

Technical Report

on the

Pre Feasibility Study

for the

Verticalnaya North Project Ukraine (NI 43-101 Standards)

prepared for

Lysander Minerals Corp.

by

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for

IMC Group Consulting Ltd

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Appendix A Glossary of Terms

3 SUMMARY

At the request of Lysander Minerals Corporation (“Lysander”) this independent technical report has been prepared in conformity with NI 43-101. Lysander is a company incorporated in British Columbia, Canada and listed on the TSX Venture Exchange (“TSX-V”) under the symbol LYM.

Following the exercise of options at the end of November 2009, Lysander owns 100% of the charter capital of Ukraine Energy Limited, a Ukraine company that in turn owns 51% of the chartered capital of Skhidna Vugilna Kompania (“East Coal Company” or the “Company or “ECC”) and owns directly 49% of the charter capital of ECC. Accordingly, Lysander owns all of ECC, which is a Ukraine company that holds the license for the Verticalnaya mine and, though lease and rental agreements, the assets and facilities of the mine.

This technical report covers the Verticalnaya North Project (“VNP” or “Verticalnaya North”), a small satellite operation within the Verticalnaya mine license area. It has been compiled to conform to the disclosure and reporting requirements established by the Canadian Securities Administration National Instrument 43-101, Companion Policy 43-101CP and Form 43.

3.1 General

Verticalnaya Mine is in the Donbass coal basin located in Lugansk region near the Russian border. Following its closure in 1998 the mine was passed onto the State Enterprise “Ukruglerrestrukturizatsiya” (UDKR) whose responsibility is the liquidation of closed mines. IMC understands that Skhidna Vugilna Kompania (“the Company” or “ECC”) was granted the license to operate the mine as a private enterprise and will activate a mining plan proposed by the Company in conjunction with GOAO Luganskgiroshakht, an entity of the district government responsible for technical design and oversight of mines in the district.

Lysander after acquiring ECC has proposed a plan for an initial separate operation to access the resources initially in the H₁₁^B seam in the North West sector of Verticalnaya Mine. It is this plan which is based on a prior GOAO Luganskgiroshakht plan, that has been assessed by IMC in this report.

3.2 Description of Assets

IMC reviewed the asset listed in Table 3-1, which is wholly owned by the Company and shown on the location plan, Figure 3-1 below.

Table 3-1 List of Assets

Asset	Present Status	Type	Product/Output	Date of Commencement of Operation	Ownership
Project					
Verticalnaya North	Undeveloped	Underground Mine	Anthracite	Planned Project Year 1	100%

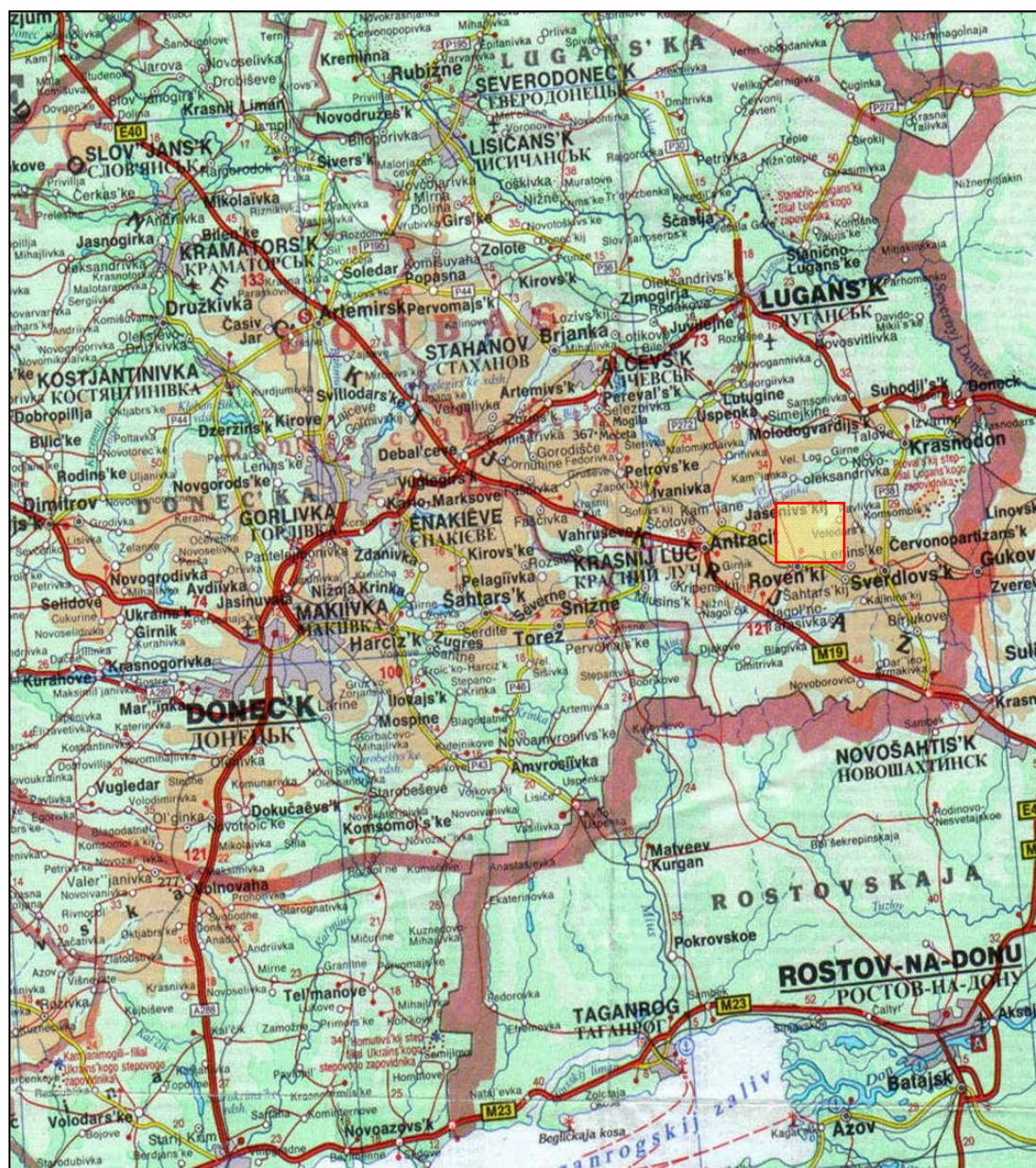


Figure 3-1 Location Plan, Verticalnaya Mine

3.3 Summary of Geology

The geology of the Verticalnaya North Project area is not complex. Structurally the strata are located in a southern dipping limb of a syncline and are not disrupted by fault structures although some simple fault structures do occur. The coal seams are contained in competent strata, predominantly siltstone and sandstone.

3.4 Summary of Reserves and Resources

The Company propose to extract coal from the H₁₁^B seam in the areas where it attains a thickness of 0.60 m or more. The nature of the evidence, estimation methods and statements regarding reserves and resources are described below:

3.4.1 Nature of Evidence

The area of the Verticalnaya Mine has been thoroughly explored by numerous cored borehole programmes between 1930 and 1985 totalling over 400 boreholes, 26 of which cover the VNP area. The Luganskkiproshakht holds the original borehole data listings and resource evaluations. The data is held in hard copies only with no computer database.

3.4.2 Reserves and Resources Estimation Methods

The resources and reserves were originally evaluated to conform to the standards set out in the Former Soviet Union (FSU), the GKZ Standards. These standards were meticulous and thorough but did not take account of economic or marketing factors when estimating reserves.

The original reserve blocks and seam data have been used here as the basis to estimate the resources and reserve to the JORC (2004) standards which are equivalent to the CIM (Canadian Institute of Mining, Metallurgy and Petroleum) classifications in this situation.

3.4.3 Reserves and Resources Statement

It is considered that the Verticalnaya North Project will have access to 1.6 Mt of Proved Reserves in seam H₁₁^B within the Measured Resources as shown in below. These resources are inclusive of these Reserves.

Table 3-2 Reserves and Resources Statement for the Verticalnaya North Project as at 18th March 2010

Seam	Resources (Mt)		Reserves (Mt)	
	Indicated	Measured	Proved	Probable
Seam H ₁₁ ^B		4.2	1.6	
Seam H ₁₀ ^B	3.8			
Total	3.8	4.2	1.6	

Resources are inclusive of Reserves

Reserves are quoted after allowing for all losses. Resources are quoted as in-situ totals, with no allowance for either mining or geological losses and are inclusive of reserves.

3.5 Mines and Facilities

Verticalnaya Mine is currently under care and maintenance and non-operational. In the VNP the Company intends to drive new infrastructure from the surface outcrop and develop mining operations in the virgin areas of the H₁₁^B coal seam as a satellite mine to the main Verticalnaya Mine.

There are no coal preparation facilities at the mine site and none are planned.

3.5.1 History

Mining operations at the Verticalnaya Mine began initially during 1912 when coal was accessed from its outcrop point on the surface via inclined drifts locally known as “Number 10 Mine”. It was then developed and operated as a shaft and drift mine where the workings progressed to -1000 metres “1245 m below surface”.

The sinking of a second shaft was completed just prior to the mine closure in 1998 and was never fully equipped and the mine never achieved the planned coal outputs and was considered unprofitable and closed and thus passed onto UDKR where it was kept on care and maintenance scheme as a water pumping station to protect the adjacent operating mines from increased water inflows.

3.5.2 Management

IMC's personnel were in regular contact and held numerous discussions with the Company's management at all levels. IMC is satisfied that the Company's management is capable of implementing the proposed production plans based on this contact and on direct observations of the limited operational management team, which IMC understands will be enhanced as the mine is developed.

3.5.3 Health and Safety

IMC understands that as the development of the mine begins the new management of the mine will pursue an active safety management policy. Any training programme devised will be approved by the Ukrainian Mine Authorities before it is implemented and a record of each individuals training will be maintained at the mine.

3.5.4 Infrastructure

The site proposed for the VNP mine access and surface facilities has good access by road from the main Verticalnaya site and a nearby rail line with facilities for wagon loading. Overhead power lines supplying a nearby quarry run close to the site and could be used to supply the mine facilities.

The existing Verticalnaya Mine site's main administration building is functional, capable of providing the services required for management and workers which could be used for the VNP.

3.5.5 Mine Development Project

3.5.5.1 Mine Layout

The VNP mine layout is based on the initial development and extraction of coal reserves in H₁₁^B leaving lower coal seam H₁₀^B available for extraction at a later time. It is intended to extract the coal in this satellite block with longwall faces.

Development of the mining block will be via two in-seam drifts driven from the surface (Ventilation and Conveyor Drifts). With the full seam dip at the surface being 18-20°, the drifts will be driven cross-dip to make sure the angle of apparent dip is not greater than 16° (refer Figure 25-1).

From these drifts three longwalls driven along the strike of the coal seam will be developed in the coal resources to the west of the drifts, extracting the seam in descending order (refer Figure 25-2).

3.5.5.2 Roadway Development

The two inclined drifts, 30 m apart, will be driven a distance of 450 m from the surface outcrop and an in-seam connection formed at the base of the drifts. From the drifts ventilation and conveyor access roadways to the first longwall will be driven. 50 m of cover will be left between the higher longwall ventilation gate and the surface. The ventilation gate should also be below the oxidized section of the coal seam. Due to the angle of the drifts compared to the line of strike the length of the upper ventilation roadway will be 60 m to the longwall face and the lower conveyor roadway will be 190 m.

The method of drivage of the drifts, in-seam access roadways and the longwall will be by drill and blast.

Using solid firing the coal seam will be drilled, fired and loaded out prior to the hard rock section of the roadway. This will separate the coal from the waste materials and also provide a second free-face for blasting the rock. This method will advance the drivage by 2 metres per round giving advance rate of 90 m/month. The advance rate is relaxed to a maximum of 70 m/month for scheduled planning.

In-seam drivage for the development of the longwall roadways is planned at a maximum drivage rate of 75 m/month because they are being driven level along the strike.

Meetings with two companies, Spetspromtehnika and Luganskshakhtoprohodka, have confirmed that rates of 70 m/month on the inclined drifts and 75 m/month on in-seam drivage can be achieved for the proposed development of H₁₁^B coal seam at VNP.

The advance rate for the longwall face start position is planned at 90 m/month as this is a simple in-seam drivage.

The cross-sectional area of all roadways will be a standardised at 16 m² and two weeks are allowed for the erection of a junction during the development programme.

3.5.5.3 Longwall Development

Longwall faces will be driven to the rise from the longwall conveyor roadway to a planned length of 270 m along the line of dip. Two months are allowed for the equipping of a longwall, and its associated production infrastructure.

All longwalls will be advanced longwall operations utilising a short advanced heading system at each end of the longwall face using standard arch support. The longwall will be equipped with a plow system along the face-line for the extraction of coal.

An advanced heading system is a common method of work for advancing longwalls in Ukrainian mines. The system consists of either a bucket loading or gathering arm loading machine fitted with a boom mounted drill rig. Bore and fire methods are used in the removal of the strata to form the roadway profile which is then supported with steel arch supports.

3.5.5.4 Production

The planned production from each longwall will peak at 35,000 t/month based on 25 days and a calculated 306 tonnes per metre of advance which will require 4.5 m advance per day.

Two mines in the same area of the Ukraine, the Frunze Mine and the Bryanka Mine, have both confirmed that the longwall advance rate of 4.5 m is readily achievable and in the past they have achieved in excess of that on numerous occasions in Seam H₁₁^B.

When the first longwall is in production the two inclined drifts will be extended a further 300 m prior to the development of Longwall 2 with a similar configuration to access Longwall 3.

To ensure continuity of longwall coal production, Longwall 2 will be driven and equipped whilst Longwall 1 is in production ensuring Longwall 2 is ready for coal production when Longwall 1 is finished. A second set of longwall equipment will be purchased for Longwall 2. Equipment from Longwall 1 will be refurbished and installed onto Longwall 3, again to ensure continuity of coal production.

The mining schedule developed shows first coal production in month 17 allowing 4 months to obtain land and coal production permits (refer Figure 25-3). Each longwall will be worked systematically providing a continuous coal output for 47 months or 4 years. In total the three longwall's will produce around 1.5 Mt of saleable product.

Based on similar operations in the Ukraine and IMC's experience, IMC consider these development and production parameters to be testing but achievable with the correct management and equipment.

3.5.6 Coal Preparation

The Company have no plans for a dedicated coal processing plant on site to treat the VNP ROM product. It is intended to utilise mobile screening technology and associated conveying systems to pre-screen the ROM coal to remove contaminants, inspect/hand clean the screen oversize to maximise recovery in order to prepare a marketable product for direct sale to the domestic electricity generating market.

Third party washing of the coal off-site is an option available to the Company should operational experience deem it necessary.

3.6 Environmental Issues and Management

At the Verticalnaya Mine site, the estimated mass emissions to air of dust and combustion gases are relatively small. The mitigation measures proposed in the Environmental Social Impact Assessment, together with establishment of sanitary protection zones for this site, are designed so that ambient Ukrainian air quality standards are not exceeded.

The proposed area for the VNP mine access and surface facilities is on the site of a former clothing factory on land designated for industrial use. The land is under the authority of Sverdlovsk District and presently unused. Similarly, land in the immediate surroundings is mainly grass and unused for agriculture.

A revised environmental assessment is required for the VNP site although environmental effects would not be expected to differ significantly from those of the main Verticalnaya Mine. However a village lies approximately 500 m from the VNP site and therefore the project and environmental management systems must be designed to ensure air quality and noise levels remain within Ukrainian standards.

ECC considers that the local communities are supportive of a resumption in mining because of employment prospects.

ECC has two suitable options for waste rock storage; either on the existing Verticalnaya waste site or in the nearby quarry owned by another company.

3.6.1 Provision for Rehabilitation

At this stage, ECC has not developed a formal environmental management system and plan. However a technical specification document is to be prepared by Luganskigiproshakht and submitted with the application to Sverdlovsk Civil Authority to rent an area of land for the VNP site. The document typically includes a provisional plan for rehabilitation of the disturbed land. As a point of note, there is no requirement under Ukrainian Environmental Law to plan or make financial provision for mine closure.

3.7 Statutory Authorisations

3.7.1 Mining Licences and Leases

ECC has recently taken ownership of the assets comprising the Verticalnaya Mine, acquiring the mining licences and finalising an agreement for rental of land areas required for implementation of the main mine project.

The protocol for acquiring these and commencing mining activities is an integrated, phased process involving:

- Acquisition of a licence to develop the deposit from the Ministry of Ecology and Natural Resources (MENR).
- Gaining permission to rent land areas housing the mine and process facilities, infrastructure, waste storage site and water treatment from the Sverdlovsk Civil Authority.
- Obtaining the mining lease from the Ministry of Coal.
- Obtaining various permits for labour safety and environmental emissions.

Currently the position is that ECC has the Mining Licence, has a preliminary agreement regarding rental of land areas and has submitted the project plans and drawings to the Ministry of Coal for approval for the Verticalnaya Mine. This approval is expected shortly.

IMC understands that ECC has a verbal agreement to rent an area of land suitable for the VNP. Luganskkiproshakht has been contracted to prepare the technical specification, including the area and boundaries of the land required, for submission with the application for rental. ECC considers that the application will be approved quickly without objection. IMC has not identified any issues likely to result in a rejection of the application.

3.7.2 Environmental Permits

Before mining can commence, ECC must obtain permits from the MENR for emissions to air, use and discharge of water and generation and storage of solid waste materials. Two critical approvals necessary for the Verticalnaya Mine project implementation have been received. However in order for VNP to proceed, Luganskkiproshakht is to revise the original feasibility study, including the environmental impact assessment. This has to be submitted to the State Expertise for review and approval before the ecological certificate and work permits can be granted. No problems are expected in this regard

3.8 Financial Results

A financial analysis for Verticalnaya North, provided by the Company and evaluated by IMC, over the period January 2010 to August 2015 inclusive- the life of the mine as proposed. This duration covers the time from when the main site was taken over to when the final income is received for the related coal sales, some two months after production ceases from this area.

It is important to note that this project for Verticalnaya North will extract some of the resources/reserves planned within the larger project for the development of Verticalnaya Mine and which have already been included within the valuation of that project. However it should also be noted that the amount of reserves that will be extracted by the VNP, some 550,000 tonnes, will not materially affect the main project considering the established resources and reserves at the Verticalnaya Mine.

Further, for the duration of this project, costs incurred at the main project site are covered within this Verticalnaya North project. Thus while some resources should now be removed from the larger Verticalnaya project, it is advisable that the overall timing, capital expenditure and operating costs, of that project should now be reviewed.

Capital expenditure for developing the mine project for the initial years plus additional expenditure over the remaining life to maintain production is estimated at US\$25.0 million. This total includes any operating expenses prior to the commencement of commercial coal production, less the associated coal sales, which have been capitalised in the Company business plan.

Commercial coal production is projected to commence from the H₁₁^B seam half way through the second year of the project- in July 2011 based on a January 2010 start.

Cash operating costs over the full term of the business plan are projected to average US\$23.25 per saleable tonne of production (excluding development costs capitalised during the first 3 years of the project).

A discounted cash flow appraisal has been carried out over the 65 months of the business plan and this shows a net present value, when discounted at 12%, of US\$14.89 million. A sensitivity analysis has been carried out and the results are shown in Section 25.11.

