IVANHOE MINES LTD
Form 6-K
October 14, 2005

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SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549
FORM 6-K
REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16 OF
THE SECURITIES EXCHANGE ACT OF 1934

From: October 13, 2005

IVANHOE MINES LTD.

(Translation of Registrant s Name into English)
Suite 654 999 CANADA PLACE, VANCOUVER, BRITISH COLUMBIA V6C 3E1

(Address of Principal Executive Offices)

(Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.)

Form 20-F- o Form 40-F- þ

(Indicate by check mark whether the registrant by furnishing the information contained in this form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.)

Yes: o No: þ

(If Yes is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-_____.)

Enclosed:
Amended Material Change Report
Technical Report

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SIGNATURES

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IVANHOE MINES LTD.

Date: October 13, 2005

By: */s/ Beverly A. Bartlett*

BEVERLY A. BARTLETT
Corporate Secretary

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Form 51-102F3
Material Change Report
(Amended and Restated)

1. NAME AND ADDRESS OF COMPANY

Ivanhoe Mines Ltd. (the Company)
World Trade Centre
Suite 654 999 Canada Place
Vancouver, British Columbia
V6C 3E1

2. DATE OF MATERIAL CHANGE

September 16, 2005

3. NEWS RELEASE

The news release was issued on September 16, 2005 and disseminated through the facilities of recognized newswire services. A subsequent news release was issued on October 13, 2005 and disseminated through the facilities of recognized newswire services.

4. **SUMMARY OF MATERIAL CHANGE**

The Company has received an initial resource estimate for its Nariin Sukhait coal project in southern Mongolia. Based on the estimate, the project contains measured and indicated coal resources of approximately 116 million tonnes, with an additional inferred coal resource of approximately 42 million tonnes. The independent estimates were prepared by Norwest Corporation, of Salt Lake City, USA (Norwest) under the supervision of Mr. Steven B. Kerr, Senior Geologist. Mr. Kerr is a Qualified Person as defined by National Instrument 43-101.

Subsequent to the initial filing of this Form 51-102F3 Material Change Report, Norwest advised the Company that, based on a re-calculation of data made during the preparation of a Form 43-101F1 Technical Report, the resource estimate for the Nariin Sukhait coal project announced on September 16, 2005 significantly understated overall resource tonnages. Accordingly, this Form 51-102F3 Material Change Report has been amended and restated to reflect Norwest s increased estimates.

5. FULL DESCRIPTION OF MATERIAL CHANGE

The Company has received an initial resource estimate for its Nariin Sukhait coal project in southern Mongolia. Based on the estimate, the project contains measured and indicated coal resources of approximately 116 million tonnes, with an additional inferred coal resource of approximately 42 million tonnes. These resources, which were discovered and delineated in only seven months of drilling this year, are considered to be of

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immediate interest as surface open-pit deposits that are amenable to near-term production for potential buyers in Chinese markets.

Initial coal-quality testing ranks the Nariin Sukhait coal as high-volatile bituminous under American Society for Testing and Materials (ASTM) standards. Drill core samples are undergoing complete thermal and metallurgical testing by SGS Minerals Services in Denver, Colorado, USA.

The independent estimates were prepared by Norwest Corporation, of Salt Lake City, USA. The Nariin Sukhait resource estimates were prepared in accordance with Canadian Institute of Mining Standards and the requirements set out in National Instrument 43-101, and were based on drilling completed prior to August 9, 2005.

Subsequent to the initial filing of this Form 51-102F3 Material Change Report, Norwest advised the Company that, based on a re-calculation of data made during the preparation of a Form 43-101F1 Technical Report, the resource estimate for the Nariin Sukhait coal project announced on September 16, 2005 significantly understated overall resource tonnages. Accordingly, this Form 51-102F3 Material Change Report has been amended and restated to reflect Norwest s increased estimates.

Table 1 below summarizes the estimated resources in respect of the Nariin Sukhait coal project. Resources that are not reserves do not have demonstrated economic value.

Table 1: Nariin Sukhait Property
In-Place Coal Resources Summary (000 Tonnes)
As of August 9, 2005

		In-Place Resources (Tonnes)		
Area	**ASTM Group**	**Measured**	**Indicated**	**Inferred**
South Field		9,771,000	8,704,000	9,870,000
East Field	High-Volatile Bituminous	20,007,000	10,862,000	5,086,000
West Field		33,277,000	33,545,000	26,806,000
Total		**116,166,000**		**41,762,000**

In its initial resource calculation, Norwest had developed its geologic model using a topographic surface built from drill-hole collar elevation data. The topographic surface

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used in the initial resource calculation was built from approximately 150 points of observation. Because of the limited topographic data available at the time of initial resource estimates, Norwest had employed a conservative approach. The new data, provided by a detailed land-traverse survey, now includes several thousand points of observation for constructing the topographic surface in the geologic model. Changes to the topographic surface has vertically repositioned many of the drill hole intercepts in the geologic model. While changes in horizontal control of the drill holes were minor, elevation control of the drill holes and the surrounding landscape changed significantly by as much as 40m which in many areas of the fields significantly increased the base limit depth employed for the in-place resource estimates.

In addition to modifying the geologic model, the detailed survey corrected a survey error in the northern boundary of the exploration licenses. This increased the size of both the South and West Field resource areas.

The Nariin Sukhait coal project is located approximately 40 kilometres north of the Mongolia-China border and the shipping terminus for a newly constructed, 450-kilometre Chinese rail line that is expected to be operational into the border area by the end of this year. The project is adjacent to, and surrounds, the MAK Nariin Sukhait Mine, operated by the MAK-Qin Hua Mongolian/Chinese joint venture. The MAK Mine, which has been supplying high-rank, low-ash, low-sulphur coal to Chinese consumers since 2003, has a reported production capacity of two million tonnes per year of thermal and blend-coking coal from two operating open-pits.

The Nariin Sukhait coal field consists of very thick multiple seams, with individual seam thicknesses up to 60 metres. The Company has been using a multi-faceted approach in its exploration program, employing field mapping, surface-resistivity geophysics, trenching and drilling to identify coal resources. The primary goal of the program was to delineate an initial coal resource of between 50 and 100 million tonnes, sufficient to commence a commercial mine operation with annual coal production of between two and five million tonnes for export to China.

To date, the Company has spent approximately US$4.5 million on exploration at Nariin Sukhait, representing 6 cents (US) per tonne of measured and indicated resources discovered to date.

The Company s initial exploration was focused on the South, East and West Fields, which are adjacent to the MAK mining lease. The program subsequently has expanded to several other areas of interest within the 4,155-square-kilometre exploration tenements that the Company controls surrounding the MAK Nariin Sukhait Mine. As of August 9, 2005, the Company had completed 245 drill holes on the Nariin Sukhait property. A total of 146 holes had been completed within the South, East, and West Fields. Norwest expects that approximately 90 more holes will be drilled before the completion of this season s drill program at the end of October, 2005. Norwest then will update the current resource estimates for the South, East, and West Fields.

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The South and East Fields are directly adjacent to the MAK Mine s East Pit, currently being mined for No. 5 Seam coal by the MAK operation. The South and East Fields are divided by a northwest trending fault that extends along the east side of the East Pit.

South Field

Drilling in the South Field has focused on delineating the No. 5 Seam as it projects down-dip and along strike from the East Pit. Drilling has identified approximately 18.5 million tonnes of measured and indicated resources in the South Field. Thirty drill holes define the No. 5 Seam, with an average seam thickness of 59.4 metres, dipping at 45° to the south.

Table 2: South Field
In-Place Coal Resources Summary (000 Tonnes)
As Of August 9, 2005

		In-Place Resources (000 Tonnes)		
Seam	**ASTM Group**	**Measured**	**Indicated**	**Inferred**
5	High-Volatile Bituminous	9,771,000	8,704,000	9,870,000
	Total	**18,475,000**		**9,870,000**

Drilling is continuing in the South Field to further define No. 5 Seam resources. Exploration also is being carried out to further investigate the resource potential of the Nos. 8, 9 and 10 Seams that sub-crop to the south of the No. 5 Seam.

East Field

The East Field is located on the down-thrown side of the northwest-trending fault that separates it from the South Field. While drilling has not intersected the No. 5 Seam coal in the East Field, significant coal resources have been identified in the overlying Nos. 8, 9 and 10 seams. The upper seams are developed as multiple bench sequences that, combined, carry an average coal thickness of 18 metres. Beds dip from 45° to 60° toward the southeast for a strike length of 1.8 kilometres. Drilling has identified 30.8 million tonnes of coal in the measured plus indicated resource categories.

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Table 3: East Field
In-Place Coal Resources Summary (000 Tonnes)
As Of August 9, 2005

		In-Place Resources (Tonnes)		
Seam	**ASTM Group**	**Measured**	**Indicated**	**Inferred**
8		1,578,000	1,251,000	604,000
9	High-Volatile Bituminous	10,450,000	6,160,000	1,777,000
10		7,979,000	3,451,000	2,705,000
	Total	**30,869,000**		**5,086,000**

West Field

The West Field is located 6.5 kilometres west of the South Field, adjacent to the MAK mining lease. The field is approximately 1.6 kilometres southwest of the MAK West Pit. Drilling has targeted the Nos. 5, 7, 8, 9, 10 and 11 seams along the limbs of a southwest-plunging anticline. A total of 71 drill holes have defined a measured plus indicated resource of 66.8 million tonnes in the West Field.

Along the south limb of the anticline, drilling has intersected seams Nos. 5 through 10 in strata dipping from 45° to 60° toward the southeast. Strata along the north limb have been offset and rotated by reverse faulting. Drilling has intersected seams Nos. 7 through 11 dipping south-southwest at approximately 35°. The thickness of the No. 5 Seam averages 59.3 metres along the south limb. The upper seams for the south limb have a combined average thickness of 7.3 metres. The upper seams on the north limb have a combined thickness averaging 5.4 metres.

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Table 4: West Field
In-Place Coal Resources Summary (000 Tonnes)
As Of August 9, 2005

Seam	ASTM Group	In-Place Resources (Tonnes) Measured	Indicated	Inferred
5		7,667,000	7,492,000	1,797,000
8		2,113,000	2,634,000	2,263,000
9	High-Volatile Bituminous	11,580,000	12,633,000	8,739,000
10		6,788,000	8,057,000	8,151,000
11		5,129,000	2,729,000	5,857,000
Total		66,822,000		26,806,000

Coal Quality

At this time, coal quality testing has been completed for approximately 25% of the core samples. Initial coal quality testing results of the coal seams in all three fields ranks the Nariin Sukhait coals as high-volatile bituminous under ASTM standards. Tests indicate that much of the No. 5 Seam is high-rank, low-ash, low-sulphur coal. Based on initial tests, typical characteristics for the No. 5 Seam average 9% moisture, 11.5% ash, 1.1% sulphur and a caloric value of approximately 6,400 Kcal/kg. Initial testing has shown more variability in the upper seams. Typical combined characteristics for the upper seams average 9.5% moisture, 15.2% ash, 0.7% sulphur and approximately 6,050 Kcal/kg. Reverse circulation coal samples are being tested by Mining Institute in Ulaanbaatar. Core samples are undergoing complete thermal and metallurgical testing by SGS Minerals Services in Denver, Colorado, USA.

New Resource Updates and Pre-feasibility Study

Extensive field mapping has identified numerous intermittent exposures of coal outcroppings that occur for more than 95 kilometres along the north margin of the sedimentary basin that contains the Nariin Sukhait deposit. Norwest also expects to be providing resource estimates on four additional areas at Nariin Sukhait that have shown encouraging initial results. To date, the Company has been engaged in exploration on 17 individual areas within the Nariin Sukhait Basin.

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The Company plans to bring the Nariin Sukhait resources into a pre-feasibility-level study within the next six months and is currently involved in preliminary marketing discussions with potential coal buyers. Successful negotiations could see initial production from the Company s properties in the second half of 2006 although there can be no assurance that this timetable will be met.

Qualified Person

Mr. Steven B. Kerr, Senior Geologist with Norwest and a Qualified Person as defined by National Instrument 43-101, has reviewed and approved the information contained in this Material Change Report.

Norwest has been commissioned by the Company to design, implement and manage the exploration program at Nariin Sukhait. Throughout the exploration program, Norwest has provided on-site management and technical assistance. Norwest will use the information gained from this program to prepare a pre-feasibility study for the development of a surface mining operation at Nariin Sukhait. Environmental baseline studies and geologic modelling are in progress.

6. RELIANCE ON SUBSECTION 7.1(2) OR (3) OF NATIONAL INSTRUMENT 51-102

Not applicable.

7. OMITTED INFORMATION

No confidential information has been omitted from this material change report.

8. EXECUTIVE OFFICER

The name and business number of the executive officer of the Company who is knowledgeable of the material change and this report is:

Beverly A. Bartlett
Ivanhoe Mines Ltd.
Suite 654 999 Canada Place
Vancouver, British Columbia
V6C 3E1

Telephone: (604) 688-5755

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9. DATE OF REPORT

DATED at Vancouver, British Columbia the 21st day of September, 2005 and amended and restated this l day of October, 2005.

IVANHOE MINES LTD.

Per:
Beverly A. Bartlett
Corporate Secretary

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Technical Report

Nariin Sukhait Property

Omnogovi Aimag, Mongolia

Submitted to:
Ivanhoe Mines, Ltd.

October 13, 2005

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1 TITLE PAGE

Technical Report

Nariin Sukhait Property

Omnogovi Aimag, Mongolia

Submitted to:
Ivanhoe Mines, Ltd.

October 11, 2005

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3 SUMMARY

Ivanhoe Mines Ltd. (Ivanhoe) and its wholly owned subsidiary, Ivanhoe Mines Mongolia, Inc. (IMMI), commissioned Norwest Corporation (Norwest) to manage and provide technical supervision to a coal exploration program initiated in February, 2005 on its Nariin Sukhait Property in southern Mongolia. The purpose of this exploration program is to provide the basis to commence a commercial mining operation that will supply coal to China s growing economy. To date, Ivanhoe has been engaged in exploration on 19 individual areas within its Nariin Sukhait Property. Norwest has prepared this Technical Report in accordance with National Instrument 43-101 to report on the initial resources that have been delineated within three of the individual areas on the Nariin Sukhait Property as of August 9, 2005.

The Nariin Sukhait coal deposit is located in the southwest corner of the Omnogovi Aimag (Province) of Mongolia. The deposit is within the Gurvantes Soum, 320km southwest of the provincial capital of Dalanzadgad and 950km south of the nation s capital Ulaanbaatar (Figure 3.1). The IMMI-controlled property surrounds and is adjacent to the existing Nariin Sukhait Mine, owned and operated by the MAK-Qin Hua Mongolian/Chinese Joint Venture (MAK). The MAK operation currently consists of two open-pit mines on its 28.8km^2 mining license. The IMMI-controlled property is through seven exploration licences that cover an area of 3,240km^2.

The Nariin Sukhait Property is situated in the Oboto Hural Basin, located in the western part of the South Gobi province. Intermittent coal outcrops of Late Permian age occur along a strike-length of 90km in the upper plate sequence of an arcuate, east-west trending thrust fault, the dominant structural feature of the basin. Previous Russian and Mongolian government-sponsored exploration programs had identified 10 coal seams at Nariin Sukhait. Total thickness for the coal-bearing sequence is approximately 1,370m thick, with a total coal thickness ranging from 68 to 250m (Figure 3.2). Ivanhoe s exploration has been focused on identifying resources in seams above and including the No. 5 Seam, the thickest seam within the coal-bearing sequence. An additional coal seam, No. 11, has been identified through exploration drilling.

Ivanhoe has been using a multi-faceted approach in its exploration program, employing field mapping, surface resistivity geophysics, trenching, and drilling to identify coal resources. As of August 9, 2005, Ivanhoe has completed 245 drill holes on the Nariin Sukhait Property. Drilling has progressed on three of these areas, the South, East, and West Fields, to a point where an initial resource of 116 million (M) tonnes of coal (measured plus indicated) has been identified with an additional inferred resource of approximately 41M tonnes as illustrated in Table 3.1. As of August 9, 2005, a total of 141 drill holes have been completed in the South, East, and West Fields.

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Table 3.1
In-Place Coal Resources Summary
As of August 9, 2005

Area	ASTM Group	In-Place Resources (Tonnes) Measured	Indicated	Inferred
South Field		9,771,000	8,704,000	9,870,000
East Field	High Volatile Bituminous	20,007,000	10,862,000	5,086,000
West Field		33,277,000	33,545,000	26,806,000
Total		**116,166,000**		**41,762,000**

The South and East Fields are directly adjacent to the East Pit, currently being mined for No. 5 Seam coal by the MAK operation (Figure 3.3). The South and East Fields are divided by a northwest trending fault that extends along the east side of the East Pit. Drilling in the South Field has focused on delineating the No. 5 Seam as it projects down-dip and along strike from the East Pit. Drilling has identified 18.5M tonnes of measured and indicated resources in the South Field. Thirty drill holes define the No. 5 Seam with an average seam thickness of 58.2m, dipping at 45° to the south.

The East Field is located on the downthrown side of the northwest trending fault that separates it from the South Field. Coal resources have been identified in the Nos. 8, 9, and 10 Seams. The seams are developed as multiple bench sequences that combined carry an average coal thickness of 15.8m. Beds dip from 45° to 60° towards the southeast for a strike length of 1.8km. Drilling has identified 30.9M tonnes of coal in the measured and indicated resource categories.

The West Field is located 6.5km west of the South Field, adjacent to and south of the MAK mining license. The field is approximately 1.6km southwest of the MAK West Pit. Drilling has targeted the Nos. 5, 8, 9, 10, and 11 Seams along the limbs of a southwest plunging antiform. Seventy-one drill holes define a measured and indicated resource of 66.8M tonnes in the West Field. Along the southeast limb of the antiform, drilling has intersected seams Nos. 5 thru 10 in strata dipping from 45° to 60° toward the southeast. Strata along the northwest limb have been either offset and rotated by reverse faulting and/or represent an overturned sequence of anticlinal folding. Drilling has intersected Seams Nos. 8 through 11 dipping south-southwest at approximately 35°. The No. 5 Seam averages 52.5m thick along the southeast limb. The upper seams for the southeast limb have a combined average coal thickness of 4.3m. The upper seams on the northwest limb have a combined thickness coal averaging 4.2m.

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Proximate and thermal testing has been completed for samples from 29 core holes and 15 reverse circulation drill holes. At this time, washability and metallurgical tests have been completed for samples from six drill holes. Coal quality testing results of the coal seams in all three fields ranks the Nariin Sukhait coals as high-volatile bituminous under ASTM standards. Tests indicate that much of the No. 5 Seam is high rank, low ash, low sulphur coal.

In accordance with National Instrument 43-101, Norwest has used the referenced document, the Canadian Institute of Mining, Metallurgy and Petroleum s CIM Definition Standards on Mineral Resources and Reserves adopted by CIM Council on November 14, 2004 and referenced the Geological Survey of Canada Paper 88-21 A Standardized Coal Resource/Reserve Reporting System for Canada (GSC Paper 88-21) during the classification, estimation and reporting of coal resources for the Nariin Sukhait Property.

To facilitate the estimation of resources in the Nariin Sukhait Property, Norwest developed geological models for the South, East and West Fields using *Surpac Minex*® software. Key horizons or surfaces were modeled to provide the necessary limits for volume estimation. Volumes were converted to tonnages by application of density values representative of the coal seams as derived from available coal quality data.

The in-place resources within the South, East, and West Fields of the Nariin Sukhait Property, summarized in Table 3.1, cover a combined area of approximately 1.8km^2. The in-place resource areas are shown in Figures 3.4, 3.5, and 3.6. These resources identified through the current exploration program have been determined to be of immediate interest, suitable for surface mining to a maximum depth of 250m, with minimum thickness consistent with recommendations of GSC 88-21.

Exploration is expected to continue through the end of October, 2005. An additional 90 drill holes are expected to be completed by the end of the exploration program. Following the completion of the exploration program, Norwest will prepare a second technical report on the coal resources at Ivanhoe s Nariin Sukhait Property that will incorporate the results of additional drilling. Following the second technical report on resources at Nariin Sukhait, Norwest intends to prepare a pre-feasibility study for IMMI for the development of a surface mining operation. There are currently no mining activities operating on the Ivanhoe Nariin Sukhait Property.

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4 INTRODUCTION AND TERMS OF REFERENCE

Ivanhoe Mines Ltd. (Ivanhoe) is an international mineral exploration and development company. It holds interests in numerous mineral resource properties ranging from full-production mining operations to grass-roots exploration projects, with a particular emphasis on resource properties located in Asia. The company also holds equity investments in several junior, publicly listed mineral exploration companies. Its principal mineral resource properties are the Oyu Tolgoi Project in Mongolia (100% interest) and the Monywa Copper Project in Myanmar (50% interest). Through its subsidiary, Ivanhoe Mines Mongolia, Inc. (IMMI), the company controls several large mineral licenses throughout Mongolia. IMMI is actively exploring for copper, gold, and coal deposits. Ivanhoe is currently in the advance stages of exploration and development of the Oyu Tolgoi copper and gold project (100% interest) in Mongolia as well as maintaining equity interests in Asia Gold Corp. and Jinshan Gold Mines Inc. The company was incorporated in 1994 under the name 463212 B.C., Ltd. and changed its name to Indochina Goldfields, Ltd. in 1994, and then to Ivanhoe Mines, Ltd. in 1999. Ivanhoe Mines is based in Vancouver, Canada. The company is listed on the Toronto and New York stock exchanges under the symbol IVN.

IMMI currently controls coal resources in the Nariin Sukhait region of the Omnogovi Aimag (South Gobi Province), Mongolia. Nariin Sukhait is located 40km north of the Chinese border, and approximately 320km southwest of the city of Dalandzadgad (Figure 4.1). IMMI-controlled licenses are adjacent to the existing Nariin Sukhait Mine, which is owned and operated by MAK-Qin Hua Mongolian/Chinese Joint Venture (MAK). The existing Nariin Sukhait Mine has a reported production capacity of approximately two million tonnes per year (M tpy) of coal from two operating open-pits. These pits are referred to as the East Pit and West Pit. Produced coal is trucked to a Chinese steel mill some 400km away. IMMI wishes to further develop the Nariin Sukhait coal deposits and provide coal for domestic and Chinese markets. To assist in that effort IMMI has commissioned the Norwest Corporation (Norwest) to undertake a technical and economic study of the Nariin Sukhait resource to a pre-feasibility level.

IMMI initiated coal exploration in the Nariin Sukhait area in October 2004, by completing a series of five core holes. These core holes were located on IMMI-controlled ground directly south of the MAK East Pit. Norwest s work on the Nariin Sukhait Project began in late January, 2005, with a site visit and initiation of a conceptual design for a 5M tonne starter pit , a small scale operation that was to be adjacent to the existing MAK-controlled surface operation. That work was immediately followed by an extensive and ongoing exploration program in the Narrin Sukhait region which essentially commenced in March 2005. Throughout the current exploration program, Norwest has provided on site management and technical assistance. Norwest intends to use the information gained from this program to prepare a pre-feasibility study for the development of a surface mining operation at Nariin Sukhait.

