

COMPETENT PERSON'S REPORT
INNER MONGOLIA YITAI COAL CO., LTD.
Inner Mongolia Autonomous Region
People's Republic of China

Prepared For
INNER MONGOLIA YITAI COAL CO., LTD.

By
John T. Boyd Company
Mining and Geological Consultants
Pittsburgh, Pennsylvania



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John T. Boyd Company
Mining and Geological Consultants

Chairman

James W. Boyd

7 March 2012

President and CEO

John T. Boyd II

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Inner Mongolia Yitai Coal Co., Ltd.

Managing Director and COO

Ronald L. Lewis

Yitai Plaza, Tian Jiao North Road

Dongsheng District

Ordos, Inner Mongolia Autonomous Region 017000

PEOPLE'S REPUBLIC OF CHINA

Vice Presidents

Richard L. Bate

James F. Kvitkovich

Russell P. Moran

John L. Weiss

William P. Wolf

Attention:

Mr. Zhang Donghai

Chairman

Subject:

Competent Person's Report

Inner Mongolia Yitai Coal Co., Ltd.

Inner Mongolia Autonomous Region

People's Republic of China

Vice President**Business Development**

George Stepanovich, Jr.

Dear Sirs:

Managing Director — Australia

Ian L. Alexander

Managing Director — China

Dehui (David) Zhong

Assistant to the President

Mark P. Davic

Pittsburgh

4000 Town Center Boulevard, Suite 300

Canonsburg, PA 15317

(724)873-4400

(724)873-4401 Fax

jtboydp@jtboyc.com

Denver

(303)293-8988

jtboydd@jtboyc.com

Brisbane

61 7 3232-5000

jtboydau@jtboyc.com

Beijing

86 10 6500-5854

jtboydcn@jtboyc.com

www.jtboyc.com

John T. Boyd Company (BOYD) was engaged in August 2009 by Inner Mongolia Yitai Coal Co., Ltd. (Yitai) to complete an independent technical review (Competent Person's Report) of the primary coal assets of Yitai and the Inner Mongolia Yitai Group Company Limited (Yitai Group). The scope of our review included mines, processing plants, railways, and loadout stations. The general locations of Yitai's and Yitai Group's mining operations are in Junggar (Zhunge'er) Banner, Ejin Horo Banner, and Dongsheng District of Ordos City, in Inner Mongolia Autonomous Region, People's Republic of China (PRC).

The combined Yitai/Yitai Group operations include: 12 operating coal mines (combined output of 47.77 Mt in 2011), 2 mines under construction, 4 coal preparation plants, 10 loadout stations, and approximately 398 km of company-owned railway. Of the 12 operating coal mines, Yitai Group directly operates 5 mines. These assets are to be included in the Yitai Global Offering and listing on The Stock Exchange of Hong Kong (HKEx). The results of our review are discussed in this Competent Person's Report (CPR).

Yitai is one of the largest local coal enterprises in the PRC and was the first B-share Chinese coal company listed on the Shanghai Stock Exchange. Yitai Group, Yitai's parent company, is ranked 14th in the 2011 National Top 50 list of Chinese coal enterprises by output. Yitai is an established underground coal producer and controls significant coal reserves to sustain and expand future operations. The company produces long-flame, non-caking coal primarily for use in the chemical, industrial, and power generation markets. Company management is both experienced and capable.

Yitai has entered into an Assets Transfer Agreement with Yitai Group. Pursuant to this agreement, Yitai Group agrees to transfer the assets and interests of the Group relating to coal production, and sales and transportation, after completion of the Global Offering.

During August and September 2009, a team of BOYD's technical specialists completed a series of visits to the Yitai and Yitai Group operations and sites. Follow up visits were conducted in February 2011 and February 2012.

We wish to acknowledge the cooperation of Yitai and Yitai Group management and staff during this assignment in providing source data; in arranging and conducting visits by BOYD personnel of the subject mines, CPP, and other sites; and in responding to requests for supplemental information.

Respectfully Submitted

JOHN T. BOYD COMPANY

By:

John T. Boyd II
President and CEO

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GLOSSARY AND DEFINITIONS

ad	Air dried, as in coal quality reporting.
AFC	Armored face conveyor.
Block	A defined area of coal bordered by gate roads, usually rectangular in configuration, in which the LW face operates, also known as a panel.
BOYD	John T. Boyd Company.
cad	Calculated, air dried basis, coal quality reporting for fixed carbon.
CAPEX	Capital expenditure.
Cash Operating Cost (or Cash Cost)	All cash costs directly associated with coal production, including, but not limited to, raw materials, salary and wages, labor benefits, power, repairs, coal processing, transport of coal from mine to loading point, general administrative expense, and selling expenses.
Coal Reserve	The economically mineable part of a Measured or Indicated Coal Resource. It includes diluting materials and allowances for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out and include consideration of the modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Coal Reserves are subdivided in order of increasing confidence into Probable Coal Reserves and Proved Coal Reserves.
Coal Resource	A concentration or occurrence of coal of intrinsic economic interest in or on the Earth's crust in such form and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, quality, geological characteristics, and continuity of a Coal Resource are known, estimated, or interpreted from specific geological evidence and knowledge. Coal Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated, and Measured categories.
Coal Seam	Portion of the strata that contains solid fossil fuel.
Commercial Output	Saleable product from a particular mine, which may include varying proportions of raw and clean coals.
Competent Person	Person satisfying SEHK rules 18.21 and 18.22.
Competent Person's Report	Public report prepared by a Competent Person concerning Resources and/or Reserves in compliance with SEHK rules and reporting standards.
Con-Mech	Conventionally Mechanized (LW face), mining method in which the working face is equipped with individual hydraulic props and roof bars, AFC, and shearer.
CPP	Coal Preparation Plant, facility used to process raw coal using mechanical washing or chemical methods.
CPR	Competent Person's Report.
CV	Calorific value, heat content of the coal seam.

CY Category	Designations within the Chinese coal classification system (CY41 and CY42) for coals with volatile matter content greater than 37% and a caking index of less than 5. Also known as Long Flame.
d	Dry basis, as in coal quality reporting.
daf	Dry, ash free basis, as in coal quality reporting.
DB	Drill and blast mining method.
Dip	Angle that stratum makes with the horizontal.
DMC	Dense media cyclone.
DMV	Dense media vessel.
Face	An area of coal designated for extraction using LW mining.
Face (working face)	Mine location where active coal extraction is taking place.
Feasibility Study	In international practice, this study assesses in detail the technical soundness and economic viability of an undeveloped mining project and serves as the basis for the investment decision and as a bankable document for project financing. The study is based on a detailed mine plan and constitutes an audit of all geological, engineering, environmental, legal, and economic information accumulated on the project. Generally, a separate environmental impact study is required.
Fm	Formation.
FM	Fully Mechanized (LW face), mining method in which the working face is equipped with hydraulic shields, AFC, and shearer.
FOB	Free-on-board, a mercantile term meaning that the seller is responsible for delivering goods to a specified location after loading to truck or rail, commonly used in coal price reporting.
FSR	Feasibility Study Report, the document produced as a result of a feasibility study as conducted by a Chinese design institute.
GAAP	Generally accepted accounting principles.
Gate	Room-and-pillar development around a longwall face supporting its operation.
Geologic Report	Compiled by a Chinese exploration team or company after exploration activity is completed in a designated area. The report generally details geologic data, including location and geography, exploration data, regional geology, mining characteristics, coal seams, hydrology, geotechnical aspects, environmental aspects, coal resource/reserve tonnages, and resource assessment. Supporting maps, cross sections, and figures may also be provided.
Gob	Spoil material allowed to subside behind the longwall retreat.

Gr.a.d	Gross value, air dried, as in coal quality reporting for calorific content.
Gr.d	Gross value, dry basis, as in coal quality reporting for calorific content.
HKEx	The Stock Exchange of Hong Kong.
Hr	Hour.
Indicated Coal Resource	That part of a Coal Resource for which tonnage, densities, shape, physical characteristics, quality, and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or quality continuity but are spaced closely enough for continuity to be assumed.
Inferred Coal Resource	That part of a Coal Resource for which tonnage, quality, and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed, but not verified, geological and/or quality continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes which may be limited or of uncertain quality and reliability.
In-Place Resource	Coal resources in the ground, in situ or un-mined condition.
JORC	Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.
JORC Code	Australasian Code for Reporting of Mineral Resources and Ore Reserves.
Kcal/kg	Kilocalorie per kilogram, measure of coal heat content.
km	Kilometer.
kW	Kilowatt.
kV	Kilovolt.
LOM	Life-of-Mine.
LW	Longwall, underground mining technique, used interchangeably with equipment used in this technique.
m	Meter.
m ²	Square meter.
m ³	Cubic meter.
m ³ /min	Cubic meter per minute.
m/s	Meters per second.
Marketable Reserves	Saleable coal product from Recoverable Reserves after accounting for mining and processing losses, where applicable.

Measured Coal Resource	That part of a Coal Resource for which tonnage, densities, shape, physical characteristics, quality, and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. The locations are spaced sufficiently close to confirm geological and quality continuity.
Methane	A colorless, odorless, explosive gas (CH ₄) typically associated with coal seams.
Mine Plan	The current documentation of the state of development and exploitation of a deposit during its economic life, including current mining plans. It is generally made by the operator of the mine. The study takes into consideration the quantity and quality of the minerals extracted during the reporting time, changes in economic viability categories due to changes in prices and costs, development of relevant technology, newly imposed environmental or other regulations, and data on exploration conducted concurrently with mining.
Mining Rights	The mining rights granted by the relevant authorities to conduct mining activities within the People's Republic of China, specifying the mining method, the validity period, and the annual output level. Seams and elevations may also be specified.
MLR	Ministry of Land and Resources of the People's Republic of China.
mm	Millimeter.
Mt	Million tonnes.
Mtpa	Million tonnes per annum.
Non-Cash Operating Cost (or Non-Cash Cost)	All non-cash costs directly associated with coal production, including, but not limited to, depreciation, amortization, production maintenance fee, safety fund fee, and financial expenses.
Normal Fault	A fault where the hanging wall has dropped along the fault plane (fault angle between 45 and 90 degrees) relative to the footwall.
NRC	National Railway of China, state-owned railway system.
Operating Cost	All costs directly associated with coal production including both cash and non-cash operating cost.
OSD	Out-of-seam dilution, i.e., roof and floor rock recovered with the coal seam during the normal mining process.
Outcrop	The part of the coal formation exposed to the surface.
Out-of-Seam	Non-coal material above and below the coal seam recovered during mining.
Overburden	Waste rock material overlying a coal seam.

P	Phosphorous, trace element that may adversely affect boiler efficiency.
Panel	An area of coal designated for extraction using longwall mining within which a series of blocks (longwall faces) are developed.
Partings	Rock material within mineable coal seams usually extracted with the coal.
PDR	Preliminary Design Report, official report of the final design study conducted by a recognized Chinese mine design institute. The Preliminary Design study is undertaken after an FSR has been issued for the subject project. The PDR is a more detailed, comprehensive version of the FSR and generally expands the FSR with additional mine planning analysis, including detailed mine opening and construction plans from initial work to full production status, and serves as a guide for mine construction and development.
Pillar	Column of coal left behind for support.
PRC	The People's Republic of China.
Prefeasibility Study	The study that provides a preliminary assessment of the economic viability of a deposit and forms the basis for justifying further investigations (detailed exploration and feasibility). It usually follows a successful exploration campaign and summarizes accumulated geological, engineering, environmental, legal, and economic information.
Probable Coal Reserve	The economically mineable part of an Indicated and, in some circumstances, Measured Coal Resource. It includes diluting materials and allowances for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been conducted and include consideration of realistic mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.
Productivity	Measurements of worker efficiency usually expressed in terms of tonnes per unit of time, for example, tonnes per employee-year.
Proved Coal Reserve	The economically mineable part of a Measured Coal Resource. It includes diluting materials and allowances for losses that may occur when the material is mined. Appropriate assessments that may include feasibility studies, have been conducted and include consideration of realistic mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.
Qgr.d	Gross calorific value or higher heating value on a dry basis.
Qnet.ar	Net calorific value or lower heating value on an as-received basis.
Qnet.d	Net calorific value or lower heating value on a dry basis.

Railcar	Open-top cars (wagons) used to haul coal to the customers.
Raw Coal	Coal on an as-mined basis, which may be sold directly or processed if necessary.
Recoverable Coal	Portion of coal reserve available for mining exclusive of coal losses due to mining.
Recoverable Reserves	Proved and Probable reserves prior to adjustment for preparation plant yield. Refers to that portion of the in-place coal seam tonnage that can be recovered with the mining techniques specified in the feasibility or design study before OSD and coal processing considerations.
Recoverable Resources	Tonnage after mining recovery, mining dilution, and moisture gain factors have been applied. Tonnages are classified as resources because the mining rights have not been obtained.
Refuse	Low heat content material remaining after commercial coal has been produced from raw coal using crushing, screening, and processing methods. Heat content typically is sufficient for utilization in specially designed boilers for power generation.
Reverse Fault	The hanging wall has moved upward along the fault plane relative to the footwall.
RMB	Renminbi, the Chinese currency.
ROM	Run-of-mine, the as-mined material as it leaves the mine.
SACMS	State Administration of Coal Mine Safety of the People's Republic of China.
Saleable Product	May include varying proportions of raw and clean coal.
SAWS	State Administration of Work Safety of the People's Republic of China.
Shearer	Equipment used to extract coal from a fully mechanized longwall face.
Strike	The course or bearing of an inclined coal seam or stratum on a level surface; the direction of a horizontal line perpendicular to the dip.
Subcrop	Projected limit of mineral deposition where the coal seam outcrop is overlain by surface alluvial material (i.e., bed outcrop is obscured).
Third-Party Service Providers	Personnel typically employed on a full-time or temporary basis, directed by the mining company, and assigned to operating mines in order to perform specific routine underground maintenance and construction tasks (e.g., LW face transfers, opening and roadway construction, etc.). These workers are not reflected in mine employment figures.
Tonne	Metric tonne equal to 1,000 kilograms.

tph	Tonnes-per-hour.
UG	Underground.
VM	Volatile Matter, characteristic for coal quality reporting.
Wash Plant	Facility used to selectively remove undesirable waste from the ROM/raw coal using chemical and mechanical methods. Also known as a CPP.
Yield	Saleable portion of the raw coal processed in a coal preparation plant relative to the total tonnes processed.
Yitai	Inner Mongolia Yitai Coal Co., Ltd.
Yitai Group	Inner Mongolia Yitai Group Co., Ltd.

1.0 INTRODUCTION

1.1 Background

John T. Boyd Company (BOYD) was engaged in August 2009 to complete an Competent Person's Report (CPR) of the primary coal assets of Inner Mongolia Yitai Coal Co., Ltd. (Yitai) and the Inner Mongolia Yitai Group Company Limited (Yitai Group). Yitai Group directly and indirectly holds 60.09% of Yitai's shares. Collectively, the company's assets are referred to as Yitai and include 12 active coal mining operations (5 of these mines are controlled by Yitai Group), 2 mines under planning and construction, 2 operating coal preparation plants, 2 coal preparation plants under construction, railways, and 10 loadout stations. Within the context of the Chinese coal industry, Yitai is a large-scale producer with an annual output capacity of over 47 Mt, including the output capacities of the 5 Yitai Group mines to be acquired by Yitai. Yitai was the first B-share Chinese coal company listed in Shanghai Stock Exchange, and Yitai Group is ranked 14th in the 2011 National Top 50 list of highest output coal enterprises. Mining operations are primarily located in Junggar (Zhunge'er) Banner, Ejin Horo Banner, and Dongsheng District of Ordos City, in the Inner Mongolia Autonomous Region, PRC.

Coal mining operations, related coal preparation plants (CPP) and railway assets included in this CPR are as follows:

- Twelve operating underground coal mines:
 - Yitai.
 - = Suancigou.
 - = Nalinmiao No. 2.
 - = Hongjingta No. 1.
 - = Nalinmiao No. 1.
 - = Yangwangou.
 - = Fuhua.
 - = Kaida.
 - Yitai Group
 - = Dadijing.
 - = Baoshan, (Yitai Group has 73% equity interest).
 - = Dingjiaqu, (Yitai Group has 73% equity interest).
 - = Chengyi.
 - = Baijiali.
- Two mines under planning and construction by Yitai:
 - Talahao.
 - Bulamao.
- Two operating CPPs:
 - Suancigou (12.0 Mtpa to be expanded to 16.0 Mtpa).
 - Zhunge'erzhao (10.0 Mtpa).
- Two CPPs under planning and construction:
 - Talahao (6.0 Mtpa).
 - Kaida (6.0 Mtpa).
- Ten operating coal loadout facilities.
- Company-owned railways:
 - Inner Mongolia Yitai Zhundong Railway Co. Ltd. — 192 km.

- Inner Mongolia Yitai Huzhun Railway Co. Ltd. — 180 km.
- Suancigou spur (Inner Mongolia Yitai Huzhun Railway Co. Ltd.) — 27 km.

Figures 1.1, 1.2, and 1.3, following this text, show the general location of the Yitai and Yitai Group mining right and exploration right areas and railway infrastructure included in this CPR.

1.2 SCOPE OF WORK

By assignment, the scope of work for the CPR included an independent assessment of:

- Reported coal reserves at designated operating and planned mines with restatement of coal tonnage to comply with JORC Code requirements.
- Major mining operations, including site visits to observe operations, assessment of current practices and performance, health and safety performance, transportation Infrastructure, and validation of future mine plans.
- CPPs, including site visits to observe operations and assessment of current practices.
- Environmental practices to opine on observed operating standards as compared to World Bank/Chinese requirements.
- Business plan achievability and risks.

The basis of our work was historical operating and other source data principally provided by Yitai, which were evaluated within the context of the BOYD project team's extensive Chinese and broader international mining expertise.

1.3 WORK PROGRAM

In August and September 2009, February 2011 and February 2012, a team of BOYD's US and China technical specialists in coal mining (underground), coal processing, geology and reserves, and environmental practices completed a series of visits to the Yitai sites. During these visits, we made firsthand field observations, collected available source data, and discussed historical performance and future plans with Yitai staff and management personnel. BOYD senior technical specialists met with Yitai technical personnel, who made presentations of the geology and resources for the mine plan area and proposed expansion areas. Yitai provided BOYD with copies of the data presented in these meetings and follow-up data at our request. During the mine and plant site visits, detailed discussions were conducted with mine managers and personnel concerning coal resources, mining practices, and future mine and processing plans. Future mine plans presented during our site visits were conceptual and verbal, and Yitai subsequently provided maps showing the planned mine layouts to support the future output projections. BOYD's Beijing office provided technical and translation support as well as logistics.

BOYD was provided the pre-existing resource tonnage estimates for the individual mining right areas that were prepared according to Chinese standards. We conducted an extensive review of the coal resources underlying each mining area and prepared resource and reserve estimates for Yitai using international reporting standards. In this report, we have applied the Australasian Code for Reporting of Mineral Resources and Ore Reserves (also known as the JORC Code) as published by Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia. Resource and reserve definitions stated in the JORC Code are contained in the Glossary and Definitions section of this report. Our independent resource and reserve estimates were developed from: (1) site visits by BOYD project personnel to observe mines and facilities, (2) information contained in available exploration and geologic reports and exploration data, and (3) BOYD's assessment of current mining operations.

Yitai's reported coal price range as of year end 2011, RMB370/tonne to RMB450/tonne for heating values of 5,100 kcal/kg to 5,500 kcal/kg (as received basis) was utilized to determine economic viability for reserve reporting.

Comprehensive source data were forwarded to BOYD upon initiation of the project. We were also provided with financial projections prepared by Yitai covering the period 2012 — 2014 that included an annual forecasts of raw coal output, operating costs and capital spending.

While the primary source of information (written and verbal) relied upon by BOYD in preparing this CPR was provided by Yitai, the basis of our professional opinion is founded on the technical expertise and broad international experience of the contributing BOYD team members. To ensure that our interpretation of the Yitai data was reasonable, follow-up discussions were conducted with company representatives after our initial analysis to confirm our findings and, where necessary, to collect additional information. Drafts of this report were provided to Yitai and its advisors for the purpose of confirming the accuracy of the information in the document and to provide an opportunity to comment on BOYD's conclusions developed from the project data.

This CPR meets the requirements for HKEx Competent Person's Report and is compliant with relevant rules and reporting standards.

Regarding Hong Kong Listing Rule 18.05(2), BOYD is not aware of any material change that has occurred with the Yitai and Yitai Group mining operations since the effective date of this report, which is 31 December 2011. Regarding Hong Kong Listing Rule 18.05(4), BOYD is not aware of any legal claims or proceedings that would have an influence on Yitai and Yitai Group rights to explore or mine. Regarding Hong Kong Listing Rule 18.05(6), BOYD is not aware of information that is relevant and material to Yitai and Yitai Group business operations beyond that discussed in this report.

The findings and conclusions presented in this CPR are supported by the text, tables, and figures contained herein.

1.4 PROJECT TEAM

The BOYD project team has extensive professional experience in coal resource and mine evaluations. Hong Kong Listing Rule 18.21(1) requires that a Competent Person (CP) must have a minimum of five years experience relevant to the style of mineralization and type of deposit under consideration or to the type of petroleum exploration, reserve estimate (as appropriate) and to the activity which the Mineral Company is undertaking. In addition, Hong Kong Listing Rule 18.21(2) requires that the CP must be a member of good standing of a relevant Recognized Professional Organization (RPO). Key professionals for this project include:

Mr. Ronald L. Lewis — Chief Operating Officer and Managing Director, BS (Civil Engineering)

Mr. Lewis has over 40 years of experience in assessment and evaluation of coal mining companies, with specialized expertise in the areas of coal/mineral reserve estimation, opencut and underground mine analysis, and economic assessment of mining operations. He is a Registered Professional Mining Engineer within the United States and a recognized expert in mining property valuation. Mr. Lewis is a Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc., and is qualified as a Competent Person as defined in the Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code) and HKEx rules 18.21 and 18.22. Mr. Lewis is the lead Competent Person in preparing the CPR.

Mr. Dehui (David) Zhong — Managing Director — China, BS (Mining Engineering)

Mr. Zhong has over 40 years of experience in the mining industry, primarily in coal mine design at the Beijing Coal Design and Research Institute. He last served as the institute's Chief Engineer.

Mr. James F. Kvitkovich — Vice President, BS (Mining Engineering)

Mr. Kvitkovich has 30 years of experience in assessment and evaluation of underground coal mining operations throughout the world. He is a Registered Professional Engineer within the United States and is highly experienced with regard to reviewing and evaluating CM and LW mining operations. Mr. Kvitkovich is a Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc., and is a Competent Person as

defined in the Australasian Code for Reporting Mineral Resources and Ore Reserves (JORC Code) and HKEx rules 18.21 and 18.22 (Mr. Lewis assumes overall Competent Person responsibility for this report).

Mr. Paul D. Anderson — Director of Geological Services, BS (Geology)

Mr. Anderson is a Certified Professional Geologist (AIPG) with 35 years of professional experience in exploration, evaluation, and development of coal and mineral deposits. Mr. Anderson is a Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc., and a member of the American Institute of Professional Geologists, and is qualified as a Competent Person as defined in the Australasian Code for Reporting Mineral Resources and Ore Reserves (JORC Code) and HKEx rules 18.21 and 18.22 (Mr. Lewis assumes overall Competent Person responsibility for this report).

Dr. Y. J. Zhang — Senior Mining Engineer, Ph.D. (Mining Engineering)

Mr. Zhang is a Registered Professional Engineer within the United States with over 20 years of experience in mine construction, ground control, and CM/LW underground coal mining operations in both the United States and China. He has the extensive executive/senior manager level experience in the construction materials industry. Mr. Zhang is a Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc., and is a Competent Person as defined in the Australasian Code for Reporting Mineral Resources and Ore Reserves (JORC Code) and HKEx rules 18.21 and 18.22 (Mr. Lewis assumes overall Competent Person responsibility for this report).

Mr. Frank A. Hilty — Mining Engineer, BS (Mining Engineering)

Mr. Hilty has 27 years of experience in assessment of mining and preparation facilities for coal and minerals and of coke-making facilities. Mr. Hilty is highly experienced in coal mineral market analysis in addition to project economic and financial valuations.

Mr. Jisheng (Jason) Han — Mining Engineer, MS (Mining Engineering)

Mr. Han has 13 years of mining industry experience in both China and the United States.

Mr. Donald S. Swartz II — Mining Engineer, BS (Mining Engineering)

Mr. Swartz has 11 years of mining industry experience, with a focus in operational and engineering aspects of underground mining operations.

Mr. Hongde (Mark) Liu — Senior Mining Engineer, BS Mining Engineering

Mr. Liu has 13 years of consulting experience in China, including extensive coal mine design and feasibility study work, project engineering, and coal mine project inspector assignments. Feasibility work encompasses coal mine design planning, development, and shaft sinking.

Mr. Rongjie (Jeffrey) Li — Geologist, China, ME (Geochemistry), BE (Geology)

Mr. Li has five years of consulting experience in China, focusing in coal and sedimentary deposit geology, coal exploration, coal resource analysis, exploration program design, drilling monitoring and project coordination.

Curriculum vitae of Mr. Lewis and key team members, Messrs. Kvitkovich and Anderson and Dr. Zhang, are provided in Attachment A, following this report.

1.5 REPORT QUALIFYING STATEMENTS

BOYD is a privately owned consultancy firm with headquarters in the United States and branch overseas offices in Beijing, China and Brisbane, Australia. Our company was selected for this assignment on the basis of our internationally recognized expertise in exploration, resource/reserve studies, mine development, and valuation. This report was prepared by a project team with extensive professional experience in mineral resource and mine evaluations. The key professionals for this project are listed in the Introduction section of this report.

In accordance with Hong Kong Listing Rule 18.22, we confirm that Mr. Lewis and other members of the BOYD project team that has performed work associated with this CPR have no economic or beneficial interest (present or contingent) in any of the assets being reported on; are not remunerated with a fee dependent on the findings of the CPR; and are not officers, employees, or proposed officers of the issuer or any group, holding, or associated company of the issuer.

We confirm that BOYD is not a group, holding or associated company of Yitai. None of BOYD's employees are officers or proposed officers of any group, holding or associated company of Yitai. BOYD has no ownership or shareholder interest in Yitai or related companies and assets. There have been no transactions between BOYD and its employees and Yitai or related companies and assets either in the past or present. BOYD does not have any claims outstanding with Yitai or related companies and assets. Payment for our services is not contingent upon our opinions regarding the merits of the project or approval of our work by Yitai or the outcome of the Global Offering. BOYD has completed its work in accordance with US and international ethical standards for professional engineering. Yitai has not indemnified BOYD for this assignment.

We have exercised reasonable care in reviewing the information provided, but assumed all historical data have been accurately reported and all forward projections are prepared and/or approved by competent professionals and Yitai management. We have no reason to believe that any material facts have been withheld, or that a more detailed analysis may reveal additional material information. Our CPR has been completed in accordance with generally accepted standards and practices employed in the international mining industry. Although we have compared key information provided by Yitai with expected values, the accuracy of the results and conclusions of this report are contingent upon the accuracy of the information provided. We are not responsible for any material errors or omissions in the information provided.

The findings and conclusions presented in this report represent the independent professional opinion of BOYD based on our review of available project information. We have made no attempt to independently verify the technical and geological information presented in the reference material documents; for example, we have not conducted our own exploration program to verify the exploration data provided by Yitai. We assume the provided data have been prepared by competent engineers and geologists, although we have conducted our own limited due diligence in checking for consistency and reasonableness. Our expertise is in technical and financial mining issues, and BOYD is not qualified to offer, nor do we represent that any of our findings include, matters of a legal or accounting nature. Aspects of Yitai's activities relating to legal issues and matters relating to commercial, accounting, surface land usage, and appraisal are expressly omitted, except as they may relate to technical, operational, or cost aspects of the subject operations. BOYD's independent analyses of the available data have been developed in a manner consistent with industry standards and engineering practices. We believe our conclusions are reasonable assessments of the information provided.

The ability of Yitai, or any mine operator, to achieve the projections contained in this report is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, etc. Unforeseen changes in regulations could also impact performance; although we believe all findings and conclusions to be reasonable, we rely on information developed by others and reflect mining and marketing conditions, and our interpretation of regulations, as of the date of the CPR.

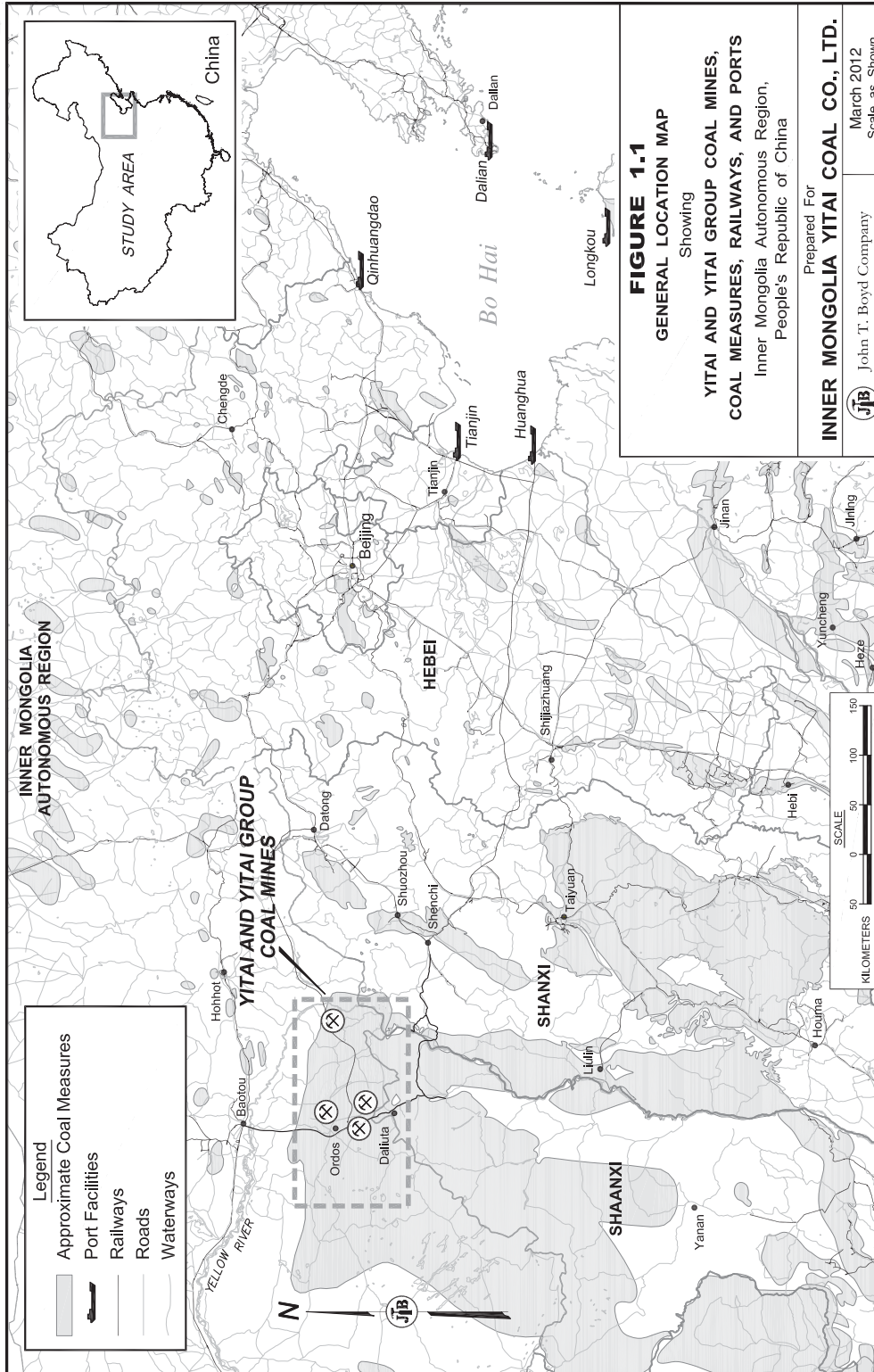
This report only addresses technical (e.g., reserve, mining, etc.) and certain financial (operating costs, capital costs, revenues, etc.) issues. By assignment, BOYD's financial review is limited to mine operating and capital costs and does not consider corporate or other downstream costs. By assignment, we have not independently assessed existing or future coal markets, nor have we developed independent forecasts of sales revenue for the subject operations.

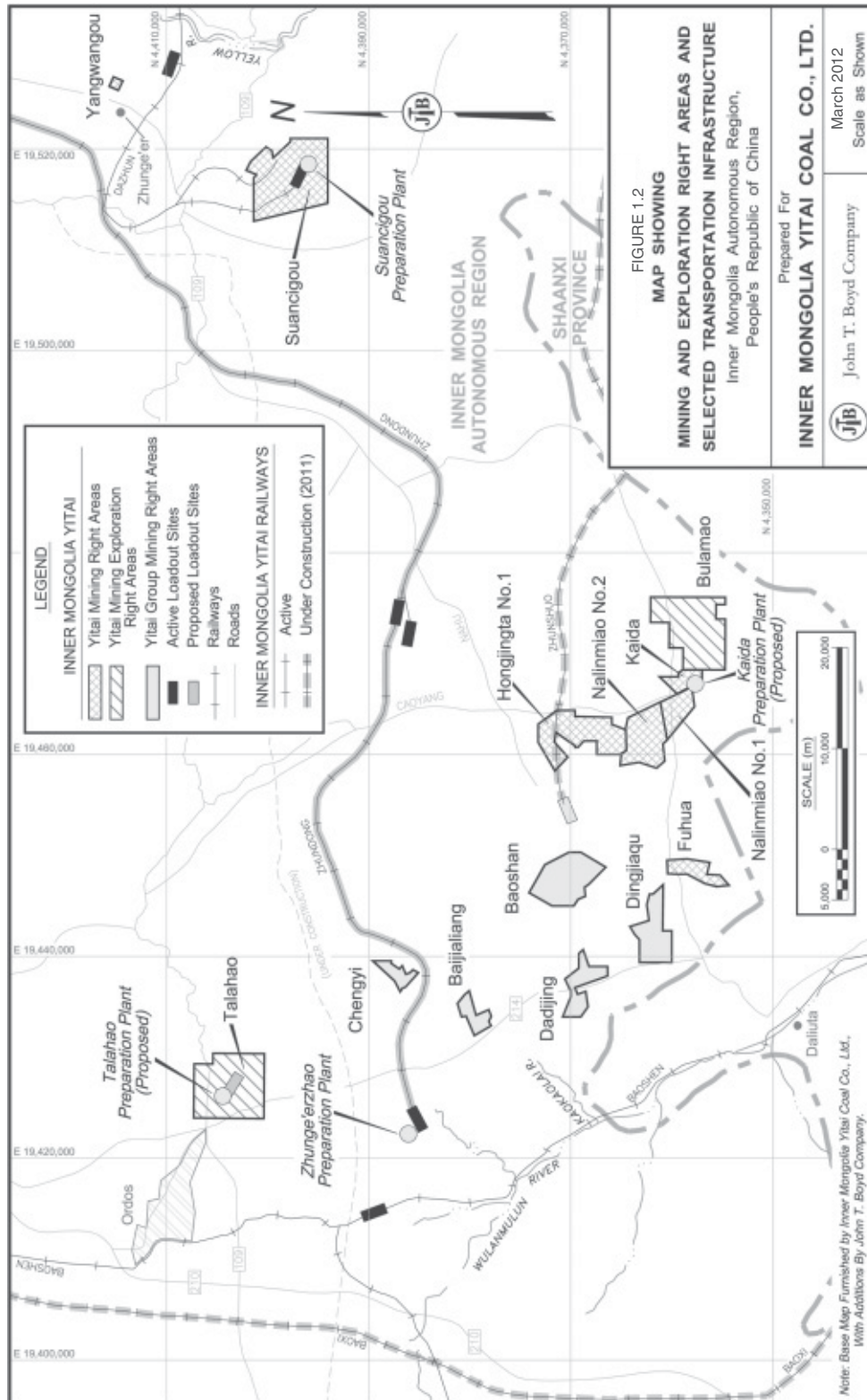
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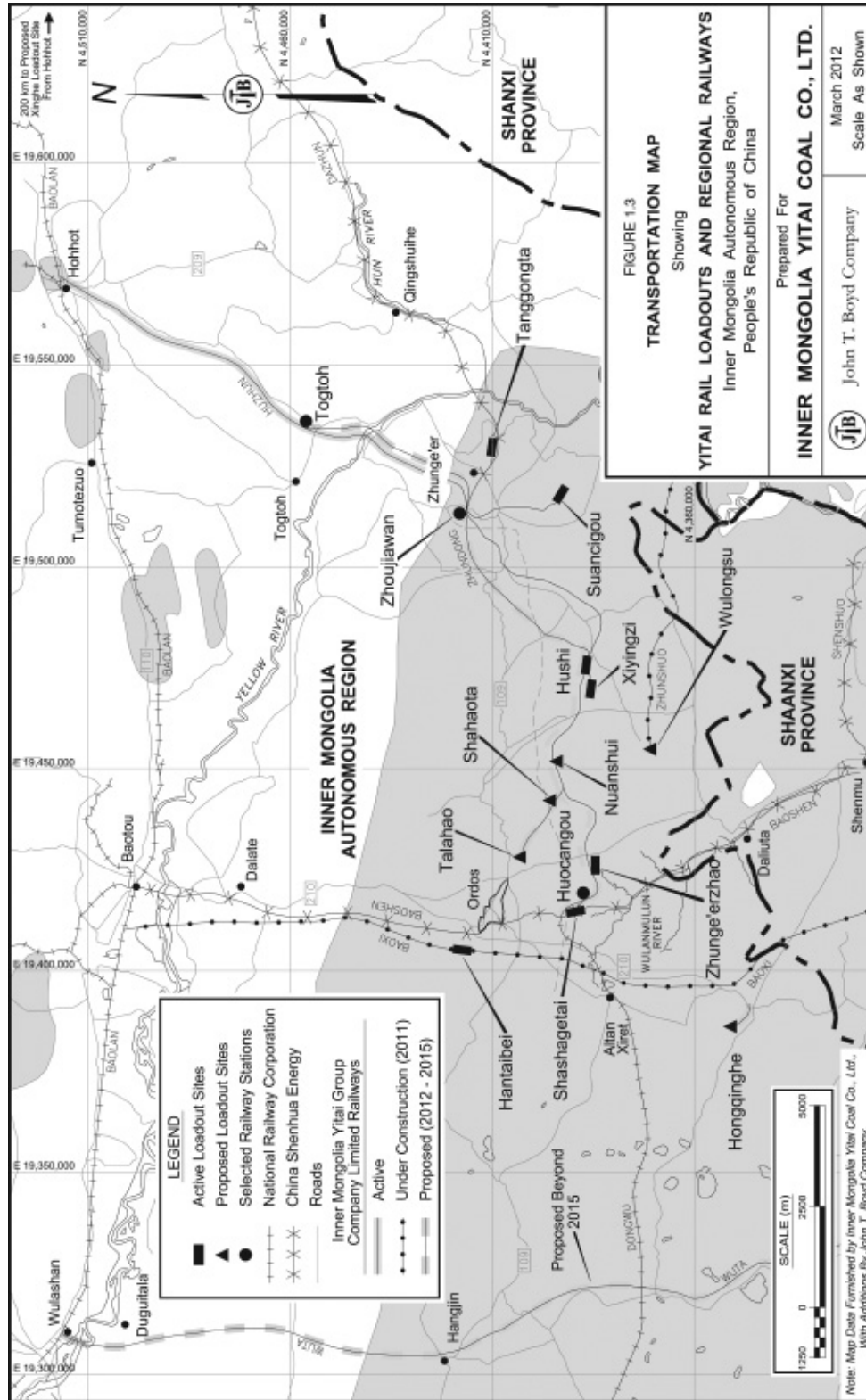
Figures

- 1.1: General Location Map Showing Yitai and Yitai Group Coal Mines, Coal Measures, Railways, and Ports
- 1.2: Map Showing Mining and Exploration Right Areas and Selected Transportation Infrastructure
- 1.3: Transportation Map Showing Yitai Rail Loadouts and Regional Railways

Respectfully submitted







JOHN T. BOYD COMPANY

By:

Paul D. Anderson
Director of Geological Services

Dehui (David) Zhong
Managing Director — China

James F. Kvitkovich
Vice President

Ronald L. Lewis
Managing Director and COO

2.0 SUMMARY

2.1 INTRODUCTION

Yitai was the largest local coal enterprise in Inner Mongolia, China, in terms of revenue in 2010. The company is an established, major, underground coal producer and controls significant tonnages of coal reserves to sustain and expand operations. Yitai's and Yitai Group's current operations include 12 operating coal mines (combined output of 47.77 Mt in 2011) and two additional mines under construction. Yitai also controls four coal preparation plants (under various stages of operation, design, and implementation) and ten loadout stations. Yitai owns an integrated railway network connecting its mines with the national rail transportation system, which provides Yitai with competitive advantages in securing allocation of coal transportation capacity in the national railway system and facilitating its coal sales to the major customers in China's developed coastal regions. The Yitai rail network also minimizes its transportation costs. Coal quality is favorable for domestic steam markets, with generally low sulfur content and marketable calorific values. Yitai and Yitai Group mines are located in western Inner Mongolia, near the boundary of Shaanxi and Shanxi provinces, and within China's largest coal-producing region. The following Yitai and Yitai Group resource areas were evaluated in this CPR:

Control Type and Mine	Mining Certificate Number	Authorized Mining Right Output Capacity (Mtpa)	Authorized Mining Elevation (m)	Mining Method	Area (km ²)	Mining Right	
						Grant Date (month/yr)	Expiration Date (month/yr)
Inner Mongolia Yitai Coal Company, Ltd. (Yitai)							
<u>Mining Rights</u>							
Suancigou (1)	C1000002009121120050702	1.20	860-1,030	UG*	4.9	12 / 2009	12 / 2033
Suancigou (2)	C1000002009121110050703	12.00	520-1,060	UG	44.9	12 / 2009	4 / 2038
Nalinmiao No. 2	C1500002010071120074300	3.00	1,140-1,300	UG	21.0	7 / 2011	7 / 2015
Hongjingta No. 1	1000000610111	3.00	1,170-1,379	UG	28.4	9 / 2006	9 / 2036
Nalinmiao No. 1	C1500002010121120092411	1.20	1,140-1,250	UG	9.4	11 / 2011	11 / 2019
Yangwangou	C1000002009021120004801	0.60	1,046-1,159	UG	1.0	9 / 2009	6 / 2015
Fuhua	C1500002010111120079869	0.30	1,100-1,330	UG	8.6	6 / 2011	11 / 2013
Kaida	C1500002010121120092414	0.60	1,170-1,225	UG	5.5	6 / 2011	6 / 2013
<u>Exploration Rights</u>							
Talahao	Under Application***	6.00**	—	UG	42.6	—	—
Bulamao	Under Application***	1.20**	—	UG	40.2	—	—
Inner Mongolia Yitai Group Company Limited (Yitai Group)							
<u>Mining Rights</u>							
Dadijing	C1500002011061120115049	1.20	1,115 -1,320	UG	11.6013	06/2011	12/2018
Baoshan	C1500002011071120115196	1.20	1,100 -1,300	UG	24.9734	07/2011	12/2018
Dingjiaqu	C1500002011061120115051	1.20	1,120 -1,240	UG	17.3908	06/2011	12/2018
Chengyi	C1500002011061120115048	0.60	1,224 -1,362	UG	5.079	06/2011	12/2013
Baijiali	C1500002011061120115050	0.30	1,242 -1,308	UG	6.4849	06/2011	10/2013

* UG = Underground

** Planned greenfield mines

*** Yitai has obtained approval for defining the boundaries of the mining right areas for Talahao and Bulamao from the Ministry of Land and Resources. Such approval is essential for obtaining the mining rights. By obtaining the approval for defining the boundaries of the mining right areas for the two mines, the exploration rights are no longer in effect. According to Jingtian & Gongcheng Attorneys at Law, Yitai is currently applying for mining right certificates for Talahao Mine and consolidation of Kaida and Bulamao mines. According to Yitai, the Company expects to obtain the mining rights no later than the second half of 2012. Yitai's payments for the exploration rights will be accepted as full payment for the mining rights.

The principal findings of this study are summarized in this chapter and are supported by the text included in the body of this report. This section presents the major findings regarding coal resources, economic evaluation, and environmental overview. Technical description and discussion of mine, CPP, loadout and railway facilities, operating practices, etc., concerning the Yitai assets can be found in their respective sections.

2.2 GEOLOGY AND RESOURCES

2.2.1 Conclusion

On a global basis, the geological setting or nature of the coal deposits controlled by Yitai are judged to be simple to moderate in complexity (i.e., not geologically complex). The mine and exploration areas evaluated are located within the Dongsheng and Zhunge'er coalfields.

The coal-bearing strata within the Dongsheng Coalfield occur in the Middle and Lower Jurassic-age Yan'an Formation, containing coal seams Nos. 2 through 7. There are several principal coal seams that are uniform in occurrence generally 3 m to 6 m thick and other secondary seams that range in thickness from 1 to 3 m.

The coal-bearing strata within the Zhunge'er Coalfield are contained in two formations, with multiple coal seams Nos. 1 through 10 in stratigraphically descending order. The upper seams (Nos. 1 through 5) occur within the Lower Permian Shanxi Formation, and the lower seams (Nos. 6 through 10) occur within the underlying Upper Carboniferous Taiyuan Formation.

Yitai's geological and geotechnical staff's technical knowledge of the reserve base and associated geologic settings is adequate to support projected long-term mining operations.

Based on our review of the coal resource data and the methodology used to define the resources, our visits to the active mining operations, and interaction with Yitai personnel, we have a high degree of confidence that the resource estimates shown in this report are professionally prepared and representative of the specified mine properties.

BOYD has reviewed the mining and exploration right documentation presented by Yitai with regard to their reserve holdings. To the extent supported by the documentation and from BOYD's standing as a technical expert, we have accepted that Yitai holds the exploration and mining right permits for the areas evaluated in this report. We understand that these rights reference only underground extraction methods.