Based on the business plan as presented and the subsequent cash flow analysis the projected undiscounted payback period is 41 months.

These key project indicators are shown below in Table 3-3.

Table 3-3 Key Project Indicators

Key Indicators	Value
Initial Capital Expenditure to Commercial Production	US\$14.5 million
Total life of Mine Capital Expenditure	US\$25.0 million
Net Present Value @ 12%	US\$14.89 million
Internal Rate of Return	42.7%
Average Operating Cost per Saleable Tonne	US\$23.25
Pay Back Period	41 months

4 INTRODUCTION

4.1 Report Preparation

At the request of Lysander Minerals Corporation (“Lysander”) this independent technical report has been prepared in conformity with NI 43-101. Lysander is a company incorporated in British Columbia, Canada and listed on the TSX Venture Exchange (“TSX-V”) under the symbol LYM.

Following the exercise of options at the end of November 2009, Lysander owns 100% of the charter capital of Ukraine Energy Limited, a Ukraine company that in turn owns 51% of the chartered capital of Skhidna Vugilna Kompania (“East Coal Company” or the “Company or “ECC”) and owns directly 49% of the charter capital of ECC. Accordingly, Lysander owns all of ECC, which is a Ukraine company that holds the license for the Verticalnaya mine and, through lease and rental agreements, the assets and facilities of the mine.

IMC Group Consulting Limited (“IMCGCL” or “IMC”) of Nottingham, England has been commissioned as independent technical consultants for the preparation of this report. The Qualified Persons, signatories of this report, are engaged as consultancy employees of IMCGCL. IMCGCL has received fees for the preparation of this report. There is no other corporate or commercial relationship between IMCGCL and Lysander, nor does any such relationship exist through the individual signatories, each of whom confirm their independence in the Certificates of Qualified Persons in Section 24 of this report.

This technical report covers the Pre-feasibility Study of the Verticalnaya North Project (VNP) and has been compiled to conform to the disclosure and reporting requirements established by Canadian Securities Administration National Instrument 43-101, Companion Policy 43-101CP and Form 43-101F1.

4.2 Purpose of the Technical Report

The purpose of the report is to provide an independent assessment of the VNP by reviewing pertinent data, including resources, reserves, manpower requirements, environmental issues and the life-of-mine (“LOM”) plans relating to productivity, production, operating costs, capital expenditures and revenues.

IMC has reviewed the practice and estimation methods undertaken by the Company for reporting reserves and resources in accordance with the Former Soviet Union (FSU) “Classification and Estimation Methods for Reserves and Resources,” last revised in 1981. This procedure establishes the nature of evidence required to ensure compliance with the Classification. Within this is a “Conditions for Estimation of Reserves and Resources” unique to each deposit. IMC has reviewed the reserves and resources statement of the VNP compiled by the Company and has restated the reserves and resources in compliance with the reporting requirements established by Canadian Securities Administration National Instrument 43-101, Companion Policy 43-101CP and Form 43-101F1. In this report, all reserves and resources estimates, initially prepared by the Company in accordance with the FSU Classification, have been substantiated by evidence obtained from IMC’s

site visits and observation and are supported by details of drilling results, analyses and other evidence and takes account of all relevant information supplied by the management of the Company.

Mining, and in particular underground coal mining, is carried out in an environment where not all events are predictable. Whilst an effective management team can, firstly, identify the known risks, and secondly, take measures to manage and mitigate these risks, there is still the possibility for unexpected and unpredictable events to occur. It is therefore not totally possible to remove all risks or state with certainty that an event that may have a material impact on the operation of a mine, will not occur.

4.3 Sources of Information

The sources of information and data used in the preparation of this report are as follows:

4.3.1 Mining

- Technical Report on the Verticalnaya Mine, Ukraine (NI 43-101 Standards) dated September 2008
- Verticalnaya Mine, Ukraine, Feasibility Study of Verticalnaya North Project

4.3.2 Coal Preparation

- The 1986 Re-evaluation of Resources Report carried out by the GOAO Luganskgiproshakht Institute
- Washability test report on ROM from seam H₁₁ at the adjacent Mine No3 Davievskaya in 1959
- Verticalnaya Mine, Ukraine, Feasibility Study of Verticalnaya North Project dated May 2009
- Technical Report on the Verticalnaya Mine, Ukraine, (NI 43-101 Standards) dated September 2008
- E-mail correspondence between Brian Everitt and Colin Stocks of Lysander Minerals Corporation dated 16th & 18th June 2009

4.3.3 Environmental and Land Lease

- Feasibility Report on the Opening and Operation of Volodarskiy Mine 1250 m level prepared by Luganskgiproshakht
- Contract between ECC and Luganskgiproshakht for preparing the technical specification of the VNP, May 2009
- Technical Specification for opening Verticalnaya Mine at 1250m level, Explanatory Note for Land Lease, Luganskgiproshakht, 2008.
- Local area map (approximately 5.5km x 3.5km, scale 1:10000) showing infrastructure, population centres and environmental protection zones in the proximity of Verticalnaya and the VNP site.
- Technical Report on the Verticalnaya Mine, Ukraine (NI 43-101 Standards) dated September 2008
- Verticalnaya Mine, Ukraine, Feasibility Study of Verticalnaya North Project

4.3.4 Financial

The estimates have been prepared using a combination of:

- The business plan provided by the Company and
- Experience of other coal mines in Russia and Ukraine;
- Experience of other coal mines outside of Russia and Ukraine

4.4 Scope Personal Inspection

Qualified Person Mike Coultas (geologist) visited the mine assets with a Company Senior Mining Engineer on three separate occasions in conjunction with the preparation of this report.

- November 2006
- January 2008
- June 2008

Qualified persons John Warwick (Project Director and Mining Engineer) and Brian Everitt (Coal Process) visited the property with “Other Experts” Peter Robinson (Financial) and Mike George (Environmental) in November 2006. Mike George revisited the property in June 2009 to inspect the proposed site of the VNP.

5 RELIANCE ON OTHER EXPERTS

For the preparation of this Technical Report, the Qualified Persons have relied upon the work of other experts in respect of the following contributions and disciplines:

For environmental procedures, consents and environmental performance the present report is reliant on the site inspection and reporting performed by Mr Michael George. Michael George is an honours graduate in Applied Chemistry (Kingston-on-Thames Polytechnic, UK, 1972), with over 35 years experience in mineral processing and over 17 years specialist experience in environmental assessment. He has performed services for over seven years as an environmental consultant for IMCGCL. He undertook a visit to the Verticalnaya Mine and project site between 26th and 27th February 2007 and he revisited Verticalnaya on 4th June 2009 to inspect the area proposed for the VNP and for further discussions with Luganskigiproshakht. Michael George is responsible for Section 25.5 Environmental Considerations in this Technical Report.

The compilation and analysis of operating and capital cost schedules, and economic analysis of the Verticalnaya project have been undertaken by Mr Peter Robinson, a member of IMCGCL staff who specialises in economic analysis of mineral industry projects. Peter Robinson is an Associate Member of the Chartered Institute of Management Accountants with over 15 years good standing with this Institute and over 30 years experience of mineral sector financial management and accounting. In this Technical Report he is responsible for sections 3.8, 25.9 Taxes and Royalties, 25.10 Capital and Operating Cost Estimates and 25.11 Economic Analysis.

The work of the above experts can be relied upon.

6 PROPERTY DESCRIPTION AND LOCATION

The VNP area lies within the north western sector of the Verticalnaya Mine licence area which is in the Dolzhano-Rovenetskiy region of Donbass. The Verticalnaya Mine licence area is 52.4 km². The centre of the mine licence area is 39° 50' E 48° 10' N or 42000E 29500N in local coordinates.

The Verticalnaya Mine licence document lists the coordinates in longitude and latitude. ECC have been issued a mining licence for the property, No. 4305 dated 19th July 2007 which allows them to extract coal from seams H₁₁, H₁₁^B, H₁₀^B, H₈ and H₈^B within the licence area. This licence is valid for 20 years from the date of issue expiring on the 19th July 2027.

6.1 The Nature and Extent of the Issuer’s Title to, or Interest in the Property including Surface Rights

The mine licence is issued by the Ukraine Ministry of Mines. They are the only authority allowed to give permission for mining within the Ukraine.

ECC has recently taken ownership of the assets comprising the Verticalnaya Mine, acquiring the mining licences and finalising an agreement for rental of land areas required for implementation of the original project to work the mine and for the VNP site.

The protocol for acquiring these and commencing mining activities is an integrated, phased process involving:

- Acquisition of a licence to develop the deposit from the Ministry of Ecology and Natural Resources (MENR).
- Gaining permission to rent land areas housing the mine and process facilities, infrastructure, waste storage site and water treatment from the Sverdlovsk civil authority.
- Obtaining the mining lease from the Ministry of Coal.
- Obtaining various permits for labour safety and environmental emissions.

6.1.1 Mining Licence

ECC has acquired the mining licence for seams 8, 10 and 11 under an open tender by the MENR. Typically, mining licences are valid for 20 years. Terms of licences include obligations of the owner to work according to safety and environmental laws, make efficient use of the resources, submit summary production reports monthly

and detailed annual reports, and pay royalty fees equivalent to US\$ 0.25 per tonne coal delivered to the surface on the specified dates.

As the VNP comes within this licence area as a satellite mine, the same conditions will apply.

6.1.2 Rental of Surface Areas

The land proposed for the mine access and surface facilities of the VNP is approximately 1.5 km north west of the main Verticalnaya site. It is owned by the local civil authority and ultimately under the administration of the Sverdlovsk District Authority. According to ECC there is a verbal agreement in place to rent an area of land which effectively allows ECC to proceed with the work necessary for a formal rental application and revision of the feasibility study.

ECC is presently finalising a contract with Luganskgiroshakht Institute to prepare a technical document to accompany the application to rent a suitable area of land from the Sverdlovsk Civil Authority. The technical document typically specifies:

- The characteristics of the land.
- Technical details of the project.
- Infrastructure requirements.
- Methods of disposal of waste and water.
- The area and boundaries of the land required.
- Ownership of adjoining land and an estimate of any damage or losses likely to be incurred.
- Provisional plans for rehabilitation of the disturbed area.

The rental application has been granted without any objections as the site and surrounding land are currently unused and the local population is generally supportive of a resumption in mining because of the employment prospects.

6.1.3 Mine Lease

Following acquisition of the Mining Licence, ECC has submitted the project plans and drawings to the Ministry of Coal. After review and approval by various departments of the Ministry of Coal, the mining lease was issued as of the 28th May 2009. In parallel, ECC must obtain permits for mining and use of explosives by demonstrating that the relevant managers and explosive specialists have the necessary experience and qualifications.

The original project feasibility study by Luganskgiroshakht for the Verticalnaya Mine has received positive conclusion following review by the State Expertise committees for labour safety and ecology. A revision of the mining plan will require similar approval and then a total conclusion from the State Expertise before site construction work can commence. Detailed engineering design work can also commence at this stage.

6.2 Conditions of Mining Licence

The licence states that there are additional conditions for mining the coal. These are

- The licence is issued according to the results of the tender (protocol No.13, dated 11th June 2007)
- Conformation with conditions laid down in:
 - State Control of Ecological Recourses in the Lugansk Area, Card No.1272 dated 18th April 2005
 - State Mining Industrial Control No. 01/02-07.04.1/891 dated 20th December 2006
- Complete and in time payment of obligatory payments to State Budget according to the Legislation
- Annual report to "GEOINFORM of Ukraine" Form 5-GR

6.3 The Property Boundaries

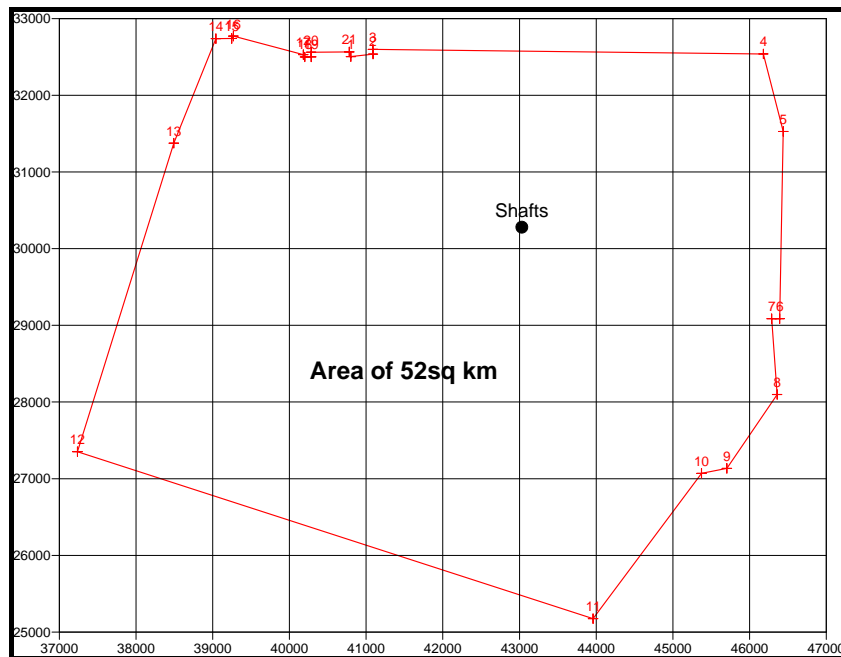


Figure 6-1 Licence Area, Verticalnaya Mine

The property boundary is shown in Figure 6-1 above and a plan showing the location of the VNP within this boundary is shown in Figure 6-2. A list of the co-ordinates, both in latitude/longitude and local grid, shown above in Figure 6-1 are listed in Table 6-1 below:

Table 6-1 Co-ordinates of the Lease Boundary

Point	Latitude/Longitude						Local	
	East			North			East	North
	Deg	Mins	Secs	Deg	Mins	Secs		
1	39	32	53	48	7	28	40801.00	32503.93
2	39	33	7	48	7	29	41090.29	32536.88
3	39	33	7	48	7	31	41089.89	32598.66
4	39	37	13	48	7	22	46179.18	32539.43
5	39	37	25	48	6	55	46439.10	31527.48
6	39	37	22	48	5	36	46391.80	29086.90
7	39	37	17	48	5	36	46288.39	29086.06
8	39	37	20	48	5	4	46358.40	28098.18
9	39	36	48	48	4	33	45703.77	27135.37
10	39	36	32	48	4	31	45373.07	27070.96
11	39	35	23	48	3	30	43959.24	25175.75
12	39	29	59	48	4	42	37236.03	27352.16
13	39	31	1	48	6	52	38492.35	31375.96
14	39	31	28	48	7	36	39041.54	32738.78
15	39	31	38	48	7	36	39248.33	32740.19
16	39	31	39	48	7	37	39268.80	32771.22
17	39	32	23	48	7	29	40180.39	32530.43
18	39	32	24	48	7	28	40201.29	32499.69
19	39	32	28	48	7	28	40284.00	32500.27
20	39	32	28	48	7	30	40283.57	32562.04
21	39	32	52	48	7	30	40779.88	32565.56



Figure 6-2 The Property Boundary showing Location of the VNP areas

The Verticalnaya Mine boundaries set out in the licence agreement are dictated by::

- Outcrop of the coal seams on the rise side to the north;
- Tsentrosyuz mine workings on the east side along the strike of the coal seam;
- Cosmonavtov mine workings on the west side along the strike of the coal seam;
- The final contour line of the current licence area allocated to the dip.

The location of the mine shafts and other surface features were checked using GPS measurements on an earlier visit to the mine site and the results confirm the location of the licence area (refer Figure 6-1).

For the VNP only the outcrops of the seams and the mine workings and faulting to the west impinge on the area available to the project (refer Figure 6-2).

The location of the old mine workings are shown on a map in Section 11, Figure 11-2 and the location of all known mineral zones are shown in map form in Figure 13-1 and Figure 13-2.

6.4 The Terms of any Royalties, Back-in Rights, Payments or Other Agreements and Encumbrances to which the Property is Subject;

Payment to the State Property Fund for the assets required for the operation of the mine will be paid as a royalty per tonne of coal produced.

6.5 All Environmental Liabilities to which the Property is Subject;

The proposed site for the VNP was previously used as a small clothing factory and is designated industrial land. All that remains of the factory, which IMC understands has been closed for almost 20years, is a concrete slab and some small concrete structures. IMC has not identified any liabilities associated with the existing site condition other than a need to clear the concrete and a small amount of fly tipping of municipal waste. However ECC will be required to work according to lease conditions necessary to protect the environment and after completion of mining to restore the land to an agreed condition.

Other ongoing liabilities refer to the main Verticalnaya Mine and are referred to in the Technical Report on the Verticalnaya Mine, Ukraine (NI 43-101 Standards) dated September 2008.

6.6 The Permits that must be acquired to Conduct the Work proposed for the Property, and if the Permits have been Obtained.

Environmental protection in the Ukraine is legislated using a system similar to that adopted by many countries throughout the former Soviet Union. With regard to the exploitation of mineral deposits the primary articles of legislation governing are:

- The Law of Ukraine on Protection of the Natural Environment, No. 1264-XII, 25.06.91.
- The Code of Ukraine on Subsoil, No. 132/94-BC, 27.07.94.

The permitting procedure for mining projects consists of three distinct phases: exploration, project initiation and project operation. Environmental regulation, applied throughout these phases, is established in the primary legislation. The Subsoil Code establishes the basis for the issuing of exploration and mining licences and defines the concept of the rational use of resources. Procedural measures, permitting and the basis for standards are provided in subsidiary legislation, such as

- The Water Code of Ukraine, No. 213/95-BP, 06.06.95.
- The Law of Ukraine on Protection of the Atmosphere, No.2707-XII, 16.10.92.
- The Ground Code of Ukraine, No. 2196-XII, 13.02.92.
- The Law of Ukraine on Waste Products, No. 187/98-BP, 3/5/1998.

A key element of the project initiation phase is the OVOS process, which is equivalent to the international Environmental Social Impact Assessment. The OVOS is used as the basis for the application for permits covering waste management, water abstraction and discharge, and emissions to atmosphere. Further implementation of a project is dependent on receipt of an Environmental Certificate and review of the EIA by the State Environmental Expertise according to the Law of Ukraine on Ecological Expertise, No. 45/95-BC, 09.02.95. The latter includes procedures for public notification and consultation.

A large number of rules, regulations, normative documents and Government decisions are taken into account in the development of the EIA including:

- Maximum permissible concentration (MPC) of harmful substances in air.
- Specifications of quality of fishery and domestic water use.
- Maximum permissible concentration, sanitary rules and norms for protection of surface waters from pollution.

Environmental protection is enforced mainly by the requirement to obtain and maintain the environmental permits that establish and regulate an economic mechanism levying payments for permissible or normative amounts of emissions and waste production. Environmental permits, specifying the permissible quantities of air emissions and waste storage are issued annually whereas water usage and discharge permits are normally valid for 5 years. Renewal is subject to submission of an annual environmental report, compliance with specific provisions and payment of taxes at the required dates. The normative levels must be re-assessed periodically, typically every 5 years for air emissions.