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5 DISCLAIMER

This report has been prepared for Ivanhoe and its subsidiary, IMMI by Norwest. The findings and conclusions are based on information developed by IMMI and Norwest from data collected through exploration conducted between late 2004 through August of 2005. Guidance, on-site management and data validation was provided by Norwest. This report is intended to be used by Ivanhoe and IMMI only, subject to the terms and conditions of its contract with Norwest. Any other use of, or reliance on, this report by any third party is at that party s sole risk.

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6 PROPERTY DESCRIPTION AND LOCATION

The Nariin Sukhait coal deposit is located in the southwest corner of the Omnogovi Aimag (Province) of Mongolia at latitude 42° 50 N and longitude 101° 40 E. The deposit is within the Gurvantes Soum, 320km southwest of the provincial capital of Dalanzadgad and 950km south of the nation s capital Ulaanbaatar, shown previously in Figure 4.1.

The IMMI-controlled property surrounds and is adjacent to the existing Nariin Sukhait Mine, owned and operated by MAK-Qin Hua Mongolian/Chinese Joint Venture. The MAK Nariin Sukhait Mine currently operates two open-pit mines on its 28.8km^2 mining license. The MAK East Pit is directly adjacent to the north of the South Field where IMMI has identified resources in the No. 5 Seam (Figure 6.1).

The IMMI property is controlled through seven contiguous exploration licences that cover an area of 3,240km^2. The exploration tenements are listed in Table 6.1.

IMMI formalized an agreement with Asia Gold on July 31, 2003 that grants IMMI rights to all coal resources and reserves on Asia Gold-controlled properties in the South Gobi region while Asia Gold retains rights to all other potential mineral resources.

Exploration licences are granted by the Mongolian government for a period of three years with the right to extend the period twice for two additional years each. Exploration license holders have the following rights:

1. The exclusive right to conduct exploration for minerals within the boundaries of an exploration claim

2. The exclusive right to obtain a mining license for any part of an exploration

3. The right to transfer or pledge all or part of an exploration license in accordance with the terms and conditions of the mining law

4. The right to have access to, entry on, and transit through, the exploration area and a right to construct temporary structures necessary for conducting exploration activities

5. The right of entry to and transit through the land adjacent to the exploration area for the purpose of gaining access and entry to the exploration area

6. The right of entry to and transit through land owned or used by other persons in order to exercise the rights described in this Article. This right shall be determined by a contract between the license holder and the landowner or land-user in accordance with the provisions of the Civil law.

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Table 6.1
Ivanhoe Mines Mongolia, Inc.
Property Control Rights

License Number	Licensee	Inception Date	License Coordinates Corner	Easting	Northing	Area (km^2)	Lessor	Mineral Interest
9442X	Ivanhoe Mongolian Mines, Inc.	Mar. 10, 2003	1	102°00 00	43°02 00	914.9		100% Minerals
			2	102°30 00	43°02 00			
			3	102°30 00	42°50 00			
			4	102°00 00	42°50 00			
			5	102°00 00	42°56 00			
			6	102°00 00	43°01 20			
9443X	Ivanhoe Mongolian Mines, Inc.	Mar. 10, 2003	1	101°16 30	43°01 20	382.4		100% Minerals
			2	101°35 00	43°01 20			
			3	101°35 00	43°00 00			
			4	101°43 00	43°00 00			
			5	101°43 00	42°59 00			
			6	101°50 00	42°59 00			
			7	101°50 00	42°56 00			
			8	101°16 30	42°56 00			
9448X	Ivanhoe Mongolian Mines, Inc.	Mar. 10, 2003	1	100°30 00	42°57 00	493.4		100% Minerals
			2	101°00 00	42°57 00			
			3	101°00 00	42°56 00			
			4	101°00 00	42°50 00			
			5	100°30 00	42°50 00			
9449X	Ivanhoe Mongolian Mines, Inc.	Mar. 10, 2003	1	101°00 00	42°56 00	1476.7		100% Minerals
			2	102°00 00	42°56 00			
			3	102°00 00	42°50 00			
			4	102°00 00	42°45 00			
			5	101°26 00	42°45 00			
			6	101°26 00	42°46 00			
			7	101°20 30	42°46 00			
			8	101°20 30	42°46 30			
			9	101°10 56	42°46 30			
			10	101°10 56	42°50 00			
			11	101°00 00	42°50 00			
5820X	Asia Gold, Inc.	Dec. 28, 2002	1	100°36 25.4	43°07 08	569.7	Ivanhoe Mongolian Mines, Inc.	100% Coal
			2	101°00 00	43°07 08			
			3	101°00 00	43°02 00			
			4	101°08 05	43°02 00			
			5	101°08 05	42°59 58			
			6	101°16 30	42°59 58			
			7	101°16 30	42°56 00			
			8	101°00 00	42°56 00			
			9	101°00 00	42°57 00			
			10	100°30 00	42°57 00			
			11	100°30 00	43°04 00			

			12	100°31	25	43°04	00			
			13	100°31	25	43°05	51.4			
			14	100°36	25.4	43°05	51.4			
			1	101°08	05	43°02	00			
		Dec. 28,	2	102°00	00	43°02	00	114	Ivanhoe Mongolian	
6359X	Asia Gold, Inc.	2002	3	102°00	00	43°01	20		Mines, Inc.	100% Coal
			4	101°08	05	43°01	20			
			1	101°35	00	43°01	20			
			2	102°00	00	43°01	20			
			3	102°00	00	42°56	00			
		Dec. 28,	4	101°50	00	42°56	00	204.2	Ivanhoe Mongolian	
5264X	Asia Gold, Inc.	2002	5	101°50	00	42°59	00		Mines, Inc.	100% Coal
			6	101°43	00	42°59	00			
			7	101°43	00	43°00	00			
			8	101°35	00	43°00	00			

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Following a successful exploration program, an exploration license holder can apply for a mining license to any portion of the exploration license. A mining license is granted for a period of 40 years and provides the licensee with the following rights:

1. The exclusive right to engage in mining of minerals within the mining license
2. The right to manage its operations and market its products
3. The right to sell mineral products from the mining license at market prices on domestic and foreign markets
4. The exclusive right to conduct exploration for minerals within the mining license
5. The right to transfer and pledge all or part of the mining license
6. The right to extend the term of the mining license once for a period of forty (40) years
7. The right of entry to and transit through the mining license, use of the mining license, the right to construct necessary structures, and the right to conduct other activities related to mining and exploration
8. The right of entry to and transit through the land adjacent to the mining license
9. The right of entry to and transit through land owned or used by other persons in order to exercise the above mentioned rights. This right shall be determined by a contract between the license holder and the landowner or land-user in accordance with the provisions of the Civil law
10. The right to use water, subject to compliance with applicable laws.

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7 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Nariin Sukhait deposit is located in south-central Mongolia approximately 40km north of the border with China. The closest major center is Dalanzadgad, located approximately 320km to the northeast. The deposit lies within the Gurvantes Soum of the Omnogovi Aimag. The transportation network can be characterized as primitive, with soum centers connected by a network of unimproved roads. Within the property, access is achieved by a network of unimproved roads and cross-country trails. Nearly all the property can be reached with four-wheel-drive vehicles (Figure 7.1).

The principal access to Ulaanbaatar is by air from Beijing, Seoul, Berlin, or Moscow. Ulaanbaatar is the main staging center for exploration projects undertaken in Mongolia. Most material goods needed for operating under remote conditions and good communications for voice and electronic transmittal are available in Ulaanbaatar. Regular air service is available from Ulaanbaatar to Dalanzadgad. Dalanzadgad provides a secondary source for material goods, primarily food and fuel. Travel from Dalanzadgad to the property takes approximately six hours by overland vehicle.

The nearest in-country rail line is the Trans-Mongolia Railway that runs northwest to southeast and connects Ulaanbaatar to Beijing. The nearest point on this line is approximately 870km to the east at the Chinese border. A second rail line is currently under construction in China that will bring railway access to within 40km of Nariin Sukhait, providing an advantageous shipping conduit for coal.

The Nariin Sukhait deposit is within the physiographic region of the Gobi Desert. The surface expression of the deposit ranges from flat desert plains to moderately hilly terrain. Surface elevation ranges from 1515 to 1555m above sea level. The Noyon and Tost mountain ranges are located 5 to 7km north of Nariin Sukhait, rising 150 to 300m above the basin. Vegetation is sparse, consisting primarily of small shrubs and grasses. The area supports a traditional subsistence economy in which semi-nomadic herdsman are engaged in husbandry of sheep, goats, camels, cattle and horses. The Omnogovi Aimag is the most sparsely populated province in Mongolia with a density of 0.8 people/km^2.

The region experiences a continental desert climate. Temperature typically ranges from 0° 30°C in the winter, increasing to 30° 40° in the summer months. High winds occur frequently; these tend to moderate the effects of summer heat and enhance the chill of winter. Average rainfall is approximately 530mm with most precipitation occurring during the summer months.

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Over the past several years there has been substantial growth in exploration activities in Mongolia. This has led to a greater availability of support services such as drilling equipment, earth-moving and excavating equipment, analytical services, and transportation. There is an adequate source of skilled and unskilled labor, though some specialties require the services of expatriate personnel.

There are currently no improved services or infrastructure at the Nariin Sukhait Property. Future development of the property will require installing housing, electricity, and developing a water supply.

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8 HISTORY

The first geologic investigations at Nariin Sukhait occurred between 1951 and 1952. This initial geologic investigation led by V.S. Volkhonina, included mapping at a scale of 1:500,000. Coal was first identified at Nariin Sukhait in 1971 by a Mongolian exploration survey led by D. Dashtseren. Subsequent exploration through 1991 led to the identification of a resource area 200 to 400m wide, extending for a distance of 9km. Within this resource area two detailed areas, one 800m by 400m and another 400m by 300m in size, were identified.

8.1 Nariin Sukhait Mine

The IMMI property is adjacent to and surrounds the MAK Nariin Sukhait Mine, owned and operated by MAK-Qin Hua Mongolian/Chinese Joint Venture. Operations began at the Nariin Sukhait Mine in 2003. The operation currently mines coal from the No. 5 Seam from two open-pit mines. Annual production is estimated to be approximately 2M tpy of both thermal and coking blend coal, which is trucked to a Chinese steel mill some 400km away. The mine operates with a workforce of approximately 100 miners, a mixed Chinese and Mongolian workforce, and uses a standard truck-shovel configuration. Coal and overburden are removed by shovel, front loaders, backhoe and dozer. Road-hauling tractor-trailer trucks are loaded directly in the mine and deliver coal directly to the consumer in China.

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9 GEOLOGICAL SETTING

9.1 Regional Setting

Pre-Mesozoic rocks of Mongolia and central Asia reflect a complex history of continental accretion (Heubeck, 2001). In southern Mongolia this has resulted in Ordovician and Silurian units interpreted as part of an accretionary wedge/ocean margin environment, and widespread Devonian to Carboniferous units derived from a volcanic arc setting. The late Paleozoic arc appears to have been complex, and to have stretched across most of southern Mongolia. The arc most likely faced south toward an ocean separating Asia from the north China and Tarim blocks. Closure of this ocean is not well constrained, but some evidence suggests it was diachronous, beginning in the early Permian in southwest Mongolia, but not until the latest Permian in the East Gobi Basin area (Lamb and Badarch, 2001). This period of accretion and deformation has been termed the Hercynian Orogeny by earlier workers. By the late Permian, a mature continental setting had developed and the overall structural grain of the region was in place.

Continued intraplate deformation took place in the region during the late Permian and early Mesozoic. In the general area of Nariin Sukhait, this has been interpreted as the creation of a foreland style sedimentary basin (Hendrix et al, 1996; 2001). However, recent work by Meng et al (2003) has uncovered evidence of extensional tectonics and sedimentation elsewhere in southern Mongolia and northern China during this time frame. Either way, late Permian and Triassic sediment was largely derived from the uplifted regions of the former volcanic arc, and was deposited into continental basins under the influence of active tectonics. Regionally, conditions developed that allowed for the accumulation of thick coal deposits of late Permian age at localities such as Tsaagan Tolgoi, Tavan Tolgoi and at Nariin Sukhait.

The Mesozoic geologic history of southern Mongolia is dominated by an upper Jurassic to lower Cretaceous Basin and Range style rifting event. The period of rifting and related sedimentation appears to have been followed by a period of tectonic inversion whereby crustal shortening took place and many of the normal faults in the area became reactivated as reverse faults. A package of relatively undeformed late Cretaceous overlap sediments were deposited above this unconformity. This package is widely exposed regionally and contains the dinosaur fauna for which the Gobi Desert is famous. This was followed by the excavation of large pediment surfaces and minor episodes of Paleogene, Neogene and Quaternary sedimentation (Graham et al, 2001).

There are 15 major coal bearing provinces within Mongolia containing strata of the Carboniferous, Permian, Jurassic, and Cretaceous ages (Figure 9.1). In general, coal deposits in the western portion of the country are older and of higher rank. Progressing eastward across the country, coals are younger and decrease in rank, from bituminous and subbituminous coals found in the west and central portion of the country to Cretaceous age lignites in the east.

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Mongolia s coal deposits were formed in intra-cratonic basins, far removed from the tectonic plate margin environments that typify much of the world s coal resources. Graben-like subsidence of the basement rocks led to preferred sites of deposition of sediments and the growth and accumulation of peat. The older basins experienced continued orogenic deformation through time and are folded and faulted to varying degrees.

The Nariin Sukhait deposit is located in the South Gobi Province (Figure 9.1). The South Gobi province occupies approximately 40,000km^2 in south-central Mongolia. Coal-bearing strata within the province are of Permian age and contain thick sequences of bituminous coal. The coal-bearing strata occupy a series of east-west trending foreland and intermontane basins that developed in response to compression and uplift during the end of the Hercynian orogeny.

The Nariin Sukhait deposit is situated in the Oboto Hural Basin, located in the eastern part of the South Gobi province (Figure 9.2). An arcuate, east-west trending thrust fault, the Nariin Sukhait Fault, forms the dominant structural feature of the basin, extending across the northern margin of the property. Sediments on the south (upper plate) side of the thrust fault are primarily Late Permian, clastic rocks containing numerous coal seams, and Triassic rocks composed primarily of coarse sandstone and conglomerate. Intermittent outcrops of the coal-bearing section occur along the strike-length of the fault for approximately 90km. The lower plate of the Nariin Sukhait fault is dominated by a variety of complexly deformed late Paleozoic rocks, including limited areas of late Permian sandstone and coal-bearing rocks. Small areas of late Cretaceous overlap sediments are locally preserved immediately upslope of the Nariin Sukait fault line scarp, where the sediments appear to have ponded. A variety of late Cenozoic pediment surfaces and related gravel deposits cover significant portions of the lower plate (north) side of the fault, but are observed to cross the fault and cover portions of the upper plate as well.

9.2 Coal Occurrences

Coal-bearing sediments developed in an intermontane basin during the Late Permian age. Non-coal lithotypes are predominantly siltstone, sandstone, conglomerate, and mudstone. Previous Russian and Mongolian government-sponsored exploration programs had identified 10 coal seams at Nariin Sukhait. Total thickness for the coal-bearing sequence is approximately 1,370m thick, with a total coal thickness ranging from 68 to 250m (Figure 9.3). Ivanhoe s exploration has been focused on identifying resources in seams above and including the No. 5 Seam. Drilling has not penetrated the Nos. 1 through 4 seams. The No. 5 Seam is the thickest seam in the sequence ranging in thickness from 7.9 to 94.7m, averaging 40.1m. The seam typically contains 4 to 5 prominent benches separated by thin mudstone interburden, 0 to 0.8m thick. The No. 6 Seam occurs 180 to 190m above the No. 5 Seam. The No. 6 Seam is approximately 1.0m thick and does not appear to be laterally persistent throughout the area. The No. 7 Seam is located approximately 10m above the No. 6 Seam. The No. 7 Seam has an average thickness of 0.5m. The seam lacks

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lateral persistence and pinches out in many areas. The Nos. 6 and 7 Seams have not been included in resource estimation. The No. 8 Seam occurs approximately 60m above the No. 7 Seam. The No. 8 Seam is a multiple bench seam, typically occurring as 1 to 3 subseams. Overall seam thickness ranges from 1.0 to 23.1m, averaging 6.7m. Total interburden between the subseams ranges from 0 to 2.5m, averaging 1.5m. Average total coal thickness for the No. 8 Seam is 5.2m. The No. 9 Seam is located approximately 10m above the No. 8 Seam. In the East Field, the No. 9 Seam is a multiple bench seam, separated by relatively thin, discontinuous partings. Average seam thickness is approximately 21.9m. Coal benches are separated by clay and rock partings ranging from 0.1 to 1.6m. In the West Field, the No. 9 Seam occurs as 2 to 8 distinct subseams. Overall seam thickness ranges from 0.4 to 73.6m, averaging 30.1m. Total interburden, between the subseams ranges from 0 to 33.0m, averaging 14.3m. Average total coal thickness for the No. 9 Seam in the West Field is 15.8m. The No. 10 Seam is located 15m above the No. 9 Seam. The No. 10 Seam is a multiple bench seam, typically occurring as 2 to 5 subseams. Overall seam thickness ranges from 1.9 to 71.7m, averaging 23.0m. Total interburden, between the subseams ranges from 0 to 39.6m, averaging 6.0m. Average total coal thickness for the No. 10 Seam is 13.4m. Drilling in the West Field has identified an additional coal seam overlying the No. 10 Seam. This Seam has been designated the No. 11 Seam. The No. 11 Seam occurs 2 to 14m above the No. 10 Seam. The No. 11 Seam is a multiple bench seam, typically occurring as 5 to 8 subseams. Overall seam thickness ranges from 8.5 to 82.0m, averaging 43.5m. Total interburden, between the subseams ranges from 4.7 to 35.6m, averaging 17.6m.

9.3 Property Geology

The IMMI Nariin Sukhait resource area consists of three distinct and separate geographic areas which are located directly to the south, southeast and east of the existing MAK mining license. The resource areas are referred to as South Field, East Field and West Field. (Figure 9.4)

South Field

The No. 5 Seam is currently being mined from the MAK East Pit, adjacent to the north boundary of the field. Two structural features dominate the geologic setting of the South Field (Figure 9.5). A tightly-folded anticline projects outward from the East Pit in a south-southwest direction. Strata on the southeast limb dip 3°5 to 55° to the southeast. The strata on the northwest limb dip more steeply at 42° to 60° and strike in a northerly direction. Cross section A-A shown in Figure 9.6 illustrates several structural and stratigraphic elements of the south field.

A northwest trending fault forms the second dominating feature of the South Field. The fault forms the boundary with the East Field. Drilling and field evidence indicate the east side of the fault has been downthrown approximately 72m.

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East Field

From the northwest-trending fault that forms the boundary between the South and East Field, Late Permian strata follows a general strike of N70E° to where they are truncated by the Nariin Sukhait Thrust Fault (Figure 9.5). Outcrop exposures belonging to the Nos. 8, 9, and 10 Seams have been traced across 1.8km of the East Field and parts of the adjacent MAK mining license. Drilling along section lines has demonstrated down-dip continuity of the Nos. 8, 9, and 10 Seams at an average dip of 52°. Lateral correlation across section lines show stratigraphic displacement. It is currently interpreted that three or more north or northeast trending faults disrupt the coal-bearing strata into three or more fault blocks (Geological Cross Section D-D in Figure 9.6). Several drill holes have intersected abnormally thick intervals of coal that at this time are interpreted to be the result of tectonic deformation from reverse faulting. Maximum vertical seam displacement across drill-line sections is approximately 90m.

West Field

A southwest-plunging antiform characterizes the structure of the West Field (Figure 9.7). The No. 5 Seam outcrops along the axis of the antiform. Outcrop mapping and trenching have traced the surface exposures of the Nos. 8, 9, and 10 seams across most of the southeast limb and along several sections of the northwest limb. Section line drilling has demonstrated down-dip continuity of the Nos. 5, 7, 8, 9, and 10 Seams, dipping 45 to 60° to the southwest as shown in the cross sections in Figure 9.8.

Drilling on the northwest limb demonstrates down-dip and lateral continuity of the upper coal seams (Nos. 7 11). Bedding, however, dips to the south at 30 to 40°. This would indicate that: 1) the structure is an anticline with strata overturned to the northwest, and/or 2) much of the northwest limb has been faulted and rotated. The complexity of the structure has required splitting the field into two separate resource blocks.

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10 DEPOSIT TYPES

The definition of Deposit Type for coal properties is different from that applied to other types of geologic deposits. Criteria applied to coal deposits for the purposes of determination of coal resources and reserves include both Geology Type as well as Deposit Type . For coal deposits this is an important concept because the classification of a coal deposit as a particular Reserves and Resources.

Geology Type for coal deposits is a parameter that is specified in Geological Survey of Canada (GSC) Paper 88-21, which is a reference for coal deposits as specified in NI 43-101. Coal Geology Type is a definition of the amount of geological complexity, usually imposed by the structural complexity of the area, and the classification of a coal deposit by Geology Type determines the approach to be used for the resource/reserve estimation procedures and the limits to be applied to certain key estimation criteria. The identification of a particular Geology Type for a coal property defines the confidence that can be placed in the extrapolation of data values away from a particular point of reference such as a drill hole.

The classification scheme of GSC Paper 88-21 is similar to many other international coal reserve classification systems but it has one significant difference. This system is designed to accommodate differences in the degree of tectonic deformation of different coal deposits in Canada. Four classes are provided for that range:

Low Deposits in the low category are relatively unaffected by tectonic deformation. Coal seams are flat-lying to very gently dipping (0-5°), and are generally unfaulted, although small-displacement normal faults and compaction may occur.

Moderate Deposits in this category have been affected to some extent by tectonic deformation. They are characterized by homoclines or broad open folds (wavelength greater than 1.5km) with bedding inclinations of generally less than 30°. Faults may be present, but are relatively uncommon and generally have displacements of less than 10m.

Complex Deposits in this category have been subjected to relatively high levels of tectonic deformation. Tight folds, some with steeply inclined or overturned limbs, may be present, and offsets by faults are common. Individual fault-bounded plates do, however, generally retain normal stratigraphic sequences and seam thicknesses have only rarely been substantially modified from their pre-deformational thickness.

Severe Deposits in this category have been subjected to extreme levels of tectonic deformation. Tight folds, steeply inclined and overturned beds and large displacement faults are common. The stratigraphic succession between faults may be difficult to ascertain owing to the level of deformation, and coal seams are commonly structurally

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thickened and thinned from their pre-deformational thicknesses. Exploration of these deposits follows an ore-body approach, rather than more conventional strategies commonly applied to stratified deposits.

