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TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT FOR THE PISKANJA BORATE PROJECT, SERBIA

PREPARED FOR:
ERIN VENTURES INC. AND TEMAS RESOURCES CORP.

EFFECTIVE DATE: **June 24, 2022**

REPORT PREPARED BY:

Prof. Miodrag Banješević PhD. P.Geo, EurGeol,
contributions from Prof. Saša Stojadinović PhD. (Mining engineer)

DATE AND SIGNATURE PAGE

"Original signed and sealed"

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Report Signed by:
Prof. Miodrag Banješević PhD. P.Geo, EurGeol,

Signature Date: August 1, 2022

Effective Date: June 24, 2022

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1 SUMMARY

1.1 Introduction

Prof. Miodrag Banješević PhD. P.Geo, EurGeol was requested by Erin Ventures Inc. (Erin or the Company) and Temas Resources Corp. (Temas) (together, the Companies) to prepare an independent technical report in accordance with National Instrument 43-101 (NI 43-101) on the Piskanja Borate Project (Piskanja or the Project). The prime reason for this was to present the most up to date Mineral Resource Estimate (MRE) and preliminary economic analysis (PEA) for the Project.

The MRE produced by Banješević is an update to a previous estimate produced by SRK Consulting in 2016 (amended in 2019) and reflected a programme of exploration work undertaken during 2018 aimed at tightening the drill hole spacing at Piskanja to an approximate 25 meter (m) by 25 m grid within the central area of the deposit. The aim of this was to improve confidence to the block grade and tonnage estimates and to hopefully both confirm the previous MRE and move some of the mineralization into a higher confidence classification.

The responsible person for the updated MRE is Prof. Miodrag Banješević PhD. P.Geo, EurGeol (the Author) who is a Qualified Person in accordance with the CIM Definition Standards on Mineral Resources and Reserves (CIM Standards). Prof. Banješević most recently visited the Project in June 2022.

1.2 Project Description

The Project occurs within a 306hectare ha exploration licence located in southern Serbia (the Exploration Licence), some 160 km south of the Serbian capital Belgrade. Balkan Gold d.o.o, which holds the Exploration Licence, is a wholly owned subsidiary of Erin.

1.3 Project Geology

Geologically, the Project is located within the Jarandol basin, a Neogene continental sedimentary basin positioned in the Vardar Zone (VZ) tectonic belt. The host rocks comprise mudstones, sandstones, carbonates, tuffaceous sediments and conglomerates. It is interpreted that hydrothermal and tectonic activity led to borate mobilisation and deposition as a series of stratiform lenses within the basinal carbonate sediments.

Mineralized horizons show a range of textures predominantly comprising different growths of the borate minerals colemanite, ulexite and howlite.

1.4 Exploration Drilling and Sampling

The Piskanja Project includes some 35,930 m of drilling for a total of 108 drillholes. The updated MRE presented here is based on 58 drillholes by Erin and five drillholes by Rio Tinto, with a total length of 22,618.70 m. The drilling has all been completed from the surface on a grid spacing ranging from 25 m to 100 m, providing intersections at a similar spacing. Drillholes are typically vertical and intersection angles with the mineralization typically ranging from perpendicular to 45°.

In comparison to the MRE reported in November 2016 (the 2016 MRE), the database used for the June 2022 estimate included an additional 10 drillholes for 3,084 m of diamond drilling completed during 2018 with an approximate distance between holes from 15 m to 50 m within the "infill drilling zone" in the central part of the deposit. During the 2018 exploration programme, samples were sent for preparation to SGS Laboratories sample preparation facility in Bor, Serbia, and then dispatched to SGS Ankara, Turkey, for analysis for boron by Na_2O_2-fusion ICP-OES.

The Author is confident that the data provided by the Company is of sufficient quality and has been subjected to a sufficiently high level of verification to support the MRE as presented here.

1.5 Mineral Resource Estimate

In producing the updated MRE, the Authors have:

- Modelled the borate horizons in 3D using a 12% B_2O_3 cut-off;
- Composited the sample data into 1 m intervals and undertaken a statistical analysis of the assay data in each mineralized domain;
- Evaluated the composited assay data for the presence of high-grade outliers from histograms;
- Undertaken geostatistical analyses to determine appropriate interpolation algorithms;
- Created a block model with block dimensions of 10 x 10 m x ~1.9 m;
- Thickness was calculated/estimated by the Ordinary Kriging ("OK") software method. Inverse distance weighting squared ("IDW2") was used to verify OK;
- Interpolated borate grades into the block model;
- Visually and statistically validated the interpolated block grades relative to the original sample results; and
- Confirm that the MRE is estimated according to NI 43-101 and CIM Standards.

Upon consideration of data quality, drill hole spacing and the interpreted continuity of grades controlled by the deposit, the Authors classified portions of the deposit in the Measured, Indicated and Inferred Mineral Resource categories.

The Authors applied basic economic considerations to restrict the Mineral Resource to material that it considered had reasonable prospects for economic extraction by underground mining methods.

Table 1-1: Updated Mineral Resource Statement

Resource Category	Geological Resource (tonne)	B_2O_3%	Contained B_2O_3 (tonne)
Measured	1,391,574	35.59	495,251
Indicated	5,478,986	34.05	1,865,677
Measured + Indicated	**6,870,560**	**34.36**	**2,360,928**
Inferred	284,771	39.59	112,732

- Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
- Mineral Resources are captured within an optimized mine plan (within the constraints of a PEA) and meet the test of reasonable prospects for economic extraction.

1.6 Comparison to Previous Estimates

In comparison to the previous 2016 MRE (amended 2019) for the Project, which was also reported at a cut-off grade of 12% B_2O_3 and above a minimum mining thickness of 1.2 m, this updated MRE has borate in the Measured category (1.39 Mt compared to Nil), less borate in the Indicated category (5.47 Mt compared to 7.8 Mt) and less borate in the Inferred category (0.28 Mt compared to 3.4 Mt). These changes are primarily due to some previously reported Indicated material being upgraded to the Measured category. There is also a slight reduction in B_2O_3 content for the Project in the combined Measured and Indicated categories from 2.40 Mt to 2.36 Mt although the average grade has increased from 31.0% to 34.4%. The reduction in the Inferred category from 3.4 Mt to 0.28 Mt (a reduction of 3.1 Mt) is a result of material which was previously included in the Inferred category by SRK being downgraded.

1.7 Economic Analysis

The Project economics were estimated assuming a constant price of US$500/t for sales-grade colemanite (40% purity) and US$700/t for boric acid. Capital and operating cost estimates were prepared based on current and expected long-term pricing assumptions and to a PEA level (this case, +/- 35% level of accuracy). The Project has a post-tax life of mine (LOM) net project cashflow (pre-finance) of US$1.21 billion which returns a post-tax NPV (10%) of US$524.9 million and an initial rate of return (IRR) of 78.7% (Table 1-2).

Table 1-2: Results of the Economic Analysis

Post-tax Net Present Value (NPV10%)	$524.9 million
Post-tax IRR	78.7%
Initial capital cost (Capex) (including 30% contingency)	$79.9 million
Capex payback from commercial production	12 months

Life of Mine (LOM)	16 years
Gross Project Revenue	$2.02 billion
Net Project Cash Flow (post-tax)	$1.21 billion
Average Annual Gross Revenue	$126.0 million
LOM average annual EBITDA	$91.3 million
Net operating margin	72.4%
Post-tax Operating Cost per t of product	$167.45
Weighted average revenue per t of product	$514.02
LOM Sustaining Capital (including 30% contingency)	$50.8 million
LOM average gross production	305,304 tonnes
Profitability Index (NPV/Capex)	6.57X (post-tax)
LOM Capital Intensity Index (Initial Capex/RoM tonnage)	$16.36
LOM average C1 (cash operating) cost (run-of-mine production)	$91.95/t
Average annual production (sales grade) colemanite	258,272 t
Average annual production of boric acid	25,000 tonnes
LOM average C1 cost (colemanite) post-tax	$154.50/t
LOM average C1 cost (boric acid) post-tax	$340.70/t
LOM mining production	4.88 million tonnes
LOM average grade B_2O_3	34.57 %

Note:
All values in this news release are reported in U.S. dollars unless otherwise noted
Assumed price/t (colemanite 40% B_2O_3) for LOM: US$500
Assumed price/t (boric acid, technical grade) for LOM: US$700
Units expressed in metric tonnes

The economic analysis is considered preliminary in nature, containing numerous assumptions and includes Inferred Mineral Resources that are considered too speculative, geologically, to have the economic considerations applied to them that would enable them to be categorized as Mineral

Reserves. There is no certainty that the results of the PEA will be realized. No Mineral Reserves have been estimated for Piskanja. Inferred Mineral Resources are that part of the Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geologic evidence and sampling, which is sufficient to imply but not verify grade or quality continuity. Inferred Mineral Resources may not be converted to mineral reserves. It is reasonably expected, though not guaranteed, that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

1.8 Conclusions and Recommendations

The work completed in 2022 added further confidence to the geological model and borate grade distributions and enabled the production of a more robust MRE, demonstrating the potential of the Project.

Recommendations for work to further advance and de-risk the Project are provided below. Much of this would fall under the parameters of a Preliminary Feasibility Study (PFS):

- Expansion and improvement of the existing Piskanja Mineral Resource Estimate through further exploration and close-spaced drilling in the two unbounded directions;
- Improvement and refinement of metallurgical recoveries and processes through further metallurgical test work;
- Continued evaluation of different project operating scales (“right sizing”) and optimization of mine plans;
- Evaluation and incorporation of existing technologies to improve sustainability and reduce environmental impact;
- Additional test work to define geotechnical parameters of the rock mass;
- Additional modelling or model refining (geotechnical, structural, resource, economical) as an aid to appropriate mine design;
- A comprehensive environmental impact assessment; and
- A demonstration of mitigation measures.

2 INTRODUCTION

2.1 Background

Prof. Miodrag Banješević PhD. P.Geo, EurGeol (the Author) was requested by Erin Ventures Inc. (Erin or the Company) and Temas Resources Corp. (Temas) (together, the Companies) to prepare an independent technical report in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) on the Piskanja Borate Project (Piskanja or the Project). This was compiled to present the most up to date MRE and preliminary economic analysis for the Project.

The Project is located in southern Serbia, 10 km north of the town of Raška and 240 km south of the capital, Belgrade by car.

The information reviewed in preparing this report has largely been provided directly by Erin. The Author's opinions and recommendations expressed in this report are effective as of 24 June 2022. Where the Author has drawn upon information from public domain sources, the source of this information is given if relevant.

2.2 Qualifications of Consultants

Prof. Banješević is a Member of the European Federation of Geologists, Doctor of Technical Sciences and Associated Professor and by virtue of his education, member of a recognised professional association and has relevant work experience a Qualified Person as defined by NI 43-101. Prof. Banješević is an employee of Balkan Exploration and Mining, a member of ZiJin Mining Group Co. Ltd., China and an Associated Professor at a technical faculty at the University of Belgrade in Bor, with over 30 years' experience in different geological disciplines and over 10 years' experience in mineral exploration.

The Author has no invested interest in the assets of Erin or Temas. The Author will be paid a fee for this work in accordance with normal professional consulting practice.

The reporting standards adopted for the reporting of the MRE are those of the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards for Mineral Resources and Mineral Reserves (adopted May 2014) (CIM Standards). This is an internationally recognised reporting code as defined by the Combined Reserves International Reporting Standards Committee (CRIRSCO).

Prof. Banješević is responsible for all sections of this report.

2.3 Details of Personal Inspections

This report is based on information collected by the Author during a site visit performed in June 2022 and on additional information provided by the Company throughout the course of the assignment. Other information was obtained from the public domain.

The site visit included inspection of drill core, discussion with Erin personnel and assessment of Erin's technical protocols and methodologies.

The Author was given full access to relevant data and discussed with Erin personnel any changes in the geological and structural understanding of the deposit, the drill core logging and core sampling procedures and submission of these samples for geochemical assay, as well as the management and interpretation of assay results returned from laboratories.

2.4 Declaration

The Author's opinions contained herein, and effective 24 June 2022, are based on information collected throughout the course of the assignment, which in turn reflect various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

The Author has confirmed that the MRE reported is within the licence boundaries given below. The Author has not, however, conducted any legal due diligence on the ownership of the licences themselves.

The Author has not undertaken any detailed investigations into the legal status of the Project nor any potential environmental issues and liabilities that the Project may have at this stage.

The Author is not aware of any other information that would materially impact on the findings and conclusions of the report. The Author has been informed by Erin that there are no known litigations potentially affecting the Piskanja Project.

This report may include technical information that requires subsequent calculations to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the Author does not consider them to be material.

The Author is not an insider, associate or an affiliate of Erin or Temas, and the Author has not acted as advisor to Erin or Temas, their subsidiaries, or affiliates in connection with this Project. The results of the technical review presented in this report are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

3 RELIANCE ON OTHER EXPERTS

Some of the sources of information and reports used by the Author in the creation of this technical report are authored by persons who are experts in their respective fields, but not independent Qualified Persons as defined by NI 43-101. In this case, the Author has reviewed the relevant information in those reports and determined it to be appropriate for inclusion in this report. These reports are as follows:

Miloš Pandžić, Partner, Doklestic Repic & Gajin z.a.k. Law Firm, was engaged to provide a legal opinion regarding the tax holiday status for Balkan Gold d.o.o. as part of the economic assessment and was a consideration applied to section 22.

4 PROPERTY DESCRIPTION AND LICENCE LOCATION

4.1 Project Location

The Project covers an area of 305.7 ha. The approximate centre of the project area is 43º 22' 43" North and 20º 38' 50" East in standard degrees, minutes, seconds format. The Project is located in southern Serbia, some 240 km south of the Serbian capital Belgrade. Nearby towns include: Kraljevo, 40 km to the north; Novi Pazar, 28 km to the south, and Raška, 11 km to the south, (Figure 4-1).