For the main Verticalnaya Mine project two critical approvals necessary for the project implementation have been received. The submission of the ecological certificate has been approved by the Chief of the Department of the State Administration of Ecology and Natural Resources in Lugansk Region, on 18.04.2005, and the state ecological expertise was carried out by the State Administration of Ecology and Natural Resources in Lugansk Region and approved on 20.05.05

In order for the VNP to proceed, EEC must submit a revised feasibility study and environmental assessment for review and approval by the State Expertise. Luganskigproshakht is preparing the revised feasibility study and is of the opinion that approval can be obtained in approximately 3-4 months on the basis that the VNP does not impose additional environmental impact compared with the original plan for extracting coal from the main Verticlcnaya mine.

Also before mining and processing can commence, ECC must obtain permits from the MENR for emissions to air, use and discharge of water and generation and storage of solid waste materials. These define the permissible quantities for release of hazardous substances based on the results of the EIA (Environmental Social Impact Assessment) that is being prepared as part of the revised feasibility study. Generally permits for water discharge

are valid for 5 years whilst air emission permits and waste permits must be renewed annually. Furthermore the air emissions inventory must be re-evaluated every 5 years.

In parallel, ECC must obtain permits for mining and use of explosives by demonstrating that the relevant managers and explosive specialists have the necessary experience and qualifications.

As stated above Luganskgiroshakht is of the opinion that approval can be obtained in approximately 3-4 months.

7 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

7.1 Topography, Elevation and Vegetation

The proposed site for the VNP mine access and surface facilities occupies a slightly elevated position, at 320 m, approximately 1.5 km north west of the main Verticalnaya site. The land in the immediate vicinity is gently undulating with vegetation consisting of grass and small trees but no evidence of agriculture or animal grazing. A shallow river valley lying to the east of the site is dammed at several points upstream to form the settlement lagoons for treating water from the main Verticalnaya Mine and site.

7.2 The Means of Access to the Property

The VNP site is accessed from the main Verticalnaya site via public highways and good quality dirt track; a total distance of approximately 10 km. There may be an option to construct a more direct access road from the main site.

7.3 Proximity to a Population Centre and Nature of Transport

The Verticalnaya Mine, formerly known as Volodarskiy, is located in the Sverdlovsk district, Lugansk region of Ukraine west of the city of Sverdlovsk. A number of settlements lie in the vicinity including towns of Lunacharsk, Leninskiy, Volodarsk, Ustinovka, and villages of Malomedvezhje, and Fedorovka. Houses of Volodarsk village are visible from the proposed VNP area at a distance of approximately 500 m to the north east.

Mining in the region has been ongoing for almost 100 years resulting in a landscape dominated with numerous waste heaps, mine head gear and settling ponds. Within the bounds of the Verticalnaya lease area are the aluminium plant "Intersplav" and the Valyanovskiy gravel plant. The locality is a densely populated and highly developed industrial region, associated mainly with coal mining and manufacturing. Although several mines bordering Verticalnaya are still in operation, the collapse of the coal industry during the 1990s had a high impact on the local economy.

Transport for a potential workforce could easily be established from the local centres of population by a public or Company run buses. There is a rail spur at the gravel plant with wagon loading facilities, approximately 1 km from the proposed VNP site. This option is under consideration for delivery of coal directly to the power station.

7.4 The Climate and the Length of the Operating Season

The regional climate can be extreme with snow and temperatures of -30°C in winter rising to +30°C with dry sun in summer. However, the extensive mining operations throughout the whole of the Donbass are used to working with such extremes so, with adequate precautions, the operating season is continuous throughout the year.

7.5 Sufficiency of Surface Rights for Mining Operations, the Availability and Sources of Power, Potential Tailings Storage, Potential Waste Disposal Areas

ECC proposes to sell the coal mined at the VNP either directly to the customer, a power station, or send to a 3rd party washing plant for treatment. The only treatment envisaged on site is a relatively simple screening process to remove large size material. A small area will be required for coal stocking prior to loading on to rail wagons at a rail spur and loading facilities located at a gravel quarry close to the VNP site. Other facilities at the site are likely to include the mine ventilation equipment, conveying equipment and a small heating plant.

The total area and boundaries of the land required for the VNP facilities will be defined in a technical study to be prepared by Luganskgiroshakht and submitted with the application to rent the land from Sverdlovsk Civil Authority.

ECC requires land area for the mine, and infrastructure. In order to conclude an agreement for rental of this land from the Sverdlovsk Civil Authority, ECC must:

- Demonstrate ownership of buildings, facilities on the land to be rented
- Be in possession of the licence to develop the deposit
- Receive written confirmation from the current owners, that any assets have been privatised.
- Have approval from the Sverdlovsk regional council signed by the Mayor.

In practice, a rental agreement has to be agreed with the State Property Fund and discussions on the amount are still ongoing with ECC and the State Property Fund.

ECC is considering two options for storage of the mining waste arising from the VNP:

- Transport by truck to the existing Verticalnaya waste storage site, a distance of approximately 10 km via the existing access route.
- Deposit on a nearby coal waste dump owned by another company but presently unused.

Either of these options appear suitable, although the potential costs and legal implications associated with depositing waste on a 3rd party site are a potential downside against the advantage of a shorter haulage route.

Since the coal will not be washed on site prior to sale there will be no requirement for tailings storage.

8 HISTORY

The Verticalnaya Mine is owned by the State Authorities and is now legally leased by ECC from July 2007 for 20 years. The mine was previously owned and operated by the State authorities who have kept the mine under care and maintenance. During the period when the mine was operational, no coal was mined in the areas of the H₁₁^B and H₁₀^B seams now being included in the Verticalnaya North Project (VNP).

Several phases of exploration drilling have been completed by The Ministry of Coal Industry of USSR since 1930, the most extensive phase being during the 1970's when over 200 cored boreholes were drilled in the area of the Verticalnaya and adjacent mines. The latest review of the geology and resources was completed in 1986 by The Ministry of Coal Industry of USSR.

The original borehole data is now held by The Ministry of Coal and Energy of Ukraine. Original borehole sections, together with seam plans and reports are held at the Ukraine Ministry in Lugansk (Luganskgiroshakht). These documents have been seen and inspected during the visits to the Luganskgiroshakht in 2008. ECC do have copies of some of the seam plans and associated documents. Copies of seam plans and seam data relating to H₁₁^B and H₁₀^B seams have been used to compile this report of the VNP.

The H₈ seam has been subject to mining until the suspension of coal production due to flooding. The production has demonstrated that the resource estimates, structural interpretation and mine planning were realistic. There is no reason to question the geological interpretation or estimates of coal quality and quantity.

The data held at the Luganskgiroshakht is typical of the comprehensive borehole data listings, coal analysis results, seam plans and reserve block definitions, prepared by the former USSR Ministries. From this data the coal resources have been calculated according to the FSU standards. The Luganskgiroshakht also holds information gathered during the period of active mining at the Verticalnaya Mine and from other mines in the area. An independent check of the resources in the H₁₁ seam has been completed from copies of the exploration data held by Luganskgiroshakht and ECC.

The VNP includes some proposals to further investigate the H₁₀^B seam during the mining of the H₁₁^B seam which lies above the H₁₀^B seam.

9 GEOLOGICAL SETTING

The coal bearing strata of the Dolzhano-Rovenetskiy Region of Donbass are of Carboniferous age. Superficial deposits in the area are a thin (up to 25 m) covering of Quaternary clays and loam

The coal resources within the Verticalnaya Mine lease area are situated on the northern limb of a broad syncline structure. The strata dip toward the south at 18° (c.1 in 3) from sub-crop along the northern perimeter of the mine. It is from the sub-crop of the H₁₁^B Seam that the inclined drift access to the VNP will be constructed. In the area where the coal resources for the VNP exist, the strata maintain this 18° dip to the south.

The strata in the area are displaced by a number of faults which occur in two zones. The coal resources of the VNP occur between the two major fault zones which strike north north-east to south south-west. However, some small scale faulting could occur in the VNP area where it is close to the major fault zones.

10 DEPOSIT TYPES

The coal resources of the VNP are contained in two seams, the H₁₁^B seam and the H₁₀^B seam some 75 m below. The seams are contained in the series known as C_{2,3} Formation which contains several coal seams of exploitable thickness some of which are included in the larger Verticalnaya Mine Project. The coal deposits are of anthracite grade having volatile matter content of less than 8% on a dry, ash free basis. Moisture content of the coal is between 1.5% and 3%. The calorific value of the coal is typically 7700 kcal/kg (daf). Ash contents on a dry basis, are variable but average 15% for the H₁₁^B seam and 26% for the H₁₀^B seam.

The coal seam structure, thickness and quality are well defined by the exploration programs undertaken by the Ministry of Coal Industry of USSR.

11 MINERALISATION (COAL SEAMS)

The two coal seams are contained in competent rock strata, the majority of which are described as sandstone or sandy shale (siltstone). The sandstone and siltstone rocks have compressive strengths in the range 35 to

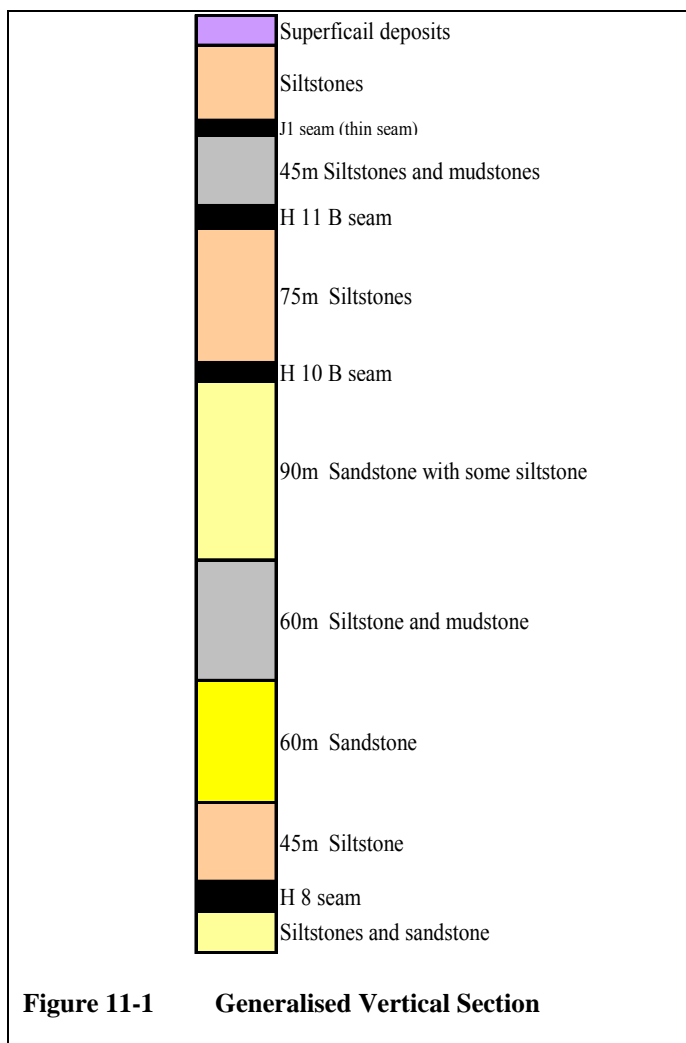
165 MPa. The immediate roof and floor strata of the seams have strengths in the range 59 to 78 MPa (70 MPa average).

Within the VNP area the two coal seams of interest have not been worked. Immediately to the west of the H₁₁^B resource area, there are some old workings in the seam but this does not encroach upon the proposed working area of this seam.

The VNP proposes to start working in the H₁₁^B seam which has an average full seam thickness of 0.76 m. The full seam thickness ranges from 0.57 m to 0.96 m in thickness. The H₁₀^B seam, some 75 m below the H₁₁^B, has an average full seam thickness of 0.88 m, ranging from 0.64 m to 1.19 m. However, this seam has many thin and variable non coal partings contributing to the overall higher ash content of the seam. This seam deteriorates in the eastern part of the VNP resource area.

The generalised vertical section shows the position of the H₁₁^B and H₁₀^B seams with respect to the H₈ seam which is included in the Verticalnaya Mine Project. The VNP propose to work the H₁₁^B seam from a level of 350 m down to a level of -90 m. The proposed workings in the H₁₀^B seam have yet to be finalised after some further exploration work to be undertaken during the working of the H₁₁^B seam.

In part, Seams H₁₁^B and H₁₀^B have been underworked by Seam H₈ below. Areas of



historic workings within the H₈ seam are shown below in Figure 11-2:-

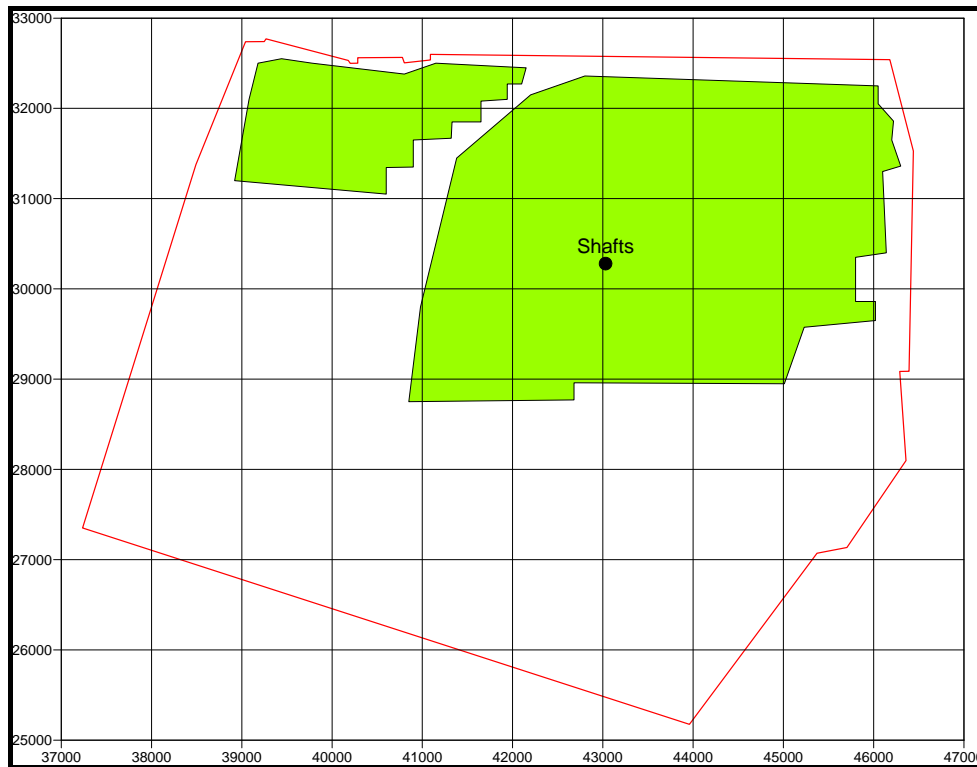


Figure 11-2 Previous Workings, H₈ Seam, Verticalnaya Mine

12 EXPLORATION

Exploration of the coal bearing strata in the area of the Verticalnaya Mine area began in 1930 and the latest phase of drilling was completed in the 1970's. Six exploration and drilling phases have taken place over this time totalling some 416 boreholes of which 26 define the area of H₁₁^B and H₁₀^B seams in the VNP area. The majority of these were cored boreholes drilled between 1966 and the late 1970's through to the most recent boreholes in 1985. The deposit is regarded as being well defined.

The original exploration work was directed by The Ministry of Coal Industry of USSR. The latest review of the geology and resources was also completed in 1986 by the same ministry. This original data is now held by The Ministry of Coal and Energy of the Ukraine. ECC has copies of some of the data and have based their proposals on the 1986 review and evaluation of resources. The data examined at the Ukraine Ministry in Lugansk (Luganskkiproshakht), now the professional institute with responsibilities to coal mining, is typical of the comprehensive borehole data listings, seam plans and reserve block definitions, prepared by the former USSR Ministries. From this data the coal resources were originally calculated according to the FSU standards.

The standards maintained during the exploration were very thorough and documentation and interpretation were to a high standard and can be relied upon.

Part of the VNP proposals is to drill some further exploration boreholes into the H₁₀^B seam from the H₁₁^B workings in order to further define the resources and confirm the coal quality.

13 DRILLING

The Verticalnaya Mine area was subject to investigation drilling from 1930. The original drilling logs are in the archive of the Ukraine Ministry of Coal in Kiev. Original borehole sections, seam plans and documentation are held by the Luganskkiproshakht. The drilling consisted of both open hole and core drilling with some geophysical logging in the later phases of investigation. Borehole deviation measurements were standard.

The borehole spacing within the VNP area varies from some 400 m to 700 m in the H₁₁^B seam and from 400 m to 1100 m in the H₁₀^B seam. This is sufficient to delineate the coal resources in term of physical characteristics

and coal quality. The drilling of the H₁₁^B seam is sufficient to delineate the seam to Measured Resource status under the JORC classification. The drilling in the H₁₀^B seam is sufficient to delineate the seam to Indicated Resource status under the JORC classification.