Norwest has applied the classification scheme of GSC Paper 88-21 to the Nariin Sukhait coal deposits in Mongolia. The Nariin Sukhait deposit has been subjected to a relatively high degree of tectonic deformation. Coal seams explored to date sit in the hanging wall (upper plate) of an east-west trending, regional thrust fault. The hanging wall strata has been further modified by secondary folding, normal and reverse faulting. Coal seams within the three fields are typically inclined in excess of 35°. Fold segments and fault-bounded blocks however, generally retain normal stratigraphic thicknesses and continuity. The Geology Type for the South, East, and West Fields has been determined to be Complex .

Deposit Type as defined in GSC Paper 88-21 refers to the extraction method most suited to the coal deposit. There are four categories, which are:

1. Surface
2. Underground
3. Non-conventional
4. Sterilized.

The Nariin Sukhait deposit is considered to be a Surface mineable deposit.

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11 MINERALIZATION

South Area

The No. 5 Seam extends from the northwest-trending fault that defines the east boundary of the field, westward approximately 0.6km toward the axial plane of the anticline. From the axial plane the No. 5 Seam trends north-northwest to where it is exposed in the East Pit on the adjoining MAK mining license.

The Nos. 8, 9, and 10 seams follow a similar trace to the No. 5 Seam, farther south and west, along the limbs of the anticline. The No. 8 Seam can be traced approximately 0.8km across the south facing limb, then northward approximately .05km to the northern property line. Drilling is widely spaced across the south and west portions of the South Field. At this time there has been insufficient drilling to characterize the resource base of the upper coal seams. Average coal thickness and ranges in thickness for the South Field are presented in Table 11.1.

East Field

The Nos. 8, 9, and 10 seams extend from the northwest trending faults that define the western boundary of the field, northeast for approximately 1.8km where it is truncated by the Nariin Sukhait Thrust Fault that transects the basin. Due to the configuration of the property boundary with the adjacent MAK mining license, the Nos. 8, 9, and 10 seams are distributed in two distinct areas within the East Field. Coal thickness ranges for the east Field are presented in Table 11.1.

West Field

Coal Seams in the West Field are divided into three distinct zones across a southwest plunging antiform. The first zone is the No. 5 Seam exposed along the axis of the antiform for approximately 1.0km. The Nos. 8, 9, and 10 Seams on the southeast limb of the antiform define the second zone. The seams extend for approximately 1.8km across the limb, southwest from the northern property line. The Nos. 8, 9, 10, and 11 Seams in the northwest portion of the field form a distinct third zone. Coal seams in this zone dip to the south-southwest between 30 to 35°. Based on current geologic data, Norwest has interpreted the northwest limb of the antiform to be either: 1) an offset and rotated block of strata, due to reverse faulting; or 2) an overturned limb of an anticline with strata dipping back towards the axis. With either interpretation, a high-angle, reverse fault likely occurs directly west of the antiform axis to account for rock-volume displacement between the two limbs of the antiform. Coal thickness and ranges for the West Field are presented in Table 11.1.

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Table 11.1
Nariin Sukhait Property
Coal Seam True Thicknesses
South Field

Seam	Statistics	Composite Seam Thickness (m)	Sub-Seam Thickness (m)	Composite Coal Thickness (m)	Composite In-Seam Partings (m)	Composite Seam Interburden (m)
5	Minimum	7.92	0.64	0.64	0.00	0.00
	Maximum	94.68	94.68	90.51	4.17	4.17
	Average	42.65	41.88	41.14	0.74	0.77
	Intervals	26	26	26	26	26.00

East Field

Seam	Statistics	Composite Seam Thickness (m)	Sub-Seam Thickness (m)	Composite Coal Thickness (m)	Composite In-Seam Partings (m)	Composite Seam Interburden (m)
8	Minimum	1.03	1.03	1.03	0.00	0.00
	Maximum	23.13	22.52	22.52	0.85	0.61
	Average	7.48	5.66	5.54	0.12	1.82
	Intervals	15	15	15	15	15.00
9	Minimum	6.09	6.09	2.01	0.00	0.12
	Maximum	50.65	50.65	50.53	7.85	4.08
	Average	23.45	21.90	20.32	1.54	1.58
	Intervals	27	27	27	27	27.00
10	Minimum	2.44	2.25	2.25	0.00	0.18
	Maximum	71.71	71.71	68.36	4.26	3.35
	Average	21.53	18.77	17.85	0.92	2.76
	Intervals	23	23	23	23	23.00

West Field
Southeast Limb

Seam	Statistics	Composite Seam Thickness (m)	Sub-Seam Thickness (m)	Composite Coal Thickness (m)	Composite In-Seam Partings (m)	Composite Seam Interburden (m)
5	Minimum	12.18	12.18	12.18	0.00	0.00
	Maximum	68.18	68.18	68.18	1.10	0.00
	Average	36.26	36.12	35.98	0.14	0.14

	Intervals	11	11	11	11	11.00
8	Minimum	0.73	0.73	0.73	0.00	0.00
	Maximum	12.75	11.31	11.31	0.00	1.44
	Average	5.85	4.92	4.92	0.00	0.93
	Intervals	17	17	17	17	17.00
9	Minimum	0.37	0.37	0.37	0.00	0.00
	Maximum	57.95	32.93	32.93	0.49	25.02
	Average	27.09	13.58	13.64	0.05	13.40
	Intervals	31	31	31	31	31.00
10	Minimum	0.37	0.37	0.37	0.00	0.00
	Maximum	40.60	16.44	16.44	0.00	24.17
	Average	17.68	7.66	7.64	0.00	10.04
	Intervals	23	23	23	23	23.00

Northwest Limb

Seam	Statistics	Composite Seam Thickness (m)	Sub-Seam Thickness (m)	Composite Coal Thickness (m)	Composite In-Seam Partings (m)	Composite Seam Interburden (m)
8	Minimum	2.29	2.29	2.29	0.00	0.00
	Maximum	13.19	10.65	10.65	0.00	2.54
	Average	7.18	5.08	5.08	0.00	2.10
	Intervals	6	6	6	6	6.00
9	Minimum	25.89	15.56	15.56	0.00	10.32
	Maximum	73.56	40.55	40.55	3.19	33.01
	Average	46.69	27.69	26.98	0.71	19.00
	Intervals	6	6	6	6	6.00
10	Minimum	5.24	2.05	2.05	0.00	3.19
	Maximum	69.55	29.98	29.98	1.39	39.57
	Average	38.47	16.22	15.72	0.50	22.25
	Intervals	12	12	12	12	12.00
11	Minimum	8.52	3.85	3.85	0.00	4.67
	Maximum	82.00	46.36	46.36	1.31	35.63
	Average	43.74	26.10	25.90	0.20	17.64
	Intervals	15	15	15	15	15.00

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12 EXPLORATION

IMMI has used a multi-faceted approach in exploration to identify drilling targets for coal resource delineation. Exploration tools and techniques that have been applied at Nariin Sukhait include:

- Field mapping
- Surface-resistivity geophysical surveying
- Satellite Imagery
- Trenching
- Drilling.

Field mapping was initiated in early 2005 and is currently on-going. Most of the terrain can be characterized as low-relief. Over much of the area, coal-bearing stratigraphy is overlain by a layer of unconsolidated sediments of Cretaceous and Cenezoic age, reaching thicknesses of 2 to 5m. Field mapping has been augmented with surface-resistivity geophysical surveying and satellite imagery to identify prospective areas where coal seams may be sub-cropping near surface and to aid in the delineation of structural features that may offset sections of coal-bearing strata. Potential targets identified with the above mentioned techniques are then tested with trenches cut perpendicular to the apparent strike, to expose coal seams close to surface. Trenching has been useful in identifying the near-surface expression of coal seams for locating exploratory drill holes. Coal seam thickness and structure as observed in the trenches are greatly affected by near-surface erosion, alteration, and deformation. Trenching intercepts have been found to be unreliable sources of seam characteristics and structure, and are not used in resource estimation.

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13 DRILLING

IMMI has utilized reverse circulation, conventional rotary, and core drilling in its exploration of the Nariin Sukhait Property. In 2004, IMMI completed five core holes on the South Field to confirm the down-dip extent of the No. 5 Seam being mined in the East Pit of the MAK mining license. The current exploration program commenced drilling in February, 2005. As of August 9, 2005, 245 drill holes had been completed on the Nariin Sukhait Property. One hundred forty-one drill holes have been completed on the South, East, and West fields combined. A drilling summary by method and area is presented in Table 13.1.

Drill hole core and drill cuttings descriptions, geophysical logs and coal analyses data were used to characterize and interpret the stratigraphy of the South, East, and West Fields, particularly with respect to the coal seams. Norwest s drill hole database for the Nariin Sukhait Property contains a total of 289 drill holes. Thirty-four drill holes within the database were drilled prior to 2004 as reported by Dashkhorol et al (1992) as part of a research exploration study. The majority of these drill holes are in the proximity of what is now the MAK East Pit. Of the 34 drill holes contained in the exploration research study, 28 of the drill holes are located on the adjacent MAK mining license. The remaining 6 drill holes are located in the South and East Fields. A drill hole summary listing drill hole identification, location, and seam intercepts is presented in Table 13.2.

In the current exploration program, the majority of drill holes have been laid out in a series of section lines. Section lines have been spaced at 200 and 400m, aligned perpendicular to the apparent strike of the coal-bearing strata. Along section lines, drill holes are spaced at intervals from one another ranging from 50 to 100m. Drilling is ongoing at the Nariin Sukhait Property to further define resources in the South, East, and West Fields and to define new resources in other areas of the property.

As of August 9, 2005, 141 drill holes have been completed in the South, East, and West Fields. Drilling is ongoing at the Nariin Sukhait Property to further define resources in the South, East, and West Fields and to define new resources in other areas of the property.

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Table 13.1
Exploration Drilling Summary

Area	Series	Reverse-Circulation	Meters	Rotary	Meters	Core	Meters
South Field	pre-2003					3	286
	2004					5	750
	2005	11	1,860			13	2,226
East Field	pre-2003					3	120
	2005	28	5,092	6	800	17	2,296
West Field		41	7,438	11	1,445	19	2,799
A Field		9	1,434	1	198	4	388
B Field		10	1,731	3	453	6	590
C Field		11	1,808	2	261		
E Field		4	474	8	1,174		
F Field		10	1,266	3	522		
G Field		5	906				
H Field		1	24				
I Field						4	277
J Field				4	598		
N Field		12	1,982	8	1,110		
MAC Mining Lease	pre-2003					28	1,133
Total		**142**	**24,015**	**46**	**6,561**	**102**	**10,865**

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
South Field								
H-1	684140.3	4763237.5	1527.7	5		96.0	181.2	85.2
H-2	684411.5	4763244.8	1530.1	5		12.1	45.0	32.9
H-3	684712.1	4763201.9	1528.1	5		35.5	93.0	57.5
H-4	684729.0	4763123.3	1527.4	5		94.6	141.2	46.6
H-5	684417.9	4763185.6	1530.8	5		46.4	91.0	44.6
NS-16	684426.2	4763134.1	1532.9	5		97.6	120.8	23.2
NS-18	684263.3	4763178.8	1527.9	5		44.4	178.3	133.9
NS-21	684426.0	4763077.0	1534.0	5		143.5	162.0	18.5
NS-22	684111.0	4763203.0	1530.0	5		133.5	203.6	70.1
NS-23	684257.0	4763090.0	1530.0	5		139.8	225.0	85.2
NS-29	684742.0	4763079.0	1523.0	5		115.4	180.0	64.6
O-08	684672.4	4763274.2	1526.1	5		3.8	62.5	58.7
O-09	684029.7	4763559.6	1526.5	5		2.0	69.9	67.9
O-37	684615.3	4763340.3	1528.6	5		0.3	1.2	0.9
O-37A	684642.2	4763305.6	1528.0	5		4.1	47.0	42.9
O-38	684450.7	4763321.2	1530.0	5		7.8	86.1	78.3
O-39	684423.8	4763402.9	1529.1	5		4.0	46.1	42.1
O-40	684053.2	4763313.4	1525.6	5		25.2	93.0	67.8
O-41	684132.7	4763363.8	1527.0	5		5.3	67.1	61.8
O-42	684187.6	4763396.2	1527.5	5		7.3	53.4	46.1
O-43	684258.1	4763245.1	1526.6	5		4.5	99.2	94.7

O-44	684244.7	4763312.3	1527.1	5		4.0	78.4	74.4
O-45	684165.2	4763258.6	1526.6	5		7.7	108.9	101.2
O-46	684188.7	4763320.1	1526.8	5		3.8	77.4	73.6
O-47	684217.8	4763353.7	1527.6	5		4.3	66.6	62.3
O-48	684354.4	4763294.4	1527.5	5		4.0	15.2	11.2
O-50	684079.0	4763579.8	1538.7	5		2.0	60.2	58.2
				East Field				
NS-06	684787.5	4763289.2	1530.4	8	800	3.8	7.3	3.5
NS-07	685514.0	4763595.2	1537.4	10	1020	100.2	108.2	8.0
					1010	108.2	111.9	3.7
					1000	113.8	128.7	14.9
				9	900	184.0	202.7	18.7
NS-08	685677.4	4763714.7	159.8	10	1010	25.6	27.2	1.6
					1000	29.5	33.2	3.7
				9	900	39.6	100.0	60.4
NS-09	684820.3	4763251.9	1529.4	10	1010	35.0	40.0	5.0
					1000	45.5	51.4	5.9
				9	900	88.8	110.4	21.6
				8	800	123.3	127.8	4.5

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
East Field cont d								
NS-10	685480.8	4763639.7	1537.6	10	1010	60.9	65.0	4.1
					1000	65.2	71.8	6.6
				9	900	128.0	160.2	32.2
				8	800	184.1	188.2	4.1
NS-12	684846.6	4763209.9	1528.9	10	1010	70.9	74.5	3.6
					1000	76.0	78.3	2.3
				9	900	125.8	135.8	10.0
				8	800	145.2	147.2	2.0
NS-14	685708.4	4763676.2	1540.0	9	900	0.0	15.1	15.1
				8	800	47.1	50.0	2.9
NS-24	684781.0	4763203.0	1532.0	10	1010	59.6	62.4	2.8
					1000	65.0	69.0	4.0
				9	800	98.0	116.4	18.4
NS-27R	685832.0	4763838.0	1537.0	9	900	12.4	25.6	13.2
				8	810	27.6	29.8	2.2
					800	33.3	36.2	2.9
NS-28R	686043.0	4763890.0	1538.0	9	900	0.0	12.7	12.7
				8	800	103.0	110.8	7.8
NS-30R	686017.0	4763928.0	1535.0	8	800	17.9	19.6	1.7
NS-31R	686246.0	4763989.0	1539.0	9	900	34.4	51.6	17.2
NS-32	686250.0	4763976.0	1533.0	9	900	33.0	49.4	16.4
NS-33	685843.0	4763825.0	1534.0	9	900	10.8	20.8	10.0
				8	810	30.1	31.4	1.3
					800	35.4	40.8	5.4
NS-34	685710.0	4763675.0	1539.0	10	1010	81.2	84.2	3.0
					1000	85.6	89.2	3.6
				9	900	89.8	148.3	58.5
NS-35	685522.0	4763609.0	1538.0	10	1020	85.0	93.0	8.0
					1010	96.4	99.5	3.1
					1000	100.8	115.7	14.9

NS-50R	686087.0	4763856.0	1545.0	10	1010	63.4	67.1	3.7
					1000	71.2	73.7	2.5
				9	900	87.0	135.3	48.3
				8	810	147.0	158.7	11.7
					800	167.0	176.2	9.2
NS-51R	685895.0	4763768.0	1542.0	10	1010	71.9	73.8	1.9
					1000	75.0	77.4	2.4
				9	900	105.4	175.6	70.2
				8	810	176.6	184.0	7.4
					800	185.0	198.5	13.5
NS-53R	685142.0	4763191.0	1532.0	10	1010	35.6	43.9	8.3
					1000	47.5	109.7	62.2
				9	900	180.0	246.0	66.0

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
East Field cont d								
NS-54R	685155.0	4763166.0	1533.0	10	1020	36.6	38.4	1.8
					1010	39.6	43.8	4.2
					1000	72.0	123.2	51.2
				9	900	200.4	213.6	13.2
NS-56R	685045.0	4763180.0	1520.0	10	1000	25.0	121.4	96.4
				9	900	127.2	210.4	83.2
NS-57R	685119.0	4763229.0	1522.0	10	1010	9.6	12.7	3.1
					1000	16.6	59.4	42.8
NS-58R	685173.0	4763115.0	1525.0	10	1020	92.0	96.0	4.0
NS-59R	685923.0	4763746.0	1536.0	9	900	181.2	197.8	16.6
				8	810	206.8	215.6	8.8
					800	220.8	225.6	4.8
NS-60R	686106.0	4763820.0	1534.0	10	1010	119.4	120.1	0.7
					1000	122.2	125.2	3.0
				9	900	135.6	188.2	52.6
NS-61R	686261.0	4763950.0	1539.0	9	900	75.6	96.4	20.8
NS-62R	685616.0	4763621.0	1531.0	10	1000	17.0	48.0	31.0
				9	900	110.0	160.0	50.0
					900	49.0	106.0	57.0
				8	810	162.0	178.0	16.0
					800	179.0	200.0	21.0
NS-63R	685639.0	4763572.0	1528.0	9	900	91.0	174.0	83.0
					900	176.0	242.0	66.0
NS-64R	684951.0	4763170.0	1521.0	10	1000	3.4	15.8	12.4
				9	900	139.6	166.0	26.4
NS-65R	685040.0	4763080.0	1518.0	10	1000	98.8	216.6	117.8
				9	900	222.2	235.8	13.6
NS-66R	685627.0	4763503.0	1535.0	10	1000	191.6	223.0	31.4

NS-70	684834.0	4763058.0	1524.0	10	1000	0.0	70.0	70.0
NS-71	684868.0	4763016.0	1524.0	0	1000	24.4	39.0	14.6
NS-72	686426.0	4764010.0	1541.0	8	810	37.3	40.0	2.7
					800	55.0	58.2	3.2
NS-73	686431.0	4763952.0	1554.0	8	810	105.3	106.7	1.4
					800	110.6	112.0	1.4
NS-74	685578.0	4763529.0	1533.0	10	1020	145.0	160.0	15.0
					1010	166.6	174.7	8.1
					1000	177.0	195.0	18.0

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field								
NSW-01	676121.8	4762939.1	1524.8	5		28.9	119.4	90.5
NSW-02	676147.8	4762895.5	1524.6	5		110.7	204.0	93.3
NSW-03	675926.0	4762871.0	1526.0	5		15.0	77.4	62.4
NSW-04	675797.0	4762885.0	1513.0	5		3.0	23.0	20.0
NSW-05	675904.0	4762917.0	1522.0	5		2.5	40.7	38.2
NSW-06	675700.0	4762863.0	1518.0	6	620	132.8	138.3	5.5
NSW-07	675867.0	4762961.0	1525.0	6	620	114.1	130.0	15.9
NSW-08	675822.0	4762961.0	1526.0	6	620	149.2	157.5	8.3
NSW-10	676307.0	4763011.0	1552.0	5	5	28.2	115.6	87.4
NSW-12	676472.0	4762834.0	1531.0	9	990	30.5	35.0	4.5
					980	37.2	43.3	6.1
					970	44.1	46.7	2.6
					960	47.6	50.0	2.4
					950	51.6	53.3	1.7
					940	61.2	73.1	11.9
				8	810	110.0	112.4	2.5
					800	114.4	119.5	5.1
				7	790	120.5	121.8	1.3
NSW-13R	676434.0	4763081.0	1522.0	6	620	62.2	76.1	13.9
					600	94.0	99.8	5.8
NSW-14R	676327.0	4762972.0	1523.0	6	620	104.4	118.8	14.4
					600	126.1	137.6	11.5
NSW-15	676457.0	4762877.0	1526.0	9	950	7.7	8.9	1.2
					940	19.5	29.0	9.5
				8	810	46.2	47.9	1.7
					800	48.9	54.8	5.9
NSW-16R	676216.0	4762749.0	1535.0	9	990	27.2	28.9	1.7
					980	40.0	45.8	5.8
					970	57.6	59.6	2.0
					960	62.4	68.8	6.4

	950	71.2	74.0	2.8
	942	75.9	77.9	2.0
	940	80.6	85.8	5.2
8	810	99.4	101.2	1.8
	800	101.7	107.6	5.9
7	790	107.6	109.2	1.6

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-17R	676241.0	4762719.0	1532.0	10	1030	32.2	41.8	9.6
					1010	49.2	51.1	1.9
					1000	52.8	62.3	9.5
				9	990	85.2	86.0	0.8
					980	94.9	100.4	5.5
					970	105.8	109.0	3.2
					960	115.0	118.8	3.8
					950	119.8	121.8	2.0
					942	126.0	127.2	1.2
					940	130.4	138.0	7.6
				8	800	154.8	162.8	8.0
NSW-18R	675856.0	4762560.0	1516.0	10	1030	14.0	18.0	4.0
					1020	31.3	38.6	7.3
					1010	39.3	40.8	1.5
					1000	41.4	53.0	11.6
				9	990	80.0	81.2	1.2
					980	84.4	90.5	6.1
					970	91.4	105.6	14.2
					960	112.0	115.0	3.0
					950	120.0	124.0	4.0
					942	133.3	134.6	1.3
					940	139.4	161.3	21.9
					900	170.2	172.6	2.4
NSW-19R	675878.0	4762520.0	1516.0	10	1030	59.0	68.0	9.0
					1000	82.0	100.0	18.0
				9	990	135.0	137.5	2.5
					960	164.0	167.0	3.0
					950	171.0	180.0	9.0
					942	184.0	187.0	3.0
					940	197.0	210.0	13.0

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Table 13.2
Drill Hole Summary for
South, East, and West Fields

Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-20R	675487.0	4762454.0	1506.0	10	1030	17.0	18.0	1.0
					1020	36.0	38.0	2.0
					1010	39.0	40.0	1.0
					1000	43.0	53.0	10.0
				9	998	59.0	60.0	1.0
					996	63.0	67.0	4.0
					990	93.0	94.0	1.0
					980	98.0	107.0	9.0
					970	113.0	114.0	1.0
					960	116.0	118.0	2.0
					950	123.0	124.0	1.0
					940	132.0	144.0	12.0
					900	153.0	156.0	3.0
				8	810	165.0	167.0	2.0
					800	172.0	179.0	7.0
NSW-21	676457.0	4762877.0	1526.0	10	1010	59.0	63.5	4.5
					1000	64.5	75.5	11.0
				9	980	106.3	112.6	6.3
					970	113.6	117.4	3.8
					960	118.5	120.4	1.9
					950	121.4	122.3	0.9
					940	127.8	136.6	8.8
				8	800	164.5	174.7	10.2
NSW-22	676814.0	4762992.0	1556.0	9	940	16.2	33.2	17.0
				8	810	55.8	57.4	1.6
					800	57.8	64.4	6.6
				7	790	65.3	69.4	4.1
NSW-23	676841.0	4763058.0	1556.0	10	1030	12.4	15.5	3.1
					1020	18.0	18.6	0.6
					1010	21.4	27.8	6.4
					1000	28.3	34.4	6.1
				9	990	47.0	48.1	1.1
					980	48.6	56.0	7.4
NSW-24R	676498.0	4762810.0	1525.0	10	1030	34.5	35.5	1.0
					1010	56.4	61.0	4.6
					1000	63.0	73.4	10.4
				9	980	101.4	107.0	5.6
					970	109.0	111.8	2.8
					960	112.6	114.0	1.4

