Page 35** **Page 36** **Page 37** **Page 38** **Page 39** **Page 40** **Page 41** **Page 42** **Page 43** **Page 44** **Page 45** **Page 46** **Page 47** **Page 48** **Page 49** **Page 50** **Page 51** **Page 52** **Page 53** **Page 54** **Page 55** **Page 56** **Page 57** **Page 58** **Page 59** **Page 60** **Page 61** **Page 62** **Page 63** **Page 64** **Page 65** **Page 66** **Page 67** **Page 68** **Page 69** **Page 70** **Page 71** **Page 72** **Page 73** **Page 74** **Page 75** **Page 76** **Page 77** **Page 78** **Page 79** **Page 80** **Page 81** **Page 82** **Page 83** **Page 84** **Page 85** **Page 86** **Page 87** **Page 88** **Page 89** **Page 90** **Page 91** **Page 92** **Page 93** **Page 94** **Page 95** **Page 96** **Page 97** **Page 98** **Page 99** **Page 100** **Page 101** **Page 102** **Page 103** **Page 104** **Page 105** **Page 106** **Page 107** **Page 108** **Page 109** **Page 110** **Page 111** **Page 112** **Page 113** **Page 114** **Page 115** **Page 116** **Page 117** **Page 118** **Page 119** **Page 120** **Page 121** **Page 122** **Page 123** **Page 124** **Page 125** **Page 126** **Page 127** **Page 128** **Page 129** **Page 130** **Page 131** **Page 132** **Page 133** **Page 134** **Page 135** **Page 136** **Page 137** **Page 138** **Page 139** **Page 140** **Page 141** **Page 142** **Page 143** **Page 144** **Page 145** **Page 146** **Page 147** **Page 148** **Page 149** **Page 150** **Page 151** **Page 152** **Page 153** **Page 154** **Page 155** **Page 156** **Page 157** **Page 158** **Page 159** **Page 160** **Page 161** **Page 162** **Page 163** **Page 164** **Page 165** **Page 166** **Page 167** **Page 168** **Page 169** **Page 170** **Page 171** **Page 172** **Page 173** **Page 174** **Page 175** **Page 176** **Page 177** **Page 178** **Page 179** **Page 180** **Page 181** **Page 182** **Page 183** **Page 184** **Page 185** **Page 186** **Page 187** **Page 188** **Page 189** **Page 190** **Page 191** **Page 192** **Page 193** **Page 194** **Page 195** **Page 196** **Page 197** **Page 198** **Page 199** **Page 200** **Page 201** **Page 202** **Page 203** **Page 204** **Page 205** **Page 206** **Page 207** **Page 208** **Page 209** **Page 210** **Page 211** **Page 212** **Page 213** **Page 214** **Page 215** **Page 216** **Page 217** **Page 218** **Page 219** **Page 220** **Page 221** **Page 222** **Page 223** **Page 224** **Page 225** **Page 226** **Page 227** **Page 228** **Page 229** **Page 230** **Page 231** **Page 232** **Page 233** **Page 234** **Page 235** **Page 236** **Page 237** **Page 238** **Page 239** **Page 240** **Page 241** **Page 242** **Page 243** **Page 244** **Page 245** **Page 246** **Page 247** **Page 248** **Page 249** **Page 250** **Page 251** **Page 252** **Page 253** **Page 254** **Page 255** **Page 256** **Page 257** **Page 258** **Page 259** **Page 260** **Page 261** **Page 262** **Page 263** **Page 264** **Page 265** **Page 266** **Page 267** **Page 268** **Page 269** **Page 270** **Page 271** **Page 272** **Page 273** **Page 274** **Page 275** **Page 276** **Page 277** **Page 278** **Page 279** **Page 280** **Page 281** **Page 282** **Page 283** **Page 284** **Page 285** **Page 286** **Page 287** **Page 288** **Page 289** **Page 290** **Page 291** **Page 292** **Page 293** **Page 294** **Page 295** **Page 296** **Page 297** **Page 298** **Page 299** **Page 300** **Page 301** **Page 302** **Page 303** **Page 304** **Page 305** **Page 306** **Page 307** **Page 308** **Page 309** **Page 310** **Page 311** **Page 312** **Page 313** **Page 314** **Page 315** **Page 316** **Page 317** **Page 318** **Page 319** **Page 320** **Page 321** **Page 322** **Page 323** **Page 324** **Page 325** **Page 326** **Page 327** **Page 328** **Page 329** **Page 330** **Page 331** **Page 332** **Page 333** **Page 334** **Page 335** **Page 336** **Page 337** **Page 338** **Page 339** **Page 340** **Page 341** **Page 342** **Page 343** **Page 344** **Page 345** **Page 346** **Page 347** **Page 348** **Page 349** **Page 350** **Page 351** **Page 352** **Page 353** **Page 354** **Page 355** **Page 356** **Page 357** **Page 358** **Page 359** **Page 360** **Page 361** **Page 362** **Page 363** **Page 364** **Page 365** **Page 366** **Page 367** **Page 368** **Page 369** **Page 370** **Page 371** **Page 372** **Page 373** **Page 374** **Page 375** **Page 376** **Page 377** **Page 378** **Page 379** **Page 380** **Page 381** **Page**

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- Data generation and import into SPSS-18
- Data analysis and downloading
- Checking for multicollinearity
- Regression transformation
- Odd creation
- Quantile residual regression helps deliver an appealing transformation (also is an alternative multicollinearity)
- Suppressed Gaussian distributions (100 simulations)
- Checking results of simulations
- Data matching
- Calculating edge weights
- Calculating expected error w/ 50 percent confidence for odd both spring from 100 to 10000 in 100 increments
- Taking the standard results for mean thickness (volume) and relative thickness and average the results to calculate another standard (rank, not)
- Calculating "new" data (and mean error) for each of years

The results are illustrated in Figure 8-20. The associated variograms are shown in Appendix 24.

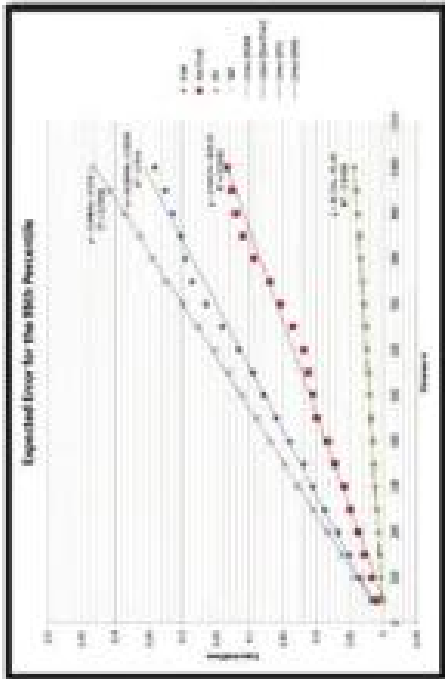


Figure 8-20: Expected error for team 4C for the 95th Percentile

The total moisture proved to have the greatest expected error and relative density the least expected error. This followed logic as free moisture is the field whilst collecting coal samples is an area of high inaccuracy due to numerous outside influences. Relative density is a reasonably reliable and repeatable test so should have less variability. Seam thickness also gave a good result which makes sense as seam thickness is corrected against downhole geophysics minimising observational and procedural error. Ash has the second highest error and would follow that it has a number of sources of error greater than seam thickness and relative density.