Coal samples were collected from the drill core and subject to analysis, primarily for ash, sulphur and volatile matter with additional analysis for calorific value on some samples. In addition to these, some coal samples were subject to wash analysis in order to evaluate the yield for the coal washing process. Rock strength measurements were recorded for non coal strata in order to assist mine planning. The borehole distribution within the VNP area and immediately adjacent to the area is shown on the plans below:-

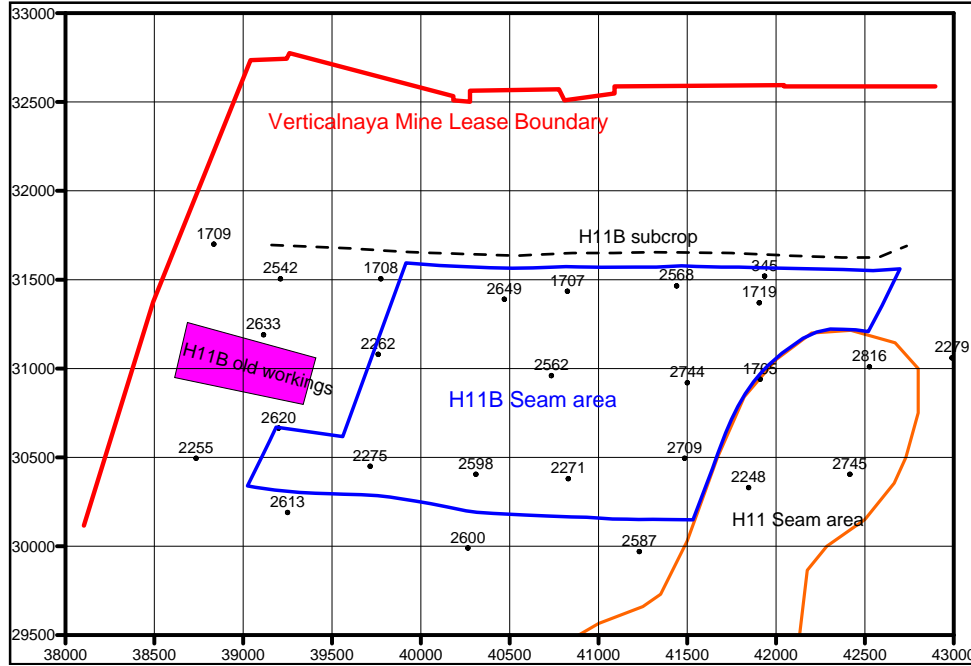


Figure 13-1 Borehole Distribution Seam H₁₁^B

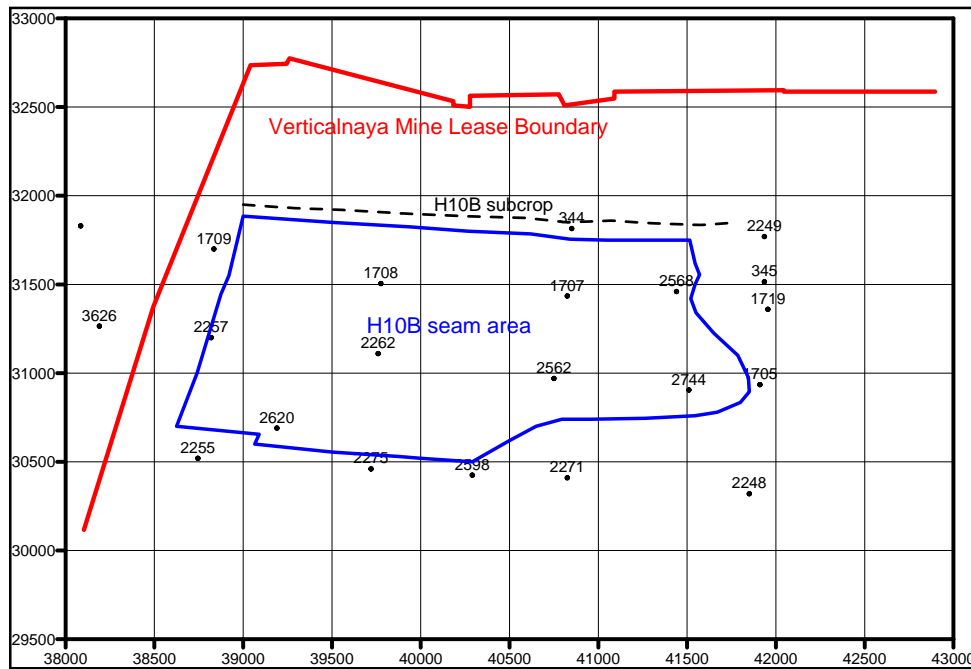


Figure 13-2 Borehole Distribution, Seam H₁₀^B

14 SAMPLING METHOD AND APPROACH

The methods and systems employed throughout the exploration of the coalfield area would have been based on Standards laid down by the Ministry of Coal of the former USSR. A review of the specific methods employed to generate the information under review has not been carried out. However, the level of detail and the method of reporting of the information reviewed are consistent with that found on many other projects throughout the FSU which have proved to be comprehensive, detailed and reliable. Every aspect of seam depth, thickness and quality was recorded and logged from the borehole programme. In addition, the nature of the strata was analysed, including rock characteristics and strengths. Coal samples taken during the exploration phase were analysed for quality, primarily for ash, sulphur and volatile content but also moisture and calorific value in some cases.

15 SAMPLE PREPARATION, ANALYSES AND SECURITY

The quality data reviewed has been obtained over a considerable period of time both during the exploration phase and the subsequent operational period of the Verticalnaya Mine. It is considered that the methods and procedures employed in obtaining representative samples, maintaining an appropriate chain of custody, together with sample preparation and subsequent analysis would also have been based on the Standards laid down by the Ministry of Coal of the former USSR and the appropriate GOST Standards. Most of the test-work was carried out by the appropriate State Authorities. The washability tests carried out in 1998 were undertaken by the independent company CCI Ukraine Ltd who it is understood are certified under ISO 9001/2000.

There would appear to be no reason to question the adequacy of the procedures employed or the validity of the results obtained.

The quality of the coal seams is well defined by the results of the drilling programmes and analytical data is reported for the seams occurring throughout the mine area. The quality of the coal in the VNP area are summarised below.

16 DATA VERIFICATION

During the visits to the Luganskigiproshakht and the Verticalnaya Mine in 2008, original plans, reports and data listings were examined, including the report of the 1986 resource evaluation. These plans and reports include the interpretation of the borehole data showing seam structures, seam thickness and seam qualities. Copies of the seam plans and the 1986 evaluation document are held by ECC and have been used in the verification of the coal resources of H₁₁^B and H₁₀^B seams for the VNP proposals.

Within the VNP proposed mining area, the original estimate of reserves for the H₁₁^B seam were estimated as being 4.42 Mt in the 1986 report (using the Russian System of Reserve Evaluation – the GKZ System). This independent review, using the borehole data, estimates the reserves in the VNP area as being 4.18 Mt. This is within 6% of the 1986 estimate. This gives confidence that data and original estimates are reliable.

17 ADJACENT PROPERTIES

There is one adjacent mine to the area of the Verticalnaya North Project with workings in the H₁₁^B seam located to the west along the strike of the seams. This mine is the Cosmonavtov Mine on the west side along the strike of the coal seam. To the east of the project area is the eastern sector of the Verticalnaya Mine. However further east, the Tsentrosoyuz Mine borders the Verticalnaya Mine along the strike of the coal seam. No further details are available for either the Cosmonavtov Mine or the Tsentrosoyuz Mine.

18 COAL PROCESSING

18.1 Data Sources

The data which has been used in the preparation of this element of the report was the same data used in the preparation of the Coal Processing element of the “Technical Report on the Verticalnaya Mine, Ukraine, (NI 43-101 Standards)” dated September 2008.

The majority of this information was obtained from the ‘Geological Report on the additional exploration and re-evaluation of the anthracite reserves of the Volodarskava (Verticalnaya) Mine’ carried out by the Production Association of Mine Geology and Technical Drilling ‘Ukruglegeologiy’ in 1986. The format of the reports and the level of detail included are indicative of the high standards which were laid down by the Ministry of Coal – USSR and which governed exploration, sampling, and analysis activities across the former Soviet Union.

With regard to establishing the representative nature of the data, the procedures and methods employed by the State Institutes to generate this data were well established and governed by the appropriate GOST Standards.

Operational data from the H₁₁ seam at the neighbouring Mine No.3 Davieskaya together with the uncomplicated geological nature of the area would support the view that the washability and quality data can be considered generally representative of what will be expected from the target seam within the VNP area.

18.2 Coal Quality and Classification

The quality data and distribution of boreholes reporting quality data in the H₁₁^B seam in the area planned to be extracted by ECC in the plan is shown above in Table 18-1: -

Table 18-1 Individual Borehole Coal Quality Data for Seam H₁₁^B

Ash %d	Sulphur %d	Volatile %daf	CV kcal/kg
5.2	1.4	2.7	
17.0	1.8	2.7	
15.3	1.9	2.4	7830
11.7	1.3	2.6	
19.9	2.3	2.1	7680
4.8	1.6	1.8	
23.0	1.3	1.2	
15.7	1.8	4.6	
12.7	1.4	2.8	7780
12.4	1.3	2.4	8025
20.0	2.1	1.3	
20.7	1.4	2.6	7880
15.7	1.0	3.5	
16.8	1.2	2.0	7930
19.0	1.6	2.5	
8.3	1.9	2.2	7980
21.9	1.5	4.0	
13.2	2.0	2.1	8100
26.0	1.4	2.3	7880
9.5	2.0	1.5	

Ash data is also available for seam H₁₀^B which may be worked in the future. However additional exploration holes are planned in order to confirm the quality of the H₁₀^B seam in the VNP area.

Table 18-2 Individual Borehole Coal Ash Data for Seam H₁₀^B

Whole Seam Ash (%d)	Clean Coal Ash (%d)
40.8	4.7
61.6	4.7
52.1	15.8
30.0	6.2
30.4	12.1
59.9	18.2
21.3	12.3
19.8	16.8
30.0	4.7
42.1	12.2
30.0	11.0

In addition to the coal quality data from the borehole programme, there is historic data from the mining of seam H₁₁^B at the mine to the west of the Verticalnaya North Project area although this data was not available.

The coal quality reported by the 1986 Luganskigiproshakht evaluation, using all the quality data for seam H₁₁^B is summarised in Table 18-3 below:-

Table 18-3 Coal Quality Summary for Seam H₁₁^B

Seam	Coal Ash (%d)			Sulphur (%d)			Volatiles (%daf)			Calorific Value (kcal/kg)		
	Min	Max	Av	Min	Max	Av	Min	Max	Av	Min	Max	Av
H ₁₁ ^B	2.1	40.0	15.4	0.8	4.2	1.9	1.3	7.1	2.8	7660	8100	7900

The data points covering the area of seam H₁₁^B forming the basis of the Verticalnaya North Project (VNP) indicate that clean coal ashes and full seam ashes are widely variable, ranging from

- Full seam 4.8% to 20.1%
- Clean Coal 2.4% to 20.1%

The coal from the proposed seam is characterised by its high degree of metamorphism. Quality data from the 1986 report indicates very high vitrinite reflectance indices, with R_o values for H₁₁ seam of 5.24%, very high fixed carbon contents of around 96 – 97%, and very low volatile matter content. On the basis of the analytical results, the coals can be identified as Anthracite of class ‘A’ under the Russian coal classification system and as ‘Anthracite/meta-anthracite’ under the ASTM classification system.

18.3 Coal Processing Options

The project is targeted to produce from a single operating face at any one time.

The Company have chosen to focus production on the H₁₁^B seam as, on the basis of the available data, this should provide the more consistent clean coal ash content which should help in producing a saleable product with the minimum of preparation.

It is not proposed to provide any coal preparation facilities to upgrade the ROM coal to meet specific market requirements.

The project envisages two possible options for marketing the product from the mine

1. Dependent on ash content variability, the ROM coal would be put through a simple screening operation at a selected size to remove any large contaminant which would include large stone, timber and other foreign materials. The undersize would then be transferred to a rail loading point for direct disposal to the power station market under a defined supply agreement.
2. If ash contents are consistently outside the range of the contract specification consideration would be given to transporting ROM direct to a local processing plant for upgrading under a defined third party contract.

With the mine having no coal processing facilities, the ability to produce consistent quality products which meet target specifications will be totally dependent on the quality of run of mine coal.

Geological interpretation of the available data indicates that in general there appears to be very little difference between the whole seam thickness and the clean coal thickness across the project area and that in the initial mining area, with the exception of a thin dirt parting which appears towards the north west of the area, the seam is generally a single coal leaf between 0.6 and 1.0 m thick.

The implication behind the variation in ash content across the proposed take given the lack of dirt partings and the very small variation between the clean coal and the full seam sections is that the increase in ash is due to ash distribution throughout the seam.

Historical washability data does indicate that the H₁₁ seam can be upgraded to produce a low ash product if it was considered necessary (Ref: Washability test report on ROM from seam H₁₁ at the adjacent Mine No.3 Davievskaya in 1959).

The mining plan which is based on longwall coal plow technology together with what is considered to be competent floor and roof strata should help to reduce near seam dilution and the consequential increase in ash content of the ROM product.

Dilution, which will occur from longwall headings and from the drift drivages following the commencement of operations on Longwall 1, will increase the ash content and inconsistency of the ROM product.

The Company plan to closely monitor the ROM ash content and to take appropriate action should variations outside of the contractual limits be experienced.

Such action could include temporary segregation of high ash batches with controlled blending back of the high ash material before despatch.

Dependent on the effect of such dilution on the product ash content, it may be necessary to segregate such high ash batches of ROM and despatch them for washing under a separate contract.

As an aid to reducing the ash variation in the ROM, when development dirt is being conveyed out of the mine, it is intended to separately plow off this material from the drift conveyor and transfer it to the waste pad.

18.4 Coal Processing Conclusions

- The available data indicates that the ash content of the ROM coal from the proposed longwall plow faces should, under normal operating conditions, fall within a range which will allow direct sale, with minimum preparation, and under an appropriate contract, to the domestic power generation market.
- Known ash variations, together with the dilution effect from longwall headings, drift developments, and minor faulting will potentially produce short term high ash variations in the ROM.
- The proposed system to try and segregate development dirt will be helpful in controlling the variations in ROM ash content, but its effectiveness will be dependent on the link between development and longwall operating schedules.
- Close monitoring and control of the mining activities together with a regular routine sampling and analysis programme, and appropriate systems for identifying and segregating high ash material should help in achieving the Company's objectives.

19 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATION

The resources and reserves of the Verticalnaya Mine area were re-estimated in 1986 in line with principles of the system of the Ministry of Coal Industry of USSR. This work was carried out by what is now the Luganskkiproshakht. The system was founded upon the definition of reserve blocks based upon the borehole interpretation. Such features as seam splits, faults or other geological boundaries were used to delineate the blocks. In the area of the VNP, the H₁₁^B seam was defined by 5 blocks and the H₁₀^B seam was defined by 4 blocks.

From the 1986 review of the coal resources, the remaining resources reported in the seams of interest in the VNP area, in millions of tonnes, are shown in Table 19-1 as follows:-

Table 19-1 Coal Resources in the Verticalnaya North Project Area (GKZ System, 1986)

Classification	B	C1	Total
Seam H ₁₁ ^B	3.63	0.79	4.42
Seam H ₁₀ ^B		3.69	3.69
Total	3.63	4.48	8.11

From these blocks an average seam thickness and specific gravity for the block area were used to calculate the in-situ tonnage of coal. Under this system each block was categorised as A, B C1 or C2, which reflected the density of data points available for each reserve block. Categories A, B and C1, define resources with sufficient data to enable mine planning and coal extraction to be evaluated i.e. Measured or Indicated Resource categories of the JORC (2004) classification which are equivalent to the CIM classifications.

For this report, the resources and reserves are quoted with respect the JORC Standard (2004). For this Standard, the Resource and Reserve categories not only reflect the confidence level in the data but also take into account the legal, technical, economic and social factors addressed by the VNP Mine Plan.

It is estimated that in the VNP areas some 4.2 Mt of the H₁₁^B seam are of Measured Resource status with an additional 3.8 Mt of H₁₀^B seam of Indicated Resource status. These resources are tabulated below in Table 19-2:-

Table 19-2 Reserves and Resources Statement, as at 23rd April 2009

Seam	Resources (Mt)		Reserves (Mt)	
	Indicated	Measured	Proved	Probable
Seam H ₁₁ ^B		4.2	1.6	
Seam H ₁₀ ^B	3.8			
Total	3.8	4.2	1.6	

Resources are inclusive of Reserves

The Proved Reserves of the H₁₁^B seam are defined in three planned mining panels within the Measured Resources of the seam. This is also shown in Table 19-2 above

Of the 4.2 Mt of Measured Resources in the H₁₁^B seam, some 1.9 Mt of this are in an area which overlaps the Measured Resources reported as part of the coal included in the Verticalnaya Mine Project which lies below the 0.0m level in the H₁₁^B seam.

Only Longwall 3 encroaches in this area originally assessed as reserves in the Verticalnaya Mine but it is considered that the tonnage assessed for this face (557,000 tonnes) will not materially affect the reserves total quoted in the NI 43-101 Report.

The area which includes the coal resources and proposed mining panels of the H₁₁^B seam in the VNP proposals are shown in Figure 19-1 below:-

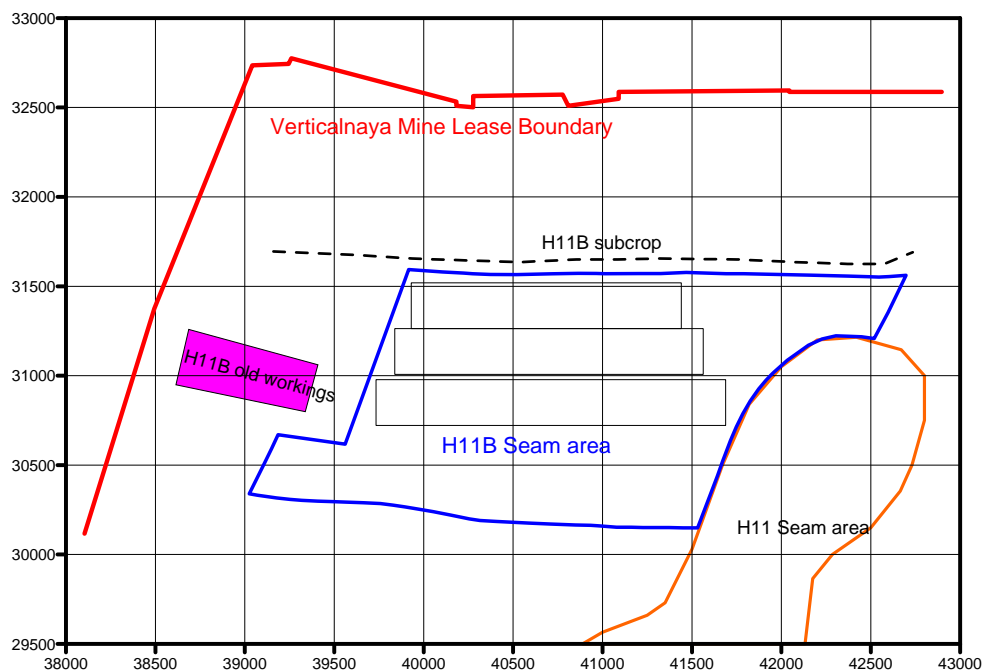


Figure 19-1 Coal Resources and Proposed Mining Panels of Seam H₁₁^B

Indicated Resources within the H_{10}^B seam lie some 75 m below the H_{11}^B seam and are shown in Figure 19-2 below. These Indicated Resources could be elevated to Measured Resource status with the addition of extra borehole and quality data which is to be obtained during the working of Seam H_{11}^B .

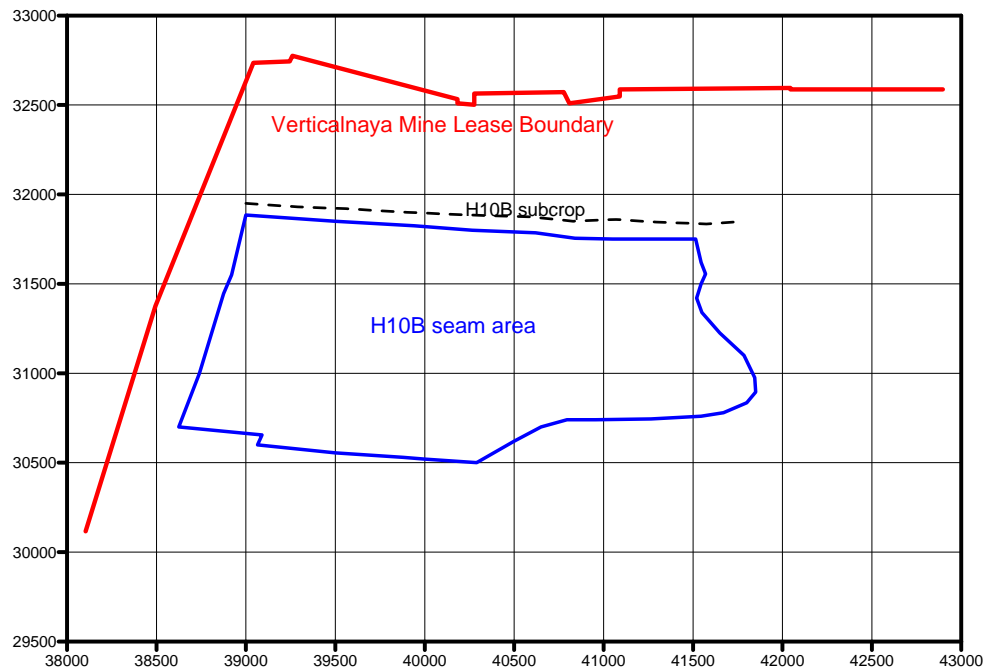


Figure 19-2 Coal Resources of Seam H_{10}^B

20 OTHER RELEVANT DATA AND INFORMATION

See Section 25.1 below in relation to the proposed mine development.