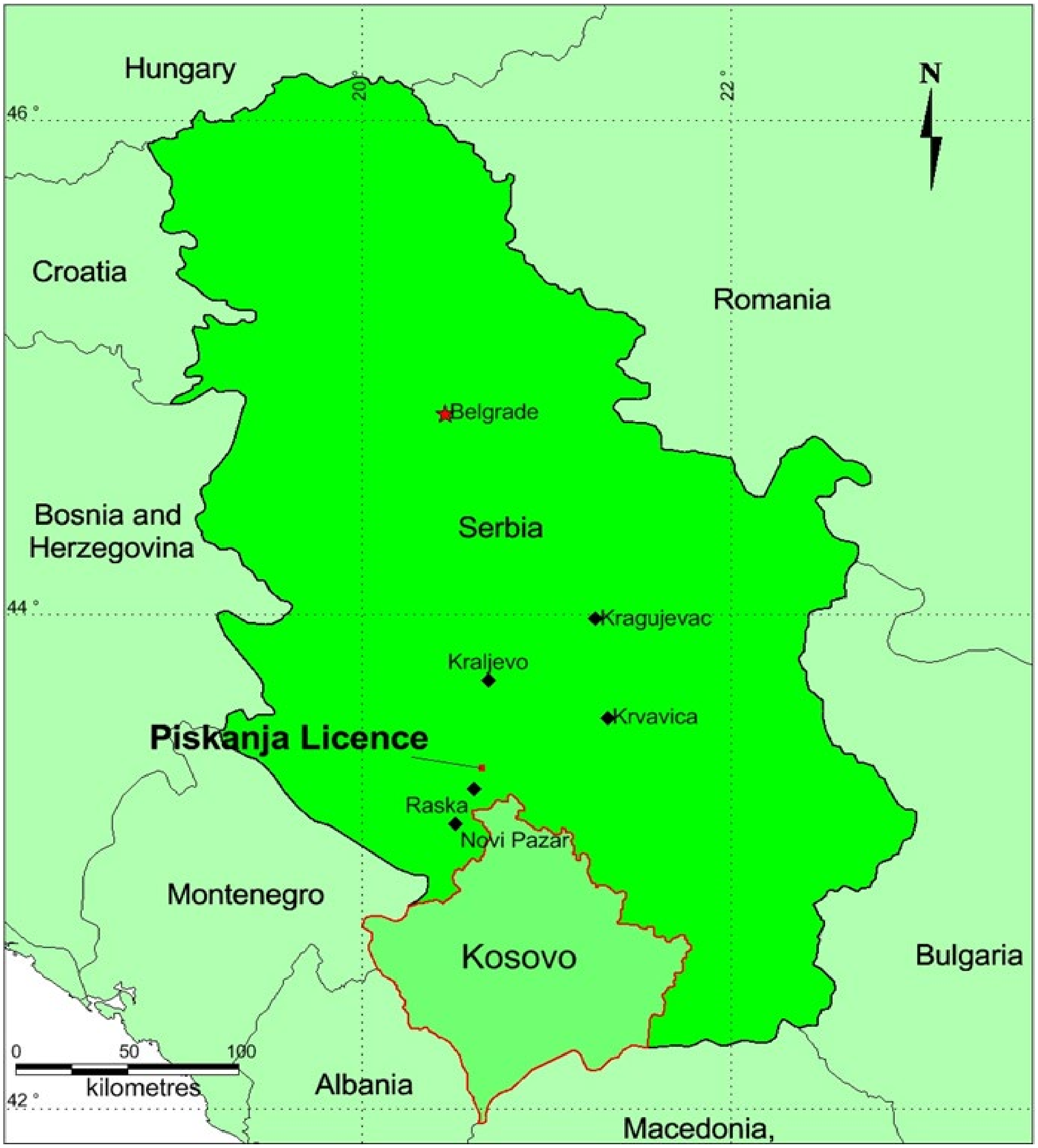


Figure 4-1: Location of the Piskanja licence area (SRK 2019).

4.2 Mineral Licence Tenure

The Ministry of Mining and Environmental and Spatial Planning of the Republic of Serbia (the Ministry) first granted Balkan Gold d.o.o. Exploration Licence #1934 on 23 August 2010 under the 1995 Law on Mining published in Official Gazette of RS, no. 44/95 (the Exploration Licence).

In July 2012, Balkan Gold d.o.o. was granted a three-year Exploration Licence under the Law on Mining and Geological Researches, published in Official Gazette no. 88/2011, which came into force in January 2012. The renewed Exploration Licence was granted on 05 November 2012 and was valid until 05 November 2015. On 11 July 2016 the Exploration Licence was renewed until 11 July 2018. On 31 July 2018 the Exploration Licence was renewed until 31 July 2020 and on 25 September 2020, it was renewed again until 25 September 2023.

Table 4-1: The history of the validity of the Tenement covering the Piskanja Project area.

Licence Number.	Tenement Name	Date Valid from	Date of Expiry	Licence Area
1934	Piskanja	08/12/2010	08/23/2012 (extended from 13/09/2011)	306 ha
1934	Piskanja	05/11/2012	05/11/2015	306 ha
1934	Piskanja	11/07/2016	11/07/2018	306 ha
1934	Piskanja	31/07/2018	31/07/2020	306 ha
1934	Piskanja	25/09/2020	25/09/2023	306 ha

Table 4-2: Licence boundary coordinates for the Piskanja Project, licence #1934

Point	Serbian Gauss Kruger - Zone 7		UTM_WGS 84_34N	
	East_SGK	North_SGK	UTM_East_MI	UTM_North_MI
1	7,471,000	4,803,000	470,575.04	4,802,071.89
2	7,471,000	4,804,750	470,575.04	4,803,821.36
3	7,472,750	4,804,750	472,324.51	4,803,821.36
4	7,472,750	4,803,000	472,324.51	4,802,071.89

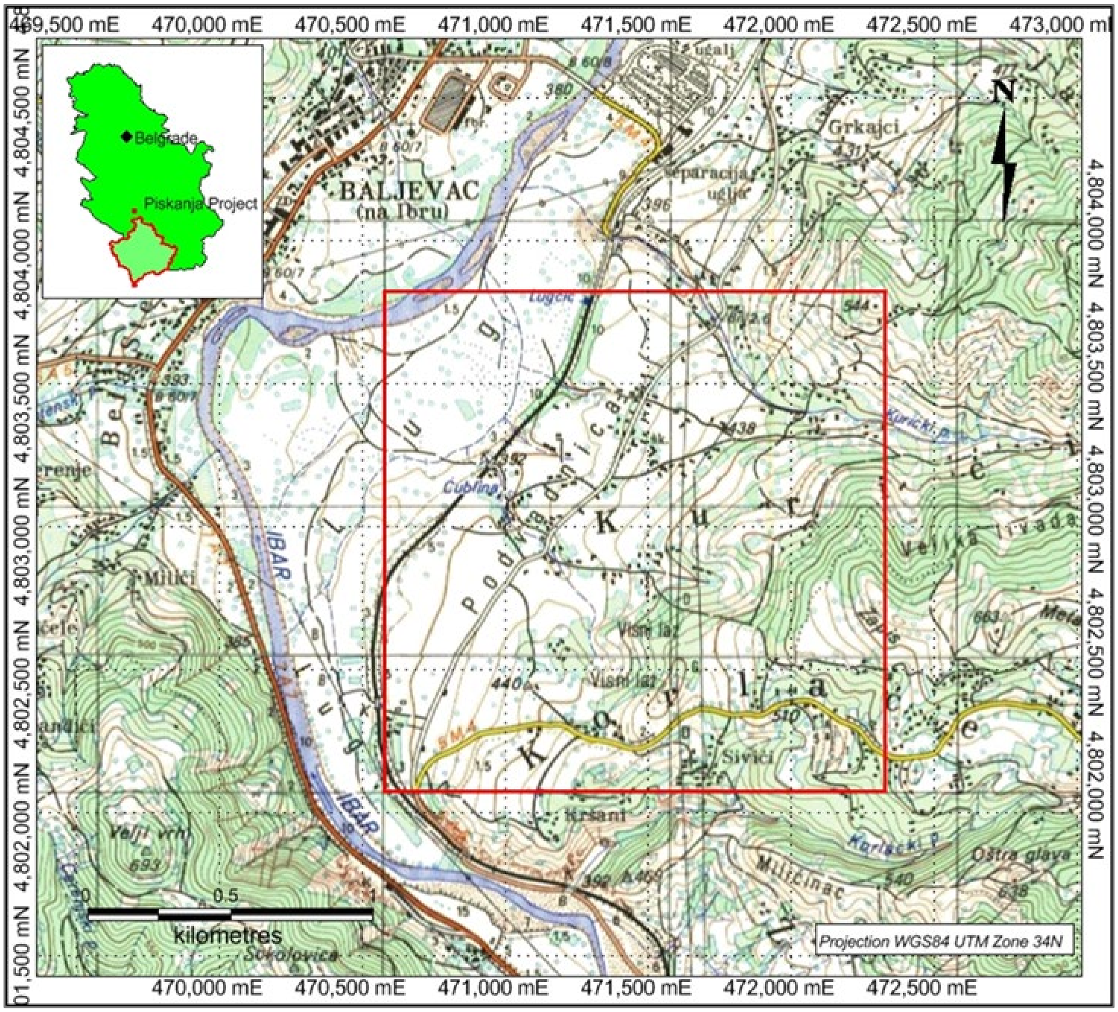


Figure 4-2: Geographical map of the Piskanja Exploration Licence #1934 (red line) (SRK 2019)

On 10 December 2012, Balkan Gold d.o.o. was granted Exploration Licence #2065 which covered an area of 34.90 km and was situated adjacent to the Exploration Licence #1934. This licence was renewed on 28 April 2016. After limited amount of exploration drilling in 2016, despite receiving of positive results on presence of disseminated boron mineralization within the other parts of Jarandol basin, the Company decided to return the Exploration Licence #2065 to the Ministry and focused on the exploration within the Piskanja Exploration Licence #1934.

In 2015, the Ministry of Mines and Energy added boron and lithium to the Strategic Minerals list, which allows Project three years after the completion of exploration in which to prepare and submit documentation to the government for exploitation, while non-strategic mineral deposits only have two years.

The Author understand that it is required by Serbian Law on Mining and Geological Researches that exploration activities and annual reports submitted to the Ministry must be monitored by a third party company. The author has confirmed that the Company's on-going exploration programme has followed this protocol with annual reports being filed by various local geological consultancies. It should be noted that the Author has not verified the listed reports or third-party companies involved, simply that the reports have been filed and accepted by the Serbian government.

4.3 Mining Rights in Serbia

The laws relating to Mining Rights in Serbia are described in the document titled "Law on Mining and Geological Explorations" which is published in "Official Gazette of RS" #101/2015, 95/2018 – other law, and 40/2021.

This document states that an exploration licence may be granted for an initial period of three years, and then be extended twice more for a further three years. The length of the first extended exploration period can be up to three years, and the second up to two years. The total exploration period allowed is eight years. Under Serbian Law, the exploration company must submit annual reports of the work completed which evidence that not less than 75% of the planned work has been completed.

According to Serbian Law, it is necessary to undertake a feasibility study prior to applying for a Mining Licence and the Company plans to complete all necessary steps in order to apply for a this licence.

Article 70 of the Serbian Law on Mining and Geological Explorations defines the items that must be addressed and attached to a mining licence application as:

- Proof of payment to the republic, i.e., provincial administrative fee when the exploitation is carried out on the territory of the Autonomous Province;
- A topographic map in a scale 1:25000 or at corresponding scale with drawn-in boundaries of the exploitation field and contours of determined reserves of mineral resources, public traffic roads and other facilities located in that field and clearly marked cadastral plots in a written and digital form;
- A certificate on resources and reserves of mineral resources issued on the basis of performed explorations in accordance with applicable regulations on classification the resources and reserves;
- A certificate of registration and a copy of the appropriate act document indicating the activity codes for which the applicant is registered, the registration number of the company and the corresponding license;
- A feasibility study on the mining of the deposit; and
- A local government act confirming the compliance of exploitation with the appropriate spatial or urban plans and a possible need of development the planning document of lower rank.

4.4 Surface Rights

The Surface Rights over the Piskanja mineral deposit are held by private individuals and by local/state governments. Land access is therefore negotiated with the individual landowners, for which they are reimbursed according to a payment scheme organised by Balkan Gold d.o.o. in accordance with Government standards.

The Company has informed the Author that some planned drill hole collar locations have had to be moved due to private landowners refusing access. This has not had a material effect on the exploration programme, even with the progression to a tighter drill spacing.

The Author understands that the Company intends, through Balkan Gold d.o.o., to acquire the surface rights for a portion of municipal building land currently owned by the State-owned Ibarski Rudnici Coal Company for mining operations and construction.

4.5 Additional Permits and Authorisations

Under Serbian law, a permit must be obtained from the relevant government department to ensure that known heritage sites are not impacted upon by exploration or mining activities. To satisfy this regulation, an assessment was made by the Institute for Cultural Heritage Preservation, Kraljevo, and a permit was initially granted on 8 September 2015 for a two-year period. According to the new Serbian Law on Mining and Geological Explorations adopted on 8 December 2015, permission from the Institute for Cultural Heritage Preservation is valid for the whole period of exploration and does not require an update for the prolonged licence period.

Further permits may be required prior to commencing any mining operations.

4.6 Environmental Considerations

Prior to Erin commencing exploration, site conditions were assessed by the Institute for Nature Conservation of Serbia, Belgrade, and an Environmental Permit was approved on 11 September 2015 for an initial two-year period. According to the new Serbian Law on Mining and Geological Explorations adopted on 8 December 2015, permission from the Institute for Nature Conservation of Serbia is valid for the whole period of exploration and does not require an update for the prolonged licence period. law

There are currently no known environmental liabilities on the property. Further permits may be required prior to commencing any mining operations.

4.7 Agreements and Royalties

Articles 159 and 160 of the Serbian Law on Mining and Geological Explorations state that companies undertaking mining activities shall pay a fee for the use of the mineral deposit. The Law states that “this revenue shall be the amount gained by the exploiting entity from used or natural mineral raw materials, determined on the basis of income gained from sale of non-refined mineral raw material, or income gained from the sale of technologically refined mineral raw material". The fee will be split between the Republic of Serbia, the local government and the Ministry of Natural Resources, Mining and Spatial Planning.

As the law does not list the commodities classified under metallic and non-metallic minerals, it is not known whether the Ministry will impose a royalty on borates similar to that of other evaporite minerals such as gypsum (salt) or select to impose a levy specific to borate.

The Author recommends that the Companies contact the Ministry of Mining and Energy to confirm the royalty for borates for future studies.

Table 4-3 presents some of the Royalties due on certain commodities under Serbian law.

Table 4-3: Royalties due on various extracted minerals (from Law on Mining and Geological Researches, 2012)

Commodity	Fee/Royalty
All types of coal and oil shale	3% of income
All metallic raw materials	5% of smelting plant net income
Technogenic raw materials resulting from exploitation and refining of mineral raw materials	1% of income
Non-metallic raw materials	5% of income
All types of salts and salty solutions	1% of income

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Project is located in the Jarandol Basin in the Raška region of south-central Serbia approximately 240 km south of the Serbian capital Belgrade, and approximately 17 km north of the Kosovo border. The nearest settlement is the town of Baljevac na Ibru (literally "Baljevac on the Ibar River") (Baljevac) which is some 1.7 km north-west from the centre of the Exploration Licence #1934. Baljevac has a population of 1,482 (2011 census), (Figure 4-2). The regional capital, Raška, lies 10 km to the south of the Project area and has a population of 6,500 (2011 census).

Access to the Project is by paved road from Belgrade, a journey that takes approximately four hours and passes through the towns of Kragujevac and Kraljevo. Access around site is by vehicle or foot as the terrain is not steep and the land has been cleared for agriculture.

A standard gauge railway accommodating passenger and freight rolling stock passes through the western part of the licence area and runs from Belgrade, through the towns of Kraljevo and Raška to Poije in Kosovo.

5.2 Local Resources and Infrastructure

Erin has an office in the town of Baljevac, located at the Ibarski Rudnici coal mine, a small-scale operation exploited only for local coal supply. Facilities here also include core logging and sampling areas, and core and sample storage.

Water for exploration needs is sourced from streams that flow into the River Ibar and the water table is encountered in drillholes at shallow depths, for example at 23 m below surface in hole EVP2012-100. It is reported that the stream water is used by the local people for drinking water. 35 kilovolt (kV) electricity lines run across the Exploration Licence area and supply power to Baljevac.