2.2.2 Resources and Reserves

Our estimates prepared in accordance with the JORC Code, of the Measured, Indicated, and Inferred Resources and Proved and Probable Recoverable and Marketable Reserves, as of 31 December 2011 are summarized as follows:

Control Type & Mine	In-Place Resource (Mt)			Recoverable Reserves (Mt)			Processing Yield %	Marketable Reserves (Mt)			% of Reserves	
	Measured	Indicated	Inferred	Total	Proved	Probable		Total	Proved	Probable		Total
Inner Mongolia Yitai Coal Company Limited												
Mining Rights												
Suancigou*	389.91	805.63	—	1,195.54	213.79	446.06	659.85	70	147.60	311.16	458.76	79
Nalinmiao 2	25.15	73.56	2.31	101.02	18.30	53.62	71.92	89	17.72	46.16	63.88	11
Hongjingta 1	43.01	17.16	—	60.17	30.64	9.73	40.37	89	27.68	8.22	35.90	6
Nalinmiao 1	14.45	—	—	14.45	10.10	—	10.10	92	9.26	—	9.26	2
Yangwangou	8.66	—	—	8.66	6.19	—	6.19	93	5.75	—	5.75	1
Fuhua	2.91	1.67	—	4.58	2.28	0.51	2.79	90	2.05	0.45	2.50	—
Kaida	5.97	0.59	—	6.56	4.76	0.39	5.15	81	3.80	0.35	4.15	1
Total	490.06	898.61	2.31	1,390.98	286.06	510.31	796.37		213.86	366.34	580.20	100
Exploration Rights												
Talahao	498.01	249.36	9.58	756.95	417.79	198.20	615.99	89	373.25	176.90	550.15	97
Bulamao (West)	14.44	7.96	1.06	23.46	8.18	5.54	13.72	79	6.42	4.46	10.88	2
Bulamao (East)	8.67	1.74	0.41	10.82	6.03	0.77	6.80	86	5.19	0.68	5.87	1
Total	521.12	259.06	11.05	791.23	432.00	204.51	636.51		384.86	182.04	566.90	100
Total	1,011.18	1,157.67	13.36	2,182.21	718.06	714.82	1,432.88		598.72	548.38	1,147.10	
Inner Mongolia Yitai Group Company Limited												
Mining Rights												
Dadijing	7.45	63.01	—	70.46	6.20	48.04	54.24	95	5.82	45.96	51.78	58
Baoshan**	7.40	17.89	—	25.29	4.37	11.66	16.03	91	3.93	10.62	14.55	17
Dingjiaqu**	11.14	13.00	0.31	24.45	8.73	8.82	17.55	93	8.10	8.19	16.29	19
Chengyi	5.71	2.41	0.37	8.49	3.57	1.53	5.10	95	3.38	1.44	4.82	5
Baijialiang	0.05	0.61	—	0.66	0.04	0.47	0.51	96	0.04	0.45	0.49	1
Total	31.75	96.92	0.68	129.35	22.91	70.52	93.43		21.27	66.66	87.93	100
Total												
Mining Rights	521.81	995.53	2.99	1,520.33	308.97	580.83	889.80		235.13	433.00	668.13	54
Exploration Rights	521.12	259.06	11.05	791.23	432.00	204.51	636.51		384.86	182.04	566.90	46
Total	1,042.93	1,254.59	14.04	2,311.56	740.97	785.34	1,526.31		619.99	615.04	1,235.03	100

* Figures reflect 100% interest; Yitai's equity interest is 52%.

** Figures reflect 100% interest; Yitai Group's equity interest is 73%.

Note: Figures may not add due to rounding.

Of the above 14 mines, approximately 82% of the Marketable Reserves are controlled by Yitai (assuming mining rights are obtained for Talahao and Bulamao) and approximately 46% are in the exploration right areas; 50% of the Marketable Reserves are in the Proved classification.

Yitai has obtained approval for defining the boundaries of the mining right areas for the two mines from the Ministry of Land and Resources. Such approval is essential for obtaining the mining rights. By obtaining the right approval for defining the boundaries of the mining areas for the two mines, the exploration rights are no longer in effect. We have been informed by Jingtian & Gongcheng Attorneys at Law, that Yitai is currently applying for mining right certificates for Talahao and consolidation of Kaida and Bulamao mines. According to the Company, it expects to obtain the mining rights no later than the second half of 2012. We have also been informed by Jingtian & Gongcheng Attorneys at Law, that Yitai will not have to pay the mining right fees to obtain the mining rights since the Company has paid the exploration right fees in full.

Inferred resources are less than 1% of total in-place resources. Typically it is reasonable to expect that the majority of Inferred Coal Resources would upgrade to Indicated Coal Resources with additional exploration. However due to the uncertainty associated with Inferred Coal Resources, it should not be assumed that such upgrading will always occur.

Yitai does not yet control the mining rights for the Talahao, Bulamao East, and Bulamao West areas and therefore cannot legally mine the coal at this time. It is reasonable to assume that Yitai will obtain the mining rights based on the Company's past experience and typical procedures in China, but there is no guarantee they will be granted. Yitai has presented plans for developing and mining these areas and has paid exploration right fees. Yitai has also provided documentation showing there is a reasonable expectation that the mining rights will be granted.

BOYD believes that the reserve depletion is accounted for by the depreciation of the mining rights.

2.2.3 Coal Quality

Both the Dongsheng and Zhunge'er coalfields support numerous mining operations and are major suppliers of thermal coal in the PRC. Therefore coal quality characteristics in both fields are well known and documented. According to Chinese coal classification, the Yitai mines produce long flame (CY41 and CY42) and non-caking (BN31) coal types.

The coals in the Dongsheng coalfield are characterized by high calorific value, non-caking coal (high-volatile C bituminous rank) with low sulfur content. Calorific value varies with moisture and ash content but is typically 5,500 to 6,000 Kcal/kg on an as-received basis including partings and mining dilution.

Raw coal quality, which excludes partings greater than 0.05 m and mining dilution, is reported as follows:

<u>Characteristic</u>	<u>Typical Range</u>
Moisture % (ad)	4 - 9
Ash % (d)	5 - 11
Sulfur % (d)	0.2 - 0.7
Volatile Matter % (daf)	33 - 36
Calorific Value Kcal/kg (gr.d.)	6,500 - 7,500

The coal seams typically contain few in-seam partings and therefore some mines can produce an acceptable quality of coal product on a screened, raw (without coal washing) basis.

Coal quality in the Zhunge'er Coalfield is high-volatile C bituminous rank with low sulfur content. Calorific value ranges from 4,700 to 5,100 Kcal/kg on an as-received basis including partings and mining dilution.

Raw or in situ coal quality (excluding partings greater than 0.05 m in thickness and mining dilution) is reported as follows:

<u>Characteristic</u>	<u>Typical Range</u>
Moisture % (ad)	3 - 5
Ash % (d)	22 - 26
Sulfur % (d)	0.6 - 0.9
Volatile Matter % (daf)	37 - 41
Calorific Value kcal/kg (gr.d.)	5,500 - 6,500

The major coal seam in the coalfield is the No. 6 Seam, which is typically thick (over 10 m) and contains several in-seam partings and impurities. Coal from this coalfield is typically washed at high gravities to remove rock impurities (i.e., in-seam partings and impurities and mining dilution).

2.3 MINE OPERATION

2.3.1 Mines

The Yitai and Yitai Group portfolio of mines includes 12 operating fully mechanized (FM) LW operations. Yitai operates seven large and medium-sized underground LW mines that have transitioned to FM, state-of-the-art mining operations by combining multiple small, local mining right areas. This practice has become common as the regulatory officials within PRC seek to maximize reserve recovery by consolidating and modernizing the coal industry. A summary of Yitai mines follows:

Mine	Date of Initial Operation	Current Approved Output Capacity (Mtpa)		Estimated* Remaining Reserve Tonnes as of 31 December 2011 (Mt)	Integrated from Local Mines
		By Mining Right Certificate	By Coal Production Certificate		
Suancigou	8/8/2008	12.0	12.0	459	Suancigou, Suancihao, Xiaosuancigou
Nalinmiao No. 2	10/1/2006	3.0	5.0	64	Nalinmiao No. 2, Nalinmiao No. 4, Hongjingta No. 3
Hongjingta No. 1	8/12/2007	3.0	6.1	36	Hongjingta No. 2, Wangjiapo, Hongjingta No. 1
Nalinmiao No. 1	1/1/2008	1.2	6.4	9	Nalinmiao No. 1, Nalinmiao No. 3
Yangwangou	9/24/2009	0.6	1.4	6	Yangwangou
Fuhua	7/1/2008	0.3	1.3	3	Fuhua, Shenshan
Kaida	3/17/2008	0.6	1.6	4	Huayuan, Kaida No. 1

* BOYD estimate of marketable tonnes according to JORC Code classification.

An additional five small to medium sized underground LW mines are operated by Yitai Group. These mines have also transitioned to FM mining operations by combining multiple small local mining right areas. The current approved coal production certificate output level for these mines ranges from 1.2 to 3.0 Mtpa, as follows:

Mine	Date of Initial Operation	Current Approved Output Capacity (Mtpa)		Estimated* Remaining Reserve Tonnes as of 31 December 2011 (Mt)	Integrated from Local Mines
		By Mining Right Certificate	By Coal Production Certificate		
Dadijing	4/1/2008	1.2	3.0	52	Dadijing, Dashuigou
Baoshan	6/1/2007	1.2	1.9	15	Baoshan, Qiaojiata, Niujiailiang
Dingjiaqu	12/1/2008	1.2	2.3	16	Sanhechang No. 2, Dingjiaqu
Chengyi	2/1/2009	0.6	1.2	5	Chengyi, Yelaisetai
Baijiailiang	1/1/2008	0.3	1.9	—**	Baijiailiang, Naomutu

* BOYD estimate of marketable tonnes according to JORC Code classification.

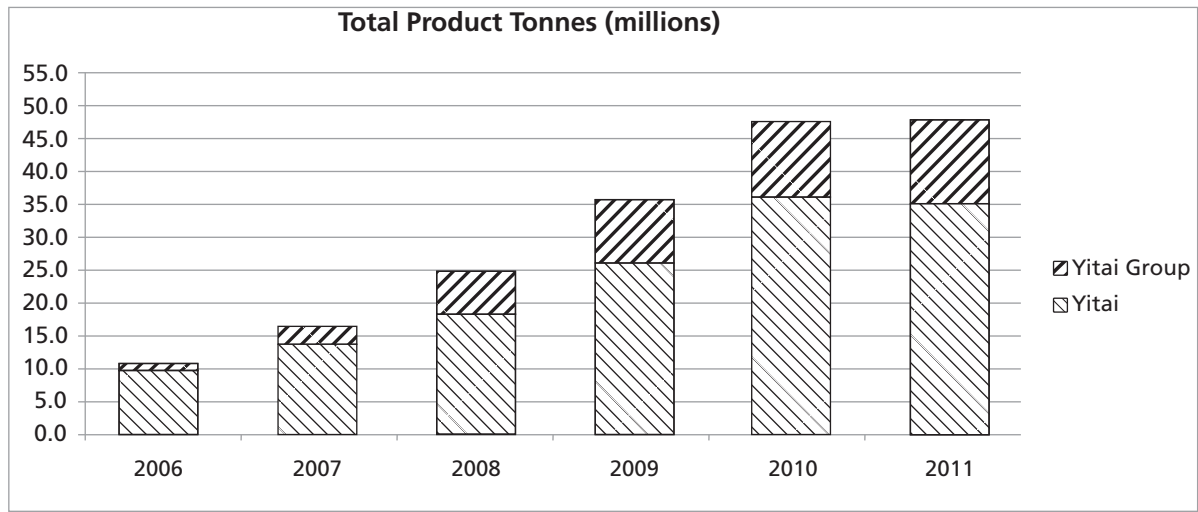
** 0.49 Mt LW reserves.

BOYD visited the 12 subject mines in late August 2009, February 2011 and February 2012. Based on our field observations, the mines are well-capitalized and organized and use FM LW mining systems supported predominantly by roadheader development units. Underground mining conditions are generally favorable, with relatively thick coal seams and minimal seam gradients; depth of mining is shallow (less than 200 m). Third-party service companies provide a supplemental source of workers and are employed to provide certain services in the coal production process on an as-needed basis. Yitai or Yitai Group maintain the overall management of each mine, while the third-party service providers working at the mines report to the general managers appointed by Yitai or Yitai Group at each mine.

Yitai or Yitai Group's reserve base offers the potential for highly efficient LW mine designs comparable to those employed at similar highly mechanized mines in the United States and Australia. High levels of output can be anticipated from the existing and planned LW installations. BOYD considers the Yitai and Yitai Group's mine plans to be appropriate for the geologic and geotechnical settings observed in the current mines and reflect the present understanding of potential mining hazards.

2.3.2 Historical Output

Historical output from seven active Yitai mines and five active Yitai Group mines is illustrated below:



Historical production for the Yitai and Yitai Group mines is as follows:

Yitai Output — Product Tonnes (millions)

Mine	2006		2007		2008		2009		2010		2011	
	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW
Suancigou	—	—	—	0.58	—	1.46	—	6.36	—	8.18	—	8.38
Nalinmiao No. 2	3.30	—	1.77	4.49	—	6.13	—	6.90	—	8.14	—	8.12
Hongjingta No. 1	3.57	—	2.81	1.65	0.75	5.51	—	7.51	—	8.19	—	7.25
Nalinmiao No. 1	2.05	—	1.23	—	0.14	1.75	—	2.37	—	5.78	—	6.62
Yangwangou	0.06	—	0.25	—	0.40	—	—	0.25	—	1.38	—	0.97
Fuhua	—	—	—	0.04	—	0.62	—	1.21	—	1.33	—	1.37
Kaida	0.75	—	0.92	—	—	1.44	—	1.44	1.17	1.96	0.68	1.70
Subtotal	9.73	—	6.98	6.76	1.29	16.91	—	26.04	1.17	34.96	0.68	34.41
Yitai Total	9.73		13.74		18.20		26.04		36.13		35.09	

Yitai Output — Product Tonnes (millions)

Mine	2006		2007		2008		2009		2010		2011	
	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW
Dadijing	0.63	—	1.33	—	1.71	1.34	1.37	1.90	1.50	2.27	1.42	3.04
Baoshan	0.06	—	0.72	—	—	1.68	—	1.53	—	1.81	—	2.16
Dingjiaqu	0.04	—	0.17	—	0.13	—	—	2.21	—	2.80	—	3.05
Chengyi	0.02	—	0.15	—	0.16	0.04	—	0.88	—	1.11	—	0.94
Baijialiang	0.32	—	0.38	—	0.25	1.22	—	1.75	—	1.97	—	2.07
Subtotal	1.06	—	2.74	—	2.25	4.28	1.37	8.27	1.50	9.96	1.42	11.26
Yitai Group												
Total	1.06		2.74		6.53		9.64		11.46		12.68	
Yitai/Yitai Group												
Total	10.79		16.48		24.73		35.68		47.59		47.77	

Note: Figures may not add due to rounding.

Both Yitai and Yitai Group mines employ modern LW mining techniques with physical mining conditions generally considered among the most favorable observed by BOYD in the world coal mining industry and highly favorable to FM mining operations using LW and roadheaders. The mines successfully managed the transition from drill and blast (DB) mining techniques to FM LW techniques in the 2006 — 2010 period.

2.3.3 Staffing

Staffing at the Yitai mines directly involved in coal production and CPP operations totaled 6,224 personnel as of 31 December 2011, with the following breakdown:

Mine	Employees as of 31 December 2011 *			
	UG	Surface Coal Processing	Surface Service/Other	Total
Suancigou	602	—	511	1,113
Nalinmiao No. 2	497	12	226	735
Hongjingta No. 1	360	—	128	488
Nalinmiao No. 1	142	55	139	336
Yangwangou	273	16	106	395
Fuhua	231	10	95	336
Kaida	386	40	107	533
Subtotal — Yitai	2,491	133	1,312	3,936
Dadijing	674	—	142	816
Baoshan	317	—	102	419
Dingjiaqu	260	8	85	353
Chengyi	203	27	77	307
Baijialiang	213	39	141	393
Subtotal — Yitai Group	1,667	74	547	2,288
Total	4,158	207	1,859	6,224

* Includes third-party service providers.

Labor productivity in 2011 for the Yitai mines was 8,910 and 14,090 product tonnes per employee-year for total mine and underground employees, respectively, which exceeded the average performance level of the international underground coal industry. Labor productivity in 2011 for the Yitai Group mines was 5,540 and 7,610 product tonnes per employee-year for total mine and underground employees, respectively.

Mines	Product Tonnes per Employee-Year	
	Total Mine	Underground
Yitai	8,910	14,090
Yitai Group	5,540	7,610
Composite	7,675	11,490

2.3.4 Mine Operating Costs

According to information provided by Yitai, average mine operating costs by mine by year are as follows:

Mine	Operating Costs (RMB/ROM tonne) *					
	2006	2007	2008	2009	2010	2011
Suancigou	—	63	90	64	90	104
Nalinmiao No. 2	44	56	59	57	78	91
Hongjingta No. 1	40	51	46	53	77	65
Nalinmiao No. 1	41	49	55	102	60	54
Yangwangou**	54	62	85	201	108	137
Fuhua	—	27	70	90	91	85
Kaida	42	49	83	95	104	127
Yitai Average	41	54	60	67	81	85

* Composite costs include a weighted average of drill and blast, and FM output.

** Yangwangou's 2009 results reflect partial year operation using FM LW face.

A breakdown of operating costs on a composite basis is as follows:

Category	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
Cash Costs						
Materials / Supplies / Maintenance	2	3	7	7	7	7
Power / Fuel	1	1	2	3	3	3
Salary & Welfare	2	9	8	6	8	9
Production Fees	35	37	39	45	57	59
Subtotal – Cash Costs	40	50	56	60	75	78
Non-Cash Costs						
Depreciation	1	3	3	6	7	7
Subtotal – Non-Cash Cost	1	3	3	6	7	7
Total	41	54	60	67	81	85

* Average composite costs include a weighted average of DB with FM output achieved with FM LW face methods.

Note: Figures may not add due to rounding.

According to information provided by Yitai Group, average mine operating costs by year are as follows:

Mine	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
Dadijing	62	74	74	103	102	107
Baoshan	28	67	70	69	82	83
Dingjiaqu	50	52	111	67	66	67
Chengyi	52	55	75	94	100	121
Baijialiang	45	54	72	67	72	73
Yitai Group Average*	55	67	74	82	85	89

* Composite costs include a weighted average of drill and blast, and FM output.

A breakdown of operating costs on a composite basis is as follows:

Category	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
Cash Costs						
Materials/Supplies	4	3	6	5	4	7
Maintenance/Repairs	—	—	5	1	2	1
Power/Fuel	1	1	2	2	3	3
Salary & Welfare	5	9	8	7	8	9
Production Fees	38	45	47	60	60	62
Subtotal — Cash Costs	48	59	69	75	76	81
Non-Cash Costs						
Depreciation	7	8	5	8	9	8
Subtotal — Non-Cash Costs	7	8	5	8	9	8
TOTAL	55	67	74	82	85	89

* Average composite costs include a weighted average of DB with FM output achieved with FM LW face methods.

Note: Figures may not add due to rounding.

Yitai and Yitai Group operating costs are low based on our Chinese coal industry experience and are in-line with BOYD's expectations based on our experience in China and the type of mines, technology employed, and output levels.

Production fees include numerous cost categories, of which the most significant, accounting for over 95% of the category in 2011, are as follows:

- Salaries.
- Production maintenance fee.
- Safety fund fee.
- Environmental recovery fee.
- Mineral resource compensation fee.
- Soil and water conservation fee.
- Coal price adjustment fee (special implementation in mid-2009 in Inner Mongolia).
- Third party development costs (roadway development).
- LW face move expense.
- Mine management fees.
- Equipment leases.
- Mine engineering expense.
- Human resource development.
- Water.

Production fees have increased since 2006 due to increases in government-imposed fees, new cost items related to the implementation of mechanized LW face operations, and higher overhead and management costs. The coal price adjustment fee will be used primarily for the establishment of an official commodity reserve system helping to resolve issues in environmental and ecological restoration of mining areas and as a subsidy to rural area inhabitants.

2.4 FUTURE OPERATIONS

2.4.1 Mine Output

BOYD's review of future operations is based on Yitai's internally prepared three-year mine plans, business projection data submittals, and discussions with corporate and mine management, financial, and engineering staff. The mine plan period for this review is the three-year period, 2012 — 2014. Available mine plan forecasts were evaluated for reasonableness according to recent operating history. Historical data for these mines at their design capabilities are limited at this time.

Yitai and Yitai Group raw coal output projections for the period 2012 through 2014 for the mines are as follows:

<u>Yitai Mine</u>	Projected ROM Output (tonnes — millions)		
	2012	2013	2014
Suancigou	14.00	15.00	16.00
Nalinmiao No. 2	8.20	9.20	10.20
Hongjingta No. 1	8.20	9.20	8.20
Nalinmiao No. 1	7.00	3.40	4.40
Yangwangou	1.40	1.40	1.40
Fuhua	1.30	1.30	1.30
Kaida	1.70	2.60	2.60
Talahao	—	3.00	6.00
Bulamao	—	1.60*	1.60
Subtotal — Yitai**	41.80	46.70	51.70

* Projections based on Kaida Access Option.

** Open pit mining at several mines contributes to Yitai's output as follows:

<u>Mine</u>	ROM Output (tonnes - millions)		
	2013	2014	Total
Nalinmiao No. 2	1.00	2.00	3.00
Hongjingta No. 1	1.00	2.00	3.00
Nalinmiao No. 1	1.00	2.00	3.00
Kaida	1.00	1.35	2.35
Total	4.00	7.35	11.35

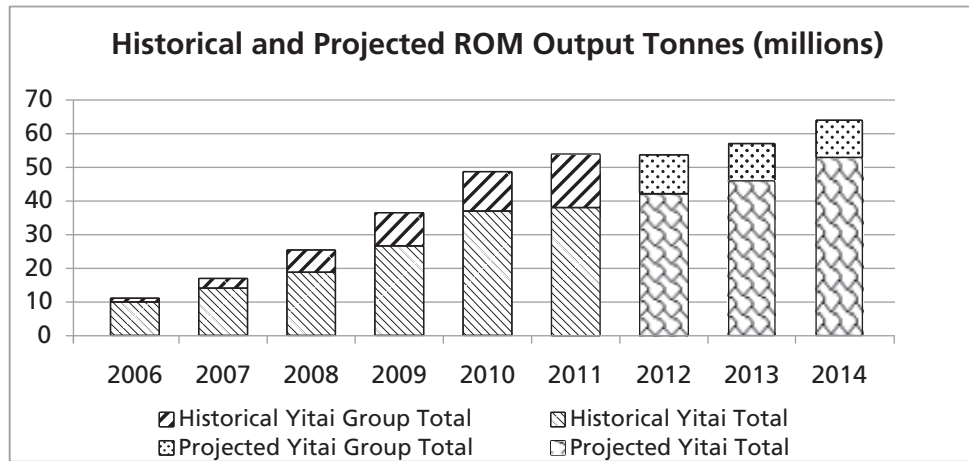
<u>Yitai Group Mine</u>	Projected ROM Output (tonnes — millions)		
	2012	2013	2014
Dadijing*	4.20	4.50	4.50
Baoshan	2.20	2.20	2.20
Dingjiaqu**	3.00	3.00	3.00
Chengyi	1.20	1.20	1.20
Baijialiang***	0.80	—	—
Subtotal — Yitai Group****	11.40	10.90	10.90
Total	53.20	57.60	62.60

* Dadijing output projections include 0.90 Mt in 2012 generated from room and pillar mining operations.

** We project that Dingjiaqu will be transitioning into thinner coal reserves in 2013 and LW face output will be affected. Of the 3.0 Mt output projected in 2013 and 2014, 0.5 and 1.0 Mt is generated from room and pillar operations.

*** Based on BOYD's reserve estimation, we project that Baijialiang mine will deplete FM LW mineable reserves in 2012. Of the 0.80 Mt output projected in 2012, 0.31 Mt is generated from room and pillar mining operations and 0.49 Mt from FM LW operations.

**** Open pit mining at several mines may also contribute to Yitai Group's output; at Dadijing 1.0 Mt annually is projected from open pit operations in 2013 and 2014.



Yitai forecasts continuing growth in overall output through 2014. Yitai output is projected to expand from 35 Mt in 2011 to 52 Mt in 2014, Yitai Group mines are projected to maintain an output level of approximately 11.0 Mtpa in the period 2012-2014. BOYD has reviewed the plans for 2012 — 2014 from the perspective of historical performance, observations and discussions during site visits, and BOYD's extensive PRC experience and concludes the plans are generally achievable.

At Suancigou Mine, Yitai installed a FM sublevel caving LW face in the No. 6U Seam to minimize faulting impacts, beginning in late March 2011. The sublevel caving LW face performance has been improving approaching 40,000 tpd in stable, favorable geological conditions. We anticipate that sublevel caving LW face will improve output performance in 2012. The CPP yield for Suancigou ROM output projected at 85% was 73% in 2011. According to Yitai, Suancigou CPP output is currently being processed to a higher coal quality specification for market acceptance at the ports. The Company anticipates that lower quality specifications will prevail in in-land markets, thereby supporting a higher CPP recovery. In 2013, Yitai is planning to separate the No. 4 Seam and No. 6 Seam ROM output to optimize CPP performance.

The output projections for Nalinmiao No. 2 and Hongjingta No. 1 are supported by their 2011 results of 8.12 Mt and 7.25 Mt, respectively. Nalinmiao No. 2 installed a second FM LW face in the No. 6 Seam in early 2011, which, combined with the existing LW face in the No. 4 Seam, should provide adequate capacity to attain output projections. Nalinmiao No. 1 has conditions similar to those in Nalinmiao No. 2, which should support attainment of its projections. Nalinmiao No. 1's underground produced tonnage in 2013 and 2014 is consistent with thinner seam conditions. Hongjingta No. 1 is anticipated to improve its capabilities in 2012 after the installation of a new high profile (6.3 meter) FM LW face in late 2011. Improved mining conditions are anticipated at Yangwangou Mine. Output projections for Nalinmiao No. 2, Hongjingta No. 1 and Suancigou mines significantly exceed current production certificate output levels.

Fuhua and Kaida output projections assume recovery of LW faces in shallow cover zones. Based on our estimates, Kaida and Fuhua output may be impacted due to projected mining in areas having shallow cover. Yitai maintains that LW mining operations are viable in shallow cover areas (less than 40 m of competent overburden). History of shallow cover mining in the Yitai mines is limited, although Yitai has in several instances operated on sustained basis in shallow cover areas.

LW mining located beneath less than 40 m of cover may be problematic. LW face operation may be compromised because of the instability caused by excessive water infiltration and incompetent roof (extensive strata fracturing) likely to occur under shallow depths of cover. Pressure on the LW shields can be abnormally high because the shields are supporting the entire overburden load rather than the immediate roof below the main roof. We have adjusted our mine plan projections and reserve estimates accordingly to exclude areas with less than 40 m of overburden depth due to the unpredictability of roof strata behaviour. While low cover areas occur in virtually all of the Yitai operations, we expect this to have a larger impact on the Kaida and Fuhua mining operations through the forecasts period of 2012–2014. While we recognize that Yitai has, in several instances, successfully mined in areas with less than 40 m of overburden depth, the stability of the roof strata in lower overburden zones is difficult to assess until LW face development mining has been completed. Accordingly, the 40 m overburden guideline provides a margin of safety for planning and resource analysis.

Yitai has indicated that additional output may be generated as needed by open pit mining and room and pillar mining of shallow seam zones unsuitable for FM LW mining to meet the output forecasts. Yitai has demonstrated its capability to recover coal resources in shallow cover areas using these methods. These coal resources are not addressed in our reserve analysis.

BOYD has reviewed the plans for 2012 — 2014 and the reserve tonnages for the Yitai Group mines. Based on our review, output plans for the mines, are achievable in our opinion although output from open pit and room and pillar mining may be required to supplement LW face output at Dadijing and Dingjiaqu mines. Room and pillar mining methods are deployed on occasion to recover coal resources not suitable for FM LW mining methods. Depletion of FM LW reserves is expected at the Baijialiang Mine in 2012. Of the 0.8 Mt output projected in 2012, 0.31 Mt is generated from room and pillar mining operations and 0.49 Mt from FM LW operations. We project that Dingjiaqu will be transitioning into thinner LW coal reserves in 2013 and LW face output will be affected. Of the 3.0 Mt output projected in 2013, 0.50 Mt is generated from room and pillar mining operations and 2.50 Mt is produced from FM LW operations. In 2014, 2.00 Mt is projected from FM LW operations and 1.00 Mt from room and pillar operations. Dadijing will continue utilizing room and pillar mining operations for a portion of its output. Output projection for 2012 includes 0.90 Mt, generated from room and pillar mining operations. The Dadijing output projections for 2013 and 2014 include 1.0 Mt annually from open pit operations.

Yitai output projections are based on coal processing of the Suancigou production. Product tonnage projections for 2012, 2013 and 2014 are 11.90, 12.75 and 13.60 Mt, respectively. Raw coal sales are planned for the other Yitai mines. Yitai Group mines product output projections are equivalent to the ROM tonnage; CPP processing is not planned at this time although the Group mines could utilize the Zhunge'erzhao CPP, as required.

Yitai and Yitai Group target staffing projections for the period 2012 to 2014 are summarized as follows:

Mine	Personnel			Total
	UG	Surface Coal Processing	Surface Service/Other	
Suancigou	671	129	259	1,059
Nalinmiao No. 2	331	83	129	543
Hongjingta No. 1	270	36	77	383
Nalinmiao No. 1	263	42	53	358
Yangwangou	168	56	78	302
Fuhua	212	6	15	233
Kaida	357	30	31	418
Subtotal — Yitai	2,272	382	642	3,296
Dadijing	629	—	142	771
Baoshan	348	—	111	459
Dingjiaqu	269	16	85	370
Chengyi	219	27	77	323
Baijialiang	213	39	141	393
Subtotal — Yitai Group	1,678	82	556	2,316
Total*	3,950	464	1,198	5,612

* Includes third-party service providers.

Projected target staffing levels are lower compared with 31 December 2011 actual staffing at Yitai mining operations. According to Yitai, higher labor force staffing was maintained through 2011 in order to expedite mine upgrades. Higher staffing levels continue in 1H 2012; according to Yitai, reductions in staffing levels are projected in third quarter 2012.

2.4.2 Capital Spending

Yitai and Yitai Group projected capital spending of RMB655 million in the 2012-2014 period for the 12 active mines is summarized below:

Mine	Projected Capital Expenditures (RMB-millions)			
	2012	2013	2014	Total
Suancigou	32	59	47	138
Nalinmiao No. 2	15	25	6	45
Hongjingta No. 1	32	26	18	76
Nalinmiao No. 1	33	29	26	88
Yangwangou	7	23	7	37
Fuhua	9	1	1	11
Kaida	8	13	3	24
Subtotal — Yitai	136	176	107	419
Dadijing	48	21	16	85
Baoshan	26	14	15	55
Dingjiaqu	23	23	22	68
Chengyi	10	9	8	27
Baijialiang	—	—	—	—
Subtotal — Yitai Group	107	67	61	235
Total	243	243	168	655

Note: Figures may not add due to rounding.

Capital spending by major category as follows:

Category	Projected Capital Expenditures (RMB millions)			
	2012	2013	2014	Total
Surface Infrastructure	1	1	2	4
Mine Openings and Roadway Development	—	43	36	79
Mining, Monitoring and Misc. Equipment and Rebuilds	237	181	123	541
CPP	4	16	6	26
Other	2	2	2	5
Yitai and Yitai Group Total	243	243	168	655

Note: Figures may not add due to rounding.

Sustaining capital based on projected raw coal output averages RMB4 per raw tonne of output. In our opinion, this level of sustaining capital at the lowest end of the range required to support the projected output. However, significant mine development expenses that would be considered capital expenditures are included in operating costs. The lower sustaining capital projections are also consistent with the limited service life at several mine. Sustaining capital needs for Suancigou are also limited owing to the mine's recent construction status.

Yitai's capital spending for mine development is projected to decline from recent levels in which the mines were re-capitalized in the transition to modern methods of FM LW mining. Operating mines generally have adequate equipment and infrastructure (including shafts, inclines, belt conveyor systems, electrical systems, pumping systems, etc.) necessary to support projected output levels. Additional openings (shafts, inclines) or extensions of openings may be required for ventilation or to access seams lower in the geologic sequence. However, civil works at the mines typically make up a small component of the total capital spending. Additionally, the operating depths at the Yitai mines are relatively shallow and, therefore, require relatively less spending for coal seam access.

2.4.3 Operating Costs

Yitai and Yitai Group operating cost projections for 2012 — 2014 are summarized as follows:

Mine	Projected Operating Costs** (RMB/ROM tonne)		
	2012	2013	2014
Suancigou	105	108	110
Nalinmiao No. 2*	94	95	96
Hongjinta No. 1*	67	66	68
Nalinmiao No. 1*	56	57	60
Yangwangou	140	146	151
Fuhua	86	90	93
Kaida*	126	129	135
Yitai Average***	88	94	98

	Projected Operating Costs** (RMB/ROM tonne)		
	2012	2013	2014
Dadijing*	105	109	112
Baoshan	86	87	89
Dingjiaqu	68	70	72
Chengyi	126	127	130
Baijialiang	76	—	—
Yitai Group Average****	91	96	100

* Projected open pit mining will impact overall mine costs in 2013 and 2014.

** FM LW mining costs, based on Yitai projections.

*** Yitai's average costs with open pit mining operations included are projected at RMB93 and RMB97 per ROM tonne in 2013 and 2014, respectively.

**** Yitai Group's average cost with open pit mining operations included are projected at RMB94 and RMB97 per ROM tonne in 2013 and 2014, respectively.

Mine operating cost projections include Labor and Benefits, Materials, Supplies, Power, Water, Maintenance, Engineering, Development Expense, Exploration, Face Moves, Village Moves, Resource Fees, Coal Management Fees, and Administration. Management/overhead employees are accounted for in Yitai overhead costs. Operating cost projections do not include CPP costs or reflect processing yield impacts.

Projected mine operating costs are reasonable based on our experience and the advanced stage of mine capitalization for the Yitai operations. Higher production volumes projected at the Yitai operation result in lower unit costs (RMB/tonne) than projected at the Yitai Group operations. Based on our review, Yitai and Yitai Group mines are anticipated to maintain their low operating cost status relative to the Chinese coal industry.

Yitai and Yitai Group mines low operating costs result from:

- Favorable geologic conditions
- Efficient mine staffing
- Successful implementation of effective FM LW faces and higher capacity infrastructure

2.4.4 Greenfield Mines

Yitai presently holds exploration rights for two proposed greenfield operations: Talahao and Bulamao. Physical mining conditions at Talahao are expected to be similar to the high capacity Yitai operations. A large reserve base should enable Talahao to achieve high levels of output (6.0 Mtpa) from the planned LW installation over a long service life. Initial LW face operation is projected by Yitai in second half 2013, with output of 3.0 Mt in 2013 and 6.0 Mt in 2014.

There are two options under consideration by Yitai for mining Bulamao West and possibly Bulamao East.

- Yitai's Kaida Mine is adjacent to and west of the Bulamao West subarea and will likely be used as the permanent access to Bulamao West (Kaida Access Option). However this option has not yet been approved by the regulatory authorities.
- Alternatively, each subarea has been studied and evaluated for mining operations, with independent openings developed from the Hollow (Independent Access Option). The relevant PDR was provided to BOYD for review.

Our review encompasses both options. Yitai would prefer the Kaida Access Option. We view the Kaida Access Option as a practical solution that will minimize capital cost and allow extraction of Bulamao West reserves through an established mine infrastructure with an accelerated mine development schedule.

Mining conditions in the Bulamao subareas are not as favorable as Talahao, as reflected in its design production capacity of 1.2 Mtpa. Significant areas of coal resources underlie areas where the overlying competent rock cover is less than 40 m. As a result, only the Nos. 6-2 and 6-2L seams are likely to be mineable in Bulamao East, while the Nos. 6-2U and 6-2 are mineable in Bulamao West.

LW mining under less than 40 m of competent rock cover is problematic based on PRC geotechnical studies and general mining experience. LW face operation may be compromised because of the instability caused by excessive water infiltration and incompetent roof (extensive strata fracturing) likely to occur under shallow depths of cover. Pressure on the LW shields can be abnormally high because the shields are supporting the entire overburden load rather than the immediate roof below the main roof. As discussed elsewhere, we have adjusted our mine plan projections and reserve estimates to exclude areas overlain by less than 40 m of competent rock overburden. Yitai is cognizant of this factor, based on reported plans providing for extraction of Bulamao West reserves from the adjacent Kaida Mine.

The 2013-2014 ROM coal output is projected by Yitai at 1.6 Mtpa, for the Kaida Access Option. The Independent Access Option output projection is 1.2 Mtpa from both subareas combined.

Staffing estimates for each complex at full production are summarized as follows:

<u>Category</u>	<u>Employees</u>	
	<u>Talahao</u>	<u>Bulamao*</u>
Underground Production	480	258
Surface	65	66
Administration and Tech Staff	51	20
Service and Support	21	40
Other	11	—
<u>Total</u>	628	384

* Bulamao Independent Access Option.

Temporary workers are not planned to be utilized at either operation. Underground labor productivity is projected at 12,500 raw tonnes/employee-year at Talahao. This level of performance should be achievable according to Yitai's experience in Nalinmiao No. 2 and Hongjingta No. 1 mines, which also operate in thick coal seams having highly favorable mining conditions. Underground labor productivity for the Bulamao Independent Access Option is projected at 4,650 raw tonnes/employee-year. Staffing levels projected for Bulamao appear understated based on our experience and actual staffing at established Yitai operations. Bulamao Independent Access Option staffing has not been provided.

Yitai's construction plans indicate a construction schedule of 13 months at Talahao. Yitai's Talahao construction, as reviewed by BOYD, is aggressive; the schedule of the mine development and operation cannot be confirmed because of the uncertainty of the schedule for acquiring mining right approval. To expedite the construction schedule, the Company has commenced site preparation and surface structure construction work in advance of obtaining the mining right certificate. In order to accelerate the mine construction schedule, Yitai plans to develop the 2-2U Seam for LW mining in parallel with extending the access inclines to the 3-1 Seam.

Although final mining plans for Bulamao have not been approved, main roadways have been developed from Kaida into Bulamao West and the initial LW Face has been developed. Surface facilities to support mining activities for the preferred Kaida Access Option are also completed. Yitai output projections assume that Bulamao West mining begins within the first half of 2013. The 2013 Bulamao output projection cannot be confirmed, considering the uncertainty of approval. Presently there is no production schedule for The Bulamao Independent Access Option.

Capital expenditure projections for Talahao and Bulamao Independent Access Option are as follows:

Category	RMB (millions)	
	Talahao	Bulamao
Mine Openings/Roadway	305	62
Civil Construction	197	73
Mine Related Equipment	467	76
Other Equipment	21	48
Office Facilities	122	—
Installation	87	27
Construction Loan Interest	48	—
Working Capital	28	2
Contingency	115	23
Land Acquisition/Moving Fee	—	2
Other	296	10
Total	1,685	324

Note: Figures may not add due to rounding.

BOYD considers the planned level of capital spending to be adequate for both operations, compared to our PRC coal industry experience. Capital expenditures for the Kaida Access Option have not been provided.

Projected PDR operating costs, based on the design output capacities, are summarized below for each mine:

	Talahao	Bulamao**
Output Raw Tonnes (millions)	6.0	1.2
Category	Operating Cost (RMB/ROM tonne)	
Operating Supplies, Material Usage, and Repairs	17	30
Power and Fuel	6	5
Salary and Welfare	5	17
Subsidence	1	4
Production Maintenance Fee	4	10
Other	50	58
Subtotal	83	124
Depreciation	11	13
Amortization	6	2
Total Operating Cost	101*	139

* Construction loan interest inclusive.

** Bulamao Independent Access Option.

Note: Figures may not add due to rounding.

The PDR cost format follows standard Chinese cost estimation and reporting practices. Projected costs for Talahao and Bulamao are in general agreement with experience at established Yitai operations that have transitioned to FM LW mining. Higher operating costs at Bulamao reflect mining in thinner coal seams and lower productivity. Bulamao's operating cost for salary and welfare would be anticipated to be higher owing to expected higher staffing requirements.

Yitai's operating cost projections for Talahao and Bulamao Kaida Access Option are as follows:

Cost Category	Projected Operating Costs			
	Talahao		Bulamao	
	2013	2014	2013	2014
	(RMB/ROM Tonne)			
Cash Costs*				
Salary and Welfare	2	5	9	9
Materials, Supplies	6	6	—	—
Maintenance	1	3	7	7
Power/Fuel	3	3	4	4
Coal Washing	—	—	—	—
Production Fees	49	48	51	53
Subtotal — Cash Costs	61	66	70	72
Non-Cash Cost				
Depreciation	10	8	3	4
Subtotal — Non-Cash Costs	10	8	3	4
Total Operating Cost	71	74	73	76

* The cost projections do not reflect coal washing costs if required.

Note: Unit operating cost figures may not add due to rounding.

Operating cost projections appear reasonable based on the performance of the existing Yitai and Yitai Group mines.

2.5 COAL PREPARATION PLANTS (CPPs)

The extent and degree of coal processing varies according to the presence of in-seam partings. The in situ quality of the coal seams is generally favorable (low in ash content) and coal processing is only required to remove partings and extraneous rock. Coals in the principal mining right areas make well accepted steam coal products. The principal markets for Yitai output are the thermal coal market for power generation and industrial markets.

Presently, Yitai has four CPPs under various stages of construction, design, and implementation, as follows:

Preparation Facility (CPP)	Planned ROM Processing Capacity (Mtpa)	Product Shipping Mode	Level of Coal Processing	Plant Feed Rate (ROM tph)	Construction Status	Capital Spending (RMB-millions)	Staffing
Suancigou	16.0	Rail	Cr-Screen-PW (+13 mm)	3,030	Operating*	228	161
Zhunge'erzhao	10.0	Rail	Cr-Screen-PW (+13 mm)	1,890	Operating**	512	152
Talahao	6.0	Rail	Cr-Screen-PW (+13 mm)	1,140	Proposed	377	160***
Kaida	6.0	Truck	Cr-Screen-PW (+13 mm)	1,140	Proposed	372	155***

Cr — Crushing
Screen — Screening
FW — Full Washing
PW — Partial Washing

* Phase II (12.0 Mtpa) was completed in 2010 and Phase III (16.0 Mtpa) will be completed as needed for 2013 processing requirements.

** CPP test run started in June 2010.

*** Projected.

The existing Suancigou CPP (12.0 Mtpa capacity), located at the mine's industrial site, was a jig-equipped plant that began operation in 2008 in Phase I of its construction. The construction of Phase II using dense media vessel and cyclone circuits was completed with capacity expanded to 12.0 Mtpa; initial operation began in February 2010. The CPP has completed the third phase of civil construction for expansion of processing capacity and modification of processing circuitry to provide 16 Mtpa plant processing capacity (total processing capacity for the three phases of construction) using dense media vessel and cyclone circuits.

The processing equipment for the third phase has not been purchased as yet as mine output in 2012 is projected to be 12 Mt and the Phase III processing capacity will not be needed in 2012. As mine output expands in 2013 and beyond, the full 16 Mtpa capacity will be needed.

Zhunge'erzhao CPP is designed to wash coal from Yitai and Yitai Group mines and additional coal purchased from third-party local coal mines. These operations are smaller, less productive mines operating in thinner coal seams that require additional blending, material handling, and washing capabilities. Accordingly, the CPP circuitry is more elaborate than the Suancigou expansion or the proposed Talahao and Kaida CPPs, which serve only their highly productive mining operations. The Zhunge'erzhao CPP can fully utilize the existing Yitai railway and truck transportation system.

ROM material at the four CPPs is initially screened to plus/minus 200 mm for large rock removal. Remaining material is crushed to minus 200 mm. Coal is screened and sized at 13-mm, with the plus 13-mm coal conveyed to the coarse circuit in the CPPs for washing in dense media vessels. The minus 13-mm material is either bypassed to product or processed in the two-product dense media cyclone circuit, depending on ash content and market requirements.

2.6 COAL TRANSPORTATION

2.6.1 Railway Assets

Yitai currently operates approximately 398 km of railway organized along a corridor that will ultimately provide a more direct route to potential consumers located in eastern China and to east coast exporting ports. Yitai railways provide the first east-west rail link between the Ordos (Dongsheng) and Zhunge'er coalfields, minimizing transportation times and increasing efficiency. As rail connections improve with the National Railway (NRC) as well as third-party railways, the market region for Dongsheng-produced coals is expected to expand. Primary Yitai rail assets are: Inner Mongolia Yitai Zhundong Railway Co. Ltd. (Zhundong) and Huzhun Railway. Additionally, a 27 km branch line, servicing Suancigou Mine, has access to the Zhundong railway branch at Zhunge'er.

Current and future capacities for each railway/branch are as follows:

Railway/Branch	Carry Capacity (Mtpa)		
	2012	2015	2020
Zhundong*	64	83	150
Huzhun*	39	88	128
Suancigou.	20	20	20

* Carrying capacities shown reflect the capacities of the double track segments.

We have reviewed supporting data provided by Yitai regarding projected carrying capacity of The Company's railways. Yitai carrying capacity estimates are based on studies prepared by China Railway First Survey & Design Institute. While we have not performed a detailed review of the underlying analyses and assumptions contained in those studies, it is our opinion that Yitai's projected carrying capacity is in line with the China Railway's conclusions.

The integrated railway network owned by Yitai connects its mines with the national rail transportation system, which provides Yitai with competitive advantages in securing allocation of coal transportation capacity in the national railway system and facilitating its coal sales to the major customers in China's developed coastal regions. The Yitai rail network also minimizes its transportation costs.

2.6.2 Coal Loadout Stations

Facilitating rail movement of Yitai-produced coals, Yitai controls ten operating coal loadout stations which provide rail access for Yitai and third-party-produced coals. Suancigou and Zhunge'erzhao stations utilize loop tracks with batch loading capabilities. The Tanggongta Station has a linear track with coal loaded using an in-line batch loading arrangement. The remaining loadout stations have linear track arrangements with end-loaders used for coal loading.

Yitai plans to construct six additional coal-to-rail loadout stations. Talahao Station will provide dedicated rail service for coal distribution from the company's planned Talahao Mine. Hongqinghe and Wulongsu loadout stations are planned to access the Ordos South and Zhunshuo railways, respectively. Yitai has not provided detailed information for the loadout stations; however, it is expected Talahao's capacity will be similar to that of the proposed mine (6 Mtpa). Neither of these railways are expected to be operational before 2012. Yitai has estimated future throughput for their loadout stations to reach 57.3 million tonnes by 2012.

2.7 ENVIRONMENTAL OVERVIEW

BOYD has determined that Yitai and Yitai Group have implemented appropriate environmental protection measures in response to national environmental protection laws. Generally, the company's environmental protection work is comparable to similar mining enterprises elsewhere in the PRC. Based on our site visits, BOYD opines that environmental protection practices at Yitai and Yitai Group's mining operations operate adequately. While the particulars of current environmental practices may need to be upgraded at some mines, there do not appear to be environmental constraints to future coal mining operations. In our opinion, in meeting the relevant requirements as required by national laws, the environmental protection practices of Yitai and Yitai Group comply with the PRC and World Bank's requirements for environmental protection related to coal mining activities.

3.0 GEOLOGY AND RESOURCES

3.1 GEOLOGY

On a global basis, the geological setting or nature of the coal deposits controlled by Yitai and Yitai Group is judged to range from simple to moderate (i.e., not geologically complex).

3.1.1 Dongsheng Coalfield

The Dongsheng Coalfield is the northern part of the Shenfu Dongsheng Coalfield, one of the largest coal-producing fields in the world and the largest coalfield in China, which is situated on the boundary of Yulin Prefecture, Shaanxi Province, and the southern part of Ordos City administrative area in Inner Mongolia. Yitai Group mines and Yitai mines (other than Suancigou and Yangwangou mines) are located in this coalfield. The area is part of the Early and Middle Jurassic coal-bearing Ordos Basin and formed as a successive basin on the platform.

Most of the coalfield is covered by unconsolidated and poorly consolidated Quaternary and Tertiary alluvial and loess deposits ranging up to 90 m in thickness, and exposures of the Jurassic stratigraphy are limited to valleys where the alluvium has been eroded. The coal-bearing strata occur in the Middle and Lower Jurassic-age Yan'an Formation, containing coal seams Nos. 2 through 7. There are several principal coal seams that are uniform in occurrence generally 3 to 6 m thick and other secondary seams that range in thickness from 1 to 3 m.