21 INTERPRETATION AND CONCLUSIONS

IMC concludes from the independent technical review that:

- management's geological and geotechnical knowledge and understanding is of a satisfactory level to support medium term planning for the VNP satellite mine project;
- the mine plans appropriately consider geological factors to minimise mining hazards;
- all statutory rights and permits are either in place or there is a reasonable expectation of them being in place in the near future to develop the mine;
- ECC has a verbal agreement to rent the land required for the VNP mine access and surface facilities and will submit a formal application in the near future. IMC has not identified any issues likely to prevent approval of the application;
- the Company's proposed mining equipment planned in the capital forecasts is suited to its mine plans and is adequate, with minor adjustments, for the production plans;
- the planned infrastructure is capable of supplying appropriate quality ROM products to the markets at the forecast production plans;
- environmental issues are well managed and there are no issues that could materially impede mine development nor are any prosecutions pending;
- A revised feasibility study and environmental assessment must be subject to expert review and approval before the ecological certificate and work permits are granted for the VNP. In IMC's view the environmental impacts are manageable and unlikely to be significantly different from those connected with the main Verticalnaya Mine;
- the assumptions used in estimating both capital and operating costs are appropriate and reasonable;

- capital and operating costs used in the financial models incorporating minor adjustments by IMC reflect the mine plans, development and construction schedules and the forecast production levels;
- special factors identified by IMC are well understood by management and appropriate action to mitigate these risks is being taken. Further, the mine plans and cost forecasts appropriately account for these risks;
- based on a review of the available documentation, the Company's technical proposals for the surface minerals handling and coal preparation facilities would appear adequate to meet the plan;
- the available data indicates that the ash content of the ROM coal from the proposed longwall plow faces should, under normal operating conditions, fall within a range which will allow direct sale, with minimum preparation, and under an appropriate contract, to the domestic power generation market; and
- yield projections are reasonable but there is the possibility of them being slightly lower dependent to some extent on final product quality requirements.

22 RECOMMENDATIONS

ECC currently have uncertainties that need to be addressed as soon as is practically possible in the developing mine programme:

1. A revised Mining Plan is currently being prepared by the GOAO Luganskkiproshakht Institute based on the ECC design proposals. Once finalised this should be submitted to the Ukrainian State Authorities for approval allowing the mine development to proceed.
2. In order for ECC to proceed with the VNP, Luganskkiproshakht will need to revise the environmental assessment (EIA) to take account of environmental effects arising from operations at the VNP site and the impact on sensitive receptors, in particular the village of Volodarsk.
3. A further recommendation is that whilst H_{11}^B is being worked the Company should utilise the roadways in the H_{11}^B seam to locate a drilling rig to further prove the H_{10}^B seam below.

23 REFERENCES

The following references were used by the Qualified Persons and Other Experts in the compilation of this report:

1. The 1986 Re-evaluation of Resources Report carried out by the GOAO Luganskkiproshakht Institute;
2. Washability test report on ROM from seam H_{11} at the adjacent Mine No.3 Davievskaya in 1959;
3. 1992 Feasibility Report prepared by the GOAO Luganskkiproshakht Institute;
4. Technical Report on the Verticalnaya Mine, Ukraine (NI 43-101 Standards) dated September 2008;
5. Verticalnaya Mine, Ukraine, Feasibility Study of Verticalnaya North Project;
6. Feasibility Report on the Opening and Operation of Volodarskiy Mine 1250 m level prepared by Luganskkiproshakht;
7. Contract between ECC and Luganskkiproshakht for preparing the technical specification of the VNP, May 2009;
8. Technical Specification for opening Verticalnaya Mine at 1250m level, Explanatory Note for Land Lease, Luganskkiproshakht, 2008;
9. Local area map (approximately 5.5km x 3.5km, scale 1:10000) showing infrastructure, population centres and environmental protection zones in the proximity of Verticalnaya and the VNP site; and
10. The business plan provided by the Company

24 DATE AND SIGNATURE

See Final Sections of the Report

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

25.1 Mining Operations

Verticalnaya Mine is currently under care and maintenance and non-operational. The Company intends to open a satellite mine, the Verticalnaya North Project, based on new accesses and mine infrastructure to develop mining operations in the virgin areas of the H₁₁^B coal seam.

These facilities are to be developed in accordance with a plan currently being prepared and refined by Luganskkiproshakht in conjunction with the Company management.

25.1.1 Historical Mining Methods and Production

Mining operations began initially during 1912 when coal was accessed from its outcrop point on the surface via inclined drifts locally known as “Number 10 Mine”. Later during 1975 mainly for ventilation purposes a vertical shaft was sunk down to the then lower workings at the -600 m horizon, “845 m below surface”. This shaft was then used for the transportation of men and materials. Also installed within the same shaft is a second winding facility (Cage and balance weight) designed to wind out around 350 t/d of waste rock from development drivage.

As the mine working progressed even deeper to -1000 m level, “1245 m below surface”, the government provided capital investment for the sinking of a second shaft again for improved ventilation and also to be utilised for the winding of mineral (Skip shaft). The main objective of the new shaft was to replace the long string of conveyor belts installed along the length of the existing inclined drifts. The sinking of this shaft was completed just prior to the mine closure in 1998 and was never fully equipped.

At that time due to lack of investment required to maintain the mine equipment, mine management were unable to achieve the planned coal outputs shown Table 25-1 below. Therefore the mine was considered unprofitable and closed passing into the State Enterprise “Ukruglerestrukturizatsiya” (UDKR) whose responsibility is the liquidation of closed mines. Some of the mines are put into a care and maintenance scheme as water pumping stations to protect the adjacent operating mines from increased water inflows from the closed mines.

Table 25-1 Historic Run of Mine Production – Verticalnaya Mine

1990 (t)	1991 (t)	1992 (t)	1993 (t)	1994 (t)	1995 (t)	1996 (t)	1997 (t)	1998 (t)
380,000	310,000	278,000	235,000	100,000	132,000	13,000	10,000	24,000

25.1.2 Proposed Mining Methods

25.1.2.1 Mine Layout

The VNP mine layout is based on the initial development and extraction of coal reserves in H₁₁^B leaving lower coal seam H₁₀^B available for extraction at a later time. It is intended to extract the coal in this satellite block with longwall faces

Development of the mining block will be via two in-seam drifts driven from the surface (Ventilation and Conveyor Drifts). With the full seam dip at the surface being 18-20°, the drifts will be driven cross-dip to make sure the angle of apparent dip is not greater than 16° (refer Figure 25-1).

From these drifts three longwalls driven along the strike of the coal seam will be developed in the coal resources to the west of the drifts, extracting the seam in descending order (refer Figure 25-2).

Figure 25-1 Inclined Drifts driven in H₁₁^B Coal Seam

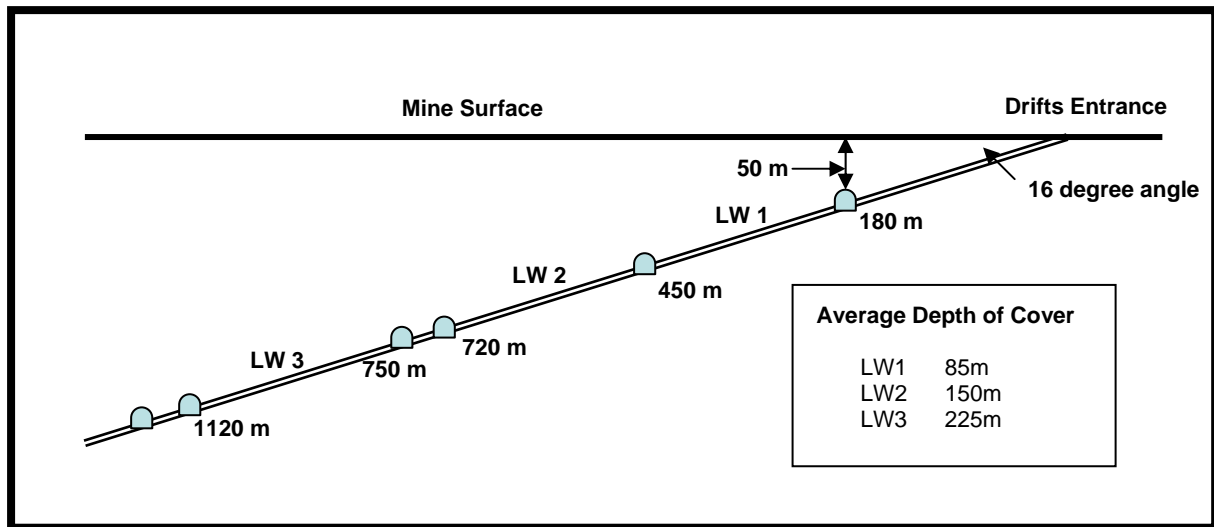
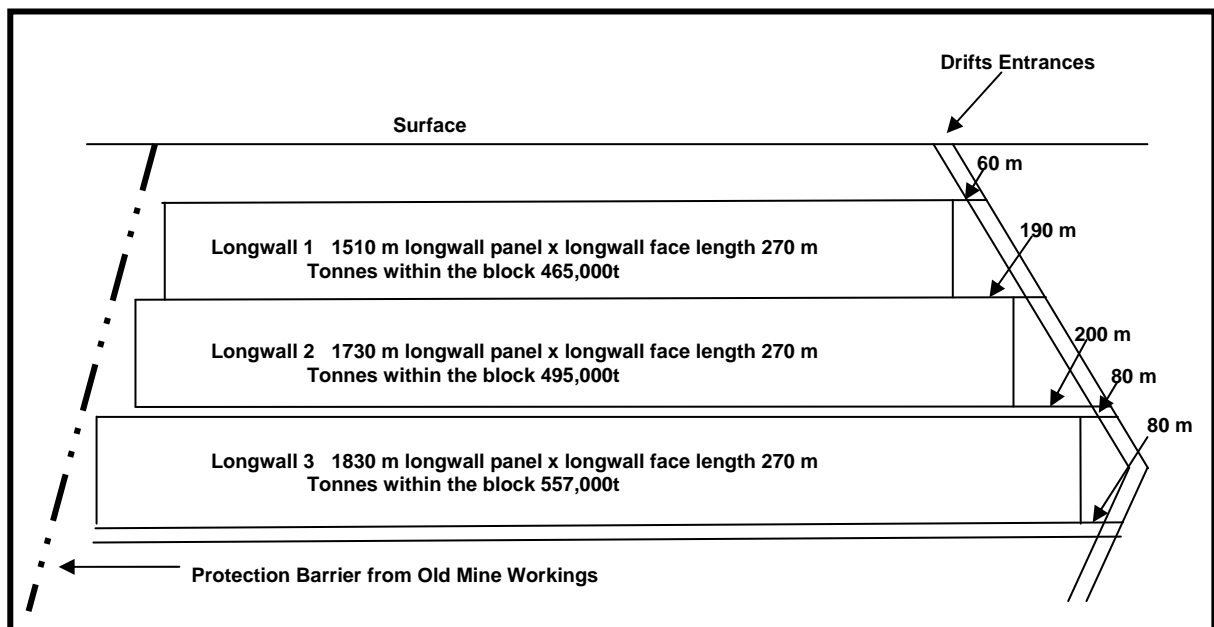


Figure 25-2 Longwall Layout in H₁₁^B Coal Seam



25.1.2.2 Underground

The life of mine plan is the working of three longwalls, subsequently all mining operations will be undertaken at the main mine complex.

The three longwalls are designated Longwall 1, Longwall 2 and Longwall 3. Each face will be 270 m long and due to the angle of the drifts the longwall panels will be progressively longer.

Table 25-2 Proposed Longwall Panel Dimensions and Tonnages

Name	Face Length (m)	Panel Length (m)	Specific Gravity (kg/m ³)	Tonnes
Longwall 1	270	1470	1.62	465,000
Longwall 2	270	1640	1.62	495,000
Longwall 3	270	1830	1.62	557,000
Total				1,517,000

25.1.2.3 Seam Development

The two inclined drifts, 30 m apart, will be driven a distance of 450 m from the surface outcrop and an in-seam connection formed at the base of the drifts. From the drifts ventilation and conveyor access roadways to the first longwall will be driven. 50 m of cover will be left between the higher longwall ventilation gate and the surface. The ventilation gate should also be below the oxidized section of the coal seam. Due to the angle of the drifts compared to the line of strike the length of the upper ventilation roadway will be 60 m to the longwall face and the lower conveyor roadway will be 190 m.

The method of drivage of the drifts, in-seam access roadways and the longwall will be by drill and blasting.

Using solid firing the coal seam will be drilled, fired and loaded out prior to the hard rock section of the roadway. This will separate the coal from the waste materials and also provide a second free-face for blasting the rock. This method will advance the drivage by 2 metres per round giving advance rate of 90 m/month. The advance rate is relaxed to a maximum of 70 m/month for scheduled planning.

In-seam drivage for the development of the longwall roadways is planned at a maximum drivage rate of 75 m/month because they are being driven level along the strike.

Meetings with two companies, Spetspromtehnika and Luganskshakhtoprohodka, have confirmed that development rates of 70 m/month on the inclined drifts and 75 m/month on in-seam drivage can be achieved for the proposed development of H₁₁^B coal seam at VNP.

The advance rate for the longwall face start position is planned at 90 m/month as this is a simple in-seam drivage.

The cross-sectional area of all roadways will be a standardised at 16 m² and two weeks are allowed for the erection of a junction during the development programme.

25.1.2.4 Longwall Development

Longwall faces will be driven to the rise from the longwall conveyor roadway to a planned length of 270 m along the line of dip.

Two months are allowed for the equipping of a longwall, and its associated production infrastructure.

All longwalls will be advanced longwall operations utilising a short advanced heading system at each end of the longwall face, "using standard arch support". The longwall will be equipped with a plow system along the face-line for the extraction of coal.

An advanced heading system is a common method of work for advancing longwalls in Ukrainian mines. The system consists of either a bucket loading or gathering arm loading machine fitted with a boom mounted drill rig. Bore and fire methods are used in the removal of the strata to form the roadway profile which is then supported with steel arch supports.

25.1.2.5 Production

The planned production from each longwall will peak at 35,000 t/month based on 25 days and a calculated 306 tonnes per metre of advance which will require 4.5 m advance per day.

Two mines in the same area of the Ukraine, the Frunze Mine and the Bryanka Mine, have both confirmed that the longwall advance rate of 4.5 m is readily achievable and in the past they have achieved in excess of that on numerous occasions in Seam H₁₁^B.

When the first longwall is in production the two inclined drifts will be extended a further 300 m prior to the development of Longwall 2 with a similar configuration to access Longwall 3

To ensure continuity of longwall coal production, Longwall 2 will be driven and equipped whilst Longwall 1 is in production ensuring Longwall 2 is ready for coal production when Longwall 1 is finished. A second set of longwall equipment will be purchased for Longwall 2. Equipment from Longwall 1 will be refurbished and installed onto Longwall 3, again to ensure continuity of coal production.

The mining schedule developed shows first coal production in month 19 (Allowing 4 months to obtain land and coal production permits. Each longwall will be worked systematically providing a continuous coal output for 47 months or 4 years. In total the three longwalls will produce around 1.5 Mt of saleable product.

Based on similar operations in the Ukraine and IMC's experience, IMC consider these development and production parameters to be testing but achievable with the correct management and equipment.

25.1.3 Proposed Processing/Despatch Arrangements

It is noted that the project does not include the provision of in-line crushing on the coal transportation system from the mine.

The coal itself is known to be very hard, with a Hardgrove Index <40. This together with the proposed plow extraction system should produce a ROM product with a high proportion of large (+100 mm) coal.

At this stage, it is envisaged that the ROM coal will be screened (utilising conventional mobile screen technology) at a nominal top size of 100 mm to screen out contaminant (rock, false roof, timber etc), with the <100 mm screen undersize being conveyed to an adjacent rail loading point.

The projected output rates of 35,000 tonnes per month (25 operating days), is well within the capacity of conventional mobile screening technology.

The Company recognises the potential for maximising coal recovery from the screening operation and will incorporate a hand picking facility to remove and recover +100 mm clean coal from the screen oversize.

Operational experience will allow screening sizes to be optimised to help in controlling the variation in ash content of the undersize product. The Company may also be able to explore the possibility of selectively screening out material which may be suitable for the domestic heating and industrial markets.

In the initial phases of production the Company proposes that saleable coal will be despatched by road trucks to the customer. As revenue generation proceeds, the Company will move to establishing a rail loading facility.

The Company propose to convey the final product to a stock site adjacent to the existing rail line (some 500 m away from the drift site) and from there to a rail loading point. An option being considered is to utilise an existing rail loading point situated at a disused quarry adjacent to the mine site.

The Company also propose to incorporate in-line weighing systems to monitor despatched weights.

25.2 Markets

The Company has based its proceeds projections on an indicative target product quality for the domestic electricity generation market as shown in Table 25-3 below:

Table 25-3 Indicative Target Power Station Quality

Ash (% ar)	Moisture (% ar)	Sulphur (% ar)	Volatiles (% daf)
16.0	8	1.1	3

Any supply contract to the generators will incorporate the base quality standard specification and the maximum and minimum range for various quality parameters. It would generally also include a bonus /penalty structure based principally on the variations in ash and moisture content of the product.

The moisture content of the VNP coal should be consistent and is likely to be lower than the indicative target in Table 25-3.

Ash contents will vary throughout the life of each panel due to inherent variations in the clean coal section, although, on the basis of the available data, such variations should be manageable within the constraints of an appropriate supply contract.

Short term, high ash variations due to faulting or intermittent dilution from development drivages may require appropriate action as indicated above.

The domestic power generation market for coals of this type is well established.

Ash, moisture, volatiles and sulphur content of the coal from the VNP as indicated in the available data should fall within the limits required of the local generating market although it is considered that consistency of the ash content will be a particular issue which will require close attention by the Company.

Coal ash chemistry and ash fusion characteristics of the VNP coal have not been considered in this report, although coal from the target seams has been supplied into the target market for many years and it is considered that any potential problems would have been highlighted in the historical documentation relating to the development.

25.3 Yield Comment

The Companies projections are based on an anticipated yield of saleable coal from the ROM of 95%. This envisages that all coal produced will be pre-screened to remove contaminants and sold direct to the power generating market.

Whilst the available information would suggest that this figure is a reasonable estimate, should it be necessary to wash the ROM under contract washing, as a result of as yet unknown geological conditions or other factors which preclude the direct sale of the product, saleable yield will be reduced but with a consequential increase in proceeds from the upgraded saleable products.

25.4 Comments on Costs

IMC understand that a definitive site layout identifying equipment locations and conveyor connections has not yet been established. The capital cost estimates for the surface screening and conveying systems are considered reasonable at this stage, until such time as definitive layouts are established when costs will be firmed up.

It is noted that the Company would have at its disposal a considerable amount of used equipment which already exists on the site and it is the intention to utilise this equipment wherever possible.

Operational costs relating specifically to machine hire and coal stocking and loading are considered reasonable at this stage although they may vary as a result of operational experience and the stocking/blending and loadout arrangements employed.