There is good mobile phone reception throughout the Jarandol Basin and the Project area.

5.3 Climate

The climate in the Project area is typical of Eastern Europe with four seasons of approximately equal length; spring, summer, autumn and winter. According to Foreca (an international company providing digital weather forecast data), the temperatures range from between 11 ºC and 28 ºC during the summer months of June to September, to between -3 ºC and 5 ºC during the middle winter months, December and January. Rainfall is highest in the months of May to September with the monthly average of between 49 and 62 mm. The months of January and February have the minimum amount of precipitation (about 30 mm), falling mostly as snow. Exploration activities can continue throughout the year with minimal inconvenience during the winter months.

5.4 Physiography

The Jarandol Basin lies at an elevation of between 375 m and 400 m above mean sea level (amsl) and is elongated in an east-northeast – west, south-west direction, draining towards the north via the River Ibar which lies just outside the western boundary of the Exploration Licence area. The terrain rises to approximately 750 m amsl to the west of the valley, outside of the Exploration Licence area, and to over 1,200 m immediately east of the Project area.

Minor tributaries to the River Ibar extend through the Exploration Licence area; the Kurićki to the north of the deposit and the Korlaćki to the south. Between them is the Radić, an ephemeral water feature which is dry for most of the year.

The flood plains in the central part of the basin and the low angled valley sides are cultivated for crops and fruit, with the steeper terrain above 500 amsl generally covered by sparse deciduous woodland, (Figure 5-1).

As already commented, the Surface Rights over the Piskanja site are held by private individuals and or local/state governments. Land access therefore must be negotiated with the individual landowners, for which they are reimbursed according to a payment scheme approved by the State. As stated in Section 4, the Company does not currently have any surface rights in the Project area and some private landowners have previously refused access for drilling. This has not affected the exploration programme to date although further infill drilling programmes will ideally require access to land where the owners have previously refused access.

The Author understands that the Company intends to acquire the surface rights for a piece of industrial land currently owned by the State-owned Ibarski Rudnici Coal Company which it intends to use for mining operations and construction in the future.

Figure 5-1: Examples of the terrain and agricultural land use typical of the licence area. Top - Before drilling hole EVP2011-103 (left) and after drilling and remediation (right). Bottom - before drilling hole EVP2011-105 (left) and after drilling and remediation. All photos are taken facing approximately north (SRK, 2019).

6 HISTORY

6.1 History of Exploration and Mining

Serbia's mining history dates back to the Middle Ages with the extraction of gold, silver and lead. The mining industry in Serbia represents the country's industrial base as well as the foundation for its entire economy. At present there are many mineral deposits and major occurrences distributed throughout the country, with copper, lead, zinc and bauxite contributing to the majority of metallic minerals currently being mined. Serbia also has a rich history of coal mining and lignite coal fed power stations currently provide 62% of the country's electrical requirements.

The first record of boron mineralization in the Jarandol Basin was a hand-sized sample containing howlite found in a tributary of the Ibar river in 1967 during State-organised geological prospecting (Stojanovich, 1967). Following this, geological mapping at a scale of 1:10,000 was completed and the Pobrđe occurrence of boron was identified some 2.6 km north-west of the Company's exploration licence.

The geochemical investigation of boron in the Jarandol Basin began in 1979 with the first identification of colemanite in a structural borehole (no. 127) occurring later in 1987. Between 1987 and 1992, the Yugoslavian state-owned company Ibar Mines completed a number of soil and stream sediment sampling programmes, followed by 21 diamond core holes totalling 6,508 m of drilling to an average hole depth of 300 m. Total core recovery was reportedly very good (90-100%) in shale, marl, sandstone and tuff horizons, but less so (60-75%) in volcanic breccia, breccia-conglomerate, conglomerate and borate mineralization. A total of 89 core samples averaging 1 m in length were collected from 11 boreholes which intersected mineralization and were analysed for boron. These two campaigns are described and documented (with drilling logs, and chemical analysis reports) within the "Report on the results of geological exploration of boron minerals in deposit "Piskanja" near Baljevac on River Ibar finalised until the end of 2010, by Geological Institute of Serbia (2011)". Mineralization was identified in two horizons with an average thickness of 4.5 m for the upper bed and 3.5 m for the lower bed, lying between 50 m and 260 m depth.

No work was conducted on the property between 1992 and 1997.

Erin first obtained the Project in 1997 as part of a 50% Joint venture with Elektroprivreda d.o.o. (Serbia). The JV company, known as Ras Borati d.o.o., completed 10 reverse circulation (RC) holes, totalling 2,304 m. These holes were drilled by subcontractor Midnight Sun Drilling Co. Ltd, Canada, using a T685H Schramm drilling rig. A total of 206 chip samples were collected from 8 RC holes. The samples were prepared and analysed at the Geozavod-Nemetali laboratory in Belgrade using wet chemistry analysis.

No work was conducted on the property between 1998 and 2006.

Following the resolution of international conflicts and a change of the governing party in 2006, Rio Tinto acquired the Piskanja Project as part of its regional investigation of borate potential in tertiary basins across the Balkan region. An initial phase of diamond core drilling in 2006 to twin existing holes was followed by the completion of further diamond holes on a wide spacing aimed at targeting a mineralized body of world-class size. A total of 6,074 m of drilling was completed by Rio Tinto and 817 samples prepared at the ITMNS laboratory in Belgrade and assayed by SGS in Lakefield, Canada, using potassium fusion ICP-AES as the primary method for determination of boron content.

Mineralogical investigations included 69 X-ray Diffraction (XRD) tests, petrographic determinations and a number of Scanning Electron Microprobe (SEM) analyses conducted by SGS, the Department of Mineralogy and Petrology, University of Belgrade, Serbia, and Spectrum Petrographics Inc of Vancouver, Canada. The main boron-bearing minerals in the Project were identified as colemanite ($CaB_3O_4(OH)_3 \bullet (H_2O)$) and ulexite ($NaCaB_5O_6(OH)_6 \bullet 5(H_2O)$) with minor howlite ($Ca_2B_5SiO_9(OH)_5$) and probertite ($NaCaB_5O_9.5H_2O$).

Rio Tinto also completed a magnetotelluric (MT) survey to assess the conductivity variation within the Jarandol Basin and to map the extent and thickness of the fine-grained sedimentary sequence. A low resistivity zone representing hydrous mineralization was expected to be encountered. The results of this survey, completed by Geosystem srl in 2006, were inconclusive with respect to identifying conductivity variation in the shallow belt (<500 m) below surface that might be related to borate mineralization within the Jarandol Basin sediments. No known historical resource estimates were completed by Rio Tinto before the licence was returned to the Serbian Ministry of Mining and Energy in 2009.

Erin re-acquired the exploration licence for the Project in August 2010 through its wholly owned subsidiary company, Balkan Gold d.o.o. This new licence covered an area of historic exploration southeast of Baljevac where previous drilling had identified borate mineralization. This licence has been renewed and extended, as detailed in Section 4.2. All exploration activities undertaken by Erin since 2010 are detailed in Section 9 onwards.

6.2 Historical Mineral Resource Estimates

In the technical documentation related to the Public Tender of the Piskanja Project (Public Tender, 2005) the Ministry of Mining and Energy in Serbia stated that “potential reserves of boron ore in Piskanja deposit are estimated to be 7,500,000 tonnes with an average grade of 36.39% B_2O_3". Although these figures may be compliant with Serbian resource and reserve classifications, no economic parameters were provided in the associated documents around this assertion. A qualified person has not done sufficient work to classify the historical estimate, neither the Author nor the Companies considers this estimate to be relevant beyond the context of the history of the project.

In 2013, Erin Ventures engaged SRK Consulting to conduct a resource estimate and preliminary economic assessment, the results of which are summarised in "Technical Report and Preliminary Economic Assessment for the Piskanja Borate Project, Serbia" authored by Tsypukov, et al. This estimate surmised the deposit to comprise an Indicated Mineral Resource of 5.6 Mt with a mean grade of 30.8% B_2O_3 and an Inferred Mineral Resource of 6.2 Mt with a mean grade of 28.8% B_2O_3. The key assumptions applied to the calculations:

- 12% B_2O_3 cut-off grade
- Minimum mining height of 1 m
- No grade capping was applied
- Mineralized blocks assigned density of 2.287 t/m^2

An updated resource estimate was completed in July 2016 and then amended in 2019 in the report "Mineral Resource Estimate Update on the Piskanja Borate Project, Serbia, October 2016 – Amended February 28 2019" by Armitage and Tsypukov. The revised estimate included an Indicated Mineral Resource of 7.8 Mt with a mean grade of 31.0% B_2O_3 and an Inferred Mineral Resource of 3.4 Mt with a mean grade of 28.6% B_2O_3. The same assumptions were applied to the calculations as in the original report

The 2013 and 2016 resources were prepared in accordance with the Canadian Institute of Mining (CIM) "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" (CIM Guidelines) and disclosed in accordance with NI 43-101. Mineral Resources are not Mineral Reserves as they have no demonstrated economic viability.

The Author has not done sufficient work to classify the historical SRK estimates as current Mineral Resources or Reserves and neither the Author nor the Companies are treating these historical estimations as current Mineral Resources or Mineral Reserves. The quantity and grade of reported Indicated and Inferred Mineral Resources in these estimations are uncertain, and more importantly, superseded by the current estimate reported in this document.

The Author is not aware of any significant production of borate from the Piskanja exploration permit.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Setting

Geologically, the Piskanja Deposit is located within the Jarandol basin, a Neogene continental sedimentary basin located within the Vardar Zone (VZ) tectonic belt. The VZ tectonic belt consists of ultrabasic blocks separated by fractured ophiolites that represent Early Mesozoic (Triassic-Jurassic) ophiolitic paleo-rifts. The western VZ ophiolitic unit represents a suture zone between the continental Adriatic Plate (Dinarides of the Western Serbia) and the European Plate (Carpatho-Balkanides and Macedonian Massif of Eastern Serbia). The structure of the Balkan region at this latitude, omitting the Neogene sediments, is shown as a cross-section in Figure 7-1, reproduced from Matenco & Radivojević (2012). The location of the Neogene sediments is broadly coincident with a series of tectonically interleaved nappes and obducted oceanic floor that were assembled in Cretaceous times, during the closure of the Neotethys ocean (Matenco & Radivojević 2012).

The Piskanja Deposit is located within sediments that developed within the Upper Jurassic ophiolite unit in the VZ tectonic belt during the Neogene Period (23-5 million years ago (Ma)). The development of the basin followed intense intermediate to acidic magmatism and granite plutonism in the Oligocene (34-23 Ma). These Neogene (mainly Miocene) basins in the VZ tectonic belt were continental in nature, their fills being a product of depositional processes associated with fluvial, lacustrine and swamp settings. The resulting sediments themselves comprise alternating units of mudstone, shale, sandstone and lignite caused by fluctuation in water depth and sediment input. Tuffaceous sediments related to on-going volcanism are also found within the basin and it is believed that related hydrothermal and tectonic activity led to borate mobilisation and deposition within the basinal sediments.

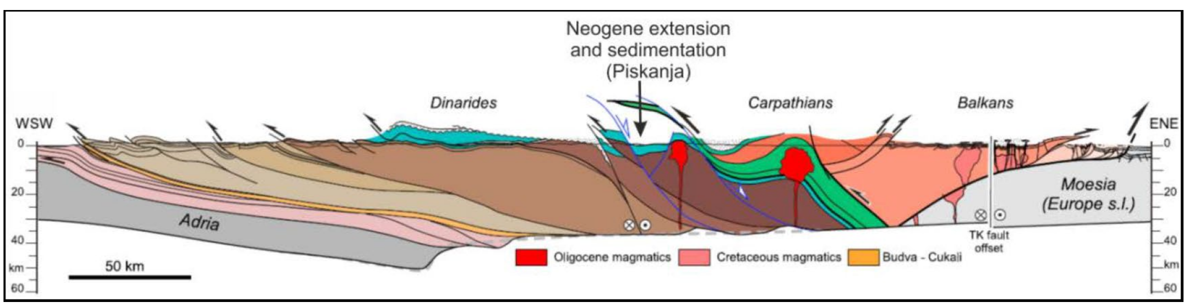


Figure 7-1: Regional E-W cross-section approximately coinciding with the location of the Piskanja Deposit (modified from Matenco & Radivojević 2012)

7.2 Stratigraphy

A semi-regional cross-section of the Piskanja area constructed by the Company is shown in Figure 7-2 which also summarises the local stratigraphy. The basement geology of the Jarandol Basin in this area comprises tectonised serpentinitic rocks relating to the Upper Jurassic ophiolites.

Overlying these is a succession of andesitic to dacitic composition volcaniclastics, shown on Figure 7-2 to have a vertical thickness of 100-150 m in thickness.

The principal basin-fill recognised in the Piskanja Project area comprises conglomerates, carbonates, marls and tuffaceous sediments according to Obradović et al. (1992). A coal deposit occurs close to the base of the succession and is exploited just northeast of Baljevac at Odlagalište. Stratigraphically above the coal, but below the borate-bearing basin fill, a magnesite deposit (Mg-dolomite) has been exploited to the south of Baljevac at Bella Sten. It is unclear, however, precisely how far below the main borate-hosting horizons the magnesite deposits are.

Three main sedimentary packages are recognised by the Company in the locale of the Piskanja Project (Figure 7-3). These sediments comprise a total thickness of almost 560 m in places and are described below, from oldest to youngest:

- TcP1 (90-130 m): A conglomerate and sandstone unit, characterised by a dominance of coarse clastic sediments with a few thin interlayers of carbonate rocks. The thickness of individual layers of sedimentary breccias and conglomerates typically vary from 0.1 m to 10 m in general but can reach 25 m in the upper part of the unit.
- TcP2 (up to 330 m): A claystone and carbonate unit, characterised by thin (millimetre-scale) laminations of claystone, silty claystone, tuff, travertine, dolomite, dolomitic limestone with claystone and rarely sandstone, breccia and conglomerate. Metre-scale, bedding-concordant horizons of borate mineralization are associated with the carbonate sediments.
- TcP3 (20-90 m): An upper claystone and sandstone interbedded unit. The sandstones are generally 1 to 2 m thick, with 2-10 m thick intervals of dolomitic carbonates. The claystone and sandstone are generally not laminated but possess a massive texture.
- Quaternary sediments (up to 25 m): Covering 65% of the licence area, these colluvial and alluvial sediments are characterised by the presence of rounded and semi-rounded pebbles and boulders mixed with fine and coarse sand.