Depth of cover ranges from the seam subcrop to up to 200 m. There are burned areas along seam outcrops in the valleys where the seams caught fire and baked the overlying rock strata to a reddish orange color. Drill hole data have shown that some burned areas extend to over 40 m of cover; however, most of the burned areas cover a narrow band along the seam outcrops. In some areas, the thickness of consolidated rock above the seams has been eroded to less than 40 m. This occurs in valleys and also in areas where the Jurassic strata is overlain by thick alluvium and loess. Generally, the structure of the strata is a gentle monocline, with a southwest dip ranging from 1 to 5 degrees, and faulting is not common. The seams have low methane content and are subject to spontaneous combustion. The coals in the Yan'an Formation are characterized by high calorific value, non-caking coal (low bituminous rank), with high volatile and low sulfur content. Calorific value varies with moisture and ash content but is typically 5,500 to 6,000 Kcal/kg as-received basis.

3.1.2 Zhunge'er Coalfield

The Zhunge'er Coalfield is located in Inner Mongolia, along the northeast portion of the Ordos Table Syncline. Two of the Yitai mines, Suancigou and Yangwangou, are located in this coalfield.

The coal-bearing strata are contained in two formations, with multiple coal seams Nos. 1 through 10 in stratigraphically descending order. The upper seams (Nos. 1 through 5) occur within the Lower Permian Shanxi Formation, and the lower seams (Nos. 6 through 10) occur within the underlying Upper Carboniferous Taiyuan Formation.

The cessation of coal deposition marks the top of the Taiyuan Formation, which is overlain by Permian-aged strata. After deposition of the Permian strata, the area was uplifted and eroded. In some areas, all Permian strata have been completely eroded as well as portions of the underlying coal-bearing strata. Shallow coal was oxidized during this period. Localized areas of oxidized coal as documented by closely spaced drilling will be encountered during mining and are expected to cause short-term disruption of mining and coal processing.

Subsidence of the area ended the erosional period, and Jurassic-aged strata were then unconformably deposited over the Permian and Carboniferous strata. The Jurassic strata are unconformably overlain over most of the area by unconsolidated and poorly consolidated Quaternary and Tertiary deposits, ranging from 0 to 50 m typically and up to 130 m at maximum in thickness. This stratum has been eroded to form the present typical rugged topography.

Depth of cover (overburden) to the principal coal seams ranges from 50 to 550 m. Generally, the structure of the strata is a gentle monocline, with a west dip from 5 to 10 degrees in the basin. Faulting is common and sink holes have been documented.

Coal quality is high-volatile C bituminous rank with low sulfur content. Calorific value ranges from 4,700 to 5,100 Kcal/kg on an as-received basis.

3.2 RESOURCE SOURCE DATA

In September 2009, February 2011 and February 2012, BOYD geologists and engineers met with Yitai's technical personnel. During these meetings Yitai made presentations of the geology, coal resources, and mine plans for each mining and exploration right area. Yitai provided BOYD with detailed geologic reports and mine feasibility studies. In addition, BOYD mining engineers visited all active mines. During the mine site visits, discussions with mine managers and personnel were conducted concerning coal resources.

In order to prepare an independent assessment of the coal resources, Yitai and Yitai Group provided with the following data:

1. Geologic reports.
2. Geologic data, including tables containing drill hole data and logs and coal quality analyses.
3. Resource tables and maps for each seam.
4. Other data, including hydrologic drilling and mapping, geophysical logs, etc.
5. Feasibility Study Reports and Preliminary Design Reports.

The geologic reports for mining and exploration right areas contained the following:

1. Location and Geography.
2. Regional Geologic, Mine Geology, Coal Seam Geology.
3. Coal Quality.
4. Hydrology.

5. Engineering Geology.
6. Environmental Geology.
7. Exploration Status.
8. Resource Assessment.
9. Resource Calculations.

The reports also included various supporting maps, sections, and figures.

Feasibility Study Reports and Preliminary Design Reports cover general mine design aspects, including geology, resource/reserve data, mine development, initial LW face layout, equipment, ventilation, safety, coal preparation, underground and surface facilities, environmental protection, economic issues (projected capital expenditures, costs, and profits), etc.

These reports also included the following information:

1. Maps showing mining barriers that define the mining districts within each area;
2. Mine plans showing main development roadways, gate roads, and initial LW faces;
3. Maps showing the layout of surface facilities; and
4. Other design maps.

The resource and mine feasibility maps provided by Yitai show drill hole and mine measurement locations, seam thickness and structure, faults, geologic and hydrologic features, mining rights limits, barrier areas, and surface features. Resource polygons were shown with polygon identification number, area, seam thickness, dip, and in-place tonnage data.

The number of drill holes and mine measurements defining the coal resources are shown on the following table:

<u>Mine Area</u>	<u>Drill Holes</u>	<u>Mine Measurements</u>
Suancigou	107	—
Nalinmiao No. 2	24	66
Hongjingta No. 1	30	92
Nalinmiao No. 1	19	92
Yangwangou	7	3
Fuhua	18	14
Kaida	22	33
Talahao	131	—
Bulamao (East)	37	—
Bulamao (West)	26	—
Dadijing	42	97
Baoshan	21	12
Dingjiaqu	26	13
Chengyi	15	25
Baijjialiang	3	16

The geologic teams prepared in-place coal resource tonnage estimates for each seam, by each resource area, according to standards established by the PRC Government for this coal classification and grade. Under applicable thermal coal standards, all underground mineable seams greater than 0.8 m in thickness are included in the resource estimates. In accordance with PRC Government resource estimation protocol, geologists used a polygon method to define individual area subdivisions used to calculate in-place resources. A detailed accounting of all in-place coal tonnage is maintained to track exploitation of a strategic national asset and provide a basis for mining right fee determination.

Polygon tables corresponding to the resource maps include polygon identification, polygon area, average thickness, in-place tonnes, and hole references used to determine seam thickness tonnage calculation.

We reviewed the in-place resource estimates prepared by the respective exploration teams and found that the estimates were reasonable, prepared in accordance with PRC Government standards, and supported by available source exploration data. However, it is important to understand that these estimates represent an inventory of coal occurrence, as required by the PRC, and include significant tonnage that is judged by both BOYD and the Chinese mine design groups to be not economically mineable. This non-economically mineable tonnage includes thin, erratic, and high sulfur seams that will not be recovered; areas under villages, roads, railroads, and industrial areas that will not be moved; and coal to be left in barriers along property boundaries and in mine facility and roadway areas.

By assignment, resource and reserve estimates prepared in this report are compliant with the Australasian Code for Reporting of Mineral Resources and Ore Reserves, also known as the JORC Code. In the JORC Code, resources should only include portions of the deposit that have reasonable prospects for eventual economic extraction and should not include inventory coal.

Since the in-place estimates prepared by the exploration teams contain significant uneconomic inventory coal, they are not JORC compliant and could not be used for purposes of this report. Therefore, BOYD prepared new estimates for the specified resource areas.

3.3 RESOURCE CLASSIFICATION

In reporting resources for the valuation of mining properties, most international classification systems recognize two major factors that must be considered, namely:

- Geologic assurance of existence.
- Economic viability.

All systems require that the degree of geological assurance of existence be separated into various categories based on the spacing of points of observation (drill holes, mine measurements, and outcrop measurements). Economic viability of resources is usually reported in economic and subeconomic categories. The terms Resource and Reserve are commonly used in the reporting of coal tonnage, but the usage or definition applied to these terms can vary.

Estimates of coal resources and reserves in this report have been prepared in accordance with the JORC Code. Relevant JORC Code definitions are found in the Glossary and Definitions section.

Coal resources in this report represent only coal occurrence that has reasonable prospects for eventual economic extraction. The classification of coal resources and reserves is based on the spacing of observation points (drill holes and mine measurements) that define coal occurrence and quality. In assigning resource classification, both structural and depositional complexity were evaluated on order to determine the appropriate observation point spacing to define Measured, Indicated and Inferred Coal Resources.

In this report, the spacing between points of observation used to define resources are as follows:

<u>Category</u>	<u>Spacing</u>
Measured	500m-750m
Indicated	1,000m-1,500m
Inferred	2,000m

The 750-m spacing for Measured and the 1,500-m spacing for Indicated were used for seams that demonstrated unique uniform occurrence. Projections of resources in any category beyond any point of observation do not exceed one-half of the defined spacing. We have assigned these spacing criteria based on our independent assessment of the site-specific geologic conditions at each mine. We believe the points of observation spacings used in this report are appropriate and provide the required level of geological assurance.

In assessing economic viability, BOYD has reviewed historical cost data and future projections as provided by Yitai for the current active Yitai and Yitai Group mines. The Yitai and Yitai Group mines have demonstrated economic viability in the historical review period; that is, the mines have shown significant positive operating margins during the review period. We have also reviewed future projections as provided by Yitai for current active Yitai and Yitai Group mines, completed LOM plans based on Yitai's future projections and conducted extensive discussions with Yitai management. Our review indicates that the current active Yitai and Yitai Group mines will continue to generate significant positive operating margins at present coal prices on the basis that the reserves projected for mining are similar in depositional characteristics as the reserves currently mined. We also reviewed the projections for the mines under construction, Talahao and Bulamao, and found that on the basis of the present performance of the Yitai and Yitai Group mines, Talahao and Bulamao will generate significant positive operating margins at present coal prices. Yitai and Yitai Group economic projections are discussed in their respective sections of this report.

3.4 ESTIMATION METHODS

We have prepared resource and reserve estimates for the 12 mining right areas and 2 exploration right areas controlled by Yitai and Yitai Group. BOYD developed criteria to assess the economic viability of each seam resource area based on:

1. Mine plan feasibility studies.
2. Current mining economics.
3. Seam thickness and areal extent.
4. Geological considerations.

We reviewed mine plans, costs, and other data and developed economic analyses and life-of-mine plans to evaluate the coal resources. A minimum seam thickness (coal and parting) limit ranging from 1.0 to 1.8 m has been used in our mapping, reflecting the practical operating height limits of the longwall (LW) face equipment proposed for the areas. Using these criteria, many of the thin seams (inventory coal) estimated in the team's geologic reports were excluded from our resource estimates. Areas where there were less than 40 m of competent roof strata between the coal seam and overlying alluvium were evaluated according to Yitai's site specific experience and success in recovering shallow (defined as less than 40 m of competent roof strata) areas.

In-Place Resources were estimated within areas defined by various barriers shown on maps from the mining feasibility studies. These maps showed the main roadway development and potential LW face areas. The LW face areas are defined by barriers for the main roadways; villages, industrial areas, roads, and railroads that would not be moved; unmined coal barriers to be left adjacent to property boundaries; and underlying mine facilities. In-Place Resources were estimated within each area that could be economically accessed from the main roadways. The resource maps from the geologic studies combined with barriers from the feasibility studies were used as a basis in preparing our estimates. In-Place Resources were estimated with each resource area for each seam (coal and partings) using the following coal and parting densities:

<u>Ash % (dry basis)</u>		<u>Specific Gravity (g/cm³)</u>
	Dongsheng Coalfield	
6 to 8		1.30
8 to 10		1.32
10 to 14		1.34
	Zhunge'er Coalfield	
22 to 24		1.47
24 to 26		1.49
26 to 28		1.50
Partings		2.10

To develop estimates of Recoverable and Marketable Reserves, BOYD developed a life-of-mine plan for each mineable seam in each area showing the main roadways and LW faces. Recoverable Reserves include the as-mined coal, including in-seam partings, mining dilution, and moisture gain. Marketable Reserves represent the final product after coal washing or screening.

BOYD used various criteria shown below to estimate Recoverable and Marketable Reserves:

1. Vertical Seam Recovery.
2. Geologic Recovery.
3. Mining Dilution.
4. Mining Moisture Gain.
5. Preparation Plant Yield and Moisture Gain.

3.4.1 Vertical Seam Recovery

Coal extraction is performed primarily using FM LW and sublevel caving LW mining methods. For mines using lower profile equipment in thin seams, minimum cutting height is 1.0 m, with a maximum height ranging from 2.5 to 2.8 m. In thicker seams where higher profile equipment is used, a 1.5 to 1.8 m minimum and 6.0 m maximum thickness is recovered. In the thick seams in the Zhunge'er Coalfield a LW face with cutting height up to 4.0 meters and sublevel caving capabilities is utilized. It is assumed that 100% of the initial LW cut is recovered and 75% of the overlying coal up to 12 m thick is recovered, for a combined maximum vertical recovery of 16 m. Only coal that could be recovered within the maximum cutting height of the mining equipment was included in the reserve estimates. Seam thickness by mine and seam is as follows:

Control Type & Mine	Seam	Thickness (m)		
		Coal	Parting	Seam
Inner Mongolia Yitai Coal Company				
Mining Rights				
Suancigou	4	3.3	0.9	4.2
	5	2.6	0.5	3.1
	6U	11.5	1.2	12.7
	6	5.4	0.8	6.2
Nalinmiao No. 2	4-1	4.3	0.4	4.7
	4-2	2.1	0.3	2.4
	6-2	6.4	—	6.4
Hongjingta No. 1	6-2U	2.3	0.1	2.4
	6-2	5.4	0.3	5.7
Nalinmiao No. 1	6-2U	1.9	—	1.9
	6-2	5.8	0.1	5.9
	6-2L	3.2	—	3.2
Yangwangou	6	9.0	1.8	10.8
	9	2.8	0.1	2.9
Fuhua	6	1.9	0.1	2.0
Kaida	6-2U	2.1	0.2	2.3
	6-2L	1.7	—	1.7
Exploration Rights				
Talahao	2-2U	3.6	0.4	4.0
	3-1	3.0	0.1	3.1
	4-1	2.6	0.1	2.7
	5-1	5.8	—	5.8
	6-1M	1.3	—	1.3
	6-2M	2.3	0.3	2.6
Bulamao (West)	6-2	1.6	—	1.6
	6-2U	2.1	0.3	2.4
Bulamao (East)	6-2	1.8	—	1.8
	6-2L	1.5	—	1.5

Control Type & Mine	Seam	Thickness (m)		
		Coal	Parting	Seam
Inner Mongolia Yitai Group Company				
Dadijing	3-2	3.2	0.2	3.4
	4-2	3.2	0.1	3.3
	5-1	1.5	—	1.5
	5-2	1.7	—	1.7
Baoshan	6	2.7	0.3	3.0
Dingjiaqu	4-2	2.4	0.1	2.5
	5-2	1.3	—	1.3
Chengyi	5	1.7	—	1.7
	6	1.2	—	1.2
Baijialiang	4-2	3.2	—	3.2

3.4.2 Geologic Recovery

Life-of-mine plans were developed to efficiently recover coal within the resource areas. However, geologic factors such as faulting, erratic seam occurrence, thin competent rock thickness, paleochannel occurrence, and other geologic factors result in less than 100% recovery within the mine plan area. The geologic conditions of each area were assessed and a geologic recovery factor was assigned to the mine plan ranging from 75% to 90%. For 12 of 35 seams a 75% factor was assigned; for 10 seams, 80%; for 12 seams, 85%; and for 1 seam, 90%.

3.4.3 Mining Dilution

Mining dilution is the rock contamination from roof and floor rock strata that are mined with the coal seam during the normal mining process. BOYD has estimated mining dilution for all seams at 0.1 m. This factor is based on the seam thickness and planned mining equipment to be utilized in the resource areas. A 2.3 specific gravity density factor is used for calculating mining dilution tonnage.

3.4.4 Moisture Gain

Spray water is commonly used throughout the mining process to control dust liberated during mining and coal handling. A two percentage point gain in raw coal tonnage is assigned to account for moisture gain during mining.

3.4.5 Preparation Plant Yield and Moisture Gain

Yitai currently produces both raw and washed product from its mines. Seams with in-seam partings and higher coal ash content are typically washed in coal preparation plants, while seams with few or no in-seam partings and low coal ash content are screened to remove rock dilution and sold raw.

BOYD's preparation plant yields for reserve determination range from 53% to 73% in the Zhunge'er Coalfield, where the seams contain significant partings and have high coal ash content, and from 72% to 96% in the Dongsheng Coalfield, which has fewer in-seam partings and low coal ash content. These factors include a 95% plant efficiency factor and the following factors:

- 3% of the in-seam parting and mining dilution portions of the as-mined product remain in the washed product (misplaced material during processing).
- 3% moisture gain is applied to the washed coal.

The CPPs are capable of adjusting product qualities based on the requirements of customers or markets.

3.5 Resource/Reserve Estimates

Our estimates prepared in accordance with the JORC Code, of the Measured, Indicated, and Inferred Resources and Proved and Probable Recoverable and Marketable Reserves, as of 31 December 2011 are summarized as follows:

Control Type & Mine	In-Place Resource (Mt)			Recoverable Reserves (Mt)			Processing Yield %	Marketable Reserves (Mt)			% of Reserves	
	Measured	Indicated	Inferred	Total	Proved	Probable		Total	Proved	Probable		Total
Inner Mongolia Yitai Coal Company Limited												
Mining Rights												
Suancigou*	389.91	805.63	—	1,195.54	213.79	446.06	659.85	70	147.60	311.16	458.76	79
Nalinmiao 2	25.15	73.56	2.31	101.02	18.30	53.62	71.92	89	17.72	46.16	63.88	11
Hongjingta 1	43.01	17.16	—	60.17	30.64	9.73	40.37	89	27.68	8.22	35.90	6
Nalinmiao 1	14.45	—	—	14.45	10.10	—	10.10	92	9.26	—	9.26	2
Yangwangou	8.66	—	—	8.66	6.19	—	6.19	93	5.75	—	5.75	1
Fuhua	2.91	1.67	—	4.58	2.28	0.51	2.79	90	2.05	0.45	2.50	—
Kaida	5.97	0.59	—	6.56	4.76	0.39	5.15	81	3.80	0.35	4.15	1
Total	490.06	898.61	2.31	1,390.98	286.06	510.31	796.37		213.86	366.34	580.20	100
Exploration Rights												
Talahao	498.01	249.36	9.58	756.95	417.79	198.20	615.99	89	373.25	176.90	550.15	97
Bulamao (West)	14.44	7.96	1.06	23.46	8.18	5.54	13.72	79	6.42	4.46	10.88	2
Bulamao (East)	8.67	1.74	0.41	10.82	6.03	0.77	6.80	86	5.19	0.68	5.87	1
Total	521.12	259.06	11.05	791.23	432.00	204.51	636.51		384.86	182.04	566.90	100
Total	1,011.18	1,157.67	13.36	2,182.21	718.06	714.82	1,432.88		598.72	548.38	1,147.10	
Inner Mongolia Yitai Group Company Limited												
Mining Rights												
Dajijing	7.45	63.01	—	70.46	6.20	48.04	54.24	95	5.82	45.96	51.78	58
Baoshan**	7.40	17.89	—	25.29	4.37	11.66	16.03	91	3.93	10.62	14.55	17
Dingjiaqu**	11.14	13.00	0.31	24.45	8.73	8.82	17.55	93	8.10	8.19	16.29	19
Chengyi	5.71	2.41	0.37	8.49	3.57	1.53	5.10	95	3.38	1.44	4.82	5
Baijialiang	0.05	0.61	—	0.66	0.04	0.47	0.51	96	0.04	0.45	0.49	1
Total	31.75	96.92	0.68	129.35	22.91	70.52	93.43		21.27	66.66	87.93	100
Total												
Mining Rights	521.81	995.53	2.99	1,520.33	308.97	580.83	889.80		235.13	433.00	668.13	54
Exploration Rights	521.12	259.06	11.05	791.23	432.00	204.51	636.51		384.86	182.04	566.90	46
Total	1,042.93	1,254.59	14.04	2,311.56	740.97	785.34	1,526.31		619.99	615.04	1,235.03	100

* Figures reflect 100% interest; Yitai's equity interest is 52%.

** Figures reflect 100% interest; Yitai Group's equity interest is 73%.

Note: Figures may not add due to rounding.

Of the above 14 mines, approximately 82% of the Marketable Reserves are controlled by Yitai (assuming mining rights are obtained for Talahao and Bulamao) and approximately 46% are in the exploration right areas; 50% of the Marketable Reserves are in the Proved classification.

Yitai has obtained approval for defining the boundaries of the mining right areas for the two mines from the Ministry of Land and Resources. Such approval is essential for obtaining the mining rights. By obtaining the right approval for defining the boundaries of the mining areas for the two mines, the exploration rights are no longer in effect. We have been informed by Jingtian & Gongcheng Attorneys at Law, that Yitai is currently applying for mining right certificates for Talahao Mine and consolidation of Kaida and Bulamao mines. According to the Company, it expects to obtain the mining rights no later than the second half of 2012. We have also been informed by Jingtian & Gongcheng Attorneys at Law, that Yitai will not have to pay the mining right fees to obtain the mining rights since the Company has paid the exploration right fees in full.

Yitai does not yet control the mining rights for the Talahao, Bulamao East, and Bulamao West areas and therefore cannot legally mine the coal. While it is reasonable to assume that Yitai will obtain the mining rights based on the company's past experience and typical procedures in China, there is no guarantee they will be granted. Yitai has presented plans for developing and mining these areas and has paid exploration right fees. Yitai has also provided documentation showing there is a reasonable expectation that the mining rights will be granted.

Tonnage in the northern part of the Talahao Exploration Right area has been included in our estimates. Although development in the area, including villages, industrial structures, and roads, is significant, Yitai and the local government plan to move the villages and other structures at a budget totaling RMB616.6 million. Yitai has provided a mine plan and started to apply for various permissions for mining in this area.

Inferred resources are less than 1% of total in-place resources. Typically, it is reasonable to expect that the majority of Inferred Coal Resources would upgrade to Indicated Coal Resources with additional exploration. However, due to the uncertainty associated with Inferred Coal Resources, it should not be assumed that such upgrading will occur.

3.6 COAL QUALITY

Both the Dongsheng and Zhunge'er coalfields support numerous mining operations and are major suppliers of thermal coal in China. Therefore, coal quality characteristics in both fields are well known and documented.

The coals in the Dongsheng coalfield are characterized by high calorific value non-caking coal (high-volatile C bituminous rank) with low sulfur content. Calorific value varies with moisture and ash content but is typically 5,500 to 6,000 Kcal/kg on an as-received basis including partings and mining dilution.

Raw coal quality excluding partings greater than 0.05 m and mining dilution is reported as follows:

<u>Characteristic</u>	<u>Typical Range</u>
Moisture % (ad)	4 - 9
Ash % (d)	5 - 11
Sulfur % (d)	0.2 - 0.7
Volatile Matter % (daf)	33 - 36
Calorific Value Kcal/kg (gr.d.)	6,500 - 7,500

The coal seams typically contain few in-seam partings, and therefore, some mines can produce an acceptable screened raw product without coal washing.

Coal quality in the Zhunge'er Coalfield is high-volatile C bituminous rank with low sulfur content. Calorific value ranges from 4,700 to 5,100 Kcal/kg on an as-received basis including partings and mining dilution.

Raw coal quality, excluding partings greater than 0.05 m and mining dilution, is reported as follows:

<u>Characteristic</u>	<u>Typical Range</u>
Moisture % (ad)	3 - 5
Ash % (d)	22 - 26
Sulfur % (d)	0.6 - 0.9
Volatile Matter % (daf)	37 - 41
Calorific Value kcal/kg (gr.d.)	5,500 - 6,500

The major coal seam in the coalfield is the No. 6 Seam, which is typically thick (over 10 m) and contains several in-seam partings and impurities. Coal from this coalfield is typically washed at high gravities to remove in-seam partings and impurities and mining dilution.

3.7 MINING AND EXPLORATION RIGHTS

3.7.1 Overview

Coal resources in China are owned by the state as established in the PRC Mineral Resources Law. The Law and related Administrative Measures on the Mineral Resources Production Registration, which governs certain aspects of mineral and coal resources control for exploitation (including the granting of new and the renewal

of existing mining right permits), are administered by the Ministry of Land and Resources (MLR). Exploration right permits, mining right permits, and land use rights are granted by the MLR or relevant local mineral resource bureau before exploration or mining operations can be undertaken in defined mining right areas. Mining right permits are granted for specified periods of time, after which the rights may be extended upon application.

3.7.2 Mining Rights and Coal Production Certificate Review

BOYD has not completed an independent legal evaluation of the status of Yitai and Yitai Group mining and exploration rights, but has reviewed the documentation for the certificates related to its current mining and future operations. It is our understanding that Yitai and Yitai Group hold the mining rights (direct control as authorized by the MLR) on their own behalf or through controlling interests for all the mines. Yitai does not yet control the mining rights for the Talahao, Bulamao East, and Bulamao West areas and therefore cannot legally mine the coal. However, we have included these areas separately in our estimates since Yitai has provided documentation that shows there is a reasonable expectation that the mining rights will be granted. A summary of the mining right information is shown in the following table.

Mining Right Area	Mining Certificate Number	Authorized Output Capacity (Mtpa)	Authorized Mining Elevation (m)	Mining Method	Area (km ²)	Mining Right Grant Date (month/yr)	Expiration (month/yr)
Yitai Mines							
Suancigou (1)	C1000002009121120050702	1.20	860 -1,030	UG*	4.9397	12/2009	12/2033
Suancigou (2)	C1000002009121110050703	12.00	520 -1,060	UG	44.878	12/2009	04/2038
Nalinmiao No. 2	C1500002010071120074300	3.00	1,140 -1,300	UG	20.9631	07/2011	07/2015
Hongjingta No. 1	1000000610111	3.00	1,170 -1,379	UG	28.4145	09/2006	09/2036
Nalinmiao No. 1	C1500002010121120092411	1.20	1,140 -1,250	UG	9.3874	11/2011	11/2019
Yangwangou	C1000002009021120004801	0.60	1,046 -1,159	UG	1.0337	9/2009	6/2015
Fuhua	C1500002010111120079869	0.30	1,100 -1,330	UG	8.5732	6/2011	11/2013
Kaida	C1500002010121120092414	0.60	1,170 -1,225	UG	5.5426	6/2011	6/2013
Talahao	Under Application**	6.00***	—	UG	42.6208	—	—
Bulamao (East & West)	Under Application**	1.20***	—	UG	40.2062	—	—
Yitai Group Mines							
Dadijing	C1500002011061120115049	1.20	1,115 -1,320	UG	11.6013	06/2011	12/2018
Baoshan	C1500002011071120115196	1.20	1,100 -1,300	UG	24.9734	07/2011	12/2018
Dingjiaqu	C1500002011061120115051	1.20	1,120 -1,240	UG	17.3908	06/2011	12/2018
Chengyi	C1500002011061120115048	0.60	1,224 -1,362	UG	5.079	06/2011	12/2013
Baijialiang	C1500002011061120115050	0.30	1,242 -1,308	UG	6.4849	06/2011	10/2013

* UG = Underground

** Yitai has obtained approval for defining the boundaries of the mining right areas for Talahao and Bulamao from the Ministry of Land and Resources. Such approval is essential for obtaining the mining rights. By obtaining the approval for defining the boundaries of the mining right areas for the two mines, the exploration rights are no longer in effect. According to Jingtian & Gongcheng Attorneys at Law, Yitai is currently applying for mining right certificates for Talahao Mine and consolidation of Kaida and Bulamao mines. According to Yitai, the Company expects to obtain the mining rights no later than the second half of 2012. Yitai's payments for the exploration rights will be accepted as full payment for the mining rights.

*** Planned greenfield mines.

In addition to mining right permit, the coal production certificate, which is granted by the coal industry administrative bureaus, is mandated documentation for coal mines legal operation. It is usually the last permit granted and requires mines to maintain their production levels at authorized capacities. Although higher output authorizations can be occasionally granted by regulatory bodies, production certificates should be updated accordingly to prevent operators from breaching regulations. It is our understanding that Yitai and Yitai Group hold the coal production certificates on their behalf of the mines. A summary of the coal production certificate information is shown in below:

<u>Mine</u>	<u>Coal Production Certificate Number</u>	<u>Authorized Output Capacity (Mtpa)</u>	<u>Mining Method</u>	<u>Certificate Grant Date</u>	<u>Expiration Date</u>
Yitai Mines					
Suancigou	201527230413	12.00	FM LW	7/14/2010	6/30/2092
Nalinmiao No. 2	201527230025	5.00	FM LW	9/18/2009	7/31/2026
Hongjingta No. 1	201527230376	6.10	FM LW	9/18/2009	5/12/2023
Nalinmiao No. 1	201527230007	6.40	FM LW	4/15/2010	4/30/2013
Kaida	201527230002	1.60	FM LW	4/15/2010	12/31/2013
Yangwangou	201527230010	1.40	FM LW	4/15/2010	4/30/2016
Fuhua	201527280368	1.30	FM LW	4/15/2010	4/30/2013
Yitai Group Mines					
Dadijing	201527280154	3.00	FM LW	4/15/2010	12/31/2023
Baoshan	201527280369	1.90	FM LW	4/15/2010	12/31/2025
Dingjiaqu	201527280378	2.30	FM LW	4/15/2010	12/31/2023
Chengyi	201527230041	1.20	FM LW	4/15/2010	4/30/2019
Baijialiang	201527280139	1.90	FM LW	4/16/2010	4/30/2017

3.7.3 Mining Rights Permit Renewal

On the basis of documentation provided by Yitai, both Yitai and Yitai Group have valid mining right permits for the present operating mines for the specified periods. By PRC law, the maximum holding period (term) for mining right permits is 30 years. The MLR has the legal authority to renew an existing mining right permit that is expiring. It is typical practice in other major coal-producing nations for governments to extend the term of the mining rights for the economic life of the reserves.

3.7.4 Land Use Rights

Generally, the surface lands in the Yitai and Yitai Group mining right areas belong to the PRC government. For mining right areas where underground mining methods are applied, land use rights are not needed, although the surface area required for the mine's surface facilities does require the payment of land usage fees.

3.7.5 Resource Recovery

PRC laws and regulations governing the mining of coal resources require coal mine operators to attain overall resource recovery rates that may be uneconomical to achieve in practice. Failure to achieve applicable recovery rates as set by the responsible central government ministry in a timely manner can expose a coal producer to penalties such as revocation of the coal mine's production permit. A responsible person, typically the highest ranking geologist/engineer, prepares an annual report to the MLR detailing changes in resources over the year. Based on our discussions with Yitai officials, the coal production units take resource recovery seriously and employ measures to comply with mandated recovery rates, including secondary recovery mining activity in some instances. Yitai's mine plans demonstrate a concern for maximizing resource recovery.

4.0 YITAI MINES

4.1 Introduction

Yitai mines are located in western Inner Mongolia, near the boundary of Shaanxi and Shanxi provinces and within one of China's largest coal-producing regions. Operations in this region are among the largest underground mines in the PRC, and also rank among the world's largest mines.

The Yitai portfolio of mines includes seven operating large and medium-sized underground LW mines that have transitioned to FM state-of-the-art mining operations by combining multiple small, local mining right areas. This practice has become common as the regulatory officials within the PRC seek to maximize reserve recovery by consolidating and modernizing the coal industry. A summary of Yitai operating mines follows:

Mine	Date of Initial Operation	Current Approved Output Capacity (Mtpa)		Estimated* Remaining Reserve Tonnes as of 31 December 2011 (Mt)	Integrated from Local Mines
		By Mining Right Certificate	By Coal Production Certificate		
Suancigou	8/8/2008	12.0	12.0	459	Suancigou, Suancihao, Xiaosuancigou
Nalinmiao No. 2	10/1/2006	3.0	5.0	64	Nalinmiao No. 2, Nalinmiao No. 4, Hongjingta No. 3
Hongjingta No. 1	8/12/2007	3.0	6.1	36	Hongjingta No. 2, Wangjiapo, Hongjingta No. 1
Nalinmiao No. 1	1/1/2008	1.2	6.4	9	Nalinmiao No. 1, Nalinmiao No. 3
Yangwangou	9/24/2009	0.6	1.4	6	Yangwangou
Fuhua	7/1/2008	0.3	1.3	3	Fuhua, Shenshan
Kaida	3/17/2008	0.6	1.6	4	Huayuan, Kaida No. 1

* BOYD estimate of marketable tonnes according to JORC Code classification.

Field observations made during the BOYD site visits indicated the mines are well-capitalized, using FM LW mining systems supported predominantly by roadheader development units. Underground mining conditions are favorable in terms of coal seam continuity and minimal seam gradients, depth of mining is relatively shallow overburden (less than 200 m) with sufficient reserves and mining thickness to facilitate large-scale production. Contract workers to supplement full-time mine personnel are employed on an as-needed basis for development, production and other services.

Yitai operations at the time of our site visits are summarized below:

Mine	BOYD Visit	UG Mining Techniques	No. of LW Faces	Source of LW Face Equipment	Off-Site Coal Transportation Mode
Suancigou	24/08/09 & 19/02/11 & 05/02/12	LW/RH/SC	2	D	R
Nalinmiao No. 2	25/08/09 & 18/02/11 & 03/02/12	LW/RH	2	D	T to RLST
Hongjingta No. 1	25/08/09 & 18/02/11 & 03/02/12	LW/RH	1	D	T to RLST
Nalinmiao No. 1	26/08/09 & 18/02/11 & 04/02/12	LW/RH	1	D	T to RLST
Yangwangou	24/08/09 & 19/02/11 & 05/02/12	LW/RH/SC	1	D	T to RLST
Fuhua	24/08/09 & 17/02/11 & 03/02/12	LW/RH	1	D	T to RLST
Kaida	26/08/09 & 18/02/11 & 04/02/12	LW/RH/SLC	1	D	T to RLST

Note:

SLC = Slicing
LW = Longwall
RH = Roadheader

CM = Continuous Miner
R = Rail
T = Truck

RLST = Rail Loading Station
D = Domestic
SC = Sublevel Caving

4.2 Conclusion

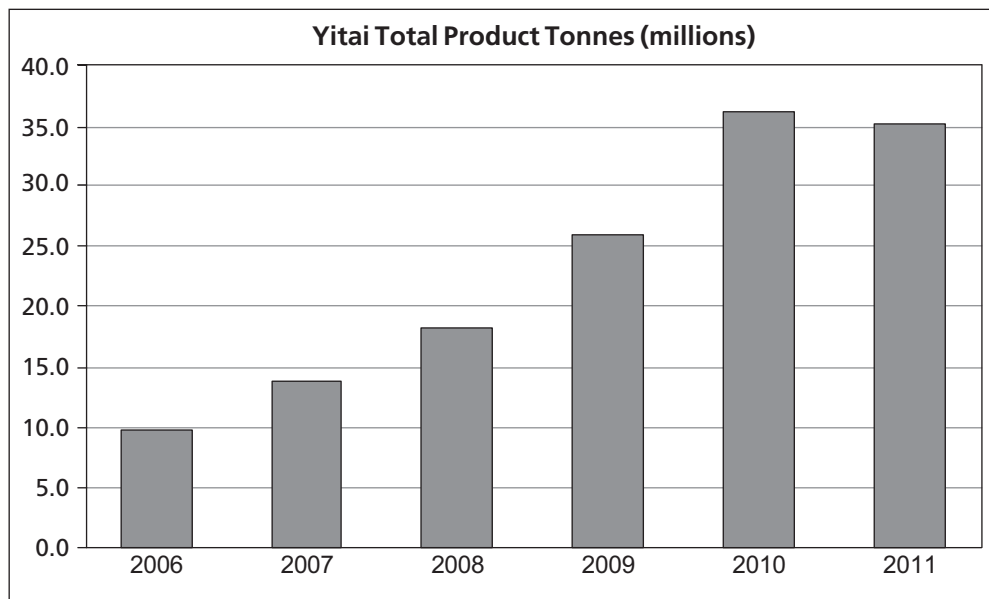
Yitai is a modern, large-scale underground coal producer. Physical mining conditions in the Yitai LW mines are among the best observed by BOYD in the world coal mining industry and are highly favorable for fully-mechanized mining operations using LW, roadheader and CM equipment. Yitai's reserve base offers the potential for highly efficient LW mine designs comparable to those employed at similar highly mechanized mines in the United States and Australia. High levels of output can be anticipated from the existing and planned LW installations. BOYD considers the Yitai mine plans to be appropriate for the geologic and geotechnical settings observed in the current mines and reflect the present understanding of potential mining hazards. Coal quality is favorable for domestic steam markets and is generally low in sulfur content with marketable calorific values.

Yitai's mines are at an advanced stage of capitalization with FM LW faces operating in each mine. There are no evident constraints preventing Yitai from attaining output projections for the 2012–2014 period.

4.3 Historical Production

Yitai's recent historical production figures are shown below:

Mine	Yitai Output - Product Tonnes (millions)											
	2006		2007		2008		2009		2010		2011	
	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW	Drill & Blast	FM LW
	(millions)											
Suancigou	—	—	—	0.58	—	1.46	—	6.36	—	8.18	—	8.38
Nalinmiao No. 2	3.30	—	1.77	4.49	—	6.13	—	6.90	—	8.14	—	8.12
Hongjingta No. 1	3.57	—	2.81	1.65	0.75	5.51	—	7.51	—	8.19	—	7.25
Nalinmiao No. 1	2.05	—	1.23	—	0.14	1.75	—	2.37	—	5.78	—	6.62
Yangwangou	0.06	—	0.25	—	0.40	—	—	0.25	—	1.38	—	0.97
Fuhua	—	—	—	0.04	—	0.62	—	1.21	—	1.33	—	1.37
Kaida	0.75	—	0.92	—	—	1.44	—	1.44	1.17	1.96	0.68	1.70
Subtotal	9.73	—	6.98	6.76	1.29	16.91	—	26.04	1.17	34.96	0.68	34.41
Total		9.73		13.74		18.20		26.04		36.13		35.09



4.4 Employment and Labor Practices

Yitai had 3,936 mine-related, registered employees as of 31 December 2011 summarized as follows:

Category	Mine							Total
	Suancigou	Nalinmiao No.2	Hongjingta No. 1	Nalinmiao No.1	Yangwangou	Fuhua	Kaida	
	As of 31 December 2011							
UG	602	497	360	142	273	231	386	2,491
Surface – Coal								
Processing	—	12	—	55	16	10	40	133
Surface – Service	511	226	128	139	106	95	107	1,312
Total* – 2011	1,113	735	488	336	395	336	533	3,936

* Total includes third-party service providers.

Yitai's approach to staffing follows practices comparable to similar regional producers and is much lower than that of other coalfields within China, which utilize more labor-intensive mining methods. Comparison on the use and numbers of contract employees cannot be made due to varying personnel numbers and lack of documentation both internationally and at Yitai operations. The present personnel complement for the headquarters, management support staff, and auxiliary management production support staff is adequate for the planned scale of operations and expected to remain relatively constant over the plan period.

Yitai provides basic mandatory retirement pension, medical, industrial accident, and unemployment benefits. Other benefits provided include welfare, medical insurance premiums, and allowances for festivals and holidays.

Labor costs on an output basis and as a component of overall production costs are low. Yitai average annual direct underground worker compensation ranges from RMB45,000 to RMB100,000. While high for the PRC coal industry generally, anticipated high labor productivity should compensate for the higher wages.

The company's high compensation structure is necessary within the region to assure recruitment and retention of highly qualified personnel.

Average Salary Structure (31 December 2011) – RMB per year

<u>Mine</u>	<u>UG Face Workers</u>	<u>UG Services</u>	<u>Surface Service</u>
Suancigou	100,000	80,000	40,000
Nalinmiao No. 2	90,000	60,000	40,000
Hongjingta No. 1	80,000	60,000	40,000
Nalinmiao No. 1	60,000	48,000	32,000
Yangwangou	45,000	35,000	25,000
Fuhua	70,000	40,000	35,000
Kaida	60,000	37,500	30,000

It is generally accepted that many underground mines in China rely on workers who are not full-time regular employees. Contract services manning is not readily available. Use of contract services can be significant in some instances. BOYD's labor efficiency calculations include only direct regular payroll employees in order to be readily comparable to other mine labor data. As discussed above, data on support personnel not directly assigned to mine activities are not readily available.

Yitai's labor efficiency (output tonnes divided by payroll personnel count) compares favorably to the international coal industry. Yitai's average labor efficiency for 2011 detailed by mine is as follows:

<u>Mine</u>	<u>2011 Output Tonnes</u> (million)	<u>Employees</u>		<u>Tonnes Per Employee- Year</u>	
		<u>Mine</u>	<u>Underground</u>	<u>Mine</u>	<u>Underground</u>
Suancigou	8.381	1,113	602	7,530	13,920
Nalinmiao No. 2	8.120	735	497	11,050	16,340
Hongjingta No. 1	7.244	488	360	14,850	20,120
Nalinmiao No. 1	6.623	336	142	19,710	46,640
Yangwangou	0.967	395	273	2,450	3,540
Fuhua	1.366	336	231	4,060	5,910
Kaida	2.384	533	386	4,470	6,180
Yitai Total	35.085	3,936	2,491	8,910	14,090

Factors contributing to high labor productivity at Yitai operations are as follows:

1. Yitai mines generally operate in thick seams ranging from 3 to 6 m in coal thickness.
2. Physical mining conditions are generally good and highly favorable for coal production.
3. Yitai has transitioned to state-of-the-art mining equipment, supported by relatively new and high capacity infrastructure.
4. The technology transformation will allow Yitai to utilize staffing practices similar to those employed in US and Australian mines.

5. Mining operations, since transition, are relatively new and have limited an extent of mined-out workings between the production faces and the surface access points. This controls (minimizes) labor support requirements.
6. Run-of-mine coal generally requires minimal processing, with low reject levels.
7. Use of rubber-tired diesel vehicles is a highly effective means of transporting materials and personnel underground. Yangwangou is the only Yitai operation utilizing rail transport.

4.5 Operating Cost

According to information provided by Yitai, average mine operating costs by mine by year are as follows:

Mine	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
Suancigou	—	63	90	64	90	104
Nalinmiao No. 2	44	56	59	57	78	91
Hongjingta No. 1	40	51	46	53	77	65
Nalinmiao No. 1	41	49	55	102	60	54
Yangwangou**	54	62	85	201	108	137
Fuhua	—	27	70	90	91	85
Kaida	42	49	83	95	104	127
Yitai Average	41	54	60	67	81	85

* Average composite costs include a weighted average of drill and blast, with FM output based on data provided by Yitai.

** Yangwangou's 2009 results reflect partial year operation using FM LW face.

Note: Figures may not add due to rounding.

A breakdown of the composite operating costs by general cost category is as follows:

Category	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
Cash Costs						
Materials / Supplies / Maintenance	2	3	7	7	7	7
Power / Fuel	1	1	2	3	3	3
Salary & Welfare	2	9	8	6	8	9
Production Fees	35	37	39	45	57	59
Subtotal – Cash Costs	40	50	56	60	75	78
Non-Cash Costs						
Depreciation	1	3	3	6	7	7
Subtotal – Non-Cash Cost	1	3	3	6	7	7
Total	41	54	60	67	81	85

* Average composite costs include a weighted average of DB with FM output achieved with FM LW face methods.

Note: Figures may not add due to rounding.

Production fees have increased since 2006 due to increases in government-related fees, costs related to the implementation of mechanized LW face operations, and higher overhead and management costs.

The average cash operating costs of most of our operating mines increased from 2009 to 2010 primarily because the Inner Mongolia government required coal enterprises in Inner Mongolia to contribute to a coal price regulation fund that it managed since the second half of 2009. The average cash operating costs for Nalinmiao No.1 Mine and Yangwangou Mine decreased substantially from 2009 to 2010 primarily due to the decrease of the fees for moving from one working face to another. The average cash operating costs of most of our operating mines increased from 2010 to 2011 primarily due to the increase in relocation compensation.

4.6 Future Operations

BOYD's review of future Yitai operations is based on Yitai's internally prepared mine plans and business projection data submittals and discussions with corporate and mine management, financial, and engineering staff. The mine plan period for this review is the three-year period, 2012–2014. Available mine plan forecasts were evaluated for reasonableness according to recent operating history.

4.6.1 Output Projections

Based on nominal output rates, the Yitai mine reserve base is generally adequate for the period 2012–2014. BOYD has not identified significant geological (non-reserve) or mining-related issues during our review that would prevent the Yitai mines from achieving projected raw coal output levels. Yitai has made adjustments to its plans and operations to assure attainment of the output forecasts. The Yitai 2012–2014 production forecasts is summarized below:

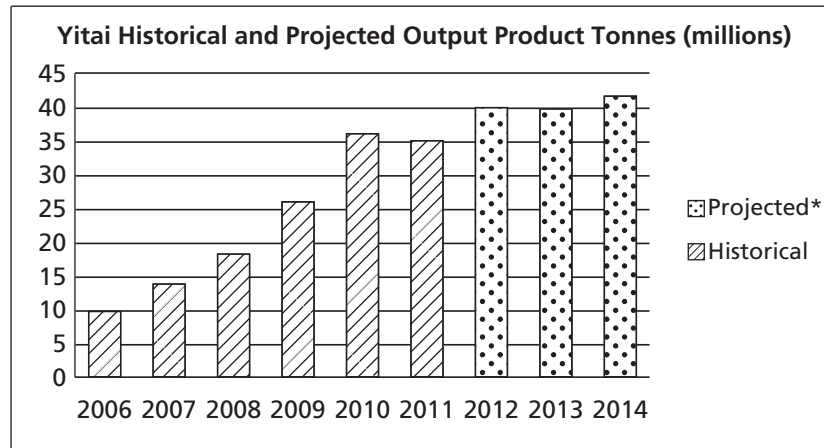
<u>Mine</u>	Yitai Output Projections ROM Output*		
	2012	2013	2014
	(tonnes - millions)		
Suancigou	14.00	15.00	16.00
Nalinmiao No. 2	8.20	9.20	10.20
Hongjingta No. 1	8.20	9.20	8.20
Nalinmiao No. 1	7.00	3.40	4.40
Yangwangou	1.40	1.40	1.40
Fuhua	1.30	1.30	1.30
Kaida	1.70	2.60	2.60
Total**	41.80	42.10	44.10

<u>Mine</u>	Yitai Output Projections Product Output*		
	2012	2013	2014
	(tonnes - millions)		
Suancigou	11.90	12.75	13.60
Nalinmiao No. 2	8.20	9.20	10.20
Hongjingta No. 1	8.20	9.20	8.20
Nalinmiao No. 1	7.00	3.40	4.40
Yangwangou	1.40	1.40	1.40
Fuhua	1.30	1.30	1.30
Kaida	1.70	2.60	2.60
Total	39.70	39.85	41.70

* Suancigou's ROM output is processed in the Suancigou CPP; ROM output from Yitai's other mines is sold without CPP processing.

** Open pit mining at several mines contributes to Yitai's output as follows:

<u>Mine</u>	ROM Output		
	2013	2014	Total
	(tonnes - millions)		
Nalinmiao No. 2	1.00	2.00	3.00
Hongjingta No. 1	1.00	2.00	3.00
Nalinmiao No. 1	1.00	2.00	3.00
Kaida	1.00	1.35	2.35
Total	4.00	7.35	11.35



* Output projections for Talahao and Bulamao are excluded.

Yitai forecasts continuing growth in output through 2014. BOYD has reviewed the plans for 2012–2014 from the perspective of historical performance and site visits and believes the plans are generally achievable.

At Suancigou Mine, Yitai installed a FM sublevel caving LW face in the No. 6U Seam to minimize faulting impacts, beginning in late March 2011. The sublevel caving LW face performance has been improving, approaching 40,000 tpd in stable, favorable geological conditions. Suancigou's favorable conditions include: coal seam thickness, low seam gradient, coal seam strength supporting ready caving breakage, roof strata that support development and collapse well during LW mining and low methane gas emissions. We anticipate that sublevel caving LW face will improve output performance in 2012. The CPP yield for Suancigou ROM output projected at 85% was 73% in 2011. According to Yitai, Suancigou CPP output is currently being processed to a higher coal quality specification for market acceptance at the ports. The Company anticipates that lower quality specifications will prevail in in-land markets, thereby supporting a higher CPP recovery. In 2013, Yitai is planning to separate the No. 4 Seam (higher ash) and No. 6 Seam (lower ash) ROM output to optimize CPP performance. This may be accomplished either with a separate incline access for the No. 4 Seam or a stacked incline conveyor arrangement.