950	115.0	116.2	1.2

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-25R	675514.0	4762426.0	1507.0	11	1100	11.8	13.0	1.2
				10	1030	57.4	58.8	1.4
					1000	72.2	75.8	3.6
				9	998	84.8	86.0	1.2
					996	89.8	93.8	4.0
					980	122.4	127.6	5.2
					970	128.6	135.4	6.8
					940	147.5	160.0	12.5
				8	810	166.7	169.4	2.7
					800	170.5	178.8	8.3
NSW-26R	675092.0	4762330.0	1514.0	10	1040	42.6	45.7	3.1
					1030	53.0	55.3	2.3
NSW-28R	675112.0	4762422.0	1519.0	10	1050	15.2	17.4	2.2
					1040	25.4	27.5	2.1
					1030	33.6	37.0	3.4
					1020	64.1	65.1	1.0
					1010	68.8	70.2	1.4
					1000	71.1	76.4	5.3
				9	998	78.3	81.4	3.1
					996	87.6	89.6	2.0
					990	91.2	93.4	2.2
					980	102.0	113.9	11.9
					970	114.5	119.0	4.5
					960	121.0	123.0	2.0
					950	125.0	125.9	0.9
					940	135.0	156.5	21.5
					900	158.7	159.3	0.6
				8	810	160.6	163.0	2.4
					800	167.8	170.7	2.9
				7	790	171.6	172.2	0.6
NSW-29R	675114.0	4762477.0	1520.0	10	1030	4.4	7.7	3.3
					1020	31.1	31.9	0.8
					1000	42.9	52.9	10.0
				9	998	54.5	58.5	4.0
					996	64.6	69.5	4.9
					980	82.6	89.7	7.1
					970	91.0	97.4	6.4
					960	101.6	103.6	2.0
					950	105.8	107.1	1.3
					942	113.4	114.8	1.4

	940	123.6	131.4	7.8
8	800	140.5	145.9	5.4

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-31R	676043.0	4762580.0	1506.0	10	1030	75.0	82.4	7.4
					1020	83.4	92.0	8.6
					1010	92.4	93.4	1.0
					1000	94.2	100.8	6.6
				9	990	140.6	142.6	2.0
					980	149.8	151.2	1.4
					970	157.0	159.9	2.9
					960	162.9	168.4	5.5
					950	173.8	176.6	2.8
					942	184.6	186.8	2.2
					940	192.6	200.8	8.2
NSW-32R	675701.0	4762496.0	1509.0	10	1040	16.0	17.2	1.2
					1030	48.5	53.3	4.8
					1020	67.0	70.7	3.7
					1010	73.0	73.8	0.8
					1000	75.4	82.7	7.3
				9	980	113.0	120.3	7.3
					970	123.3	124.9	1.6
					960	128.0	129.7	1.7
					950	134.8	136.5	1.7
					942	140.5	141.8	1.3
					940	150.1	169.6	19.5
				8	810	178.5	181.5	3.0
					800	182.4	187.7	5.3
				7	790	188.3	191.0	2.7
NSW-33R	676828.0	4763022.0	1526.0	9	990	19.0	20.2	1.2
					980	21.2	29.8	8.6
					970	31.0	37.4	6.4
					960	38.4	40.6	2.2
					940	47.8	62.0	14.2
				8	810	82.0	83.0	1.0
					800	84.0	88.2	4.2
				7	790	89.4	92.0	2.6
NSW-34R	674917.0	4762598.0	1562.0	9	990	53.0	55.0	2.0
					980	80.0	91.0	11.0
					940	135.0	140.0	5.0
NSW-35	676147.0	4762900.0	1508.0	5		116.4	228.4	112.0
NSW-36	676318.0	4762969.0	1500.0	6	620	115.0	126.2	11.2

					6	133.8	141.0	7.2
NSW-37	675927.0	4762865.0	1494.0	5	5	26.2	93.0	66.8
NSW-38	675730.0	4762799.0	1525.0	5	5	40.2	75.4	35.2

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-39	675285.0	4762459.0	1518.0	10	1030	3.3	9.0	5.7
					1020	44.8	49.7	4.9
					1000	55.4	63.8	8.4
				9	998	66.0	69.2	3.2
					996	74.2	75.6	1.4
					990	87.9	89.4	1.5
					980	102.0	104.8	2.8
					970	105.2	109.9	4.7
					950	111.2	112.8	1.6
					940	113.3	126.4	13.1
					900	136.3	139.9	3.6
NSW-40	676250.0	4762716.0	1500.0	10	1030	24.0	29.6	5.6
					1010	42.7	45.8	3.1
					1000	46.6	55.2	8.6
				9	998	58.6	59.4	0.8
					990	79.4	80.6	1.2
					980	90.1	95.2	5.1
					970	104.0	112.0	8.0
					960	112.6	115.0	2.4
					950	117.0	118.0	1.0
					942	119.6	120.0	0.4
					940	125.4	132.0	6.6
				8	810	152.4	154.4	2.0
					800	155.8	162.0	6.2
NSW-41	675877.0	4762541.0	1515.0	10	1030	20.8	23.7	2.9
					1000	56.2	64.4	8.2
				9	990	134.4	136.0	1.6
					980	141.4	147.0	5.6
					970	149.4	153.0	3.6
					960	159.0	161.4	2.4
					950	167.6	169.0	1.4
					942	180.7	181.7	1.0
					940	187.2	202.0	14.8
NSW-44	675402.0	4762656.0	1514.0	11	1170	6.0	13.2	7.2
					1160	15.0	17.6	2.6
					1150	19.4	21.1	1.7
					1140	22.4	23.6	1.2
					1130	27.8	38.6	10.8
					1120	42.8	44.9	2.1
					1100	47.7	52.0	4.3

NSW-45R	675764.0	4762771.0	1526.0	5		90.0	118.0	28.0

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-46R	675629.0	4763004.0	1529.0	10	1020	6.0	21.0	15.0
					1010	22.8	24.4	1.6
					1000	25.4	45.4	20.0
				9	990	76.4	78.6	2.2
					980	90.5	99.0	8.5
					970	101.0	102.8	1.8
					960	122.4	124.5	2.1
					950	129.7	135.0	5.3
					942	136.7	142.2	5.5
					940	143.3	162.4	19.1
					900	164.8	166.2	1.4
				8	810	171.6	174.4	2.8
NSW-47R	675647.0	4762960.0	1550.0	10	1030	34.9	44.1	9.2
					1020	62.2	68.0	5.8
					1010	72.7	74.7	2.0
					1000	77.4	92.0	14.6
				9	990	126.0	130.8	4.8
					980	142.0	147.5	5.5
					970	148.3	154.0	5.7
					960	156.0	161.5	5.5
					950	162.3	166.0	3.7
					942	170.8	173.6	2.8
NSW-47R	675647.0	4762960.0	1550.0	9	940	175.2	194.9	19.7
					900	201.2	203.0	1.8
				8	810	208.5	211.0	2.5
					800	219.4	222.2	2.8
				7	790	223.0	224.6	1.6
NSW-49R	675481.0	4762918.0	1513.0	10	1050	60.0	63.6	3.6
					1040	66.0	70.7	4.7
					1030	81.2	85.7	4.5
					1020	105.0	107.5	2.5
					1010	108.4	109.4	1.0
					1000	110.5	125.8	15.3
				9	990	142.6	144.0	1.4
					980	148.7	155.0	6.3
					970	157.0	159.0	2.0
					960	160.0	160.9	0.9
					950	161.8	162.6	0.8
					940	164.0	173.6	9.6
					900	181.6	184.0	2.4

8	800	190.0	203.0	13.0

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-50	675496.0	475496.0	1516.0	10	1050	63.1	64.3	1.2
					1030	84.4	90.1	5.7
					1020	103.9	106.8	2.9
					1010	113.6	114.5	0.9
					1000	120.3	125.6	5.3
				9	990	160.0	161.2	1.2
					980	166.9	178.3	11.4
					970	179.1	181.2	2.1
					960	183.5	186.3	2.8
					950	187.9	190.2	2.3
					942	193.0	194.5	1.5
					940	196.3	211.0	14.7
					900	214.6	217.7	3.1
				8	810	225.6	227.7	2.1
					800	230.0	234.7	4.7
NSW-51R	675327.0	4762786.0	1513.0	11	1120	9.6	12.6	3.0
					1100	18.3	20.0	1.7
				10	1040	136.2	137.7	1.5
					1030	142.0	143.0	1.0
				10	1020	149.6	151.3	1.7
					1010	160.9	164.0	3.1
					1000	165.0	170.4	5.4
				9	990	199.6	201.6	2.0
					980	208.4	215.4	7.0
					970	217.0	220.4	3.4
					960	221.0	224.0	3.0
					950	224.6	225.5	0.9
					940	227.0	235.6	8.6
					900	237.9	238.9	1.0
				8	800	245.6	249.0	3.4

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-52R	675301.0	4762840.0	1528.0	11	1120	11.0	14.1	3.1
					1110	21.3	24.5	3.2
					1100	25.2	26.5	1.3
				10	1030	144.8	146.8	2.0
					1020	167.0	168.2	1.2
					1010	174.6	177.1	2.5
					1000	178.1	184.0	5.9
				9	990	200.0	202.4	2.4
					980	208.9	214.0	5.1
					970	214.7	216.3	1.6
					960	216.9	217.5	0.6
					950	218.5	219.3	0.8
					940	220.4	225.5	5.1
					900	228.2	231.6	3.4
				8	810	235.8	236.5	0.7
					800	240.4	244.0	3.6
NSW-53R	675129.0	4762723.0	1551.0	11	1170	27.4	34.2	6.8
					1160	35.2	37.3	2.1
					1150	38.6	40.0	1.4
					1140	42.9	43.9	1.0
					1130	45.0	55.3	10.3
					1120	62.0	64.8	2.8
					1110	71.0	76.5	5.5
					1100	77.2	80.9	3.7
				10	1050	153.6	154.9	1.3
					1040	158.8	160.0	1.2
NSW-54R	675034.0	4762671.0	1518.0	5		137.4	196.2	58.8
NSW-55	675134.0	4762437.0	1522.0	10	1050	8.2	10.0	1.8
					1040	19.6	22.4	2.8
					1030	27.0	31.4	4.4
					1020	55.4	56.2	0.8
					1000	62.0	67.0	5.0
				9	998	69.8	70.9	1.1
					996	75.8	79.0	3.2
					990	82.8	84.0	1.2
					980	91.8	99.0	7.2
					970	103.4	104.3	0.9
					960	111.2	112.6	1.4
					950	116.2	117.4	1.2
					942	119.2	121.4	2.2

940	126.4	139.6	13.2
900	140.2	143.4	3.2

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
West Field cont d								
NSW-56	675498.0	4762426.0	1516.0	10	1030	42.0	43.5	1.5
					1000	62.0	66.2	4.2
				9	998	79.0	81.7	2.7
					996	81.7	84.2	2.5
					990	113.8	115.7	1.9
					980	121.0	127.3	6.3
					970	128.6	137.0	8.4
					960	139.4	140.8	1.4
					950	145.2	146.2	1.0
					942	151.0	152.8	1.8
					940	154.3	174.2	19.9
NSW-57	676485.0	4762813.0	1524.0	10	1010	49.0	52.8	3.8
					1000	57.8	61.6	3.8
				9	990	90.6	92.2	1.6
					980	93.2	100.6	7.4
					970	102.2	105.8	3.6
					960	107.4	108.0	0.6
					950	109.4	110.6	1.2
					940	115.4	125.0	9.6
				8	810	157.2	158.6	1.4
					800	159.7	165.0	5.3
				7	790	167.0	168.2	1.2
NSW-58R	675212.0	4762760.0	1523.0	11	1160	4.6	7.0	2.4
					1150	8.8	11.2	2.4
					1140	14.4	16.9	2.5
					1130	19.6	35.3	15.7
					1120	38.0	41.2	3.2
					1100	45.5	52.2	6.7
				10	1050	114.9	116.5	1.6
					1040	140.7	142.6	1.9
					1030	144.3	145.1	0.8
					1020	151.1	155.6	4.5
					1010	170.6	176.4	5.8
					1000	191.9	199.8	7.9

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
				West Field cont d				
NSW-59R	675256.0	4762712.0	1526.0	11	1170	5.3	13.7	8.4
					1160	16.1	18.3	2.2
					1150	20.2	22.0	1.8
					1140	24.6	25.5	0.9
					1130	27.2	39.2	12.0
					1120	43.6	46.5	2.9
					1110	54.4	58.3	3.9
					1100	58.8	60.2	1.4
				10	1040	142.0	144.0	2.0
					1030	147.0	149.3	2.3
					1020	163.3	166.7	3.4
					1010	181.4	186.2	4.8
					1000	187.2	196.6	9.4
NSW-60R	675267.0	4762675.0	1522.0	11	1170	13.6	34.5	20.9
					1160	38.7	42.2	3.5
					1150	43.2	44.5	1.3
					1140	45.9	46.9	1.0
					1130	51.7	66.0	14.3
					1120	71.5	74.2	2.7
					1110	78.6	82.1	3.5
					1100	86.5	91.2	4.7
				10	1040	180.6	185.1	4.5
					1030	188.6	190.4	1.8
					1020	193.3	197.5	4.2

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
				West Field cont d				
NSW-61R	675348.0	4762721.0	1517.0	11	1170	5.2	14.7	9.5
					1130	16.4	27.2	10.8
					1120	30.8	32.4	1.6
					1100	36.3	39.6	3.3
				10	1020	162.0	163.9	1.9
					1010	185.6	190.7	5.1
					1000	191.8	206.0	14.2
NSW-62R	675153.0	4762667.0	1514.0	11	1170	24.3	34.0	9.7
					1160	36.0	39.4	3.4
					1150	41.2	43.2	2.0
					1140	45.8	47.1	1.3
					1130	54.3	70.8	16.5
					1120	74.6	76.8	2.2
					1110	85.8	87.4	1.6
				10	1050	145.6	146.7	1.1
					1040	156.5	158.0	1.5
					1030	161.3	162.5	1.2
					1020	167.0	168.4	1.4
					1010	178.6	182.6	4.0
					1000	187.2	196.9	9.7
NSW-63R	675182.0	4762625.0	1513.0	11	1170	51.4	61.1	9.7
					1160	64.4	66.6	2.2
					1150	68.2	69.3	1.1
					1140	70.9	71.9	1.0
					1130	73.7	85.6	11.9
					1120	90.1	93.0	2.9
					1110	96.9	101.0	4.1
					1100	101.5	102.7	1.2
NSW-64R	675724.0	4762826.0	1527.0	5		20.5	47.4	26.9
NSW-65R	675040.0	4762662.0	1518.0	11	1170	24.6	35.8	11.2
					1160	51.4	55.0	3.6
					1150	56.6	58.8	2.2
					1140	60.0	62.0	2.0
					1130	65.0	96.0	31.0
					1120	106.4	109.4	3.0
					1100	112.4	116.0	3.6

NSW-66R	675065.0	4762617.0	1513.0	11	1170	26.4	37.2	10.8
					1160	38.5	42.4	3.9
					1150	46.0	49.6	3.6
					1140	52.6	54.0	1.4
					1130	59.0	75.2	16.2
					1120	81.0	82.8	1.8
					1100	86.6	90.0	3.4

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Drill Hole I	Easting	Northing	Elevation	Seam	Sub-seam	From	To	Thickness
				West Field cont d				
NSW-67R	675088.0	4732576.0	1514.0	11	1170	69.0	73.0	4.0
					1160	74.8	76.7	1.9
					1150	78.6	79.6	1.0
					1130	87.2	98.5	11.3
					1120	108.0	110.5	2.5
NSW-68R	674994.0	4762576.0	1526.0	11	1170	49.3	58.6	9.3
					1160	66.5	70.8	4.3
					1150	88.2	92.0	3.8
					1130	100.0	119.4	19.4
					1120	130.1	134.5	4.4
					1110	144.0	146.0	2.0
					1100	147.4	149.4	2.0
NSW-70R	675021.0	4762532.0	1519.0	11	1170	74.0	77.6	3.6
					1160	78.8	80.4	1.6
					1150	82.8	83.7	0.9
					1140	89.0	90.0	1.0
					1130	94.5	109.6	15.1
					1120	118.4	120.4	2.0
NSW-71R	675237.0	4762520.0	1524.0	10	1000	27.4	31.4	4.0
				9	998	33.4	36.0	2.6
					996	40.0	42.4	2.4
					990	54.3	56.0	1.7
					980	63.5	73.4	9.9
					960	75.4	76.2	0.8
					950	80.4	81.4	1.0
					940	89.0	97.0	8.0
					900	101.6	103.5	1.9
				8	800	107.0	111.3	4.3

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14 SAMPLING METHOD AND APPROACH

IMMI has employed two types of drilling to investigate coal-bearing strata and collect representative samples of the coal.

Core drilling has been used where it is desirable to collect complete representative samples of the coal seams, observe structural details, and to accurately measure the depths of lithologic contacts. The wireline method has been used with all core drilling in the current exploration program. Wireline core drilling produces a continuous retrieval of core for the entire drill hole. The five core holes drilled in 2004 were combination rotary/core holes. These holes were drilled using standard rotary methods to a projected target depth, then switched to a core barrel to retrieve cored sections of the No.5 seam.

Core from the drill hole is logged (i.e., measured and described) by a geologist using standard geological terms to document various attributes including lithology, physical characteristics, color, hardness and grain size. Coal intervals are collected in either split or solid tube core barrels. The core is promptly logged at the drill site by a geologist. The geologist s core log consists of the measured thickness and description of the coal, inter-seam partings, adjacent roof and floor rock, and details of any sample intervals removed for analysis. All core is then photographed at 0.5m increments.

Core size was HQ (63.5mm), with a triple tube barrel system used. The innermost barrel with this system was pumped out and the tube split. The rock core was placed in boxes, photographed, logged, and then placed on the ground in sequence. The coal is logged directly from the split barrel. The geologist s core log recorded the measured thickness and description of the coal, inter-seam partings, adjacent roof and floor rock, and details of any sample intervals removed for analysis. Each core run was measured for core cut and recovered. Photographs were taken at 0.5m intervals and the core logged.

Sampling was performed according to Norwest conventions. Coal showing distinct lithologic variation was sampled separately, as were partings over 0.05 meters. Otherwise, in units of coal with a uniform appearance, samples were bagged in 0.6 meter sample increments as per the capacity of the core box length. When zones of core loss greater than 0.1 meter were encountered, separate samples were collected both above and below the zone.

Coal samples were placed in polyethelene sleeves and taped shut. Each sample was assigned a discreet number, and this information and the sample depth interval was recorded in Norwest Laboratory Instruction Forms. The sample number and depth interval were written on the sample sleeves and core boxes.

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Reverse circulation drilling has been used as the primary exploratory method to locate and intersect coal-bearing strata. This method allows for rapid penetration at lower drilling costs. Reverse circulation does not afford the ability to measure depths of lithologic contacts with the same level of accuracy as core drilling. With reverse circulation it is difficult to observe structural details, or geologic changes such as thin rock parting units within a coal seam. The reverse circulation drill string utilized dual wall 102mm drill pipe and a 140mm hammer. Cuttings were directed up the inner tube of the drill pipe to a cyclone. The cuttings collected inside the cyclone against a trapdoor. The door was released after every 1 meter of drilling, the samples dropped into a bucket, and the cuttings were laid out in rows on the ground. The site geologist would then examine the cuttings and produce a geologic log. Intervals with coal were sampled and sealed in plastic bags. These samples were then sent off for proximate and thermal analyses.

A number of holes were drilled with a conventional air-rotary system. The drill used 114mm single wall drill pipe and a 152mm hammer bit. Cuttings with this system were directed up the anulus of the borehole and spilled on the ground surface. The drillers took notes on the types of materials encountered, and estimates of depth. No effort was made to systematically sample the cuttings, and the geophysical logs were used to determine formation depths.

Following the completion of all drill holes, a down-hole geophysical logging program was conducted. The logging program produces a geophysical log suite consisting of caliper, density (gamma-gamma), natural gamma and resistivity trace. The geophysical logs are used to identify rock types, including coal intersected in the hole and to accurately measure the depths of lithologic contacts. The geophysical log is used in conjunction with the geologic log to accurately interpret and measure the coal-bearing strata as well as providing a second source of information.

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15 SAMPLE PREPARATION, ANALYSES AND SECURITY

Samples are collected from drill core and reverse circulation cuttings. Samples are collected and submitted for analysis using methods that are standard for the coal industry. The specific process used by Norwest for the Nariin Sukhait drilling program is described below:

Core Drilling Samples

1. Recovered core is measured to determine an overall recovery (reported in percent) by comparing the recovered core length with the coring run length recorded by the driller. Recovered core is measured and compared to the coal interval thickness determined from the geophysical log suite.

2. Recovered coal intervals are sampled using the following criteria:
   i. Coal samples were broken out based on lithologic changes. In zones of uniform coal appearance, samples were bagged about every 0.60m as per the capacity of the core boxes.

   ii. In-seam partings, to a maximum thickness of 0.10m, will be included in a coal sample, where the thickness of the adjacent coal beds above and below the parting are both a minimum of twice the parting thickness.

   iii. A parting will be sampled separately if it is
   >0.10m thick,

   Carbonaceous shale, bone or interbedded coal/mudstone

   Deemed to be >50% coal.
3. Collected samples are cleaned of any mud contamination and placed in individual, core-sleeve style, plastic bags. The bags are labelled on the outside with both the core hole and sample number and sealed with plastic tape to prevent excessive moisture loss. Samples are then placed in sequence into waxed-cardboard core boxes. Core boxes are sealed with fibreglass reinforced tape. Core boxes are then packaged on palletized containers and shipped to SGS Mineral Labs in Denver, Colorado.

4. At the time of shipment, scanned geologic and geophysical logs, laboratory instructions and shipment manifest are forwarded to Norwest s Salt Lake City office. Laboratory instructions and the shipment manifest are forwarded to IMMI in Ulaanbaatar, and to SGS in Denver. All records are compared with contents upon arrival to the SGS Mineral Labs in Denver. To date, there has been no loss or compromise of samples during shipment. Core samples undergo a full suite of coal quality testing including short proximate, full proximate, thermal tests, ash analysis, washability testing, and metallurgical testing.