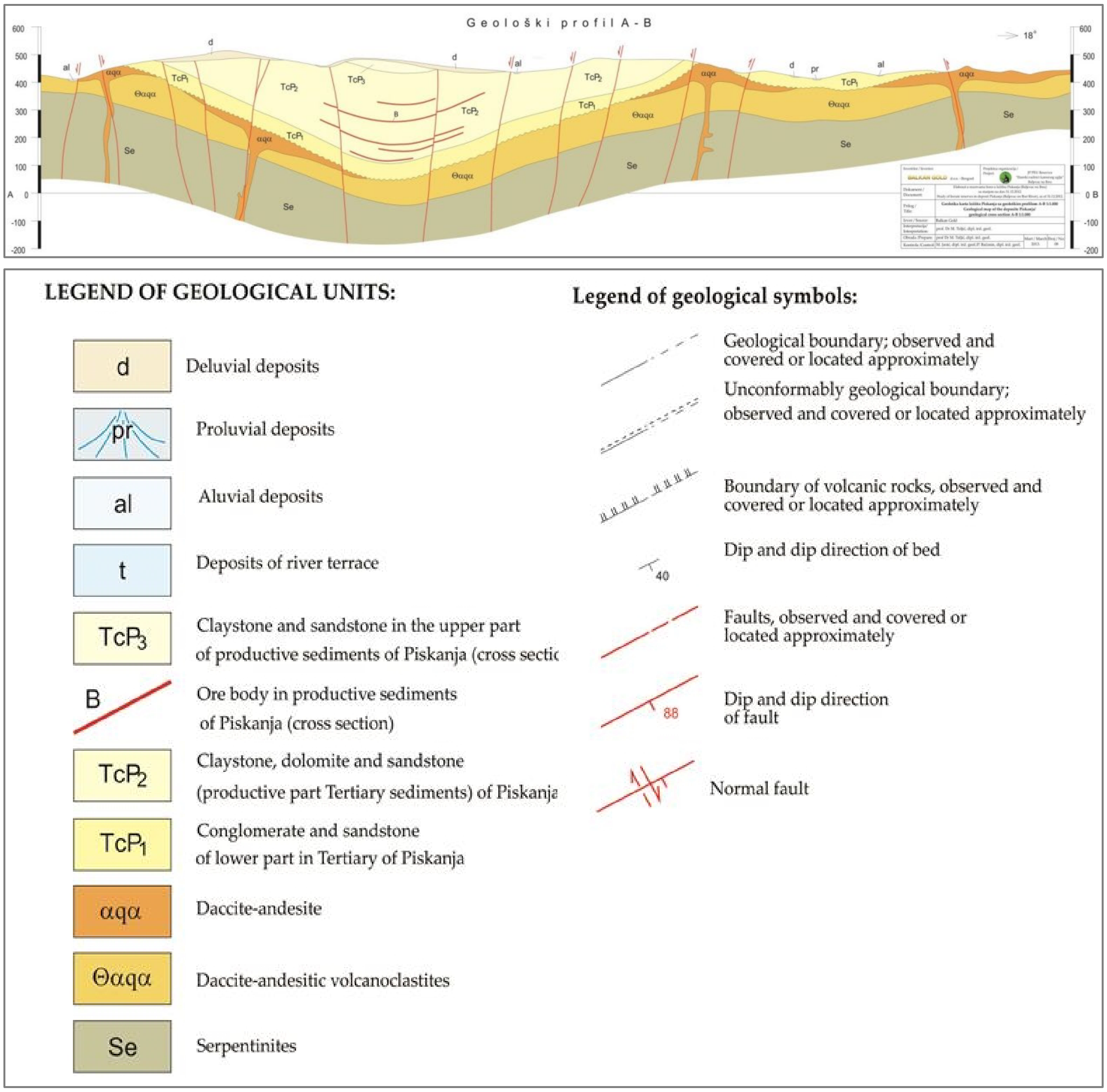


Figure 7-2: Cross-section of the stratigraphy and structure of the Piskanja area (Erin 2013)

*Line of cross section shown in Figure 7-3.

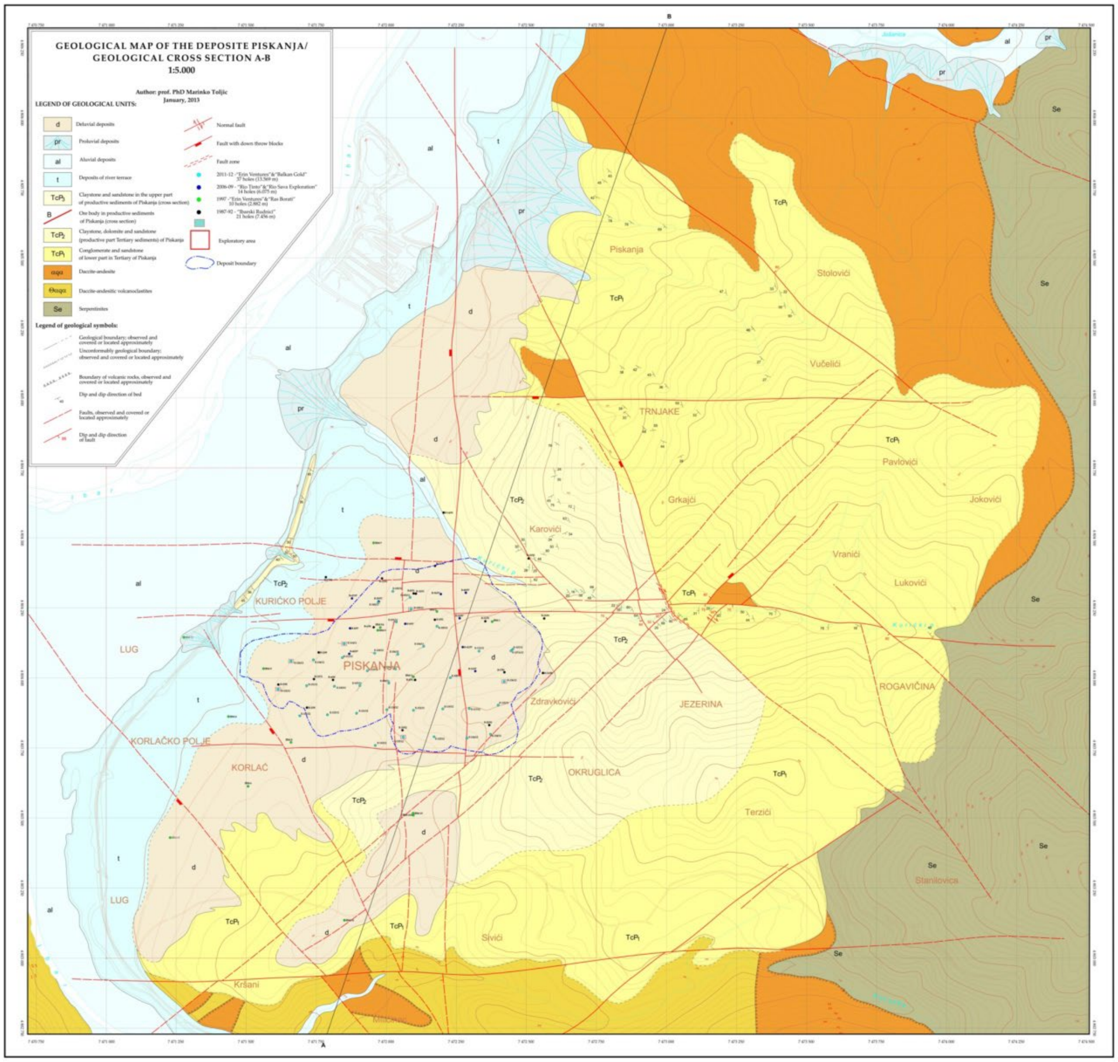


Figure 7-3: 1:5,000 Geological Map of the Piskanja Project, (Erin 2013)

7.3 Structural Geology

7.3.1 Tectonic Setting

Relatively little information on the tectonics of the Jarandol basin exists in scientific literature written in English. However, recent work by Matenco & Radivojević (2012) has summarised the main phases of tectonism for the Serbian part of the Pannonian Basin, including parts of the Jarandol Basin, which may reflect the local tectonism in the project area. According to these authors, although the precise timings and significance of each phase of tectonism varies across the basin, the basic framework of tectonic events is generally assumed to be as follows:

- Early Miocene (c. 20 Ma): Onset of extension.
- Middle Miocene times: Peak extensional tectonic activity along basinal normal faults.

- Late Miocene times: Post-rift thermal sag phase.
- Latest Miocene–Quaternary: Contractional event that overprinted the basin.

Apatite fission-track dating of heating and cooling events in the area of the southern River Ibar Basin, including the Piskanja deposit, suggest the rocks may have attained a maximum temperature of 100-130°C between approximately 17-7 Ma due to uplift and transfer of heat from the Studenica-Kopaonik extensional core complexes (Andrić et al. 2015). This was followed by cooling of the basin, attributed to inversion. A thermal event at 7 Ma in the basin is tentatively attributed to a late phase of volcanism.

7.3.2 Regional Structures

Erin has completed a regional mapping campaign and has mapped fault zones throughout the wider area based on direct and indirect evidence of faulting. As can be seen from Figure 7-3, a map of the region by Erin, the major structural trends comprise north-west to south-east and north-east to south west trends, with sub-ordinate east to west and north to south trending faults. The Author has not been able to fully verify the evidence for this interpretation but has seen good evidence from road-side outcrops along the Ibar valley of the presence of faults striking north-west to south-east, north to south and north-east to south-west.

Field observations made by SRK along the River Ibar valley, indicate that the north-west to south-east and north to south trending faults are likely relatively steep in nature. Erin's maps do not show resolvable fault displacements and it is likely that many structures represent faults with relatively small displacement (i.e., less than a few tens of metres) (SRK, 2018).

A cross-section through the deposit in a north, north-east to south, south-west orientation has been tentatively interpreted by Erin to show synclinal folding of the Miocene basin (Figure 7-3). This may, however, simply reflect the presence of relatively localised sub-basins.

7.3.3 Project Scale Faulting

Within the immediate area of the Piskanja mineralization, outcrop is limited, and topography is generally rounded in nature and partially overlain by Quaternary sediments reaching up to around 30 m in thickness. Therefore, the topographic expression of fault structures that are normally recessive in nature are covered in the area of borate mineralization.

The Author concludes that there are no obvious major faults affecting the deposit. Notwithstanding this, based on the presence of recessive erosional features to the east and south-east of the deposit, SRK produced a much simplified and preliminary interpretation of potentially significant steeply dipping structures within the area of Piskanja (Figure 7-4). Indirect evidence of faulting supporting the orientation and position of with these structures include systematic changes in stratigraphic dip, the occurrence of a zone of thicker mineralization, and the distribution of a conglomeratic-sandstone body within the basin. Due to data constraints and the relatively wide-spacing of drilling at present, these are all tentative interpretations and require further testing.

In addition, there are zones of brittle deformation within the core which suggest certain parts of the upper borate horizons (KZONE3 and KZONE4) are affected by sub-horizontal zones of faulting which anastomose in and out of the horizons and, in places, affecting the entire borate horizon.

Further work would be needed to fully understand the extent of faulting at a mining scale and, most significantly, its geotechnical implications in terms of the mining of these horizons in particular.

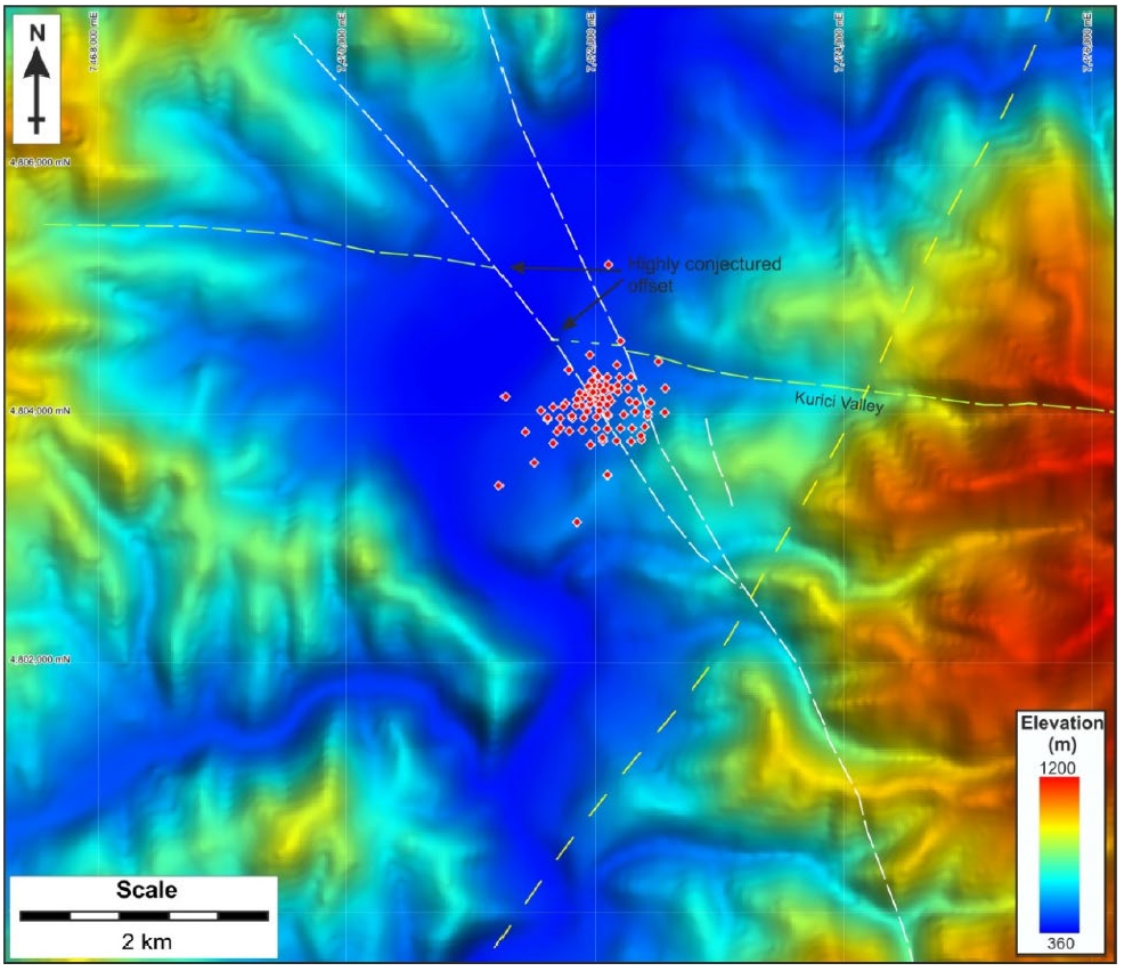


Figure 7-4: **Colour-shaded topographic map of the Piskanja area, showing the interpretation of potential faults that may affect the Piskanja project (drillholes are red circles). Faults away from the deposit are omitted (SRK, 2019)**

7.3.4 Slumping

The results of a pilot study completed to understand the potential for pre-lithification slumping throughout the regional borate-bearing sequence (illustrated in outcrop in Figure 7-5) have highlighted the potential presence of syn-sedimentary ‘or soft-sediment’ faults as indicated in Erin’s core photographs (Figure 7-6), and show the merit in extending this type of logging. Whilst the Author has not observed examples of slumped borates at Piskanja, there is no obvious geological reason why they should not be affected by slumping. If this is the case, then it could be expected that the borate distribution could be complex (folded and dismembered) on the scale of metres to tens of metres.

Given the significance of the small-scale geological continuity for mining, it is recommended that any borate intervals affected by, or directly flanked by, areas of sediment slumping are highlighted. Moreover, closer spaced infill drilling should be conducted in specific areas of the deposit, especially between holes with thicker intervals of borate, to help reduce the uncertainty in thickness variations at mine panel scale.