Once the expected error is reasonably known, the issue becomes how to use it. The Coalbilities removed the suggested recommended maximum distances as they proved to be confusing due to critical variables differ between deposits and how those variables vary in space will differ between deposits. As stated by the Coalbilities 'By removing suggested maximum distances between points of observation for each confidence category in the Coalbilities, the responsibility is placed back with the Competent Person to determine the criteria for classification'. Using expected error as a guide for spatial control for categories and not just arbitrary ('past feet') measurements, there becomes a more consistent and logical way of determining spatial control.

Mr Mark Biggs (ROM Resources), a very senior and well respected coal geologist and a member of the committee revising the Australian Coal Guidelines, produced a graph of expect error and resource classification for an early draft of the Guidelines (Biggs 2013). It represents the culmination of results of approximately 50 projects

that he had recently worked on, with the resulting expected error and associated resource classification (refer Figure 8-21). This can be used as a guide in justifying expected error results and spatial limits on resource classifications. The focus of this study is on the Measured and Indicated categories only, as these are the categories converted to Resources requiring the highest confidence. The Inferred category was decided by the Competent Person that not only the expected error was an influence but also the broader geological continuity needed to be taken into consideration.



Figure 8-21: Biggs 2013 expected error

Referring to Figure 8-21, at point (A), this represents 1.5 percent error and is the maximum error for the Measured category. The location at point (B) represents 2.5 percent error and is the maximum error for the Indicated category. The values in Figure 8-21 at points (A) and (B) were used as guides to compare with the category distances being applied to the URG model. The results of expected error at the 95 percentile with the corresponding probabilities at points (A) and (B) from Figure 8-21 is shown in Figure 8-22.

It was observed in Figure 8-22 that the corresponding point (A) matches well with the Measured category distance of 250m, point (C), in the corresponding point (B), the Indicated category distance of 700m, point (D), meets all variables except total moisture. Since for high rank Coal Measures, moisture is a small component (average 3 percent) of the total material then this distance is acceptable.

The Inferred category was not determined using this method as the narrow dimensions in the west of the deposit may impact the result as a variogram can only be inferred about half the distance of the data points. The Inferred category was reduced to 1,200m data spacing and in most cases is truncated by the deposit boundary well before the limit.

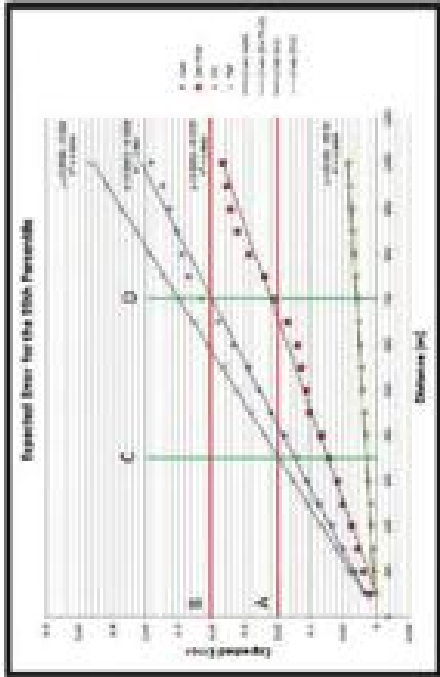


Figure 8-22: resulting category distances from expected error for seam 4C

It is important to note, total incidence is the absolute maximum for expected error at the 95 percent level of confidence and the other variables are less than the maximum. The ‘average’ of the errors could be used but, care is required as there is a question of whether averaging the errors makes sense. This comes back to what is referred to as a ‘loss’ function for each variable. Essentially this is an estimate of how much it will impact the result if a variable is in error, as a function of the error, is that variable.

Investigating the ‘loss’ function is a way of determining maximum overall error for the category result. Since the result of most interest in a resource statement is the tonnage and tonnage is ‘area’ multiplied by ‘volume’ multiplied by ‘relative density’. If the ‘area’ can be assumed to have no error (high quality precision survey) then only the expected error for ‘volume’ (seam thickness) and ‘relative density’ needs to be investigated. One approach could be just averaging the resulting expected error curves in Figure 8-22; however, a better method is to average the simulated realisations for ‘volume’ (seam thickness) and ‘relative density’ and calculate a resulting set of realisations. From this a new curve for expected error can be determined. The result of this exercise is found in Figure 8-23.

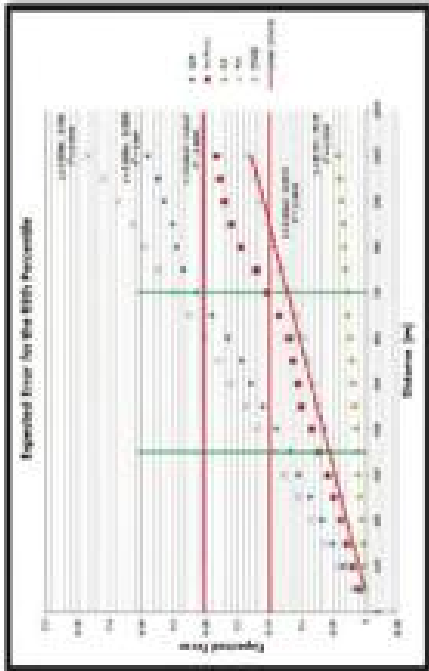


Figure 8-23: resulting category distances from expected error for seam 4C with ‘loss’ factor

It is noted from Figure 8-23 that the maximum expected error for the Measured category result is 6 percent and for the Indicated category result is 12 percent. For Induced, using the regression for ‘loss’ factor and applying it to the Induced category distance the maximum expected error is 30 percent. All of the resource category maximum error numbers fit well within the ranges suggested in Figure 8-21.

Using expected error to determine spatial category requirement and then calculating resulting maximum error has been a good exercise in determining confidence. It is recommended that this should now be expanded to the other major seam groups to compare with the assumption made for Seam 4C.

9. Resource Estimation Methodology

The method used for estimating Resources at UBG involved modelling an elevation grid for the major ply, OAL, and modelling the chassis grids for the other plies and partings. These thickness grids for the plies and partings were then stacked on top of each other to form a 3D block model.

To create an accurate and reliable 3D model of the coal seams a kriging algorithm with semi-variogram modelling for the seam elevation was used. Kriging is a geostatistical gridding method for constructing a minimum-error-variance linear estimate at a location where the true value is unknown. This method produces accurate maps from irregularly spaced data, such as coal seam elevation points. Kriging attempts to model trends suggested in the data, so that, for example, low points might be connected along the borders of the basin rather than isolated by high-eye type contours. Kriging is a very flexible gridding method that can be custom fitted to any data set by specifying the appropriate semi-variogram model. Kriging incorporates autocorrelation and underlying trend.

5.1 Software Used

The URB Resource estimate was carried out using Microsim's COALMEASURE Version 13.0.2 and LogCheck Version 6.147 using the COALLOG geology data format as the database.

9.2 Database Compilation

The points of observation data were supplied by the Competent Person (Appendix 4a & 4b) in Log-book format and a summary of the data is shown in Table 9-1. The extrapolation factor coefficients were supplied by the Competent Person (Appendix 1).

Table 9-1: Summary of Points of Observation #1a

Index Type	Result in OneWord
1: word	1,750
2: word	37,825
3: word	9,510
4: word	1,031
5: word	1,427

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9.7 Data Validation

The run data was collected under the full supervision of the Competent Person, following the procedure in Appendix 2.

A peer review by Mr. Sercombe (Appendix 14) was provided as an independent review of processes for the 2009-2011 program and no issues with data validation were found. Mr. Sercombe's report is still valid for the 2012-2014 programs. In

In addition, My Italianline has provided continual performance reviews and mentoring to the Connecticut Persons and EE members team.