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Reverse Circulation Samples

Samples are collected at 1.0m intervals into plastic bags. The bags are labelled on the outside with both the drill hole and sample number and sealed with plastic tape to prevent excessive moisture loss. Samples are then grouped by hole into larger bags, packaged onto palletized containers and shipped to the Mining Institute in Ulaanbaatar, Mongolia where they undergo proximate and thermal analysis.

In coal work additional special security methods for the shipping and storage of samples are not commonly employed, as coal is a relatively low-value bulk commodity.

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16 DATA VERIFICATION

Data control and verification is an important element in Norwest s management of the exploration program at Nariin Sukhait. Norwest has directly managed the exploration program from conceptual planning of exploration targets, through data collection, to interpretation and analysis. Norwest has provided on-site management throughout the great majority of the exploration project with only very short periods of absence.

Upon completion of a drill hole, the geologic and geophysical logs are reviewed by a Norwest geologist. Following review of the logs, the hardcopy originals are scanned into an electronic format. All geologic, geophysical, and sampling data is entered and maintained in an electronic database. All mapping is entered and maintained in electronic format on a CAD-based system. Data entry of all geologic data is managed by Norwest at the project site. All electronic data is forwarded on a routine basis to Norwest s office in Salt Lake City. Results from the coal quality testing is added into the database in the Salt Lake office.

All data collection is done under a defined set of protocols established by Norwest. Norwest geologists are responsible for the training and administration of data collection procedures and are responsible for reviewing all data. Norwest has maintained control of all data collection throughout the exploration program.

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17 ADJACENT PROPERTIES

Ivanhoe s Nariin Sukhait Property surrounds and is adjacent to the MAK Nariin Sukhait Mine, owned and operated by the Mak Qin Hua Mongolian/Chinese Joint Venture. Operations began at the Nariin Sukhait Mine in 2003. The operation currently mines coal from the No. 5 Seam from two open-pit mines. Annual production is estimated to be approximately 2M tpy of both thermal and coking blend coal, which is trucked to a Chinese steel mill some 400km away. Reported reserves for the MAK operation are stated as 125.5 Mt. of coal. Information regarding the MAK operation has been provided by Ivanhoe to Norwest . Norwest has been unable to verify this information and the information is not necessarily indicative of the coal resource potential on the IMMI controlled licenses.

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18 MINERAL PROCESSING AND METALLURGICAL TESTING

The equivalent terminology, which will be used in this report on coal at Nariin Sukhait, is Coal Quality and Processing . Core samples were subjected to a number of analyses, with the most common analyses described below:

Proximate Analysis: Determination of moisture, ash, volatile matter and fixed carbon in a sample. The fixed carbon is determined by difference and the four components total 100%.

Sulphur: Determination of the percent sulphur in a sample. Coal seams at Nariin Sukhait have low sulphur contents ranging from 0.73 to 1.37%.

Thermal Value: A measure of the heat producing capability of coal measured in Kcal/kg or BTU/lb. Thermal content for coals at Nariin Sukhait (as-received basis) range from approximately 5,800 to 7,000 Kcal/kg.

Washability Tests: A series of tests to determine the proximate and thermal qualities of coal after being washed at set specific gravities to remove ash, sulphur, and non-coal constituents. Tests are designed to simulate preparation plant throughput at set specific gravities to determine expected yields and quality of a saleable product.

Metallurgical Testing: A series of tests to evaluate the coking characteristics of coal. Tests include the Gieseler Plastometer, Audibert Arnu Dilatometer, Reactive Maceral Analysis, Phosphorous content (P%), and Free Swelling Index (FSI).

18.1 Raw Coal Quality

At Nariin Sukhait the coals are ranked as high volatile bituminous. Short proximate analysis (moisture, ash, sulphur, and caloricity) has been completed on all core and numerous reverse circulation drill holes. Core holes with coal quality data are highlighted on Figures 18.1 and 18.2. Full proximate analyses, thermal, washability and metallurgical testing have been completed for 21% of the core samples. All core samples from the 2005 exploration program have been tested at SGS Mineral Labs in Denver, Colorado.

Raw coal quality results for the South Field are presented in Table 18.1 on a full-seam composite basis. Average qualities for the No. 5 Seam are 12.3% Ash, 1.2% Sulphur, and a heat content of 6,391 Kcal/kg. Similar results are seen in drill holes completed in 2004 and are presented in Table 18.2.

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Table 18.1
Raw Coal Quality, South Field, No. 5 Seam

		As Received Quality Basis					
Hole Id	Thick (m)	Moisture (%)	Ash (%)	Sulfur (%)	Kcal/kg	BTU/lb	MAFBTU
NS-29	53.5	10.67	10.51	0.85	6,395	11,510	14,566
NS-16	22.6	13.40	15.17	0.84	5,751	10,350	14,480
NS-18	125.9	9.92	14.37	1.25	6,155	11,076	14,612
NS-23	61.3	6.21	9.84	1.66	6,820	12,273	14,613
NS-22	56.3	6.70	10.75	1.29	6,706	12,068	14,611
Wtd. Avg.	**63.9**	**9.01**	**12.27**	**1.24**	**6,391**	**11,502**	**14,595**

Table 18.2
***2004 Raw Coal Quality, South Field, No. 5 Seam**

		AR Basis				Air Dry Basis		
Hole Id	Thick (m)	Moisture (%)	Ash (%)	Kcal/kg	BTU/lb	Moisture (%)	Volatiles (%)	Sulfur (%)
H-1	74.1	5.23	13.04	6,438	11,586	1.12	34.85	1.02
H-2	34.0	3.58	16.31	6,273	11,290	0.81	34.75	0.53
H-3	51.4	2.17	10.08	6,972	12,547	1.02	33.61	0.59
H-4	42.3	5.73	8.93	6,760	12,165	1.14	30.94	1.19
H-5	40.1	6.87	7.80	6,753	12,152	0.91	34.03	0.58
Wtd. Avg.	**48.4**	**4.72**	**11.23**	**6,639**	**11,948**	**1.00**	**33.64**	**0.78**

A summary of coal quality for the upper seams (Nos. 8, 9, and 10) in the East Field is presented is presented in Table 18.3. The upper seams exhibit higher ash, lower sulphur, and lower heating content than seen in the No. 5 Seam. Ash values range from 13.2 to 27.3% in the upper seams, reflecting the multiple benches and in-seam dilution of thin rock partings. Likewise, heating content in the upper seams has a lower average heating content of 5,831 Kcal/kg.

Table 18.3
Raw Coal Quality, East Field, Upper Seams

		As Received Quality Basis					
Hole Id	Thick (m)	Moisture (%)	Ash (%)	Sulfur (%)	Kcal/kg	BTU/lb	MAFBTU
NS-09	15.8	12.34	19.53	0.58	5,493	9,886	14,486
NS-12	3.3	17.21	17.62	0.67	5,137	9,244	14,184
NS-13	4.8	10.54	13.22	0.60	6,095	10,968	14,385
NS-14	8.9	21.94	27.31	0.41	3,726	6,705	13,168
NS-32	26.3	8.01	14.92	1.28	6,114	11,002	14,176
NS-33	10.0	5.76	20.06	0.76	5,851	10,530	14,056
NS-34	51.4	8.19	15.87	0.98	6,013	10,822	14,160
NS-35	24.5	9.53	13.77	1.38	6,159	11,084	14,442
Wtd. Avg.	**18.1**	**9.79**	**16.68**	**0.99**	**5,831**	**10,494**	**14,186**

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A summary of raw coal quality for the No. 5 Seam in the West Field is presented in Table 18.4. Ash content for No. 5 Seam coal in the West Field is significantly lower from other coals at Nariin Sukhait. Ash content ranges from 6.1 to 11.1%, averaging 7.3%. Likewise sulphur content, averaging 0.73%, is significantly lower than other coals tested to date at Nariin Sukhait. Heating content is significantly improved at an average value of 7,003 Kcal/kg compared to the average heating values for No. 5 Seam coals in the South Field.

Table 18.4
Raw Coal Quality, West Field, No. 5 Seam

		As Received Quality Basis					
Hole Id	Thick (m)	Moisture (%)	Ash (%)	Sulfur (%)	Kcal/kg	BTU/lb	MAFBTU
NSW-37	66.5	6.35	7.39	0.90	6,927	12,466	14,446
NSW-36	17.5	4.90	7.90	0.82	7,037	12,663	14,520
NSW-35	107.8	5.36	6.13	0.59	7,222	12,997	14,682
NSW-38	30.9	9.66	11.13	0.81	6,388	11,496	14,499
Wtd. Avg.	**55.7**	**6.22**	**7.34**	**0.73**	**7,003**	**12,604**	**14,574**

A summary of the upper seam coals for the West Field is presented in Table 18.5. The upper seam coals in the West Field have ash values comparable to the upper seams in the East Field. Sulphur content is higher in the West Field at 1.37% compared to 1.0% sulphur for upper seams in the East Field. Heating values for the upper seams are significantly higher compared to the East Field at 6,266 Kcal/kg, an increase of approximately 400 Kcal/kg.

Table 18.5
Raw Coal Quality, West Field, Upper Seams

		As Received Quality Basis					
Hole Id	Thick (m)	Moisture (%)	Ash (%)	Sulfur (%)	Kcal/kg	BTU/lb	MAFBTU
NSW-40	50.5	5.85	16.62	1.53	6,242	11,233	14,477
NSW-41	49.9	5.68	20.01	1.24	5,960	10,726	14,288
NSW-44	31.0	7.30	14.58	1.52	6,262	11,270	14,413
NSW-50	65.1	5.21	14.19	0.99	6,578	11,838	14,667
NSW-55	60.4	5.61	16.63	1.42	6,244	11,238	14,420
NSW-56	55.1	6.22	16.00	1.54	6,252	11,251	14,445
NSW-57	37.8	6.26	16.23	1.50	6,219	11,193	14,424
Wtd. Avg.	**50.0**	**5.90**	**16.34**	**1.37**	**6,266**	**11,276**	**14,459**

Proximate analyses of cuttings from 15 reverse circulation holes have been performed by the Mining Institute in Ulaanbaatar and are presented in Table 18.6. The nature and method of collecting coal samples from reverse circulation drilling typically results in a lower quality sample. Cuttings typically are subjected to moisture loss and out-of-seam dilution.

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Table 18.6
Nariin Sukhait Property
Raw Coal Quality Reverse Circulation Drilling

						PROXIMATE ANALYSIS						
						Wetness	Wetness	Ash	Volatility	Sulfur	Caloricity	SPECIFIC
				Seam	Sub-seam							
Hole #	From	To	Thickness	#	#	AP	ADB	DB	ADB	ADB	POB	GRAVITY
NS -21	147.0	153.3	6.3	5	5	17.80	1.00	9.90	37.10	0.99	5505	0.90
	154.5	164.3	9.8	5	5	14.20	1.00	12.80	35.70	1.03	5666	1.04
NS -24	62.7	64.9	2.2	10	1010	10.90	1.10	12.40	38.00	0.95	6116	1.25
	64.9	70.4	5.5	10	10	14.90	1.20	11.40	36.10	0.65	5807	1.07
	99.8	102.9	3.1	9	9	5.70	0.70	29.00	31.40	0.35	6169	0.89
	103.1	107.2	4.1	9	9	13.80	1.00	14.90	33.60	0.40	5589	1.09
NS-30R	18.0	20.0	2.0	8	8	7.00	1.20	20.20	38.60	0.53	5684	1.29
NSW-19R	82.0	96.0	14.0	10	10	3.90	1.70	18.60	40.30	1.15	5960	1.26
	135.0	137.0	2.0	9	990	2.80	1.80	11.80	38.30	1.05	6732	1.21
	164.0	180.0	16.0	9	950	3.90	1.70	16.50	38.40	1.18	6267	1.22
	184.0	210.0	26.0	9	940	2.80	1.50	15.70	38.70	1.09	6253	1.27
	17.0	26.0	9.0	10	1030	5.40	1.90	42.00	49.50	1.24	3626	1.66
	36.0	40.0	4.0	10	1020	5.10	2.00	32.90	43.80	0.93	4455	1.47
	43.0	53.0	10.0	10	10	3.80	2.00	24.70	41.90	0.81	5477	1.38
	59.0	60.0	1.0	9	998	3.90	1.80	44.40	46.60	0.95	3464	1.64
	63.0	67.0	4.0	9	996	3.70	1.70	27.60	34.30	1.28	5060	1.19
	93.0	94.0	1.0	9	990	3.20	1.80	19.30	36.80	1.47	5842	1.29
NSW-20R	98.0	107.0	9.0	9	980	3.80	1.90	12.50	40.10	1.98	6272	1.30
	113.0	114.0	1.0	9	970	3.00	1.70	17.00	40.40	1.63	6078	1.28
	116.0	118.0	2.0	9	960	3.70	1.70	13.10	39.80	1.48	6365	1.26
	123.0	124.0	1.0	9	950	4.90	1.90	15.40	38.30	1.84	6023	1.28
	132.0	144.0	12.0	9	940	3.50	1.90	9.50	39.80	1.36	6826	1.09
	153.0	156.0	3.0	9	9	3.20	1.80	21.50	38.80	1.32	5579	1.32
	172.0	179.0	7.0	8	8	5.40	1.80	10.30	37.70	1.53	6568	1.23
	57.0	60.0	3.0	10	1030	3.20	1.10	52.40	48.90	1.32	3070	1.78
	63.0	72.0	9.0	10	10	3.20	1.40	29.00	40.80	1.12	5018	1.51
NSW-24	101.0	107.0	6.0	9	980	4.40	1.60	16.10	39.00	1.44	6026	1.36
	109.0	112.0	3.0	9	970	3.20	1.60	16.20	39.30	2.04	6102	1.11
	112.0	113.0	1.0	9	960	2.90	0.90	28.60	43.30	1.37	5071	1.51
	11.0	14.0	3.0	11	11	5.20	1.80	53.40	46.20	0.73	2816	1.68
	58.0	59.0	1.0	10	1030	3.80	2.00	32.80	42.60	1.20	5096	1.46
	72.0	75.0	3.0	10	10	2.90	1.60	32.70	43.30	0.88	5026	1.52
	75.0	78.0	3.0	10	10	2.80	1.70	30.80	43.60	0.64	4850	1.20
NSW-25R	84.0	86.0	2.0	9	998	3.50	1.50	40.90	45.90	0.85	3871	1.48
	89.0	94.0	5.0	9	996	3.50	1.60	18.00	41.50	1.19	5905	1.31

122.0	127.0	5.0	9	980	4.70	1.80	18.30	39.30	1.37	5790	1.29
129.0	136.0	7.0	9	970	3.60	1.80	15.10	38.50	0.15	6369	1.33

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Table 18.6
Nariin Sukhait Property
Raw Coal Quality Reverse Circulation Drilling

						PROXIMATE ANALYSIS						
						Wetness	Wetness	Ash	Volatility	Sulfur	Caloricity	SPECIFIC
				Seam	Sub-seam							
Hole #	From	To	Thickness	#	#	AP	ADB	DB	ADB	ADB	POB	GRAVITY
	42.0	46.0	4.0	10	1040	4.40	1.80	17.30	42.30	1.23	5781	1.35
NSW-26R	54.0	55.0	1.0	10	1030	7.90	1.50	30.30	45.90	2.12	4193	1.45
	15.0	20.0	5.0	10	1050	5.40	1.60	40.70	42.60	1.23	3767	1.61
	26.0	29.0	3.0	10	1040	4.30	1.70	41.00	44.30	1.10	3903	1.33
	31.0	33.0	2.0	10	1030	5.20	2.00	39.60	42.90	1.43	3928	1.51
	34.0	38.0	4.0	10	1030	5.90	2.10	25.70	41.70	0.63	4954	1.45
	65.0	66.0	1.0	10	1020	3.70	1.70	55.70	55.30	1.06	2771	1.62
	69.0	74.0	5.0	10	10	6.30	1.90	24.00	42.00	0.95	5214	1.40
NSW-28R	74.0	76.0	2.0	10	10	6.80	1.90	21.30	39.50	1.18	5416	1.36
	79.0	82.0	3.0	9	998	6.00	2.00	12.20	37.90	1.04	6264	1.10
	88.0	89.0	1.0	9	996	3.50	1.90	22.90	43.80	1.49	5594	1.29
	93.0	94.0	1.0	9	990	5.20	1.90	23.00	40.20	1.33	5471	1.37
	102.0	111.0	9.0	9	980	4.00	2.00	12.20	39.60	1.08	6487	1.26
	111.0	115.0	4.0	9	980	3.90	2.00	12.10	39.00	1.07	6536	1.24
	3.0	4.0	1.0	10	1030	23.20	6.00	27.40	44.20	0.48	2728.0	1.52
	5.0	8.0	3.0	10	1030	6.00	2.70	17.60	40.00	0.52	5931	1.13
	31.0	32.0	1.0	10	1020	3.40	2.20	14.70	42.10	1.29	6243	1.23
	44.0	53.0	9.0	10	10	4.20	2.20	12.10	38.00	1.32	6416	1.24
	55.0	58.0	3.0	9	998	3.70	2.20	13.00	39.30	1.11	6284	1.28
NSW-29R	65.0	69.0	4.0	9	996	4.20	2.20	9.20	38.30	1.05	6731	1.23
	84.0	90.0	6.0	9	980	3.90	2.00	7.90	38.90	0.75	6783	1.18
	92.0	96.0	4.0	9	970	3.60	2.00	11.40	37.70	1.25	6519	1.09
	102.0	104.0	2.0	9	960	4.20	2.30	6.40	34.80	1.03	7068	1.23
	106.0	107.0	1.0	9	950	3.20	1.80	26.40	38.40	0.97	5415	1.32
	114.0	115.0	1.0	9	942	3.80	2.00	15.80	39.40	1.25	6304	1.33
	20.0	40.0	20.0	11	11	5.10	1.90	27.40	42.00	1.04	4906	1.39
	67.0	68.0	1.0	10	1040	3.70	2.00	16.80	36.80	0.67	6060	1.10
	72.0	76.0	4.0	10	1030	3.20	1.60	22.30	40.10	0.59	5447	1.32
	76.0	82.0	6.0	10	1030	3.50	1.80	11.30	39.50	0.67	6544	1.20
NSW-31R	84.0	87.0	3.0	10	1020	2.90	1.60	27.80	41.00	0.51	5167	1.33
	87.0	91.0	4.0	10	1020	3.30	1.90	15.70	41.10	0.80	6099	1.29
	91.0	94.0	3.0	10	1010	3.10	1.70	19.50	42.50	1.01	5827	1.37
	95.0	101.0	6.0	10	10	4.30	1.60	14.10	39.10	0.78	6192	1.11
	140.0	143.0	3.0	9	990	3.20	1.50	25.40	39.20	0.83	5688	1.34

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Table 18.6
Nariin Sukhait Property
Raw Coal Quality Reverse Circulation Drilling

						PROXIMATE ANALYSIS						
						Wetness	Wetness	Ash	Volatility	Sulfur	Caloricity	SPECIFIC
				Seam	Sub-seam							
Hole #	From	To	Thickness	#	#	AP	ADB	DB	ADB	ADB	POB	GRAVITY
	150.0	152.0	2.0	9	980	3.30	1.40	21.80	35.60	1.36	5782	1.37
	156.0	160.0	4.0	9	970	2.80	1.60	20.20	38.60	0.97	5890	1.31
	163.0	168.0	5.0	9	960	4.60	1.60	12.30	36.50	1.19	6422	1.07
NSW-31R	174.0	177.0	3.0	9	950	5.20	1.40	17.20	38.40	1.03	6217	1.26
	180.0	182.0	2.0	9	950	2.60	1.30	22.70	38.60	0.53	5919	1.25
	186.0	188.0	2.0	9	942	3.60	1.30	40.90	40.20	0.81	4529	1.43
	192.0	201.0	9.0	9	940	3.90	1.70	11.70	38.20	0.37	6523	1.27
	16.0	17.0	1.0	10	1040	3.30	1.20	48.40	56.30	0.57	2980	1.87
	48.0	52.0	4.0	10	1030	4.40	1.80	23.10	41.00	0.51	5349	1.41
	56.0	62.0	6.0	10	1030	3.50	1.80	33.70	42.90	0.71	4634	1.25
	69.0	74.0	5.0	10	1020	3.50	1.70	34.40	42.90	0.86	4646	1.49
	76.0	83.0	7.0	10	10	4.10	2.00	14.60	39.40	1.10	6332	1.32
	114.0	120.0	6.0	9	980	3.50	1.80	11.80	38.00	1.26	6588	1.28
NSW-32R	124.0	142.0	18.0	9	960	3.40	1.80	18.20	38.60	0.80	6214	1.11
	150.0	155.0	5.0	9	940	4.90	1.80	23.80	40.10	1.22	5362	1.45
	156.0	165.0	9.0	9	940	3.30	1.80	11.30	37.90	1.09	6608	1.33
	165.0	170.0	5.0	9	940	2.90	1.90	9.90	38.20	1.10	6822	1.27
	180.0	188.0	8.0	8	8	2.60	1.70	19.80	38.70	1.22	5943	1.39
	189.0	192.0	3.0	7	7	2.20	1.40	28.80	40.00	0.69	5193	1.38
	19.0	21.0	2.0	9	990	5.70	1.90	27.80	39.00	1.26	4999	1.40
	24.0	30.0	6.0	9	980	6.50	2.00	10.60	38.80	0.97	6267	1.11
NSW-33R	30.0	41.0	11.0	9	970	4.50	1.70	22.80	40.70	1.01	5519	1.34
	48.0	62.0	14.0	9	940	3.90	1.90	13.10	34.60	1.09	6563	1.20
	83.0	88.0	5.0	8	8	4.30	1.80	16.90	37.50	1.16	6263	1.28
	6.0	8.0	2.0	10	10	9.50	4.40	13.00	36.90	1.05	5940	1.17
	54.0	55.0	1.0	9	990	4.80	2.20	5.90	39.60	0.71	6897	1.28
	70.0	74.0	4.0	9	980	2.60	2.10	10.30	38.70	0.71	6634	1.29
NSW-34R	81.0	84.0	3.0	9	980	3.80	1.90	20.50	40.40	0.48	5748	1.16
	87.0	90.0	3.0	9	980	4.00	1.90	7.50	37.90	1.00	6821	1.42
	113.0	136.0	23.0	9	940	4.30	1.60	22.60	46.40	0.65	5360	1.23
	36.0	41.0	5.0	10	1030	3.42	1.81	9.62	39.64	0.48	6765	1.11
	41.0	45.0	4.0	10	1030	6.75	1.71	16.57	41.76	0.41	5925	1.26
	46.0	47.0	1.0	10	1030	2.74	1.56	23.61	47.02	0.77	5414	1.38
	48.0	54.0	6.0	10	1030	3.06	1.76	16.62	39.62	0.34	6252	1.35
NSW-47R	54.0	60.0	6.0	10	1030	3.16	1.75	17.09	39.92	0.78	6181	1.28
	63.0	69.0	6.0	10	1020	4.23	1.55	20.74	41.89	0.78	5835	1.31
	70.0	72.0	2.0	10	1010	3.21	1.65	11.67	41.31	0.81	6806	1.25

72.0	76.0	4.0	10	1010	2.87	1.61	39.92	44.07	0.38	4418	1.52

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Table 18.6
Nariin Sukhait Property
Raw Coal Quality Reverse Circulation Drilling

						PROXIMATE ANALYSIS						
						Wetness	Wetness	Ash	Volatility	Sulfur	Caloricity	SPECIFIC
				Seam	Sub-seam							
Hole #	From	To	Thickness	#	#	AP	ADB	DB	ADB	ADB	POB	GRAVITY
	78.0	81.0	3.0	10	10	4.46	1.67	19.84	40.37	1.01	5906	1.09
	81.0	89.0	8.0	10	10	5.14	1.60	15.73	40.44	0.77	6278	1.29
	89.0	92.0	3.0	10	10	8.26	1.78	10.89	40.64	0.68	6336	1.26
	126.0	131.0	5.0	9	990	2.93	1.63	9.65	37.11	1.15	6862	1.19
	138.0	141.0	3.0	9	980	2.50	1.33	23.52	41.69	0.65	5734	1.34
	142.0	147.0	5.0	9	980	3.18	1.49	7.31	35.28	1.22	7092	1.24
	147.0	155.0	8.0	9	970	3.09	1.44	10.15	38.94	0.79	6860	1.25
	156.0	162.0	6.0	9	960	2.70	1.70	7.82	37.33	0.89	7247	1.19
	163.0	166.0	3.0	9	950	2.61	1.51	15.94	40.37	0.65	6465	1.13
NSW-47R	168.0	169.0	1.0	9	950	5.65	1.44	20.18	43.91	0.72	5854	1.02
	172.0	175.0	3.0	9	942	4.13	1.62	16.33	40.25	0.55	6275	1.14
	175.0	184.0	9.0	9	940	2.86	1.65	7.41	37.43	1.67	7087	1.24
	184.0	186.0	2.0	9	940	2.39	1.59	11.13	37.90	0.57	6998	1.15
	186.0	190.0	4.0	9	940	2.64	2.12	7.38	36.12	0.58	7176	1.32
	190.0	195.0	5.0	9	940	3.38	1.90	8.04	39.11	0.52	7245	1.26
	202.0	203.0	1.0	9	9	2.32	2.02	19.48	37.58	0.47	6166	1.30
	205.0	208.0	3.0	8	810	2.35	1.60	27.17	37.18	0.65	5418	1.31
	210.0	212.0	2.0	8	810	3.34	1.53	20.42	38.70	0.41	5927	1.11
	220.0	225.0	5.0	8	8	2.47	1.39	30.43	38.97	0.90	5254	1.38

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For this reason, quality results from reverse circulation drilling have not been incorporated with the quality analyses from core drilling. These reverse circulation data are collected and tested primarily to be used as a guide in a reconnaissance program, to target areas for core drilling.