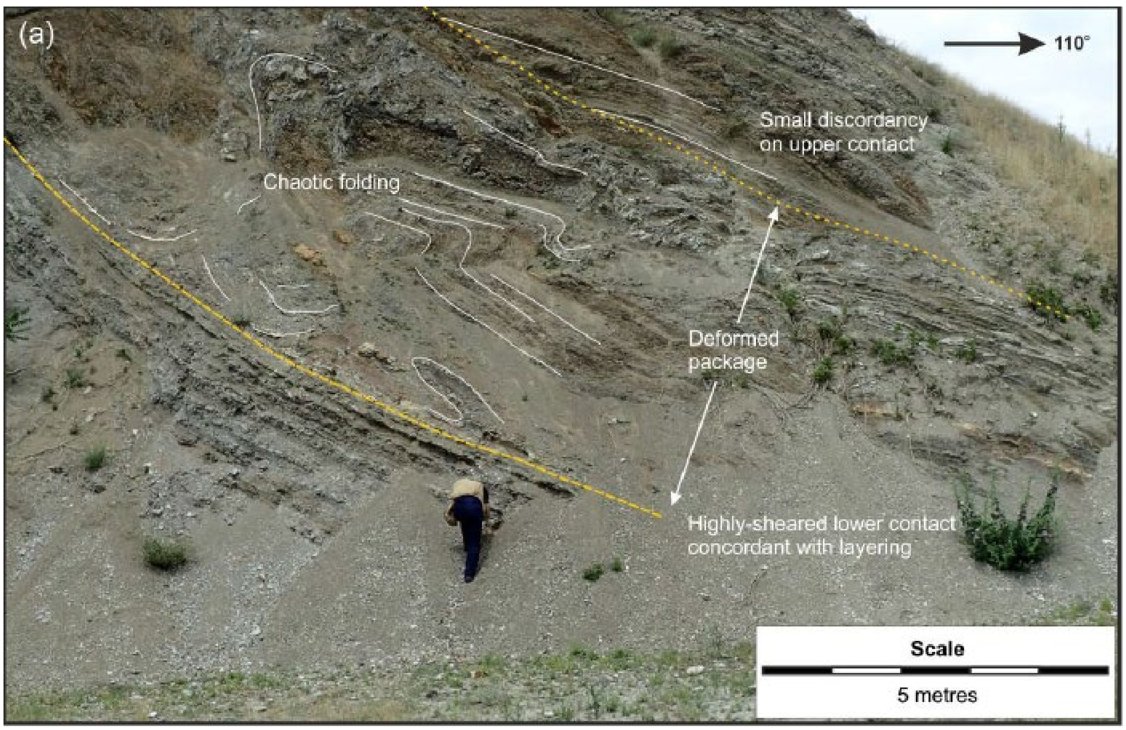


Figure 7-5: **Chaotic soft-sediment deformation within a broadly concordant layer of claystones and sandstones, Bella Sten magnesite pit (SRK, 2019).**

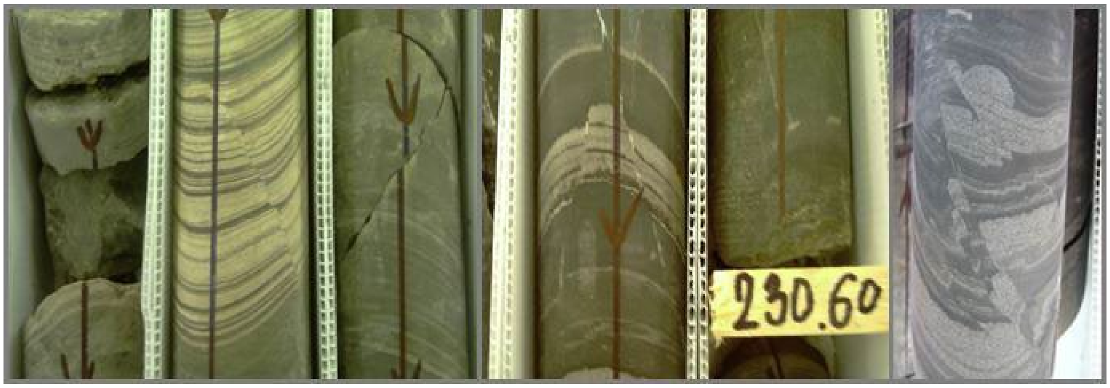


Figure 7-6: **Examples of pre-lithification structures, both extensional and contractional in nature, affecting sandstone and mudstones of the Piskanja Project (SRK, 2019).**

7.4 Mineralization

7.4.1 Introduction

The Piskanja mineralization is likely to have been deposited in a restricted inter-montane basin occupied by a perennial saline lake. Boron-rich fluids in these environments usually emanate from geothermal springs with a volcanic input (Garrett 1998).

The main mineralization is concordant with stratigraphy and Erin's staff have noted that the borate mineralization correlates laterally with carbonate horizons, consistent with a syn-depositional or syn-diagenetic origin anticipated for evaporitic deposits.

7.4.2 Mineralization Textures

The mineralized horizons show a range of textures comprising different growths of the borate minerals colemanite, ulexite and howlite predominantly. The main textures observed by the Authors are summarised below and shown in Figure 7-7.

Massive mineralization which appears within buff, laminated carbonate rocks (Figure 7-7a). Occasional muddy irregular laminations and inclusions occur within the borates which appear to represent displaced soft-sediment (pre-lithification). These zones are interpreted to have developed at or just below the lake bed.

Minor veinlets parallel to the stratigraphy (Figure 7-7b). These have mineral fibres oriented steeply, indicating the veins opened vertically, consistent with growth at low overburden pressures (very shallow depths). The veins have sub-angular tips, suggesting they developed when the sediments were only partially lithified (semi-coherent).

Breccias hosted by siltstones and claystones, with textures ranging from clast-supported jigsaw breccias through to matrix-supported chaotic breccias with a fine clast size (<1 mm to 2 cm; Figure

7-7c). These clast-size variations appear vertically stratified; tentatively suggesting variations in sediments (porosity and cohesion) influenced the style of deformation. Overall, these breccias are interpreted to represent over-pressuring by hydrothermal fluids in the shallow-subsurface.

Both massive and vein borates contain two types of vuggy hollows:

- Open vugs with ingrowing crystals of borate, which represent holes present during the growth or remobilisation of borate minerals (Figure 7-7d).
- Vugs which appear to have undergone some mineral dissolution, which are commonly stained by minor hydrocarbons (Figure 7-7e). These are interpreted as minor permeability networks where aggressive (acidic) fluids associated with the maturation of hydrocarbons have accentuated existing porosity. The hydrocarbons are likely to be locally sourced in organic rich units in the sediments.

Overall, there is very little textural evidence preserved for an active tectonic component controlling mineralization, with most textures consistent with a syngenetic to diagenetic origin for the mineralization.

Figure 7-7: **Mineralization textures: (a) Remnant carbonate partings in massive borate; (b) Layer-parallel vein showing vertical opening direction; (c) Variably brecciated interval; (d) Primary vug; (e) Secondary dissolution vug**

Figure 7-8: **Massive borate mineralization in hole EVP2012-111 from 310.30 m to 313.20 m, situated at the contact between shale and dolomite units**

7.4.3 Mineralization Geometry

The thicker accumulations of borate mineralization appear to occur within a broadly NW-SE orientated corridor some 200 m to 250 m wide, as illustrated for borate horizon (KZONE3) in Figure 7-9. This suggests a potential geological control on the deposition, such as faster subsidence due to faulting or the presence of a hydrothermal vent sourcing the B-bearing hydrothermal fluids, both of which point to the presence of one or more faults. The Author tentatively interprets this corridor to be fault bound and believes there is some geological support for such an interpretation.

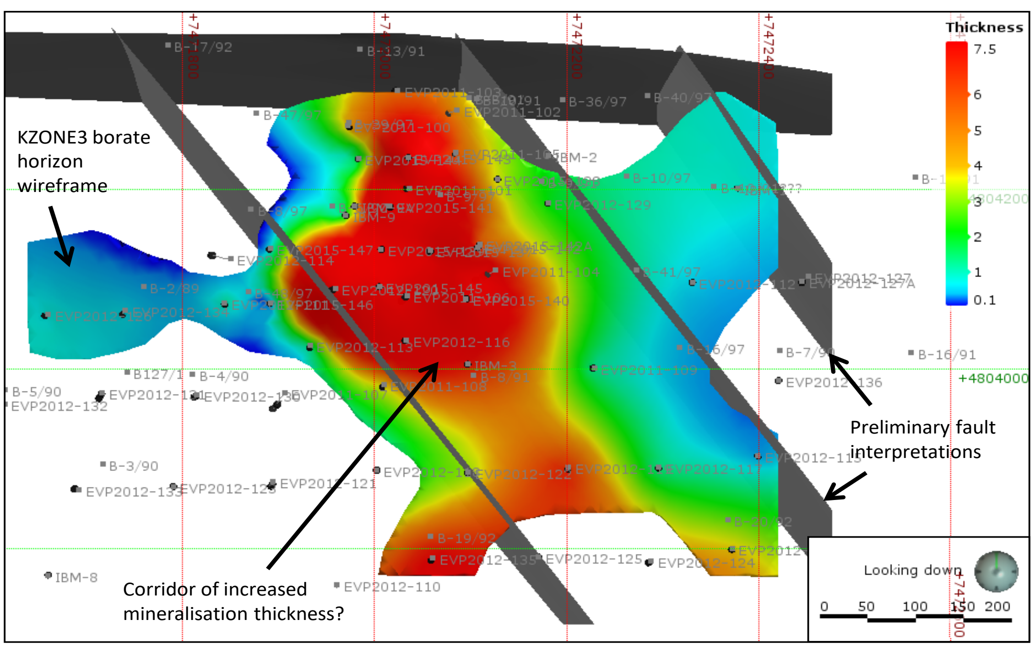


Figure 7-9: **Plan view of true thickness for borate horizon KZONE3 (SRK, 2019)**

8 DEPOSIT TYPE

The Piskanja deposit is of continental lacustrine type, typical of many global boron deposits, and is considered to have formed within a closed basin with abnormally high salinity. The boron mineralization is most likely to have been sourced from local volcanic rocks, from which it was leached by hydrothermal fluids. Boron minerals were then deposited in sedimentary successions in lacustrine conditions through the processes of evaporation and chemical precipitation. The presence of laminated dolomitic rocks and claystone in association with borate mineralization indicates sedimentation in the deeper parts of a lake.

Most borate minerals are highly soluble in water which restricts the areas in which they form, and more importantly, are preserved. The majority of known global borate deposits have formed in lacustrine or playa lake environments in closed basins that opened up in active extensional setting near subductive plate boundaries. Rock types associated with the deposits generally include calc-alkaline extrusive rocks, tuff, limestone, marl, claystone, gypsum, continental silts and sands. The source of boron is not always the same and can be derived variously from leached marine sediments, magmatic fluids from subducted crust or from volcanic material (tuff).

The boron deposits in the USA and Turkey (which together account for around 80% of world production), are associated with continental sediments and show a continuum between hydrothermal spring, playa lake and lake deposits. Borate minerals precipitate once they become saturated in the fluids circulating these basins, either through evaporation of the basinal waters or addition of borate rich fluids from hydrothermal springs and circulating meteoric waters. Different borate minerals form at different levels of acidity; for example, borax (sodium borate) precipitates at a higher pH than ulexite, and in comparison, colemanite forms at a lower pH and in warmer fluids. Due to cycles of basin refill and sediment input, there may be numerous layers of borate mineralization interbedded with barren sedimentary horizons.

Borate deposits, due to their process of formation, are generally found as stratiform layers within basins, typically of Tertiary (Neogene) age and proximal to areas of volcanic activity of a similar age. Deposits showing these characteristics have already been identified and exploited in western Turkey at Kirka, Bigadiç and Kestelek among others. The origin of the borates within these deposits is related to mixing of borate-rich solutions within lacustrine basins controlled by evaporation (Helvaci and Alonso, 2000).

The Turkish deposits of Kirka, Bigadiç and Kestelek are owned and operated by Eti Maden. According to Eti Maden's website, (http://en.etimaden.gov.tr/) the Kirka deposit reportedly produces some 2.5 million tpa of sodium borate ore at a mean grade of 26% B_2O_3. The Bigadiç deposit is reported to produce some 800,000 tpa of ulexite and colemanite ore at between 29% and 31%

B_2O_3. The Kestelek deposit produces some 200,000 tpa of colemanite ore with a mean grade of 29% B_2O_3 from an open pit.

The Rio Tinto owned Jadar project in western Serbia is a unique lithium borate deposit at a feasibility stage, with Ore Reserves of 16.6 Mt at 1.81% Li_2O and 13.4% B_2O_3. The Mineral Resource comprises 85.4 Mt of Indicated Resource at 1.76% Li_2O and 16.1% B_2O_3 with an additional 58.1 Mt of Inferred Resource at 1.87% Li_2O and 12.0% B_2O_3 (Rio Tinto Notice to ASX, 23 February 2022).

Project Kop d.o.o.,Belgrade, has one licence for exploration of magnesite, borate, and zeolite in the Jarandol basin, west of the Piskanja deposit. Finally, two other companies have seven licences for exploration B and Li in the central part of Serbia - an early stage of exploration: Company Balkan istraživanje d.o.o., Belgrade, has five licences, while Euro Lithium Balkan d.o.o., Belgrade, has two licences.

9 EXPLORATION

Apart from drilling, the exploration undertaken by Erin since 2010 has comprised the collection and analysis of all available historical data relating to the Jarandol Basin and its lithologies, tectonic structures and mineralization. An assessment of the quality of this data and its reliability was also completed internally to determine the suitability of the data for use in further studies and to form the basis of a MRE. This included the review of the results from historical drilling and geophysical investigations conducted by Rio Tinto as mentioned previously in Section 6. From this work it was determined by the geophysical contractor, Geosystem Srl, that the magnetotelluric geophysical data was not of sufficient detail or resolution at depths of <500 m to provide insight on borate mineralization or sedimentary sequences.

Publicly available documents have also been considered by Erin, including scientific publications regarding the regional geological setting and evolution of the Miocene Jarandol Basin and the analysis of aerial photographs.

All available historical drill core has been re-logged by Erin, with particular focus on lithologies that might be identified as “marker horizons” that could be used to correlate the position of mineralization across holes. This included the creation of historical drilling database containing all available data from multiple historic drilling programmes.

The Piskanja Exploration Licence and surrounding area was geologically mapped at a scale of 1:5,000 by Erin in 2012 (Figure 7-3). This indicated the presence of a number of normal faults which may affect continuity of mineralization in the deposit. Due to the limited outcrop across the licence area, however, it has not been possible to collect structural measurements of fault orientations across the deposit or to undertake any surface (soil or rock chip) sampling, surface trenching or pitting.

Through the Faculty of Mining and Geology at the University of Belgrade, Serbia, Erin has conducted mineralogical studies on 47 singular and composite mineralized samples taken from a selection of their drill core (December 2012). The length of the tested intervals ranges from 0.45 m to 8.40 m and were selected by visual estimation of samples containing either massive borate mineralization or disseminated borate mineralization in laminated claystone, dolomite and intercalated calcite.