25.5 Environmental Considerations

25.5.1 Status

The area and boundaries of the land required for the mine access and surface facilities of the Verticalnaya North Project have yet to be defined but ECC proposes to use the site of a former clothing factory approximately 1.5 km north of Verticalnaya. A concrete pad and some small concrete buildings are all that remain of the previous activities and IMC understands that this land is designated for industrial use.

The area surrounding this site is not under private ownership and consists of open grass land with scattered trees and appears unused for agriculture or grazing. Some previous disturbance of the area is evidenced by vehicle tracks, rail embankments and a small amount of municipal waste.

Major features visible from the area of the VNP include:

- A rail line to the west.
- Overhead power lines
- The head gear of Verticalnaya Mine, approximately 1.5 km south.
- Houses of Volodarsk village approximately 500 m to the east/north east.

25.5.2 Environmental Impact Assessment

Part 3 of a study prepared by Luganskkiproshakht, Feasibility Report on the Opening and Operation of Volodarskiy Mine 1250 m level, is an Estimation of the Influence on the Environment, an EIA.

The EIA is similar in format to an international class Environmental Social Impact Assessment and its approval by the State Ecological Expertise is an essential phase of the permitting process for commencement of mining.

In IMC's opinion the EIA has assessed all of the critical issues in sufficient detail and proposed suitable methods to prevent or mitigate adverse impacts. The main elements of the EIA comprise:

- Detailed calculations of emissions from the mine and coal preparation plant and assessment of the main impacts on the surrounding area and population.
- Proposed control measures to minimise the impacts.
- Calculation of payments for environmental damage due to negative impact.
- Socio-economic issues

In order for ECC to proceed with the VNP, Luganskigiproshakht will need to revise the environmental assessment (EIA) to take account of environmental effects arising from operations at the VNP site and the impact on sensitive receptors, in particular the village of Volodarsk.

25.5.2.1 Emissions to Air

According to Ukrainian regulations, sanitary protection zones must be established around processes that emit hazardous substances and residential properties are excluded from within the boundaries. The EIA proposes for the main Verticalnaya site protection zones of:

- 500 m radius around the main surface facilities.
- 500 m radius around the waste storage facility.
- 200 m around the settling ponds and domestic sewage treatment facility.

The EIA includes detailed calculations to estimate the emissions from each source and predictions of the impacts on ambient air quality in order for ground level concentrations of sulphur dioxide and coal dust to remain below maximum concentration limits at the perimeters of the protection zones

Table 25-4 Ambient air maximum concentration limits

Substance	Maximum Concentration Limit (mg/m ³)
Sulphur dioxide	0.5
Nitrogen oxides	0.085
Carbon monoxide	5.0
Coal ash	0.3
Coal dust	0.11
Welding aerosol	0.5

Luganskigiproshakht has not yet estimated the air emissions resulting from activities at the VNP site but these are likely to include:

- Dust generated during material handling, screening and loading operations.
- Dust from vehicle movements on unpaved roads.
- Dust entrained in the mine ventilation air.
- Particulate matter and products of coal combustion in heating plant gases, assuming a boiler is installed for heating mine ventilation air/and or any buildings.

As part of the revised environmental assessment the impact on the surrounding land, and in particular local villages, will be assessed with reference to Ukraine air quality standards given in Table 25-4. The exact distance from Volodarsk to the VNP site is not known but an estimation from the area map supplied indicates a separation of approximately 500 m. Therefore some residential areas lie on or near the boundary of any sanitary protection zone likely to be applied to the VNP site. Efficient dust control measures from stationary plant and fugitive sources are critical with respect to maintaining air quality standards at the border of the protection zone.

The coal deposit is not classed as having potential for methane generation.

An EIA includes detailed calculations to estimate the emissions from each source and predictions of the impacts on ambient air quality. In order for ground level concentrations of sulphur dioxide and coal dust to remain below maximum concentration limits at the perimeters of the protection zones, the EIA includes provision for increasing the height of items such as a boiler chimney and replacing relatively inefficient cyclone gas cleaning systems with wet scrubbers.

25.5.2.2 Discharge to Surface Water

Waste waters from mining and operations at the VNP site are not yet assessed. However the characteristics are typical of those arising from the main Verticalnaya site and the methods of treatment are likely to be similar:

- Sanitary waste;
- Rain water run-off from the surface facilities;
- Mine water pumped to the surface.

At VNP sanitary waste will be collected and treated using an existing facility approximately 1 km from the mine, before discharge to the river. The treatment system is conventional and consists of mechanical separation, sand filtration and then biological treatment using reed beds.

Rain water run-off from the area of the VNP surface facilities will be collected in reservoirs in which solids are settled before the water is discharged.

Water from the drifts of VNP will be pumped to the surface and then by pipeline to a series of water treatment lagoons approximately 1 km to the south. A preliminary inspection of the topography of the route indicates the possibility of drainage by gravity. Treated water is discharged to the local surface waters.

The quantity and quality of water have not been assessed but in Luganskgiroshakht's opinion the chemical characteristics are likely to be similar to the water presently being pumped from the Verticalnaya Mine although with a higher suspended solids due to the mining activities.

IMC considers this a reasonable assumption and that the proposed treatment method is appropriate.

25.5.2.3 Waste Materials

ECC is considering two options for storage of the mining waste arising from the VNP:

- Transport by truck to the existing Verticalnaya waste storage site, a distance of approximately 10km via the existing access route;
- Deposit on a nearby coal waste dump owned by another company but presently unused.

Either of these options appear suitable, although the potential costs and legal implications associated with depositing waste on a 3rd party site are a potential downside against the advantages of a shorter haulage route. The 3rd party waste tip is adjacent to a gravel works and although in reasonable condition does not appear managed on a regular basis. The available capacity of the tip is not known and there are no facilities for the management of run-off water.

Since the coal will not be washed on site prior to sale there will be no requirement for tailings storage.

25.5.2.4 Noise

At the VNP site, noise from the ventilation fans and coal screening are potential issues in view of the potential for exceedance of noise level standards at some residential areas of Volodarsk located at some 500m distance. This should be assessed in the revised environmental assessment and appropriate mitigation measures incorporated into the design and equipment selection. There may be a requirement for construction of noise barriers.

25.5.2.5 Surface Deformation

Volodarsk village is not within the boundary of the mining license and will not be affected by mining or drift development.

25.5.2.6 Radioactive Substances

During previous operations of the Verticalnaya Mine, the mine was tested for radioactivity and concentrations were below the Ukrainian regulatory standards. These checks must be repeated before final approval for mining. The VNP is expected to be similar to Verticalnaya Mine.

25.5.3 Environmental Management and Monitoring Programmes

The same rules and regulations will apply to the VNP as apply to the Verticalnaya Mine. That is: -

Within 6 months of the date of permit, ECC shall:

- Carry out a baseline environmental study according to an agreed programme with the State Administration of Ecological Resources, with the purpose of measuring its physical parameters as of the date of the permit.

Within 18 months of registration of permit, ECC shall:

- Monitor the ecological state of the environment (subsoil, water bodies, soils, bio-resources) in the area of mining influence including radiation monitoring according to the programme agreed with the State Mining Industry Inspection of Ukraine.
- Dispose mining dumps and waste materials with minimal influence on the environment, and systematically control their state.
- Arrange mine workings, and surface infrastructure facilities in such a way to exclude harmful influence on the environment according to the requirements of industrial safety and subsoil protection as well as environmental legislation,
- Reclaim disturbed soils – until the date of permit expiration.
- Take all necessary steps to minimise or avoid negative influence of mining practice upon the environment.

The EIA will include a provisional monitoring programme; air emission monitoring will be carried out using certified laboratories according to Ukrainian regulation at specified interval as shown in Table 25-5.

Table 25-5 Schedule of Air Emission Monitoring

Monitoring	Schedule	Basis
Inventory of sources and content of emissions of harmful substances into the atmosphere.	Annually or in accordance with the State Administration of Ecological Resources once in 5 years.	The Law on atmospheric air protection, No. 2707-XII, 16.10.92,
Permissions for emission of harmful substances into the atmosphere from the Ministry of Ecological Safety.	Within the terms stated by the State Administration of Ecological Resources.	The Law on atmospheric air protection, No2707-XII, 16.10.92.; the Decision of the Cabinet of Ministers of Ukraine No.364 29.05.98
Making obligatory payments for emission of harmful substances into the atmosphere.	Monthly.	The Law on natural environment protection No. 1264-XII 25.06.91.
Laboratory control.	Twice a year.	The Law on atmospheric air protection, No.2707-XII, 16.10.92

Monitoring, according to regulations, is undertaken to assess compliance and environmental payments are based on actual emissions, discharges and waste production. Exceeding the permit conditions normally incurs additional taxation based on a higher unit rate for the excess. The calculation of payment for environmental impact is a complex procedure and is made for each pollutant according to various statutory rules and normative factors such as:

- The mass or volume of emission or discharge equivalent to permissible levels.
- The mass or volume of emission or discharge exceeding permissible levels.
- The specific payment per tonne of pollutant based on the hazard classification.
- Coefficients taking into account any ecological peculiarities or socio-economic conditions.

A preliminary monitoring programme for the VNP site should be established as part of the revised environmental assessment and is likely to be similar in scope to the above programme.

25.5.4 Summary of Key Environmental Issues

The proposed site for the VNP mine access and surface facilities is on land designated for industrial use. Grassland in the immediate vicinity of the VNP site shows evidence of disturbance by previous activities, is not privately owned and is not presently used. IMC has not identified any significant liabilities associated with this site.

The environmental impacts of the VNP are not expected to differ significantly from those already assessed for the Verticalnaya Mine. However, since Volodarsk village lies on or close to the potential boundary of an environmental protection zone around the VNP, the facilities and environmental management system require careful design in order to comply with Ukrainian air quality standards and noise limits.

Water discharged from the VNP is expected to be of similar quality to water pumped from Verticalnaya and can be treated to an acceptable standard in the nearby settling lagoons.

There are adequate facilities for storage of waste rock with easy access. The absence of a washing plant for VNP results in a less complex waste management system.

25.5.5 Provision for Rehabilitation

25.5.5.1 Ongoing Rehabilitation

At this stage, ECC has not developed a formal environmental management system and plan. However, the EIA for the Verticalnaya Mine includes measures for environmental protection generally according to the requirements of Ukrainian environmental regulations and codes. These include:

- Abatement of major emissions to air and establishment of sanitary protection zones around the major emissions sources.
- Pumping and treatment of mine water and re-use where practicable.
- Treatment of sanitary waste water
- Storage of mine waste rock and immediate capping and cultivation of the waste dumps.
- Storage of waste slurry from the coal preparation plant in a safe manner designed to protect ground water pollution.
- Collection and removal of other waste materials.

25.5.5.2 Closure Restoration

There is no requirement under Ukrainian Environmental Law to plan or make financial provision for mine closure.

However, the technical document prepared as part of the rental application for the Verticalnaya site, 2008, includes a general description of the provisional closure rehabilitation plan. This is consistent with normal good practice and includes measures such as:

- Preservation of topsoil and subsoils prior to development commencing.
- On closure - site clearance, sealing of mine access points, replacement of soils and contouring to match previous conditions, re-vegetation.
- Estimates of areas, quantities of soil and vehicle movements involved.

The technical specification for the VNP land rental application is expected to include similar plans.

IMC also recommends that ECC's business plan include a mechanism for provision of funds to cover the cost of closure restoration in line with international good practice.

25.6 Management

Currently there are approximately 104 management and workers employed at the mine engaged in Care and Maintenance duties.

Initially the work programme for the drivage of the inclined drifts will be of a specialist nature and contractors will be used to do out this work. As the underground workings are developed, mine management will employ their own workers. The overall plan is that all operations of and the services to operate the longwalls will be carried out by mine personnel. All capital drivage and other specialist activities will continue to be done by contract companies.

Verticalnaya Mine is situated in a mining area and there are two major towns nearby whose population consist predominantly of mine workers and their families. Recruitment will not be a problem.

The wages structure will be based on the normal Ukrainian system which consists of a basic wage plus bonus payments (based on achieved objectives). This policy will be adopted but with some variations, based on western experiences, taking into account tried and tested systems of work and payments. In addition to this workers in the Ukraine also receive concessionary fuel as part of their wage.

25.7 Health and Safety

IMC understands that as the development of the mine begins the new management of the mine will pursue an active safety management policy. Any training programme devised will be approved by the Ukrainian Mine Authorities before it is implemented and a record of each individuals training will be maintained at the mine.

All mining operations will be carried out and managed according to the requirements of the Ukrainian Mining Law and Regulations, personnel protective clothing will be issued to all workers and the mine atmosphere will be monitored at all times to ensure a good working environment is maintained.

It will be the policy of mine management to pursue a zero accident policy. If unfortunately an accident does occur then a full investigation will be undertaken to ascertain the cause of the accident and to implement new procedures to prevent a reoccurrence of similar accidents. Any accident will be recorded and reported in the prescribed manner to management, workers, workers representatives and mining authorities.

25.8 Infrastructure

25.8.1 Surface

The existing infrastructure at or close to the VNP site includes:

- Good access from the main Verticalnaya site by public highway and tracks.
- A nearby rail line and loading facilities.
- Water treatment lagoons.
- Waste storage facilities.

On the Verticalnaya site the main administration building is functional, and capable of providing the services required for management and workers. A mine boiler is installed and operating and it is planned eventually to install a second boiler alongside it to provide for the extra heating requirement when the mine is re-developed. ECC plans to use the administration buildings and wash house at the main Verticalnaya site to support the VNP.

There may be a need to install a small boiler at the VNP site for local heating of any buildings and the mine ventilation air.

25.8.1.1 Electrical Power Supply

There is an overhead power supply in close proximity of the new drift entrances which supplies electricity to a nearby quarry. This line originally supplied a now closed mine and has the capacity to supply electricity for the mining operations planned. A new sub-station will be built on the mine surface for the connection to the mine circuit.

25.8.1.2 Mine Access

Development of the mining block will be via two in-seam drifts driven from the surface at the subcrop of the H11B seam (Ventilation and Conveyor Drifts). Due to the fact that the seam dip at the surface is 18-20°, the drifts will be driven cross-dip to make sure the angle of dip is not greater than 16°. The cross sectional area of the roadway will be 16 m². All drivages will be driven by the drill and blast method.

25.8.2 Underground

Longwall faces will be driven to the rise from the longwall conveyor roadway to a planned length of 270 m along the line of dip. Again the roadways for these faces will be driven by drill and blast techniques and will be 16 m² cross sectional area. The lengths of the roadways varies with the faces, the shortest being on the first longwall.

25.8.2.1 Mine Water

There are no streams or rivers located above the proposed working area and therefore the only source of water will be that which percolates through the strata above the working area from natural rain and snow. A sump for water collection will be constructed at the base of the drifts equipped with pumping facilities to pump the water out of the mine to the current mine settling ponds.

25.8.2.2 Ventilation

The first section of the two drifts (450 m) down to the first longwall will be ventilated using auxiliary ventilation as per the norm for development works. After the first cross-cut at this point has been constructed a main mine ventilation fan will be installed at the entrance to the ventilation drift. The air circuit for the main mine fan will then be extended as the mine workings progress inbye. Further cross-cuts will be constructed for ventilation purposes at the location of the second and third longwalls.

25.8.2.3 Methane Gas

At the Verticalnaya Mine the measured amount of methane gas contained within the coal seam does not exceed 0.8 m³/tonne of coal with the average of 0.1 m³/tonne of coal. Therefore the mine under the Ukrainian Mining legislation is classed as a naked flame mine i.e. none gassy.

VNP is expected to have a similar rating to Verticalnaya although the H₁₁^B seam has not been worked at the mine. Where this seam is expected to be worked it will be close to the surface and gas contents are expected to be very low.

The coal seams under the same classification system are considered not to be dangerous with regard to coal dust explosibility and spontaneous combustion. Also there is no gas under pressure within the coal seam and surrounding strata eliminating the danger of sudden gas outbursts or rock bumps.

25.8.2.4 Mineral Transportation

The transport system for mineral from longwalls and development is designed to be via conveyor belt to the surface.

25.8.2.5 Men and Materials

Men and materials will be transported into and out of the mine along the ventilation drift by a rope haulage system. The men will travel in purpose built manriding cars equipped with all the relevant safety equipment.

Materials will be transported using the same haulage system, but not at the same time as the workers. Additional drift haulage will be installed in the conveyor drift for the transport of materials only.

Along the longwall roadways there will be only haulage facilities for the transport of materials and workers will walk inbye to the longwall faces. Man riding facilities installed on the longwall conveyor belt will be provided for the outward journey.

25.9 Taxes

At the present moment mining companies activity in Ukraine is controlled by the Constitution of Ukraine, the Ukrainian Mining Law, the Bowels Code, Environmental Protection Law of Ukraine, Search and rescue services Law of Ukraine, the Civil Defence Law of Ukraine, Labour safety Law of Ukraine and other acts.

According to the Taxation Law regime of Ukraine the rates of taxes, charges and other obligatory payments in Ukraine and also privileges relating to taxation are established exclusively by the taxation laws. The coal industry enterprises are tax payers in accordance with general practice established by operating tax laws.

The main source of investment to the enterprises of Ukraine which is not subject to the taxation is payments in the authorised capital of the company. Thus the person who is the participant of any society in Ukraine has the right to form an authorised capital stock or to increase the authorised capital stock by money resources or property. Such investments entering and withdrawal is not assessed.

25.9.1 Charges and Taxes

25.9.1.1 Profits Tax

The Tax legislation in Ukraine as for September 15th, 2008 doesn't contain any privileges for coal-mining enterprises (mines). The taxation is being executed on the basis of general taxation.

According to the Enterprises' profits taxation Law of Ukraine № 334/94-BP from 28.12.1994 the general rate of profits tax in Ukraine amounts to 25% from the object of taxation. Profits tax is to be paid for any income received by residents or non-residents from any kinds of activity within the territory of Ukraine, including interest, dividends, royalties and any other kind of passive income.

Profit of the tax payer (of the mine) is computed by the following calculation:

Gross Revenue – Total Expenses = Taxable Profit

The profit is calculated quarterly on the result accruing through the year. The accounting periods for the profits tax is quarterly and yearly. Declarations for the profits tax are to be made quarterly and at the end of the year the annual declaration is to be made. Based on results the profits tax is paid to the state treasury.

25.9.1.2 Dividends Taxation

The Issuer of the corporate rights can make the decision on payment of dividends to participants of the company. Payment of dividends is made proportionally to the share of the participant (shareholder) in the authorised capital stock of the enterprise/issuer of such corporate rights irrespective of whether activity of such enterprise-issuer was profitable throughout the accounting period under the presence of other sources for dividends payment or whether there is available profit calculated by the rules of the tax account. The enterprise/issuer which pays the dividends, pays an advance payment of the profits tax at a rate of 25% of accrued dividends which is included into the total tax sum in subsequent declaration, i.e. in the following period the accrued profits tax will be decreased by the sum of the paid dividends.

25.9.1.3 Non-Residents Taxation

Taxation of non-residents is ruled by the Article 13 of the Enterprises' profits taxation Law of Ukraine № 334/94-BP from 28.12.1994.