18.2 Optimized Qualities

In a likely mining scenario, portions of the coal seams may be selectively mined to achieve an improved overall coal product. Table 18.7 presents coal quality of core hole data, optimized to a logical mineable horizon to improve coal quality characteristics.

The optimized quality presented in Table 18.7 demonstrates that potential improvements can be realized on the upper seams by selective mining that will yield a high quality thermal coal. Several drill hole intercepts in the No. 5 Seam display low ash, low sulphur, and high caloric content that may be suitable for coking coal.

18.3 Washability and Metallurgical Testing

To date, washability and metallurgical tests have been completed for samples from eight core holes. Washability results are presented in Table 18.8. Based on the initial tests, upper seam coals show significant improvements with decreased ash content, decreased sulphur content and increased heating values at specific gravities of 1.4 and 1.5 g/cm^3 with product yields in the range 65 to 70%.

Metallurgical tests and rank calculations are presented in Tables 18.9 and 18.10. For comparison, a grab sample collected from the MAK East Pit, NS-BS-01, is presented with the core hole samples. Initial metallurgical tests are disappointing in that only one sample, NS-13, exhibits characteristics that may be suitable for coke. These results are influenced by sample composite intervals being selected before proximate and thermal characteristics had been determined. Ash content on the 1.4 float fraction is excessive in all but one sample (NS-BS-1), ranging from approximately 9.7 to 17.6%. The Free Swelling Index numbers vary from 1 to 2 with the core hole samples, with the exception of NS-13 that has a FSI index of 7.5. Rank calculations show all the samples with the exception of NS-14 to be high volatile bituminous coal. NS-14 represents a sample interval located close to the surface and is largely affected by oxidation.

In addition to the above described metallurgical testing that was conducted on composite intervals, several incremental samples were tested for FSI. Data from these tests are presented as graphs in the following Figures 18.3 and 18.4. Though these data are not definitive, the higher values in the 5 Seam South Field do represent the potential for identifying some coal benches with coking properties.

There are currently samples from 23 core holes still undergoing washability and metallurgical tests.

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Table 18.7
Nariin Sukhait Property,Mongolia
Optimized Coal Quality

Drill Hole	Seam	In-Place Optimized	Thickness	Moisture	Ash	Sulfur	Kcal/kg	ASG	MMF* Kcal/kg	MAF** Kcal/kg
NS-09	10	In-Place	6.20	12.93	20.38	0.66	5360	1.42	6711	8023
		Optimized	4.00	13.57	13.42	0.68	5923	1.36	6834	8108
NS-09	9	In-Place	6.30	11.26	20.71	0.45	5418	1.46	6818	7947
		Optimized	4.40	11.89	17.83	0.45	5760	1.42	7008	8194
NS-09	8	In-Place	3.50	12.98	17.44	0.64	5738	1.42	6951	8247
		Optimized	3.50	12.98	17.44	0.64	5738	1.42	6951	8247
NS-12	10	In-Place	3.30	17.21	17.62	0.67	5140	1.41	6239	7886
		Optimized	3.30	17.21	17.62	0.67	5140	1.41	6239	7886
NS-14	9	In-Place	11.85	21.81	27.04	0.43	3773	1.49	5157	7353
		Optimized	8.95	21.09	25.61	0.51	4006	1.47	5383	7510
NS-16	5	In-Place	24.10	12.76	19.80	1.10	5372	1.43	6545	7788
		Optimized	22.90	13.33	15.39	0.83	5740	1.38	6783	8047
NS-18	5	In-Place	128.60	9.86	15.04	1.32	6100	1.38	7155	8101
		Optimized	116.50	9.96	12.95	1.26	6281	1.36	7206	8140
NS-21	5	In-Place	16.10	15.49	9.97	0.87	4789	0.99	5323	6295
		Optimized	16.10	15.49	9.97	0.87	4789	0.99	5323	6295
NS-22	5	In-Place	61.65	6.85	11.15	1.29	6662	1.37	7489	8120
		Optimized	48.03	6.83	9.26	1.08	6826	1.35	7517	8132
NS-23	5	In-Place	84.10	6.78	14.58	1.83	6311	1.53	7288	7935
		Optimized	66.70	6.48	9.03	1.55	6873	1.36	7554	8134
NS-29	5	In-Place	60.35	10.82	10.64	0.85	6372	1.41	7105	8015
		Optimized	56.60	10.68	9.45	0.85	6493	1.41	7163	8002
NS-32	5	In-Place	28.35	7.86	18.50	1.23	5820	1.44	6956	7733
		Optimized	24.55	8.27	12.36	1.21	6321	1.38	7213	7963
NS-33	9	In-Place	6.90	6.85	20.71	0.63	5753	1.42	7127	7824
		Optimized	2.35	7.78	9.22	0.50	6707	1.35	7383	8077
NS-33	8	In-Place	4.80	4.72	19.81	0.83	5919	1.47	7367	7821
		Optimized	3.60	5.26	13.57	0.88	6434	1.41	7447	7926
NS-34	9	In-Place	57.60	8.36	20.33	0.94	5640	1.44	6988	7828

		Optimized	38.05	8.48	11.31	0.84	6420	1.36	7239	8004
NS-34	10	In-Place	6.30	5.15	19.37	1.54	5807	1.47	7205	7693
		Optimized	5.40	5.48	17.54	1.64	5924	1.45	7185	7696
NS-35	10	In-Place	27.27	9.59	14.27	1.37	6110	1.38	7128	8021
		Optimized	19.70	10.26	11.55	1.48	6315	1.36	7138	8077
NSW-35	5	In-Place	112.30	5.41	6.17	0.59	7218	1.33	7693	8162
		Optimized	110.60	5.45	6.08	0.59	7223	1.33	7691	8164
NSW-36	8	In-Place	18.05	4.82	8.18	0.81	7022	1.35	7644	8069
		Optimized	17.95	4.83	7.88	0.81	7046	1.35	7647	8072

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Table 18.7
Nariin Sukhait Property,Mongolia
Optimized Coal Quality

Drill Hole	Seam	In-Place Optimized	Thickness	Moisture	Ash	Sulfur	Kcal/kg	ASG	MMF* Kcal/kg	MAF** Kcal/kg
NSW-37	5	In-Place	66.60	6.37	7.49	0.91	6919	1.34	7475	8029
		Optimized	61.15	6.27	6.65	0.85	6993	1.33	7489	8028
NSW-38	5	In-Place	35.50	9.60	11.98	0.84	6322	1.36	7171	8052
		Optimized	29.60	9.99	8.23	0.70	6622	1.33	7215	8096
NSW-40	8	In-Place	9.10	4.48	22.44	1.16	5912	1.47	7615	8083
		Optimized	6.10	4.41	22.05	1.26	5964	1.48	7641	8102
NSW-40	9	In-Place	28.50	4.90	16.31	1.57	6372	1.41	7607	8079
		Optimized	21.30	5.39	12.82	1.63	6636	1.29	7610	8109
NSW-40	10	In-Place	15.25	8.36	15.38	1.64	6071	1.37	7169	7957
		Optimized	12.70	8.04	14.00	1.62	6226	1.36	7240	7985
NSW-41	9	In-Place	34.40	5.05	20.36	1.35	8016	1.44	10355	7859
		Optimized	20.05	5.50	11.32	1.48	8205	1.35	9269	7842
NSW-41	10	In-Place	20.90	7.16	34.01	0.88	7278	1.58	11895	7872
		Optimized	9.00	5.70	12.53	0.83	8055	1.36	9247	7834
NSW-44	11	In-Place	31.40	7.30	14.81	1.52	6202	1.39	7323	6245
		Optimized	25.20	7.36	12.25	1.47	6248	1.38	7137	6468
NSW-50	8	In-Place	3.30	5.54	19.65	1.17	6193	1.44	7704	8277
		Optimized	0.60	4.44	12.91	1.53	6828	1.34	7840	8261
NSW-50	9	In-Place	41.50	4.79	13.45	0.91	6680	1.37	7699	8152
		Optimized	33.30	4.86	10.13	0.91	6996	1.33	7778	8225
NSW-50	10	In-Place	20.80	6.00	16.40	1.10	6291	1.40	7510	8100
		Optimized	16.50	5.82	12.70	1.15	6623	1.36	7581	8125
NSW-55	9	In-Place	27.80	4.97	17.32	1.46	6258	1.41	7539	8031
		Optimized	16.50	4.80	11.80	1.43	6772	1.36	7677	8119
NSW-55	10	In-Place	21.00	6.27	20.09	1.49	5814	1.46	7257	7882
		Optimized	12.60	5.99	14.81	1.43	6306	1.42	7397	7958
NSW-56	9	In-Place	49.95	5.94	15.80	1.59	6300	1.40	7468	8041
		Optimized	41.70	5.88	13.19	1.61	6538	1.37	7527	8075
NSW-56	10	In-Place	6.90	8.53	20.05	1.19	5672	1.45	7067	7922

		Optimized	3.50	8.67	10.88	0.94	6510	1.35	7308	8091
NSW-57	8	In-Place	7.90	5.24	15.49	1.22	6496	1.38	7684	8193
		Optimized	5.20	5.23	12.08	1.29	6793	1.35	7727	8216
NSW-57	9	In-Place	22.80	5.72	16.08	1.69	6271	1.41	7466	8014
		Optimized	17.45	5.76	13.61	1.80	6493	1.39	7514	8050
NSW-57	10	In-Place	9.60	8.32	17.74	1.39	5820	1.41	7059	7857
		Optimized	7.20	7.68	15.23	1.41	6149	1.38	7254	7976

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Table 18.8
Nariin Sukhait Property, Mongolia
Float & Sink Analysis (Dry Basis)

e	Interval	Specific Gravity Sink	Float	Fraction Analysis (Dry Basis) %Wt.	%Ash	%Sul	Btu/lb	Cumulative Recovery (Float) %Wt.	%Ash	%Sul	Btu/lb	Cumulative Reject (Si %Wt.	%Ash	%Sul	B
			1.4	45.30	11.43	0.60	13,090	45.30	11.43	0.60	13,090	100.00	22.13	0.68	1
	74.6-80.0,87.7-	1.4	1.5	23.40	16.69	0.67	12,198	68.70	13.22	0.62	12,786	54.70	31.00	0.75	
	94.0&124.1-127.6	1.5	1.6	14.60	23.48	0.77	11,068	83.30	15.02	0.65	12,485	31.30	41.69	0.80	
		1.6		16.70	57.61	0.83	5,063	100.00	22.13	0.68	11,246	16.70	57.61	0.83	
			1.4	77.20	15.65	0.72	12,164	77.20	15.65	0.72	12,164	100.00	22.79	0.79	1
		1.4	1.5	5.30	23.74	0.88	10,726	82.50	16.17	0.73	12,072	22.80	46.98	1.03	
	70.0 - 73.3	1.5	1.6	3.30	33.71	1.05	8,983	85.80	16.84	0.74	11,953	17.50	54.01	1.07	
		1.6		14.20	58.73	1.08	4,747	100.00	22.79	0.79	10,930	14.20	58.73	1.08	
			1.4	80.70	10.38	0.57	13,133	80.70	10.38	0.57	13,133	100.00	13.41	0.70	1
		1.4	1.5	6.00	17.11	0.79	11,516	86.70	10.85	0.59	13,021	19.30	26.08	1.23	
	128.6 - 132.8	1.5	1.6	4.50	21.99	0.87	10,243	91.20	11.40	0.60	12,884	13.30	30.12	1.43	
		1.6		8.80	34.28	1.71	6,856	100.00	13.41	0.70	12,354	8.80	34.28	1.71	
			1.4	54.10	15.80	0.56	11,095	54.10	15.80	0.56	11,095	100.00	34.79	0.52	
		1.4	1.5	8.70	25.44	0.72	9,817	62.80	17.14	0.58	10,918	45.90	57.17	0.48	
	0.50 - 12.35	1.5	1.6	7.60	34.18	0.53	8,488	70.40	18.98	0.58	10,656	37.20	64.59	0.43	
		1.6		29.60	72.40	0.40	3,093	100.00	34.79	0.52	8,417	29.60	72.40	0.40	
			1.4	93.20	9.71	0.92	13,336	93.20	9.71	0.92	13,336	100.00	11.18	1.01	1
		1.4	1.5	2.80	21.69	1.47	11,242	96.00	10.06	0.94	13,275	6.80	31.37	2.27	
	99.1 - 108.8	1.5	1.6	1.70	31.39	2.45	9,150	97.70	10.43	0.96	13,203	4.00	38.14	2.84	
		1.6		2.30	43.13	3.12	6,698	100.00	11.18	1.01	13,054	2.30	43.13	3.12	
			1.4	71.00	14.76	0.83	12,478	71.00	14.76	0.83	12,478	100.00	21.40	1.03	1
	109.4 - 117.7; 118.6 -	1.4	1.5	9	24.13	0.94	10,727	80.00	15.81	0.84	12,281	29.00	37.67	1.51	
	123.2	1.5	1.6	8.3	33.04	0.93	9,143	88.30	17.43	0.85	11,986	20.00	43.76	1.77	
		1.6		11.7	51.37	2.36	5,731	100.00	21.40	1.03	11,254	11.70	51.37	2.36	

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Table 18.8
Nariin Sukhait Property, Mongolia
Float & Sink Analysis (Dry Basis)

ample	Interval	Specific Gravity		Fraction Analysis (Dry Basis)				Cumulative Recovery (Float)				Cumulative Reject (Sink)			
		Sink	Float	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/l
S-18	48.6 - 67.0		1.4	54.50	17.57	1.52	11,895	54.50	17.57	1.52	11,895	100.00	26.02	1.90	10,43
		1.4	1.5	23.80	26.41	1.98	10,463	78.30	20.26	1.66	11,460	45.50	36.14	2.37	8,67
		1.5	1.6	7.90	37.63	2.28	8,473	86.20	21.85	1.72	11,185	21.70	46.82	2.79	6,71
		1.6		13.80	52.08	3.08	5,713	100.00	26.02	1.90	10,431	13.80	52.08	3.08	5,71
S-18	67.7 - 121.0		1.4	83.80	12.11	1.25	12,913	83.80	12.11	1.25	12,913	100.00	15.57	1.52	12,29
		1.4	1.5	8.30	24.85	1.89	10,608	92.10	13.26	1.31	12,705	16.20	33.47	2.92	9,08
		1.5	1.6	3.10	28.42	2.53	10,027	95.20	13.75	1.35	12,618	7.90	42.53	3.99	7,49
		1.6		4.80	51.65	4.94	5,856	100.00	15.57	1.52	12,293	4.80	51.65	4.94	5,85
S-18	121.0 - 177.2		1.4	90.50	10.61	0.97	13,187	90.50	10.61	0.97	13,187	100.00	12.27	1.13	12,85
		1.4	1.5	4.70	19.05	1.53	11,466	95.20	11.03	1.00	13,102	9.50	28.08	2.61	9,64
		1.5	1.6	1.70	26.61	1.97	9,618	96.90	11.30	1.01	13,041	4.80	36.93	3.68	7,86
		1.6		3.10	42.59	4.61	6,900	100.00	12.27	1.13	12,851	3.10	42.59	4.61	6,90
S-20	191.2 - 196.6		1.4	64.20	15.85	0.94	12,168	64.20	15.85	0.94	12,168	100.00	22.06	1.12	11,07
		1.4	1.5	11.20	18.21	0.99	11,596	75.40	16.20	0.95	12,083	35.80	33.21	1.44	9,12
		1.5	1.6	3.40	25.37	1.40	10,346	78.80	16.60	0.97	12,008	24.60	40.04	1.65	7,99
		1.6		21.20	42.39	1.69	7,619	100.00	22.06	1.12	11,078	21.20	42.39	1.69	7,61
S-22	166.0 - 178.6		1.4	78.50	8.24	1.68	13,612	78.50	8.24	1.68	13,612	100.00	11.24	2.36	13,01
		1.4	1.5	9.30	14.24	2.95	12,414	87.80	8.88	1.81	13,485	21.50	22.21	4.84	10,83
		1.5	1.6	5.10	21.29	4.56	10,923	92.90	9.56	1.97	13,344	12.20	28.29	6.28	9,62
		1.6		7.10	33.31	7.51	8,699	100.00	11.24	2.36	13,015	7.10	33.31	7.51	8,69
S-22	166.0 - 202.6		1.4	84.00	6.12	1.21	13,971	84.00	6.12	1.21	13,971	100.00	8.69	1.57	13,39
		1.4	1.5	7.30	17.74	2.53	11,517	91.30	7.05	1.32	13,775	16.00	22.17	3.49	10,38
		1.5	1.6	3.20	17.72	3.19	11,429	94.50	7.41	1.38	13,695	8.70	25.88	4.29	9,43
		1.6		5.50	30.63	4.93	8,279	100.00	8.69	1.57	13,397	5.50	30.63	4.93	8,27

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Table 18.8
Nariin Sukhait Property, Mongolia
Float & Sink Analysis (Dry Basis)

ample	Interval	Specific Gravity		Fraction Analysis (Dry Basis)				Cumulative Recovery (Float)				Cumulative Reject (Sink)			
		Sink	Float	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/l
S-22	133.4 - 143.9		1.4	72.50	7.42	0.78	13,502	72.50	7.42	0.78	13,502	100.00	15.20	0.84	12,19
		1.4	1.5	11.20	17.55	0.97	11,598	83.70	8.78	0.81	13,247	27.50	35.71	0.99	8,73
		1.5	1.6	3.60	26.99	1.40	9,913	87.30	9.53	0.83	13,110	16.30	48.18	1.00	6,76
		1.6		12.70	54.19	0.89	5,869	100.00	15.20	0.84	12,190	12.70	54.19	0.89	5,86
S-22	144.8 - 165.8		1.4	81.20	8.90	1.11	13,447	81.20	8.90	1.11	13,447	100.00	13.11	1.19	12,69
		1.4	1.5	5.80	14.83	1.28	12,442	87.00	9.30	1.12	13,380	18.80	31.28	1.53	9,42
		1.5	1.6	3.30	17.41	1.25	11,636	90.30	9.59	1.13	13,316	13.00	38.62	1.65	8,07
		1.6		9.70	45.83	1.78	6,867	100.00	13.11	1.19	12,691	9.70	45.83	1.78	6,86
S-23	141.3 - 155.8		1.4	69.40	11.00	1.76	13,082	69.40	11.00	1.76	13,082	100.00	16.66	2.34	11,97
		1.4	1.5	9.60	12.40	2.08	12,713	79.00	11.17	1.80	13,037	30.60	29.51	3.64	9,45
		1.5	1.6	7.50	21.55	2.90	10,931	86.50	12.07	1.89	12,855	21.00	37.33	4.36	7,96
		1.6		13.50	46.10	5.17	6,319	100.00	16.66	2.34	11,972	13.50	46.10	5.17	6,31
S-23	156.7 - 204.5		1.4	93.10	8.75	1.39	13,346	93.10	8.75	1.39	13,346	100.00	9.62	1.47	13,16
		1.4	1.5	1.70	12.32	1.64	12,655	94.80	8.81	1.39	13,334	6.90	21.29	2.50	10,65
		1.5	1.6	2.30	18.09	2.25	11,287	97.10	9.03	1.41	13,285	5.20	24.22	2.79	9,99
		1.6		2.90	29.09	3.21	8,977	100.00	9.62	1.47	13,160	2.90	29.09	3.21	8,97
S-29	145.6 - 169.7		1.4	86.40	9.13	0.94	13,349	86.40	9.13	0.94	13,349	100.00	10.85	1.07	13,00
		1.4	1.5	6.50	15.49	1.69	12,162	92.90	9.57	0.99	13,266	13.60	21.75	1.92	10,84
		1.5	1.6	4.50	22.22	1.53	10,721	97.40	10.16	1.02	13,148	7.10	27.48	2.12	9,63
		1.6		2.60	36.58	3.15	7,747	100.00	10.85	1.07	13,008	2.60	36.58	3.15	7,74
S-29	118.6 - 145.1		1.4	84.70	8.98	0.93	13,258	84.70	8.98	0.93	13,258	100.00	11.17	1.09	12,85
		1.4	1.5	4.60	14.86	1.30	12,211	89.30	9.28	0.95	13,204	15.30	23.28	1.95	10,61
		1.5	1.6	6.40	19.34	1.44	11,234	95.70	9.96	0.98	13,072	10.70	26.90	2.23	9,93
		1.6		4.30	38.15	3.40	7,990	100.00	11.17	1.09	12,854	4.30	38.15	3.40	7,99