The borehole collar testing and seafloor coordinates were validated by Mr. Ballantine for the 2012–2014 program boreholes (refer Table 6-1) and 2009–2011 program boreholes validated by Mr. Sercombe's site visit using a hand held GPS (Appendix 1-1). No boreholes were excluded from the Bayesian estimate due to validation issues.

Following initial modelling, a review of the mean correlation was undertaken. Numerous boreholes and parts of boreholes were found to show anomalous thickness and elevations. This was due to failing so these piles were removed from the measure estimate. A list of these piles is shown in Appendix 17. The final validated data is shown in Table 9-2.

Table 9.9: Summary of data used for Resource Estimation

Event Type	Number of Reports
General	1,659
General - Air and Water Pollution	31,567
General - Air and Water Pollution - Air Quality	2,510
General - Air and Water Pollution - Air Quality - Air Quality - Air Quality - Air Quality	1,485
General - Air and Water Pollution - Air Quality - Air Quality - Air Quality - Air Quality	1,112

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9.4 Exploratory Data Analysis

The summary statistics for all of the coal quality values is shown in an un-received and air-dried basis respectively in Table 9.4.3 and Table 9.4.4.

Table 9-3: Summary statistics for As-Received Coal Quality

Parameter	PD (g/g)	TM (%)	A-6 (%)	TM (%)	PS (%)	Q _{max} (g/g)	\bar{P}_n
INITIAL	1.15	0.88	7.94	2.57	0	0	0
INITIAL+M	3.17	37.34	82.03	39.06	71.37	783.5	38.53
INITIAL+M+P	11.60	11.60	11.60	11.60	11.60	11.60	11.60
INITIAL+M+P+M	1.64	3.3	33.3	17.65	26.34	5130.5	1.01
INITIAL+M+P+M+M	0.08	7.54	349.12	17.62	390.17	390.029	1.01
INITIAL+M+P+M+M+M	0.29	2.75	16.21	4.13	47.00	1930.64	1.88

[illegible]

Table 9.4: Summary statistics for Air-Dry Coal Quality

Air-Dry STATISTICS	3D (mm)	IM (%)	A.A. (%)	VM (%)	FC (%)	Grav CV	S (%)
MEAN	1.10	0.06	8.12	2.97	0	0	0
MAXIMUM	3.46	15.93	60.26	30.31	72.4	6.151	38.94
MINIMUM OF POINTS	11.943	11143	11143	11143	11143	11143	11143
STDEV	1.67	0.68	34.16	16.11	46.85	5234.9	1.03
VARIANCE	0.1	0.36	267.92	17.99	202.43	4751753	2.01
COEFFICIENT OF VARIATION	0.51	0.67	16.7	4.24	17.30	2037.56	1.42

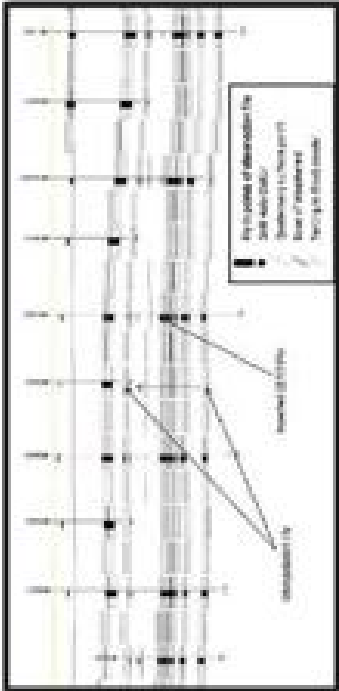
Source: Energy Resources LLC

9.5 Data Processing

To create the block model an elevation grid was created for the major lower ply 0AL and then the thickness grids for the other plies and partings were stacked above or below this as required. In order to use this method each borehole needed to contain an interval for each ply and parting, even if the ply or parting was 'pitched out' and was not intersected by that borehole.

Some plies were not intersected by the boreholes and so 'virtual' plies with a thickness of zero were inserted in order to model the seam morphology. The location of these virtual plies was determined by using the COALSEASURE extrapolation tool, which uses Inverse Distance Weighting with a power of two.

This is shown in the example in Figure 9-1 where the temporary grids for all plies under ply 2AL have been interpolated for borehole 500030 as per the seam hierarchy. Where boreholes intersected plies, but those plies were not present due to deformation as a result of changing sedimentary environments, these plies were inserted as zero thickness plies at the roof or floor of a logged ply as indicated in borehole 000106.



Source: Energy Resources LLC

Figure 9-1 : Interpolated virtual plies

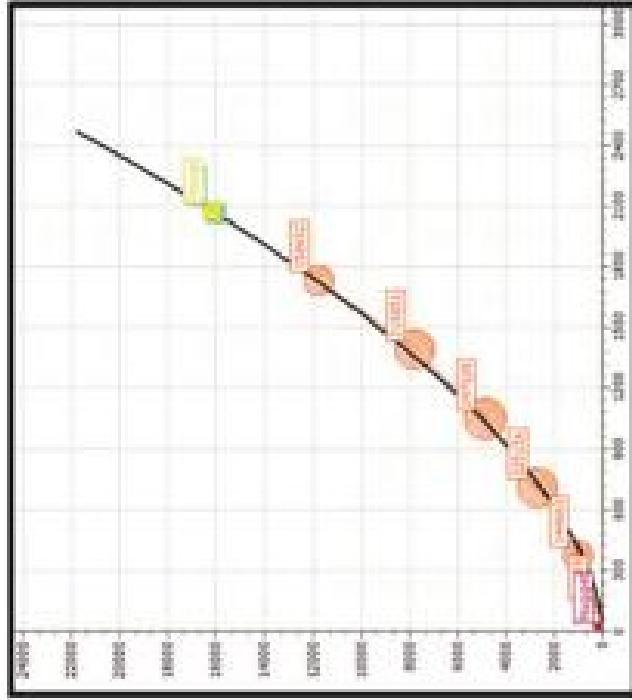
Virtual plies inserted into the database by temporary grids, or zero thickness plies above and below existing plies, are contained in Appendix 18

Stone parting intervals were logged in the new database, but where they were missing they were added to all ply groups for each borehole even in cases where the parting thickness was zero.

As a result of this processing, each borehole contained intervals for all plies and all stone partings.

9.6 Model Geostatistics

The purpose of geostatistical analysis was to generate a series of semivariograms that could be used as the input weighting mechanisms for the Kriging algorithm. To be able to conduct reliable geostatistical analysis there is a requirement to have sufficient number of points. As such, ply 0AL was used for geostatistical analysis as it was intersected by the largest number of boreholes and in the most consistent ply across the area. The omnidirectional semivariogram for the mid-point elevation of ply 0AL is shown in Figure 9-2.



Source: Energy Resources LLC

Figure 9-2: Omnidirectional Semivariogram for Elevation of ply 0AL

When the kriging algorithm was used, the weights of the values on the distances beyond semivariogram range were minimal if the semivariogram was modelled using spherical, exponential or Gaussian models. Therefore the general linear model was used to model the semivariograms for the seam elevations and thicknesses. Using this method, all of the values within the search ellipse will have some weight and hence used for the block estimation.

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9.7 Gridding

In order to create a reliable model of the seam morphology a cell size of 25.025m was selected for gridding. Gridding with exact interpolation using ordinary kriging was used to generate grids for the elevation of the mid-point of the ply and hence Distance Weighting with a power of two was used to generate grids for the thicknesses of the ples. Exact interpolation will honour data points exactly only when the data point falls directly in the grid cell being interpolated. With kriging this means that the coincident data point carries a weight of essentially one and all other data points carry a weight of essentially zero. This means that if the intersection of the borehole and the ply falls within the interpolated cell, then this cell is populated with the value of that point.