Any income of the non-residents received from the economical activity within the territory of Ukraine (including the dividends paid by the resident which are subject to taxation at a rate of 15%). The resident intending to transfer to the non-resident any payouts from the revenue received by such non-resident and originated in Ukraine has to withhold the tax at a rate of 15% from the sum of the revenue and, except as otherwise provided by the international regulations of agreements, to remit the tax to the budget within the period of such payout.

According to the article 10 of the Convention signed by Ukraine and the United Kingdom of Great Britain and Northern Ireland concerning the elimination of double taxation and prevention of tax evasion relating to the profits tax and property price appreciation tax from 10.02.93:

Dividends can be assessed in other contractual states, in this case Canada.

The dividends may be also subject to taxation in the contractual State the resident of which is the company paying dividends according to the Legislation of the State (Ukraine) in the case if the recipient actually has the right for the dividends and is the subject to dividends taxation within the State the tax doesn't have to exceed:

- a) 5% of the total sum of the dividends in the case when the right for the dividends belongs to the voting company which controls straight or immediately at least 20% of the capital of the company paying dividends (in the case of UK) and at least 20% of the authorised capital (in the case of Ukraine).
- b) 10% of the total sum of dividends in other cases

25.9.2 Value Added Tax (VAT)

Value-added tax in Ukraine is discharged according to the Value-Added Tax Law of Ukraine № 168/97 from 03.04.1997. The rate of the tax is 20% to the assessment basis as stated in the article 4 of the Law and is added to the price of the goods (services). The sum of the tax liable to payment to the state budget for the results of the accounting period calculated in the declaration is defined as the difference between the accounting period tax liabilities and the tax credits. If in the result of such calculation the declaration shows a net positive sum it is to be paid to the state budget, if the sum is negative the payer has the choice to a credit on their account or compensate against the tax payer's account.

The VAT payer can choose monthly or quarterly reporting tax period. VAT payers (mines) hand over declarations under the VAT monthly and by results of the declaration pay the tax. For export of goods a 0% rate of VAT is applied. Thus it is likely that the sum of the VAT paid to suppliers of raw materials, works and services for manufacture of the exported goods will exceed the sum of the VAT collected, that is the sum of the tax credit will exceed the sum of tax obligations and the tax payer will have a right to receipt from the state budget of the net overpayment of VAT.

25.9.3 Currency Exchange Regulation

Currency exchange regulation within Ukraine is regulated by the Procedures of foreign currency exchange Law of Ukraine № 185-94/BP from 23.09.1994 according to which inclusion of the exported goods currency earnings should be transferred to Ukrainian enterprise accounts not later than in 180 calendar days after customs

registration of cargo. The same rule governs the import of goods when the resident of Ukraine lists an advance payment for the goods outside of Ukraine. Such goods should be delivered to Ukraine not later than in 180 calendar days after customs registration of cargo otherwise the advance payment is to be returned. For infringement of the above-stated terms a penalty can be applied to the infringing Company at a rate of 0.3% of the late payment (cost of the goods which were failed to deliver) for each day of delay.

25.9.4 Customs Duties

According to the Custom schedule of Ukraine stated by the Law of Ukraine N 1109-V from 31.05.2007 the coal export duty in Ukraine is 0%. Thus coal production exports outside the customs border of Ukraine are realised without additional expenses.

25.9.5 Charges for Remuneration of Labour Fund

Essential tax loading in Ukraine make the charges for remuneration of labour fund which consist of:

- Pension fund charges 33.2%
- Unemployment case charges 1.3%
- Accidents on manufacture charges 1.9%
- Social insurance 1.5%

25.9.6 Mining Royalty and Geological Works Charges

As stated in the Article 19 of the Bowels Code of Ukraine the mines can be operated only by the enterprises holding a special licence. ESS Company has such licence established according to legislation of Ukraine at a price of 2,475,200 Hrivnas. At the present moment prior to the commencement of coal extraction additional payments are not paid. However after the commencement of coal mining the enterprise should pay annual payments for the mine operation. Annually payments for mine operation are established by State budget of Ukraine Law of Ukraine for corresponding year. So according to the State budget 2008 of Ukraine Law base specifications of payments for mine using were established. Thus after the commencement of coal mining the enterprise should pay 2 Hrivnas for each tonne of coal including anthracite (provided that at the moment of the extraction commencing the rate of the payment will not be changed).

Geological works charges executed at the expense of the state budget makes 0 Hrivnas 47 Kopecks for one tonne of the extinguished coal. However specifications of the given charge are subject to indexation taking into account officially established index of inflation. In connection to this the sum of 47 Kopecks varies constantly depending on inflation fluctuation in the country. The given charge is paid once in a quarter.

25.10 Capital and Operating Cost Estimates

25.10.1 Capital Estimate

Estimates of capital expenditure have been made using prices as at the end of April 2009 and the project is deemed to start at the beginning of June 2009. Capital expenditure for developing the mine project for the initial period until production from the first face plus additional expenditure over the remaining life to maintain production is estimated at \$US25.0 million. Phasing of this expenditure, over the term of the project is shown in Table 25-6 below.

Table 25-6 Capital Expenditure

Year	Start month	Total (US\$000)
1	January 2010	5,909
2	January 2011	9,086
3	January 2012	6,797
4	January 2013	2,693
5	January 2014	0
6	January 2015 (till end August 2015.)	0
Total		24,485

In the initial period of development until main production starts from the longwall (January 2010 – end June, 2011), capital investment totals US\$14.5 million. This relates to development drivages, equipment and the related infrastructure, along with drift drivage and other operational costs which have been capitalised during the

period. In Table 25-7 below, the initial capital equipment and development expenditure is broken down into major components by year.

Table 25-7 Seam H₁₁^B - Capital Expenditure by Major Item

Item	YEAR 1	YEAR 2	Total
	US\$	US\$	US\$
Capital Investment Costs			
Lugansk Debt	27,500		27,500
Land acquirement	20,000		20,000
Feasibility Study and planning consent	50,000		50,000
Installation of electrical sub-station	125,000		125,000
Back Maintenance costs for H8 coal seam	259,750		259,750
Development of main drifts	2,362,500	912,500	3,275,000
Drift Equipment			
Drift conveyor		609,375	609,375
Main drift haulage for men and materials		843,750	843,750
Main ventilation fan		90,000	90,000
Mine water pumps and pipes		240,000	240,000
Fire fighting pipes and water tank		150,000	150,000
Conveyor drift haulage		300,000	300,000
Two bucket loaders with boom-mounted drill rig		1,000,000	1,000,000
Longwall Equipment			
Longwall Plough complete with drives and AFC		750,000	750,000
1.5 centre roof supports		660,000	660,000
Hydraulic pump system and electrics		375,000	375,000
Longwall conveyor		156,250	156,250
Associated conveyor equipment		140,625	140,625
Longwall Haulages		87,500	87,500
Surface equipment			
Coal screen		118,750	118,750
Coal Loading conveyor complete		156,250	156,250
Associated conveyor equipment		140,625	140,625
General Contingency – 15%	426,713	1,009,594	1,436,307
Total	3,271,463	7,740,219	11,011,682

Expenditure in later years is equipment for the second face, extension of the main drifts and refurbishment/replacement of worn-out equipment.

25.10.2 Operating Costs Estimate

Operating costs are based on a cashflow model. They are deemed to be realistic and achievable but even so, in such a venture, the potential for error can still be of the order ±20%.

Table 25-8 Cash Operating Costs Activity Analysis - Life of Mine Average

Item	\$US000- \$US/t	
	Care & Maintenance of Main Mine Site	\$US'000
	\$US/t	4.02
Mine Rental	\$US'000	833
	\$US/t	0.57
Company Overheads	\$US'000	3,550
	\$US/t	2.43
Machine Hire	\$US'000	294
	\$US/t	0.20
Coal Stocking and Loading	\$US'000	728
	\$US/t	0.50
Capital and In-seam Drivage Costs	\$US'000	1,710
	\$US/t	1.17
Longwall Operating Costs	\$US'000	20,979
	\$US/t	14.35
Total Cash Operating Costs	\$US'000	33,974
	\$US/t	23.25
Total Capital Expenditure	\$US'000	24,486
Total Run of Mine Coal Production	'000 tonnes	1,462

25.11 Economic Analysis

The results detailed below of the economic analysis and the accompanying sensitivity analyses are based on the “Most Realistic” production scenario for Verticalnaya North.

25.11.1 Economic Analysis of the Verticalnaya Mine

Based upon the assessment of Proven and Probable Reserves scheduled for extraction within the production schedule prepared by the company, an economic analysis of the Verticalnaya Project is presented as Table 25-9.

Sales revenues have been assessed on the basis of one grade of coal being sold into the domestic power market. The model assumes that a recovery of saleable coal from ROM of 95% is achieved. An average sales price of \$62.50 has been assumed. An exchange rate of 8 UAH:1 USD has been assumed.

VAT is assumed to be paid on a monthly basis so that there are no timing differences to take into account. Profit tax is assumed to be paid quarterly. Further, it has been assumed that losses in any period can be accumulated and used to offset subsequent tax liability.

An evaluation of the project based upon a discounted cash flow (DCF) methodology has been completed using a discount rate of 12% and a 65 month life of mine, including the initial development period, as described in Section 25.10. This analysis has been prepared on an all-equity, post-tax basis. This evaluation, and results at differing discounting rates, are given in the table below.

Table 25-9 Evaluation of the Project at a Range of Discounting Rates

Discount Rate	NPV (US\$ '000)
+2%	13,149
+1%	13,997
12% (base rate)	14,885
-1%	15,816
-2%	16,790

The internal rate of return of the project, as described above, is 42.7%

25.11.2 Sensitivity Analysis

A sensitivity analysis for cash flow and net present value (NPV) has been undertaken with respect to variation in sales prices, output, operating and capital investment costs. Mining and marketing of coal contain variables that

are not always predictable. Potential variables include those directly associated with the mining and processing operations, such as cost and production levels, as well as those that are external to the mining and processing operations, such as market prices.

While the NPV of the Verticalnaya operations, as presented above, is realistic relative to the life of mine plans (based on reserves but not resources), a sensitivity analysis has been prepared for the following variables.

25.11.2.1 Operating Cost

This could vary as a result of changes in component costs, such as labour or supplies, or from variances in productivity. A sensitivity of plus 10% operating cost has been calculated.

25.11.2.2 Production

Production level can be affected by variances in productivity or market place demands. A sensitivity of minus 10% in production has been calculated.

25.11.2.3 Capital Cost

Variances in capital costs could result from quantity or market prices of capital items. A sensitivity of plus 10% in capital costs has been calculated.

25.11.2.4 Coal Prices

The sensitivity impact of a minus 10% change in coal prices has been calculated.

A summary of the effect of sensitivity of the valuation of reserves to these variables is given in Table 25-10 below.

Table 25-10 Sensitivity Analysis of Reserve Valuation

NPV (US\$ '000)	Base Case	Operating Cost (+10%)	Production (-10%)	Capital Cost (+10%)	Coal Price (-10%)
Based on post tax results	14,885	12,683	10,579	13,874	10,425

25.12 Payback

The financial appraisal and cash flow analysis has been carried out on the basis of all-equity funding and as such no interest is shown.

On this basis the project shows an undiscounted payback period of 41 months.

25.13 Mine Life

Based on the reserves and resources available to the mine within the existing mining licence area the mine has a life of 65 months including the initial development period.

26 ILLUSTRATIONS

The following illustrations should be read in conjunction with the development plans for the mine contained in Section 25 above.

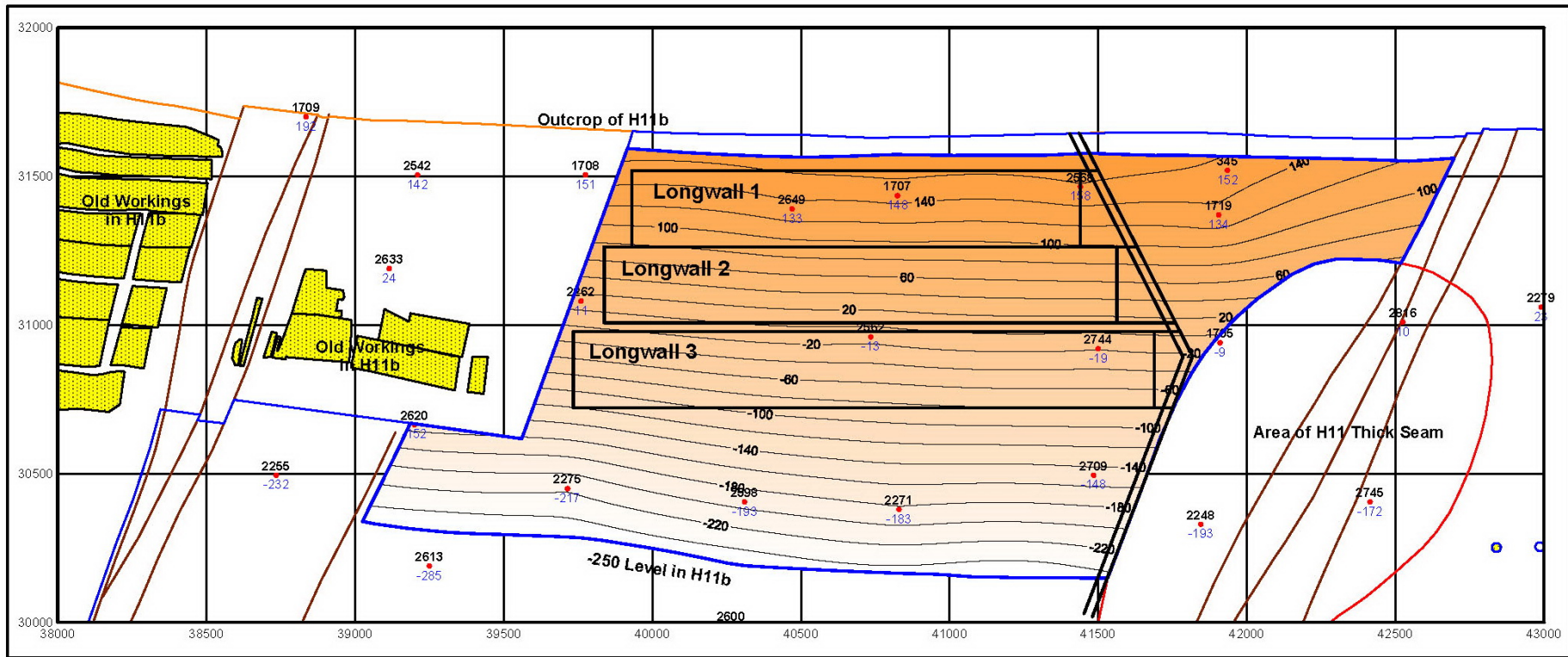


Figure 26-1 H₁₁^B Proposed Seam Layout

Certificates of Authors

CERTIFICATE of AUTHOR

As the co-author of a portion of this Technical Report on the Verticalnaya Mine, Ukraine, I, J S Warwick, B Sc (Hons) FIMMM, C Eng, Eur Ing do hereby certify that:

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2. I hold the following academic qualifications:

B.Sc.	Electrical Engineering (Hons)	Newcastle University, UK (1973)
B.Sc.	Mining Engineering (Hons)	University of Nottingham, UK (1975)
3. I am in good standing as a Fellow of the Institute of Materials, Minerals and Mining, and also as a Chartered Engineer with the Engineering Council UK, registration number 29053, European Engineer (Eur Ing) registration number 08932. I also hold a Mine Manager's 1st Class Certificate.
4. I have worked as a mining engineer in the mining industry for a total of 33 years since graduation from university and have worked for more than 12 years in the provision of consultancy services. I have 30 years of experience specifically in underground coal mining.
5. I do, by reason of education, experience and professional registration, fulfil the requirements of a Qualified Person as defined in National Instrument 43-101. My work experience includes the management and performance of numerous technical studies relating to the audit, evaluation and valuation of coal projects and operating mines in many parts of the world.
6. I visited the Verticalnaya Mine site on 11th November 2006 and I have also spent the interval 10th – 16th November 2006 in the offices of ECC in Ukraine, undertaking an audit of the production and other technical data for use in the report.
7. I am responsible for the compilation of the technical report titled "NI 43-101 Technical Report on the Pre-feasibility Study for the Verticalnaya North Project, Ukraine" dated 24th March 2010 and have specifically undertaken preparation of Section 3.5, Sections 25.1.1 – 25.1.3, Section 25.6, Section 25.7 and Section 25.8 and have contributed jointly to other sections.
8. I am independent of the parties involved in the transaction for which this report is required, as defined in Section 1.4 of NI 43-101.
9. I have read NI 43-101 and the portions of this report for which I am responsible have been prepared in compliance with the instrument.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this day 24th March 2010.



J S Warwick

CERTIFICATE of AUTHOR

As the co-author of a portion of this Technical Report on the Verticalnaya Mine, Ukraine, I, M Coultas, B.Sc. M.Sc. FGS. Chartered Geologist do hereby certify that:

1. I am employed by and carried out this assignment for:

IMC Group Consulting Limited
Icon Office Building
Lake View Drive
Sherwood Park
Nottingham NG15 0DT
United Kingdom

2. I hold the following academic qualifications:

B.Sc. Geology (Hons) Manchester University (1976)
M Sc Engineering Geology Leeds University (1992)

3. I am in good standing as a Chartered Geologist and Fellow of the Geological Society.
4. I have worked as a geologist in the mining industry for a total of 34 years since graduation from university and have worked for more than 20 years in the provision of consultancy services including the management of multi-disciplinary technical studies and the evaluation of coal deposits.
5. I do, by reason of education, experience and professional registration, fulfil the requirements of a Qualified Person as defined in National Instrument 43-101. My work experience includes the management and performance of numerous technical studies relating to the audit, evaluation and valuation of underground and opencast coal projects and operating mines in many parts of the world.
6. I visited the Verticalnaya Mine site in March and June 2008 and I have also spent intervals in August 2008 and May/June 2009 undertaking an audit of the estimation procedures employed to arrive at the resource and reserves estimates submitted in this Technical Report.
7. I am responsible for the compilation of the technical report titled "NI 43-101 Technical Report on the Pre-feasibility Study for the Verticalnaya North Project, Ukraine" dated 24th March 2010 and have specifically undertaken preparation of Sections 9, 10, 11, 12, 13, 14, 15, 16, and 19 and have contributed jointly to other sections.
8. I am independent of the parties involved in the transaction for which this report is required, as defined in Section 1.4 of NI 43-101.
9. I have read NI 43-101 and the portions of this report for which I am responsible have been prepared in compliance with the instrument.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this day 24th March 2010.