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Table 18.8
Nariin Sukhait Property, Mongolia
Float & Sink Analysis (Dry Basis)

mple	Interval	Specific Gravity		Fraction Analysis (Dry Basis)				Cumulative Recovery (Float)				Cumulative Reject (Sink)			
		Sink	Float	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/lb	%Wt.	%Ash	%Sul	Btu/
-32	34.0 - 50.1		1.4	77.30	11.17	0.94	12,869	77.30	11.17	0.94	12,869	100.00	15.12	1.28	12,1
		1.4	1.5	11.30	15.59	1.76	11,789	88.60	11.73	1.04	12,731	22.70	28.59	2.44	9,6
		1.5	1.6	4.50	23.70	2.77	10,391	93.10	12.31	1.13	12,618	11.40	41.47	3.12	7,4
		1.6		6.90	53.06	3.34	5,552	100.00	15.12	1.28	12,131	6.90	53.06	3.34	5,5
-32	50.1 - 53.9		1.4	44.90	9.00	1.33	13,345	44.90	9.00	1.33	13,345	100.00	27.01	1.80	10,3
		1.4	1.5	17.10	13.69	2.12	12,494	62.00	10.29	1.55	13,110	55.10	41.69	2.18	7,8
		1.5	1.6	8.30	17.90	2.86	11,640	70.30	11.19	1.70	12,937	38.00	54.29	2.20	5,7
		1.6		29.70	64.46	2.02	4,124	100.00	27.01	1.80	10,319	29.70	64.46	2.02	4,1
-32	54.75 - 62.4		1.4	42.10	9.76	0.70	13,055	42.10	9.76	0.70	13,055	100.00	17.31	2.07	11,8
		1.4	1.5	35.30	15.64	1.04	12,126	77.40	12.44	0.86	12,631	57.90	22.81	3.07	10,8
		1.5	1.6	12.80	23.10	3.03	10,726	90.20	13.95	1.16	12,361	22.60	34.00	6.23	8,9
		1.6		9.80	48.24	10.41	6,641	100.00	17.31	2.07	11,800	9.80	48.24	10.41	6,6
-33	36.0 - 40.95		1.4	47.80	8.39	0.73	13,389	47.80	8.39	0.73	13,389	100.00	25.00	0.92	10,4
		1.4	1.5	12.50	12.27	1.17	12,649	60.30	9.19	0.82	13,236	52.20	40.22	1.09	7,8
		1.5	1.6	5.00	20.33	1.32	11,053	65.30	10.05	0.86	13,068	39.70	49.02	1.07	6,3
		1.6		34.70	53.15	1.03	5,616	100.00	25.00	0.92	10,482	34.70	53.15	1.03	5,6
-34	109.6 - 141.6		1.4	83.60	9.92	0.75	13,192	83.60	9.92	0.75	13,192	100.00	15.28	0.92	12,1
		1.4	1.5	2.10	13.14	0.78	12,460	85.70	10.00	0.75	13,174	16.40	42.59	1.78	6,6
		1.5	1.6	3.40	21.43	1.39	10,597	89.10	10.44	0.78	13,076	14.30	46.92	1.93	5,7
		1.6		10.90	54.87	2.10	4,297	100.00	15.28	0.92	12,119	10.90	54.87	2.10	4,2
-34	142.7 - 149.0		1.4	67.20	9.92	0.69	13,266	67.20	9.92	0.69	13,266	100.00	19.77	1.08	11,4
		1.4	1.5	8.10	19.98	1.25	11,705	75.30	11.00	0.75	13,098	32.80	39.94	1.88	7,7
		1.5	1.6	6.40	30.70	1.37	9,577	81.70	12.55	0.80	12,822	24.70	46.49	2.08	6,3
		1.6		18.30	52.01	2.33	5,273	100.00	19.77	1.08	11,441	18.30	52.01	2.33	5,2
-34	81.7 - 84.7		1.4	42.30	9.07	0.98	13,009	42.30	9.07	0.98	13,009	100.00	19.49	1.22	10,9
		1.4	1.5	19.80	11.88	0.93	12,359	62.10	9.97	0.96	12,802	57.70	27.12	1.40	9,4
		1.5	1.6	15.20	19.84	1.10	10,325	77.30	11.91	0.99	12,315	37.90	35.08	1.65	7,9
		1.6		22.70	45.29	2.01	6,363	100.00	19.49	1.22	10,964	22.70	45.29	2.01	6,3
-34	86.3 - 107.0		1.4	27.70	11.45	0.78	12,912	27.70	11.45	0.78	12,912	100.00	30.59	1.58	9,5
		1.4	1.5	20.50	12.93	0.82	12,582	48.20	12.08	0.80	12,772	72.30	37.92	1.89	8,3
		1.5	1.6	17.10	24.14	1.19	10,555	65.30	15.24	0.90	12,191	51.80	47.81	2.31	6,6
		1.6		34.70	59.47	2.86	4,714	100.00	30.59	1.58	9,597	34.70	59.47	2.86	4,7

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Table 18.9
Narain Sukhait Key Metallurgical Properties

	Seam Interval (m)		Unwashed Composite			Washability at 1.4 Float				Metallurgical Properties		
er	From	To	Btu/lb Moist, mm-free (ASTM) Min	Volatiles (MAF) (ASTM)	Rank (ASTM)	Cumulative Recovery (%)	Ash Content (Dry)[1]	Sulphur Content (Dry)	Btu/lb (MAF)	FSI	Plasticity Gieseler DDPM	Dilatometer Dilation (% Max)	Mean Reflec (% O
Range, Min, Max			13,000	20-35	hvB b-lvb	50+	Max-12	Max-1.0	12,600-15,500	4-8	100-10,000	50-200	0.7
	NA	NA	14,255	36.26	hvAb	90.5	5.16	0.61	14,712	4.5	2	-28	
enches)	74.60	127.60	13,721	37.12	hvBb	45.3	11.43	0.60	14,779	1.5	2	-28	
	70.00	73.30	13,456	38.08	hvBb	77.2	15.65	0.72	14,421	1.0	0	-29	
	128.60	**132.80**	**13,778**	**39.43**	**hvBb**	**80.7**	**10.38**	**0.57**	**14,654**	**7.0**	**517**	**+49**	**0**
	0.50	12.35	10,585	41.37	Wxd	54.1	15.80	0.56	13,177			No Test	
	99.10	108.80	13,871	36.53	hvBb	93.2	9.71	0.92	14,770	1.0	4	0.35	
	109.40	123.20	13,551	38.48	hvBb	71.0	14.76	0.83	14,639			Pending	
	48.60	67.00	13,468	40.58	hvBb	54.5	17.57	1.52	14,430	1.0	2	-29	
	67.70	121.00	13,678	37.21	hvBb	83.8	12.11	1.25	14,692	2.0	1	-33	
	121.00	177.20	13,955	35.99	hvBb	90.5	10.61	0.97	14,752	2.0	2	-29	

[1] Ash content may be improved through selective mining techniques and the removal of inferior quality horizons

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Table 18.10
Naraiin Suikhait Coal Quality with Rank Calculations
Actual Data July 14, 2005

Total	EQ	EQ Moisture Basis					Dry Basis					Dmmf	Dmmf			SO
oisture	Moisture	Ash	Volatile	FC	Sulphur	Btu/lb	Ash	Volatile	FC	Sulphur	Btu/lb	FC	Volatiles	MmmF Btu/lb	SO3 in Ash	co (A
2.37	3.80	6.90	33.25	56.06	0.77	13348	7.17	34.56	58.27	0.80	13875	63.74	36.26	**14255**	16.64	1.
12.27	5.14	19.63	23.99	51.23	0.53	9269	20.70	25.29	54.01	0.56	9772	70.07	29.93	**11608**	5.30	1.
17.21	4.50	20.32	30.19	44.99	0.77	10664	21.28	31.61	47.11	0.81	11166	61.92	38.08	**13456**	6.08	1.
10.03	3.90	13.42	33.70	48.98	0.62	11912	13.96	35.07	50.97	0.65	12395	60.57	39.43	**13778**	7.31	0.
21.58	15.10	30.15	24.39	30.36	0.45	7211	35.51	28.73	35.76	0.53	8494	58.63	41.37	**10585**	2.23	0.
14.54	4.00	9.84	32.62	53.54	0.99	12585	10.25	33.98	55.77	1.03	13109	63.47	36.53	**13871**	14.48	1.
12.31	4.40	21.28	30.28	44.03	0.89	10617	22.26	31.67	46.06	0.93	11106	61.52	38.48	**13551**	6.54	1.
9.34	4.49	26.75	30.22	38.54	1.71	9837	28.01	31.64	40.35	1.79	10299	59.42	40.58	**13468**	7.74	2.
10.00	5.05	14.29	31.56	49.11	1.33	11792	15.05	33.23	51.72	1.40	12419	62.79	37.21	**13678**	12.22	1.
10.66	4.17	11.48	31.64	52.70	1.07	12431	11.98	33.02	55.00	1.12	12972	64.01	35.99	**13955**	13.59	1.

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19 MINERAL RESOURCE ESTIMATES

The following is a discussion of the criteria and results obtained for coal resource estimation for the Nariin Sukhait Property. In accordance with NI 43-101 and the CIM Definition Standards, one or more Qualified Persons, employees of Norwest, supervised the data validation and the resource estimation and classification work. The certifications for the Qualified Person(s) are provided in Section 24 of this report.

19.1 Approach

In accordance with National Instrument 43-101, Norwest has used the referenced document, the Canadian Institute of Mining, Metallurgy and Petroleum s CIM Definition Standards on Mineral Resources and Reserves adopted by the CIM Council on November 14, 2004 and referenced the Geological Survey of Canada Paper 88-21 A Standardized Coal Resource/Reserve Reporting System for Canada (GSC Paper 88-21) during the classification, estimation and reporting of coal resources for the Nariin Sukhait Property.

To facilitate the estimation of resources in the Nariin Sukhait Property, Norwest developed geological models for the property using *Minex*® software. The geological models are built from drill hole data as a series of three-dimensional grids or surfaces representing the top and bottom surfaces of the coal seams and interburden layers within a defined area. Key horizons or surfaces were modeled to provide the required inputs for volume estimation. Volumes were converted to tonnage by the application of density values representative of each coal seam to be mined. *Minex* software is developed and marketed by the Surpac Minex Group headquarterd in Perth, W.A. Australia. *Minex* is an internationally recognized geological and mine modeling software system.

19.2 Geologic Modeling Parameters

Gridding Method: Growth Technique Method surrounds real data with local grid nodes and infills the node values by growing out (estimating) from the initial (real) values.

Grid Cell Size: 10 by 10m.

Search Distance: 2,500m.

Grids were calculated to fill the areas of investigation from selected x-y origins and extents. No default or dummy values were used in building grid surfaces.

Topographic grids were developed from drill hole collar elevations.

19.3 Coal Resource Estimation

The term resource is utilized to quantify coal contained in seams occurring within specified limits of thickness and depth from surface. The term resource refers to the in-place inventory of coal that has reasonable prospects for economic extraction . Coal resources are always reported

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as in-place tonnage and not adjusted for mining losses or recovery. However, minimum mineable seam thickness and maximum removable parting thickness are considered.

GSC Paper 88-21 provides two feasibility classes for resources: immediate interest and future interest. Resources of immediate interest are contained in coal seams that have a favourable combination of characteristics and are considered to be of immediate interest for possible exploitation. These resources would not have been the subject of a feasibility study required to classify them as reserves. Resources of future interest are contained in seams which are not of immediate interest for possible exploitation but which could become of interest in the foreseeable future.

Resources are classified as to the assurance of their existence into one of three categories, Measured, Indicated, or Inferred. The category to which a resource is assigned depends on the level of confidence in the geological information available (CIM Definition Standards). GSC Paper 88-21 provides guidance for categorizing various types of coal deposits by levels of assurance. These were considered by the Qualified Persons during the classification of the resources.

The in-place resource within the Nariin Sukhait Property, summarized in Table 19.1, covers three areas within the property for a combined area of 1.8km^2. The in-place resource areas are shown on Figure(s) 19.1, 19.2, and 19.3. These resources include all coal seams intended for mining within the South, East, and West Fields that have been defined to a reasonable level of geologic assurance and with minimum thicknesses consistent with the recommendations of GSC 88-21.

Table 19.1
In-Place Coal Resources Summary
As of August 9, 2005

Area	ASTM Group	In-Place Resources (Tonnes) Measured	Indicated	Inferred
South Field	High Volatile Bituminous	9,771,000	8,704,000	9,870,000
East Field		20,007,000	10,862,000	5,086,000
West Field		33,277,000	33,545,000	26,806,000
Total		**116,166,000**		**41,762,000**

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19.4 Quantification Parameters

Minimum seam thickness: 0.6m

Maximum rock parting included: 0.6m

Weathered Zone Exclusion: 5.0m (topography minus 5 meters)

Assurance of Existence (Distance Between Data Points)
Measured Resources: 0-75m
Indicated Resources: 75-150m
Inferred Resources: 150-300m
Speculative Resources: not considered
Maximum Depth: 250m or less than 20:1 ratio

19.5 South Field Resources

All resources identified in the South Field are in the No. 5 Seam. Thirty drill holes define the resource area. Measured plus indicated resources encompass an area of 0.27km^2 (Figure 19.1). Average seam thickness for the No. 5 seam within the resource area is 58.16m. A total of 18.5 Mt of measured and indicated resources have been identified in the South Field.

Table 19.2
South Field In-Place Coal Resources Summary
as Of August 9, 2005

Seam	Seam Thickness (m)	Coal Area (m2)	Specific Gravity (g/cm3)	In-Place Tonnes	Waste Thickness (m)	Waste Volume (m3)	In-place (BCM/Tonne) Incremental	In-place (BCM/Tonne) Cumulative
				Measured				
5	60.80	118,000	1.36	9,771,000	90.40	10,669,000	1.09	1.09
				Indicated				
5	55.20	115,000	1.37	8,704,000	135.80	15,613,000	1.79	1.79
				Inferred				
5	43.30	166,000	1.38	9,870,000	203.00	37,466,000	3.80	3.80
Total Measured plus Indicated				**18,475,000**		**63,748,000**		**3.45**
Total Inferred				**9,870,000**		**37,466,000**		**3.80**

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19.6 East Field Resources

Resources identified in the East Field are contained in the Nos. 8, 9, and 10 Seams. Resources occur in two distinct area having a combined aerial extent of 0.52km^2 (Figure 19.2). Combined coal thickness for the three seams is approximately 15.8m. A total of 30.8 Mt of measured and indicated resources have been identified in the East Field.

19.7 West Field Resources

Resources identified in the West Field are contained in the Nos. 5, 8, 9, 10, and 11 Seams. Resources in the No. 5 Seam occur over an area of approximately 0.3km^2 with an average thickness of 52.5m (Figure 19.3). Upper seams (Nos. 8, 9, and 10) on the southeast limb of the antiform have a combined coal thickness of 4.3m, extending over an area of approximately 0.5km^2 . Upper seams (nos. 8, 9, 10, and 11) on the northwest limb of the antiform have a combined coal thickness of 4.2m, extending over an area of approximately 0.2km^2 . A total of 66.8 Mt of measured and indicated resources have been identified in the West Field.

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Table 19.3
East Field In-Place Coal Resources Summary (000 Tonnes)
as Of August 9, 2005

Seam	SubSeam	Seam Thickness (m)	Coal Area (m2)	Specific Gravity (g/cm3)	In-Place Tonnes	Waste Thickness (m)	Waste Volume (m3)	In-place (BCM/Tonne) Incremental	In-place (BCM/Tonne) Cumulative
				Measured	**Northeast Block**				
10	1020	7.6	25,000	1.41	267,000	99.30	3,193,000	11.96	11.96
10	1010	2.6	79,000	1.49	308,000	4.60	430,000	1.40	6.30
10	10	9.7	100,000	1.40	1,355,000	7.40	783,000	0.58	2.28
9	9	34.4	140,000	1.47	7,086,000	23.00	3,363,000	0.47	0.86
8	810	6.3	61,000	1.41	543,000	15.10	1,017,000	1.87	0.92
8	8	6.8	99,000	1.42	955,000	9.20	964,000	1.01	0.93
SubTotal			**504,000**		**10,514,000**		**9,750,000**		**0.93**
				Indicated	**Northeast Block**				
10	1020	5.1	12,000	1.37	84,000	108.00	3,638,000	43.31	43.31
10	1010	1.9	41,000	1.48	114,000	6.80	706,000	6.19	21.94
10	10	5.5	90,000	1.43	704,000	11.20	1,111,000	1.58	6.05
9	9	31.0	100,000	1.43	4,440,000	18.50	2,121,000	0.48	1.42
8	810	3.2	93,000	1.41	421,000	19.50	2,304,000	5.47	1.71
8	8	5.9	88,000	1.41	733,000	10.10	947,000	1.29	1.67
SubTotal			**424,000**		**6,496,000**		**10,827,000**		**1.67**
				Inferred	**Northeast Block**				
10	1020	1.9	6,000	1.40	16,000	161.00	12,122,000	757.63	757.63
10	1010	0.8	3,000	1.47	4,000	8.00	1,151,000	287.75	663.65
10	10	5.5	83,000	1.45	663,000	17.20	2,212,000	3.34	22.67
9	9	22.6	32,000	1.40	1,015,000	16.30	889,000	0.88	9.64
8	810	1.9	33,000	1.42	89,000	22.00	1,367,000	15.36	9.93
8	8	5.6	33,000	1.42	263,000	16.10	575,000	2.19	8.93
SubTotal			**190,000**		**2,050,000**		**18,316,000**		**8.93**
				Measured	**Southwest Block**				
10	1020	2.8	18,000	1.41	71,000	71.00	1,661,000	23.39	23.39
10	1010	3.5	38,000	1.57	207,000	2.70	116,000	0.56	6.39
10	10	41.4	102,000	1.37	5,771,000	16.40	1,685,000	0.29	0.57
9	9	26.4	80,000	1.59	3,364,000	53.80	4,549,000	1.35	0.85
8	810								0.85
8	8	2.6	22,000		80,000	1.30	29,000	0.36	0.85
SubTotal			**260,000**		**9,493,000**		**8,040,000**		**0.85**
				Indicated	**Southwest Block**				
10	1020	2.2	23,000	1.46	74,000	93.00	3,590,000	48.51	48.51
10	1010	2.8	21,000	1.56	94,000	4.70	228,000	2.43	22.73

10	10	37.0	47,000	1.37	2,381,000	48.10	2,565,000	1.08	2.50
9	9	24.9	44,000	1.59	1,720,000	50.90	3,101,000	1.80	2.22
8	810								2.22
8	8	2.5	27,000	1.44	97,000	0.90	25,000	0.26	2.18
SubTotal			**162,000**		**4,366,000**		**9,509,000**		**2.18**
				Inferred	**Southwest Block**				
10	1020	1.8	67,000	1.42	171,000	115.80	12,132,000	70.95	70.95
10	1010	1.5	9,000	1.56	21,000	7.10	620,000	29.52	66.42
10	10	34.7	39,000	1.35	1,830,000	61.80	4,728,000	2.58	8.64
9	9	18.0	28,000	1.51	762,000	37.10	1,183,000	1.55	6.70
8	810								6.70
8	8	3.2	56,000	1.41	252,000	1.40	77,000	0.31	6.17
SubTotal			**199,000**		**3,036,000**		**18,740,000**		**6.17**
Total	**Measured plus Indicated**				**30,869,000**		**38,126,000**		**1.24**
Total	**Inferred**				**5,086,000**		**37,056,000**		**7.29**

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Table 19.4
Nariin Sukhait Property
West Field In-Place Coal Resources Summary

Seam	SubSeam	Seam Thickness (m)	Coal Area (m2)	Specific Gravity (g/cm3)	In-Place Tonnes	Waste Thickness (m)	Waste Volume (m3)	In-place (BCM/Tonne) Incremental	In-place (BCM/Tonne) Cumulative
				Measured	**Southeast Block**				
10	1050	2.0	11,000	1.40	32,000	32.30	410,000	12.81	12.81
10	1040	1.7	25,000	1.43	61,000	8.10	223,000	3.64	6.79
10	1030	4.6	118,000	1.42	770,000	21.10	2,789,000	3.62	3.97
10	1020	3.6	95,000	1.41	485,000	15.90	1,729,000	3.57	3.82
10	1010	2.1	94,000	1.40	276,000	2.10	252,000	0.91	3.33
10	10	7.8	162,000	1.41	1,784,000	1.50	253,000	0.14	1.66
9	998	2.2	74,000	1.44	235,000	4.20	358,000	1.53	1.65
9	996	2.8	71,000	1.41	280,000	4.40	319,000	1.14	1.61
9	990	1.6	143,000	1.42	325,000	16.40	2,614,000	8.04	2.11
9	980	6.2	183,000	1.41	1,601,000	5.90	1,120,000	0.70	1.72
9	970	4.4	174,000	1.40	1,074,000	3.30	594,000	0.55	1.54
9	960	2.5	171,000	1.43	609,000	3.00	537,000	0.88	1.49
9	950	2.1	173,000	1.40	508,000	3.40	602,000	1.18	1.47
9	942	1.6	96,000	1.42	220,000	5.20	635,000	2.89	1.51
9	940	12.6	198,000	1.41	3,506,000	4.40	885,000	0.25	1.13
9	9	2.2	69,000	1.42	215,000	7.90	797,000	3.71	1.18
8	810	1.9	114,000	1.42	306,000	6.50	825,000	2.70	1.22
8	8	5.7	150,000	1.40	1,199,000	2.00	301,000	0.25	1.13
8	790	2.1	69,000	1.39	201,000	1.30	117,000	0.58	1.12
5	5	54.1	105,000	1.35	7,667,000	69.70	7,910,000	1.03	1.09
SubTotal					**21,354,000**		**23,271,000**		**1.09**
				Indicated	**Southeast Block**				
10	1050	1.9	27,000	1.43	73,000	70.00	1,949,000	26.63	26.63
10	1040	1.5	47,000	1.45	103,000	8.80	518,000	5.04	14.01
10	1030	4.4	192,000	1.42	1,194,000	24.40	5,110,000	4.28	5.53
10	1020	3.0	137,000	1.40	574,000	13.60	2,281,000	3.97	5.07
10	1010	2.9	148,000	1.41	607,000	2.30	514,000	0.85	4.06
10	10	7.6	228,000	1.41	2,440,000	1.30	307,000	0.13	2.14
9	998	2.1	79,000	1.42	237,000	5.20	597,000	2.52	2.16
9	996	2.0	81,000	1.43	232,000	4.40	365,000	1.58	2.13
9	990	1.6	195,000	1.40	436,000	15.90	3,949,000	9.06	2.64
9	980	5.9	241,000	1.41	2,008,000	5.60	1,375,000	0.68	2.15
9	970	4.3	240,000	1.41	1,458,000	3.10	804,000	0.55	1.90
9	960	2.4	225,000	1.42	769,000	2.30	578,000	0.75	1.81
9	950	1.7	200,000	1.42	483,000	3.00	644,000	1.33	1.79
9	942	1.4	91,000	1.44	184,000	4.70	809,000	4.39	1.83
9	940	12.3	233,000	1.41	4,036,000	4.00	972,000	0.24	1.40