The output projections for Nalinmiao No. 2 and Hongjingta No. 1 are supported by their 2011 results of 8.12 Mt and 7.25 Mt, respectively. Nalinmiao No. 2 installed a second FM LW face in the No. 6 Seam in early 2011, which, combined with the existing LW face in the No. 4 Seam, should provide adequate capacity to attain output projections. Nalinmiao No. 1 has conditions similar to those in Nalinmiao No. 2, which should support attainment of its projections in 2012. Nalinmiao No. 1's underground produced tonnage in 2013 and 2014 is consistent with thinner seam conditions. Hongjingta No. 1 is anticipated to improve its capabilities in 2012 with the installation of a new high profile (6.3 meter) FM LW face in late 2011. Improved mining conditions are anticipated at Yangwangou Mine. Output projections for Nalinmiao No. 2, Hongjingta No. 1 and Suancigou mines significantly exceed current production certificate output levels.

Fuhua and Kaida output projections assume recovery of LW faces in shallow cover zones. Based on our estimates, Kaida and Fuhua output may be impacted due to projected mining in areas having shallow cover. Yitai maintains that LW mining operations are viable in shallow cover areas (less than 40 m of competent overburden). History of shallow cover mining in the Yitai mines is limited, although Yitai has in several instances successfully operated on a sustained basis in shallow cover areas.

LW mining located beneath less than 40 m of cover may be problematic. LW face operation may be compromised because of the instability caused by excessive water infiltration and incompetent roof (extensive strata fracturing) likely to occur under shallow depths of cover. Pressure on the LW shields can be abnormally high because the shields are supporting the entire overburden load rather than the immediate roof below the main roof. We have adjusted our mine plan projections and reserve estimates accordingly to exclude areas with less than 40 m of overburden depth due to the unpredictability of roof strata behaviour. While low cover areas occur in virtually all of the Yitai operations except for Suancigou, we expect this to have a larger impact on the Kaida and Fuhua mining operations through the forecast period of 2012–2014. While we recognize that Yitai has, in several instances, successfully mined in areas with less than 40 m of overburden depth, the stability of

the roof strata in lower overburden zones is difficult to assess until LW face development mining has been completed. Accordingly, the 40 m overburden guideline provides a margin of safety for planning and resource analysis.

Yitai has indicated that additional output may be generated as needed by open pit mining and room and pillar mining of shallow seam zones unsuitable for FM LW mining to meet the output forecasts. Yitai has demonstrated its capability to recover coal resources in shallow cover areas using these methods. These coal resources are not addressed in our reserve analysis.

Yitai is gradually moving toward increasing LW face lengths up to 300 meters to improve operating efficiency. Other factors that may favorably impact operations in the future include:

- Further acquisitions of LW face equipment with improved capabilities and higher reliability.
- Improvements in operator performance through training and experience.
- Less delay time related to repairs and maintenance through improved labor force maintenance skills.
- Installation of higher capacity infrastructure.

The two planned greenfield expansion mines at Bulamao and Talahao are discussed in the respective sections of this report. Yitai continues to evaluate additional mine projects through exploration and development of geological studies. According to Yitai, the company has the intent of merging Dongda No. 2 Mine, which is adjacent to Hongjingta No. 1's northern boundary, into its holdings. Dongda No. 2 Mine has output capacity of 1.2 Mtpa and 3.0 Mtpa for Nos. 6-1 and 6-2 seams, respectively. Extension of certain mines into adjacent coal rights, which are not currently controlled by Yitai, would permit Yitai to: extend the operating life of the associated mine, possibly increase LW face lengths, and/or optimize mining projections. The affected mines would require new openings, but acquisition of adjoining coal would provide opportunities for significantly enhancing operations and increasing output over time (such as connecting Bulamao with established infrastructure at the Kaida operation). BOYD has not evaluated the coal resources or reviewed mining plans for these potential projects.

Depletion rate represents the rate of exhaustion of reserves of a mine. In the context of this CPR, depletion rate of a mine refers to the exhaustion rate of marketable reserves as of December 31, 2011 on the basis of aggregate projected output from 2012 to 2014. The depletion rates for Yitai mines are as follows:

Mine	Marketable Reserves (Mt) As of 31 December 2011*	2012 to 2014	
		Projected Output (Mt)**	Depletion Rate (%)
Suancigou	458.8	38.3	8
Nalinmiao No.2***	63.9	24.6	39
Hongjingta No.1***	35.9	22.6	63
Nalinmiao No.1***	9.3	11.8	100
Yangwangou	5.8	4.2	73
Fuhua	2.5	3.9	100
Kaida***	4.2	4.6	100

* Reflect BOYD's reserve estimation which only includes minable reserves suitable for FM LW mining method.

** Reflect Yitai's projections which include FM LW mining and DB mining operations where applicable.

*** Reserve and output from open pit operations excluded.

4.6.2 Projected Staffing

Yitai's projected target staffing at full output capacity is as follows:

Category	Personnel							Total
	Suancigou	Nalinmiao No. 2	Hongjingta No. 1	Nalinmiao No. 1	Yangwangou	Fuhua	Kaida	
UG	671	331	270	263	168	212	357	2,272
Surface — Coal Processing	129	83	36	42	56	6	30	382
Surface — Service	259	129	77	53	78	15	31	642
Total*	1,059	543	383	358	302	233	418	3,296

* Total includes third-party service providers.

The category at largest variance to plan projections is the surface-service category, which accounts for most of the higher than projected staffing. According to Yitai, reductions in staffing levels are projected in third quarter of 2012. Yitai's projected average labor productivity at full output by mine is as follows:

Mine	Projected ROM Output at Full Production Capacity (Mt)	Employees		ROM Tonnes Per Employee-Year	
		Mine	Underground	Mine	Underground
Suancigou	14.0	1,059	671	13,220	20,860
Nalinmiao No. 2	8.2	543	331	15,100	24,770
Hongjingta No. 1	8.2	383	270	21,410	30,370
Nalinmiao No. 1	7.0	358	263	19,550	26,620
Yangwangou	1.4	302	168	4,640	8,330
Fuhua	1.3	233	212	5,580	6,130
Kaida	1.7	418	357	4,070	4,760
Total	41.8	3,296	2,272	12,680	11,710

4.6.3 Projected Capital Expenditures

Historical capital expenditure data were not available. Yitai's projected future capital expenditures for the active mines are summarized below:

Mine	Projected Capital Expenditures			
	2012	2013	2014	Total
	(RMB-millions)			
Suancigou	32	59	47	138
Nalinmiao No. 2	15	25	6	45
Hongjingta No. 1	32	26	18	76
Nalinmiao No. 1	33	29	26	88
Yangwangou	7	23	7	37
Fuhua	9	1	1	11
Kaida	8	13	3	24
Yitai Total	136	176	107	419

Note: Figure may not add due to rounding.

Capital spending by major category is as follows:

<u>Description</u>	<u>Projected Capital Expenditures</u>			
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Total</u>
	<u>(RMB-millions)</u>			
Surface Infrastructure	1	1	2	4
Mine Openings and Roadway	—	22	15	37
Mining, Monitoring, Misc. Equipment & Rebuilds	131	137	84	352
CPP	4	16	6	26
Other	—	—	—	—
<u>Total</u>	<u>136</u>	<u>176</u>	<u>107</u>	<u>419</u>

Note: Figure may not add due to rounding.

Sustaining capital based on projected raw coal output is RMB4 per tonne, which is at the lowest end of the range of likely requirements in our opinion to support the projected output. However, significant mine development expenses that would be considered capital expenditures are included in operating costs. The lower sustaining capital projections are also consistent with the limited service life of several mines. Sustaining capital needs for Suancigou are also limited owing to the mine's recent construction status.

Yitai's capital spending for mine development is projected to decrease from recent levels in which the mines were re-capitalized and transitioned to modern methods of FM LW mining. Operating mines generally have adequate equipment and infrastructure (including shafts, inclines, belt conveyor systems, electrical systems, pumping systems, etc.) necessary to support projected output levels. Additional openings (shafts, horizontals) or extensions of existing openings may be required for ventilation or to access seams lower in the geologic sequence. However, civil works at the mines are typically a small component of the total capital cost typical in international mechanized mine settings. Additionally, the operating depths are relatively shallow and, therefore, require relatively less work to access the coal seam(s).

4.6.4 Projected Operating Costs

Yitai's future operating costs reflect FM LW mining methods employed in favorable conditions and Yitai's output projections. Operating cost projections on an ROM basis are as follows:

<u>Mine</u>	<u>Projected Operating Costs**</u>		
	<u>2012</u>	<u>2013</u>	<u>2014</u>
	<u>(RMB/ROM tonne)</u>		
Suancigou	105	108	110
Nalinmiao No. 2*	94	95	96
Hongjingta No. 1*	67	66	68
Nalinmiao No. 1*	56	57	60
Yangwangou	140	146	151
Fuhua	86	90	93
Kaida*	126	129	135
<u>Average***</u>	<u>88</u>	<u>94</u>	<u>98</u>

* Projected open pit mining will impact overall mine costs in 2013 and 2014.

** FM LW mining costs, based on Yitai projections.

*** Yitai's average costs with open pit mining operations included are projected at RMB93 and RMB97 per ROM tonne in 2013 and 2014, respectively.

Operating cost projections include: Labor, Benefits, Materials, Supplies, Power, Water, Maintenance, Engineering, Development Expense, Exploration, Face Moves, Village Moves, Resource Fees, Coal Management Fees, Administration, and Misc. Others. Other management/overhead employees are accounted for in Yitai overhead costs. Operating cost projections do not include CPP costs or reflect processing yield impacts.

A breakdown of Yitai's projected FM LW operating costs by category, on a composite basis, is as follows:

Cost Category	Projected Operating Costs* (RMB/ROM tonne)		
	2012	2013	2014
Cash Costs			
Salary and Welfare	10	11	13
Materials, Supplies	6	8	9
Maintenance	2	3	4
Power/Fuel	2	3	4
Coal Washing Expense	2	2	2
Production Fees	56	56	55
Subtotal — Cash Costs	79	84	86
Non-Cash Costs			
Depreciation	9	10	11
Subtotal — Non-Cash Costs	9	10	11
Total	88	94	98

* FM LW mining costs based on Yitai projections.

Note: Figures may not add due to rounding.

Assuming that ROM output projections are achieved in the 2012–2014 period, the operating cost projections appear reasonable and consistent with recent historical costs.

4.7 Safety

The standard used by the PRC coal industry to measure and compare safety performance is the fatality rate (average number of fatalities) per 1.0 Mt of raw coal production. From the data provided by Yitai, its mines did not experience any fatalities and serious bodily injuries in the period 2006–2011.

Yitai's operating cost projections appear attainable at the projected output levels. Projected operating costs are reasonable based on our experience and advanced stage of capitalization for the Yitai operations.

Based on our site visits, the company's practices follow appropriate standards for the type of hazards expected. All mines employ underground monitoring systems comprised of multiple stations recording methane and CO contents that are remotely monitored in surface control rooms. Air quantities appear adequate for diluting methane that is liberated during mining. Based on BOYD's observations during site visits, the mines appeared to be operating in a safe manner. On the LW faces visited by BOYD, monitoring station and hand-held methane monitors indicated relatively low levels of methane on the LW faces.

Other customary safety practices such as coal dust suppression, spillage control, and adequate roof and rib support were also observed during the BOYD site visits. Yitai mines have also taken proactive steps to minimize coal and coal dust accumulations outside of the face areas. We believe that the health and safety practices are in-line with those observed at larger PRC mining companies.

Yitai has implemented safety training programs covering proper work procedures and work practices at all of their operations to provide for worker safety and has established a good basis for its safety systems to support expanded future mine operations.

Provisions for safety training are largely guided by the State Administration of Worker Safety (SAWS). SAWS is in ultimate charge of worker safety at the national level and oversees officials at the provincial, coal mine bureau, and coal producer levels. The State Administration of Coal Mine Safety (SACMS) provides regulatory oversight of the mine site safety inspectors. The safety inspectors act independently of coal mine management. A safety training center is maintained at the coal producer level for training lower level personnel.

Yitai reports their coal mines are heavily monitored by several levels of government: county, city, and region. Inner Mongolia takes the lead role in mine regulation, although city and county regulations also must be followed.

4.8 Coal Quality

Yitai's mining operations generally produce low sulfur coals, classified principally as "long-flame" (CY41 and CY42) according to the Chinese coal classification system. Typical coal quality is shown below, although for individual mining right areas and seams, certain coal quality parameters may fall outside of this range:

Characteristic (as-received basis)	Parameter
Moisture (%)	7-17
Ash (%)	7-28
Sulfur (%)	0.2-0.9
Volatile Matter (%)	22-27
Heat Content (Kcal/kg)	4,500-6,000

Coal quality by mine, based on coal test report data provided by Yitai, are as follows:

Quality Characteristic	Yitai Coal Quality Summary By Mine (As-Received Basis)*						
	Suancigou	Nalinmiao No. 2	Hongjingta No. 1	Nalinmiao No. 1	Yangwangou	Fuhua	Kaida
Moisture (%)	9.7	14.1	14.4	13.1	10.3	15.0	14.8
Ash (%)	28.3	6.9	7.4	5.7	27.1	7.3	4.7
Sulfur (%)	0.4	0.2	0.2	0.1	0.9	0.4	0.2
Volatile Matter (%)	25.9	27.9	28.1	27.8	24.2	25.5	28.5
Gross Calorific Value (Kcal/kg)	—	6,050	5,970	6,220	—	6,020	6,250
Net Calorific Value (Kcal/kg)	4,340	5,790	5,700	5,960	4,270	5,760	5,980

* Based upon coal quality test data for Jul-Dec 2011 provided by Yitai, which may not reflect typical analysis.

The extent and degree of coal processing vary according to the quality of the individual coal seam(s) being mined (i.e., presence of in-seam partings and seam ash content). In lower ash seams, screening is typically used to remove partings and extraneous rock; mechanical washing to upgrade the in situ coal quality is usually not necessary in these instances. Product ash varies with seam variations but is generally suitable for market requirements. Yitai's coal output is utilized as steam (thermal) coal products for use in the chemical, industrial, and power generation markets.

Presently, the Suancigou Mine is the only Yitai operation to utilize a CPP. The remaining operations rely on a combination of screening, crushing, and hand-picking to increase product quality. However, Yitai plans to construct additional CPPs to process (wash) future output from the Nalinmiao No. 1, Nalinmiao No. 2, and Kaida mines.

4.9 Operating Practices

Yitai mines operate according to standard practices, although there may be differences in actual application at specific mines. The mines typically operate approximately 300 production days per year. This schedule permits 40 to 50 maintenance/idle days annually. Several major holiday periods are observed over the course of the year (including New Year, Lunar New Year, May Day, and National Day) and account for 10 to 15 calendar days of nonproduction. The typical employee works 5 or 6 days per week, as required by the mines. On a typical production day, three 8-hour shifts are worked, allowing for approximately 18 to 20 hours of production and 4 to 6 hours of repair, maintenance, and support. Yitai's mine scheduling practices are typical of the PRC coal industry.

Mine surface facilities at the major underground mines are well-established complexes and provide accommodations for all aspects of the mining operation, including administration and mine manager offices, materials and parts storage, shower rooms, locker rooms, bathhouse areas, conference rooms, engineering facilities, mine monitoring and communications station, etc. Living quarters for single men are often provided near the mine site.

Yitai's underground mines typically use shallow angle inclines (except for Yangwangou) to access the seams for mining activities and to accommodate the use of rubber-tired vehicles. These types of openings are appropriate for shallow coal reserve deposits such as those found in the Yitai mining right areas. Air shafts (intake or return) are used in mines where the workings have extended a sufficient distance from the initial access inclines to warrant their construction. A summary of Yitai mine openings by mine follows:

Mines	Mine Openings	Gradient (degrees)	Length (m)	Dimension (m)	Function
Suancigou	Main Incline	16	1,029	5.5 x 4.5	Intake, Belt
	Service Incline	6	2,290	5.5 x 4.5	Intake, Rubber-tire Access
	Air Return Shaft	90	352	5.5 m dia	Return
Nalinmiao No. 2	Main Incline	8	732	5.0 x 4.0	Intake, Belt
	Service Incline	6	826	5.0 x 4.0	Intake, Rubber-tire Access
	Service Incline -2	6	259	5.0 x 4.0	Intake, Rubber-tire Access
Hongjingta No. 1	Air Return Shaft	90	146	4.0 m dia	Return
	Main Incline	8	337	4.0 x 4.0	Intake, Belt
	Service Incline	6	433	4.0 x 3.8	Intake, Rubber-tire Access
Nalinmiao No. 1	Service Incline -2	5.5	484	5.0 x 4.0	Intake, Rubber-tire Access
	Air Return Shaft	90	170	4.0 m dia	Return
	Main Incline	14	202	4.2 x 3.6	Intake, Belt
Yangwangou	Service Incline	6	303	5.2 x 3.8	Intake, Rubber-tire Access
	Air Return Shaft	90	91	4.0 m dia	Return
	Main Incline	22	400	3.0 x 2.7	Intake, Belt
Fuhua	Service Incline	25	328	3.0 x 3.2	Intake, 600 mm, 30 kg/m rail
	Air Return Shaft	90	192	3.0 m dia	Return
	Main Incline	2	40	3.2 x 2.9	Intake, Belt
Kaida	Service Incline	2	40	3.2 x 3.1	Intake, Rubber-tire Access
	Air Return Incline	2	40	3.2 x 2.6	Return, Exit
	Main Incline	6	143	3.5 x 3.2	Intake, Belt
Kaida	Service Incline	6	56	5.2 x 3.8	Intake, Rubber-tire Access
	Air Return Incline	6	56	5.2 x 3.8	Return, Exit

LW technology (FM) is the preferred Chinese method of coal production deriving from an institutional PRC Government emphasis on maximizing reserve recovery and concentrating mining in larger operations. LW methods generally (but not always) are higher in recovery than any other method found in the coal industry. Maximizing resource recovery remains a concern of mine officials, and mine plans must demonstrate this approach. According to Yitai, the responsible regulating bodies monitor its resource recovery efforts, and no interference is anticipated so long as the company is demonstrating that it is attempting to maximize recovery.

All Yitai operations have transitioned to FM LW mining. Only Suancigou Mine utilizes imported LW face technology produced by Joy and DBT. Remaining LW faces are equipped with domestic face equipment, typically ranging in length from 150 to 300 m. Yitai is gradually lengthening its faces as the geotechnical characteristics of operating in shallow cover reserves are better understood and the company becomes more comfortable with the capabilities of FM LW face technology. LW face strike lengths vary according to the configuration of the mining right areas or other features defining the mineable reserve. Strike lengths range from 1,000 to 4,000 m. Long strike lengths enable Yitai to reduce face development requirements and lower overall operating costs. A summary of active LW panels visited by BOYD follows:

Mine	Active LW Face	Width (m)	Original Strike Length (m)	Shield Width (m)	No. of Shields (m)	Cutting Height (m)
Suancigou	6107	240	2,800	1.75	142	2.6 - 4.6
Nalinmiao No. 2	621-05	240	3,000	1.75	142	2.8 - 6.1
Hongjingta No. 1	62202	246	1,760	1.75	146	2.8 - 6.1
Nalinmiao No. 1	326-04	240	2,800	1.75	142	2.8 - 6.1
Yangwangou	6201	117	400	1.50	77	1.7 - 3.2
Fuhua	1602	180	400	1.50	122	1.3 - 2.8
Kaida	3602U	200	710	1.50	123	1.1 - 2.2

Yitai utilizes full extraction, high profile, cutting techniques with the exception of Suancigou and Yangwangou mines. At Suancigou, sublevel caving techniques are utilized in the No. 6U Seam. Sublevel caving equipment is utilized at the Yangwangou Mine due to reserve configuration and limitations on LW face dimensions. Domestic LW face manufacturing capabilities have recently expanded with the fabrication of full extraction faces with higher cutting heights, up to 6.5 m.

Following the transition to FM LWs, the Yitai LW operations have the potential to be highly efficient and productive. Nearby mines operating in similar conditions are among the world's most productive mines in terms of labor efficiency and output. LW equipment performance and reliability should continue to improve, and Yitai will continue to take measures to improve and upgrade its infrastructure, in particular, the critical belt conveyor systems. Higher capacity belt conveyor systems are essential for capturing the productivity of modern LW systems.

LW face retreat rates vary according to the face lengths, seam thickness, mining conditions, equipment, and infrastructure. On the basis of our site visit observations, the newly installed FM LW faces appear to be capable of face retreat rates in the range of 350 to 500 m per month (assuming 3.0 to 5.5 m thick, 200 to 300 m wide faces).

LW face equipment are assigned to a specific mine unless there is a need for a major rebuild of the shields. Other components, such as shearers and armored face conveyors (AFC), can be moved from mine to mine if the equipment is compatible. Typical rebuild interval is 5 Mt for LW shearers, 15 Mt for powered supports (shields), and 5 Mt for AFC/stage loader/crusher assemblies. Because of the opening heights and use of rubber-tired equipment, faces can be removed easily from the mines and transported to the shops for refurbishing and rebuilding.

Following international LW practices, a spare AFC and other LW face equipment are installed in the next successive LW face setup in advance of the completion of mining in the current face to allow rapid LW restart. Face transfers have been accomplished in less than 14 calendar days, comparable to some of the best performances at US and Australian mines.

Yitai development methods follow PRC mining practices. Main and gate roadways vary by mine, according to seam thickness and designed use, but are typical of regional operations. Single-roadway gate development is utilized at all mining operations other than Suancigou Mine (which utilizes CMs and dual gate road development). Generally a 20 to 30 m barrier pillar is maintained between gate roads of parallel LW faces. Main roadways typically consist of between three to five openings depending on haulage and ventilation requirements.

Roadheader sections are used as the primary means for development of LW gates and main roadways in Yitai mines, supplemented by conventional drilling and blasting techniques as needed in rock roadways and when developing connections between seams. Development rates using roadheaders are projected at 400 to 500 m/month in gate roads, supported by continuous haulage (narrow 1.0-m-width flexible belt conveyor) equipment. Experience suggests the roadheader units are capable of developing LW gates in sufficient time to stay ahead of LW retreat.

Typical LW crews consist of 12 employees on a production shift:

- 2 Shearer Operators
- 1 Headgate Attendant
- 2 Shield Support Movers
- 1 Face Pump Attendant
- 6 Utility/Maintenance

Three to eight employees are assigned on a maintenance shift.

Development crews generally consist of 12 employees:

- 2 Roadheader/CM Operators
- 4 Roof Bolters/Screening
- 2 Haulage/Roof Bolters
- 4 Utility/Maintenance

Eight to twelve employees are assigned on a maintenance shift to advance permanent belt structure and perform roof bolting.

Roof bolting using resin anchorage is routinely used to reinforce mine openings in the LW mines. Standard roof bolt length is 1.8 to 2.1 m. Typical roof bolting pattern is to install four to six bolts on a 1.0-m spacing across an opening and a 1.0- to 1.25-m spacing between rows. Roof installation includes plates and header blocks to control exposed roof layers. Wire mesh screen is used in permanent roadways and in areas of unstable roof. Mine openings needed for life of mine and/or to house electrical installations are shotcrete treated.

Generally, a thin coal layer is left in place in the roof to avoid exposing the roof rock strata. This practice enhances roof control measures and minimizes rock or out-of-seam dilution (contamination of the ROM coal material). In the occasional areas where the mine roof is weak or broken, supplemental roof bolting and wire mesh is utilized. Headgate and tailgate support typically are minimal, consisting of hydraulic supports set 20 m outby the LW face on retreat. Cable bolting, typically 5 m length, is installed in areas where the main roof needs supplemental support. In general, LW gate and mainline development support practices and requirements are among the least intensive in the world LW industry, reflecting the generally favorable mining conditions in the Yitai mines.

LW mine plans are optimized to maximize the recovery of reserves by LW mining technique. In reserve areas that cannot be effectively mined using LW techniques, room-and-pillar techniques are proposed to satisfy resource recovery mandates.

It is anticipated that LW faces can generally work through minor faults where vertical displacements are in the range of 1 to 3 m. Larger displacement faults are typically handled by stopping the face and setting up on the other side of the fault line. Large displacement faults (8 m or higher) result in the shortening of face strike lengths to match the fault line as the gate road gradients begin to be too steep for the development and belt conveyor equipment, and the amount of rock to be cut exceeds prudent operating practice.

Yitai's approach to underground transport is comparable to those employed in the world's most advanced mines. Rubber-tired diesel vehicles (buses, vans, small trucks, tractors, front-end loaders, etc.) are used throughout the majority of mines for transporting personnel, supplies, parts, materials, equipment, infrastructure components, etc. Due to the high standard of care for roadways, the rubber-tired vehicles are a highly effective means of transport. The generally shallow nature of the mines' facilities, accessed using shallow angle inclines, is conducive to the use of rubber-tired vehicles. Similarly, coal hoisting equipment is not employed at the mines (except for Yangwangou Mine).

Belt conveyor installations in terms of size, capacity, and standards of care are comparable to those employed in the international coal industry. All of the mines utilize belt conveyor systems of varying capacities to transport the coal from mining faces to the surface. Yitai's belt conveyor systems have evolved in terms of capacity as the mines have transitioned to FM LW mining. The highest capacity main incline conveyor (1.8 m width) is installed in Suancigou Mine with an estimated capacity of 4,200 tph. LW face conveyor capacities for the LW faces are sized to exceed their associated gate and mainline conveyors in order to handle peak loading conditions.

A summary of Yitai mines' main incline belt conveyors follows:

Mine	Main Incline Belt Conveyors			
	Width (m)	Length (m)	Capacity (tph)	Power (Kw)
Suancigou	1.8	1,060	4,200	4x 1400
Nalinmiao No. 2	1.4	750	2,500	2 x 630
Hongjingta No. 1	1.4	500	2,500	2 x 400
Nalinmiao No. 1	1.2	1,320	1,800	2 x 560
Yangwangou	1.0	350	800	2 x 200
Fuhua	1.0	300	400	2 x 75
Kaida	1.0	143	800	2 x 315

Although under-designed from an international perspective, Yitai belt conveyor designs afford higher loading capabilities than those found at typical PRC mines. BOYD anticipates that continued progress toward higher capacity conveyor systems to accommodate peak production surges will be incorporated in new mine designs. At present, underground bunkering usage and capacity is minimal.

Yitai mines utilize 10 kV underground mine power distribution systems. Ventilation inclines/shafts are used to supply power to the high capacity LW gear and conveyor system. Surface distribution voltage on the local grid providing power to the mine site transformer is at 35 kV. Electricity is purchased off of the regional power grids with renewable contracts.

Water inflows experienced at the Yitai mines are typical of the region and are within the capabilities of well-designed pumping stations. The underground mines have sufficient water-handling systems. All mines have designed effective pumping systems with redundant primary sump pumps that control water inflows from the coal seam and overlying/underlying strata. LW subsidence is especially problematic in that the aquifers lying above the actively mined coal seam are disturbed, causing water to flow into the mine workings. Mandatory practice requires that redundant principal pumps be installed to allow for repairs and routine maintenance and to accommodate water surges during periods of high surface precipitation. Pumping systems vary in capacity according to type of mining and site specific water-bearing strata characteristics. Water control in the roadways and faces was observed to be well organized and effective. Typical practice is to harden roadway surfaces with concrete and construct ditches to route water flows to transfer sumps. Pipelines carry the bulk of the water to the main sump, where it is pumped to the surface, and discharged to settling basins. Typically, the discharged water is used in mine applications (sprays, firefighting equipment, etc.), processing plant applications or used for surface vegetation irrigation. Water for firefighting and dust suppression sprays is distributed underground using a gravity flow system.

Based on flame-length tests, coal dust generated by the Yitai mining operations is classified as having explosive potential if ignited. Standard measures to control dust include:

- Reducing float dust as much as possible by using water sprays in the development and LW face areas (equipment-mounted typically on shearers and road headers), along belt conveyor installations and underground transfer points (bunkers, chutes, etc.).
- Limiting ventilation air velocities to minimize fugitive dust pick-up.
- Removal of coal debris along belt conveyor lines and in the development faces with washing of roadways as required.
- Wet drilling techniques for development and LW coal face blasting.
- Periodic cleaning and re-whitening of roadways as needed.
- Installation of self-dumping hanging water bags in gates and other roadways.
- Water injection in coal seams prior to mining.

Yitai mines utilize exhausting type main fans with auxiliary backups as required by regulation. Main fans are generally installed at the surface opening of a return incline (or return air shaft). Mine ventilation air quantities entering the mine are determined according to mine size. Recognizing the low methane generation of the seams and the relatively few openings utilized underground, air quantities are adequate and do not present an issue for endangering the mine workforce or preservation of the physical plant. Roadheader and CM sections use flexible duct tubing and standard auxiliary fans for face ventilation. The auxiliary fans force fresh air from the main or gate intake air streams into the working face area, thereby clearing the working area of dust, methane, and other gases generated during mining. These arrangements follow international practices for face ventilation.

The Yitai mines do not utilize bleeder systems, gob de-gas holes, or remote bleeder shaft fan (using high-pressure centrifugal fans) techniques. The depth of mining at the Yitai mines is relatively shallow by world coal mining experience, and the gas content of the seams is relatively low. Methane control is not a significant operating concern at the Yitai mines due to lower rate of gas liberation.

Typical of lower rank coals, the coal seams in the Yitai mines are rated as having significant potential for spontaneous combustion. Proper sealing of gob areas and appropriate ventilation designs may reduce the oxidation process and prevent spontaneous combustion. Alternately, measures for rendering sealed areas inert, such as nitrogen injection and mud injection, are planned by Yitai. Eliminating gob ventilation also serves to minimize the potential for gob fires due to spontaneous combustion.

5.0 YITAI GROUP MINES

5.1 Introduction

Yitai Group operates five underground coal mining operations located in western Inner Mongolia Autonomous Region within China's largest coal-producing region, which is near the boundary of Shaanxi and Shanxi provinces and Inner Mongolia Autonomous Region. Some of the largest underground mines in China, which rank among the world's largest mines, are in this region.

Yitai Group mines are small to medium-sized underground LW mines that have transitioned to FM mining operations by combining multiple small local mining right areas. The current approved coal production certificate output level for these mines ranges from 1.2 Mtpa to 3.0 Mtpa, as follows:

Mine	Yitai Group Equity Interest (% owned)	Date of Initial Operation	Current Approved Output Capacity (Mtpa)		Estimated* Remaining Reserve Tonnes as of 31 December 2011 (Mt)	Integrated from Local Mines
			By Mining Right Certificate	By Coal Production Certificate		
Dadijing	100.0	4/1/2008	1.2	3.0	52	Dadijing, Dashuigou
Baoshan	73.0	6/1/2007	1.2	1.9	15	Baoshan, Qiaojiata, Niujiali
Dingjiaqu	73.0	12/1/2008	1.2	2.3	16	Sanhechang No. 2, Dingjiaqu
Chengyi	100.0	2/1/2009	0.6	1.2	5	Chengyi, Yelaisetai
Baijiali	100.0	1/1/2008	0.3	1.9	—**	Baijiali, Naomutu

* BOYD estimate of marketable tonnes according to JORC Code classification.

** 0.49 Mt LW reserves.

BOYD visited the subject mines in late August 2009, February 2011 and February 2012. Based on our field observations, the mines are well-capitalized and organized, using FM LW mining systems supported predominantly by roadheader development units. Underground mining conditions are generally favorable, with relatively thick coal seams and minimal seam gradients; depth of mining is shallow (less than 200 m). Third-party service companies are employed to provide works on an as needed basis to conduct development, production, and other services.

Yitai Group active mining operations at the time of BOYD's site visits are summarized below:

Mine	BOYD Visit Date	Mining Techniques	No. of LW Faces	Manufacturing Source of LW Face	Off-Site Coal Transportation
Dadijing	30/08/2009 & 18/02/2011 & 02/02/2012	LW/RH/DB	1	D	T to RLST/C
Baoshan	30/08/2009 & 17/02/2011 & 02/02/2012	LW/RH	1	D	T to RLST/C
Dingjiaqu	27/08/2009 & 17/02/2011 & 02/02/2012	LW/RH	1	D	T to RLST/C
Chengyi	31/08/2009 & 17/02/2011 & 02/02/2012	LW/RH	1	D	T to RLST/C
Baijialiang	30/08/2009 & 17/02/2011 & 02/02/2012	LW/RH	1	D	T to RLST/C

Note:

LW = Longwall
RH = Roadheader
DB = Drill and Blast

D = Domestic
C = Customer

T = Truck
RLST = Rail Loading Station

5.2 Conclusion

Yitai Group mines employ modern LW mining techniques. Physical mining conditions, which in several mines are generally considered among the best observed by BOYD in the world coal mining industry, are highly favorable for FM mining operations using LW and roadheaders. Although the mines only evolved from drill and blast (DB) mining techniques to FM LW using domestic equipment in the 2008 —2009 period, the transition appears to be successful and the mine operations are running smoothly. Yitai Group's mine plans appear appropriate for the geologic and geotechnical settings observed in the current mines and consider known or potential mining hazards.

Coal quality is generally low in sulfur content and considered favorable for domestic steam markets.

The capital budgets for Yitai Group mines for the next three years appear reasonable. There are no evident constraints preventing Yitai Group mines from attaining output projections for 2012 —2014 period, as long as the higher-than-approved output level is permitted by government administration.

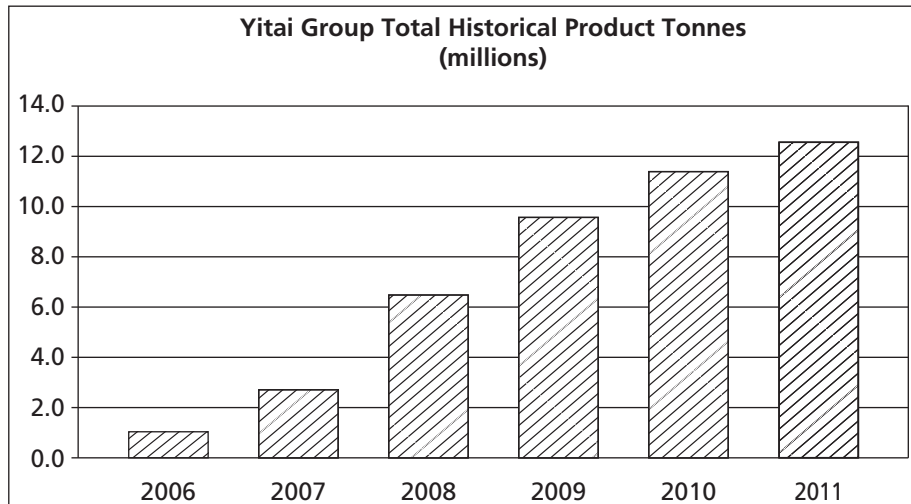
5.3 Historical Production

Yitai Group's historical production in the past six years has been increasing, especially in the years 2008 and 2009, when the mines transitioned to FM LW techniques, as shown below:

Mine	Yitai Group Output — Tonnes (millions)															
	2006		2007		2008			2009			2010			2011		
	DB	FM	DB	FM	DB	FM	Total	DB	FM	Total	DB	FM	Total	DB	FM	Total
Dadijing	0.63	—	1.33	—	1.71	1.34	3.05	1.37	1.90	3.27	1.50	2.27	3.77	1.42	3.04	4.46
Baoshan	0.06	—	0.72	—	—	1.68	1.68	—	1.53	1.53	—	1.81	1.81	—	2.16	2.16
Dingjiaqu	0.04	—	0.17	—	0.13	—	0.13	—	2.21	2.21	—	2.80	2.80	—	3.05	3.05
Chengyi	0.02	—	0.15	—	0.16	0.04	0.20	—	0.88	0.88	—	1.11	1.11	—	0.94	0.94
Baijialiang	0.32	—	0.38	—	0.25	1.22	1.47	—	1.75	1.75	—	1.97	1.97	—	2.07	2.07
Total	1.06	—	2.74	—	2.25	4.28	6.53	1.37	8.27	9.64	1.50	9.96	11.46	1.42	11.26	12.68

DB = Drill & Blast, FM = Fully Mechanized

Note: Figures may not add due to rounding.



Yitai Group's raw output is sold without CPP processing.

5.4 Employment and Labor Practices

Yitai Group engages third-party service providers to provide the main source of personnel for development and production work. Yitai Group mines had 2,288 mine-related, registered employees as of 31 December 2011 (of which 246 are Yitai Group personnel) summarized as follows:

Category	Employees as of 31 December 2011											
	Dadijing		Baoshan		Dingjiaqu		Chengyi		Baijialiang		Total*	
	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other
Underground	19	655	19	298	—	260	—	203	—	213	38	1,629
Surface — Coal Processing	—	—	—	—	4	4	12	15	32	7	48	26
Surface — Services	24	118	23	79	56	29	32	45	25	116	160	387
Subtotal	43	773	42	377	60	293	44	263	57	336	246	2,042
Total*	816		419		353		307		393		2,288	

* Total includes the third-party service providers.

Yitai Group's employment approach is also commonly used at other mines in the PRC to varying extents. The third-party service providers are generally composed of experienced workers from other coal-producing areas. Yitai Group's personnel are generally involved in mine management only. The overall staffing level is comparable to similar regional coal producers and is much lower than that of other coal-producing areas within the PRC using more labor-intensive mining techniques. The present personnel complement for the headquarters, management support staff, and auxiliary management production support staff is adequate for the planned scale of operations and expected to remain relatively constant over the plan period.

Typical LW crews consist of 12 employees on a production shift:

- 2 Shearer Operators
- 1 Headgate Attendant
- 2 Shield Support Movers
- 1 Face Pump Attendant
- 6 Utility / Maintenance

Three to eight employees are assigned on a maintenance shift.

Roadheader sections are widely adopted by Yitai Group mines as the main development method for main roadways and LW gates, while drill and blast heads are used only at the development of roadways in rock, which follows general Chinese practices. Single-roadway gate development is utilized at all FM LW mining operations. At Dadijing Mine, a room and pillar section is used to mine the No. 2 Seam using room and pillar method due to the shallower mining depth. The Yitai Group mines develop three main roadways for coal transportation by belt conveyor, service transportation, and air return. Development rates using roadheaders are projected at 400 to 500 m per month in coal seams and the roadheader units used in Yitai Group mines are capable of satisfying the LW replacement frequency.

Development crews generally consist of 12 employees:

- 2 Roadheader / CM Operators
- 4 Roof Bolters / Screening
- 2 Haulage / Roof Bolters
- 4 Utility / Maintenance

Eight to twelve employees are assigned on a maintenance shift to advance permanent belt structure and perform roof bolting.

For direct company employees, Yitai Group provides basic mandatory retirement pension, medical, industrial accident, and unemployment benefits. Other benefits provided include welfare, medical insurance premiums, and allowances for festivals and holidays.

Labor costs on an output basis and as a component of overall production costs at Yitai Group mines are quite low in comparison to the major international coal industries. Yitai Group average annual direct underground worker compensation ranges from RMB50,000 to RMB80,000. While high for the PRC coal industry generally, anticipated high labor productivity should compensate for the higher wages. The company's high compensation structure is necessary within the region to assure highly qualified personnel can be recruited and retained. The service workers are paid less, ranging from RMB30,000 to RMB60,000 per year.

Mine	UG Face Workers	UG Services (RMB/year)	Surface Services
Dadijing	80,000	50,000	40,000
Baoshan	75,000	45,000	30,000
Dingjiaqu	60,000	40,000	30,000
Chengyi	50,000	35,000	17,000
Baijialiang	80,000	60,000	40,000

Yitai Group provided the current and projected three-year period labor structure for its mines, with detailed breakdowns for the third-party service providers. However, comparable data for past years are not readily available.

Yitai Group's labor efficiency (output tonnes divided by payroll personnel count) is comparable to the international coal industry.

Yitai Group's average labor efficiency for 2011 detailed by mine is as follows:

Mine	2011 Output Tonnes (millions)	Number of Employees		Productivity, tonnes/employee-yr.	
		Mine	Underground	Mine	Underground
Dadijing	4.463	816	674	5,470	6,620
Baoshan	2.161	419	317	5,160	6,820
Dingjiaqu	3.055	353	260	8,650	11,750
Chengyi	0.938	307	203	3,050	4,620
Baijialiang	2.069	393	213	5,260	9,710
Yitai Group Total/Average	12.685	2,288	1,667	5,540	7,610

Note: Figures may not add due to rounding.

5.5 Operating Cost

According to information provided by Yitai Group, average mine operating costs by year are as follows:

Mining Method: Mine	Operating Costs									
	2006	2007	2008		2009		2010		2011	
	DB	DB	DB	FM	DB	FM	DB	FM	DB	FM
	(RMB/ROM tonne)									
Dadijing	62	74	68	83	89	114	101	103	117	102
Baoshan	28	67	—	70	—	69	—	82	—	83
Dingjiaqu	50	52	111	—	—	67	—	66	—	67
Chengyi	52	55	91	13	—	94	—	100	—	121
Baijialiang	45	54	58	75	—	67	—	72	—	73
Yitai Group Average	55	67	74	75	89	81	101	82	117	86
Total Average	55	67	74		82		85		89	

Note: Figures may not add due to rounding.

A breakdown of operating costs on a composite basis is as follows:

Category	Operating Costs (RMB/ROM tonne)*					
	2006	2007	2008	2009	2010	2011
	(RMB/ROM tonne)					
Cash Costs						
Materials/Supplies	4	3	6	5	4	7
Maintenance/Repairs	—	—	5	1	2	1
Power/Fuel	1	1	2	2	3	3
Salary & Welfare	5	9	8	7	8	9
Production Fees	38	45	47	60	60	62
Subtotal — Cash Costs	48	59	69	75	76	81
Non-Cash Costs						
Depreciation	7	8	5	8	9	8
Subtotal — Non-Cash Costs	7	8	5	8	9	8
TOTAL	55	67	74	82	85	89

* Average composite costs include a weighted average of DB with FM output achieved with FM LW face methods.

Note: Figures may not add due to rounding.

Production fees have increased since 2006 in response to increases in government-related fees, new cost items related to the implementation of mechanized LW face operations, and higher overhead and management costs.

5.6 Future Operations

BOYD's review of future Yitai Group operations is based on three-year mine plans and business projection data submittals and discussions with corporate and mine management, financial, and engineering staff. The mine plan period for this review is 2012 — 2014. BOYD has reviewed and opined on the reasonableness of Yitai Group's internally prepared mine plan forecasts. We have considered recent operating history, and BOYD's knowledge of the PRC coal industry.

5.6.1 Output Projections

Based on nominal output rates, the Yitai Group mines' reserve base is adequate for the period 2012-2014, except for the Baijialiang Mine, where the coal resources will deplete in 2012. BOYD has not identified significant geological (non-reserve) or mining-related issues during our review that would prevent the Yitai Group mines from achieving projected raw coal output levels. The Yitai Group 2012-2014 production forecasts is summarized below:

Yitai Group Mine	Projected ROM Output		
	2012	2013	2014
	(tonnes -millions)		
Dadijing*	4.20	4.50	4.50
Baoshan	2.20	2.20	2.20
Dingjiaqu**	3.00	3.00	3.00
Chengyi	1.20	1.20	1.20
Baijialiang***	0.80	—	—
Yitai Group Total****	11.40	10.90	10.90

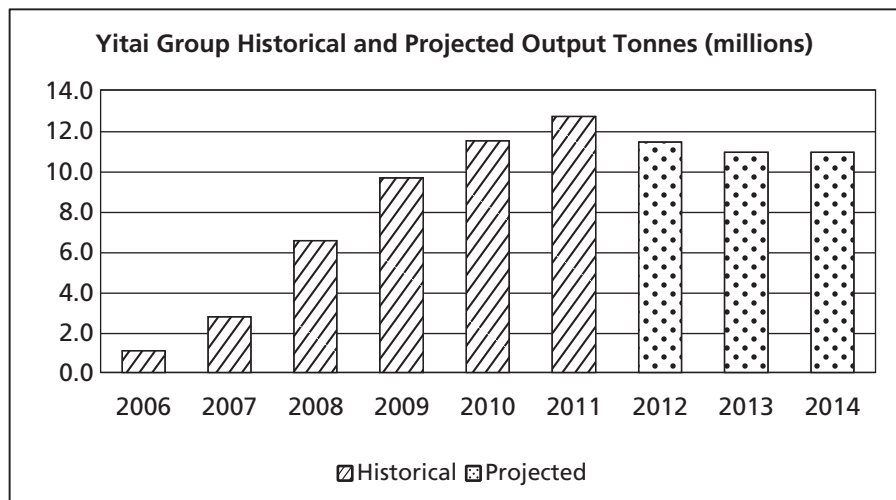
* Dadijing output projections include 0.90 Mt of room and pillar output in 2012.

** We project that Dingjiaqu will be transitioning into thinner coal reserves in 2013 and LW face output will be affected. Of the 3.0 Mt output projected in 2013, 0.50 Mt is generated from room and pillar operations and 2.50 Mt from FM LW operations. In 2014, 2.00 Mt is projected from FM LW operations and 1.00 Mt from room and pillar operations.

*** Based on BOYD's reserve estimation, we project that Baijialiang mine will deplete its FM LW reserves in 2012. Of the 0.80 Mt output projection in 2012, 0.31 Mt is projected from room and pillar mining operations and 0.49 Mt from FM LW operations.

**** Open pit mining at several mines may contribute to Yitai Group's output; at Dadijing 1.0 Mt annually is projected from open pit operations in 2013 and 2014.

Yitai Group output projections on a product output tonnage basis are equivalent to the ROM tonnage; that is, CPP processing is not reflected. Yitai Group may utilize Zhunge'erzhao CPP depending on raw coal quality and market requirements.



The Yitai Group forecasts projects relatively level production with output of approximately 11.0 Mt in the period 2012-2014. BOYD has reviewed the plans for 2012-2014 and the reserve tonnages in the Yitai Group mines. Based on our review, the output plans for the mines are achievable in our opinion although output from open pit and room and pillar mining may be required to supplement LW face output at Dadijing and Dingjiaqu mines. Depletion of FM LW reserves is expected at the Baijialiang Mine in 2012. Of the 0.8 Mt output projected in 2012, 0.31 Mt is generated from room and pillar mining operations and 0.49 Mt from FM LW operations. We project that Dingjiaqu will be transitioning into thinner LW coal reserves in 2013 and LW face output will be affected. Of the 3.0 Mt output projected in 2013, 0.50 Mt is generated from room and pillar mining operations and 2.50 Mt is produced from FM LW operations. In 2014, 2.00 Mt is projected from FM LW operations and 1.00 Mt from room and pillar operations. Dadijing will continue utilizing room and pillar mining operations for a portion of its output. Output projection for 2012 includes 0.90 Mt, generated from room and pillar mining operations. The transition from drill and blast practices to FM LW technology has been accomplished in all Yitai Group mines, and the mine infrastructures in these mines have been shown to be capable of supporting the proposed output levels. Room and pillar mining method are deployed to recover coal resources not suitable for FM LW mining methods and supplement LW face output. Yitai Group mines product projections are equivalent to the ROM tonnage; CPP processing is not planned at this time although the Group mines could utilize, the Zhunge'erzhao CPP, as required.