The mineralogical studies involved petrographic, x-ray diffraction (XRD) and scanning electron microscope with energy dispersive x-ray spectroscopy (SEM-EDS) analysis of the main mineral phases and are summarised in the report titled “Testing samples from the Piskanja borate deposit, Baljevac na Ibru – Drillholes 101,103, 104, 106, 107, 111, 120, 121 and 126”. The report concludes that the borate minerals are dominated by colemanite, ulexite and less commonly hydroboracite or jarandolite.

Sedimentological research within a part of the Jarandol Basin around Piskanja, as well as mineralogical-geochemical explorations of the borate mineralized zones, were conducted in the early spring of 2015 during a new drilling program. Detailed logging was performed on five of 11 new drill holes in the central part of the deposit, and one hole which was conducted on the left side of the river Ibar. Additionally, three old Rio Tinto`s holes were logged at this time.

During the next phase of drilling in the spring of 2018, the core was logged in detail in five of the 10 holes. In the other five drill holes, only mineralized zones were logged in detail.

During 2019-2020, mineralized zones within 14 old drill holes (from drilling program 2011-2012, and 2015), were logged in detail in order to check the continuity of individual mineralized zones, their zonality and stratigraphic position.

The aim of sedimentological research was to provide petrology and determine the essential sedimentological units, such as sequences and cycles, through data obtained under detail core loggings. Petrological studies encompassed the detailed identification of textural characteristics within the distinguished lithotypes along with their vertical succession in aim of determination of sequences as best as possible.

Sedimentological research and petrological studies involved petrographic thin-sections, determined contents of CaO and MgO in carbonates units, roentgen powder diffraction technique. These sedimentology researches are summarised in the reports titled “Study mineralogical - petrological - sedimentological properties of borate minerals in the deposit Piskanja at Baljevac, on the Ibar river”, “Study mineralogical - petrological - sedimentological properties of borate minerals in the deposit Piskanja at Baljevac, on the Ibar river II", and several separate reports about mineral-petrology analysis of mineralized zones in the individual holes, by professor N. Vasić.

Erin has undertaken a density study (2011-2013) on samples from mineralized intervals and host rocks in accordance with the requirements of the Mineral Resource Code of Serbia. A total of 101 samples, each 9 to 25 cm in length totalling 15.64 m of core, were collected from the core stored in Erin's Baljevac storage facility. Samples taken from host rock lithologies were all whole core samples, whereas samples from the mineralized intervals were ¼ core samples. The samples were sent to the Faculty of Mining and Geology, Department of Geomechanics at the University of Belgrade for analysis. The analysis included determination of unit weight (UW) using core and specific density (SD) using rock powder. Table 9-1 shows the results of this determination for the main lithologies found in the Piskanja deposit.

Table 9-1: Summary of unit weight test results for core samples of different lithologies within the Piskanja deposit. Figures in brackets are number of individual samples tested.

Rock type	Specific Density (kN/m^3)	Unit Weight (kN/m^3)	Unit Weight (t/m^3)
Siltstone	25.76	25.12	
Borate mineralization	24.57 (8)	22.53 (37)	2.287 (37) *) 2.316 (176) **)
Breccia	26.70	25.31	
Claystone	25.59 (17)	24.52 (21)	2.48 (4)
Conglomerate	27.57 (1)	25.6 (1)	
Dolomite	24.12 (3)	23.32 (3)	
Sandstone	23.79 (3)	22.78 (3)	

C*-Unit Weight (t/m^3) was calculated from kN/m^3 by dividing by 9.81
Numbers in brackets are the number of samples tested from each lithology
*) Value of borate mineralization from test during 2011-12 (laboratory of Faculty of Mining and Geology, Belgrade **) Value of borate mineralization from test during 2020 (Core shed, Baljevac, without paraffin)

In 2012 Erin contracted SRK to perform continuous verification of the geological exploration process, verification of research results and harmonization of the research process with the Canadian National Instrument NI43-101 and CIM Best Practice Standards. implements SRK`s in-house geotechnical data management system (GTDMS), prepares a model of the structural geology, and prepares Technical Reports and specific documents. SRK has since prepared the following documents:

- "Technical Report on the Piskanja project, Serbia" (2012).

- "Technical Report and Mineral Resource Estimate for the Piskanja borate project, Serbia" (2013).
- "Technical Report and Preliminary Economic Assessment for the Piskanja borate project, Serbia" (2014).
- "Geotechnical engineering Logging Manual" for Piskanja borate deposit (2015).
- "Geotechnical engineering Logging Manual" for Regional Exploration (2015).
- "An evaluation of the Structural Geology of the Piskanja Borate Project, Serbia" (2015).
- "Mineral Resource Estimate Update on the Piskanja borate project, Serbia, October 2016" (2013).
- "Mineral Resource Estimate Update on the Piskanja borate project, Serbia, November 2018" (2018).
- "Mineral Resource Estimate Update on the Piskanja borate project, Serbia, October 2016 - Amended February 28 2019" (2019).

10 DRILLING

10.1 Introduction

During the exploration of Piskanja borate deposit from 1987 until today, four drilling campaigns were conducted: the first between 1980-1990 under Ibar Mines, the second during 1997 under Erin, the third between 2006-2009 under Rio Tinto and the fourth from 2011-2018 under Erin.

This section summarises all four drilling campaigns. The collar locations of drill holes are shown in Figure 10-1. All of the collars fall within the Piskanja Exploration Licence #1934. Table 10-1 summarises Ibar Mines, Erin, (through Ras Borati) and Rio Tinto`s drilling program. Table 10-2 summarises Erin diamond drill program through Balkan Gold (2011/2012, 2015 & 2018).

10.2 Ibar Mines (1987-1992)

Between 1987 and 1992, Ibar Mines with the Serbian Government and Serbian Geology Society "Geozavod-Nemetali" completed "about" 20 drill holes. Data about the number of holes and total metres varied by source, generally between 20-21 holes totalling from 6,508.00 to 7,456.00 m of drilling. Hole depths ranged between 216.00 and 625.00 m. Total core recovery was reportedly very good (90-100%) in shale, marl, sandstone and tuff horizons, but less so (60-75%) in volcanic breccia, breccia-conglomerate, conglomerate and borate mineralization. A total of 89 core samples averaging 1 m in length were collected from 11 boreholes which intersected mineralization all of which were analysed for boron. Mineralization was identified in two horizons with an average thickness of 4.5 m for the upper bed and 3.5 m for the lower bed, lying between 50 m and 260 m depth.

10.3 Erin Ventures through Ras Borati (1997)

During 1997, Erin Ventures through Ras Borati completed 10 reverse circulation (RC) holes, totalling 2,822.50 m. Depth of holes were between 200.00 and 340.00 m. These holes were drilled by subcontractor Midnight Sun Drilling Co. Ltd, Canada, using a T685H Schramm drilling rig. A total of 204 chip samples were collected from eight RC holes. The samples were prepared and analysed at the Geozavod-Nemetali laboratory in Belgrade using wet chemistry analysis.

10.4 Rio Tinto (2006-2007)

Rio Tinto acquired the Piskanja Project during 2006 as part of its regional investigation of borate potential in tertiary basins across the Balkan region. An exploration drilling programme was completed, comprising a total of 16 holes for some 6,076.90 m of drilling. Two holes IBM-9A and IBM-10A were repeated due to low core recovery. Depth of holes were between 107.50 and 591.90 m. A total of 708 samples were prepared at the ITMNS laboratory in Belgrade and assayed by SGS Lakefield, Canada using potassium fusion ICP-AES as the primary method for determination of boron content.

Table 10-1: Summary of Ibar Mine, Erin's (through Ras Borati) and Rio Tinto`s Piskanja Project drilling programme (1987-92, 1997 & 2006-07)

Company	Date	Locations	Total length (m)
Ibar Mines	1987-1992	20-21*	6,508 - 7,456*)
Erin Ventures through Ras Borati (RC holes)	1997	10	2,822
RioTinto (DD holes)	2006-2007	16	6,077
Total		**46-47**	**15,407 - 16,355**
* Data about the number of holes and total drilling metrics varies by source			

10.5 Erin Ventures through Balkan Gold (2010- 2018)

10.5.1 Overview

Since 2011, Erin has undertaken three drilling programs to date, through Balkan Gold d.o.o., with the latest phase of drilling and sampling completed during 2018.

The first phase of drilling undertaken by the Company was completed between 11 July 2011 and 18 December 2012 and was performed on a 24-hour shift pattern. The program comprised a total of 38 drill holes for 13,568.10 m of diamond core (“DC”) drilling and provided an approximate 100 m x 100 m sample coverage across the deposit. Depth of holes were between 223.50 and 485.60 m, averaging 364.27 m. Drill hole EVP2012-127 was terminated at 91 m depth due methane gas release from a fault zone at 90.1 m. Drill hole EVP2012-127A was therefore re-drilled 8.5 m to the southwest of the terminated hole to maintain the required drill hole spacing. Methane gas has been noted in 2 other holes EVP-2012-123 at 424.20 m and EVP-2012-125 at 348.90 m.

In order to complete this drilling quickly, Erin commissioned companies and rigs which were available in Serbia that could mobilise at short notice: Drilling contractor GeoMag d.o.o,Serbia completed 27 diamond drill (DD) holes totalling 9,881 m using an Atlas Copco - Christensen CS14, a Delta Makina - Delta Drill D-150 drill rig and a Diamant Boart DB-1200 drill rig; Silur d.o.o.,Serbia completed eight DD holes totalling 2,877 m using Diamant Boart DB-1200 and Mustang A65 drilling rigs; three DD holes, totalling 810 m, were drilled by Serbian contractor Geosonda d.o.o. using Diamant Boart DB-1200 and GEO 500 rigs. Drilling was conducted by experienced drilling crews using suitable rigs and to a high standard with due consideration of environmental and health and safety procedures.

All drill holes completed on behalf of Erin were of HQ diameter (64 mm) and used double tube (Silur d.o.o) and triple tube (Geomag d.o.o) core barrels. Holes were all planned as vertical (with an azimuth of 000 and dip of -90) to intersect the mineralization at 90°. Down-hole surveys of all drill holes were conducted by Geo-Log d.o.o. (Belgrade, Serbia) at 1m downhole intervals, shortly after the completion of each drillhole. The results of this work indicate that the maximum deviation is found in hole EVP2011-102 which deviated by a maximum 29.7 m from the collared X-Y coordinates, measured at the end of hole (EOH) depth of 287.5 m. The holes that do deviate a small amount do so in a west - northwest direction.

The depths of the drillholes are variable as the termination of a hole was determined by the on-site geologists during drilling. This was based on working cross sections of the deposit and the intersection of a marker conglomerate bed at the base of the Lower Conglomerate and Sandstone Unit, TcP1.

The second and third phases of DC exploration drilling were a relatively small program aimed at increasing the sample coverage to 50x50 m (2015) in the “infill drilling zone” and to distances of 15 m to 50 m (2018) within the central area of the deposit. DC drillholes were collared on previously established drill section lines and drilled vertically. Thee drillholes during the second and third phases were completed (EOH) approximately 20 m below the lowest drilled mineralization. GeoMag d.o.o was retained to undertake the drilling during 2015 and 2018.

The second phase of drilling undertaken by the Company was completed between 9 May 2015 and 6 July 2015 and was performed on a 24-hour shift pattern. The program comprised a total of 11 drillholes for 3,457.80 m of DC drilling and provided approximate 50m x 50 m sample coverage across the central part of deposit. Depth of holes were between 266.60 m and 335.60 m, averaging 301.10 m. All drillholes during this drilling program completed were of HQ diameter (61 mm), except hole EVP-2015-146 which was NQ diameter (45 mm), from 192.70 - 332.60 m. GeoMag d.o.o

(Serbia) completed 11 DD holes using 2 drill rigs an Atlas Copco - Christensen CS14. Methane gas has been noted in EVP-2015-146 at 297.70 m.

The third phase of drilling undertaken by the Company was completed between 11 April 2018 and 22 May 2018 and was performed on a 24-hour shift pattern. The program comprised a total of 10 drillholes for 3,084.00 m of DC drilling and provided the approximate distance between holes from 15 to 50 m within the “infill drilling zone” in the central part of the deposit. Depth of holes were between 272.60 and 336.00 m, average 308.40 m. GeoMag d.o.o (Serbia) completed 10 DD holes using three drill rigs: two drill rigs an Atlas Copco - Christensen CS14 and one drill rig a Delta Drilling D-150.

Table 10-2: Summary of Erin's Piskanja Project diamond drilling programme through Balkan Gold (2011/2012, 2015 & 2018)

Program state date	11/07/2011	09/05/2015	11/04/2018
Program completion date	18/12/2012	06/07/2015	22/05/2018
Number of diamond core holes completed	37	11	10
Total meters drilled	13,568.10 m	3,457.80 m	3,084.00 m
Minimum hole depth	223.50 m (EVP-2011-100)	266.60 m (EVP-2015-144)	272.60 m (EVP-2018-157)
Maximum hole depth	485.6 m (EVP-2012-132)	335.60 m (EVP-2015-140)	336.00 m (EVP-2018-152)
Mean average hole depth*)	364.27 m	301.10 m	308.40 m
Stopped / Repeated holes	91.10 m (EVP2012-127)	146.70 m (EVP-2015-142A)	/
* Mean average hole depth, by drilling periods, does not include stopped and repeated holes			

10.5.2 Collar Surveys

Balkan Gold hired a Ibar Mine and Survey Mrs S. Bošković for the topographic survey of all the drill hole collars. Survey Coordinates of drill holes were recorded by Tachymeter Method and their elevation by Trigonometric surveying. All records were completed using Leica Flex Line TS02plus Total Station.

10.5.3 Downhole Surveys

For downhole surveys of the first three holes, Balkan Gold engaged NIS Gazprom Neft (Novi Sad) for holes EVP-2011-100 & EVP-2011-101 and Geoing Group (Belgrade) for EVP-2011-103.

The company Geo-Log d.o.o. (Belgrade) was hired to record the remaining drill holes (2011 - 2012, 2015 & 2018). Measurement of drill hole deviation was performed with a digital probe with a maximum measurement sensitivity of 0.1^{o} and a measurement step of 2.5 mm, the entire hole. No deviation measurements were taken in four holes: three because they intersected methane, as EVP-2012-123 (on 424.20 m), EVP-2012-125 (on 348.90 m), EVP-2012-127 (on 90.10 m). Hole EVP-2015-142A repeated the drilling interval from the surface to 146.70 m. End of hole for EVP-2015-142A hole was below KZONE4 and KZONE3 (low total core recovery in these two mineralized bodies in hole EVP-2015-142.

In general, the data collected is considered to be of high precision and accuracy suitable for use in this resource estimation. Historic drill holes (1987-1992, 1997) were drilled at a vertical orientation, however, no downhole surveys were recorded for these holes.