9	9	2.0	89,000	1.38	246,000	8.30	1,365,000	5.55	1.47
8	810	1.7	161,000	1.41	385,000	6.70	1,359,000	3.53	1.52
8	8	5.4	193,000	1.40	1,460,000	2.30	457,000	0.31	1.42
8	790	1.8	119,000	1.43	306,000	1.40	253,000	0.83	1.40
5	5	50.9	109,000	1.35	7,492,000	135.90	19,318,000	2.58	1.76
SubTotal					**24,723,000**		**43,524,000**		**1.76**
				Inferred	**Southeast Block**				
10	1050	1.7	99,000	1.44	243,000	131.40	13,727,000	56.38	56.38
10	1040	1.6	113,000	1.43	259,000	9.20	1,827,000	7.07	30.98
10	1030	3.0	263,000	1.40	1,106,000	22.10	7,178,000	6.49	14.13
10	1020	1.5	161,000	1.40	338,000	12.30	3,379,000	9.99	13.41
10	1010	4.0	191,000	1.41	1,076,000	2.70	729,000	0.68	8.88
10	10	6.4	219,000	1.41	1,985,000	1.00	197,000	0.10	5.40
9	998	2.5	65,000	1.40	227,000	5.10	970,000	4.27	5.35
9	996	1.5	66,000	1.42	140,000	5.40	536,000	3.83	5.31
9	990	1.5	141,000	1.40	296,000	9.80	2,125,000	7.18	5.41
9	980	7.7	147,000	1.40	1,584,000	4.60	517,000	0.33	4.30
9	970	5.4	142,000	1.40	1,076,000	1.10	133,000	0.12	3.76
9	960	2.2	139,000	1.41	429,000	1.10	139,000	0.32	3.59
9	950	1.0	72,000	1.37	99,000	1.70	131,000	1.32	3.57
9	942	1.3	1,000	1.37	1,000	3.50	346,000	253.13	3.60
9	940	13.7	126,000	1.41	2,437,000	3.70	495,000	0.20	2.87
9	9	1.5	95,000	1.40	200,000	8.20	1,300,000	6.51	2.93
8	810	1.5	148,000	1.38	306,000	6.70	1,337,000	4.37	2.97
8	8	4.7	157,000	1.41	1,046,000	2.20	362,000	0.35	2.76
8	790	1.9	166,000	1.41	445,000	1.40	320,000	0.72	2.69
5	5	44.3	30,000	1.35	1,797,000	115.90	25,389,000	14.13	4.05
SubTotal					**15,091,000**		**61,140,000**		**4.05**

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Table 19.4
Nariin Sukhait Property
West Field In-Place Coal Resources Summary

Seam	SubSeam	Seam Thickness (m)	Coal Area (m2)	Specific Gravity (g/cm3)	In-Place Tonnes	Waste Thickness (m)	Waste Volume (m3)	In-place (BCM/Tonne) Incremental	In-place (BCM/Tonne) Cumulative
				Measured	**Northwest Block**				
11	1170	8.2	90,000	1.40	1,031,000	32.60	3,210,000	3.11	3.11
11	1160	2.5	94,000	1.42	334,000	4.20	416,000	1.24	2.66
11	1150	1.8	90,000	1.40	226,000	3.20	321,000	1.42	2.48
11	1140	1.2	82,000	1.43	141,000	2.70	264,000	1.87	2.43
11	1130	14.0	113,000	1.41	2,216,000	4.10	466,000	0.21	1.18
11	1120	2.6	124,000	1.43	461,000	6.00	778,000	1.69	1.24
11	1110	2.4	77,000	1.41	262,000	6.40	549,000	2.10	1.29
11	1100	2.9	113,000	1.39	458,000	1.20	136,000	0.30	1.20
10	1050	1.5	59,000	1.39	122,000	64.00	3,988,000	32.74	1.93
10	1040	2.0	76,000	1.39	213,000	14.40	1,197,000	5.63	2.07
10	1030	2.4	95,000	1.44	328,000	6.30	627,000	1.91	2.06
10	1020	3.7	116,000	1.42	613,000	12.10	1,417,000	2.31	2.09
10	1010	2.5	112,000	1.41	394,000	9.70	1,065,000	2.71	2.12
10	10	10.8	112,000	1.41	1,710,000	3.80	429,000	0.25	1.75
9	990	2.2	69,000	1.40	213,000	25.20	1,745,000	8.19	1.90
9	980	7.1	69,000	1.41	689,000	7.50	523,000	0.76	1.82
9	970	2.5	68,000	1.44	244,000	1.30	88,000	0.36	1.78
9	960	2.2	60,000	1.42	189,000	5.10	314,000	1.67	1.78
9	950	2.1	66,000	1.43	199,000	1.90	122,000	0.62	1.76
9	942	2.9	31,000	1.43	129,000	2.80	94,000	0.73	1.75
9	940	11.4	65,000	1.40	1,040,000	1.70	87,000	0.08	1.59
9	9	2.3	62,000	1.42	202,000	4.40	277,000	1.37	1.59
8	810	1.9	38,000	1.43	103,000	5.30	268,000	2.60	1.60
8	8	5.6	50,000	1.40	391,000	4.50	241,000	0.61	1.56
8	790	1.2	9,000	1.39	16,000	1.60	21,000	1.36	1.56
SubTotal					**11,923,000**		**18,645,000**		**1.56**
				Indicated	**Northwest Block**				
11	1170	8.3	32,000	1.41	374,000	33.80	1,205,000	3.22	3.22
11	1160	3.0	37,000	1.42	159,000	7.40	328,000	2.07	2.88
11	1150	2.3	40,000	1.40	128,000	6.50	310,000	2.41	2.79
11	1140	1.3	35,000	1.45	66,000	3.10	163,000	2.46	2.76
11	1130	15.8	57,000	1.41	1,275,000	4.60	315,000	0.25	1.16
11	1120	3.0	60,000	1.39	250,000	7.70	514,000	2.06	1.26
11	1110	2.0	69,000	1.40	195,000	6.20	639,000	3.28	1.42
11	1100	2.9	69,000	1.41	282,000	1.50	103,000	0.37	1.31
10	1050	1.3	79,000	1.44	148,000	68.90	7,154,000	48.30	3.73
10	1040	1.8	92,000	1.43	238,000	13.00	1,388,000	5.82	3.89
10	1030	1.8	82,000	1.42	208,000	5.70	586,000	2.81	3.82

10	1020	4.1	98,000	1.41	571,000	13.20	1,321,000	2.31	3.60
10	1010	2.5	102,000	1.43	366,000	9.00	905,000	2.47	3.50
10	10	10.7	101,000	1.42	1,532,000	4.90	512,000	0.33	2.67
9	990	2.1	78,000	1.40	228,000	20.10	1,613,000	7.08	2.83
9	980	6.7	75,000	1.41	706,000	6.40	499,000	0.71	2.61
9	970	2.2	71,000	1.38	215,000	0.90	61,000	0.28	2.54
9	960	1.7	54,000	1.45	133,000	5.50	337,000	2.55	2.54
9	950	1.9	67,000	1.44	183,000	1.90	129,000	0.70	2.49
9	942	2.5	31,000	1.42	109,000	1.70	69,000	0.63	2.46
9	940	8.7	63,000	1.41	770,000	1.40	52,000	0.07	2.24
9	9	2.5	56,000	1.43	201,000	3.90	227,000	1.13	2.21
8	810	1.5	34,000	1.38	70,000	4.70	282,000	4.02	2.23
8	8	5.1	56,000	1.40	401,000	5.40	319,000	0.80	2.16
8	790	1.0	8,000	1.44	12,000	2.00	47,000	4.07	2.16
SubTotal					**8,822,000**		**19,081,000**		**2.16**

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Table 19.4
Nariin Sukhait Property
West Field In-Place Coal Resources Summary

Seam	SubSeam	Seam Thickness (m)	Coal Area (m2)	Specific Gravity (g/cm3)	In-Place Tonnes	Waste Thickness (m)	Waste Volume (m3)	In-place (BCM/Tonne) Incremental	In-place (BCM/Tonne) Cumulative
				Inferred	**Northwest Block**				
11	1170	9.2	68,000	1.41	879,000	30.70	2,198,000	2.50	2.50
11	1160	3.4	74,000	1.40	353,000	10.20	802,000	2.27	2.43
11	1150	2.5	81,000	1.43	292,000	9.20	791,000	2.71	2.49
11	1140	1.2	76,000	1.44	131,000	3.40	299,000	2.28	2.47
11	1130	18.2	110,000	1.41	2,810,000	5.50	624,000	0.22	1.06
11	1120	3.3	115,000	1.42	538,000	9.50	1,119,000	2.08	1.17
11	1110	1.9	120,000	1.38	314,000	6.50	890,000	2.83	1.26
11	1100	3.1	121,000	1.43	538,000	0.90	102,000	0.19	1.17
10	1050	1.8	148,000	1.43	381,000	72.50	10,956,000	28.77	2.85
10	1040	2.1	131,000	1.42	390,000	11.90	1,577,000	4.04	2.92
10	1030	1.2	97,000	1.46	171,000	3.10	360,000	2.11	2.90
10	1020	3.2	113,000	1.40	506,000	8.90	1,015,000	2.01	2.84
10	1010	2.6	113,000	1.43	419,000	9.90	1,120,000	2.68	2.83
10	10	9.7	93,000	1.41	1,277,000	7.20	810,000	0.63	2.52
9	990	2.2	86,000	1.42	268,000	14.00	1,400,000	5.23	2.60
9	980	6.0	81,000	1.42	687,000	5.10	440,000	0.64	2.46
9	970	1.8	73,000	1.44	190,000	0.70	45,000	0.24	2.42
9	960	1.3	46,000	1.45	87,000	3.60	222,000	2.56	2.42
9	950	1.5	73,000	1.36	149,000	1.40	95,000	0.64	2.40
9	942	2.0	34,000	1.39	95,000	0.80	32,000	0.33	2.38
9	940	5.9	65,000	1.40	537,000	1.00	33,000	0.06	2.26
9	9	2.7	62,000	1.42	237,000	3.20	194,000	0.82	2.23
8	810	1.3	40,000	1.45	75,000	4.50	310,000	4.13	2.25
8	8	5.6	49,000	1.41	390,000	3.90	219,000	0.56	2.19
8	790	1.0	1,000	1.44	2,000	2.30	87,000	49.13	2.20
SubTotal					**11,715,000**		**25,739,000**		**2.20**
Total	**Measured plus Indicated**				**66,822,000**		**104,520,000**		**1.56**
Total	**Inferred**				**26,806,000**		**86,879,000**		**3.24**

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20 OTHER RELEVANT DATA AND INFORMATION

There are no other relevant data and information applicable to this report.

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21 INTERPRETATION AND CONCLUSIONS

The exploration program initiated in February, 2005 and currently ongoing, has been successful in delineating an initial 116 million tonnes of coal classified as measured and indicated resources. Norwest has managed and provided direct supervision of the program from its inception. Norwest has maintained complete control on the data collection, construction of the geologic model, and resource calculation. The geology type for the three resource areas at the Nariin Sukhait Property, the South, East, and West Fields, has been determined to be complex based on criteria set forth in the Geological Survey of Canada Paper 88-21. Resource calculations and classification have been done in accordance with National Instrument 43-101.

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22 RECOMMENDATIONS

Current exploration on the three resource areas is focused on delineating additional measured and indicated resources, and to gain a better understanding of certain structural features. Key areas of interest currently being addressed in exploration are:

Identify and delineate coal resources in the Nos. 8, 9, and 10 Seams in the South Field

Complete additional drilling in the East Field to further delineate resources and gain a better understanding of structural relationships affecting the coal-bearing sequence Several drill holes in the East Field have had unusually thick coal intercepts in the upper seams believed to be due to tectonic deformation

Complete additional mapping, trenching, and drilling in the West Field to gain a better understanding of the structural setting of the northwest limb of the antiform

Collect additional coal quality data from core drilling in all three resource areas to further characterize the coal resources.

Exploration is expected to continue through the end of October, 2005. An additional 90 drill holes are expected to be completed by the end of the exploration program. Following the completion of the exploration program, Norwest will prepare a second technical report on the coal resources at Ivanhoe s Nariin Sukhait Property. It is anticipated that additional resources will be delineated in the South, East, and West Fields. It is also anticipated that coal resources will be identified in other areas of the Nariin Sukhait property. Following the second technical report on resources at Nariin Sukhait, Norwest will prepare a pre-feasibility study for IMMI for the development of a surface mining operation.

Preliminary budgets for the above recommended field and geologic technical reporting through October, 2005 are presented in the following Table 22.1 below.

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Table 22.1
Estimated Expenditures, September through October, 2005

Exploration Component	Cost per Unit	Units	Total $USD
Drilling			
UDR 650 (primary coring rig, per day)	$ 4,320	60	$ 259,000
UDR 1000 (r.c.-open hole drilling, per day)	$ 4,320	60	$ 259,000
Russian drilling unit (open hole drilling, per day)	$ 1,000	60	$ 60,000
Drill Support			
Bulldozer support (per day)	$ 1,560	60	$ 94,000
Excavator trenching (per day)	$ 1,920	60	$ 115,000
Labor core logging, sampling, and field supervision (per day)	$ 4,000	60	$ 240,000
Analytical Testing			
Proximate analysis (per core hole)	$,1750	14	$ 25,000
Detailed Full Suite Coal Analysis (per core hole)	$ 2,000	14	$ 28,000
Washability and Metallurgical (per core hole)	$ 2,000	14	$ 28,000
Downhole geophysics (per day)	$ 1,000	60	$ 60,000
Survey			
Drill collar survey (all holes)	$ 10,000	1	$ 10,000
Geologic Modeling			
Geological modeling and compilation	$ 3,5000	1	$ 35,000
Report preparation	$ 25,000	1	$ 25,000
Camp Support			
Camp personnel and supplies (per day)	$,2000	60	$ 120,000
Expediting, transportation and communication (5%)			$ 68,000
Subtotal			**$ 1,426,000**
Contingency (15%)			$ 214,000
Total Budget Estimate			**$ 1,639,000**

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23 REFERENCES

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24 DATE

The following comprises signed and dated Certificate of Qualifications of the persons who prepared this report.

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CERTIFICATE OF QUALIFICATIONS

I, Steven B. Kerr, of Salt Lake City, Utah, do hereby certify that:

1. I am a Senior Geologist with Norwest Corporation, 136 East South Temple, 12th Floor, Salt Lake City, Utah 84111 USA.

2. I am a Certified Professional Geologist and a member of the American Institute of Professional Geologists Registration Number CPG-10352.

3. I am a licensed Professional Geologist in the states of Alaska License Number 512, Utah License Number 5557442-2250, and Wyoming License Number PG-2756.

4. I am a graduate of Utah State University (Bachelor of Science, Geology, 1981 and Master of Science, Geology, 1987).

5. I have practiced my profession as a geologist for 22 years. I have worked on coal properties in the United States of America, Canada, Republic of South Africa, China (PRC), and Mongolia. I have completed investigations on coal properties on behalf of private and public companies. I am a qualified person for the purposes of National Instrument 43-101.

6. I personally have reviewed or supervised the review of the data collected and provided by Norwest Corporation and IMMI. for the Nariin Sukhait property. I participated in the preparation of a technical report concerning the coal geology and coal resources for the area. I am responsible for all sections of this report, except Section 25.

7. I have no direct or indirect interest in IMMI or any affiliates of it, nor do I expect to acquire any such interest. I am independent of the Company in accordance with the requirements of NI 43-101, Section 1.5.

8. I have not been restricted in any way in my access to information, data or documents that I consider relevant to this report.

9. As at the date of this certificate, I am not aware of any material fact or material change, the omission to disclose which would make this report misleading with respect to coal resource estimates and coal ownership.

10. I have read NI43-101 and Form 43-101F1. The Technical Report is in compliance with NI43-101 and Form 43-101F1.

Dated at Salt Lake City, Utah this 13th day of October, 2005.

/s/ Steven B. Kerr

Steven B. Kerr, CPG
Senior Geologist
IMMI. 04-3117
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CONSENT of AUTHOR

TO: The Securities Commission or similar authority in each of the Provinces of Canada

I, Steven B. Kerr, do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled Technical Report Nariin Sukhait Property, Mongolia and dated October 13, 2005 (the Technical Report) and to the written disclosure of the Technical Report and of extracts from or a summary of the Technical Report in the news release and material change report filed by Ivanhoe Mines Ltd. with the Technical Report.

I also certify that I have read the news release and material change report being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or the written disclosure in the new release and the material change report of Ivanhoe Mines Ltd. contains any misrepresentation of the information contained in the Technical Report.

Dated this 13th Day of October, 2005.

/s/ Steven B. Kerr

Signature of Qualified Person

Steven B. Kerr, CPG

Print name of Qualified Person

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CERTIFICATE OF QUALIFICATIONS

I, Richard D. Tifft, III, of Salt Lake City, Utah, do hereby certify that:

1. I am Vice President; Geologic Services with Norwest Corporation, 136 East South Temple, 12th Floor, Salt Lake City, Utah 84111 USA.

2. I am a licensed Professional Geologist in the state of Utah License Number 5190241-2250.

3. I am a graduate of Utah State University (Bachelor of Science, 1978, Geology).

4. I have practiced my profession as a geologist for 26 years. I have worked on coal properties in the United States of America, Canada, India, China (PRC), and Mongolia. I have completed investigations on coal properties on behalf of private and public companies. I am a qualified person for the purposes of National Instrument 43-101.

5. I personally have reviewed or supervised the review of the data collected and provided by Norwest Corporation and IMMI. for the Nariin Sukhait property. I participated in the preparation of a technical report concerning the coal geology and coal resource tonnage for the area. I have conducted several site visits, most recently in August of 2005, and have personally witnessed the exploration activities. I am responsible for all sections of this report, except Section 25.

6. I have no direct or indirect interest in IMMI or any affiliates of it, nor do I expect to acquire any such interest. I am independent of the Company in accordance with the requirements of NI 43-101, Section 1.5.

7. I have not been restricted in any way in my access to information, data or documents that I consider relevant to this report.

8. As at the date of this certificate, I am not aware of any material fact or material change, the omission to disclose which would make this report misleading with respect to coal resource estimates and coal ownership.

9. I have read NI43-101 and Form 43-101F1. The Technical Report is in compliance with NI43-101 and Form 43-101F1.

Dated at Salt Lake City, Utah this 13th day of October, 2005.

/s/ Richard D. Tifft III

Richard D. Tifft III, PG
Vice President Geologic Services
IMMI. 04-3117
Nariin Sukhait
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CONSENT of AUTHOR

TO: The Securities Commission or similar authority in each of the Provinces of Canada

I, Richard D. Tifft III, do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled Technical Report Nariin Sukhait Property, Mongolia and dated October 13, 2005 (the Technical Report) and to the written disclosure of the Technical Report and of extracts from or a summary of the Technical Report in the news release and material change report filed by Ivanhoe Mines Ltd. with the Technical Report.

I also certify that I have read the news release and material change report being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or the written disclosure in the new release and the material change report of Ivanhoe Mines Ltd. contains any misrepresentation of the information contained in the Technical Report.

Dated this 13th Day of October, 2005.

/s/ Richard D. Tifft III

Signature of Qualified Person

Richard D. Tifft III, PG

Print name of Qualified Person

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CERTIFICATE OF QUALIFICATIONS

I, Patrick P. Riley of Lakewood, Colorado, do hereby certify that:

1. I am a Senior Associate Geologist with Norwest Corporation, 136 East South Temple, 12th Floor, Salt Lake City, Utah 84111 USA.

2. I am a Certified Professional Geologist and a member of the American Institute of Professional Geologists Registration Number CPG-7031.

3. I am a licensed Professional Geologist in the states of Kentucky License Number KY-0854, Pennsylvania Licence Number PG-003078-G, and Wyoming License Number CPG-7031.

4. I am a graduate of Marshall University (Bachelor of Science, Geology, 1977).

5. I have practiced my profession as a geologist for 28 years. I have worked on coal properties in the United States of America, Australia, Canada, Colombia, Chile, China (PRC), Mexico, Venezuela, Philippines, and Mongolia. I have completed investigations on coal properties on behalf of private and public companies. I am a qualified person for the purposes of National Instrument 43-101.

6. I personally have reviewed or supervised the review of the data collected and provided by Norwest Corporation and IMMI for the Nariin Sukhait property. I participated in the preparation of a technical report concerning the coal geology and coal resource tonnage for the area. I am responsible for all sections of this report, except Section 25.

7. I have no direct or indirect interest in IMMI or any affiliates of it, nor do I expect to acquire any such interest. I am independent of the Company in accordance with the requirements of NI 43-101, Section 1.5.

8. I have not been restricted in any way in my access to information, data or documents that I consider relevant to this report.

9. As at the date of this certificate, I am not aware of any material fact or material change, the omission to disclose which would make this report misleading with respect to coal resource estimates and coal ownership.

10. I have read NI43-101 and Form 43-101F1. The Technical Report is in compliance with NI43-101 and Form 43-101F1.

Dated at Salt Lake City, Utah this 13th day of October, 2005.

/s/ Patrick P. Riley

Patrick P. Riley,
CPG
Senior Geologist
IMMI. 04-3117
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CONSENT of AUTHOR

TO: The Securities Commission or similar authority in each of the Provinces of Canada

I, Patrick P. Riley, do hereby consent to the filing, with the regulatory authorities referred to above, of the technical report titled Technical Report Nariin Sukhait Property, Mongolia and dated October 13, 2005 (the Technical Report) and to the written disclosure of the Technical Report and of extracts from or a summary of the Technical Report in the news release and material change report filed by Ivanhoe Mines Ltd. with the Technical Report.

I also certify that I have read the news release and material change report being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or the written disclosure in the new release and the material change report of Ivanhoe Mines Ltd. contains any misrepresentation of the information contained in the Technical Report.

Dated this 13th Day of October, 2005.

/s/ Patrick P. Riley

Signature of Qualified Person

Patrick P. Riley, CPG

Print name of Qualified Person

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25 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

The Nariin Sukhait Property is currently an undeveloped property with no production.

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