Depletion rate represents the rate of exhaustion of reserves of a mine. In the context of this CPR, depletion rate of a mine refers to the exhaustion rate of marketable reserves as of December 31, 2011 on the basis of aggregate projected output from 2012 to 2014. The depletion rates for Yitai Group mines are as follows:

Mine	Marketable Reserves (Mt) As of 31 December 2011*	2012 to 2014	
		Projected Output (Mt)**	Depletion Rate (%)
Dadijing***	51.8	11.2	22
Baoshan	14.6	6.6	45
Dingjiaqu	16.3	9.0	55
Chengyi	4.8	3.6	75
Baijialiang	0.5	0.8	100

* Reflect BOYD's reserve estimation which only includes minable reserves suitable for FM LW mining method.

** Reflect Yitai Group's projections which include FM LW mining and DB mining operations where applicable.

*** Reserve and output from open pit operations excluded.

5.6.2 Projected Staffing

Projected staffing (including third-party service providers) at full output capacity is shown as follows:

Category	Employees at Full Production											
	Dadijing		Baoshan		Dingjiaqu		Chengyi		Baijialiang		Total	
	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other	Yitai Gp.	Other
Underground	19	610	21	327	—	269	—	219	—	213	40	1,638
Surface	—	—	—	—	4	12	12	15	32	7	48	34
Service	24	118	25	86	56	29	32	45	25	116	162	394
Subtotal	43	728	46	413	60	310	44	279	57	336	250	2,066
Total	771		459		370		323		393		2,316	

Yitai Group's projected average labor productivity at full output by mine is as follows:

Mine	Projected Full Operation Output Tonnes (Mt)	Employees		Productivity (Tonnes/employee-yr.)	
		Mine	Underground	Mine	Underground
Dadijing	4.20	771	629	5,450	6,710
Baoshan	2.20	459	348	4,790	6,320
Dingjiaqu	3.00	370	269	8,110	11,150
Chengyi	1.20	323	219	3,720	5,480
Baijialiang	0.80	393	213	2,040	3,760
Yitai Group Total/Average	11.40	2,316	1,678	4,920	6,790

5.6.3 Projected Capital Expenditures

Historical capital expenditure data were not available. Yitai Group projected future capital expenditures are summarized below:

Mine	Projected Capital Expenditures (RMB millions)			
	2012	2013	2014	Total
Dadijing	48	21	16	85
Baoshan	26	14	15	55
Dingjiaqu	23	23	22	68
Chengyi	10	9	8	27
Baijialiang	—	—	—	—
Yitai Group Total	107	67	61	235

Capital spending by major category is as follows:

Category	Projected Capital Expenditures (RMB millions)			
	2012	2013	2014	Total
Surface Infrastructure	—	—	—	—
Mine Openings and Roadway Development	—	21	21	42
Mining, Monitoring, and Misc. Equipment & Rebuilds	105	45	39	189
CPP	—	—	—	—
Other	2	2	2	5
Yitai Group Total	107	67	61	235

Note: Figures may not add due to rounding.

Sustaining capital based on projected raw coal output is RMB6.6 per tonne, which is at the low end of the range of likely requirements in our opinion to support the projected output level. However, we recognize significant mine development expenses that would be considered capital expenditures are included in operating costs. The closure of Baijialiang Mine in 2012 will also provide opportunities for equipment transfers to other Group mines. Sustaining capital expenditures are highly sensitive to equipment replacement cycles, the scheduling of which can vary in the short term.

It is BOYD's opinion that it is reasonable for Yitai Group to use domestic FM LW equipment rather than imported LW equipment at their mines, mainly for the following reasons:

- *Smaller reserve bases:* The overall reserve base at the Yitai Group mines is small. Consequently, the output level is relatively low to provide a reasonable mine life. Domestic equipment has been widely adopted at similar output levels, and the advantages of imported equipment over domestic are less significant with the given output levels and reserve bases.
- *Simpler geological conditions:* Fewer faults in the mines and fewer partings in coal seam have been encountered compared with some other mines in China, which are favorable factors for domestic equipment reliability.

- *Available experience:* The third-party service providers used in underground mining operations are frequently involved in smaller mining operations and are familiar with domestic LW equipment.

BOYD believes it is not necessary to expand the output capacities and make a major upgrade of FM LW equipment to imported equipment in Yitai Group mines due to the limited reserve conditions. The current domestic faces in our opinion are capable of sustaining the projected production plans, although routine maintenance and replacement due to normal wear and tear are required.

Since the transition to FM LW technology has been completed, Yitai Group's capital spending is projected to be used for sustaining the current production level. Operating mines generally have adequate equipment and infrastructure (including shafts, inclines, belt conveyor systems, electrical systems, pumping systems, etc.) necessary to support projected output levels. Additional openings (shafts, inclines) or extensions of openings may be required for ventilation or to access deeper occurring coal seams and/or more remote areas of the reserve. The operating depths are relatively shallow and, therefore, require relatively less excavation work. Thus, the impact of access projects on capital spending would be relatively small.

5.6.4 Projected Operating Costs

Yitai Group future operating cost projections reflecting FM LW mining methods employed in favorable conditions are as follows:

	Projected Operating Costs** (RMB/ROM tonne)		
	2012	2013	2014
Dadijing*	105	109	112
Baoshan	86	87	89
Dingjiaqu	68	70	72
Chengyi	126	127	130
Baijialiang	76	—	—
Yitai Group Average***	91	96	100

* Projected open pit mining will impact overall mine costs in 2013 and 2014.

** FM LW mining costs based on Yitai projections.

*** Yitai Group's average cost with open pit mining operations included are projected at RMB94 and RMB97 per ROM tonne in 2013 and 2014, respectively.

Operating cost projections include Labor, Benefits, Material, Supplies, Power, Water, Maintenance, Engineering, Development Expense, Exploration, Face Moves, Village Moves, Resource Fees, Coal Management Fees, Administration, and Misc. Others. Other management/overhead employees are accounted for in Yitai overhead costs. Operating cost projections do not include possible CPP costs or reflect possible processing yield impacts.

A breakdown of Yitai Group projected FM LW operating costs, on a composite basis, is as follows:

Category	Projected Operating Costs* (RMB/ROM tonne)		
	2012	2013	2014
Cash Costs			
Materials / Supplies	5	5	5
Maintenance / Repairs	2	2	2
Power / Fuel	3	3	3
Salary & Welfare	10	10	10
Production Fees	62	65	68
Subtotal — Cash Costs	82	86	89
Non-Cash Costs			
Depreciation	9	10	11
Subtotal — Non-Cash Costs	9	10	11
TOTAL	91	96	100

* FM LW mining costs based on Yitai projections.
Note: Figures may not add due to rounding.

5.7 Safety

Based on the data provided by Yitai Group, its mines did not experience any fatalities and serious bodily injuries in the period 2006 — 2011.

BOYD site visits show that Yitai Group mines follow appropriate safety standards. Underground monitoring systems are employed in the mines at multiple stations to monitor and record methane and CO contents. Yitai Group mines are ranked as low-gas mines, meaning that the relative gas generating rate is less than 10 m³/t and the absolute gas generating rate is less than 40 m³/min in these mines. Air ventilation volumes appear adequate for diluting methane liberation, explosive smoke, and dust in the development and LW faces. Based on BOYD's observations during site visits, the mines appeared to be operating in a safe manner. On the LW faces visited by BOYD, monitoring station and hand-held methane monitors indicated relatively low or non-detectable levels of methane on the LW faces.

Other customary safety practices such as coal dust suppression, spillage control, and adequate roof and rib support were also observed during the BOYD site visits. Yitai Group mines have also taken proactive steps to minimize coal and coal dust accumulations outside of the face areas. The health and safety practices are consistent with those observed at other larger PRC mining companies.

Yitai Group has implemented safety training programs, covering proper work procedures and work practices at their operations to provide for worker safety, and has established a good basis for its safety systems to support expanded future mine operations.

According to Yitai Group, their coal mines are heavily monitored by several levels of government: county, city, and region. Inner Mongolia takes the lead role in mine regulation, although city and county regulations also must be followed.

5.8 Coal Quality

Yitai Group's mining operations produce low sulfur coals, classified principally as "long-flame" (CY41) according to the Chinese coal classification system. Yitai Group's output is utilized as steam (thermal) coal products for the chemical, industrial, and power generation markets. Typical coal quality is shown below, although, for individual mining right areas and seams, certain coal quality parameters may fall outside of this range:

<u>Characteristic (as-received basis)</u>	<u>Typical Parameter</u>
Moisture (%)	17-20
Ash (%)	8-18
Sulfur (%)	0.2-0.7
Volatile Matter (%)	22-27
Calorific Value (Kcal/kg)	5,000-5,500

Coal quality by mine based on coal test report data provided by Yitai Group is as follows:

<u>Quality Characteristic</u>	<u>Yitai Group Coal Quality Summary* by Mine (As Received Basis)</u>				
	<u>Dadijing</u>	<u>Baoshan</u>	<u>Dingjiaqu</u>	<u>Chengyi</u>	<u>Baijialiang</u>
Moisture (%)	17.2	15.4	16.0	18.4	19.6
Ash (%)	9.3	6.4	12.1	5.8	4.3
Sulfur (%)	0.6	0.2	0.2	0.6	0.4
Volatile Matter (%)	27.3	27.8	27.5	26.5	29.3
Gross Calorific Value (Kcal/kg)	5,570	6,070	5,500	5,760	5,810
Net Calorific Value (Kcal/kg)	5,300	5,800	5,230	5,500	5,520

* Average based on coal quality test data for Jul-Dec 2011 provided by Yitai Group, which may not reflect typical analysis.

Yitai Group operations utilize a combination of screening, crushing, and hand-picking to increase product quality. At Baijialiang, Baoshan, and Dadijing mines, the coal is screened at 50 mm. Lump coal (plus 50-mm) is sold directly on site, while the minus 50-mm size coal is transported to nearby rail loading stations. At Chengyi and Dingjiaqu mines, however, coal is crushed to minus 50-mm size to be transported to the rail loading stations. According to Yitai Group, there is no plan to build coal washing facilities at any of the mine sites. It is BOYD's opinion that this arrangement is appropriate since the screened coal products achieve acceptable quality for the markets or, if necessary, raw coal can be transported to Yitai's Zhunge'erzhao CPP for processing.

5.9 Operating Practices

The mines produce coal approximately 300 days annually. This schedule permits 40 to 50 maintenance/ idle days, as well as 10 to 15 calendar days for major holidays, annually. Individual employees work five or six days per week, as required by the mines. On a typical production day, three 8-hour shifts are worked, which results in approximately 18 to 20 hours of production and 4 to 6 hours of repair, maintenance, and support. Although the mine design reports (except that of Dadijing) suggest a four 6-hour shift schedule, the mines use three 8-hour shifts instead, which is typical for the PRC coal industry. Each Yitai Group mine was formed by consolidating two or more former smaller mines and upgrading the mining method from drill and blast to FM LW operation. In addition to using some of the former infrastructures, new construction was completed on an as-needed basis at the new mines. Based on BOYD's site visit, mine surface facilities at the mines are well-established complexes and provide accommodations for all aspects of the mining operation, including administration and mine manager offices, materials and parts storage, shower rooms, locker rooms, bathhouse areas, conference rooms, engineering facilities, mine monitoring and communications station, etc. Living quarters for single men are often provided near the mine sites. Since the coal seams are generally shallow (mostly less than 200 m), Yitai Group underground mines typically use shallow angle inclines to access the seams for mining activities using rubber-tired vehicles. Air return shafts are used in Baijialiang and Dingjiaqu mines, while the rest of the mines use air return inclines due to the shorter distance from the current mining locations and the incline accesses.

A summary of Yitai Group mine openings by mine follows:

<u>Mine</u>	<u>Openings</u>	<u>Gradient (degrees)</u>	<u>Length (m)</u>	<u>Dimension (m)</u>	<u>Function</u>
Dadijing	Main Incline	8	262	3.6×3.5	Intake, Belt
	Service Incline	6	356	5.4×3.8	Intake, Rubber-tire Access
	Air Return Incline	6	349	3.6×3.5	Air Return
Baoshan	Main Incline	4	90	3.4×2.8	Intake, Belt
	Service Incline	1	250	4.4×2.8	Intake, Rubber-tire Access
	Air Return Incline	25	88	4.0×3.1	Air Return
Dingjiaqu	Main Incline	10	325	3.4×3.2	Intake, Belt
	Service Incline	6	637	5.2×3.9	Intake, Rubber-tire Access
	Air Return Shaft	90	73	4.0 dia.	Air Return
Chengyi	Main Incline	15	127	3.4×3.2	Intake, Belt
	Service Incline	6	287	5.2×3.8	Intake, Rubber-tire Access
	Air Return Incline	22	99	3.5×3.2	Air Return
Baijialiang	Main Incline	4	64	2.8×2.7	Intake, Belt
	Service Incline	6	76	2.5×2.5	Intake, Rubber-tire Access
	Air Return Shaft	90	70	3.0 dia.	Air Return

Both the central and local (Inner Mongolia Autonomous Region) governments have implemented increased emphasis in recent years in improving both personnel safety and resource recovery in coal mines. This resulted in the issuing of policies of consolidation of smaller coal mines and upgrading of mining techniques. Yitai Group mines have successfully completed the transition and all mines utilize FM LW technology for coal production.

An FM LW face at the Yitai Group mines typically ranges in length from 150 to 200 m and is generally supported by 100 to 140 shields, depending on shield width. LW face strike lengths vary according to the configuration of the mining right areas or other features defining the mineable reserve. Typical strike lengths range from 600 to 1,500 m. An FM LW face generally has two gates and a 20-m barrier pillar is maintained between adjacent faces. Compared with drill and blast techniques, FM LW methods have proven to be more efficient (increased mine output) while maintaining favorable economics in Yitai Group mines. A summary of active LW faces visited by BOYD follows:

<u>Mine</u>	<u>LW Face</u>	<u>Width (m)</u>	<u>Original Strike Length (m)</u>	<u>Shield Width (m)</u>	<u>No. of Shields</u>	<u>Cutting Height (m)</u>
Dadijing	3306	215	1,500	1.50	147	2.40
Baoshan	6203	200	2,300	1.50	137	2.15
Dingjiaqu	4108	200	1,700	1.50	137	2.80
Chengyi	5104	216	1,400	1.50	147	1.76
Baijialiang	1418	76	762	1.50	54	3.00

Yitai Group mining practices are similar to those of the Yitai mines. LW face retreat rates vary according to the face lengths, seam thickness, mining conditions, equipment, infrastructure, and the third-party service provider team. On the basis of our site visit observations, the installed FM LW faces appear to be capable of achieving face retreat rates in the range of 200 to 300 m per month in the coal seams currently being mined. Because of the opening heights and use of rubber-tired equipment, LW faces can be moved easily in approximately one to two weeks. Carts used for moving LW face equipment are generally rented from Yitai Group by individual mines.

LW face layout is minimally affected by villages located within the mining right areas of Yitai Group mines, which are located in Yijinhuoluo and Zhunge'er banners (counties). Small villages with a small number of residents are sparsely distributed in these areas.

Among the areas BOYD visited, most openings appeared to be well supported and stable. Roof bolting and control practices are similar to those used in the Yitai mines.

Yitai Group's approach to underground coal transportation is comparable to those employed in Yitai mines. The mines utilize belt conveyor systems of varying capacities to transport the coal from mining faces to the surface. Yitai Group's belt conveyor systems have evolved in terms of capacity as the mines have transitioned to FM LW mining. The highest capacity main incline conveyor (1.2 m width) is installed in Dadijing with an estimated capacity of 1,500 tph. LW face conveyor capacities for the LW faces are sized to exceed their associated gate and mainline conveyors in order to handle peak loading conditions. A summary of Yitai Group main incline belt conveyors follows:

Mine	Yitai Group Mines Main Incline Belt Conveyors			
	Width (m)	Length (m)	Capacity (tph)	Motor Power (KW)
Dadijing	1.2	648	1,500	2 × 250
Baoshan	1.0	770	800	2 × 160
Dingjiaqu	1.0	494	550	2 × 280
Chengyi	1.0	700	650	2 × 250
Baijialiang	1.0	720	400	2 × 110

It is BOYD's opinion that the loading capacities of the belt conveyor installations are capable of handling the coal produced by FM LW faces in the Yitai Group mines. None of these mines, however, have underground bunkering facilities, but we believe the impact of lack of bunkering to the overall production goals at these mines is not significant.

Yitai Group's approach to underground service transport is similar to those used at the Yitai mines with a reliance on rubber-tired diesel vehicles. The generally shallow nature of the mines' facilities, access by way of horizontals, or shallow angle inclines are suitable for rubber-tired vehicles. Consequently, hoisting equipment is not employed at the mines. During site visits BOYD observed that most of the major service transportation roadways were hardened, clearly labeled, well maintained, and fairly easy to access by vehicles.

Power supply is typical of general practices in coal mines in China. Yitai Group mines are installed with dual-circuit power supply systems as required by industrial standards. Electricity is purchased off of the regional power grids from nearby transformer stations with renewable contracts. According to Yitai Group, power generation in this area is sufficient and the dual-circuit systems provide additional reliability for power supply. Power transformer stations are available at mine sites to convert the voltage of incoming power into voltages required by various surface and underground locations.

Water inflows experienced by Yitai Group mines tend to be above-average for the region, but are within the capabilities of the installed pumping stations. The underground mines place a priority on maintaining adequate water-handling systems. The mines have designed effective pumping systems with redundant primary sump pumps that control water inflows from the coal seam and overlying/underlying strata. Typically the discharged water is used in mine applications (sprays, firefighting equipment, etc.) or used for surface greening irrigation. Water for firefighting and dust suppression sprays is distributed underground using a gravity flow system of pipelines.

Based on flame-length tests, coal dust generated by Yitai Group mining operations is classified as having explosive potential if ignited. Standard measures to control dust are the same as those used in the Yitai mines.

The use of limestone dust in LW gates as a precautionary safety measure to minimize propagation of potential face ignitions is required in the Yitai Group mines, as is the case with much of the Chinese coal industry.

Similar to the Yitai mines, the Yitai Group mines utilize similar underground ventilation practices with exhausting type main fans with auxiliary backups as required by regulation.

Typical of lower rank coals, the coal seams in the Yitai Group mines are rated as having significant potential for spontaneous combustion. Permanent sealing of gob areas and appropriate ventilation designs may reduce the oxidation process and prevent spontaneous combustion. Alternately, measures for rendering sealed areas inert, such as nitrogen injection, are planned by Yitai Group.

6.0 GREENFIELD MINES

6.1 Talahao

6.1.1 Introduction

The proposed Talahao Mine is located 18 km east of Dongsheng District of Ordos City, Inner Mongolia, PRC. In addition to mine and coal processing plant construction, the greenfield project includes construction of surface buildings and ancillary and support facilities.

The exploration right area, as shown in Figure 1.2, encompasses over 42.6208 km², measuring 6.4 km east to west and 6.9 km north to south. The initial development phase of mining operations is proposed for six seams beginning in the Nos. 2-2U and 3-1 seams in the northeastern portion of the exploration right area. LW mining technology with high-profile, full-seam extraction methods is projected in Talahao.

The inter-provincial highway (G-109) from Beijing to Lhasa crosses through the northern portion of the exploration right area, which is divided into two subareas (North and South). Along the western boundary, the state road G210 that connects the towns of Baotou and Nanning and a railroad (from Baotou to Shenmu) cross through the area.

Physical mining conditions at Talahao are expected to be similar to the established Yitai operations. Seam gradients are 3 degrees or less, depth of mining generally ranges from 100 to 300 m, and thickness of the individual seams ranges from 2 to 6 m. Mining conditions at Yitai mines are among the best observed by BOYD in the PRC coal mining industry and are highly favorable for FM mining operations using LW, roadheader, and CM equipment. Talahao's reserve base offers similar potential for highly efficient LW mine designs. High levels of output can be anticipated from the planned LW installations. BOYD considers the Talahao Mine plans to be appropriate for the geologic and geotechnical settings and the present understanding of potential mining hazards.

6.1.2 Mine Services

6.1.2.1 Mine Openings

Two inclines and one vertical shaft are proposed for access into the mine:

<u>Incline Opening</u>	<u>Description</u>	<u>Length (m)</u>	<u>Incline (degree)</u>	<u>Ventilation Type</u>	<u>Use</u>
1	Main	788	11.5	Intake(minor) Safety Exit	Hoisting raw coal via belt conveyor
2	Service	1,060*	5.5	Intake Safety Exit	Hoisting material, supplies, parts, and personnel
<u>Shaft Opening</u>	<u>Description</u>	<u>Depth (m)</u>	<u>Diam. (m)</u>	<u>Ventilation Type</u>	<u>Use</u>
1	Air Return	154	6.0	Return	Air return

* Initial length to the 2-2U Seam

The main incline will be concrete-lined shotcrete-treated with rebar reinforcement. Incline dimensions are proposed as 3.5 m in height and 5.0 m in width. The service incline measures 3.5 m in height and 5.2 m in width and is also lined with reinforced shotcrete. The shaft and inclines can be extended to access underlying coal seams as needed.

6.1.2.2 Underground Coal Haulage

Underground coal transportation will consist of belt conveyors and the main production incline. Raw coal generated from LW face operations and gate development faces will be conveyed to a 1,500 m³ (1,500 tonne) central bunker that will feed the main incline belt conveyor. A 1,600-mm-wide main (trunk) road conveyor operating at a speed of 4.0 m/sec will be installed in the main (trunk) entries and will provide the mine with a maximum ROM coal transportation capacity of 2,500 tph.

6.1.2.3 Underground Material and Personnel Transport

Consistent with other Yitai operations, the underground material transportation system will utilize diesel, rubber-tired haulage equipment. This type of transportation equipment is widely utilized in underground coal mines in the Shendong coalfields. A fleet of light (2 ~ 3 tonne) and the middle size (6 ~ 10 tonne) vehicles will be employed to transport material/supplies and workers from surface to underground. Heavy-duty vehicles with the capacity up to 40 tonnes will be used to transport the LW components from surface to underground or from a completed LW face to a set-up face.

6.1.2.4 Ventilation and Coalbed Methane (CBM)

Talahao's projected methane emissions are classified as low, which is typical of the general area and shallow mining conditions. Degasification prior to mining or methane recovery is not projected. The mine's preliminary design report proposes an exhausting type ventilation system with two main intake openings and one return air shaft. The return opening will be equipped with two exhaust fans with 1,250-kW motors. The total air volume required in the early stages at Talahao is 10,800 m³/min.

6.1.2.5 Water Management

Typical levels of ground water expected within the operation are 100 m³/hr (maximum 200 m³/hr). The proposed underground pumping facility has three 250-kW pump sets, which provide adequate redundancy.

6.1.2.6 Electrical Power

Mine electrical power is provided by Gaojialiang regional transformer station (110 kV), which is 8 km to the southwest of the mine area. Incoming power provided is through two 35 kV overhead lines. The two main transformers are 2 X 20,000-kVA capacity. Incoming power is distributed underground at 10 kV to the distribution system and then reduced to various utilization voltages for different equipment at different locations (10 kV, 3.3 kV, 1.14 kV, 660 V, and 127 V).

6.1.3 Mining Operations

6.1.3.1 Work Schedule

The LW and development faces are scheduled to effectively operate 330 days per year on a 7-day-per-week basis. The LW and development sections are scheduled four 6-hour shifts per day, i.e., three operating shifts and one maintenance shift.

6.1.3.2 LW Development

Based on the PDR, there are three main roadways, oriented east-west, splitting the coal No. 2-2U Seam into three districts. LW faces vary in strike length according to reserve configuration; the initial face strike length is 2,100 m. Face design lengths are 260 m. Talahao Mine geological conditions, current LW technology, and coal seam gradient were the primary factors used in the selection of the face length design.

LW panel development will be performed with roadheaders (two units are proposed). In addition, there will be two conventional drill and blast sections for main roadway development that will occur in rock, rather than in seam. Roadheaders have shown development gains at the other coal mines, outpacing conventional drill and blast methods by approximately 12 to 15 m/day with projected development rate of 600 m/month. Using conventional methods, the projected gate roadway advance rate is 200 m/month in coal and 80 m/month in rock. Material and equipment will be transported via rubber-tired haulage vehicles.

The initial gate development follows the No. 2-2U coal seam floor horizon. The LW gate road layout in District 1 has two openings in the tailgate and one in the headgate. This design allows for one return heading in the tailgate with expected low levels of methane; the second heading is used for material transport. A belt conveyor and intake roadway are maintained in the headgate. Gate roadways are on 30-m center spacing with crosscuts spaced every 200 m. The three main roadways are developed on 50-m center spacing. Gate roads are normally 3.0 m in height and 5.5 m in width.

BOYD anticipates implementation of roof bolt support systems similar to those successfully used at other Yitai mines, which includes five bolts per row with rows on 0.9-m spacing with steel straps. Resin-grouted bolts 2.4 m in length are utilized. Meshing is also installed to minimize the potential for roof strata falling out between the steel straps.

6.1.3.3 LW Operations

One FM LW face equipped with hydraulic shield supports is proposed for Talahao. The proposed supports have operating heights ranging from 3.0 to 6.0 m. The face components are likely to be sourced domestically with an annual design capacity of 5.87 Mtpa. With an additional 0.2 Mtpa generated from roadheader development, Talahao is designed to produce 6.0 Mtpa.

6.1.4 Preparation Plant/Coal Processing

The 6.0 Mtpa CPP facility planned for processing Talahao's output is discussed in the CPP section.

6.1.5 Coal Quality

Talahao coal will be sold as non-caking, long-flame coal (Chinese coal type BN 31 and CY 41 designations) for chemical, industrial, and power generation markets, as discussed in the CPP section.

6.1.6 Future Operations

6.1.6.1 Construction

In addition to the three mine openings, mine bottom, and roadway work, the greenfield project includes construction of surface buildings, CPP, ancillary, and support facilities.

The 13-month mine construction schedule summarized from Talahao's plan provided by Yitai is as follows:

<u>Activity</u>	<u>Months</u>
a. Mine openings construction, pit-bottom work, and roadway development	11
b. Equipment installation and test period	2

Yitai assumes that the mining right certificate authorization will be received in second quarter 2012. The Company has commenced site construction work in advance of obtaining the mining right certificate, including substation, mine office building, dormitories, cafeteria, raw coal (3) and product (4) silos, production service building, materials/supplies store warehouse, maintenance/repair shop and other support structures.

In order to accelerate the mine construction schedule, Yitai plans to construct the inclines to the 2-2U Seam and develop the seam for LW mining before advancing the inclines to the 3-1 Seam (this is reflected in the incline length distance above). Surface structure construction is proceeding in parallel with mine opening preparation work.

6.1.6.2 Output

Initial mining at Talahao will be in the 2-2U Seam, which averages 3.6 m in thickness. Based on the proposed panel widths, approximately 15 m/day (4,500 m/year) of LW retreat will be needed to attain the mine's estimated production capacity. Based on similar Yitai operations visited by BOYD, we believe this to be reasonable, assuming infrastructure is installed as currently planned to support the proposed output levels. Seam thickness is thinner in the 4-1, 6-1M, and 6-2M coal seams. An additional LW face may be required in later years of the mine operating life to achieve the output target of 6.0 Mtpa, although improvements in domestic equipment may make this unnecessary.

The 2012 —2014 ROM coal output for Talahao is projected by Yitai as follows:

<u>Year:</u>	<u>2012</u>	<u>2013*</u>	<u>2014</u>
Projected ROM Output (Mt)	—	3.00	6.00

* Output will initiate in Q3 2013.

The Yitai 2013 projection is aggressive considering the uncertainty of the mining right approval.

Standard practice within the PRC requires the mine to undergo a testing period following start-up. At the conclusion of a test period, the mine will transition into full production. The test period typically extends between two and six months, during which time mine systems are evaluated and debugged. Regulatory officials also inspect the mine and its infrastructure. Mines in test start-up mode typically do not attain their rated or authorized output capacity during this period.

Based on the projected output for 2012 to 2014, the depletion rate for Talahao mine would be approximately 2%.

6.1.6.3 Staffing

The Talahao PDR projects 628 personnel will be employed at full production. Yitai provided the following breakdown based on the PDR:

<u>Category</u>	<u>Projected Personnel at Full Output</u>	
	<u>PDR</u>	<u>Yitai*</u>
Underground Production	480	249
Surface	65	33
Administration and Tech Staff	51	56
Service and Support	21	104
Other	11	5
Total	628	447

* The payroll factor for seven-day-per-week coverage of operations and absenteeism was not provided by Yitai.

Temporary workers are not planned for labor services. The PDR underground labor productivity is projected at 12,500 raw tonnes/employee-year, which is achievable according to Yitai's experience in Nalinmiao No. 2 and Hongjingta No. 1 mines, which also operate in thick coal seams having highly favorable mining conditions. The Yitai staffing projection appears to be low based on the Company's staffing at its other mines.

6.1.6.4 Capital Expenditures

Capital expenditure projections for Talahao are as follows:

<u>Category</u>	<u>2011*</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Total</u>
	RMB (millions)				
Mine Openings/Roadway	—	132	131	42	305
Civil Construction	164	16	14	2	197
Mine Related Equipment	17	83	360	6	467
Other Equipment	—	7	10	4	21
Office Facilities	—	72	48	1	122
Installation	8	16	63	—	87
Construction Loan Interest	9	16	23	—	48
Working Capital	—	15	13	—	28
Contingency	—	62	53	—	115
Other	284	4	6	3	296
<u>Total</u>	<u>482</u>	<u>424</u>	<u>721</u>	<u>58</u>	<u>1,685</u>

* Accrued prior to 2012.

Note: Figures may not add due to rounding.

Talahao spending projections are adequate for this stage of mine planning. Development in the northern portion of the mining right area, including villages, industrial structures, and roads, is significant, and Yitai and the local government plan to move the villages and other structures at a budget currently totaling approximately RMB620 million. This expense is not included in the above capital expenditures projection as mining activities in the northern part of Talahao are not planned until much later in the mine's service life, well after the 2012-2014 forecasts period. Yitai has indicated that the planned expenditures for village and structure relocation will be handled as an operating expense. At full design output capacity, mine capital spending equates to RMB281 per tonne. BOYD considers the planned level of capital spending to be adequate compared to PRC coal industry experience.

6.1.6.5 Operating Costs

Projected PDR operating costs for Talahao at the 6.0 Mtpa design capacity are as follows:

	<u>Projected</u>
Output Raw Tonnes (millions)	6
Operating Cost (RMB/tonne)	
Operating Supplies, Material Usage, and Repairs	17
Power and Fuel	6
Salary and Welfare	5
Subsidence	1
Production Maintenance Fee	4
Other	50
Subtotal	83
Depreciation	11
Amortization	6
Total Operating Cost	100

Note: Unit operating cost figures may not add due to rounding.

Projected operating costs are in general agreement with experience at established Yitai operations that have transitioned to FM LW mining. The PDR cost format follows standard Chinese cost estimation and reporting practice although supporting detail for cost projections is lacking for certain categories such as Other.

Yitai's operating cost projections for Talahao in 2013-2014 are as follows:

<u>Cost Category</u>	<u>Projected Operating Costs</u>		
	<u>2012</u>	<u>2013</u>	<u>2014</u>
	(RMB/ROM Tonne)		
Cash Costs*			
Salary and Welfare	—	2	5
Materials, Supplies	—	6	6
Maintenance	—	1	3
Power/Fuel	—	3	3
Coal Washing	—	—	—
Production Fees	—	<u>49</u>	<u>48</u>
Subtotal — Cash Costs	—	61	66
Non-Cash Costs			
Depreciation	—	<u>10</u>	<u>8</u>
Subtotal — Non-Cash Costs	—	10	8
Total Operating Cost	—	71	74

* Talahao cost projections do not reflect coal washing costs if required.
Note: Unit operating cost figures may not add due to rounding.

We anticipate that Talahao's projected operating cost at design output capacity (6 Mtpa) would be significantly lower.

6.2 Bulamao

6.2.1 Introduction

The proposed Bulamao Mine is situated in the eastern portion of the Dongsheng Coalfield in the Inner Mongolia Autonomous Region, which is under the jurisdiction of Narisong Town of Zhunge'er Banner, Ordos City. In addition to mine construction, the greenfield project includes construction of surface buildings and ancillary and support facilities.

The exploration right area, as shown in Figure 1.2, encompasses over 40.21 km², measuring from 2.3 to 7.0 km east to west and 7.2 km north to south. Aobaogou Hollow, which runs north to south, divides the mine right area into two subareas (East and West).

There are two options under consideration by Yitai for mining Bulamao West and possibly Bulamao East.

- Yitai's Kaida Mine is adjacent to and west of the Bulamao West subarea and will likely be used as the permanent access to Bulamao West (Kaida Access Option). However this option has not yet been approved by the regulatory authorities.
- Alternatively, each subarea has been studied and evaluated for mining operations, with independent openings developed from the Hollow (Independent Access Option). The relevant PDR was provided to BOYD for review.

Our review encompasses both options. Yitai would prefer the Kaida Access Option. We view the Kaida Access Option as a practical solution that will minimize capital cost and allow extraction of Bulamao West reserves through an established mine infrastructure with an accelerated mine development schedule. Discussion of the Bulamao Independent Access Option option is based on the PDR provided. Review of the Kaida Access Option is based on discussions with Yitai and mine plan mapping.

Although final mining plans for Bulamao have not been approved, main roadways have been developed from Kaida into Bulamao West and the initial LW Face has been developed. Surface facilities to support mining activities for the preferred Kaida Access Option are also under construction. Yitai output projections assume

that Bulamao West mining begins within the first half of 2013. The 2013 Bulamao output projection cannot be confirmed, considering the uncertainty of approval. Presently there is no production schedule for the Bulamao Independent Access Option.

The balance of this section, which discusses the Bulamao East and West development option from independent openings in Aobaogou Hollow, also applies to the Kaida Access Option, where aspects of the coal deposit and mining operations apply to both options.

Transportation access to surrounding communities is mainly by roadways. Caojiashiwan-Yangshitaxiang (Cao-Yang) Highway, a coal-hauling-only road, was completed in October 2004 along the western boundary of the exploration right area. Yitai owns the right of way. Zhunge'er-Dongsheng Railway passes through the northern part of the area. The Wusugou loading station is located 6 km away from the Cao-Yang Highway, which greatly facilitates the transport of coal. Meanwhile, the inter-provincial highway (G-109) from Beijing to Lhasa is approximately 70 km to the north and the Daliuta Railway Station is approximately 37 km due west.

Bulamao's PDR projects three mineable coal seams, Nos. 6-2U, 6-2, and 6-2L, with initial mine development beginning in the No. 6-2U Seam. LW mining technology is planned in both the east and west subareas simultaneously. Seam gradient is expected to be 1 to 5 degrees. Overburden above the coal seam(s) ranges from 5 m in burned subcrop zones or in the hollows to 150 m. The subareas are dissected by several prominent drainage or hollow features affecting overburden depth. Mineable coal thickness is significantly thinner when compared to established Yitai operations.

The Bulamao subareas have significant planning and operating issues, primarily due to the large expanse of shallow cover areas. Significant areas of coal resources underlie areas where the overlying competent rock cover is less than 40 m. As a result, only the Nos. 6-2 and 6-2L seams are mineable in Bulamao East and the Nos. 6-2U and 6-2 are mineable in Bulamao West.

LW mining under less than 40 m of competent rock cover is problematic based on PRC geotechnical studies and general mining experience. LW face operation may be compromised because of the instability caused by excessive water infiltration and incompetent roof (extensive strata fracturing) likely to occur under shallow depths of cover. Pressure on the LW shields can be abnormally high because the shields are supporting the entire overburden load rather than the immediate roof below the main roof. We have adjusted our mine plan projections and reserve estimates to exclude areas overlain by less than 40 m of competent rock overburden as discussed in the Yitai Output Projections section. Yitai is cognizant of this factor, based on plans provided for extraction of Bulamao West reserves from the adjacent Kaida Mine.

6.2.2 Mine Services

6.2.2.1 Mine Openings

For the Bulamao Independent Access Option, two independent mining areas (East and West) are designed with three inclines for access into the mines:

Bulamao East					
Incline Opening	Description	Length (m)	Incline (degree)	Ventilation Type	Use
1	Main	110	15	Intake (minor) Safety Exit	Hoisting raw coal via belt conveyor
2	Service	100	6	Intake Safety Exit	Hoisting material, supplies, parts, and personnel
3	Air Return	60	15	Return	Air return
Bulamao West					
Incline Opening	Description	Length (m)	Incline (degree)	Ventilation Type	Use
1	Main	155	15	Intake (minor) Safety Exit	Hoisting raw coal via belt conveyor
2	Service	75	6	Intake Safety Exit	Hoisting material, supplies, parts, and personnel
3	Air Return	50	15	Return	Air return

Mine access inclines will be concrete-lined and reinforced with rebar in areas with unconsolidated overburden. The roof and ribs will otherwise be bolted and shotcrete treated. Main inclines are 4.4 m wide with a 12.9 m² net cross sectional area. Service and air return inclines are slightly smaller, 4.0 m wide and 11.1 m². Main inclines will be extended to the lower coal seams as required to provide coal haulage.

6.2.2.2 Underground Coal Haulage

Underground coal transportation will consist of belt conveyors and the main production incline. Raw coal generated from LW face operations and gate development faces is conveyed to central coal bunkers at both operations. A 900-m³ (450 tonne) bunker at Bulamao East and a 1,400-m³ (900 tonne) bunker at Bulamao West are proposed. Identical 800-mm-wide main incline belts, operating at 2.0 m/sec, and having a 250 tph capacity are proposed.

6.2.2.3 Underground Material and Personnel Transport

Consistent with other Yitai operations, the underground material transportation system will utilize diesel, rubber-tired haulage equipment. This type of transportation equipment is widely utilized in the underground coal mines in the Shendong coalfields. Light (2 ~ 3 tonne) and middle size (6 ~ 10 tonne) vehicles are employed to transport material/supplies and workers from surface to underground. Heavy-duty vehicles with a capacity up to 40 tonnes will be used to transport the LW components from surface to underground or from a completed LW face to a set-up face.

6.2.2.4 Ventilation and Coalbed Methane (CBM)

Bulamao's projected methane emissions are classified as low, which is typical of the general area and shallow mining conditions. Degasification prior to mining or methane recovery is not projected. The mine's preliminary design report proposes an exhausting type ventilation system with two main intake openings and one return air shaft. The return opening will be equipped with two exhaust fans with 75-kW motors. The total air volume required in the early stages at each Bulamao mine is 3,000 m³/min.

6.2.2.5 Water Management

Typical levels of ground water generation expected with the Bulamao operations are 25 m³/hr (maximum 50 m³/hr). The proposed underground pumping facility has three 18.5-kW pump sets for Bulamao East and three 22-kW sets for Bulamao West, which provide adequate redundancy.

6.2.2.6 Electrical Power

Mine electrical power is provided by Yangshita regional transformer station (110 kV), located 8 km to the west of the mine area. Incoming power is provided through two 35 kV overhead lines to Bulamao West and then on to Bulamao East. Incoming power will be distributed underground at 10 kV to the distribution system and then reduced to various utilization voltages (3.3 kV, 1.14 kV, 660 V, and 127 V).

6.2.3 Mining Operations

6.2.3.1 Work Schedule

The LW and development faces are scheduled to effectively operate 330 days per year on a 7-day-per-week basis. The LW and development sections are scheduled at four 6-hour shifts per day, i.e., three operating shifts and one maintenance shift.

6.2.3.2 LW Development

Based on the PDR, there are three main roadways, oriented north-south, splitting the No. 6-2U coal seam into six districts in Bulamao East and five districts in Bulamao West. LW faces vary in strike length according to reserve configuration; the initial face strike lengths are 800 and 1,365 m for Bulamao East and Bulamao West, respectively. Face design lengths are 150 m for both areas. Bulamao mines' geological conditions, current LW technology status, and seam gradient are factors in the selection of the face length design. BOYD does not believe the No. 6-2U Seam is mineable in the Bulamao East area due to shallow cover issues.

LW face development is proposed using roadheaders. In addition, conventional drill and blast methods are used for main roadway development within rock. Roadheader projected development rate is 350 m/month. Using conventional methods, the projected gate roadway advance rate is 200 m/month in coal and 80 m/month in rock. Material and equipment is transported via rubber-tired haulage vehicles.

The initial gate development follows the No. 6-2U coal seam floor horizon. The LW gate road layout has one opening in the tailgate and one in the headgate. This allows for one return heading in the tailgate, which is also used for material transport. A belt conveyor and intake roadway are maintained in the headgate. Gate roadways are on 30-m center spacing, with crosscuts spaced every 200 m. Gate roads are nominally 2.5 m in height and 4.2 m in width.

BOYD anticipates implementation of roof bolt support systems similar to those used at other Yitai mines, which includes five bolts per row with rows on 0.9-m spacing with steel straps. Resin-grouted bolts 2.4 m in length and cable bolts (8.3 m) are installed for supplemental support as required. Meshing is also installed to minimize the potential for roof strata falling out between the steel straps.

6.2.3.3 LW Operations

Domestically sourced low profile FM LW faces are proposed for the Bulamao mines. The proposed shield supports and shearers have operating heights ranging from 1.3 to 2.5 m. The LW face components have a projected design capacity of 0.6 Mtpa.

6.2.4 Preparation Plant/Coal Processing

The planned on-site screening plant in the Independent Access Option services both mines and produces four sizes of products from the (ROM) raw coal material:

Sizes
> 80-mm
80-mm — 30-mm
30-mm — 13-mm
< 13-mm

Size distribution, equipment specifications, and plant capacity are anticipated to be similar to other Yitai mines, scaled in accordance with the planned mine output. Facility staffing is estimated at 126 personnel. Proposed on-site coal storage capacity is 63,000 tonnes. Screened, sized products are transported by 40- and 60-tonne trucks for direct transport to Bulamao customers or are transported to Bulamao's coal yard in the initial phase of the mine's operation. A railroad spur connecting the mine to the Jiafeng Station on Houma-Yueshan Railway west of the mine is proposed at a later stage. Depending on ROM coal quality, the Bulamao mines' output is likely to require CPP processing.

6.2.5 Coal Quality

Bulamao coal will be sold as non-caking coal (Chinese coal classification BN31) for use in the chemical, industrial, and power generation markets. Representative coal quality data for Bulamao are shown in the Geology and Resources section of this report.

6.2.6 Future Operations

6.2.6.1 Construction

For the Independent Access Option, in addition to the three mine openings, mine bottom, and roadway work for each mine, Bulamao West includes construction of surface ancillary support facilities to service both mines.

The 15.5-month mine construction schedule summarized from Bulamao's plan is as follows:

<u>Activity</u>	<u>Months</u>
a. Preparation of site, equipment, and materials	2.5
b. Mine openings construction, pit-bottom work, and roadway development	12.0
c. Equipment installation and test period	1.0

At the conclusion of the test period, the mine will transition into full production, producing 1.2 Mt in its first 12 months after the test period.

6.2.6.2 Output

Bulamao Independent Access Option

The Bulamao PDR projects combined annual output of 1.2 Mt with one FM LW face operating in each mine. The PDR output projections are reasonably attainable and consistent with low profile, domestic LW face performance capabilities. Annual single LW face retreat rate requirements range from 1,800 to 2,000 m.

Bulamao Kaida Access Option

The 2012 —2014 ROM coal output for the Bulamao Kaida Access Option is projected by Yitai as follows:

<u>Year:</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Projected ROM Output (Mt)	—	1.60	1.60

Yitai's output projections are based on Kaida Mine extending into Bulamao West (which has been already accomplished) and receiving approval for this option and beginning LW face operations in first quarter 2013. The 2013 output projection is aggressive in our opinion, considering the uncertainty of the approval and the extent of required mine construction.

Yitai has not provided technical details concerning deployment of the LW face in Bulamao West or the adjustments to the mine's infrastructure needed to handle the output from ongoing LW operation in Kaida Mine and the output from the Bulamao West LW face.

Based on the projected output for 2012 to 2014, the depletion rate for Bulamao mine would be approximately 19%.

6.2.6.3 Staffing

The Bulamao PDR (Independent Access Option) projects 384 personnel at full production, with the following breakdown by mine and category:

<u>Category</u>	Projected Personnel at Full Output in Bulamao		
	<u>West</u>	<u>East</u>	<u>Total</u>
Underground Production	129	129	258
Surface	33	33	66
Administration/Technical Staff	8	12	20
Service and Support	10	30	40
Total	180	204	384

Temporary workers are not planned for labor services. Underground labor productivity, projected at 4,650 raw tonnes/employee-year, is significantly lower than current productivity levels at established Yitai operations operating in much thicker seams. Staffing levels as projected are low based on our experience.

Bulamao Kaida Access Option staffing has not been provided.

6.2.6.4 Capital Expenditures

Capital expenditure projections for Bulamao East and West for the Independent Access Option are as follows:

<u>Category</u>	<u>2011*</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Total</u>
	RMB (millions)				
Mine Openings/Roadway	20	34	8	—	62
Civil Construction	71	2	—	—	73
FM LW Equipment	36	23	13	3	76
Other Equipment	43	1	2	2	48
Installation	—	19	8	—	27
Working Capital	1	1	1	—	2
Contingency	12	10	1	—	23
Land Acquisition/Moving Fee	2	—	—	—	2
Other	6	2	2	1	10
Total	192	92	35	6	324

* Accrued prior to 2012.

Note: Figures may not add due to rounding.

Bulamao spending projections are adequate for this stage of mine planning. Projections for civil construction and equipment appear low based on our experience with similar projects but consistent with the shallow depth of the reserve. At full design output capacity, mine capital spending equates to RMB270 per tonne, which is adequate based on BOYD's other PRC coal industry experience. The timing for projected 2012 expenditures is uncertain considering the status of the project approval.

Capital expenditures for the Kaida Access Option have not been provided.

6.2.6.5 Operating Costs

Projected PDR operating costs for the Bulamao Independent Access Option at the 1.2 Mtpa design capacity are as follows:

	<u>Projected</u>
Output Raw Tonnes (millions)	1.2
<u>Operating Cost (RMB/tonne)</u>	
Operating Supplies, Material Usage, and Repairs	30
Power and Fuel	5
Salary and Welfare	17
Subsidence	4
Production Maintenance Fee	10
Other and Security	<u>58</u>
Subtotal	124
Depreciation	13
Amortization	<u>2</u>
Total Operating Cost	<u>139</u>

Note: Unit operating cost figures may not add due to rounding.

The PDR operating costs projections for this option appear to be reasonable, with the exception of salary and welfare costs, which would be anticipated to be higher due to staffing requirements.

Yitai's operating cost projections for the Bulamao Kaida Access Option in 2013 and 2014 (1.6 Mt) are as follows:

<u>Cost Category</u>	<u>Projected Operating Cost</u>	
	<u>2013</u>	<u>2014</u>
	(RMB/ROM Tonne)	
Cash Costs*		
Salary and Welfare	9	9
Materials, Supplies	—	—
Maintenance	7	7
Power/Fuel	4	4
Coal Washing	—	—
Production Fees	<u>51</u>	<u>53</u>
Subtotal — Cash Costs	70	72
Non-Cash Cost		
Depreciation	<u>3</u>	<u>4</u>
Subtotal — Non-Cash Costs	3	4
Total Operating Cost	73	76

* Bulamao cost projections do not reflect coal washing costs if required.

Note: Unit operating cost figures may not add due to rounding.

Based upon Yitai's operating results at Kaida Mine, the Bulamao operating cost projections appear to be reasonable and attainable. Higher operating costs at Bulamao as compared to Yitai's other mines reflect mining in thinner coal seams and lower productivity.