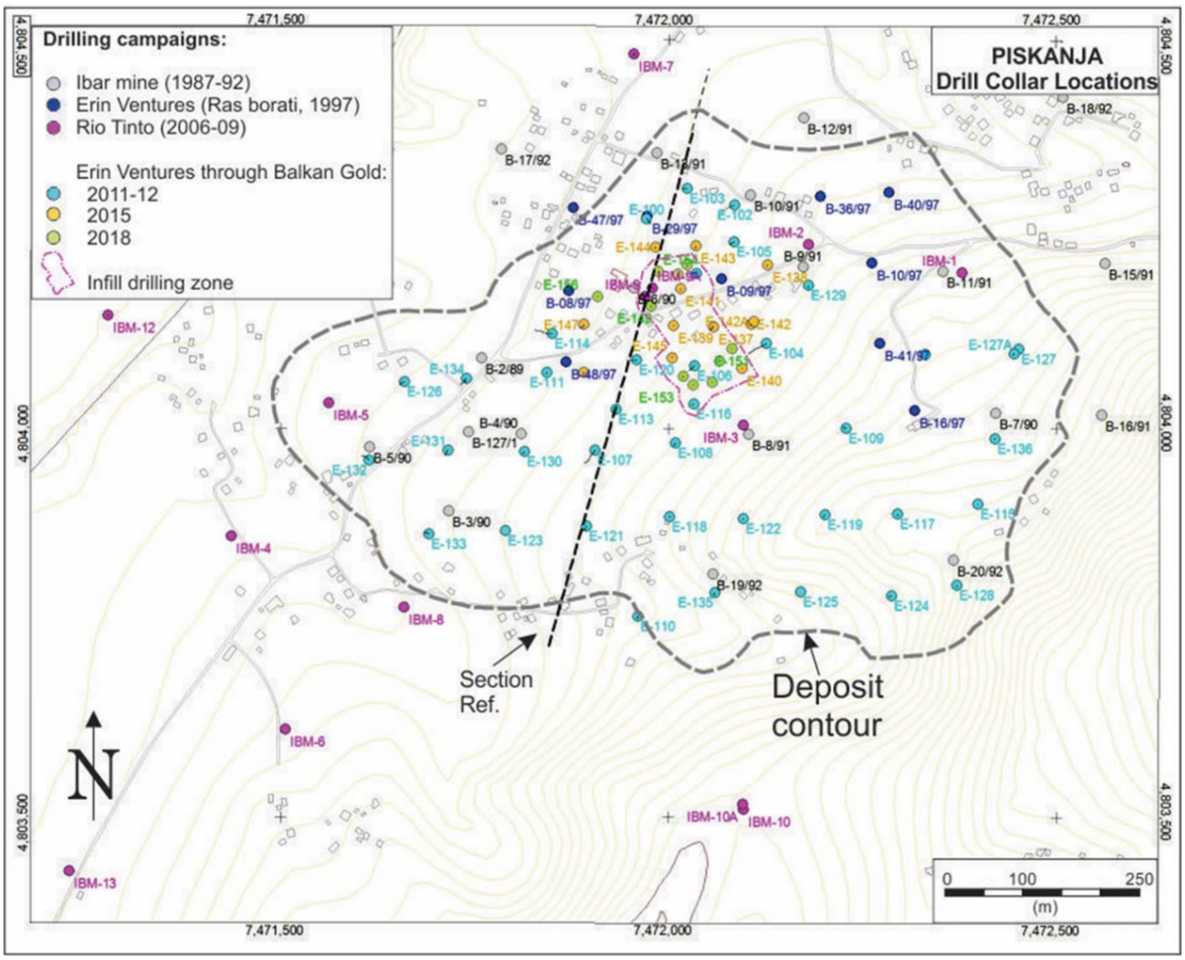


Figure 10-1: Location of drill collars for the Piskanja Project overlaid on topography.

10.5.4 Hole Orientations

All drilling undertaken on the Project has been completed from surface at a vertical orientation. The drillholes are typically plotted on sections oriented east to west and north-east to south-west across the deposit and are spaced approximately 50 m to 100 m apart, proving intersections at a similar spacing. Hole lengths range from 90 – 620 m and intersection angles with the mineralization typically ranging from perpendicular to -45°.

The drilling orientations are reasonable to model the geology and mineralization based on the current geological interpretation. Figure 10-2 provides a cross section (the location of which is marked on Figure 10-1) to show the typical drilling orientation and dip of the mineralization wireframe.

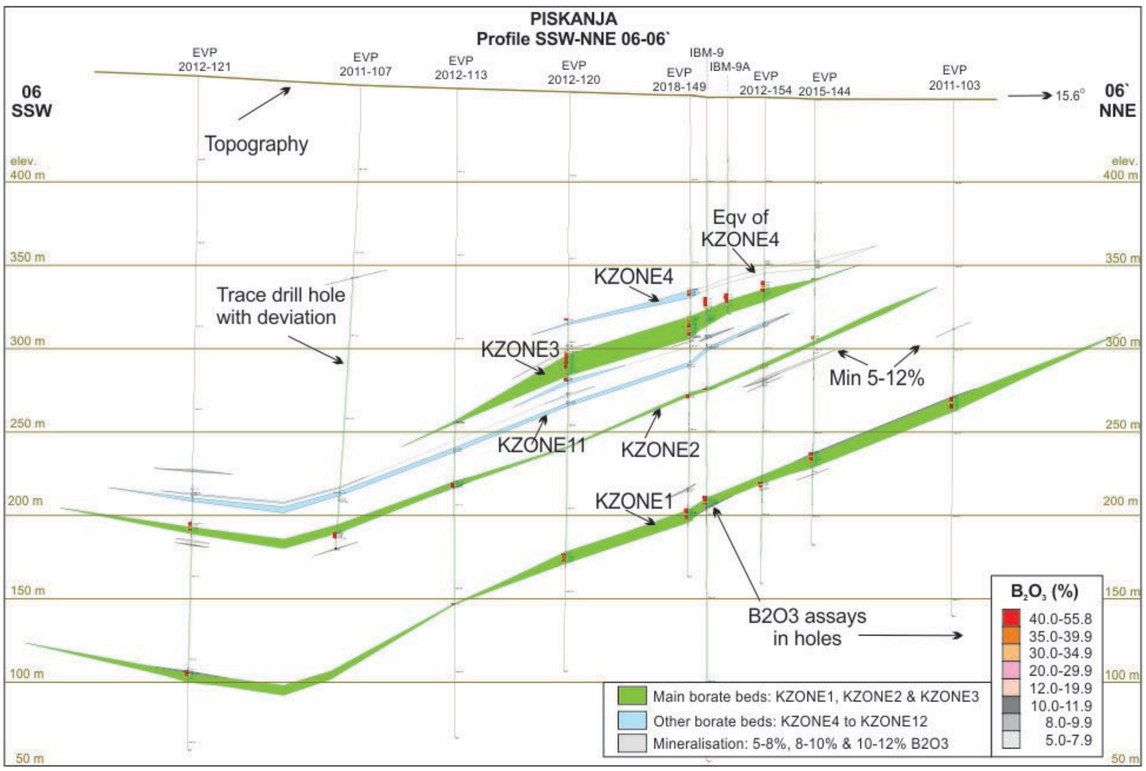


Figure 10-2: **Example cross section through the Piskanja deposit. Source: Balkan Gold**

10.5.5 Diamond Drilling Procedure

The drilling was performed by contractors and managed by the Company's geological team. All drilling was completed using DC with double tube (Silur d.o.o) or triple tube (Geomag d.o.o) core barrels. Core was typically HQ in diameter (61 mm), except for drill hole EVP-2015-146 between 192.70 m to 332.60 m with an NQ diameter (45 mm).

Core was typically produced in 3 m core runs and the packed into plastic and metal core trays at the drill site. The core was subsequently washed, marked for down-hole direction and the core box marked with borehole ID and depth. An initial phase of geological logging was completed prior to transporting the core to the Company's office in Baljevac.

10.5.6 Core Recovery

During the first drilling program 2011 – 2012, the core recovery for individual zones is reported to be between 90.2 and 97.4% except Zone 4, which had on average 84.9% recovery. Overall average core recovery is 93.5% for mineralized intervals and 93.3% for host rocks throughout drilling These values do not materially affect the reliability or accuracy of sampling and assay results.

During the second drilling program, 2015, overall average core recovery is 95.27% for mineralized intervals and 96.27% for host rocks throughout drilling. Note: Low core recovery within the shallowest mineralized zones KZONE4 and KZONE3 in hole EVP-2015-142 caused a recurrence of this hole. Drill hole EVP-2015-142A was therefore re-drilled 4.5 m to the northeast of the terminated primary hole (up to 146.70 m).

During the third drilling program in 2018, overall average core recovery is 96.17% for mineralized intervals and 97.05% for host rocks throughout drilling.

As the borate mineralization observed is concordant with the bedding and the strata with a gentle dip south-west and as the holes are drilled perpendicular to the bedding, the Author is satisfied that the difference between the drilled sample length and true thickness of mineralization is not an issue, and that true thickness is observed in the drill core

In general, the drill core recovery is good with an average recovery of 95% for the mineralized horizons (Figure 10-3) and 95% for the host rock.

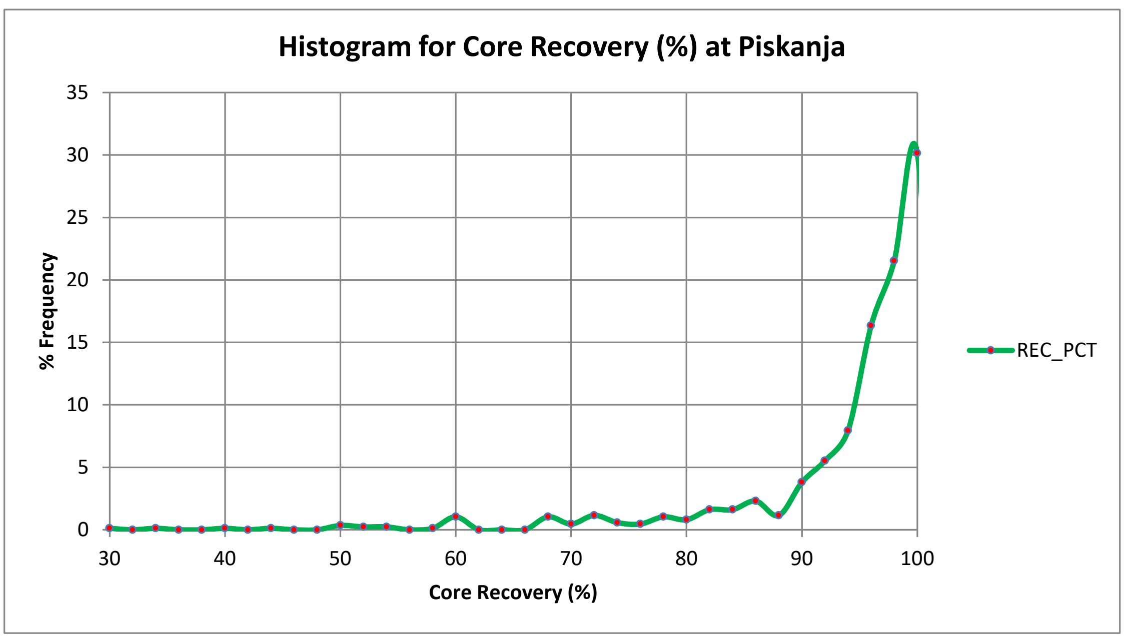


Figure 10-3: Core Recovery within Mineralized horizons at the Piskanja Project

10.5.7 Core Storage

All diamond drill core completed by the Company is stored in two facilities within an industrial complex of Ibar Mine, located in Baljevac. More details can be found in the chapter 11 Sample, sample preparation, analysis and security.

10.5.8 Summary of Erin Drilling

A complete list of holes drilled by Erin between 2011 and 2018 is provided in Tables 10-3 and 10-4.

Table 10-3: Location of Erin Ventures diamond holes drilled in 2011/2012 for the Piskanja Project, Serbia. Coordinates are stated in UTM WGS84

BHID	Start date	Finish date	Easting, m	Northing, m	Elevation, m	Dip	Azimuth	Final Depth, m	Drilling Company
EVP-2011-100	11/07/2011	14/08/2011	471545	4803342	420.15	-90	0	223.5	Geosonda
EVP-2011-101	10/08/2011	22/09/2011	471610	4803272	425.83	-90	0	407.0	Silur
EVP-2011-102	22/08/2012	08/10/2012	471660	4803359	426.12	-90	0	287.5	Geosonda
EVP-2011-103	07/10/2011	24/10/2011	471598	4803381	421.50	-90	0	309.3	Silur
EVP-2011-104	13/10/2011	07/12/2011	471700	4803182	440.40	-90	0	299.5	Geosonda
EVP-2011-105	01/11/2011	29/11/2011	471659	4803312	426.96	-90	0	270.8	Silur
EVP-2011-106	03/11/2011	29/11/2011	471608	4803153	433.97	-90	0	321.0	GeoMag
EVP-2011-107	02/12/2011	24/12/2011	471480	4803044	430.05	-90	0	373.3	GeoMag
EVP-2011-108	12/12/2011	21/12/2011	471583	4803054	439.80	-90	0	356.6	GeoMag
EVP-2011-109	27/12/2011	09/03/2012	471803	4803073	470.32	-90	0	362.0	Silur
EVP-2012-110	24/01/2012	12/03/2012	471535	4802831	437.19	-90	0	364.1	GeoMag
EVP-2012-111	23/02/2012	13/03/2012	471418	4803144	418.94	-90	0	380.4	GeoMag
EVP-2012-112	26/02/2012	19/03/2012	471905	4803168	468.26	-90	0	302.6	GeoMag
EVP-2012-113	16/03/2012	01/04/2012	471507	4803097	428.35	-90	0	389.1	GeoMag
EVP-2012-114	19/03/2012	10/04/2012	471424	4803194	417.57	-90	0	346.2	Silur
EVP-2012-115	20/03/2012	10/04/2012	471973	4802975	498.69	-90	0	340.3	GeoMag
EVP-2012-116	02/04/2012	21/04/2012	471607	4803104	437.46	-90	0	350.5	GeoMag
EVP-2012-117	17/04/2012	26/04/2012	471870	4802962	500.60	-90	0	371.6	GeoMag
EVP-2012-118	23/04/2012	06/05/2012	471576	4802959	449.53	-90	0	377.4	GeoMag
EVP-2012-119	28/04/2012	19/05/2012	471776	4802962	490.13	-90	0	386.5	GeoMag
EVP-2012-120	08/05/2012	07/06/2012	471533	4803160	426.22	-90	0	347.2	Silur
EVP-2012-121	09/05/2012	30/05/2012	471468	4802946	435.77	-90	0	403.8	GeoMag
EVP-2012-122	22/05/2012	02/06/2012	471671	4802956	468.02	-90	0	389.6	GeoMag
EVP-2012-123	01/06/2012	28/06/2012	471364	4802940	425.22	-90	0	424.2	GeoMag
EVP-2012-124	06/06/2012	16/06/2012	471862	4802857	481.81	-90	0	395.6	GeoMag
EVP-2012-125	18/06/2012	03/07/2012	471745	4802862	464.95	-90	0	348.9	GeoMag
EVP-2012-126	28/06/2012	08/08/2012	471234	4803132	410.57	-90	0	414.6	Silur