To allow the grids to cover the necessary areas, a circular search radius of 2,000m with maximum of 20 points was used to create the elevation grids. The elevation grid for the reference ply 0AL is shown in

Figure 9-3 together with the data points used to make the grid. The thickness grids were created using a circular search radius of 2,000m with maximum of 20 points per sector.

The base of weathering grid was produced using kriging with search radius of 2,000m with maximum of 20 points per sector. The base of weathering grid was used in conjunction with mapped LON lines as the upper most cut-off for coking coal.

The base of Quaternary grid was produced using IDW with a power of two. Weathered coal can be calculated between the base of weathering and base of Quaternary. This coal has been successfully mined and used for the coals Powerstation fired as well as commercial sold as Thermal coal. For the purpose of this resource estimate it has been included in the estimate but should be noted that it is a lower quality material.

A Topography surface grid was produced using IDW with a power of two. This was then converted into a digital terrain (DTM) model.

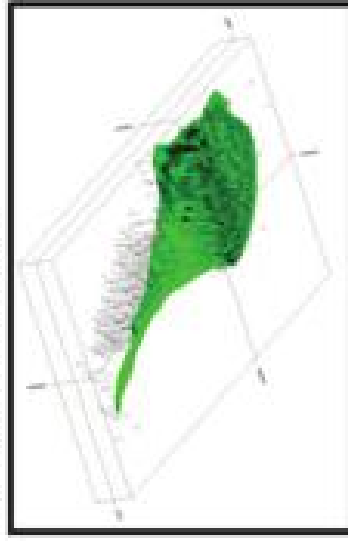


Figure 9-3: Elevation grid for 0AL ply (looking northwest) with boreholes

Source: Energy Resources LLC

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9.8 Block Modelling

The 3D gridded main block model was generated by stacking thickness grids on top or below of the major ply (OAL) elevation grid. The centroid of the block East and North was the X and Y values from the grid file which was 23 523m (grid cell size), the centroid of the block RL was the Z value from the elevation grid and block size by RL was the Z value from thickness grids.

Once the block model was created any blocks above the modelled base of Quaternary surface were removed.

The block model was limited by the base of Quaternary where they were determined, the northern and southern fault boundaries, the license boundary and the current mine plan as at the 31st December 2014. Figure 9-4 shows the limits of ply OAL.



Figure 9-4: Model limits for ply OAL, (looking northwest) with Resource categories (yellow-Measured, blue-indicated and purple-inferred) and boreholes.

Source: BHP Resource LLC

The northern and southern boundaries are fault boundaries. Norwest in the 2008 Resource Estimate initially used the geology maps compiled by Daalderod et al., from the 1989 work and simply applied the fault contact with a vertical limit. For the 2012 Resource Estimate the seismic profiles were immensely useful in determining a more accurate surface limit and shape, however, from this work there was no real evidence of the angle of the contact. The Competent Person responsible for the 2012 resource estimate used a more conservative limit of 80 degrees inward dipping into the project area.

During the period 2012-2014 covering this report, mining had opened up the pit sufficiently that detailed face-wall mapping was able to clearly observe and measure this contact. In addition, two boreholes were planned for a geotechnical review for the final end-wall design, which provided further information on the contact and continuity to the west of the pit. Figure 9-5 graphically displays a borehole section through the contact and the corresponding face-wall mapping of the same contact. The contact is found to be over-throwing the coal measures at an average angle of approximately 72 degrees.

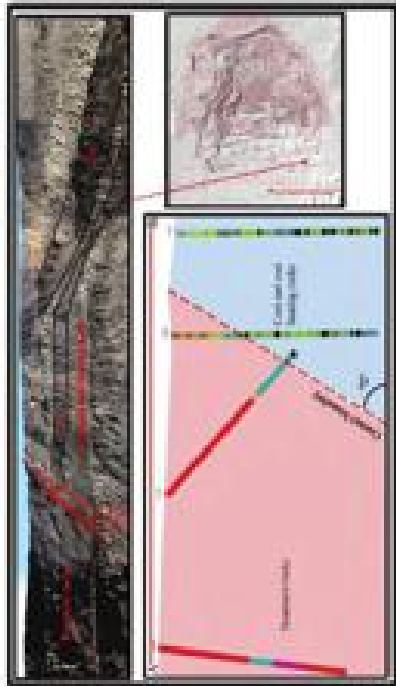


Figure 9-5: Basement contact with coal measure

The final boundary which limited the block model was constructed by digitizing the surface boundary of the fault contact between the basement and the coal measure on the 2D seismic profiles and then using the face-wall mapping and borehole information on the contact angle of basement and coal measure to create a wireframe to form a 3D shape. Once the block model was created it was cut by this wireframe to provide the final shape for the block model (Figure 9-6).

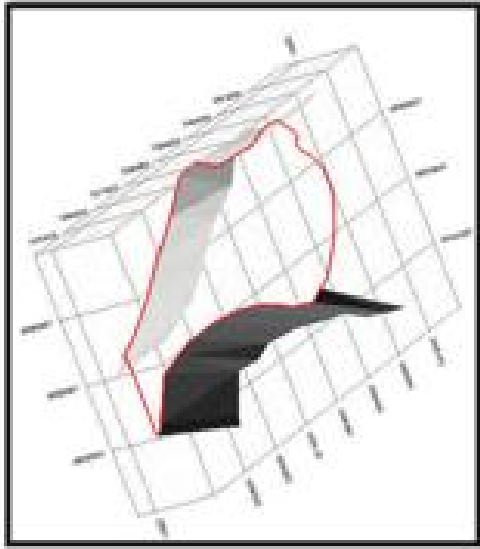


Figure 9-6: Wireframe constructed from 2D seismic profiles, face-wall mapping and boreholes to limit the northern and southern boundary faults.

Source: Beryg Resources LLC

The resulting block model which was used for the resource classification, seam coding and grade interpolation is shown in Figure 9-77.

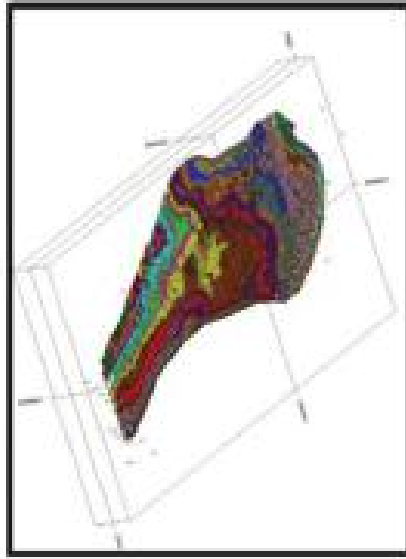


Figure 9-7: Block Model (looking northwest) for each ply with boreholes

Source: Beryg Resources LLC

9.9

Resource Classification, Seam Coding and Grade Interpolation

The JORC Code and the Guidelines make no recommendations for Resource classifications and place the responsibility with the Competent Person to determine the criteria for classification.

The Competent Person for this estimate used the expected error in the estimate to support estimates for Measured and Indicated categories. For inferred category the narrow dimensions of the deposit may cause a misleading result using the expected error technique so the experience of the Competent Person and detailed knowledge of the deposit were sufficient for determining this category spacing.

In determining extrapolation beyond last data points, half the category distance was applied. Due to the data spacing and deposit dimensions this did not have a major effect.