7.0 COAL PREPARATION PLANTS

7.1 Suancigou CPP

7.1.1 Introduction

The existing Suancigou CPP, located in the mine industrial site, began operation in 2008. The original plant design (Phase I) included two jig circuits for processing coarse coal sizes. The Phase II construction was subsequently completed to add dense media vessel and cyclone circuits and expand processing capacity to 12.0 Mtpa capacity. Initial operation of Phase II began in February 2010. The CPP has completed the third phase of civil construction for expansion of processing capacity and modification of processing circuitry to provide 16 Mtpa plant processing capacity (total processing capacity for the three phases of construction) using dense media vessel and cyclone circuits. The processing equipment for the third phase has not yet been purchased; mine output in 2012 is projected to be 14 Mt and the Phase III processing capacity will not be needed in 2012. As mine output expands in 2013 and beyond, the full 16 Mtpa capacity will be needed. Our review is based in part on the PDR prepared by the Beijing Yuanzhihan Coal Engineering Design Co., Ltd., dated December 2008 that presents a 12.0 Mtpa capacity plant design. The surface coal handling and storage facilities are designed to accommodate a maximum capacity of 16.0 ROM Mtpa (12 Mtpa for Phase II, although civil construction and other utilities were built with a capacity of 16 Mtpa). A rapid railway loading system has been constructed adjacent to the Suancigou CPP. We reviewed the existing facility and proposed CPP design for adequacy of plant design and capability of meeting processing requirements. BOYD personnel visited the plant site in September 2009, February 2011, and February 2012.

7.1.2 Coal Quality

Suancigou Mine operates in the Nos. 4 and 6 seams, which have medium to high ash content, and low phosphorus and have relatively high calorific values when cleaned. Volatiles range from 37% to 43%, and clean coal sulfur ranges from 0.45% to 0.85%. Proportions of No. 4 Seam and No. 6 Seam are typically 40% and 60%, respectively, by design but proportions fluctuate with LW face performances. Bulk sample sizing data indicate that the minus 2-mm slimes with ash content approximating 30% will be difficult to sell outside of the region and are likely to be consumed locally. Bulk sample screening analysis for Suancigou ROM output from the PDR design is as follows:

<u>Size Fraction (mm)</u>	<u>(%)</u>	<u>Mad (%)</u>	<u>Ad (%)</u>	<u>Calorific Value Qnet.ar (Kcal/kg)</u>
Plus 150	4.5	3.9	46.1	3,070
150 — 100	4.8	3.9	44.3	3,220
100 — 50	17.2	3.9	44.2	3,230
Plus 50	26.5	3.9	44.8	3,180
50 — 25	18.6	4.3	35.2	3,940
25 — 13	13.1	4.3	33.2	4,100
13 — 6	13.9	4.3	34.3	4,010
6 — 3	12.0	4.7	30.6	4,280
3 — 0.5	10.4	4.7	28.0	4,500
Minus 0.5	5.5	4.4	32.1	4,180
Minus 50	73.5	4.4	32.7	4,130
Total	100.0	4.3	35.9	3,880

7.1.3 Material Handling

Coal from the mine incline is conveyed to the four raw coal silos, each with 10,000-tonne capacity. One of the silos is utilized for storing raw coal used by the mine's power plant (Suancigou). Coal is distributed with two AFCs situated on top of the silos. Underneath each silo are four vibrating feeders that allow for the plant to be fed from any silo or combination of silos. Plant refuse is conveyed to a 3,000-tonne capacity refuse silo for temporary storage before it is transported by truck to a local power plant or to a disposal site. Clean

product coal from the CPP is conveyed to three 10,000-tonne capacity product silos. From the product silos, the coal is conveyed to a batch-weigh train loadout having a 4,200 tph loading capacity. The facility can load a 55-car train of 70 to 80-tonne cars in 50 minutes. The main CPP products are 200-mm x 0 and 50-mm x 0 thermal coals for utilization in power plants. CPP refuse and higher ash fines are sold as fuel for the local power plant.

7.1.4 Utilities

The plant is located on the mine industrial site near a power plant; all required utilities are available in the immediate area. Electrical power is provided by two loops of 10 kV line from the 110/10kV transformers. Domestic water requirements are provided from the local system. Plant make-up water is sourced from water pumped out of the mines. Domestic sewage from the CPP is processed at the main mine sewage treatment plant. Plant make-up water is necessary since the water content of the clean coal and refuse are higher than the feed coal. The plant fine refuse slurry systems operate in closed-loop mode; the only water leaving the plant is combined with the coal or refuse solids. With proper pond and tank storage, projected water requirements are sufficient for the CPP processing as well as firefighting and domestic water needs. Steam for heating and other uses is provided from an on-site coal-fired boiler.

7.1.5 CPP Capacity

The plant design feed rate in the PDR is 2,270 ROM tph, which equates to 12.0 Mtpa processing capacity. However, the plant is proceeding with a 16.0 Mtpa design and 3,030 ROM tph processing rate. The PDR projects the standard operating schedule of 330 operating days per year and 16 operating hours per day (5,280 operating hours per year). Mechanical availability for CPPs with one maintenance shift per day is typically 85% to 95% of available operating hours, translating to 17 to 19 hours of operating time per day in order to process 16 Mtpa.

The following table shows expected CPP products from a blend of the No. 4 and No. 6 seams at typical and lower ROM coal qualities:

Product	Typical ROM Coal Quality				Lower ROM Coal Quality			
	Yield (%)	Ash (%)	Total Moisture (%)	Calorific Value Qnet.ar (Kcal/kg)	Yield (%)	Ash (%)	Total Moisture (%)	Calorific Value Qnet.ar (Kcal/kg)
Lump Coal (200X50-mm)	13.2	19.2	12.2	5,080	10.8	19.7	12.2	5,040
Middle Lump (50X13-mm)	21.2	18.9	12.6	5,060	14.3	18.9	12.6	5,070
Minus 13 mm (13X1-mm)	20.6	16.8	12.2	5,270	20.0	17.2	12.2	5,240
Subtotal — Clean coal	55.0	18.2	12.3	5,150	45.1	18.3	12.3	5,140
Coarse Slimes (1X0.15-mm)	10.7	31.9	14.0	3,900	10.3	37.6	14.0	3,440
Fine Slimes	4.4	36.6	29.2	2,430	5.2	41.1	29.2	2,060
Subtotal — Slimes	15.1	33.3	18.4	3,470	15.5	38.8	19.1	2,980
Lump Refuse	21.6	70.6	13.6	770	26.1	71.4	13.6	700
Minus 13-mm Refuse	8.3	67.6	17.8	700	13.3	69.1	17.8	580
Subtotal — Refuse	29.9	69.8	14.8	750	39.4	70.6	15.0	660
ROM Coal	100.0	35.9	9.8	3,880	100.0	42.1	9.8	3,500

On a composite basis without the slimes, the product is 18.2% ash at 55% yield. When the raw coal quality of the No. 6 Seam deteriorates, the yield reduces to 45% to produce an 18% ash product without slimes. For 2011, Yitai reported a processing yield of 73% of the ROM tonnage for Suancangou including the slimes in the product tonnage. Historical performance is as follows:

Period	ROM Tonnes Processed (Mt)	Product Tonnes (Mt)	Yield (%)
Oct.-Dec. 2010	3.05	2.42	79.3
Jan.-Dec. 2011	9.70	7.06	72.8

7.1.6 CPP Circuitry

The original CPP circuitry, comprised of two jigs, were replaced with the heavy media circuitry. In the new CPP design, ROM coal is sized at 200 mm on the two existing raw coal screens with the plus 200-mm material transferred to a hand-picking belt before reporting to the crusher. Minus 200-mm material is conveyed to the new CPP building for sizing and desliming at 13 mm on six raw coal screens. The new CPP is designed with three complete circuits that can be operated independently. The two circuits completed in February 2010 have a combined capacity of 12 Mtpa. The third circuit projected to be completed in 2012 will expand the total capacity to 16 Mtpa with this arrangement. A circuit idled for maintenance does not affect the remaining two operating circuits.

Minus 13-mm material from the raw coal screens flows to a chain/flight conveyor, where it can be directed to the product conveyor or to the dense media cyclone (DMC) circuit. The plus 13-mm coal reports to the dense media vessel (DMV) circuit with three 7.9-m shallow bath vessels.

Clean coal from the DMV goes onto six drain and rinse screens, where the media is drained and rinsed off the coal. The bottom deck product flows to the product conveyor after dewatering in the centrifuge and the plus 50-mm coal on the top deck reports to a crusher for sizing to minus 50 mm and on to the product conveyor. The crusher can be bypassed to produce a larger lump coal when desired. Refuse from the DMV is also drained and rinsed on three refuse screens from which the refuse is directed to the refuse conveyor and the refuse silo. The drained media returns to the DMV sump for recirculation; the rinsed media reports to a sump to be pumped to magnetic separators, which recover the magnetite to the DMV circuit. The recovered liquid containing coal solids reports to the slimes circuit.

Minus 13-mm material for cleaning in the DMC circuit is conveyed to three deslime screens for sizing at 1.5 mm, with the plus 1.5-mm stream reporting to three dense media cyclone sumps for transfer (pumping) to three large diameter (1,450 mm) DMCs, one per DMC circuit. Clean coal from the cyclone is drained and then rinsed on three drain and rinse screens and is transferred to three 1,400-mm vibratory centrifuges for dewatering. Refuse from the cyclone is drained and rinsed on three refuse screens and reports to the refuse conveyor. Magnetite rinsed off of the coal and refuse is transferred to the dilute circuit and pumped to six magnetic separators for recovery and re-cycling back to the media sumps.

Deslime screen underflow (minus 1.5-mm material) is pumped to six classifying cyclones. The concentrated underflow from the cyclones is sent across six curved sieves for additional water and fines removal. The sieve product reports to six 1,000-mm centrifuges for dewatering and to the fines chain/flight conveyor. Overflow from the classifying cyclone is nominally minus 0.150-mm material and flows to the three 35-m diameter thickeners. The clarified thickener overflow water is pumped to the plant for reuse as process water. Underflow from the thickeners is pumped to two hyperbaric disk filters for dewatering; the resulting filter cake reports to the fines conveyor. Effluent water and solids from the hyperbaric disk filter are pumped to the single 20-m diameter ultra-fines thickener from which the solids are pumped to two 2x2-m plate and frame pressure filters. The filter cake also reports to the fines conveyor. The fines conveyor can put the fine product on the main product conveyor or it can be directed to a separate storage pile for the on-site power plant feed.

The main plant structure is steel design with a modern open type layout that provides for an overhead travelling crane for easier equipment access. Thickeners situated outside of the main plant building are covered to prevent winter freezing. Product ash is affected by the media density, which is constantly monitored by nuclear density measuring devices. The plant design incorporates computerized plant control, monitored and directed from a central control room, with sump levels and density maintained automatically.

7.1.7 Staffing

As of 31 December 2011, 161 employees were engaged in the operation of the CPP and coal handling system, as follows:

Category	Planned					Total	Actual as of 31 December 2011
	Shift 1	Shift 2	Shift 3	Day	Payroll Factor*		
Workers	28	28	28	84	1.32	111	109
Managers	6	—	—	6	1.00	6	6
Service Staff	36	—	—	36	1.00	36	38
Sampling/Lab	6	—	—	6	1.32	8	8
Total	76	28	28	132		161	161

* Payroll factor provides coverage for seven-day-per-week operations, injuries, leave, and sickness.

Among the 161 personnel shown in the table, 12 are Yitai employees and the remaining personnel are employees of a third-party service provider, Yuanzhihan Coal Preparation Engineering and Technical Company Limited.

For operations of this size elsewhere in China, in our opinion, additional employees not shown in the above table will be needed due to the more complex circuitry of the new plant and the expansion in processing capacity from 12 Mtpa to 16 Mtpa. We estimate that 14 additional personnel will be required for general building upkeep, maintenance and support, and management. The additional management employees are needed due to the intention to operate 20 hours per day, requiring higher levels of operations and maintenance planning and coordination. These additional personnel bring total projected employment to 175, equating to 91,000 raw tonnes processed per employee-year, which is in the highly productive range for coal processing plants in China.

According to Yitai, third-party service providers will be operating the facility; consequently, the staffing breakdown is unknown.

7.1.8 Construction and Capital Costs

The total capital budget projected in the PDR for constructing a 12.0 Mtpa processing capacity facility is RMB228 million. On an annual raw tonnage basis, the projected investment is RMB19 per annual feed tonne or RMB100,000 per raw tph of input at 12.0 Mtpa. As of 31 December 2011, capital spending amounted to RMB154 million. A breakdown of the PDR capital budget is as follows:

Category	RMB (millions)
Construction and Erection	58
Equipment	100
Installation	39
Other	31
Total	228

Capital in the amount of RMB74 million is budgeted to expand the processing capacity from 12.0 Mtpa to 16.0 Mtpa, which appears adequate.

7.2 Zhunge'erzhao CPP

7.2.1 Introduction

BOYD reviewed the Zhunge'erzhao 10.0 Mtpa CPP project based on information from the PDR, as prepared by the Beijing Huayu Engineering Co., Ltd., Sino Coal International Engineering Group, dated December 2008, for adequacy of plant design and capability of meeting projected processing requirements. In

September 2009, BOYD personnel visited the plant site at which time construction was in progress. Zhunge'erzhao is located in Zhunge'er Banner, Inner Mongolia, adjacent to Yitai's Zhunge'erzhao rail loadout, approximately 26 km southeast of Ordos City. The CPP started its test run operation in June 2010. For 2011, Yitai reported a processing yield of 86% of the ROM tonnage.

Historical performance is as follows:

<u>Period</u>	<u>ROM Tonnes Processed (Mt)</u>	<u>Product Tonnes (Mt)</u>	<u>Yield (%)</u>
Jul.-Dec. 2010	0.388	0.331	85.3
Jan.-Dec. 2011	2.756	2.371	86.0

The CPP is capable of washing coal from the following Yitai and Yitai Group mines in proximity to the Baofu Highway:

<u>Mine</u>	<u>Output Capacity (Mtpa)*</u>
Dadijing	3.0
Baoshan	1.9
Dingjiaqu	2.3
Chengyi	1.2
Fuhua	1.3
Total	9.7

* According to coal production certification.

An additional coal purchased from non-Yitai-controlled local coal mines may also be processed. In addition to its large processing capacity, the facility has extensive capability for coal storage and blending with multiple product silos and is adjacent to a large storage yard with four bucket-wheel reclaimers and two batch-weigh rail loadouts. These facilities also serve the Zhunge'erzhao rail loading facility.

7.2.2 Coal Quality

Coal feeding the CPP is produced in the Dongsheng Coalfield primarily from the following coal seams: Nos. 3-2, 4-2, 5, 5-1, 5-2, and 6. According to the PDR, the following raw coal ash content anticipated:

<u>Mine</u>	<u>Seam No.</u>	<u>Ash (%), d</u>	
		<u>Seam Only</u>	<u>With Dilution From Roof and Floor</u>
Dadijing	3-2	10.5	15.2
	4-2	9.6	16.1
	5-1	7.2	26.6
	5-2	6.3	17.4
Baoshan	6	18.5	22.7
Dingjiaqu	4-2	7.7	37.2
	5-2	11.4	16.2
Chengyi	5	9.5	20.4
	6	9.6	42.5
Fuhua	6	10.0	23.9

Additional coal quality data for raw coal and clean coal (1.4 gravity float results) are as follows:

Mine	Coal Seam No.	Average Analysis by Coal Seam							Raw Qgr.d (Kcal/kg)
		%							
		Raw				Float			
	M_{ad}	A_d	V_{daf}	Sulfur ($S_{t,d}$)	A_d	M_{ad}	V_{daf}		
Dadijing	3-2	9.7	6.3	38.0	0.54	3.6	6.0	37.8	—
	4-2	9.0	7.1	39.3	0.59	4.3	5.9	39.5	—
	5-2	8.9	6.3	35.1	0.38	3.9	6.1	36.4	—
	5-2	7.9	5.3	35.0	0.24	3.7	6.1	36.4	—
Baoshan	6	6.0	13.4	34.5	0.41	4.8	8.7	34.4	6,190
Dingjiaqu	4-2	6.6	8.2	35.2	0.35	4.3	6.1	35.8	6,890
	5-2	6.7	7.7	34.8	0.36	4.5	6.7	35.4	6,940
Chengyi	5	9.7	9.8	33.5	0.55	4.8	11.0	34.5	6,300
	6	9.6	8.8	35.3	0.55	4.9	10.6	33.9	6,360
Fuhua	6	5.7	10.3	33.6	0.31	4.2	9.4	33.8	—

The Zhunge'erzhao processing plan produces three main products having less than 12% ash (dry basis), less than 0.45% sulfur (dry basis), and as-received heat value of 5,500 Kcal/kg or higher:

- <50-mm steam coal for power plants near China's eastern coastal areas.
- <25-mm unwashed steam coal for power plants near China's eastern coastal areas.
- 200 – 25-mm lump coal for various markets.

7.2.3 Material Handling

Raw coal from the mines is delivered by trucks over the local highways to the storage yard. Trucks are weighed at the entrance, where there are several truck scales side-by-side to handle the high volumes required. The trucks dump coal into the storage yard, consisting of four bucket-wheel stacker/reclaimer systems. Each of the four storage rows is approximately 700 m long by 45 m wide, providing large storage and blending capabilities. The yard can store 1.5 Mt of coal, which can be reclaimed for the train loading systems (two) or conveyed to the CPP raw coal silos.

To feed the CPP directly, the trucks bypass the storage yard and discharge into one of eight truck bins. Coal feeders in the bottom of the bin discharge the coal onto conveyors that transfer the coal to the top of the raw coal storage silos (one existing and two planned), each with a capacity of 15,000 tonnes. From the silos, coal is reclaimed with feeders and conveyed to the screening/crushing building, where the coal is screened at 200 mm on two vibrating screens. The plus 200-mm material is transferred to a slow-moving belt conveyor, where rock is removed by hand-picking and the coal pieces are crushed to minus 200 mm. Coal is sent across four screens, which separate at 13 mm with the plus 13-mm coal conveyed to the coarse circuit in the main CPP, and the minus 13-mm coal can be conveyed to the intermediate circuit of the main CPP or bypassed directly to the product storage silos as direct-ship minus 13 mm.

Products from the plant are conveyed to the six product silos with a capacity of 10,000 tonnes each. The washed product can be placed into a separate silo from the direct-ship coal and shipped separately or blended during train loading. In addition to the six product silos, a 3,500 tonne lump coal silo is available for plus 25-mm or plus 50-mm lump coal. There are two reclaim conveyors from the six product silos feeding two separate batch-weigh train loadouts. Two trains can be loaded simultaneously if desired, utilizing any single or combination of silos. There is also a 3,500-tonne refuse silo from which the coarse refuse is transported by truck to nearby valley-fill placement.

7.2.4 Utilities

The nearby Hushigou drainage to the west provides water for the facilities. Water from Hushigou is pumped to two 2,000 m³ storage tanks for CPP and loadout use. Water consumption for all facilities is projected at 35 m³/d for domestic use, 360 m³/d for such uses as road watering and landscaping, and

3,100 m³/d for plant make-up. Plant make-up water is necessary due to water losses in the clean coal and refuse. The plant fine refuse slurry systems operate in closed-loop mode so that the only water leaving the plant is with the coal or refuse solids. Domestic sewage is handled in a septic tank followed by a sewage treatment facility.

Electricity is provided from a nearby 35 kV substation, which feeds two 20,000 kVA transformers for the CPP, and adjacent loadout and railway station. One transformer is operating with a redundant back-up unit. Utilization voltages include 10 kV, 660 V, and 220/380 V. Two lines provide redundant power for the CPP.

7.2.5 CPP Capacity

Extensive washability and sizing analyses performed on No. 6 Seam bulk samples from the Baoshan Mine became the basis for detailed CPP design. CPP products assuming washing of all size fractions or washing only the plus 25 mm are shown below:

Product	Final Products if All Sizes Washed						
	Wt (%)	Quantity			Ad (%)	Moist (%)	Qnet. ar (Kcal/kg)
		T/hr	T/d	T/a			
+25-mm	27.9	529	8,468	2,794,500	6.6	17.0	5,720
-25-mm	54.0	1,023	16,363	5,399,800	9.4	17.3	5,510
Refuse	18.1	342	5,472	1,805,700	91.0	17.3	N/A
Raw Coal	100.0	1,894	30,303	10,000,000	23.4	17.0	4,630

Product	Final Products if Only +25 mm Washed						
	Wt (%)	Quantity			Ad (%)	Moist (%)	Qnet. ar (Kcal/kg)
		T/hr	T/d	T/a			
+25-mm	27.9	529	8,468	2,794,500	6.6	17.0	5,720
-25-mm	57.4	1,086	17,382	5,736,200	13.9	17.8	5,200
Refuse	14.7	278	4,452	1,469,300	92.4	17.0	N/A
Raw Coal	100.0	1,894	30,303	10,000,000	23.4	17.0	4,630

Note: Figures may not add due to rounding.

To meet the 10.0 Mtpa processed ROM coal requirement, the plant feed rate is designed at 1,890 ROM tph, assuming 16 operating hours per day and 330 operating days per year. The operating schedule (5,280 operating hours) does not provide for mechanical downtime. Mechanical availability for CPPs with one down shift per day is typically 85% to 95% of available operating hours. If the CPP's third shift can process coal when needed, then the 1,890 tph design processing rate is adequate; otherwise, a plant feed rate of 2,230 tph is needed to allow for an 85% mechanical availability during the 16 hours per day of scheduled operating time. BOYD has assumed that third-shift plant operation is utilized as needed to meet coal processing needs and the 1,890 tph feed rate is adequate for the projected 10.0 Mtpa ROM processing requirement.

7.2.6 CPP Circuitry

The CPP is a dual circuit plant design, with two complete units capable of processing half of the 1,890 tph of plant feed rate. Plus 13-mm coal from the raw coal screening building reports to deslime (pre-wet) screens, where fine materials clinging to the coal particles are removed with rinse water on 3-mm screen panels. The deslimed coarse coal is sent to two DMVs, which are shallow bath separators where the liquid suspension of ground magnetite and water is dense enough to float the coal and sink the rock and higher ash particles. Floating coal flows with the media on to the coarse coal drain and rinse screens, where the media is drained from the coal and returns to the DMV sump. The coal is then rinsed with water, which flows to a sump and is pumped to the magnetic separators, where the magnetite is recovered to the DMV circuit and the liquid with coal solids goes to the slimes circuit. Coal particles smaller than 25 mm fall to the bottom deck of the screen and report to the centrifugal dryer and the product conveyor. Coal particles larger than 25 mm remain on the top deck, traveling to the crusher to be sized to <50 mm and conveyed to the product silos with the <25-mm

coal. Rock and high ash coal with a density greater than the selected media density sink to the bottom of the DMV and a chain/scrapper conveyor removes this refuse material from the DMV and onto a refuse drain and rinse screen and transfers to the refuse conveyor.

The <3-mm undersize material from the deslime screen flows to a sump and is pumped to classifying cyclones where the underflow goes to a Teeter Bed Separator. The Separator uses a hindered bed separation to float coal, which flows to sieve screens and a fine coal centrifuge. The dried coal is transferred to the <13-mm product conveyor. Refuse from the bottom of the Teeter Bed is sent to high frequency refuse screens and onto the main refuse conveyor. The overflow from these classifying cyclones flows to the clarifying thickeners.

Raw coal from the raw coal screening building with <13-mm sizing can bypass the CPP for direct shipping or be conveyed to the main CPP building, where it is deslimed by screening and transferred to DMCs. Clean coal is discharged from the overflow portion of the cyclones and transferred to clean coal drain and rinse screens, where the media is drained and the coal is rinsed before proceeding to the centrifugal dryer and to the fine coal product conveyor. The refuse from the underflow of the DMC is drained and rinsed on refuse screens and placed on the refuse conveyor, which transports the plus 1-mm refuse to the refuse silo. Material smaller than 1 mm is pumped to slime sump and to classifying cyclones, where the underflow is treated in a Teeter Bed Separator circuit similar to the <3-mm material from the coarse circuit.

Overflow from the classifying cyclones and other streams with material smaller than 0.25 mm report to the three 35-m diameter thickeners, where flocculating chemicals are added to enhance particle settling. The clarified water that flows over the top of the thickener is re-cycled back into the plant as process water. The underflow solids are pumped to two types of filters: three hyperbaric disk filters or three plate and frame pressure filters, which are used interchangeably, depending on product requirements (plate and frame filters are simpler and provide low moisture in one stage). The filter cake can be combined with the direct-ship <13-mm product or transported to a storage yard for further air drying and blending. When slime ash content is high, it can be conveyed to waste silo by conveyor for sale to the power plant.

The main plant structure, 82 m long and 32 m wide, is steel-framed with a modern open type layout that provides for a full-height overhead travelling crane for hoisting material and equipment. Thickeners, located outside of the main plant building, are covered to prevent winter freezing since the temperature is below freezing typically half the year. From a central control room, the plant is computer-controlled with an Alan-Bradley PLC system that automatically maintains sump levels and density.

7.2.7 Staffing

Staffing of 109 employees is planned in the PDR for the operation of the CPP and coal handling systems. According to Yitai, third-party service providers will be operating the facility, with staffing breakdown as follows:

Category	Staffing Projection					Total
	Shift 1	Shift 2	Shift 3	Day	Payroll Factor*	
Workers-Production	33	33	—	66	1.35	89
Workers-Maintenance	—	—	22	22	1.35	30
Managers	11	—	—	11	1.00	11
Service Staff	16	—	—	16	1.00	16
Sampling/Lab	5	—	—	5	1.35	6
Total	65	33	22	120		152

* Payroll factor provides coverage for seven-day-per-week operation, injuries, leave and sickness.

Among the 152 personnel shown in the table, 16 are Yitai employees and the remaining personnel are employees of a third-party service provider, Tianjin Boditongsheng Company.

At the projected staffing and 10 Mtpa, plant productivity equates to 66,000 raw tonnes per employee-year, which is in the highly productive range for coal processing plants in China.

7.2.8 Construction and Capital Costs

The CPP design, completed in 2008, was approved by the local government in March 2009. Civil construction began in April 2009 and was completed in April 2010. Limited test run operation was initiated in June 2010.

The projected capital budget of RMB512 million is reasonable for the nature of the project, a large plant with 1,890 tph processing capacity capable of cleaning down to 0.25-mm particle sizes with extensive coal storage and blending capabilities. Proposed capital spending equates RMB51 per annual raw feed tonne or RMB270,000 raw tph of input. As of 31 December 2011, all construction and equipment installation had been completed. A breakdown of projected and actual capital spending is as follows:

Category	RMB (millions)	
	Projected	Actual Spending YTD 31 December 2011*
Civil Engineering	197	187
Equipment	218	144
Installation	59	31
Other	38	64
Total	512	426

* Actual costs are expected to approximate projected costs.

7.3 Talahao CPP

7.3.1 Introduction

The Talahao CPP is located in Talahao Mine industrial area. BOYD reviewed the PDR for the proposed Talahao 6.0 Mtpa CPP project, as prepared by the Coal Industry Jinan Design and Research Institute Company Ltd., dated October 2008. Our review assessed the adequacy of plant design and capability of meeting mine processing requirements.

7.3.2 Coal Quality

Coal from the Talahao Mine is classified as non-caking coal, long-flame type with medium moisture content. The coal has the characteristics of low ash content, relatively low sulfur content (Chinese coal classification categories CY41 and BN31), very low phosphorus content, and relatively high calorific value, with good quality characteristics for steam coal markets and for chemical uses such as coal to liquids. The major mineable seams, Nos. 3-1, 4-1, 5-1, and 6-2_{middle}, have an average thickness of over 2.2 m, except for the No. 5-1 Seam, which averages over 5 m in thickness. The significance of the seam thickness is that there is generally less out-of-seam dilution with thicker seams. The Talahao CPP may experience higher dilution levels when seam thickness is in the 2 m or less range or when there are partings within the seams.

The following table shows the range of raw coal quality for different seams from the PDR report.

Seam	Proximate Analysis (%)			Calorific value (Kcal/kg)		Sulfur d (%)	Char Residue Type	Coal Type
	Mad	Ash d	Vdaf	Qgr,ad	Qnet,d			
2-2 _{upper}	10.6	6.2	37.1	7,110	6,920	0.40	2	CY41
3-1	8.9	9.4	35.2	6,540	6,380	0.78	2	BN31
	5.3	8.2	38.6	6,980	6,760	0.37	2	CY41
4-1	5.6	7.7	35.5	6,800	6,630	0.98	2	BN31
	12.6	9.9	33.3	6,520	6,360	0.98	2	BN31
5-1	4.8	7.5	35.0	6,680	6,480	0.75	2	BN31

Since bulk samples were not available for Talahao, plant sizing and washability data were taken from bulk samples gathered from the nearby Changhangou Mine, which is mining the No. 5-1 Seam. This data became the basis for the CPP design, which is a partial wash design — that is, washing the coarse sizes and bypassing the finer ROM coal stream to product. According to the limited PDR washability data, the washed plus 13-mm coal fraction easily achieves 8% dry ash. When combined with the 16.5% ash material in the minus 13-mm size fraction, the product ash is 12.4%.

7.3.3 Material Handling

Talahao run-of-mine coal is conveyed by the incline belt conveyor to the crushing building, where the material is screened at 200 mm with the oversize crushed to <200 mm. After sizing in the crushing building, the coal is conveyed to two raw coal storage silos, each with a capacity of 10,000 tonnes. The coal is fed from the bottom of the storage silos at approximately 1,140 tph and conveyed to the CPP and dry-screened at 13 mm. The plus 13-mm coal is washed and sent to the product silos on the clean coal conveyor, while the minus 13-mm coal is passed directly to the product silos on the <13-mm direct-ship (slack coal) belt conveyor. Plant refuse is conveyed to a refuse silo from which it is trucked to nearby valley fill placement for disposal. There are four 10,000 tonne silos for product storage. Normally two silos are dedicated to washed coal and two to the direct-ship fines, although either product can be sent to any of the four product silos. Two flight and chain scraper conveyors on top of the silos provide for distribution with slide gates. A lump coal silo is also planned.

A conveyor under the four product silos transfers coal directly to the batch weigh unit train loadout tower. Batch weigh systems typically load at rates of 3,000 to 4,000 tph. Any combination of products can be loaded into the railcars. The majority of the coal is shipped by rail; a truck scale is provided for coal shipped to local markets. The primary markets designated for Talahao output are the Dalu Coal- to-Liquid project and steam coal for power plants. Approximately 5.2 Mtpa is planned for shipping by rail on the Zhundong and Dazhun rail line with the remainder by local road to local markets using 40 and 60 tonne trucks. A proposed railway spur line connects to the Gonggou Station on the Zhundong Railway.

7.3.4 Utilities

Total maximum electrical load of the installed CPP machinery is 8,150 kW; power is provided to the CPP from the nearby 35 kV coal mine electrical substation and the local power grid.

Domestic water requirements are provided from wells, processed mine water, and the nearby public system. Plant make-up water can be provided by processed domestic sewage water as well as processed mine water and well water if needed. Domestic sewage from the CPP is processed at the main mine sewage treatment plant. Water consumption for the CPP is expected to be 11.5 m³/d for domestic use, 60 m³/d for plant floor washing, etc., and 976 m³/d for plant make-up. Plant make-up water is necessary since the water content of the clean coal and refuse are higher than the feed coal. Plant fine refuse slurry systems operate in closed-loop mode so that the only water leaving the plant is with the coal or refuse solids. With proper pond and tank storage, the projected water requirements are sufficient for the CPP processing as well as firefighting and domestic water needs. One pump in the water supply system is dedicated for firefighting only, with tanks holding water in reserve. Steam for heating and other uses is provided from an on-site boiler, which gets its fuel from the direct-ship fine coal silo.

7.3.5 CPP Capacity

The CPP design projects plant feed rate at 1,140 ROM tph, with 330 operating days per year and 16 operating hours per day, resulting in 6.0 Mtpa ROM coal processing capacity. The operating schedule does not provide for mechanical downtime during operating hours. Mechanical availability for CPPs with one down shift per day is typically 85% to 95% of available operating hours. If the CPP's third shift can process coal when needed, the 1,140 tph design processing rate is adequate. BOYD has assumed that third-shift plant operation is utilized as needed to meet coal processing needs and the 1,140 tph feed rate is adequate for the projected 6.0 Mtpa ROM coal requirement.

The quantity and quality of product and refuse streams projected in the PDR assuming 17.2% ROM ash content (dry basis), is as follows:

<u>Product Description</u>	<u>TPH</u>	<u>TPD</u>	<u>TPY (000)</u>	<u>% of Feed</u>	<u>Ad (%)</u>	<u>Calorific Value (Kcal/kg)</u>	<u>Moist (Mt) (%)</u>
Washed Coal	505.0	8,080	2,670	44.4	8.0	5,450	12.0
Direct Ship (<13mm)	551.3	8,820	2,910	48.5	16.5	4,780	11.4
Refuse	80.1	1,282	420	7.1	80.2		
Raw Coal Feed	1,136.4	18,182	6,000	100.0	17.2		

This table indicates a mass yield of 93% for the overall plant and a 12.4% product ash if the washed coal is combined with the direct-ship (<13-mm). Since much of the chemical industry requirements are for less than 11% or 12% ash, it is evident that most of the washed coal will be shipped separately from the higher ash <13-mm direct-ship coal, which will probably be destined for steam coal markets.

7.3.6 CPP Circuitry

Coal from the mine incline conveyor is conveyed to the crusher building, where material larger than 200 mm is removed by scalping screens and sent to the crusher, where it is crushed to less than 200 mm, recombined with the smaller sizes, and conveyed to the raw coal silos. From the silos, raw coal is fed onto the plant feed conveyor and sent to four raw coal screens for dry-screening at 13 mm. The minus 13-mm material reports directly to the product silos on the minus 13-mm direct-ship belt conveyor. The plus 13-mm raw coal reports to four desliming (pre-wet) screens for wet-screening and sizing at 3-mm to remove slimes. The plus 13-mm material reports to two DMVs.

Clean coal from the DMV is transferred to two drain and rinse screens, where the media is drained and rinsed off of the coal. This product can be directed to a storage silo as plus 13-mm lump coal or to two clean coal sizing crushers for reduction to minus 50-mm and to a product storage silo. Refuse from the DMV is drained and rinsed on two refuse screens and directed to the refuse conveyor to the refuse silo. The drained media returns to the DMV sump for recirculation. The rinsed media reports to a dilute media sump for transfer to magnetic separators, which recover the magnetite to the DMV circuit; the liquid with coal solids is sent to the slimes circuit.

Although the minus 13-mm material is screened out of the plant feed as it enters the plant, fine material adheres to the coal and is carried into the other plant circuits. This material has varying amounts of ash depending on the seam and mining conditions. Talahao's flowsheet projects recovery and dewatering of these fines but no processing for ash reduction. The fine material passing through the desliming screen prior to the DMV circuit, known as "slimes," reports to the slimes circuit. In this circuit, the coal slurry is pumped to classifying cyclones, where the 3.0 — 0.15-mm coarser solids are directed to the cyclone underflow and to a curved sieve for partial dewatering and a centrifuge for final dewatering. The centrifuge product reports to the minus 13-mm direct-ship belt conveyor. The overflow from the classifying cyclones is nominally minus 0.150 mm in size and is sent to the two-stage thickening circuit. There are three 38-m diameter primary thickeners, with two in use and one on standby. The thickened underflow from the two thickeners is sent to one hyperbaric disk filter whose cake discharges onto the 13-mm direct-ship conveyor. The thickener effluent is sent to a separate secondary 24-m diameter thickener clarifier, where the remaining solids are thickened and sent to two plate and frame pressure filters. Overflow from the thickeners is drained into a sump and pumped to the magnetic separators for recovery and re-cycling.

The main plant structure is steel construction with a modern open type layout that provides for an overhead travelling crane for easier equipment handling. Thickeners outside of the main plant building are covered to prevent winter freezing. Belt scales and online ash analyzers are planned for the plant feed, product, and loadout conveyors. The plant is computer-controlled from a central control room with sump levels and density maintained automatically.

The DMV circuit is an excellent choice for cleaning the plus 13-mm raw coal. As long as the ash content of the minus 13-mm coal remains sufficiently low, only the plus 13-mm coal requires washing. If changes in the

seam thickness or floor and roof conditions deteriorate causing the out-of-seam dilution to increase, it may become necessary to wash sizes less than 13 mm. In this case, a DMC may be required to lower the ash of the minus 13-mm coal. We recommend that the Talahao plant design allow for a fine coal processing system to be easily added to the operating plant to improve clean product quality if the fine coal is difficult to sale because of high ash content.

7.3.7 Staffing

Staffing of 160 employees is planned for the operation of the CPP and material handling systems. The projected 160 personnel staffing level equating to 37,500 raw tonnes processed per employee-year is reasonable, exceeding the typical experience for Chinese CPPs. Planned staffing is shown below:

<u>Category</u>	<u>Shift 1</u>	<u>Shift 2</u>	<u>Shift 3</u>	<u>Per Day</u>	<u>Payroll Factor*</u>	<u>Total</u>
Workers-Production	22	22	22	66	1.33	88
Workers-Maintenance	18	—	—	18	1.33	24
Managers	14	—	—	14	1.00	14
Service Staff	19	—	—	19	1.33	26
Sampling/Lab	6	—	—	6	1.33	8
Total	79	22	22	123		160

* Payroll factor provides coverage for seven-day-per-week operation, injuries, leave, and sickness.

7.3.8 Construction and Capital Costs

The construction plan projects 12 months for engineering and construction to start-up. The 12-month construction time period for the CPP and material handling systems is achievable, provided competent design and construction firms are employed and the site is ready and accessible. Yitai will start CPP main washing building construction in April 2012 and expects to attain test-run status in June 2013.

Total capital budget is RMB377 million, which is reasonable for the nature of the project and the expected mine operating life. On an annual raw tonnage processed basis the projected capital spending is RMB63 per raw feed per tonne or RMB330,500 per raw tph of feed. A breakdown of capital spending is as follows:

<u>Category</u>	<u>RMB (millions)</u>
Construction and Erection	177
Machinery	127
Engineering	27
Other	46
Total	377

According to Yitai, third-party service providers will be operating the facility; consequently, the staffing breakdown is unknown.

7.4 Kaida CPP

7.4.1 Introduction

Kaida CPP is located in Zhunge'er Banner, Inner Mongolia, 100 km west of Xuejiawan Town and 80 km east of Dongsheng District of Ordos City. BOYD reviewed the Kaida 6.0 Mtpa CPP project based on the PDR prepared by Beijing Huayu Engineering Co., Ltd., Sino Coal International Engineering Group, dated September 2010, for adequacy of plant design and capability of meeting projected processing requirements. Yitai started Kaida CPP construction in August 2010. In February 2011 and February 2012, BOYD personnel visited the plant construction site. In February 2012, the construction of CPP structure had been nearly completed; equipment installation was partially completed. The CPP is projected to begin test run operation in July 2012.

Kaida CPP will service nearby Yitai mines as ROM ash increases due to mining of thinner coal seams. Raw coal feeding the CPP is sourced from the following Yitai mines:

<u>Mine</u>	<u>Output Capacity (Mtpa)*</u>
Nalinmiao No.2	4.0
Kaida	2.0
Total	6.0

* Based on coal production certificate capacity.

It is anticipated that Kaida output will include Bulamao West output at some point. A minor of additional coal sourced from other Yitai mines may also be processed. In addition to its large processing capacity, the facility has extensive capability for coal storage and blending with its product silos.

7.4.2 Coal Quality

Raw coal feeding the CPP is produced mainly from following coal seams: Nos. 4-1, 4-2, 6-2 and 6-2U. The following table shows raw coal quality for different seams from the PDR:

<u>Coal Seam</u>	<u>Proximate Analysis (%)</u>			<u>Calorific Value(Kcal/kg)</u>		<u>Sulfur d (%)</u>	<u>Char Residue Type</u>	<u>Coal Type</u>
	<u>Mad</u>	<u>Ash d</u>	<u>Vdaf</u>	<u>Qgr,ad</u>	<u>Qnet,d</u>			
Nalinmiao No.2 Mine								
4-1	4.7	10.1	36.4	6,710	6,500	0.38	2	BN31
4-2	4.5	8.0	35.8	6,930	6,630	0.36	2	BN31
6-2	5.5	6.8	35.8	7,310	6,740	0.28	2	BN31
Kaida								
6-2U	4.6~8.1	4.8~7.4	32.9~38.4	—	6,940	0.09~0.28	—	BN31
6-2	6.4	7.5	35.7	—	6,940	0.09~0.30	2	BN31

Kaida CPP plans to produce two saleable products:

- Primary product is high quality thermal coal: 0-50mm, St.d<0.45%, Qnet.ar≥5,500 Kcal/kg, for power plants near China's eastern coastal areas or export.
- Secondary product is thermal coal: 0-50mm, St.d<0.45%, Qnet.ar≥5,000 Kcal/kg, for power plants in the region.

The washed refuse containing limited calorific value and having no commercial value is conveyed to the coal waste storage site for disposal.

The facility is capable of producing 25-200 mm clean lump coal depending on market requirements.

7.4.3 Material Handling

Raw coal from Kaida is discharged from a mine site belt conveyor into truck bins; raw coal truck deliveries are dumped into bins (five in all). Coal feeders at the bottom of the bins discharge the coal onto conveyors transferring the coal to the top of the raw coal storage silos (two in all), each with 15,000 tonnes capacity. Coal from the raw coal silos is reclaimed with feeders and conveyed to the screening and crushing building, where the coal is screened at 200 mm on two vibrating screens. The plus 200-mm material is transferred to a slow speed belt conveyor, where rock is removed by hand-picking and oversize coal pieces are crushed to minus 200 mm. Coal from the screening building is sent across two screens, separating at 13 mm with plus 13-mm coal conveyed to the coarse coal circuit in the CPP. The minus 13-mm coal can be conveyed to the fine coal circuit in the CPP or bypassed directly to the product storage silos as direct-ship minus 13 mm for truck delivery.

The facility has four product silos, two for fine coal, each with 10,000 tonne capacity; and two for lump coal, each with 5,000 tonne capacity. The washed product and direct-ship product can be separately loaded and shipped. From the refuse silo with 5,000 tonne capacity, CPP waste coal is conveyed to storage site.

7.4.4 Utilities

Domestic water requirements are provided from ditches, processed mine water, and the nearby public system. The Zhunge'er Banner Keyuan Water Company provides water for the facility; two 273-mm diameter water pipes have been set up and are connected to the site. Also, water is provided by the underground mine sources. Water consumption for the CPP is projected at 1,800 m³/d for plant production and 150 m³/d for domestic use. Electricity is provided by the 35 kV substation at Nalinmiao No.1 mine. The CPP has a 10 kV substation at the CPP; utilization voltages include 10 kV, 660 V and 220/380 V. Two lines provide redundant power to the CPP.

7.4.5 CPP Capacity

The CPP design is based on washability and sizing analyses performed on No.6-2 seam bulk samples from Kaida Mine. CPP products assuming washing of all size fractions are as follows:

Product	Weight (%)	TPH	TPD	TPY (000)	Ad (%)	Moist (%)	Qnet. ar
							(Kcal/kg)
Washed Coal	25.9	294.1	4,705	1,553	7.5	8.0	6,390
Direct Ship (<13mm)	40.9	464.6	7,434	2,453	15.5	13.0	5,388
Refuse	33.3	377.7	6,042	1,994	89.5	10.5	N/A
Raw Coal Feed	100.0	1136.4	18,182	6,000	38.0	8.0	

To meet the 6.0 Mtpa ROM coal processing requirement, the plant feed rate is designed at 1,136 tph, assuming 16 operating hours per day and 330 operating days per year. The operating schedule (5,280 operating hours) does not provide for mechanical downtime. Mechanical availability for the CPP with one down shift per day is typically 85%-95% of available operating hours. If the CPP's third shift can process coal when needed, then the 1,136 tph design processing rate is adequate. BOYD has assumed that third-shift plant operation is utilized as needed to meet coal processing needs and the 1,136 tph feed rate is adequate for the projected 6.0 Mtpa ROM processing requirement.

7.4.6 CPP Circuitry

The CPP is a single circuit plant design, capable of processing the 1,136 tph of plant feed rate. Plus 13-mm coal from the raw coal screening building reports to deslime (pre-wet) screens, where fine materials clinging to the coal particles are removed with rinse water on 3-mm screen panels. The deslimed coarse coal is sent to a DMV, where the liquid suspension of ground magnetite and water is dense enough to float the coal and sink the rock and higher ash particles. Floating coal flows with the media on to the coarse coal drain and rinse screens, where the media is drained from the coal and returns to the DMV sump. The coal is rinsed with water, which flows to a sump and is pumped to the magnetic separators, where the magnetite is recovered to the DMV circuit and the liquid with coal solids (slurry) goes to the slimes circuit. Coal particles smaller than 25 mm fall to the bottom deck of the screen and report to the centrifugal dryer and the product conveyor. Coal particles larger than 25 mm remain on the top deck, traveling to the crusher to be sized to the minus 50mm and conveyed to the product silos with the minus 25-mm coal. Rock and high ash coal with a density greater than the selected media density sink to the bottom of the DMV and a chain/scrapper conveyor removes the refuse material from the DMV to a refuse drain and rinse screen and the refuse conveyor.

The minus 3-mm undersize material from the deslime screen flows to a sump and is pumped to classifying cyclones where the underflow goes to a Teeter Bed Separator. The Separator uses a hindered bed separation to float coal, which flows to sieve screens and a fine coal centrifuge. The dried coal is transferred to the minus 13-mm product conveyor. Refuse from the bottom of the Teeter Bed is sent to high frequency refuse screens and onto the main refuse conveyor. The overflow from these classifying cyclones flows to the clarifying thickeners.

Raw coal from the raw coal screening building with the minus 13-mm sizing can bypass the CPP for direct shipping or be conveyed to the main CPP building, where it is deslimed by screening and transferred to DMCs. Clean coal is discharged from the overflow portion of the cyclones and transferred to clean coal drain and rinse screens, where the media is drained and the coal is rinsed before proceeding to the centrifugal dryer and to the

fine coal product conveyor. The refuse from the underflow of the DMC is drained and rinsed on refuse screens and placed on the refuse conveyor, which transports the plus 1-mm refuse to the refuse silo. Material smaller than 1 mm is pumped to classifying cyclones, where the underflow is treated in a Teeter Bed Separator circuit similar to the minus 3-mm material from the coarse circuit.

Overflow from the classifying cyclones and other streams with material smaller than 0.25 mm report to the three 38-m diameter thickeners, where flocculating chemicals are added to enhance particle settling. The clarified water that flows over the top of the thickener is re-cycled back into the plant as process water. The underflow solids are pumped to two types of filters: hyperbaric disk filters (2) or plate and frame pressure filters (3), which are used interchangeably, depending on product requirements (plate and frame filters are simpler and provide low moisture in one stage). The filter cake can be combined with the direct-ship the minus 13-mm product or transported to a storage yard for further air drying and blending. When slime ash content is high, it can be conveyed to waste silo by conveyor for sale to the power plant.

The main plant structure is steel construction, 74.5 m long and 31 m wide, with a modern open layout that provides overhead travelling crane for easier material and equipment handling. Thickeners outside of the main building are covered to prevent winter freezing, as the temperature in this region is below freezing typically half the year. The plant is computer-controlled from a central control room, with Alan-Bradley series PLC system, with sump levers and density maintained automatically.