M Coultas

CERTIFICATE of AUTHOR

As the co-author of a portion of this Technical Report on the Verticalnaya Project, Ukraine, I, Brian Everitt, do hereby certify that:

1. I am employed by and carried out this assignment for:

IMC Group Consulting Limited
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Lake View Drive
Sherwood Park
Nottingham NG15 0DT
United Kingdom

2. I hold the following academic qualifications:

Mechanical Engineering	AMEME Honours
Coal Preparation Technology	C&G 051

3. I am in good standing as a Fellow of the Minerals Engineering Society, a Fellow of the Coke Ovens Managers Association and am registered as an Incorporated Engineer, membership number 352939 with the Engineering Council.
4. I have worked as a mechanical engineer in the mining industry for a total of 44 years including 34 years as a coal preparation engineer and have worked for more than 6 years in the provision of consultancy services including 6 years in the management of multi-disciplinary technical studies and the evaluation of coal deposits.
5. I do, by reason of education, experience and professional registration, fulfil the requirements of a Qualified Person as defined in National Instrument 43-101. My work experience includes the management and performance of numerous technical studies relating to the audit, evaluation and valuation of coal projects and operating mines in many parts of the world.
6. I visited the Verticalnaya Mine site on 11th November 2006 and I have also spent the interval 10th – 16th November 2006 in the offices of ECC in Ukraine, undertaking a review of the coal quality and washability data from both exploration and operational records together with reviewing the proposed processing systems for the project in support of this technical report.
7. I have participated in the compilation of the technical report titled “NI 43-101 Technical Report on the Pre-feasibility Study for the Verticalnaya North Project, Ukraine” dated 24th March 2010 and have specifically undertaken preparation of Section 18, and Sections 25.1, 25.2, 25.3 and 25.4 and have contributed jointly to other sections.
8. I am independent of the parties involved in the transaction for which this report is required, as defined in Section 1.4 of NI 43-101.
9. I have read NI 43-101 and the portions of this report for which I am responsible have been prepared in compliance with the instrument.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this day 24th March 2010.



B Everitt

DISTRIBUTION LIST

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Key Words IMC; Lysander Minerals Corporation, ECC; Ukraine Coal; Ukraine; Donetsk; Lugansk; Underground; Anthracite; Longwall; Shearer; Plough

	Signature	Name / Designation
Production:		David Foster Geologist
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Approval:		John Warwick IMC Managing Director

Appendix A Glossary of Terms

\$	United States Dollars.
A	Amps.
ADB	Air Dried Basis, analysis of coal whereby coal is air dried at ambient temperatures leaving the inherent moisture within the coal.
AFT	Ash Fusion Temperature – A physical measurement of the temperature at which a cone of ash begins to soften, deform and flow. This is performed under either an oxidising or reducing atmosphere. Temperatures are reported as Initial deformation, spherical, hemispherical and flow.
Air Dried Basis	Air dried basis, analysis of coal where by coal is air dried at ambient temperatures leaving the inherent moisture within the coal.
Air pollution.	The presence of contaminant or pollutant substances in the air that do not disperse properly and interfere with human health or welfare or produce other harmful environmental effects.
AKO, AM, AL	Grades of sized anthracite
Anthracite, Anthracitic	A rank class of coal having more than 86% fixed carbon and less than 14% volatile matter on a dry, mineral-matter-free basis (as defined by ASTM). This class of coal is sub-divided into semi-anthracite, anthracite and meta-anthracite on the basis of increasing fixed carbon and decreasing volatile matter.
Anticline	A strata fold that is concave downwards.
Arch	Steel support used in mining roadways of inverted 'U' shape.
Ash	The incombustible residue from mineral matter contained as either contamination (rocks) or inherent within the coal. On combustion the mineral matter is reduced to ash the refractory component of mineral matter. Some minerals dissociate on heating to release carbon dioxide or moisture.
Ash content	The inert percentage of a laboratory sample of coal remaining after incineration to a constant weight under standard conditions.
Ash free	A theoretical analysis calculated from basic data expressed as if the total ash had been removed.
Best Practice	Operating procedures that are recognised in the international mining community which maximise productivity and return on investment commensurate with stewardship of the assets.
Billion	One thousand million.
Bituminous coal	A class of coal high in carbonaceous matter, having less than 86% fixed carbon, and more than 14% volatile matter on a dry mineral-matter-free basis, (as defined by the American Society for Testing and Materials (ASTM).
Blending	Mixing two or more materials together to give a mixture of the desired quality.
Bolted roadways	Roadways that are supported using full column resin bolts (a drill hole filled with quick setting resin and through which a steel rod is rotated to mix resin and hardener).
Borehole or bore hole	A hole made with a drill, auger or other tool for exploring strata in search of minerals.
Bunker	An excavation made to store coal or ore, usually to provide a buffer facility.
By-product	Material, other than the principal product, that is generated as a consequence of an industrial process.
Calorific value, (CV)	The heat value of coal per unit weight. This is normally reported in kilocalories per kilogram, (kCal/kg).
Capex	Capital expenditure
Caved	A longwall area behind the supports that has collapsed as planned.
CH ₄	Methane
Cif – Cost Insurance Freight	A term of sale that includes the FOB (qv) price plus the cost of freight and the cost of cargo insurance.
Coal	A readily combustible rock containing more than 50% by weight and 70% by volume of carbonaceous material, including inherent moisture. It is formed from plant remains that have been compacted, indurated, chemically altered and metamorphosed by heat and pressure during geological time.
Coal Washing	The process of removing mineral matter from coal usually through density separation, for coarser coal and using surface chemistry for finer particles.

Coalfield	A discrete area underlain by strata containing one or more coal beds.
Coking coal	Coal that becomes plastic when heated at 3°C per minute through the temperature range 300 – 550 °C. Can be used to create coke which is used in the steel reduction process.
Conveyor	A rubberised belt running on rollers transporting the coal or other material from the faces to the endpoints. They can be reversed and used for manriding (carrying personnel to their working places).
Core	A cylindrical sample taken using a diamond drill.
Cross Section	A diagram or drawing that shows features transected by a vertical plane drawn at right angles to the longer axis of a geologic feature.
Crush, Crushing, Crushed	A mechanical method of reducing the size of rock.
CV	see Calorific value.
Cyclone	Equipment used to separate material by size and weight using rotating high speed fluids.
Cycloning	Separation of material by size or weight using a cyclone.
DAF	Dry Ash-Free basis – conversion of analyses to present data that has all ash and moisture removed, i.e. represents the analysis of the organic matter only.
DB	Dry Basis, analysis of coal whereby the coal is dried at 105 °C before proximate analyses are undertaken.
DCF	Discounted Cash Flow
Dense Medium	A liquid composed of a suspension of magnetite in water that gives a very accurate separation.
Dense medium cyclones	A device that uses a dense medium in a hydrocyclone to effect a separation between coal and waste.
Deposit, Deposits	An area of coal resources or reserves identified by surface mapping, drilling or development.
Development	(i) The initial stages of opening up a new mine, and/or (ii) The tunneling to access, prove the location and value, and allow the extraction of ore.
Development	Excavations or tunnels required to access the coal or ore.
Dilution	The contamination during the mining process of excavated coal by non-coal material from the roof, floor or in-seam partings.
Dilution	Waste which is intermingled with coal in the mining process.
Dip	The angle that a structural surface, i.e. a bedding or fault plane makes with the horizontal measured perpendicular to the strike of the structure.
Discounted Cash Flows (DCF)	The present value of future cash flows after applying cumulative discounts.
Disposal	Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases.
Dissolved	Organic and inorganic material taken into solution. Excessive amounts in water usually makes water unfit for drinking or for use in industrial processes.
Drivages	Any development excavation.
Dump	A site used to dispose of solid wastes without environmental controls.
EIA	Environmental Impact Assessment
Environment	The sum of all external conditions affecting the life, development, and survival of an organism.
Exploit	Make use of and derive benefit from a resource.
Exploitation	Method of deriving benefit from a resource.
Exploration	Prospecting, sampling, mapping, diamond drilling and other work involved in the search for mineralisation.
Fault	A structural discontinuity in the earth's crust formed by movement between adjacent blocks resulting from tectonic forces.
Fault Throw	The amount of vertical displacement in an upward or downward direction produced by a fault.
Feasibility Study	A comprehensive engineering estimate of all costs, revenues, equipment requirements and production levels likely to be achieved if a mine is developed. The study is used to define the technical and economic viability of a project and to support the search for project financing.
Floor (seam)	The bottom of the seam.

Fold	Any bending or wrinkling of rock strata.
Fractured - relating to geology	Breaks in rock formations due to intense faulting or folding.
FSU	Former Soviet Union..
Gate	One of two roadways usually driven parallel and then connected at the extremities. The longwall face is installed in the connection (the face) and retreats down the gates. The gates provide ventilation, power and other services and also a route for the conveyor removing the coal cut at the face.
Geotechnical Conditions	The engineering behaviour of rocks as a result of an excavation.
Grade	The classification or value of coal. The relative quality.
Groundwater	The supply of fresh water found beneath the Earth's surface (usually in aquifers), which is often used for supplying wells and springs. Because groundwater is a major source of drinking water, there is growing concern about areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating it.
Ha	Hectare
High-ash coal	Coal containing more than 15% total ash on an as-received basis.
Inclined drifts	Sloping underground roadways, usually driven from the surface but can also be between two levels underground
In Situ	In place, i.e. within unbroken rock.
Intake (Ventilation)	Fresh air going into the mine workings.
Interburden	Sterile soil and rock material lying between coal seams.
Jig	A separator that uses pulsating water to separate coal from waste; less accurate than dense medium.
Joints - relating to geology	A fracture or parting that cuts through and abruptly interrupts the physical continuity of a rock mass.
JORC	The "Australasian Code for Reporting Mineral Resources and Ore Reserves" (2004 Edition) published by the Joint Ore Reserves Committee ("JORC") of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and the Minerals Council of Australia (the "JORC Code").
kCal/kg	Kilocalories per kilogram of coal, the energy content of coal used in the countries that do not conform to SI units. In countries where SI units are adhered to, the measure of energy is in megajoules per kilogram or MJ/kg.
km	Kilometre.
kV	Kilovolt.
Lease	Contract between two parties enabling one to search for and/or produce minerals from the other's property.
Limb (Geology)	A sloping section of an anticline or syncline
LOM	Life Of Mine.
Longwall	A coal production face where a shearer traverses and cuts a long wall of coal accessed by two gate roads.
Longwall face	A set of up to 200 hydraulic supports with an AFC and a shearer.
Longwall face retreat	A face starting at the furthest extremity of the gate roadways and retreating back to the connection of the gate roadways with the main or strategic roadways.
Losses - Geological	Ore lost due to unpredictable geological phenomena.
Losses - Mining	Ore lost due to less than perfect mining operations.
Luganskkiproshakht	Lugansk Mining Institute
M	Million.
Magnetite	A ferromagnetic mineral with chemical formula Fe ₃ O ₄ .
Metallurgy	The practice of extracting metals or minerals from ores and preparing them for sale.
Mine	Any operation where mineral is extracted from the ground. This may be by opencast or underground mining methods.
Mineable	Capable of being mined under current mining technology and environmental and legal restrictions, rules and regulations.
Mineable	That portion of a resource for which extraction is technically and economically feasible.

Mineral Deposit	A mineral occurrence of sufficient size and grade to have potential or existing commercial value; sometimes referred to as mineralisation.
Mining Licence	Permission to mine minerals from a Mineral Rights area.
Mitigation	Measures taken to reduce adverse impacts on the environment.
Monitoring	Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements or pollutant levels in various media or in humans, animals, and other living things.
Mt	Million metric tonnes.
Mt/y	Million tons per year.
MV	Megavolt.
MVA	Megavolt-ampere.
MW	Megawatt.
No.	Number.
Nos.	Numbers.
Outcrop / Incrop	The expression of a rock type at surface; the expression of a rock type or seam beneath rocks of younger age
Parting	A layer or stratum of non-coal material in a coal bed which does not exceed the thickness of coal in either the directly underlying or overlying leaves.
PCI	Pulverised Coal Injection
Permit	An authorisation, license, or equivalent control document issued by an approved agency to implement the requirements of an environmental regulation; e.g., a permit to operate a wastewater treatment plant or to operate a facility that may generate harmful emissions.
Pillar(s)	An area of ore left during mining to support the overlying strata.
Pillars	Blocks of ore left intact to act as support for shafts or other underground workings. Post pillars are equi-dimensional in plan.
Pit	A hole in the ground – an excavation below original ground level – a surface mine may comprise one or more pits.
Pit (mining)	Abbreviation of Open Pit Mine..
Plant	Fixed or moveable equipment required in the process of winning or processing the ore.
Pollutant	Generally, the presence of matter or energy whose nature, location, or quantity that contaminates air, soil, or water.
Pre-treatment	Processes used to reduce, eliminate, or alter the nature of wastewater pollutants from non-domestic sources before they are discharged into publicly-owned treatment works.
Prevention	Measures taken to minimise the release of wastes to the environment.
PSF	Power Station Fuel
Rehabilitation	Land restored to its former condition.
Reserve	A ‘Reserve’ is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and 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.
Resource	A ‘Resource’ is a concentration or occurrence of material of intrinsic economic interest in or on the Earth’s crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.
Rights - Surface Rights	The ownership of the surface land under which minerals occur.
Roadways	An excavation to access a working area which subsequently may supply services or a conveyor.
ROM	Run of mine.
Roof	The top of the seam.
RR	Russian Rouble
Run-of-Mine (ROM)	The Grade and tonnage of material produced at the pit rim or shaft collar, stated on a dry basis.
S	Sulphur.

Sample	A representative fraction of a coal seam collected by approved methods, guarded against contamination, and analysed to determine the nature, chemical, mineralogical or petrographic composition, percentage content of specified constituents, and heat value.
Sampling	Taking small pieces of rock at intervals along exposed mineralisation for assay (to determine the mineral content).
Screen	A device for separating by size.
Seam	A layer or bed of coal. Correlated seams of coal are normally assigned a name, letter or number. A single seam can contain one or more non-coal partings resulting in a sub-division into leaves.
Seam outcrop	A manifestation of a coal seam at the Earth's surface.
Seam splitting	When a coal seam splits into two or more leaves or subsidiary seams.
Sedimentary	Formed by the deposition of solid fragmental material that originates from weathering of rocks and is transported from a source to a site of deposition.
Sedimentation	Letting solids settle out of wastewater by gravity during wastewater treatment.
Sediments	Soil, sand, and minerals washed from land into water, usually after rain. Sediments pile up in reservoirs, rivers, and harbours, destroying fish-nesting areas and holes of water animals and clouding the water so that needed sunlight may not reach aquatic plants. Careless farming, mining, and building activities will expose sediment materials, allowing them to be washed off the land after rainfalls.
Settling tank/ponds/lagoons	A holding area for wastewater in which heavier particles sink to the bottom for removal and disposal.
Sewage	The waste and wastewater produced by residential and commercial establishments and discharged into sewers.
Shaft	A mine-working (usually vertical) used to transport miners, supplies, ore, or waste.
Shaft pillar	A prescribed area of ground around the shaft in which mining is not permitted. The pillar affords stability to the shaft ensuring this essential access is preserved.
Shearer	A machine used for cutting coal on a longwall face. (Usually in Russian called a combine)
Skip	The conveyance/vessel into which coal/ore is tipped at the bottom of the shaft and then hoists to the top where the ore is tipped into a receiving bin and then the cycle is repeated.
Slurry	A suspension of coal or waste in water.
Smoke	Particles suspended in air after incomplete combustion of materials.
Split	An in-seam parting which attains a thickness such that the resultant leaves of coal are considered as separate seams from a mining point of view.
Spontaneous combustion	The propensity of some types of coal to oxidise rapidly on contact with air. The oxidation reactions produce heat that increases the rate of oxidation to the point that the coal ignites. Low-rank coals are the most prone to spontaneous combustion.
Steam coal	Coal which will be used for steam generation principally in thermal power plants.
Steel arches	Arches made in sections of steel which can be bolted together to form a roof supporting a deforming roof.
Stockpile	An accumulation of ore or mineral.
Strata	Layers of sedimentary rock.
Surface water	All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc.); also refers to springs, wells, or other collectors that are directly influenced by surface water.
Sustaining Capital	Periodic capital expenditures required to replace or overhaul equipment. Also known as replacement capital.
Syncline	A fold in bedded or stratified rocks which opens upward like the trough of a wave.
Syncline / synclinal	A downward-curving fold, with layers that dip toward the centre of the structure.
t	Metric tonne = 1000 kg.
Tailing(s)	The fluid slurry after treatment and extraction of the economically-extracted mineral.
Tailings	The fine material rejected from a mineral process.
Tectonic influence	The influence of primary and secondary geological activity on an area.
Thermal Coal	A coal used to provide heat from combustion, largely by power producers and industrial users.
tph	Tonnes per hour

Underground Mining	Extraction of mineral whereby the overburden is not removed in order to extract the mineral.
UDKR	The State Enterprise “Ukruglerestructurizatsiya” whose responsibility is the liquidation of closed mines
Ultimate analysis	Analysis of the elemental components of coal – carbon, hydrogen, nitrogen, oxygen and sulphur. Normally reported on a dry or dry ash-free basis.
V	Volts.
Ventilation	Air coursed around a mine to provide a working environment to both men and machines.
Volatile Matter Content; VM	That portion of the coal comprising both gases and liquids that is released following heating it from 105°C to 800°C. The amount of volatile matter in a coal is a function of the rank of the coal (thermal maturity) and of the coal type. High rank coals have a low volatile matter content (<20%) medium rank coals have a higher volatile matter content (20 – 30%) and low rank coals have a high percentage of volatile matter. The type of coal also effects volatile matter, coal with a high inertinite content will produce less volatile matter than a coal with high vitrinite content that will produce less volatile matter than a coal with high liptinite content.
W	Watts.
Washability	Result of a laboratory test that separates a sample of coal into different density fraction. Is used to predict plant performance.
Washing Plant	A plant designed to size and clean material to produce pre-determined sizes of product.
Waste	Rock or material of no commercial value residing within the seam, above the seam or below the seam.
Waste - related to mining	Rock or material of no commercial value.
Waste Parting	Rock or material of no commercial value residing within the ore horizon/reef.
Wastes	1. Unwanted materials left over from a manufacturing process. 2. Refuse from places of human or animal habitation.
Waste water	Spent or used water from individual homes, communities, farms, or industries that contains dissolved or suspended matter.
Workable	See mineable.

CONSENT
(Qualified Person – J S Warwick)

TO: Lysander Minerals Corporation

AND TO: The TSX Venture Exchange (TSX-V)
Alberta Securities Commission
British Columbia Securities Commission
Ontario Securities Commission

RE: Technical Report

Reference is made to the technical report (the “Technical Report”) dated March 2010, entitled “NI 43-101 Technical Report on the Pre-feasibility Study for the Verticalnaya North Project” prepared for Lysander Minerals Corporation and to which the undersigned has contributed. The undersigned hereby consents to the public filing with the regulatory authorities referred to above of the Technical Report and to extracts from, or a summary of the Technical report in the disclosures of Lysander Minerals Corporation.

The undersigned acknowledges that the press release dated 25th May 2009 entitled “Verticalnaya Anthracite Mine Project Progresses. Lysander Also Plans Verticalnaya North Satellite Project” issued by Lysander Minerals Corporation constitutes the disclosure document and that it fairly and accurately represents the information in the technical report.

Dated this day 24th March 2010.



J S Warwick

CONSENT
(Qualified Person – M C Coultas)

TO: Lysander Minerals Corporation

AND TO: The TSX Venture Exchange (TSX-V)
Alberta Securities Commission
British Columbia Securities Commission
Ontario Securities Commission

RE: Technical Report

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Dated this day 24th March 2010.



M Coultas

CONSENT
(Qualified Person – B Everitt)

TO: Lysander Minerals Corporation

AND TO: The TSX Venture Exchange (TSX-V)
Alberta Securities Commission
British Columbia Securities Commission
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B Everitt