The shapes for the categories was mostly automated with the Micromine software, however where this was not true the edge of the data was manually edited by the Competent Person. In addition, due to major structural stress areas were hard-wired for specific categories like Inferred and data spacing had no influence. The general approach adopted for the calculation of resources for URB follows:

1. **Measured** resources were estimated with points of observation at 300m and where appropriate were extrapolated half the distance from the last point.
2. **Indicated** resources were estimated with points of observation at 700m and where appropriate were extrapolated half the distance from the last point.
3. **Inferred** resources were estimated with points of observation at 1500m and where appropriate were extrapolated half the distance from the last point.

The resulting resource category areas are contained in Appendix 19.

Seam coding was applied to composite plies into seams based upon a specified minimum coal thickness and a maximum parting thickness. The seams were also coded on the basis of resource classification so that only plies of the same resource classification were combined together with their partings. The following modifying factors were used for seam coding:

- No maximum seam thickness.
- Minimum seam thickness to be included in the Resource of 0.5m to 400m depth and then 1.5m below 400m.
- Minimum parting thickness to be included in the Resource of 0.5m and
- Coal Quality limit with Ash content greater than 50 percent (DRY basis) being excluded from the resource estimate.

Following seam coding, coal quality interpolation was carried out. Only intervals that were marked as a point of observation were used for coal quality interpolation. An IDW algorithm with a power of two was used to interpolate the coal quality into the empty block model.

Coal quality interpolation was conducted for each ply separately. One search run at 7,000m radius was used to interpolate all the blocks in each model. Filters were applied to make sure that only points of observation for the selected ply were used for the interpolation of the blocks for that ply.

Partings within the model limits but without coal quality were given default coal quality parameters based on rock quality analysis. The default values used on an air-dry and air-received basis are shown in Table 9-5.

Table 9-5: Default coal quality values for partings

Active		Air Received	
ED	2.55	ED	2.46
SH	1.13	SH	2.46
ACTW	93.28	ACTW	93.03
VM	5.59	VM	5.51
FC	0	FC	0
CV	0	CV	0
W	2.44	W	2.41

Source: Adapted

9.10 Block Model Validation

The block model was firstly checked to ensure that all blocks were populated and that block values were within the same range as the input values. Following this a visual validation was conducted by loading the block model into the Microstation 3D viewer together with borehole traces, plies from the original points of observation file, base of weathering, base of Quaternary and topographic surfaces. Each cross-section was then reviewed to check that the plies from the original points of observation file agreed with the plies in the block model.

Figure 9-8 shows validation of the block model through a section containing holes G00604, S01033, G00611, S01034, G00609A and S01035. This image shows that the plies from the original points of observation coincide with the plies in the block model.

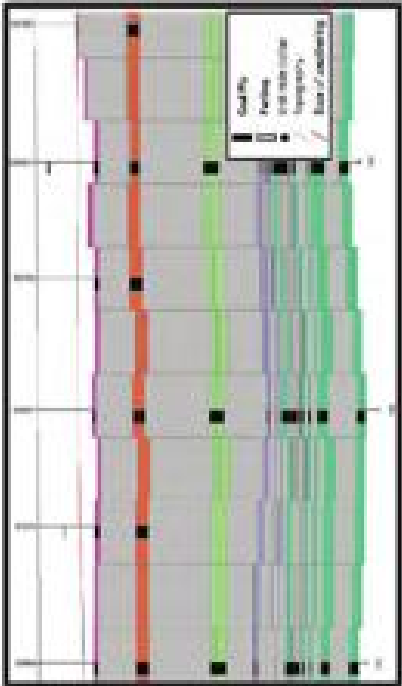


Figure 9-8: Block Model Validation

Source: Energy Resources (P) O

A further manual check was completed by the Competent Person where an area including boreholes G00607, G00610, G00612 and G00606 for the ply 3A10 was compared with the block model. The manual result was within 3 percent in tonnage of the block model result. This comparison is within acceptable limits.

10 Resource Statement

The total resource estimated for the UFG deposit is shown on an as-received basis in Table 10-1, and on an air-dry basis in Table 10-2. It should be noted that these figures have been rounded to reflect the fact that they are estimates and as a result this may cause figures not to sum correctly.

Table 10.1: Total Resources on an As-Received (AR) Basis

Activity	Volume	Revenue	Variable Costs	Contribution Margin	Fixed Costs	Operating Income	Operating Leverage
1. Sales	100,000	\$1,000,000	\$400,000	\$600,000	\$100,000	\$500,000	1.00
2. Variable Costs	100,000		\$400,000				1.00
3. Contribution Margin	100,000	\$600,000					1.00
4. Fixed Costs	100,000			\$100,000			1.00
5. Operating Income	100,000				\$100,000		1.00
6. Total Revenue	100,000	\$1,000,000					1.00
7. Total Variable Costs	100,000		\$400,000				1.00
8. Total Fixed Costs	100,000			\$100,000			1.00
9. Total Operating Income	100,000				\$100,000		1.00
10. Total Contribution Margin	100,000	\$600,000					1.00
11. Total Operating Leverage	100,000						1.00
12. Total Operating Income	100,000				\$100,000		1.00
13. Total Contribution Margin	100,000	\$600,000					1.00
14. Total Operating Leverage	100,000						1.00
15. Total Operating Income	100,000				\$100,000		1.00
16. Total Contribution Margin	100,000	\$600,000					1.00
17. Total Operating Leverage	100,000						1.00
18. Total Operating Income	100,000				\$100,000		1.00
19. Total Contribution Margin	100,000	\$600,000					1.00
20. Total Operating Leverage	100,000						1.00
21. Total Operating Income	100,000				\$100,000		1.00
22. Total Contribution Margin	100,000	\$600,000					1.00
23. Total Operating Leverage	100,000						1.00
24. Total Operating Income	100,000				\$100,000		1.00
25. Total Contribution Margin	100,000	\$600,000					1.00
26. Total Operating Leverage	100,000						1.00
27. Total Operating Income	100,000				\$100,000		1.00
28. Total Contribution Margin	100,000	\$600,000					1.00
29. Total Operating Leverage	100,000						1.00
30. Total Operating Income	100,000				\$100,000		1.00
31. Total Contribution Margin	100,000	\$600,000					1.00
32. Total Operating Leverage	100,000						1.00
33. Total Operating Income	100,000				\$100,000		1.00
34. Total Contribution Margin	100,000	\$600,000					1.00
35. Total Operating Leverage	100,000						1.00
36. Total Operating Income	100,000				\$100,000		1.00
37. Total Contribution Margin	100,000	\$600,000					1.00
38. Total Operating Leverage	100,000						1.00
39. Total Operating Income	100,000				\$100,000		1.00
40. Total Contribution Margin	100,000	\$600,000					1.00
41. Total Operating Leverage	100,000						1.00
42. Total Operating Income	100,000				\$100,000		1.00
43. Total Contribution Margin	100,000	\$600,000					1.00
44. Total Operating Leverage	100,000						1.00
45. Total Operating Income	100,000				\$100,000		1.00
46. Total Contribution Margin	100,000	\$600,000					1.00
47. Total Operating Leverage	100,000						1.00
48. Total Operating Income	100,000				\$100,000		1.00
49. Total Contribution Margin	100,000	\$600,000					1.00
50. Total Operating Leverage	100,000						1.00
51. Total Operating Income	100,000				\$100,000		1.00
52. Total Contribution Margin	100,000	\$600,000					1.00
53. Total Operating Leverage	100,000						1.00
54. Total Operating Income	100,000				\$100,000		1.00
55. Total Contribution Margin	100,000	\$600,000					

1000

Table 10-3: Total Resources on an Air-Dry (AD) Basis

[illegible]

Abstract: The purpose of this study was to determine the effect of a 12-week, low-intensity, low-impact, and low-impact aerobically fit individuals. The study was conducted in a laboratory setting. The subjects were 12 females, aged 20-30, who were randomly assigned to two groups: a control group and an experimental group. The control group performed a 12-week, low-intensity, low-impact, and low-impact aerobically fit individuals. The experimental group performed a 12-week, low-intensity, low-impact, and low-impact aerobically fit individuals. The results of the study showed that the experimental group had a significantly higher heart rate and oxygen consumption than the control group. The results also showed that the experimental group had a significantly higher energy expenditure than the control group. The results of the study suggest that a 12-week, low-intensity, low-impact, and low-impact aerobically fit individuals can improve cardiovascular fitness and energy expenditure.