7.4.7 Staffing

Staffing of 120 employees is planned for the operation of CPP and coal handling systems. According to Yitai, third-party service providers will operate the CPP with staffing breakdown as follows:

Category	Shift 1	Shift 2	Shift 3	Day	Payroll	
					Factor*	Total
Workers-Production	27	27	13	67	1.35	91
worker-Maintenance	3	3	9	15	1.35	24
Managers	13	—	—	13	1.00	13
Service Staff	11	4	6	21	1.00	21
Sampling/Lab	2	2	—	4	1.35	6
Total	56	36	28	120		155

* Payroll factor provided coverage for seven-day-per-week operation, injuries, leave, and sickness.

Based on the staffing plan and 6 Mtpa output level, CPP labor productivity approximates 39,000 raw tones per employee-year, exceeding the typical experience for Chinese CPPs.

7.4.8 Construction and Capital Costs

The CPP capital budget is RMB372 million, which is reasonable for the nature of the project. On an annual raw tonnage processed basis the projected capital spending is RMB62 per raw feed per tonne or RMB328,000 per raw tph of feed. A breakdown of projected and actual capital spending is as follows:

Category	RMB (millions)	
	Projected	Actual cost As of 12/31/2011
Civil engineering	135	129
Equipment	140	141
Installation	42	7
Other	55	33
Total	372	310

8.0 RAILWAY TRANSPORTATION

8.1 Introduction

Yitai rail holdings are a key link in the coal supply distribution chain of Dongsheng and Zhunge'er produced coals to destinations throughout China. Generally, the Yitai-owned rail trackage network is bounded by China Shenhua Energy Co.'s (Shenhua) Baoshen Railway in the west and their Dazhun railway in the east. Figure 1.3 shows the current and projected Yitai rail network and coal loadout stations. It is our understanding Yitai owns 13 electric locomotives and 3 diesel locomotives. Other railroad rolling stock is provided by both Taiyuan and Huhhot Railway Bureaus. The arrangement between the equipment provider and Yitai, was not provided to BOYD. The company also controls ten operating loadout stations with six additional stations planned for future construction.

Since Yitai ultimately expects large throughput (after rail improvements and mine construction), the company has adopted automatic block switching. This type of switching is relatively easy to expand and requires low capital investment. Based on the information provided, it is our opinion that the planned Yitai railways will provide adequate throughput capacity to accommodate company coal volumes along with additional third-party coals.

BOYD representatives did not visit the Yitai railways or loadout stations (except for the Zhunge'erzhao station) and have relied on information provided by Yitai in response to data requests and interviews with Yitai personnel and own experience; a capacity study was not undertaken for this review. The following is a brief description of the Yitai railways.

8.2 Railway Assets

Yitai's current rail operations are organized along a corridor that will ultimately provide a more direct route to potential consumers located in eastern China as well as access to east coast exporting ports. As rail connections improve with both the Chinese National Railway (CNR), as well as other third-party railways, the market region for Dongsheng-produced coals is expected to expand. Primary Yitai rail assets are: Inner Mongolia Yitai Zhundong Railway Co. Ltd. (Zhundong) and Inner Mongolia Yitai Huzhun Railway Co. Ltd. (Huzhun) mainlines and the Suancigou Railway (Suancigou) branch line. The following is a summary of the current Yitai rail network:

<u>Railway/Branch</u>	<u>Length (km)</u>	<u>Double Track Length (km)</u>	<u>Origin</u>	<u>Terminus</u>	<u>Yitai Ownership (%)</u>
Zhundong*	191.8	59.4	Zhoujiawan	Zhunge'erzhao	100.00
Huzhun**	179.7	55.5	Zhoujiawan	Huhhot	76.46
Suancigou	26.8	—	Suancigou	Zhoujiawan	52.00

* By 2011, a single-line railway connection to Zhunge'erzhao was completed, the double track is under construction.

** Double tracking (55.47 km) from Zhoujiawan to Togtoh is under construction.

Currently all railways are electrified single-line trackage. By 2015, company capital improvement projects are expected to significantly increasing Yitai's existing rail transport carrying capacity. Focus of work is Zhundong double tracking from Zhoujiawan to Zhunge'erzhao and Huzhun double tracking from Zhoujiawan to Togtoh. Planned capacity will be in excess of the company's planned mining output. Excess rail capacity (beyond what is necessary to move the company's own coal production) will be used for third-party coal movements via improved connections (existing or planned) with the CNR system.

The following shows estimates of the current and future capacities for each railway/branch as provided by Yitai:

<u>Railway/Branch</u>	<u>Carrying Capacity (Mtpa)</u>		
	<u>2012</u>	<u>2015</u>	<u>2020</u>
Zhundong*	64	83	150
Huzhun*	39	88	128
Suancigou	20	20	20

* Carrying capacities shown reflect the capacities of the double track segments.

We have reviewed supporting data provided by Yitai regarding projected carrying capacity of The Company's railways. Yitai carrying capacity estimates are based on studies prepared by China Railway First Survey & Design Institute. While we have not performed a detailed review of the underlying analyses and assumptions contained in those studies, it is our opinion that Yitai's projected carrying capacity is in line with the China Railway's conclusions.

The following shows historical railway throughput volumes carried on each railway:

<u>Railway</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
	Tonnes (000)					
Yitai Total Throughput						
Zhundong	13,365	17,155	24,116	32,178	34,677	29,504
Huzhun	—	—	2,803	12,232	21,248	23,435
Suancigou	—	—	1,252	6,338	6,796	6,483
Yitai and Yitai Group Portion of Throughput						
Zhundong	11,560	15,848	22,142	23,884	26,331	17,086
Huzhun	—	—	2,703	9,994	13,493	7,634
Suancigou	—	—	—	—	6,796	6,483
Yitai Portion of Throughput						
Zhundong	6,818	9,826	13,770	16,675	16,766	8,526
Huzhun	—	—	1,703	7,679	11,039	3,732
Suancigou	—	—	—	—	6,796	6,483
Yitai Group Portion of Throughput						
Zhundong	4,742	6,022	8,372	7,209	9,565	8,561
Huzhun	—	—	1,000	2,315	2,454	3,903
Suancigou	—	—	—	—	—	—
Yitai and Yitai Group Portion of Throughput (%)						
Zhundong	86	92	92	74	76	58
Huzhun	—	—	96	82	64	33
Suancigou	—	—	—	—	100	100
Yitai Portion of Throughput (%)						
Zhundong	51	57	57	52	48	29
Huzhun	—	—	61	63	52	16
Suancigou	—	—	—	—	100	100
Yitai Group Portion of Throughput (%)						
Zhundong	35	35	35	22	28	29
Huzhun	—	—	36	19	12	17
Suancigou	—	—	—	—	—	—

Railways are constructed to carry heavy loads in accordance with Chinese construction standards. Track gauge is standardized at 1,435 mm (equivalent to US standard gauge) generally with a 1.5% limiting slope. A typical 5,000-tonne coal unit train consists of 60 to 70 railcars (C70 or C80) pulled by two Shaoshan (SS) electric locomotives. Once the rail expansion projects are complete, standard unit trains will double in size to 10,000 tonnes. Typical train speed for coal unit trains is approximately 60 km/hr. Main line construction utilizes 50 kg/m rail installed in 25-m segments, and 1,680 concrete sleepers (ties) per km. By October 19, 2009, the entire line had been upgraded to 60 kg/m rail and more closely spaced sleepers (1,760 per km) are utilized.

8.3 Zhundong Railway (Zhundong)

8.3.1 Current Operations

The Zhundong has been constructed to equivalent Grade I Chinese National Railway standards, in a phased approach. Initially, the 72.6 km segment from Zhoujiawan to Xiyingsi (a Yitai loadout station west of Hushi Station) began operations in 2000. Originally diesel-powered locomotives were used, but the line was upgraded to electric operation between 2003 and 2005. Capital invested to complete construction of Phase 1 (including electrification) was approximately RMB1.04 billion.

Phase 2 of Zhundong was also constructed to Grade I, single-line, electrified track standards; and was completed during 2009. The RMB1.625 billion Phase 2 project extends service another 59.84 km from Hushi Station west to Zhunge'erzhao. The extension provides a rail link between Xuejiawan and Ordos City. Ultimately, the Zhundong line will extend to Huocangou Station and to the company's Shashagetai loadout station. These connections will provide access to CNR's Dongwu Railway to the west and Shenhua's Baoshen railway running north-south. The Zhundong line provides the first direct, non-dedicated, rail transportation link between the Dongsheng and Zhunge'er coalfields and provides for more timely delivery of coal to Huhhot or other eastern domestic customer destinations.

The railway (including Suancigou) employs 1,710 workers with the following employment by job category:

Staff by Category	No. of Railway Employees (as of 31 December 2011)		
	Zhundong	Suancigou	Total
Administrative			
Enterprise/Company Mgt.	20	—	20
Labor Union	4	—	4
Administration	119	—	119
Safety/Quality/Environ	15	3	18
Subtotal - Administrative	158	3	161
Production			
Bridge	36	—	36
Transportation	34	5	39
Train	286	31	317
Track	252	65	317
Stations	19	7	26
Locomotive Terminal	238	—	238
Electricity/Power Supply	318	25	343
Vehicles	173	36	209
Heavy Machinery	20	4	24
Subtotal - Production	1,376	173	1,549
Total	1,534	176	1,710

Note: An additional 96 personnel are responsible for railway improvements (power upgrades, double-track, etc.) and are not included above.

Yitai reported that there were neither service interruptions nor fatalities on the Zhundong line between 2006 and 2011. Employees receive annual safety trainings provided by Huhhot Railway Bureau. Roadway and equipment (railcars and locomotives) operate on a three-shift (8-hour length) rotation daily, five days per week, with rail service performed by Inner Mongolia Yitai Zhundong Railway Co., Ltd.

Employee work schedules generally follow an 8-hour workday, five days per week. Yitai data regarding employee salaries indicate that annual salaries range between RMB75,000 to RMB90,000 for ministerial level staff and RMB45,000 to RMB50,000 for section level staff. Average annual salary for production workers is approximately RMB34,000.

8.3.2 Current and Future Expansion

Expansion of the Zhundong line in the near term and long term will primarily include the installation of double track along the existing railway. As part of the double track projects, sidings at stations may require upgrades (i.e., extended siding length to more than 1,700 m), where possible, to accommodate longer and heavier unit trains (10,000 tonnes). In 2009, construction commenced on double-track projects for the Zhundong segment east of Hushi Station. It is our understanding total capital investment for improvements will approach RMB2.263 billion. By 31 December 2011, Yitai had spent RMB1.894 billion with RMB369 million remaining. Yitai expects these rail improvements will be fully operational in 2012.

8.4 Suancigou Railway (Suancigou)

Suancigou is a 26.75 km, single-line, branch railway providing rail services to Yitai's Suancigou Mine. Total capacity is reported to be approximately 20 Mtpa, which is equivalent to the potential ultimate capacity of the Suancigou Mine. The line became operational in 2007, with Yitai taking over the management and operation in September 2008. The line is dedicated to Suancigou Mine with terminus in Zhoujiawan allowing access to Yitai Project's Zhundong and Huzhun railways along with Shenhua's Dazhun railway. Total construction costs for the Suancigou line were RMB504.9 million (excluding railway station).

If future output of Suancigou mine does not attain 20 Mtpa, any excess capacity could be used to move third-party coals from mines located within a reasonable trucking distance from Suancigou rail loadout. There are several other mining operations located within close proximity to Suancigou Mine/loadout facility.

8.5 Huzhun Railway (Huzhun)

8.5.1 Current Operations

Huzhun was constructed, beginning in April 2004, to local Grade I railway standards. The railway provides a 124.18 km link between Huhhot West Station (Huhhot) to the north and Xuejiawan Station (Zhunge'er) in the south. Construction was completed in late 2006 with an electrification upgrade completed in September 2009. Currently the total carrying capacity is approximately 27 Mtpa. Railroad operations are the responsibility of Huhhot Railway Bureau.

The Huzhun line provides additional flexibility for movement of Dongsheng produced coals to potential consumers located in northern and eastern PRC. Coals reaching Xuejiawan Station on the Zhundong line may move north along the Huzhun or east on the Dazhun.

The railway employs 500 workers with the following employment by job category:

<u>Staff by Category</u>	<u>No. of Railway Employees (as of 31 December 2011)</u>
Administrative	
Enterprise/Company Mgt	8
Labor Union	1
Administration	13
Safety/Quality/Environ	11
Subtotal - Administrative	33
Production	467
Total	500

Employees generally work 8 hours per day, five days per week. Annual salaries average RMB86,000 for ministerial level staff and RMB75,000 for section level staff. Average annual salary for production workers is approximately RMB34,000 per annum.

Yitai stated there were no service interruptions or fatalities on the Huzhun between 2006 and 2011. Employees receive annual safety training provided by Huhhot Railway Bureau.

8.5.2 Current and Future Expansion

Yitai is currently constructing a second line of double-tracking over a 55.47 km segment of the Huzhun line from Xuejiawan to Togtoh. When the double-track is completed, overall carrying capacity of this portion of the Huzhun line will increase significantly. Yitai has indicated that the overcapacity will dissipate over time due to expected increases in throughput on the Zhundong line from both Yitai mines and third-party sources.

Total budgeted investment in the rail project (including electrification) is RMB1.84 billion. By 31 December 2011, Yitai had spent RMB508 million with RMB1.332 billion remaining.

The expansion is expected to increase the railway's capacity to approximately 128 Mtpa by 2020. Currently, sidings at three stations have been extended to 1,700 m in length, sufficient to accommodate 10,000-tonne trains (approximately 105 C80 railcars).

8.6 Expected Regional Railway Growth

Infrastructure improvements in the region where the Dongsheng and Zhunge'er coalfields are located are expected to facilitate coal distribution throughout the PRC. Several capital projects planned for completion in the 2012 to 2020 time frame, include:

- Zhunge'er — Shuozhou rail link
- Zhunge'er — Datong capacity expansion
- Xinjie — Galutu Railway
- Data Hejiata portion of the River Railway
- Xuejiawan-Dafanpu-Mashan Railway
- Jining — Baotou (second double-track)
- Zhangjiakou — Jining double-track
- Zhangjiakou — Hushiha — Caofeidian Rail Road (new construction)

Once the above rail construction projects are complete, the freight volume capacity on the Yitai railways is expected to reach long-term projected capacity.

8.7 Coal Loadout Stations

8.7.1 Current Operations

Yitai controls ten operating coal loadout stations which provide rail access to coal produced by the Company and purchased from third parties. The following is a summary of Yitai loadout stations:

Station	Year Constructed	Our Ownership (%)	Throughput Capacity (mta)	Loading Railway Connection
Xiyngzi/Hushi*	2000	100/100	15.0/18.0	Zhundong
Xinghe	NA**	—**	15.0	Jining — Zhangjiakou
Hantaibei	NA**	—**	20.0	Baotou — Xi'an
Zhunge'erzhao	2008	100	30.0	Zhundong
Suancigou	2008	52	15.0	Suancigou
Tanggongta	1993	51	3.0	Dazhun
Shashagetai (Bao — Shen)	1991	100	3.0	Baotou — Shenmu
Guanniuju	2010	51	10.0	Huzhun
Jialanying	2010	100	3.0	Huzhun

* Xiyngzi and Hushi loading facilities are situated 6 km apart.

** Station is leased.

Suancigou and Zhunge'erzhao stations utilize loop tracks with batch loading capabilities. The Tanggongta Station has a linear track with coal loading using an in-line batch loading arrangement. The remaining loadout stations have linear track arrangements, with end-loaders used for loading.

Stations utilizing end-loaders typically load 51 car trains (80 tonnes/wagon) in approximately 60 minutes. To assure loading times, approximately 50 end-loaders are simultaneously operated. In addition, a 10% redundancy factor is built into the coal end-loaders fleet requirements.

The following is a list of major equipment utilized by each of the loadouts:

Station	Number			
	Coal Loaders	Dozers	Coal Trucks	Winter Trucks
Xiyingzi/Hushi	120	2	612	—
Xinghe	6	—	220	—
Hantaibei	—	—	245	—
Zhunge'erzhao ^(a)	—	4	220	—
Suancigou ^(a)	—	—	—	—
Tanggongta ^(b)	—	—	—	—
Shashagetai (Bao-Shen)	25	1	100	—
Guanniuju ^(b)	—	—	—	—
Jialanying ^(b)	—	—	—	—

(a) Automatic loading systems.

(b) N/A.

Historical throughput for the loadouts is as follows:

Station	Tonnes (000)											
	2006	2007	2008	2009**			2010**			2011**		
	Total Throughput*			Yitai	Yitai Group	Total	Yitai	Yitai Group	Total	Yitai	Yitai Group	Total
Xiyingzi/Hushi	7,698	9,644	16,580	16,392	5,121	21,513	13,482	7,039	20,521	10,172	3,491	13,663
Dongxing	373	5,125	7,214	184	3,510	3,694	329	3,920	4,249	396	1,364	1,760
Zhunge'erzhao	—	—	—	—	—	—	56	2,274	2,330	1,850	8,694	10,544
Suancigou	—	—	1,252	6,359	—	6,359	8,178	—	8,178	8,381	—	8,381
Tanggongta	467	286	188	—	—	—	—	—	—	—	—	—
Shashagetai (Bao-Shen)	244	499	515	—	250	250	8	235	243	—	224	224
Guanniuju	—	—	—	—	—	—	388	—	388	110	—	110
Jialanying	—	—	—	—	—	—	1,159	—	1,159	2,107	—	2,107

* Total throughput including Yitai, Yitai Group, and third-party coal shipments.

** Third-party coal shipment tonnages are not included.

Historically, approximately 74% of loadout station throughput according to Yitai is internally produced coal. The remaining capacity is available for third-party coal shipments.

The Yitai portion of throughput at each loadout facility is sourced from one or more company mines. Based on 2011 January through December production data, Yitai company mines shipped, on average, approximately 91% of their production by rail at company-controlled loadout stations.

Sufficient coal storage capacity must be available at the rail loadout site to assure reliable delivery of coal in the event of a mine-to-loadout transportation interruption. The following is a list of the current coal storage capacity at each loadout (Suancigou and Zhunge'erzhao storage capacities are also discussed in the CPP section):

Station	Coal Storage Capacity (tonnes-000)		
	Raw	Clean	Total
Xiyingsi/Hushi	—	1,600	1,600
Xinghe	—	100	100
Hantaibei	—	150	150
Zhunge'erzhao	—	1,500	1,500
Suancigou	—	60	60
Tanggongta	—	500	500
Shashagetai	—	70	70
Guanniuju	—	800	800
Jialanying	—	150	150

Employment at the Yitai coal loadout stations is as follows:

Station	Total Employees					Yitai Employees				
	Railcar Loading	Loader/Dozer	Admin	Other	Total	Railcar Loading	Loader/Dozer	Admin	Other	Total
Xiyingsi/Hushi	20	10	20	318	368	20	10	20	157	207
Xinghe	—	—	46	14	60	—	—	46	—	46
Hantaibei	—	—	70	4	74	—	—	70	—	70
Zhunge'erzhao	—	—	11	135	146	—	—	11	18	29
Suancigou	8	—	5	28	41	8	—	5	17	30
Tanggongta	3	—	7	58	68	3	—	7	34	44
Shashagetai (Bao-Shen)	—	—	7	39	46	—	—	7	29	36
Guanniuju	—	—	4	50	54	—	—	4	10	14
Jialanying	—	—	6	32	38	—	—	6	15	21

8.7.2 Future Operations

Yitai has estimated future throughput for each of their loadout stations. The company expects total throughput to reach 83 Mt by 2014, summarized as follows:

Station	Projected Throughput (Mt)		
	2012	2013	2014
Xiyingsi/Hushi	20.6	27.5	28.1
Xinghe	3.9	10.0	15.0
Hantaibei	2.0	2.0	2.5
Zhunge'erzhao	12.7	17.3	19.8
Suancigou	10.1	11.0	11.8
Tanggongta	—	—	—
Shashagetai (Bao-Shen)	—	—	—
Guanniuju	0.5	0.5	—
Jialanying	2.4	5.7	5.7
Total	52.2	74.0	83.0

Note: Figures may not add due to rounding.

Except for Tanggongta, Shashagetai and Guanniuju, all loadout stations are expected to increase their throughput in 2013 and 2014. In 2013, Xiyingsi and Zhunge'erzhao will provide approximately 60% of Yitai's total loadout station throughput.

Construction of the CPP at Zhunge'erzhao will provide Yitai with greater flexibility to ship raw, clean, or blended coal products depending on customer specifications.

Additionally, the CPP and rail loadout at Zhunge'erzhao will allow Yitai to reduce the trucking distances required to access rail loadout stations.

Yitai plans to construct six additional coal-to-rail loadout stations. Talahao station will provide dedicated rail service for coal distribution from the company's planned Talahao Mine. Hongqinghe and Wulongsu loading stations are planned to access the Ordos South and Zhunshuo railways, respectively. Both of these railways is expected to be operational before 2014. Shahaota/Nuanshui and Xinghe loadout stations are planned to access the Zhudong and Jizhang railways, respectively. Yitai has not provided detailed information for either of the loadout stations; however, it is expected Talahao's capacity will be similar to that of the proposed mine (6 Mtpa).

9.0 ENVIRONMENTAL OVERVIEW

9.1 Introduction

Mining and related activities are inherently disruptive to the environment. The location in which the Yitai and Yitai Group mines operate is characterized by an arid plateau continental climate with extended winter and short summer seasons. The region is sparsely vegetated, and there are no known cultural and environmentally sensitive areas within the confines of the Yitai and Yitai Group mining right areas. Residential development within the mine plan areas is limited, which will limit local population relocation expenses. Terrain across the overall study area is characterized by rolling hills with erosional gullies and tends to be higher in elevation in the western portion of the study area and lower lying to the east. There are no perennial water bodies within the Yitai and Yitai Group mining right areas, but temporary flooding can occur during seasonal rainfall events.

All of the Yitai and Yitai Group mines are underground operations. Except for the surface footprint for the mines' facilities for offices, change-rooms, shafts, inclines, coal handling and stockpile areas, etc., the mines have little effect on the surface. Adverse impacts are largely related to surface land subsidence resulting from LW mining, generation and disposal of coal refuse materials resulting from coal processing, community by-products (e.g., handling of sewage), heating plant smoke emissions, fugitive dust, and noise pollution.

9.2 Guidelines of the World Bank

The World Bank's explicit standards regarding environmental protection relating to mining activities are set forth in the "Environmental, Health and Safety Guidelines for Mining" (EHSM) and "Environmental, Health and Safety General Guidelines" (EHS). The Bank guidelines and principles support the view that coal mining activities affect the environment and require that mitigation measures must be taken to protect the environment and reduce the impact of coal mining activities. Responsible environmental management on the part of the mining enterprises includes establishing the policies and practices companies must employ to protect the environment and minimize the impact of mining and related activities. While many PRC environmental regulations are also included in the EHSM, the EHSM guidelines vary in the application of specific guideline requirements. The PRC environmental regulations in some instances specify stricter environmental measures. Based on our site visits, document review, and our experience, we are satisfied that the Yitai and Yitai Group mines recognize the company's environmental responsibilities. The company's control measures and environmental management system are consistent with PRC regulations and generally meet EHSM guidelines, although they may be at variance with specific guidelines.

9.3 PRC Environmental Protection Regulations

The primary domestic environmental protection laws and regulations of the PRC, which this environmental review considers, include:

- Environmental Protection Law.
- Law on the Prevention and Control of Atmospheric Pollution.

- Law on Prevention and Control of Water.
- Law on Prevention of Solid Waste Environmental Pollution.
- Law on Prevention and Control of Noise Pollution.
- Regulations on the Administration of Project Construction Environmental Protection.
- Environmental Impact Assessment Law.
- Technical Guidelines for Environmental Impact Assessment.
- Technical Policies on Mine Environmental Protection and Control.
- Clean Production Standard for Coal Mining and Preparation Industry (HJ446-2008).
- Interim Regulations on Coal Industry Environmental Protection.

BOYD believes that the requirements and enforcement of Chinese laws and regulations on environmental protection are in accordance with those of the World Bank.

Environmental impact assessments were conducted prior to the commencement of construction at each of the Yitai mines to meet the requirements of the Environmental Impact Assessment Law, and environmental protection is an integral part of the preliminary design (consistent with the requirements of the Administration of Project Construction Environmental Protection and the Environmental Impact Assessment Law of the PRC).

Environmental protection acceptance reviews have been conducted prior to the commissioning of each mine. The reports on environmental protection acceptance have been approved by the Environmental Protection Bureau of Inner Mongolia Autonomous Region. In combination with field visits, BOYD used these acceptance reports and the associated approval comments in preparing this report.

BOYD observed that Yitai employed environmental protection measures during site visits and believes Yitai has made diligent efforts to incorporate responsible environmental protection policies and practices into their operations. The company's facilities and equipment for environmental protection are operating according to acceptable environmental protection practices.

9.4 Environmental Management

There are established environmental protection management organizations as well as specially assigned personnel in the Yitai headquarters, tasked with the responsibility of enacting necessary environmental protection policies and environmental management systems for the company. To date, the environmental protection management approach, the Implementation Plan for Mining Area Comprehensive Environmental Treatment, as well as the environmental protection systems relating to pollution prevention, surface subsidence remediation, environmental facilities management, and soil and water conservation have been enacted. According to Yitai's requirements, coal mines and coal preparation plants have established their own environmental management organizations and also enacted corresponding environmental protection management systems based on their circumstances. Staff from Yitai headquarters dedicated to environmental protection compliance are stationed at each mine.

9.5 Surface Subsidence

LW mining is the principal method of coal extraction used throughout the Chinese coal industry and in the Yitai and Yitai Group mines. This method results in disturbance to, or subsidence of, the overlying surface land when the extent of coal seam extraction is sufficient to produce failure of the overlying strata extending to the surface. The strata failure often produces cracks and depressions on the overlying surface.

The level of impact and degree of surface subsidence varies from mine to mine depending on the intensity (extracted coal seam thickness and face layout) of LW mining, depth of mining, and thickness of surface loess material. When LW mining is conducted at shallow depths, the surface effects (cracking) are more pronounced.

Impacts of LW mining activities are not always apparent in this barren landscape. In areas where a thick layer of loess covers the mining right areas, the unconsolidated loess material tends to conform to surface depressions caused by LW mining. The mines are responsible for filling the cracks and depressions and revegetating the affected areas according to national regulations.

To mitigate the impact of subsidence on the social environment and ensure uninterrupted mining activity common practice adopted by the mines is to re-locate the local population living within areas planned for LW mining and contract the services of local residents to conduct in-place land-filling, followed by (e.g., local population relocation in advance of mining) ground-support work to prevent and/or reduce future occurrences during underground mining operations. Subsidence-related work is implemented in steps to ensure mine operation is not interrupted. Subsided areas are filled and revegetated.

9.6 Soil and Water Conservation

The ecological environment in the area where Yitai is located is relatively vulnerable to the adverse impact of wind and rain. Existing terrain, soil, and meteorological conditions are not favorable for controlling wind erosion and sand fixation/consolidation or for prompting the growth of vegetation. Soil erosion is prevalent in the study area. In recent years, Yitai has placed added emphasis on the prevention and control of soil erosion. Site afforestation/re-vegetation and ground hardening/consolidation were primarily undertaken within the premises of the industrial sites, with sustaining wall construction and slope protection measures. These measures effectively control and/or prevent soil erosion.

9.7 Yitai

9.7.1 Air Pollution Control

Boiler Soot De-dusting and De-sulphurization: The Suancigou, Nalinmiao No. 1, Hongjingta No. 1, and Kaida mines utilize marble scrubbing dust collectors for de-dusting and de-sulphurization; the Nalinmiao No. 2 and Yangwangou mines use multi-tube dust collector for de-dusting and de-sulphurization; the Fuhua Mine recently installed de-dusting and de-sulphurization equipment. Soot and SO₂ emitted from each mine conform to Category II standards of the Emission Standard for Air Pollutants from Boilers.

Fugitive Dust Prevention and Control: The Yangwangou and Fuhua mines use ground coal storage yards, with wind prevention and dust suppression mesh erected and water sprinklers installed. However, due to the large height difference between the coal discharge outlets and the ground, coal dust dispersion pollutes the environment around the mining areas. Raw coal from other coal mines owned by the company exits the mine and transfers directly to fully-sealed storage bins. In these cases, there is minimal or no fugitive coal dust. The ground within the industrial sites is compacted. The relatively hard ground sites yield minimal dust; therefore, fugitive dust prevention and control is effectively executed.

9.7.2 Water Pollution Prevention and Control

Mine Water Treatment and Utilization: Mine water treatment facilities have been constructed at the coal mines. The Suancigou, Nalinmiao Nos. 1 and 2, Hongjinta No. 1 and Kaida mines, utilize flocculation, sedimentation, and filtration for treatment of mine water; the Yangwangou Mine utilizes a horizontal-flow sedimentation tank for treatment of mine water; the Fuhua Mine uses an underground secondary sedimentation tank for treatment of mine water. The treated mine water is re-used for underground spray water purposes, mine firefighting and afforestation/re-vegetation. For most of the coal mines, virtually all of the mine water is fully reutilized.

Domestic Sewage Treatment and Utilization: Domestic sewage treatment facilities have been constructed at the coal mines. The Nalinmiao No. 1 and the Kaida mines employ integrated secondary biological treatment equipment; the other mines use the technique of secondary biological landfill disposal. Treated domestic sewage conform to the requirements of the Integrated Wastewater Discharge Standard and related discharge standards, and are mainly used in afforestation/re-vegetation.

CPP Slurry: Slurry from coal processing in the Zhunge'erzhao and Suancigou facilities is sent to filter presses, where water is drawn from the coal fines and recycled to the plant. CPPs operate with closed circuits.

9.7.3 Waste Rock Disposal and Utilization

Waste rock disposal and utilization arrangements are as follows:

- Ditch filling and land reclamation after haulage of waste rock/refuse to the surface.
- Waste rock produced in the Suancigou CPP is utilized as fuel for waste power generation.
- Refuse materials produced from the Yangwangou Mine are generally sold as building materials. Boiler ash and domestic garbage are regularly transported to disposal sites designated by the local hygienic authorities and disposed of by specially-established organizations.

9.7.4 Noise Abatement

The main noise pollution sources in the coal mines are: fan rooms, boiler fan blowers, crushers, and vibrating screens, with the equipment noise levels generally ranging from 90 to 100 dB. The mines have adopted noise reduction measures pertinent to the above-mentioned equipment, according to the requirements in the environmental impact statements. Operations and equipment that tend to generate comparatively higher decibels of noise are located farther away from office complexes and living areas.

9.8 Yitai Group

9.8.1 Air Pollution Control

Boiler Soot De-dusting and De-sulphurization: Remnant heat from the Dongfang power plant serves as a heat source for the heating of Dadijing Mine. After the heat is conducted to the mine, steam-to-water heat exchange is conducted without the generation of ambient air pollutants. In the Baoshan Mine, the boiler is equipped with a marble scrubbing dust collector for de-dusting and de-sulphurization. In the Dingjiaqu Mine, the boiler is equipped with an integrated de-dusting and de-sulphurization device; at Chengyi Mine, the boiler is equipped with a ceramic multi-tube dust collector and an integrated smoke de-sulphurization device. The Baijialiang Mine has de-dusting and de-sulphurization devices installed in the boiler.

Fugitive Dust Prevention and Control: Dadijing, Baoshan, Chengyi, and Dingjiaqu mines have surface coal bins with sealed storage of raw coals. This practice eliminates fugitive coal dust. The Baijialiang Mine has surface ground coal storage yards established, with wind-proof, dust-proof meshing, and spray sprinklers installed. The transfer points, crushing and screening installations are equipped with spray sprinklers and the belt conveyor corridors are sealed.

9.8.2 Water Pollution Prevention and Control

Except for the Baijialiang Mine, which directly re-uses mines water with two-stage sedimentation, the other coal mines are equipped with surface water treatment facilities. The mines are also equipped with domestic sewage treatment facilities, with recovered water effluent reused in mine afforestation/re-vegetation and dust suppression on haul roads.

9.8.3 Waste Rock Disposal and Utilization

Waste rock is used as subsidence hollow fill material; otherwise it is stored in designated waste storage areas.

Domestic garbage is regularly transported to designated disposal sites approved by the local hygienic authorities and disposed of by specially established organizations.

9.8.4 Noise Pollution Prevention and Control

The main noise pollution sources in the coal mines are: fan rooms, boiler fan blowers, crushers, and vibrating screens, with equipment noise levels generally ranging from 90 to 100 dB. The mines have adopted noise reduction measures pertinent to the above-mentioned equipment to comply with the requirements on environmental protection. Operational areas where noise pollution is a nuisance are located farther away from the office and living areas.

9.9 Environmental Protection Capital Spending

Historical capital investment data for environmental protection are based on data in the approved construction environmental protection acceptance reports and spending on environmental protection since the completion of mine construction to the end of 2011.

9.9.1 Historical Environmental Protection Capital Spending by Yitai

Category	Suancigou	Nalinmiao No. 2	Hongjingta No. 1	Nalinmiao No. 1	Yangwangou	Fuhua	Kaida
	RMB (millions)						
Atmospheric pollution prevention and control	83.60	17.17	11.40	27.30	1.64	2.86	18.73
Treatment of mine water and domestic sewage	15.57	2.14	2.92	1.13	1.04	4.62	2.31
Treatment of solid wastes	1.32	0.30	0.70	0.30	0.01	0.01	0.15
Noise reduction	0.76	0.76	0.50	0.55	0.01	0.01	0.43
Afforestation, soil and water conservation, as well as ecological reclamation	8.42	2.65	1.33	0.60	3.13	1.02	2.18
Other	6.16	0.67	8.27	0.88	0.51	0.67	0.57
Total investment	115.83	23.69	25.12	30.76	6.34	9.20	24.37
Planned investment in the environmental impact assessment	63.58	7.69	12.94	8.28	0.84	1.36	2.42

Note: Figures may not add due to rounding.

9.9.2 Historical Environmental Protection Capital Spending by Yitai Group

Category	Dadijing	Baoshan	Dingjiaqu	Chengyi	Baijialiang
	RMB (millions)				
Atmospheric pollution prevention and control	37.57	14.37	22.72	19.56	2.37
Treatment of mine water and domestic sewage	5.17	3.20	3.43	0.99	0.85
Treatment of solid wastes	1.20	0.55	0.35	0.42	0.32
Noise reduction	8.34	0.55	0.50	0.19	0.23
Afforestation, soil and water conservation, as well as ecological reclamation	6.80	1.05	11.30	2.00	1.08
Other	4.21	0.73	0.55	1.23	0.21
Total investment	63.29	20.45	38.85	24.39	5.06
Planned investment in the environmental impact assessment	6.04	6.62	4.17	1.71	2.00

Investments on atmospheric pollution prevention and control of some of the mines also include investments on construction of surface bins, which typically are considered civil engineering investments. The practice at Yitai combines the bin construction investments and atmospheric pollution treatment expenses together.

9.10 Land Reclamation and Environmental Liabilities

Land reclamation reports for the Yitai and Yitai Group operating mines were provided. In these reports, completed in the period from 2007 to 2009 by various appraisal companies, impacts on land and environment by mining operations are recognized and evaluated. Land reclamation evaluation includes engineering and relevant spending associated with environmental remediation, rehabilitation, removal of mine facilities to be abandoned after mine closure and land reclamation (including equipment purchase). According to these reports, projected land reclamation costs totals RMB117.65 million in 2011, as shown in the following:

Mine	Capital Budget for Final Mine Reclamation, RMB millions	Land Reclamation Plan Prepared by
Yitai		
Suancigou	47.21	Beijing Hongjingshi Real Estate Appraisal Company Limited
Nalinmiao No. 2	7.91	Ordos Lixin Land Planning & Consulting Company Limited
Hongjingta No. 1	14.72	Ordos Lixin Land Planning & Consulting Company Limited
Nalinmiao No. 1	5.54	Ordos Lixin Land Planning & Consulting Company Limited
Yangwangou	0.75	Ordos Lixin Land Planning & Consulting Company Limited
Fuhua	5.33	Ordos Lixin Land Planning & Consulting Company Limited
Kaida	7.71	Inner Mongolia Yuyuan Real Estate Appraisal Company Limited
Subtotal — Yitai	89.17	
Yitai Group		
Dadijing	4.16	Ordos Land Surveying & Planning Institute
		Ordos Lixin Land Planning & Consulting Company Limited
Baoshan	10.50	Ordos Lixin Land Planning & Consulting Company Limited
Dingjiaqu	6.87	Ordos Lixin Land Planning & Consulting Company Limited
Chengyi	3.29	Ordos Lixin Land Planning & Consulting Company Limited
Baijialiang	3.66	Ordos Lixin Land Planning & Consulting Company Limited
Subtotal — Yitai		
Group	28.48	
Total	117.65	

We have not reviewed the reclamation plans in detail; however, in our opinion, projected spending for mine reclamation in general terms appears sufficient in overall magnitude and the proposed plans are suitable for the areas where Yitai mines are located. We recommend that reclamation spending estimates are increased by 20% for unforeseen issues and general contingency. These cost estimates do not include the costs for CPP reclamation at Suancigou. Yitai and Yitai Group mines are underground operations with shaft and incline accesses, making it unlikely that these mines will have acid mine water discharge issues after mine closure. No long-term, post-mining environmental liability issues have been identified in these reports and we anticipate the likelihood of such issues as low.

According to Yitai, the capital needed for land reclamation will be funded by the fees collected on a per-tonne-of-coal-output basis and treated as part of operating costs. Fees related to land reclamation and environmental rehabilitation include Environmental Rehabilitation Compensation Fund, Subsidence Compensation Fund, Water and Soil Conservation Fee and Forestation Fee, as shown in the table follows:

Category	Cost, RMB/t	
	Zhunge'er Banner	Ejin Horo Banner
Environmental Recovery Compensation Fund	—	2.5
Subsidence Compensation Fund	3.0	—
Water and Soil Conservation Fee	0.5	0.5
Forestation Fee	0.1	0.1
Total	3.6	3.1

At projected coal output levels for Yitai and Yitai Group mines, fees projected to accumulate over the period of mine operations, in our opinion, appear adequate to support the need for land reclamation and environmental rehabilitation.

9.11 Soil and Water Conservation Capital Spending

The investments as shown in the table below are summarized from the investment data in the work summaries on the implementation of soil and water conservation plans submitted by each mine. The investments made since the submittal of the summaries were not provided.

9.11.1 Historical Soil and Water Conservation Capital Spending by Yitai

<u>Investment Category</u>	<u>Suancigou</u>	<u>No. 2 Nalinmiao</u>	<u>No. 1 Hongjingta</u>	<u>No. 1 Nalinmiao</u>	<u>Yangwangou</u>	<u>Fuhua</u>	<u>Kaida</u>
			RMB (millions)				
Planned investment on soil and water conservation	10.20	4.61	1.56	10.49	2.11	1.36	2.36
Completed investments	9.05	9.66	4.23	7.01	1.99	1.41	2.99
Difference	(1.15)	5.06	2.67	(3.47)	(0.12)	0.05	0.63

9.11.2 Historical Soil and Water Conservation Capital Spending by Yitai Group

<u>Category</u>	<u>Dadijing</u>	<u>Baoshan</u>	<u>Dingjiaqu</u>	<u>Chengyi</u>	<u>Baijialiang</u>
			RMB (millions)		
Planned investment on soil and water conservation	6.47	2.58	1.95	1.40	1.57
Actually completed investments	3.34	2.61	1.92	1.32	2.19
Actual increase	(3.13)	0.03	(0.03)	(0.08)	0.62

9.12 Comments and Recommendations

- Yitai and Yitai Group conducted an environmental impact assessment of each mine prior to the commencement of construction, with construction work executed according to the requirements of the laws and regulations of PRC on environmental protection.
- The design and construction work relating to environmental protection facilities was simultaneously undertaken with the design, construction, and commencement of other major projects of the coal mines, thereby meeting the “Three-Simultaneous” requirement, as stipulated in PRC’s environmental management laws and regulations.
- BOYD’s review did not identify any significant problem regarding the environmental impact assessment and the implementation of the approved environmental protection measures at the Yitai and Yitai Group coal mines.
- The prevention and control measures applicable to pollutants are effectively implemented, especially considering that the actual investments for environmental protection exceed the planned environmental protection investment required in the environmental impact assessment reports and approvals. Such investments demonstrate Yitai’s focus and initiative on environmental protection.
- The high degree of environmental protection measures implementation at a majority of the mines was confirmed by our field observations, including the ground surface hardening and afforestation/ re-vegetation within the industrial sites of the mines, and the professional execution of the production facilities and domestic sewage treatment engineering works.

- Yitai has established a sound environmental protection organization and management system at the headquarters level. In contrast, the environmental management organizations at the subordinate mine level need improving, and in-depth, task-specific training provided to the environmental management staff. The mines need to establish environmental protection teams and environment management capabilities.
- The treatment and utilization of mine water and domestic sewage play a vital role in water conservation in this arid region. Records of discharged mine water and quantities of processed water should be reviewed in order to insure the use of available water supply sources is maximized.

10.0 Risk Assessment

10.1 Introduction

Coal mining operations are unlike other industrial facilities in that mines can be engineered or planned to a precise design capacity or cost structure, but there are inherent uncontrollable natural and external factors that can prevent the attainment of precise production, cost, and revenue targets. Mining operations are conducted in the earth's strata rather than within a homogeneous and controlled work environment.

There is inherent geologic risk, and mine operators must therefore contend with periodic adverse or variable geological conditions that cannot be fully anticipated in advance of actual mining activity. While the occurrences of these physical conditions are beyond the control of site management, it should not be interpreted that coal mining is inherently risky. On the contrary, there are established measures that mine operators utilize to minimize the operational and financial impacts associated with such encounters. Coal mining operations in the region have a demonstrated track record in sustaining consistent and predictable levels of performance.

Assessment of risk associated with any enterprise is largely subjective in nature and relies on the relevant experience of the professional completing the study in the specific industry and operating venue applicable to the subject enterprise. There are three general categories of business risk inherent in a mining operation, namely: geologic, operational, and market. For purposes of this study and in accordance with HKEx guidelines, we define risk in three general categories of consequence of risk rating, as follows:

- *Major Risk:* A factor that would have a material adverse effect (15% to 20% or higher) on project cash flow for the risk assessment period, possibly leading to project failure, if the specific risk occurred and was not corrected.
- *Moderate Risk:* A factor that would have significant adverse effect (10% to 15%) on project cash flow for the risk assessment period, if the specific risk occurred and was not corrected.
- *Minor Risk:* A factor that would have minimal or no adverse effect (less than 10%) on project cash flow for the risk assessment period, if the specific risk occurred and was not corrected.

However, equally, or perhaps more, important, is the likelihood that the specific risk will occur. For this study a seven-year risk assessment period is considered with the following likelihood of occurrence ratings:

- *Likely:* Event is likely to occur.
- *Possible:* Event may occur.
- *Unlikely:* Event is unlikely to occur.

The overall risk assessment combines these two components, consequence of risk rating and likelihood of occurrence, to determine the final categorization of risk, as shown below:

<u>Likelihood of Risk Occurring (within 7 Years)</u>	<u>Consequence of Risk</u>		
	<u>Minor</u>	<u>Moderate</u>	<u>Major</u>
	<u>Overall Risk Assessment</u>		
Likely	Medium	High	High
Possible	Low	Medium	High
Unlikely	Low	Low	Medium

10.2 General Assessment

BOYD independently assessed the Yitai mining operations as a whole to be low to medium in overall risk for the following reasons:

- Risk is mitigated by the diversity of production sources; while production may be temporarily interrupted at one mine, the impact on total company performance is minor.
- Twelve of the fourteen mining right areas have established mines and facilities, which limits exposure to start-up delays and issues. Mines are under construction on the remaining two mining right areas.
- While faulting is known to occur in some of Yitai’s mining areas, it is recognized in mine plans and assigned productivity levels. The overall ranking of the geologic setting of Yitai coal areas is simple to moderate (i.e., not geologically complex).
- Coals projected to be mined during the seven-year risk assessment period are well explored by drilling and mining experience.
- The Yitai mining right areas are located in established coalfields where general mining conditions are known and necessary infrastructure to support mining and coal marketing are in place.
- As a company, Yitai has the experienced management and technical capabilities to successfully operate their mines and to respond to operating interruptions and other event occurrences in a timely, professional, and proactive manner in order to minimize production and financial losses.
- Except for routine production risks, which all underground coal mine operators experience, BOYD has not identified any extraordinary known risk issues related to the future operation of the Yitai mines over the risk assessment period.
- While not anticipated, naturally occurring events such as flooding due to excessive rainfall or an earthquake, could occur but their impact would be regional in extent (i.e., not unique to Yitai).
- Yitai mines generally produce low sulfur content coals, classified principally as “long flame” (CY41) according to the Chinese coal classification system. The company has established markets for its coals, and risk of future sales (even with Yitai’s projected growth in output) is considered low based on the robust nature of the Chinese economy and the competitive cost structure of the Yitai mines.

The one issue identified in our assessment as a medium risk is Yitai’s need to obtain governmental approvals of company applications for both mining rights on the two greenfield (mine under construction) sites — Talahao and Bulamao West/East — and expanded mining rights for the following active mines: Nalinmiano No. 1, Yangwangou, Fuhua, and Kaida.

The following text provides an expanded discussion of mining-related risks and BOYD’s assessment of the Yitai risk profile.

10.3 Geologic Risk

General Geologic Risk

The Yitai portfolio of mining properties includes 12 operating and 2 mines under construction, with all mines located in established producing coalfields (either Dongsheng or Zhunge'er). On a global basis, the geologic setting of the coal deposits controlled by Yitai are judged to be simple to moderate (i.e., not geologically complex). All areas projected to be mined during the seven-year (2012 — 2018) risk assessment period are well defined by exploratory drilling and/or mining experience.

Unforeseen Geologic Anomalies

Unforeseen geological anomalies that extend over large areas could disrupt underground mine operations and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period of time (measured in months, and perhaps years) and a corresponding drop in revenue. Likewise, efforts to resume mining operations may result in cash losses during the period in which recovery and redevelopment activity is underway. Yitai mining right areas, particularly areas to be mined within the seven-year risk assessment period, are reasonably defined by both drilling and mining experience. This minimizes the risk of unforeseen geologic anomalies.

Yitai's mining right areas are subject to fault occurrences of varying displacements, which are the principal source of geologic anomalies affecting mining. In mining thus far, prehistoric burn areas have been prevalent but reasonably delineated by existing exploration. Yitai mines have not experienced significant sandstone channel features. Routine exploration and reconnaissance using drilling, geophysical logging, and seismic surveying methods is successful in identifying larger displacement faults, but only partially successful in defining minor displacement faults in advance of mining. In Yitai's favor is that significant faulting patterns can be traced from seam to seam, allowing known faults in one seam to be incorporated into mine plans for underlying seams long in advance of actual operations. It is reasonable to expect that minor displacement faults will continue to be encountered in future mining, but impact on overall performance is not likely to be material over a long period. Undetected faulting would result in reserve loss, the magnitude of which would be determined by the extent and degree of faulting.

Risk Assessment

Consequence

Rating: Low to Moderate Depending on Mine
Likelihood: Unlikely to Possible
Overall: Low

10.4 Reserves

While the estimated Marketable Reserves of Yitai are substantial (i.e., over 1 billion tonnes), the distribution of remaining Marketable Reserves by individual mine site results in some of the operating mines having a relatively short remaining mine life.

<u>Mine Site</u>	<u>Estimated Marketable Reserves (Mt) (as of 31 December 2011)</u>	<u>Estimated* Remaining Mine Life (Years)</u>
Yitai		
Suancigou	458.76	41
Nalinmiao No. 2	63.88	9
Hongjingta No. 1	35.90	6
Nalinmiao No. 1	9.26	3
Yangwangou	5.75	4
Fuhua	2.50	2
Kaida	4.15	3
Subtotal	580.20	
Yitai Group		
Dadijing	51.78	21
Baoshan	14.55	7
Dingjiaqu	16.29	7
Chengyi	4.82	4
Baijialiang	0.49	— ^{***}
Subtotal	87.93	
Total Active Mines	668.13	
Talahao	550.15	103
Bulamao (West)**	10.88	18
Bulamao (East)**	5.87	9
Total Planned Mines	566.90	

* Yitai and planned mine lives are estimated from recoverable reserves. Yitai Group mine lives are estimated from BOYD LOM plans.

** Assumes independent mine access.

*** Depletion of LW reserves expected in 2nd Q 2012.

To address the near-term depletion of reserves, Yitai has applied for expansions to the existing mining rights at the Kaida site, and is in the process of developing new mines at Talahao and Bulamao — East and West. Planned production levels at Talahao are 6.0 Mtpa ROM (approximately 5.3 Mtpa product coal), beginning with 3.0 Mt ROM in 2013, and at Bulamao 1.2 Mtpa ROM total (0.94 — 1.00 Mtpa product coal), beginning in 2013. However, Yitai has not received mining rights approvals for either of the new mine sites. While BOYD expects Yitai to obtain necessary governmental authorizations, there is no guarantee this will occur and there could be delays in the output schedule as discussed in the Greenfield Mines section.

Risk Assessment

Consequence

Rating: Moderate

Likelihood: Possible

Overall: Medium

10.5 Operational Risks — Naturally Occurring Events

Weather

Extraordinary weather occurrences (e.g., excessive rainfall) can result in disruption to the mining operations caused by power outages, loss of access into the mine site (movement of mine personnel, receipt of necessary operating supplies, etc.) and from the mine site (inability to load trucks or trains to dispatch coal to market, etc.).

Earthquakes

Available geologic background data report the general location of the Yitai mining right areas is not known to be highly seismic active and there is little history of serious earthquake activity.

Assessment

Any naturally occurring events would affect the broader region where the Yitai mines are operated and the impact would be industry-wide.

Consequence

Rating: Minor to Major
Likelihood: Unlikely
Overall: Low

10.6 Operational Production Risks

There are two primary types of operational risks associated with underground coal mining: production and event.

10.6.1 Production Risks

The first category of risk includes those variations in physical mining conditions, mechanical failures, and operational activities that can temporarily disrupt production activities. The most common of these are as follows:

- Roof control issues and roof falls.
- Poor mining conditions (poor roof, floor, ribs).
- Water accumulations/soft floor conditions.
- Ventilation disruptions and concentrations of methane gas.
- Variations in seam consistency, thickness, and structure.
- Failures or breakdowns of operating equipment and supporting infrastructure.

The preceding conditions and circumstances can adversely affect production in the short term, but are not regarded as significant to the long-term operation of the mining operations. Mine-level management is experienced and capable in dealing with these risks. BOYD does not regard the issues listed above as being material to Yitai's mining operations or otherwise significantly compromising projected financial performance over the long term, although some short-term variance to projected output and financial performance should be anticipated.

Forward mine planning uses productivity parameters and cost experience which incorporate historic experience (including routine interruptions to the mining process).

Assessment

Consequence

Rating: Minor

Likelihood: Likely

Overall: Low

Longwall Subsidence

Yitai mining operations utilize longwall (LW) mining practices which by their design cause subsidence of the overlying strata. The damage caused by LW subsidence is an issue in many countries and regions where LW mining techniques are utilized, and mining companies are sometimes restricted as to where LW mining operations can be performed. Generally the surface lands above the LW mines are devoid of densely populated residential areas, or large commercial or industrial structures. These tend to be sited near the lower elevations or shallower cover areas near major drainages. Consequently, undermining of structures is not a significant issue in the case of Yitai, and the company is in the position of remediating damages to the occasional structure that may be undermined. Minor surface drainages are likewise undermined after measures are taken to either relocate the course of the drainage or lining for the stream floor. In our view, Yitai is essentially unrestricted in its LW planning except for the aquifer zones, which, when and where present, require special planning.

Based on Chinese geotechnical practice, LW mining in areas and coal seams where the depth of cover is less than 40 m is likely to be problematic. LW face operation may be compromised because of the instability caused by excessive water infiltration and incompetent roof (extensive strata fracturing) likely to occur under shallow depths of cover. Pressure on the LW shields can be abnormally high because the shields are supporting the entire overburden load rather than the immediate roof below the main roof. Where warranted, we adjusted the Yitai mine plan projections and reserve estimates to exclude areas with less than 40 m of overburden depth, unless there was an established history of successful mining.

Proper mine design and planning can either avoid or minimize the damages from subsidence in protected surface areas. While subsidence is a by-product of LW mining, it can be controlled and mitigation actions taken by the mine operator to remediate surface damages.

Assessment

Consequence

Rating: Minor

Likelihood: Unlikely for Surface Land Restrictions (except Talahao North, which is rated as Likely),
Possible for Shallow Cover Restrictions

Overall: Low

10.6.2 Event Risks

The second type of risk is categorized as event risk. Items in this category are rare, but significant occurrences are confined to an individual mine and ultimately have a pronounced impact on production activities and corresponding financial outcomes for that mine. Following such events, all mines are subject to increased inspection/examinations and subsequent penalties and/or actions imposed by the PRC regulatory authorities. Examples of production-related event risks are:

- Major underground fires.
- Explosions.
- Flooding of the Underground Workings.

Operations Risks — Naturally Occurring Events (Section 10.4) also fall into the “event risk” category.

10.6.2.1 Major Underground Fires

The potential for major underground fires is significant in any underground coal mining operation due to the combustible nature of the material being mined and the industrial setting with machinery using combustible diesel fuel and lubrications. Fires generally occur from explosions (see below), equipment fires, belt conveyor system fires, or spontaneous combustion. Equipment fires rarely result in major mine fires due to on-board extinguisher systems and in-mine firefighting gear. A major event due to an out-of-control equipment fire is a potential but small risk.

Belt conveyor fires pose a higher order risk due to their extended and generally untended expanse. Belt conveyors by definition have moving parts which can be prone to friction. Monitoring systems and effective belt patrol and maintenance programs are critical to avoiding major events. These practices also result in improved belt availability and performance. Because of the potential for fires, belt conveyors are monitored for products of combustion, and potential event-prone areas such as transfer points have water spray installations designed to engage if a high temperature is detected. Generally these measures are adequate to avoid belt fires, but the potential is always present if the systems are not managed properly.

The last major source of mine fires is spontaneous combustion, which is a common occurrence throughout the world mining industry. Spontaneous combustion typically occurs in areas that are not well-ventilated, where the combination of self-heating and oxygen is adequate to support a sustained heating until a fire breaks out. In well-ventilated areas, the heat is carried away; in tightly sealed areas the oxygen supply does not support sustained combustion. LW gob areas are especially susceptible to spontaneous combustion incidents. If not controlled, the combustion can inflame the surrounding workings and also ignite methane, if present.

Typical of lower rank coals, the coal seams in the Yitai mines are rated as having significant potential for spontaneous combustion. This is well-recognized by the company and mine plans take this into account. Proper sealing of gob areas and appropriate ventilation designs may reduce the oxidation process and prevent spontaneous combustion. Alternately, measures for rendering sealed areas inert, such as nitrogen injection and mud injection, are planned by Yitai. Eliminating gob ventilation also serves to minimize the potential for gob fires due to spontaneous combustion.

According to Yitai, there have not been any spontaneous combustion incidents reported to date. Not ventilating the LW gob post-mining (no bleeder systems), the relatively high rate of LW face retreat and rapid sealing of the LW panel upon completion of mining are probably the largest deterrents to spontaneous combustion incidents. Care should be given to seal surface fissures caused by subsidence from mining to prevent air and water from entering the mined-out areas below. These cracks are especially prevalent in shallow cover areas.

The potential for spontaneous combustion incidents will remain a significant risk issue for Yitai, but operating experience to date indicates that present practices are effective.

Assessment

Consequence

Rating: Minor to Major depending on mine

Likelihood: Unlikely

Overall: Low

10.6.2.2 Explosions

Coal mine explosions typically are initiated by methane ignitions followed by coal dust explosions. Coal dust itself does not typically ignite, although under certain conditions it is possible. The coals mined by Yitai are generally rated as explosive in a dust form as is the case for nearly all coals in the world. The key to preventing explosions is the prevention of methane ignitions. In this regard, Yitai is fortunate in that the mines in the principal mining right areas have relatively low in situ methane content. Consequently, methane emissions are low during LW mining operations as observed by BOYD on several occasions.

Methane content typically increases with depth, as mining operations in the principal mining right areas proceed, methane levels are likely to increase but will remain relatively low by industry experience. Thus, present mining practices as regards ventilation are likely to be adequate for minimizing the potential for methane ignitions.

Yitai mines, as do mines in all progressive, regulated coal industries worldwide, take standard (state mandated) precautions for avoiding methane ignitions, including:

- Monitoring of airways for potential buildup of methane levels.
- Use of flame-proof enclosures for electrical controls and power-related components.
- Use of methane monitors and automatic de-energizing circuits on all CM and LW face equipment.
- Ban of personal smoking materials.
- Routine sealing of areas where mining has been completed.
- Installation of water curtains in the event an ignition occurs.

Ventilation systems are designed to effectively remove methane from the mines at concentrations that are intrinsically safe (less than 1% of atmosphere). Yitai mines do not utilize rock dust, which is commonly used in the United States as an explosion deterrent; rock dust is not typically used in China and other international coal industries.

If diligent practices are pursued, the risk of explosion can be minimized. The occasions of explosions have been relatively rare (although not eliminated) in the advanced international underground coal mining industries. Given present practices, the risk of an explosion is remote in our view.

Assessment:

Consequence

Rating: Minor to Major depending on mine

Likelihood: Unlikely

Overall: Low

10.6.2.3 Floods

Risk from floods occurring in the underground mine workings can take two forms. One possibility is intercepting unmapped flooded workings. These incidents have periodically occurred in every major coal mining country, including the United States. Due to the relatively recent history of mining in the Yitai operating regions, past mining is relatively well charted and mining activity can leave protective barriers about abandoned mines with confidence. An accidental flooding from uncharted works has a low likelihood of occurring in the Yitai mines.

A second risk arises from the potential inflow of ground water contained in faults and fissures and from surface and ground water entering the mine as a result of LW subsidence. Yitai is highly cognizant of the potential disruption to mining activities and takes appropriate precautions to avoid significant inrushes of water from these sources. Standard precautions typically include:

- Barriers left adjacent to known high displacement faults.
- Protection barriers maintained under large bodies of surface water and known high volume aquifers.
- Dewatering of aquifers through surface drilling or advance drilling underground if the potential for high water flow is significant.

Due to the concerns evident in discussions with engineering and geologic personnel, we would rate the potential for disruption to mining operations from inrushes of water as minor. Water inflows experienced at

the Yitai mines are typical of the region and are within the capabilities of well-designed pumping stations. The underground mines have sufficient water-handling systems. All mines have designed effective pumping systems with redundant primary sump pumps that control water inflows from the coal seam and overlying/ underlying strata.

Assessment

Consequence

Rating: Minor to Major
Likelihood: Unlikely
Overall: Low

10.7 External Risk — Regulation

Various levels of government are involved in the promulgation and enforcement of regulations under which the Yitai mines must operate. These include operating standards and requirements, and the payment of fees and taxes. While governmental regulation policies are industry-wide, and beyond the control of Yitai, the company is responsible for operating their mines and facilities in compliance with all governmental regulations now in effect (or any future regulations).

Based on BOYD's review, we opine that Yitai has implemented appropriate environmental protection measures in response to national environmental protection laws. Generally, the company's environmental protection work is comparable to similar mining enterprises elsewhere in the PRC. While the particulars of current environmental practices may need to be upgraded at some mines, there do not appear to be environmental constraints to future coal mining operations. In our opinion, in meeting the relevant requirements as required by national laws, the environmental protection practices of Yitai comply with the PRC and World Bank's requirements for environmental protection related to coal mining activities.

Coal reserves will decline as mine production continues. The ability of Yitai to increase or sustain projected output levels over time is heavily dependent on future acquisitions and mine expansions, all of which are subject to PRC government approval and permitting. However, approvals for the planned higher output capacities and approval for acquisition of future mining right areas remain under application. In the interim, assets will continue to be subjected to economic, political, and legal developments within the PRC. Furthermore, domestic coal prices are largely impacted by the government through regulation, taxes, tariffs, and the national rail system.

The Yitai 2012–2014 projections for coal output significantly exceed current mining right and production certificate output authorizations at a majority of the Yitai and Yitai Group mines. Yitai and Yitai Group mines in some instances have exceeded output authorizations recently, although no regulatory intervention has been reported to BOYD. The practice of exceeding output authorization, which is widespread in China, receives widely varying treatment from local, provincial and regional regulatory bodies. There is uncertainty whether overproduction will be permitted over the long-term, Yitai's applications for higher output levels will be approved, or higher authorizations will equate to output projections.

To our knowledge, Yitai has paid required resource fees to obtain mining rights, and governmental taxes and fees.

Passage of more restrictive or onerous government regulations could have adverse effects on future Yitai operations, but such a risk would be industry-wide and is unquantifiable at this time.

Assessment

Consequence

Rating: Minor to Moderate
Likelihood: Unlikely
Overall: Low

10.8 Market Risk

Achieving Yitai cash flow projections over the seven-year risk assessment period depends on sustaining and expanding coal sales at prices specified in the company's forward business plans.

BOYD has reviewed the mine plans for 2012–2014 from the perspective of historical performance and site visits and believes the plans are generally achievable. However, there is moderate risk that forecasted growth in output may not be reached in the time frame projected. It is not uncommon for new mine projects and expansions to be delayed for a multitude of reasons. We have not identified significant geological or mining-related issues during our review that would prevent the Yitai mines from achieving projected raw coal output levels in time.

A substantial reduction in market prices would have a material effect on financial performance. Such an event would occur if there were surplus alternative coals from other suppliers, or a reduction in demand from Yitai's customer base. It is BOYD's opinion that new competitors are unlikely to generate surplus production capacity. There are high barriers to entry, as new mine development requires significant capital investment and government approvals. However, such an event would directly impact (lower) total company revenues and could negatively impact the fixed cost structure and sustaining capital investments at individual mines.

Market risk is mitigated by the established nature of Yitai's mines and customer base, and the sustained growth of the Chinese economy, which is expected to continue over the seven-year risk assessment study period.

Assessment

Consequence

Rating: Minor to Moderate
Likelihood: Unlikely
Overall: Low

10.9 Summary of BOYD's Risk Assessment (2012-2018)

Hazard/Risk Issue	Risk Assessment		
	Consequence Rating	Likelihood	Overall
Geologic			
Overall (General)	Low	Unlikely	Low
Unforeseen Anomalies	Low to Moderate	Unlikely to Possible	Low
Reserve Availability	Moderate	Possible	Medium
Naturally Occurring Events			
Weather	Minor to Major	Unlikely	Low
Earthquakes	Minor to Major	Unlikely	Low
Routine Operational Risks (Adverse mining conditions, equipment outages)	Minor	Likely	Low
Longwall Subsidence	Minor	Unlikely to Likely	Low
Major Events			
Major Underground Fires	Minor to Major	Unlikely	Low
Explosions	Minor to Major	Unlikely	Low
Underground Flooding	Minor to Major	Unlikely	Low
Compliance to Existing Regulations	Minor to Major	Unlikely	Low
Marketing (Commercial)	Minor to Moderate	Unlikely	Low

11.0 BACKGROUND AND QUALIFICATIONS

BOYD is one of the largest independent consulting firms in the world exclusively serving the mining, financial, utility, power, and related industries. We have provided services on a continuous basis since 1943 in over 50 countries. Our full-time staff includes specialists in the analysis of geology, reserves, mine planning and costs, material handling, markets, business planning, transport, and environmental issues. Our full range of professional services includes:

- Due diligence of mining operations.
- Fuel and energy supply planning.
- Permitting and environmental analysis.
- Contract negotiations.
- Market and transport analyses.
- Economic feasibility studies and valuations.
- Assessment of existing operations.
- Strategic business planning.
- Transport issues.
- Asset appraisals.
- Minerals industry restructuring.
- Privatization studies.
- Geologic, reserve and mine plan modeling.
- Exploration design and supervision.
- Reserve and geotechnical studies.
- Technical assistance in legal matters.
- Monitoring of operating companies.
- Financial analysis.

BOYD also possesses extensive computer and software systems to estimate reserves and complete mine plans. These include Vulcan, MINCOM, SurvCADD, and others.

Our headquarters office is located in the Pittsburgh, Pennsylvania, region in the United States. Branch offices are established in Denver, Colorado (US); Brisbane, Australia; and Beijing, PRC. Please visit our website, www.jtboyd.com, for additional details.

BOYD has extensive experience in preparing Competent Persons and Independent Financial and Technical Review reports for international financing purposes and for public stock exchange filings. We are knowledgeable of listing requirements of The Stock Exchange of Hong Kong (HKEx), London Stock Exchange, and NI 43-101 (Canadian requirements), JORC Code, U.S. Securities and Exchange Rules, etc. We are familiar with the level of independent reporting required by international investors and financial institutions.

Among our Chinese coal projects, we represented Shenhua Group Corporation as their Technical Advisor for the China Shenhua Energy Company Limited (China Shenhua) IPO on the HKEx. Our work included an analysis of reserves (JORC, SEC, and UN Reporting Standards), coal quality, mine operations, processing, material handling, rail and ocean transport facilities, and economics. Shenhua Group Corp.'s reserve holdings were evaluated according to JORC Code and the HKEx Rule 18 requirements. We subsequently prepared four resource studies commissioned by China Shenhua for material acquisition HKEx filings. We also prepared ITRs

for MP Logistics International Holdings Limited (Ming Kei Energy Holdings Limited) for a transaction involving two openpit mines in Xinjiang Uygur Autonomous Region, for Fushan International Energy Group Limited's acquisition of Fortune Dragon Group Limited mines in Shanxi Province, for Artfield Group Limited's very substantial acquisition HKEx filing for the Ming Kei Energy Holdings Limited openpit mines in Xinjiang Uygur Autonomous Region, and for GCL-Poly Energy Holdings Limited's acquisition of the Duolun Mine in the Inner Mongolia Autonomous Region. Our Chinese non-coal projects include the ITR for the Lumena Resources Corporation IPO on the HKEx.

BOYD is a recognized consultancy having worldwide stature. We were retained by Her Majesty's Government, Department of Trade and Industry, regarding the privatization of British Coal Corporation (British Coal) and were actively involved with N M Rothschild, the lead financial advisor, during the course of this project. Our work assisted in the restructuring of the industry, and the coal mining operations of British Coal were successfully privatized.

We have completed over 2,000 resource and reserve audits. BOYD's reserve statements have been used by client companies, including some of the largest US coal producers. We have worked with and for virtually all of the major international banks. Numerous financial agencies have used our services to opine on property/mine operations. We have the proven ability to prepare a bankable document that is accepted and used with confidence by major financial institutions and other investors around the world.

ATTACHMENT A

Curriculum Vitae of the Key BOYD Project Team Members



Ronald L. Lewis
Managing Director and COO
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Summary of Expertise

Valuation of coal/mineral reserves and operating mining companies with specialized expertise in the areas of coal/mineral reserve estimation, surface and underground mineability analysis, and financial due diligence.

Experience

1971 to Date — John T. Boyd Company, Mining and Geological Consultants.

- Directed an independent feasibility study for developing an underground longwall mining operation in the Pittsburgh Seam. Scope of Work included: confirmation drilling, geologic modeling, reserve estimation, mine layout, mine planning (raw/product coal production, employment, capital cost estimation, and operating cost estimation for a life-of-mine plan), and financial (discounted cash flow) analysis.
- Directed independent valuations of two of the largest US silica sand producers. Each company operated numerous quarries and related processing facilities in multiple states. Annual silica sand production was approximately 6.6 million tons and 3.1 million tons, respectively. Scope of work included audit review of estimated reserves, operations review, asset appraisal, overview of market, discounted cash flow valuation, and limited Phase I environmental audit.
- Directed an independent due diligence review involving the acquisition and merger of three mining companies (divisions) into a nominal 30-million-ton-per-year producer. Properties are located in Central and Northern Appalachia. Scope of work included confirmation of the reasonableness of estimated coal reserves, mining plans, and financial projections.
- With the approval of US Bankruptcy Court, directed an independent review of stone/mineral reserves, asset appraisal, and valuation of a nominal 25 million-ton-per year producer of limestone, lime, industrial sand, and other industrial minerals.
- Directed BOYD's work as the technical and financial advisor to the Unsecured Creditors Committee involved in a Bankruptcy Chapter 11, Central Appalachian coal mining company and land company.
- Directed a three-year assignment providing technical consultation to HMG Department of Trade and Industry (United Kingdom) relative to the privatization of British Coal Corporation (BCC). Scope of services covered BCC's existing underground collieries and opencast mines and included technical assessments of coal reserves and operations (mining conditions, practices and potential for cost reduction, independent mine projections), as well as an overview of marketing.
- Provided ongoing technical and financial consultation for senior lender group to a major US coal producer (50 million tons per year) with operations in Central Appalachia, the Midwest, and Colorado. Scope of work included mine/business plan validation, evaluation of strategic operating issues, etc.

Ronald L. Lewis

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Experience — Continued

- Completed a due diligence study in preparation of syndication of loan for new property acquisition using existing Gulf Coast and Great Plains lignite mines as security.
- Directed on-site inspection and assessment of future mining plan requirements such as production forecasts, capital expenditures, and operating cost estimates by year for a 20-year plan. Also included in the overall scope of work were coal reserve estimation, asset appraisal, and review of present operations. Eight major Australian surface mines were evaluated; aggregate production was between 25 million and 30 million tons per year. Report was prepared for acquisition of one mining company and consolidation into overall surface coal mining operations.
- Assessed a major US producer of limestone and lime for use by lenders in debt restructuring. The overall scope of work included a review of reserves, mining and lime facilities, development of 10-year business plan, market price forecast, and valuation using a discounted cash flow method.
- Completed a due diligence review of a major nominal 45-million-tons-per-year German brown coal producer as the fuel source for four mine-mouth electricity generating stations. Principal mining equipment included bucket wheel excavators, bucket chain excavators, and overburden cross-pit bridges. The overall scope of work included a review of reserves and the existing mining operation, and ultimately, the valuation of the mining company.
- Managed a comprehensive 15-volume study covering design and implementation of an on-site exploration program, geological investigation of the multiple-bedded lignite deposit, assessment of raw and washed coal quality, preliminary mine feasibility of alternative surface and underground mining systems, examination of in-country mining capability and training requirements, analysis of alternative transportation systems, assessment of environmental impact of new coal mine development, and completion of a detailed master mine plan incorporating both modern surface mining and limited mechanization underground mines. Separate cost centers were fully developed for surface mine, underground mine, common facilities, and infrastructure. Annual estimates were prepared for coal production, labor requirements (expatriate and nationals), capital cost, and operating cash cost.
- Performed a series of coal reserve studies and accompanying valuations covering approximately one billion tons of coal (20 to 25 properties) located in the eastern United States. Studies were used as a basis for subsequent disposition program.
- Performed an independent technical assessment of an existing opencast coal mine in the Republic of Zambia. Scope of work included technical assessment of all mining, coal handling and processing, and marketing (forecast of future sales), as well as direct on-site assistance with equipment maintenance, coal preparation plant operations, aerial ropeway maintenance, and mine planning.

Ronald L. Lewis

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Foreign Consulting Experience	Australia, Canada, Colombia, Commonwealth of The Bahamas, Germany, Jamaica, Pakistan, Republic of South Africa, Republic of Zambia, Thailand, United Kingdom
Education	1971 B.S.: Civil Engineering, University of Pittsburgh
Registration and Certificates	Registered Professional Mining Engineer — Alabama, Kentucky, Ohio, Pennsylvania, and West Virginia Certified Member of the American Institute of Minerals Appraisers Registered Member of the Society for Mining, Metallurgy, and Exploration, Inc.
Publications and Papers	<p>2009 <u>Overview of the Central Appalachian Coal Region</u>, November 8–9; McCloskey US Coal Imports Conference.</p> <p>2006 <u>US Market Dynamics — Trends in Northern and Central Appalachian Coal Producing Regions</u>, November 29–30; McCloskey US Coal Imports 06 Conference.</p> <p>2005 <u>Implications of a Bull Market on Reserve Acquisition</u>, September 28; McGuire Woods LLP 2005 Coal Industry Briefing.</p> <p>2003 <u>Overview of Northern and Central Appalachian Coal Regions</u>, November 12–13; McCloskey US Coal Imports Conference.</p> <p>2003 <u>Private and Public US Coal Companies, Review and Financing Structure</u>, April 1; The 11th Annual Platts Coal Properties & Investment Conference.</p> <p>2000 <u>The Ownership Changes in the US Coal Industry and the Effects on the International Coal Market</u>, as presented at the 1st US International Coal Conference, June 12.</p> <p>1998 <u>Bauxite Mining: A Synergistic Opportunity (for Business and Government)</u>; September; 12th International Symposium; International Committee for Study of Bauxites, Alumina and Aluminum (ICSOBA); Delphi, Greece.</p> <p>1998 Co-author, <u>Due Diligence Requirements for Coal Property Acquisition</u>, March 25; Sixth Annual Coal Outlook Coal Properties Buying and Selling Conference, St. Petersburg, Florida.</p> <p>1996 "Coal Property Evaluation Factors," presented at the Coal Outlook Seminar <u>Evaluating, Buying & Selling Coal Properties</u>, March 28–29.</p> <p>1994 "Black Powder — An Explosion in Market Demand," <u>COAL Magazine</u>, September.</p> <p>1993 <u>Independent Review: 10 Collieries Under Consultation, British Coal Corporation, United Kingdom</u>, March; HMSO ISBN 011 515329 2.</p>

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1993 Independent Analysis: 21 Closure Review Collieries, British Coal Corporation, United Kingdom, January; HMSO ISBN 011 514990 2.

1988 RESERVES — The Practical Approach to Determining What You Have, January; Fifteenth Annual West Virginia Mining Symposium.

1986 Lakhra Coal Project Mine Development Plan, February; The First Pakistan National Coal Conference, Sind Province, Pakistan.

**James F. Kvitkovich**

Vice President

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Summary of Expertise

Thirty years of experience in evaluation of underground mining operations, mine plans, costs, capital requirements and productivity. Extensive expertise has been developed in mine feasibility, economic analysis of mining operations, and operational assessments. Additional mine engineering expertise in ventilation analysis, evaluation of coal quality and geological impacts on mine operations, and appraisal of mining assets.

Experience**1981 to Date — John T. Boyd Company, Mining and Geological Consultants.**

- Managed numerous independent technical reviews of existing underground mining operations and proposed mines in Inner Mongolia Autonomous Region; Xinjiang Uygur Autonomous Region; NingxiaHui Autonomous Region; and Guizhou, Yunnan, Shaanxi, Shanxi, Henan, and Heilongjiang provinces, People's Republic of China. Reviewed current mining activities, and evaluated operation forecasts, pro forma operating statements and business plans (including output and staffing levels, capital expenditures, and operating costs). Conducted site visits to active mining operations, reviewed historical operating data, and discussed future mine plans with company staff. Evaluated reserve base estimates according to SEC and JORC Code requirements. Reviewed current operating and labor practices; safety, training, and fatality experience data; and financial projections for reasonableness and likelihood of successful attainment.
- Managed extensive independent technical reviews for Initial Public Offerings relative to existing underground and surface coal mining operations and selected undeveloped coal deposits in Inner Mongolia Autonomous Region and northern Shaanxi and western Shaanxi provinces for the largest state-owned and privately owned coal companies in China. Reviewed current mining and processing activities, and evaluated company's five-year operation forecast, pro forma operating statements, and business plans (including output and staffing levels, capital expenditures, and operating cost). Conducted site visits to active mining operations, reviewed historical operating data, and discussed future mine plans with company staff. Reviewed and reclassified company's reserve base according to SEC and JORC Code requirements. Reviewed current operating and labor practices; safety, training, and fatality experience data; and company's financial projections for reasonableness and likelihood of successful attainment.
- Performed a prefeasibility overview of a potential brownfield extension of a large Alabama longwall mine into an adjacent reserve area holding 16 million recoverable product tons. Life-of-reserve pro forma operating and financial projections provided by the client were reviewed for reasonableness and likelihood of successful attainment. Incorporated findings (including capital and operating costs and inflation factors) into a comprehensive cash flow analysis of the project for submittal to corporate evaluation team. Provided alternative potential upsides of the project in final report.

James F. Kvitkovich

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Experience — Continued

- Performed an assessment of a large mine located in Martin and Pike counties, Kentucky, in regards to fulfilling the terms of a coal supply agreement. Met with mine personnel, toured underground workings, and collected source documentation. Assessed remaining reserve base, future mine plans, and present and anticipated mining conditions. Project focus was to demonstrate that the mine had encountered unforeseen changes in geologic and seam conditions, rendering it unable to abide by the terms of the coal supply agreement. The study was performed in anticipation of litigation over performance issues.
- Participated in an extensive operational overview and due diligence investigation of a large Appalachian coal company. Conducted site visits to division offices in Pennsylvania, Virginia, and West Virginia; reviewed historical operating data; and discussed future mine plans with company staff. Evaluated five-year pro forma financial projections, including output and staffing levels, capital expenditures, cost, and sales revenue. Reviewed plans for reasonableness and likelihood of successful attainment, identified major risks or fatal flaws, and adjusted plans as required based onsite visits and data review. Incorporated findings into a comprehensive cash flow analysis of the company for valuation prior to closing for financial underwriting and syndication.
- Performed a detailed industrial engineering analysis of continuous miner production operations, including one continuous haulage unit at a western Kentucky coal mine staffed by salaried supervisory personnel during a contract strike. Established benchmarks for evaluating performance of returning UMWA workers.
- Evaluated various options for extending a large Pennsylvania longwall mine operation into a subjacent seam and estimated capital and operating costs for several scenarios to arrive at the option with the lowest economic cost and project risk.
- Reviewed feasibility plans for proposed miniwall and longwall installations in a 3.0-million-ton-per-year Illinois mine. Developed underground mine plans with labor and capital requirements, and estimated operating costs for most likely and optimum production scenarios.
- Determined potential gate development advance rates for a large two-seam Pennsylvania longwall mine using time study techniques. Utilized time study results and underground observations to establish accountability standards for section operations.
- Analyzed potential for cost reduction consistent with a 21-year mining plan incorporating recovery of economically mineable reserves for an Illinois mine. Developed detailed mine plans for unit scheduling, capital and staffing requirements, and operating costs.
- Assessed gate development operations for a highly productive Utah longwall mine with the objective of bringing the mine to a higher level of performance. Worked with mine personnel to develop a realistic plan for implementing results of a time study analysis.

James F. Kvitkovich

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Experience — Continued

- Devised conceptual mining plans as part of the development of a strategic business plan for a southern West Virginia coal property. Estimated costs for various mine sites and calculated required realizations for ROI targets. Mining plans considered reserve and seam conditions, coal quality, capital investment, transportation, and infrastructure.
- Evaluated longwall gate development section performance utilizing continuous haulage equipment in a Colorado mine. Assessment included industrial time study techniques and analysis of delays, mining conditions, and personnel.
- Assisted in the preparation of an underground mining plan for a lignite deposit in southern Pakistan, including on-site inspection of current mines and mining practices. Reviewed available data and previous reports, evaluated drilling data, and estimated reserves mineable by underground methods. Selected optimum combination of mining methods and plans, including layout and entry design, haulage, roof control, ventilation and power distribution, and equipment specifications. Established coal production schedule and designed project infrastructure, including mine support facilities.
- Developed conceptual underground mine plans to produce 4.0 million tons per year through year 2011 for a mine-mouth generating station. Considered reserve and seam conditions, capital and staffing requirements, coal transportation, coal preparation, and common facility requirements in formulating the plans.
- Assessed operations for a southwestern Virginia mining complex capable of producing 2.0 million underground mined tons per year. Estimated contract miner production costs and developed five-year capital requirements and operating costs for the complex. Provided recommendations on reduction of operations and other efficiency measures to achieve lowest practical cost and on future exploration programs with evaluation of reserves and coal quality.
- Studied feasibility of acquiring a major southern West Virginia leasehold for metallurgical and steam coal production. Plans considered reserve and seam conditions, preparation plant yields and coal quality, capital and staffing requirements, continuous miner and longwall technology, mine infrastructure, transportation, and central facilities.
- Evaluated two potential operators of a mining company supplying coal to a central Pennsylvania generating station. Projected production from various underground mines for a 25-year period included scheduling a criteria of cost and sulfur levels. Estimated total delivered cost of coal produced based on geology and seam conditions, labor force and capital requirements, and coal transportation arrangements.
- Assisted in an engineering overview of a mining company consisting of four mines with 4.0-million-ton-per-year capacity. Appraised company assets to arrive at an asset valuation. Developed mine cost model for evaluating detailed life-of-mine plans; model inputs included seam conditions, labor requirements, and production scheduling.

James F. Kvitkovich

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Experience — Continued	<ul style="list-style-type: none">• Developed appraisal values for surface facilities and underground equipment for a large mining complex in southern West Virginia. Conducted site visits to underground operations to observe equipment and reviewed maintenance and asset listing records. Utilized appraisal values in an acquisition transaction.• Developed appraisal values for mining equipment at a large mining complex in central Pennsylvania. Conducted underground site visits to observe equipment and evaluated maintenance records and asset listing data. Utilized these values for potential acquisition valuation.• Developed equipment appraisal values for a large mining company. Conducted site visits to underground mines in eastern Kentucky, Virginia, and northern West Virginia to observe equipment. Reviewed and evaluated maintenance records and asset listing information. Valuation was utilized for a successful debt syndication.
Foreign Consulting Experience	Canada, Mexico, Pakistan, People's Republic of China, Turkey, United Kingdom, Russia, Australia
Education	1981 B.S.: Mining Engineering, University of Pittsburgh.
Registration and Certificates	Registered Professional Engineer — Pennsylvania Certificate — Pennsylvania Mine Examiner
Memberships	Registered Member — Society for Mining, Metallurgy, and Exploration, Inc. National Society of Professional Engineers



Paul D. Anderson
 Director of Geological Services
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Summary of Expertise

Design and management of exploration programs, interpretation of exploration data, evaluation of depositional features impacting mineability and utilization, development of computer geologic models, and preparation of resource and reserve estimates for mining companies and for private and public financing.

Exploration

Design, supervision, and management of coal exploration programs. Exploration experience includes all major coalfields in the United States, and in Asia and South Africa. This experience covers all exploration methods and types of equipment associated with all coal ranks and soft and hard rock formations.

Interpretation of Exploration Data

Experience in data interpretation covers the interpretation of geophysical logs and other drilling and coal quality data. The interpretation approach focuses on the identification of geological features that impact mining operations.

Evaluation of Depositional Features that Impact Mineability and Utilization

Experience includes evaluation of both deep and surface mineable reserves. Deep mining studies have included detailed structural interpretation, the mapping of roof and floor types and paleochannel systems that impact mineability and often impact coal quality. Surface mine experience includes the evaluation of flat lying to extremely complex depositional features that impact seam occurrence, coal quality, highwall stability, and mine hydrology.

Development of Computer Geologic Models

Experience includes the review of models of deposits using various methods and techniques. Have supervised the preparations of models using the major industry software packages. These models were prepared using various techniques to accurately represent actual seam conditions.

Preparation of Reserve Estimates and Reports

Experience includes the preparation of hundreds of reserve estimates and reports defining coal quantity and quality that have been used for mine planning at active operations, financing of major mining and power generating projects, acquisition and sale of coal properties, initial public offerings, and litigation.

Experience

1985 to Present — John T. Boyd Company, Mining and Geological Consultants.

- Investigated geology and lignite reserves of the Lakhra lignite deposit in Sind Province, Pakistan. Supervised exploration drilling, prepared computer geologic model of this complex deposit, and prepared reserve report and geologic evaluation.

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Experience — Continued

- Supervised exploration program in Texas, USA, including large diameter coring and stockpile sampling. Designed and implemented in-pit coring quality control program. Defined complex geologic depositional environments, and prepared geologic model and reserve reports. Installed and expanded computer model on client's system.
- Performed detailed audit of computer model for a proposed large multiple-seam surface mine in Venezuela, including verification of seam correlation, modeling of high angle reverse faults, and reserve estimates.
- Verified quantity and quality of reserves for a proposed large multiple-seam surface mine, including detailed examination of seam correlation and computer modeling estimates.
- Reviewed computer geologic model and reserves of a Texas lignite deposit for development of a surface mine and power plant complex, including assessment of faulting and hydrologic features relative to mineability.
- Performed assessment of the depositional geology, reserve occurrence, and longwall mineability of the Pittsburgh Seam. Designed and supervised exploration program to define depositional features.
- Prepared a computerized geologic model of a lignite deposit in Thailand for mine feasibility studies, including detailed correlation of lignite beds and definition of complex structure. This project successfully completed in a cooperative effort with Thai geologists and engineers.
- Reviewed initial exploration data and prepared an exploration program to provide data for mine feasibility studies for a lignite deposit in Laos.
- Prepared reserve estimates of underground coal deposits in the United Kingdom and developed a system to evaluate these reserves related to the privatization of British Coal.
- Prepared a geologic model of a complex faulted deposit in Indonesia, including design of exploration programs, interpretation of exploration data, and development of computer models. This project was a joint effort with local geologists and engineers.
- Prepared resource and reserve estimate of premium metallurgical coal in Shanxi Province, China.
- Prepared JORC compliant coal resource and reserve estimate for the successful IPO of China's largest coal company.
- Prepared JORC compliant resource and reserve estimate of salt deposits in central China.
- Prepared estimate of coal resources and reserves for a large underground coal mine in Xinjiang Uygur Province, China.

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Experience — Continued

- Prepared JORC compliant resource and reserve report for a large private mining company in Ukraine for a successful IPO on the Warsaw Stock Exchange.
- Prepared JORC compliant resource and reserve estimate for a large metallurgical coal mining company in Colombia.
- Evaluated several structurally complex coal deposits in Mongolia.

1975 to 1985 — Paul Weir Company, Consulting Mining Engineers and Geologists, Chicago, Illinois.

- Supervised program of close-spaced outcrop drilling of a 2-billion-ton lignite surface mineable reserve in Dunn County, North Dakota. Conducted chemical testing to determine oxidized seam subcrop.
- Prepared seam correlation and reserve estimates for a large surface mineable lignite reserve in Hopkins, Rains, and Wood counties, Texas.
- Supervised exploration programs, including lignite and overburden coring and outcrop drilling in Grimes County, Texas. Prepared reserve estimates for feasibility studies of new operating surface mine and power plant complex. Testified as an expert witness for plant site condemnation proceedings.
- Prepared lignite core description, interpreted geophysical logs, designed exploration programs, and prepared reserves maps and reports for the new operating surface mines in Louisiana and Texas.
- Reviewed geology and reserves of lignite holdings in Texas, Louisiana, and Mississippi for a major coal company.

Foreign Consulting Experience

Australia, Canada, China, Colombia, Indonesia, Laos, Mongolia, Pakistan, Republic of South Africa, Thailand, United Kingdom, Venezuela

Education

1974 B.S.: Geology, Western Kentucky University

Registration and Certificates

American Association of Petroleum Geologists: Certified Coal Geologist

American Institute of Professional Geologists

Certified Professional Geologist: Illinois, Indiana, Kentucky, Pennsylvania, Texas

Memberships

Society for Mining, Metallurgy and Exploration, Inc.

American Institute of Professional Geologists

Geology Society of America

American Association of Petroleum Geologists

Pittsburgh Geological Society



Summary of Expertise

Twenty-six years of mining industry expertise in project management and engineering, with focus on mine plan/design, rock mechanics, ground and subsidence control, evaluation of mining operation, and mine construction. Extensive background in mining engineering and senior management for dimensional limestone companies. In-depth experience in critical corporate operations/engineering functions, including safety, mine/plant design, production planning and budgeting, quality and inventory control. Strong focuses on customer services and market development. Consistently established and enhanced processes and controls to provide timely, meaningful, and accurate production performance information. Strategic thinker with excellent analytical and negotiating skills.

Experience

2009 to Date – John T. Boyd Company, Mining and Geological Consultants.

- Conducted several independent technical reviews of existing underground mining operations and proposed mines in Inner Mongolia Autonomous Region, Shanxi, Shandong, Yunnan, and Heilongjiang provinces, People's Republic of China. Reviewed current mining activities, and evaluated operation forecasts, pro forma operating statements, and business plans (including output and staffing levels, capital expenditures, and operating costs). Conducted site visits to active mining operations, reviewed historical operating data, and discussed future mine plans with company staff. Evaluated reserve base estimates according to SEC and JORC Code requirements. Reviewed current operating and labor practices; safety, training, and fatality experience data; and financial projections for reasonableness and likelihood of successful attainment.
- Provided mining advisory services to Ukraine coal mine operators in negotiation with Chinese mining equipment manufacturers. Performed site visits and evaluated the performance of various mining machineries in Hebei, Shanxi, and Beijing, China.
- Assisted the HKEx listing company and its advisors in the evaluation of the technical aspects of the existing and proposed mine operations, including site visit in British Columbia (Canada) to observe operations, and an assessment of current mining practices, historic and current performance, transportation infrastructure, and reasonableness of future mine plans.
- Performed site visits, operation assessments, environmental program reviews, and due diligence studies for crushed stone and sand/gravel quarries in eastern US.

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Experience — Continued

**2006 to 2009 — Victor Oolitic Stone Co., Bloomington, Indiana.
Vice President of Operations.**

- Senior Operation Executive for this construction materials producer with \$25 million in annual sales. Developed and implemented company's first formalized annual mining plan and production schedule and a weekly/monthly performance reporting package, including benchmarking metrics tracked against plan and prior years, allowing management to stay on target with strategic objectives.
- Directed quarry planning, budgeting, forecasting, vendor/contract negotiations, and quality/inventory control. Responsibilities included: property exploration, reserve estimations/analysis, training of supervisors at all levels on achieving operating objectives, and the financial impacts of their decisions. Analyzed building stone competitors and developed strategic plans to grow the business by creating and responding to customer demand and to build the business along product lines that improve and diversify the customer base. Evaluated and advised on a wide range of issues such as potential acquisitions, strategic alliances, capital purchases, major contracts, new products and programs, and other incentive plans.
- Installed safety program for changing the safety culture and improved quarry working environment; reduced loss time accident event happened in the lowest level of the company history.
- Implemented digital mapping system for quarry operation. The database built up on this system and had been applied and used in the daily production.
- As a state certified operator, managed NPDES permit and ensured appropriate environmental controls were in place to maintain all federal, state, and local compliances and reporting integrity.
- Established production tracking and products inventory system for stripping, cutting, extraction, and sales. Reduced slab process lead time from one month to 10 days.
- Regularly participated in strategic decisions concerning the short- and long-term direction of the corporation; review of the monthly, quarterly, and yearly financials and other matters related to successfully running the business, including acquisition target and investment decisions.

1996 to 2006 — Indiana Limestone Company, Inc., Bedford, Indiana. Chief Engineer/Director of Mining Engineering (2002–2006), Mining Engineer (1996–2001).

- Joined this leading Indiana Limestone quarrier/fabricator as a mining engineer and advanced within two years to Corporate Chief Engineer, supervising and providing all technical and engineering support for each department and at all levels.

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Experience — Continued

- Directed the development of both long- and short-term mine plans for all quarry locations, supervised and performed quarry/plant design and planning, prepared quarry operation budget and scheduling, managed capital projects in close coordination with operations, provided engineering analysis and other technical supports to operations managers, developed and implemented environmental control plan and permits, and oversaw the processes in property exploration, reserve estimations/analysis.
- Moved stone mass from 2 million ft³ in 1997 to over 7 million in 2005. Improved saleable stone yield by implementation of standard quality control procedures and better management.
- Applied new quarry technologies to the mining operations and defined quarrying production and performance metrics for better monitoring and tracking.
- Successfully developed annual budget and long-term quarry plans based on existing reserve and market demands.
- Completed geological exploration and reserve studies, added more deposits, and extended mine life.
- Managed all environmental affairs and established safety program for the workforce in the quarry. Accomplished with environmental violations-free record and worked closely with MSHA personnel to keep the workplace safe.
- Participated in all staff meetings focused on a variety of subjects/topics/issues, including: P/L, budgeting, forecasting, company policies, inventory management, manufacturing and sales order processes, capital/production equipment procurement, measures to increase profitability and productivity, safety issues, benchmarking, and establishment of metrics.

1995 to 1996 — Weir International Mining Consultants, Ltd., Lexington, Kentucky. Project Mining Engineer.

- Provided technical expertise in the areas of mine/plant design and planning, mining permitting, storm drainage control design, ground/subsidence control, mine reclamation design, rock mechanics, slope stability analysis, and field testing instrumentation.

1991 to 1995 — McCoy & McCoy Environmental Consultants, Inc., Lexington, Kentucky. Project Engineer.

- Duties included mine and processing plant design and planning, drainage control and structures design, and slope stability analysis. Also, responsible for ground and subsidence control design, developing construction plans and specifications for abandoned mined land and reclamation projects, NPDES permits, and environmental assessments.

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Education	<p>2004 MBA: International Business/Finance — Indiana Wesleyan University, Bloomington, Indiana.</p> <p>1995 PhD: Mining Engineering — University of Kentucky, Lexington, Kentucky.</p> <p>1989 MS: Mining Engineering — West Virginia University, Morgantown, West Virginia.</p> <p>1982 BS: Mining Construction — China University of Mining & Technology, Xuzhou, China.</p>
Registration and Certificates	<p>Registered Professional Engineer: Indiana, Kentucky</p> <p>The National Council of Examiners for Engineering and Surveying</p> <p>Licensed Wastewater Treatment Plant Operator in Indiana</p>
Memberships	<p>Registered Member — Society for Mining, Metallurgy, and Exploration, Inc.</p>
Publications and Papers	<p>2006, "Hybrid Modeling Methods (Strata/Block) and the Application for Dimensional Limestone Mining," <u>The 2006 SME Annual Meeting and Exhibit</u>, by Y.J. Zhang and R.B. Carlson, St. Louis, Missouri.</p> <p>2006, "Application of Modern Technology in Today's Limestone Quarry Operation," <u>Mining Engineering</u>, by Y.J. Zhang and B.E. Moore, Vol. 58, No. 10.</p> <p>1996, "A New Approach to Determine the In-Situ Strength of Coal in Mine Pillars," <u>Mining Engineering</u>, by Y.J. Zhang, K.F. Unrug, and E.D. Thompson; Vol. 48, No. 10.</p> <p>1995, <u>Development of In-Situ Rock Property Measurement Technique Using a Borehole Penetrometer</u>, Ph.D. Dissertation, College of Engineering, University of Kentucky, Lexington, Kentucky.</p> <p>1993, <u>Monitoring and Evaluation of Different Shield Supports in Longwall Mining</u>, <u>Second International Symposium on Modern Mining Technology</u>, Fuxin Mining Institute, Fuxin City, Liaoning, China.</p>