The volume of unclassified Resource is 20,137,534 m³. This unclassified material is available to be upgraded to 300°C Resource with further future exploration. The Resource estimation by seams can be found in Appendix 11a and 11b.

10.1 Comparison between New JORC (2012) - 31 December 2014 and Previous JORC (2004) - 30 June 2012 Resource Estimates to 400m

For the purposes of comparison, the two Resource estimates were re-adjusted for mining so only the models were compared and were not affected by outside influences such as mining dilution etc. This is not to be confused with the final Resource estimate in Table 10-1 and 10-2, which are final JORC (2012) Resource estimates and are adjusted to the mine survey pit shell.

The following table (Table 10-3) shows the Resources quoted on an as-received basis for the unadjusted previous JORC (2004) - 30th June 2012 and compared with the current Resource from this report. This table is non JORC and should be used for indicative comparative purposes only.

Table 10-3: Comparison of unadjusted New with Previous JORC Resource estimates - Non JORC

JORC 30 June 2012 - non JORC						
Total Coal Resources		Resource Category (as received)				
Depth Limit	Measured	Indicated	Inferred	Total (H+I)	Total (H+I+In)	Total (H+I+In)
Sub-T and above 400m	3,49.0	191.6	74.9	940.60	619.50	
Sub-T and below 400m	40.1	33.8	1.2	74.90	66.90	
Total	390.1	225.4	96.9	615.5	706.4	
JORC 31 Dec 2014 - non JORC						
Total Coal Resources		Resource Category (as received)				
Depth Limit	Measured	Indicated	Inferred	Total (H+I)	Total (H+I+In)	Total (H+I+In)
Sub-T and above 400m	353.0	173.9	87.1	530.90	618.00	
Sub-T and below 400m	39.7	43.9	26.0	83.60	113.60	
Total	392.7	219.8	113.1	614.5	731.6	
Comparison to Current JORC 2012 - non JORC						
Total Coal Resources		Resource Category (as received)				
Depth Limit	Measured	Indicated	Inferred	Total (H+I)	Total (H+I+In)	Total (H+I+In)
Sub-T and above 400m	6.0	-15.7	8.1	-9.7	-1.3	
Sub-T and below 400m	-1.4	10.1	18.0	8.7	26.7	
Total	4.6	-5.6	26.2	-1.0	25.2	
Total Coal Resources		Resource Category (as received)				
Depth Limit	Measured	Indicated	Inferred	Total (H+I)	Total (H+I+In)	Total (H+I+In)
Sub-T and above 400m	1.7%	-3.9%	9.4%	-1.8%	-0.2%	
Sub-T and below 400m	-0.3%	23.0%	60.0%	16.4%	23.9%	
Total	1.3%	-2.9%	12.4%	-0.2%	3.4%	

*All values in Millions of tonnes

Source: Energy Resources LLC

There is good agreement with the two estimates with the current estimate having an increase of three percent. However, there were a number of materially positive and negative aspects that occurred between the two estimates.

One of the main aspects in the current Resource estimate was completed under the new JORC (2012) Code which references to the new Coal Guidelines (2014). It should be noted that the two documents are for more stringent and thorough than previous versions. The following is a list of changes that were applied with apparent effect to the current estimate.

- Application of new JORC (2012) Code which references the new Coal Guidelines (2014), (coal lost or re-categorised).
- Under JORC (2012) a more robust understanding of error and points of observation data spacing. Measured category changed from 400m to 350m. Indicated category changed from 1000m to 700m and Inferred category changed from 3000m to 1500m, (coal lost or re-categorised).
- Updated LOX from 8m Mine sampling, (coal lost).
- Updated base of weathering and LOX lines with new drilling, (coal lost).
- Change in upper Resource limit from base of weathering to base of Quaternary, (coal gain).
- Change in angle of basement on north and south fault contacts, (coal gained).
- Ash cut-off changed from >50% as-received to >50% dry basis, (coal lost).

A further comparison that can be made from the previous resource estimate and the current resource estimate is the improvement in expected error. Referring to Figure 8-23 and using the previous category distances, the following table can be constructed (refer Table 10-4). The Measured categories only improved 1 percent however, the indicated category shows a 6 percent improvement in confidence.

Table 10-4: expected error comparison

Category	Expected Error's		
	2012 Measured	2014 Measured	Improvement
Measured	7%	6%	1%
Indicated	18%	12%	6%
Inferred	38%	30%	9%

It is important to recognise, increases in tonnage and grade are advantageous but also an improvement in the confidence of the tonnage and grade stated maybe more advantageous.

3. Review built sample work for the review as of the availability and coding leading to a full understanding of how these cases behave in the current CSRT performance can be identified and while vehicle provide can be identified and selected for the ruling operation.
4. Report the collection for reported error to all the other major review groups.
5. Continue the understanding of the spatial distribution of the coding characteristics of the code and the geographical parameters that affect the coding characteristics will be identified for the planning and production activities in order to produce a consistent product and maintaining the value of the report.
6. A review should be completed where there are more variations in the direction of the topography survey and the other survey.
7. The vehicle data in high level data has been improved in location and coding structural style, but it is highly recommended that other geographic features to map and include data within the file.
8. It is recommended that the data's program also some for coding is completed on larger hardware to develop an understanding of the possible for and had software in UTM.

12

Disclaimer

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15. Statement of Responsibility

Approved for release pursuant to E.O. 13526, 2013-08-22

Figure 1

Norman Corporation, (11th May 2008) Appendix (A) – *Mineral Mining Technical Report: Geology and Coal Resources*, Technical Report 00167.

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Appendix 1: Minimal Torture License

(Please see (1) or (1a) copies that accompany this report)

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Appendix 2: Procedures

(Please see (1) or (1a) copies that accompany this report)

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Appendix 3 Table of Base of Weathering and Quarterly for all barancholes that it was logged.

(Please see CD or hard copies that accompany this report)

Appendix 4a: Points of Observation – (as noted and bold)

(Please see CD or hard copies that accompany this report)

Appendix 4b: Points of Observation – (all-dry basins)

(Please see F13 or F14a1 copies that accompany this report)

Page 1

Appendix 5: Laboratory Certificates

(Please see F13 or F14a1 copies that accompany this report)

Page 2

Appendix 8a: Complete analytical database showing (as-received) coal quality

(Please see CDW Hand copies that accompany this report)

Appendix 8b: Complete analytical database showing (air-dry) coal quality

(Please see CDW Hand copies that accompany this report)

Appendix 7: Graphs on a seam by seam basis and for each coal quality parameter

(Please see C-10 or Hard copies that accompany this report)

Appendix 8: Borehole profiles with L&S and coal quality

(Please see C-12 or Hard copies that accompany this report)

Appendix 9: East-West & North-South borehole sections

Appendix 10: Seismic sections & map

(Please see E-12 or E-14 for copies that accompany this report)

(Please see E-12 or E-14 for copies that accompany this report)

Appendix 11a: Resources by team (sh-dry)

(Please see C10 or C11a11 copies that accompany this report)

Appendix 11b: Resources by team (se-dry)

(Please see C12 or C11a12 copies that accompany this report)

Appendix 12: Laboratory audit reports

(Please see (1) or (1a) copies that accompany this report)

Appendix 13: Seasonic reports

(Please see (1) or (1a) copies that accompany this report)

Appendix 14: PEER review

Appendix 15: Geotechnical report

(Please see CD or Hard copies that accompany this report)

(Please see CD or Hard copies that accompany this report)

Appendix 18: List of Downhole geophysical equipment

Appendix 17: Faulted boreholes and piles

(Please see CD or Hard copies that accompany this report)

(Please see CD or Hard copies that accompany this report)

Appendix 18: Insured and unregulated data points

(Please see CD or Hard copies that accompany this report)

Appendix 18: Resource category areas per city

(Please see CD or Hard copies that accompany this report)

Appendix 20: Capability Statement

Appendix 21: UHG Geochemistry

(Please see CD in Hard copies that accompany UHs report.)

(Please see CD in Hard copies that accompany UHs report.)

Appendix 22: Reserves - RPM

(Please see C13a Handout for that accompanying this report)

Appendix 23: Hydrology

(Please see C13a Handout for that accompanying this report)

Appendix 24: Varlograms

Appendix 25: JORC (2012) Table 1

(Please see Table 1 and notes that accompany this report)

[REDACTED]

Challenge	Challenge description	Challenge description
Challenge 1	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge
Challenge 2	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge
Challenge 3	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge

Challenge	Challenge description	Challenge description
Challenge 1	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge
Challenge 2	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge
Challenge 3	<ul style="list-style-type: none"> • Develop a research plan for the challenge 	<ul style="list-style-type: none"> • Develop a research plan for the challenge

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	<p>which were assigned to action of observation level in inferred areas. In these hypothesis, effect of total quality of path was provided. There were up to a 20% error quality calculation directly and with the adjustment were made to the total quality data.</p> <ul style="list-style-type: none"> A few numbers of barcodes from the 2008 program were reviewed in three levels of observation and total quality data good agreement. All barcodes in this program where they used total of observation quality were verified by the quality system. Final copy data from the pre-2008 program were translated and coded and uploaded into the LogCheck data management software. The total copy management system were reviewed and then digital and US files created and uploaded into the LogCheck data management system. All hard copy data quality results were imported into the LogCheck system and were verified and loaded into the LogCheck data management system. Unlike the other hypothetical data, the differences were made to the total quality data. The 2008 program total digital data was translated and re-coded and uploaded into the LogCheck data management system. The US hypothetical data were validated and uploaded into the LogCheck data management system. The total quality data were verified in the LogCheck system and were loaded into the existing US total observation data validation and uploaded into the LogCheck data management system. Unlike the other hypothetical error no adjustment were made to the total quality data.
+	<p>The total of estimated data</p>
	<p>A number of pre-2008 barcodes were</p>

	<p>submitted by the Missouri and ES drilling program.</p> <ul style="list-style-type: none"> Coal thickness intervals were checked with a high level of agreement. Data to 2008 (not directly subject of the pre-2008 barcodes) were not accepted for action of observation but due to the good agreement of all intervals thickness, the barcodes were generally used for team correlation and continuity. Most of the pre-2008 barcodes were aligned with only a few barcodes, which were accepted by action of observation were in inferred areas in these barcodes where coal quality comparison were possible. Data were up to a 20% error quality in relative position and A few numbers of barcodes from the 2008 program were reviewed in three levels of observation and total quality data good agreement. All barcodes in this program where they used total of observation quality were verified by the quality system. Final copy data from the pre-2008 program were translated and coded and uploaded into the LogCheck data management system. The total copy management system were reviewed and then digital and US files created and uploaded into the LogCheck data management system. All hard copy data quality results were imported into the LogCheck system and were verified and loaded into the LogCheck data management system. Unlike the other hypothetical data, the differences were made to the total quality data. The 2008 program total digital data was translated and re-coded and uploaded into the LogCheck data management system. The US hypothetical data were validated and uploaded into the LogCheck data management system. The total quality data were verified in the LogCheck system and were loaded into the existing US total observation data validation and uploaded into the LogCheck data management system. Unlike the other hypothetical error no adjustment were made to the total quality data.
	<p>Observation of quality data</p> <p>data not provided, data verification, data storage (input and output) generated</p>
	<p>The pre-2008 program data (including coal quality) was in the form of barcodes, volumes of longitudinal drilled graphic profiles with all survey, drilling, recovery, geological, geophysical, and information. Integrated information and data information. These volumes are usually stored in the company's long-term storage system. The volumes were scanned, re-scanned, and then uploaded into the LogCheck data management</p>

	<p>software. Coal quality records were provided as hard copy electronic verification. These hardcopies are securely stored in the company's long term storage archives. This data was processed into fuel spreadsheets and some subgroups were loaded into the Logitech data management software.</p> <ul style="list-style-type: none"> The 2023 primary data was in the form of scanned hard copy copies, drilling and geophysical logs, mine flow geophysics in US digital files and coal quality in hard spreadsheets. The hardcopy logs were already in digital form in shared spreadsheets. These were imported in Logitech data management software. The coal quality results were built into the existing EP Fuel spreadsheets for submission and submitted into the Logitech data management software. The primary data for 2020 - 2023 was original hard copy records for drilling, geophysics, mine flow geophysics, geotechnical and coal quality. This data is securely stored in digital cabinets in the central logging facility of the company. All data stored in digital and hard form entered and validated in the Logitech data management software. This data is stored in company servers where the company IT department control the security. Furthermore, all data has been uploaded into the company master database. Cases on the database include all the data and the data is aligned with the QUALOG coding and form system. All data from all exploration activities followed a normal form loaded and converted into the QUALOG coding and form system and ready to use database. 	<ul style="list-style-type: none"> the right services have been made to any coal quality data address for submission
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		<p>geographical areas. Furthermore, along all scanned coal quality data on a hard copy basis were collected and any missing data highlighted and added to the digital database.</p> <ul style="list-style-type: none"> Coal record databases were matched with other geophysics according to normal industry standards. Expanded coal mineral information and corresponding sample database were entered in database to match the geophysics. When coal mineral information was not known, it was added to the database by an independent geologist using comparative database information observed patterns and whether each mineral in the form occurred within a sample the sample information was added to the database. All sample data collected in the central logging facility were aligned to mine and site level and matched with laboratory completion. All sample data for the database was done independently based on sample numbers and relative density. The only completion made by the laboratory were to take and adding units. All sample data and completion data are recorded in the Logitech data management software and Geologic database.
Location of data point	<ul style="list-style-type: none"> Drilling and geophysical information used in logs and logs with geophysical data completed 	<ul style="list-style-type: none"> The Logitech and database later history was loaded on the EIA's own history using the data management. Coal data values were converted using a formula in the EIA's software for a turn historical and geophysical information of the Logitech data in the historical database. All data entered into the database was added to the central database.

	<ul style="list-style-type: none"> Following a review of the data source for the student data, the Committee found that to ensure the benefits were applied for modeling purposes, this was due to the low volume of students of the benefits from the various plans. 	<ul style="list-style-type: none"> Following a review of the data source for the student data, the Committee found that to ensure the benefits were applied for modeling purposes, this was due to the low volume of students of the benefits from the various plans.
<ul style="list-style-type: none"> Identification of the geographic area 	<ul style="list-style-type: none"> The grid system coordinates are UTM Zone 18N. The same system was used for all survey data. 	<ul style="list-style-type: none"> The grid system coordinates are UTM Zone 18N. The same system was used for all survey data.
<ul style="list-style-type: none"> Quality and accuracy of geographic location 	<ul style="list-style-type: none"> The geographic location was verified by the UTM zone survey team using the data which has a total horizontal and vertical accuracy of about 100m. The UTM zone survey team used a GPS receiver to verify the location of the survey points. 	<ul style="list-style-type: none"> The geographic location was verified by the UTM zone survey team using the data which has a total horizontal and vertical accuracy of about 100m. The UTM zone survey team used a GPS receiver to verify the location of the survey points.
<ul style="list-style-type: none"> Data spacing for reporting of geographic location 	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m. 	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m.

	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m. 	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m.
<ul style="list-style-type: none"> Identification of the geographic area 	<ul style="list-style-type: none"> The grid system coordinates are UTM Zone 18N. The same system was used for all survey data. 	<ul style="list-style-type: none"> The grid system coordinates are UTM Zone 18N. The same system was used for all survey data.
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<ul style="list-style-type: none"> Data spacing for reporting of geographic location 	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m. 	<ul style="list-style-type: none"> The data spacing for reporting of geographic location was 100m.

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of water-soluble, easily absorbable, and/or more appropriate for needs of various animals for such complex materials in preparation concentrated extracts based of a water soluble component in each tissue, a representative protein derived in a relatively efficient and compact through digestion, and recovery for each was determined with reference to solubility and absorption spectra. Very minute quantities which were supplied by oven-dried and dissolved into the extracted water and completed preparation of samples including each feeding into the specific type was made. Selected samples were determined to be satisfactory.

3. The 2000 hour curve, both was included in the various reports on sample results. The following is summarized (March 1959) only for the first sample was accepted. Only samples which were more than 10% consisting of combined groups of four samples listed in continuous photographs were included from first and subsequent high-soluble complex samples. Selection of samples included functional sample intervals representing highest values in biological and chemical (large diameter) differences, and results of high-soluble for maximum, and samples providing clear (medium) and unambiguous characteristics.

Optimization of each sample sample before of sample preparation and final use.

4. Each case at the 10 min. water extracted in the whole than greatly reduced in recovery during phase. The cost was carefully placed into the limits with an end result. The books were supplied accurately in place for inclusion in the entire feeding facility. The cost for water-soluble because of the 10 min. water extracted.

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Section 2. Research Expenditure Example	Activity	1994 Expenditure Example	Summary
<p>General and special interest groups</p>	<p>General and special interest groups</p>	<p>1. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below.</p>	<p>2. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below.</p>
	<p>General and special interest groups</p>	<p>1. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below.</p>	<p>2. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below. The amount of expenditure for general and special interest groups is reported in the table below.</p>

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Criteria	AOAC Code Implementation	Commentary
Geological interpretation	<ul style="list-style-type: none"> • If no data is collected, the data is not used. 	<ul style="list-style-type: none"> • The data is not used.
	<ul style="list-style-type: none"> • Confidence in the data is not used. 	<ul style="list-style-type: none"> • The data is not used.
	<ul style="list-style-type: none"> • The data is not used. 	<ul style="list-style-type: none"> • The data is not used.

Criteria	AOAC Code Implementation	Commentary
		<ul style="list-style-type: none"> • The data is not used.
		<ul style="list-style-type: none"> • The data is not used.
		<ul style="list-style-type: none"> • The data is not used.

Criteria	ADRC Code Implementation	Commentary
Overall	<ul style="list-style-type: none"> The use of geography in funding and resource allocation 	<ul style="list-style-type: none"> The program was used to understand region, district, and county. The program was used to determine regional type.
	<ul style="list-style-type: none"> The program offering controls both of price and package 	<ul style="list-style-type: none"> The total revenue was limited by various settings of the system in the various boundary. The northern and southern limits were fully bounded with generally a steep slope surrounding central. Coal seams there in this corner were highly defined and coal quality was highly variable. The western boundary was marked by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable. The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable.
Overall	<ul style="list-style-type: none"> The program and location of the program 	<ul style="list-style-type: none"> The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable. The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable.
Overall	<ul style="list-style-type: none"> The program and location of the program 	<ul style="list-style-type: none"> The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable. The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable.

Criteria	ADRC Code Implementation	Commentary
Overall	<ul style="list-style-type: none"> The program and location of the program 	<ul style="list-style-type: none"> The program was used to understand region, district, and county. The program was used to determine regional type.
	<ul style="list-style-type: none"> The program offering controls both of price and package 	<ul style="list-style-type: none"> The total revenue was limited by various settings of the system in the various boundary. The northern and southern limits were fully bounded with generally a steep slope surrounding central. Coal seams there in this corner were highly defined and coal quality was highly variable. The western boundary was marked by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable. The total revenue was limited by the River boundary for the system and contained beyond this point. Within the district, more physical resources coal seams, and coal quality and coal quality were highly defined and coal quality was highly variable.

Criteria	RAGS Data map location	Commentary
		<p>methodology, the location of these virtual plots were determined by using the COMPLAN simulation tool, which used Monte Carlo weighting with a power of 2. Where boundaries intersected plots of 2, where boundaries intersected plots, had those plots were not present due to simplification as a result of changing hydrologic boundaries. Data have been verified in the field before being at the roof of floor of a log yard site. When parking intervals were tagged in the tree database, but when they were missing they were added to all the 600m² plot each separately until it covers entire the planting thickness area zone.</p> <ul style="list-style-type: none"> • In order to create a reliable model of the whole community a set size of 25m by 25m was selected for splitting. Existing with exact interpolation using ordinary kriging was used to generate grids for the observation of the mid-point of the plots and inverse distance weighting with a power of two was used to generate grids for the likelihoods of the plots. To allow the grid to cover the vegetation index, a regular shape value of 2,000m with a radius of 50 points was used to create the elevation grids. The likelihoods grids were created using a circular search radius of 2,000m with a diameter of 29 points per sector. • The base of monitoring grid was produced using kriging with search radius of 2,000m with maximum of 20 points per sector. The base of separating grid was added in conjunction with rugged USGS data in the upper most call-off for coal. The base of quarterly grid was produced using 80m with a slope of two with a radius of 200m with standard between the base of monitoring and base of Quarterly. This coal has been successfully used in the commercial sold in Mineral coal for the purpose of the monitoring technique. Locations included in the

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Comments	WPCO Comments/Revisions	Comments
		<p>reliable geoscientific analysis there is a requirement to have sufficient number of points.</p> <p>a. The rest of high level 3D seismic, geophysical, geophysical data, seismic drilling with high core recovery, a seismic profile associated with laboratory and highly varied geologies plus high technology and (others) the addition of location of the coal seam in 3D space. A detailed understanding of the coal seam processing from invasion and seeping operation plan, although a high level of confidence in the analysis.</p>
	<p>a. The information should specify whether it relates to global or local information and, if local, cover the relevant property, which should be relevant to technical and economic evaluation. Recommendations should include comparisons with and the processes used.</p>	<p>a. The processor referred to in this report is a global analysis to international standards and includes CO2-133 information.</p> <p>a. All assumptions and procedures for the Resource estimate are documented within the report sections as appropriate.</p>
	<p>a. Please summarize of what is known and what is unknown about the size of the estimate should be compared with production data, where possible.</p>	<p>a. The mine has produced 30.3 Mtpa since April 2000 and the plant produces 1000 t (combined) together (combined) production of combined from mined 3000 tonnes. Where the model has good knowledge around the mine resource it will change, together, only together (total) in this report it is possible resource. The drilling programme that the resource is based on after the review of resource data under CO2-133 means that multiple estimates will be available and the uncertainty in the estimate is small.</p>

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