EVP-2012-127	05/07/2021	12/07/2021	472025	4803174	476.15	-90	0	91.0	GeoMag
EVP-2012-127A	05/09/2012	07/12/2012	472019	4803168	475.89	-90	0	320.2	GeoMag
EVP-2012-128	05/07/2012	20/07/2012	471946	4802871	505.09	-90	0	422.0	GeoMag
EVP-2012-129	08/07/2012	02/09/2012	471755	4803256	439.96	-90	0	281.6	GeoMag
EVP-2012-130	22/07/2012	03/08/2012	471389	4803042	422.16	-90	0	410.3	GeoMag
EVP-2012-131	27/07/2012	10/08/2012	471290	4803044	416.36	-90	0	430.6	GeoMag
EVP-2012-132	05/08/2012	26/08/2012	471188	4803032	411.75	-90	0	485.6	GeoMag
EVP-2012-133	18/08/2012	06/09/2012	471266	4802937	417.73	-90	0	451.7	GeoMag
EVP-2012-134	21/08/2012	10/12/2012	471314	4803137	413.18	-90	0	420.1	Silur
EVP-2012-135	28/11/2012	09/12/2012	471635	4802861	451.10	-90	0	368.2	GeoMag
EVP-2012-136	09/12/2012	18/12/2012	471995	4803059	485.75	-90	0	344.6	GeoMag

Table 10-4: Location of Erin Ventures diamond holes drilled in 2015 & 2018 for the Piskanja Project, Serbia. Coordinates are stated in UTM WGS84

BHID	Start date	Finish date	Easting, m	Northing, m	Elevation, m	Dip	Azimuth	Final Depth, m	Drilling Company
EVP-2015-137	2015/05/09	2015/05/19	7472057	4804131	430.87	-90	0	290.5	GeoMag
EVP-2015-138	2015/05/10	2015/05/18	7472127	4804211	431.24	-90	0	287.6	GeoMag
EVP-2015-139	2015/05/20	2015/05/27	7472006	4804133	426.82	-90	0	286.1	GeoMag
EVP-2015-140	2015/05/21	2015/05/30	7472094	4804078	439.25	-90	0	335.6	GeoMag
EVP-2015-141	2015/05/28	2015/06/04	7472015	4804181	425.27	-90	0	284.1	GeoMag
EVP-2015-142	2015/05/31	2015/06/10	7472106	4804135	435.16	-90	0	293.0	GeoMag
EVP-2015-142A	2015/06/10	2015/06/16	7472109	4804138	435.29	-90	0	146.7	GeoMag
EVP-2015-143	2015/06/05	2015/06/14	7472034	4804235	424.53	-90	0	299.7	GeoMag
EVP-2015-144	2015/06/15	2015/06/23	7471982	4804234	421.68	-90	0	266.6	GeoMag
EVP-2015-145	2015/06/17	2015/06/24	7472004	4804092	429.32	-90	0	311.6	GeoMag
EVP-2015-146	2015/06/24	2015/07/14	7471890	4804073	422.00	-90	0	332.6	GeoMag
EVP-2015-147	2015/06/26	2015/07/06	7471890	4804134	419.27	-90	0	323.7	GeoMag
EVP-2018-148	2018/04/11	2018/04/20	7472065	4804087	435.34	-90	0	335.9	GeoMag
EVP-2018-149	2018/04/12	2018/04/21	7471977	4804158	423.80	-90	0	287.8	GeoMag
EVP-2018-150	2018/04/15	2018/04/26	7472056	4804060	437.79	-90	0	323.2	GeoMag
EVP-2018-151	2018/04/22	2018/05/01	7472081	4804104	435.18	-90	0	330.1	GeoMag
EVP-2018-152	2018/04/22	2018/05/01	7472019	4804068	433.00	-90	0	336.0	GeoMag
EVP-2018-153	2018/04/27	2018/05/07	7472032	4804056	435.28	-90	0	326.4	GeoMag
EVP-2018-154	2018/05/03	2018/05/12	7471986	4804202	422.79	-90	0	291.0	GeoMag
EVP-2018-155	2018/05/03	2018/05/14	7472023	4804211	424.81	-90	0	291.0	GeoMag
EVP-2018-156	2018/05/08	2018/05/18	7471908	4804170	419.26	-90	0	290.0	GeoMag
EVP-2018-157	2018/05/14	2018/05/22	7472012	4804199	424.55	-90	0	272.6	GeoMag

10.6 Author Comments

The sampling procedures used by the Company conform to industry best practices and the resultant drilling pattern, when combined with the historical holes, is sufficiently dense to interpret the geometry and boundaries of the borate mineralization to a reasonable level of confidence.

11 SAMPLING PREPARATION, ANALYSIS AND SECURITY

11.1 Introduction

The following section summarises the methods and protocols used by both the former project owner Rio Tinto and Erin during their respective exploration campaigns.

11.2 Rio Tinto Exploration

The information in relation to Rio Tinto sampling, sample preparation and security procedures presented here has been summarised from Rio Tinto's 2006-2009 exploration report submitted to the Serbian Ministry of Mining and Energy in 2009 (Ilić and Erić, 2009). The Author has no reason to doubt that this provides a fair summary of the procedures followed.

In summary:

- A quarter of HQ size core was sampled. Sampling intervals within the borate seams varied in length from 0.44 to 2.65 m.
- In addition, the sampling intervals within the host rock of the hanging wall and footwall were up to 5 m in length. In some cases, the length of the individual host rock samples was increased up to 20-40 m within the same lithological unit, though only a few pieces of rock were taken from each meter of the core into one sample.
- The remaining core was packed in waxed cardboard boxes and stored in Rio Tinto storage facility in Baljevac.
- Each sample batch containing samples from one to three drill holes was delivered by a Rio Tinto pickup truck to the Sample Preparation Department of the Institute for Technology of Nuclear and other Mineral Raw Materials (ITNMS), Belgrade for processing.
    - Sample preparation in ITNMS included the following steps:
- Registration and weighing.
- Three-step crushing to minus 1.65 mm.
- Sample reduction to 1 kilogram (kg).
- Sample drying at 105°C.
- Sample pulverising to minus 0.5 mm.

- Collecting of 100 gr laboratory samples.
- Pulverising of laboratory samples to minus 100 μm, packing into paper and plastic bags.

The laboratory rejects were returned to Rio Tinto facility in Baljevac. The pulps were sent to SGS Lakefield Research Limited Analytical Services, Ontario, Canada for analysis using DHL, FedEx or UPS couriers.

11.3 Erin Ventures' Exploration

11.3.1 Diamond Drilling Sample Preparation and Chain of Custody

The core is packed into plastic or metal core trays at the drill site, each tray containing up to a maximum of 3 m of core (five sections of 60 cm length). After the core has been washed, a down-hole direction line is drawn, and the core box is marked with information about the borehole. A quick geological log is also prepared at this point. After each drilling shift the core is transported from the drill site to the core storage facility where it is logged for geology and geotechnical parameters (i.e., core recovery and RQD) and digital photographs are taken. Sample lengths are then allocated guided by visually logged geological contacts and mineralization styles (massive, intercalated or disseminated). Borate seams are marked for sampling at 0.3-1.0 m. Up to 2 samples of host rocks from both above and below the mineralized borate horizons are marked for sampling at intervals of 1 m to 3 m thickness.

The core marked for sampling is subsequently split using a diamond core cutter. Half core samples are placed into sample bags and numbered with a predefined sample number (Figure 11-1). Samples are transported to the preparation laboratory either by Company staff or by courier, with remaining core stored at the Company's facility in Baljevac.

Samples are checked-in at the preparation laboratory against a sample submission form, with subsequent dispatch to the analytical laboratory completed by DHL courier.

Figure 11-1: Sample bags prepared for transport to the laboratory

11.3.2 Sample Preparation and Analysis

Samples are submitted for preparation to the SGS Bor laboratory (Serbia), using the standard preparation procedure PRP86. The procedure comprises: drying the samples at 60°C for eight hours; crushing to 1 mm to 2 mm using a jaw crusher; selecting a 700 g split using a Jones riffle splitter; and, pulverisation to 75 µm using a Labtech Essa LM5 mill.

The following sample analytical procedures were used until January 2013 (or the end of the 2011/ 2012 drilling programme):

- SGS Lakefield (Canada) analysed the samples for (soluble) boron using aqua regia digest ('ARD') ICP-AES and volumetric titration for samples that exceeded 15% B_2O_3. A limited number of samples were also analysed for (total) boron by alkali (KOH) fusion ICP-AES. SGS Lakefield is ISO 17025 accredited; and
- SGS Bor analysed a limited proportion (20%) of the samples by aqua regia digest ICP-MS.

After this date (or the start of the 2015 drilling program), samples were assayed for boron by Na_2O_2-fusion ICP-AES at SGS Ankara, Turkey. SGS Ankara is ISO 17025 accredited.

Excluding the volumetric titration methodology, the Company receives analytical results from the Laboratory in the form of boron percent. During database compilation, the Company converts boron (B%) to borate (B_2O_3 %) using the following formula:

$$B_2O_3\% = [B\% \times 3.2199]$$

11.3.3 Specific Gravity Data

Samples collected for density determination comprise quarter core material from mineralized intervals. The samples vary in length from 9 cm to 25 cm and density is determined using the water immersion method where natural state (non-dried) samples are weighed in air, coated in paraffin and then weighed in water.

A total of 37 density measurements from mineralized material were supplied by the Company and the results of these are summarised below in Table 11-1.

Table 11-1: Summary of density statistics

GROUP	MEAN (g/cm^3)	MAX (g/cm^3)	MIN (g/cm^3)
Mineralization	2.287	2.537	1.914

It is noticeable that there is a relatively significant variation in the density results, most likely due to the variations in the dominant borate minerals in each sample, for example, colemanite and ulexite have densities of 2.42 g/cm^3 and 1.95 g/cm^3, respectively. This may also be due to intercalations of clay and dolomitic rock within the mineralized sample. It is also possible that variable water content in the samples adds to the variation in the density results.

The Author noted no clear relationship between density and B_2O_3% grade, however, elected to apply the average length-weighted density of 2.29 g/cm^3 for the mineralization domains in the block model for the purpose of the MRE presented here.

The Author has recommended that additional density determinations are undertaken on the Company's drill core and that this should include low grade samples, to increase the number of results available for analysis, further test for a relationship between density and grade and to improve the confidence in the density model for the Project generally. The Author also recommends that any additional density sampling should record the weight of the sample following oven-drying prior to immersion in water, given the potential for moisture content to affect the density readings in the current database.

11.4 Quality Control

11.4.1 General Procedures

Erin completes routine data verification as part of its on-going drilling programmes, comprising validation of sample results using both standards and blank samples which are inserted routinely into each batch submitted to the laboratory.

The Author notes that 467 m (58%) of the total 800 m of sampling inside mineralization wireframes completed is supported by QAQC data, which relates to holes drilled following EVP2012-118 which was drilled during 2012.

The remaining 333 m (42%) of sampling inside the mineralization wireframes is not supported by QAQC data, however, it forms part of the same mineralized body and (excluding the historic Rio Tinto drilling, 12%) underwent the same sample preparation and assay procedures at SGS Lakefield. These drillholes are interspersed with those that are supported by QAQC data, they are visually comparable with adjacent intersections with QAQC and also show comparable sample distributions and mean grades (Figure 11-2).

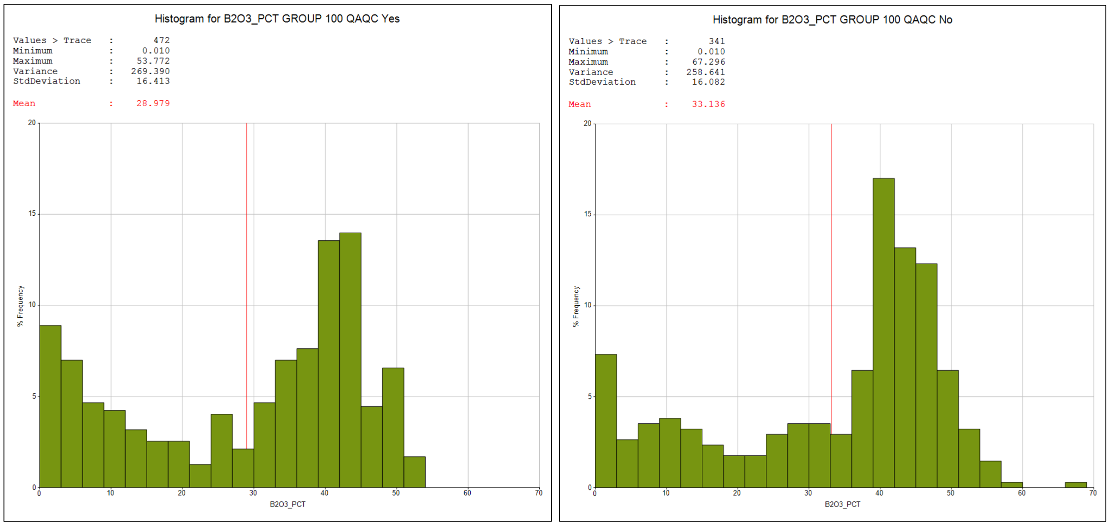


Figure 11-2: Composite sample grade histogram distributions for borate, showing data assayed with QAQC support (left) and without QAQC (right)

Additional verification work completed by the Company has comprised:

- Re-logging of all remaining historical drillcore; and
- Verification twin drilling (within 5 m) of historic Ras Borati hole B-29/9 with EVP2011-100 (2011) in attempt to verify the results. The Author notes an approximate 5 m vertical offset between the two main mineralized horizons intercepted in the drillholes, which showed similar mineralized thicknesses (albeit at slightly differing grades). Given the conflict in depth measurement, in context of the 1.5 m to 5 m average thickness of the mineralized horizons, the Author elected to exclude this hole for the purpose of grade interpolation.

11.4.2 Assay QAQC

Pre 2007

Given that no routine QAQC procedures were in place prior to 2007, the Author has:

- Excluded the historical drilling completed by Ibar Mines and Ras Borati between 1987 and 1997 from the MRE on the basis of poor data validation and the uncertainty; and
- Compared the results of the 2006/2007 Rio Tinto drillholes against more recent drilling completed by the Company and noted in general a reasonable comparison, as discussed above.

2012-2018

Routine QAQC procedures were introduced during the 2012 drilling programme following drillhole EVP2012-118. This included the submission of blanks, standards and duplicates in every batch of samples, with an overall QAQC insertion rate for the period of 14%. QAQC materials were analysed using a combination of titration, ARD and Na_2O_2-fusion.

Standards

Erin introduced 3 different standards into the analysis sample stream, which were developed for the project by Shea Clark Smith, Mineral Exploration Geochemistry (MEG), Nevada. The standards were based on material sourced from the JP PEU Resavica Pobrđe Borate Mine located around 2.6 km northwest of Piskanja, with statistical limits determined based on round robin analysis completed by the Company.

To date, the mean grades and standard deviations for the standards have not been externally certified.

Round robin analysis was completed at eight separate laboratories using a combination of 2-acid digest and Na_2O_2 fusion with ICP assay.

Based on a review of the round robin data (141 samples), the Author elected to exclude the following 31 results, which represents some 22% of the total round robin database for the purpose of deriving the MRE presented here. This included:

- The 2-acid digest analyses completed by Florin Analytical Services (Nevada), given the inconsistency noted in the primary laboratory (SGS Lakefield) assay results relating to acid digestion, and;
- The results from the Alex Stewart Laboratory (Argentina), given the indication for a low bias in the results when compared to the other round robin laboratories.

The mean and standard deviation values per standard for boron are shown in Table 11-2, with details relating to the accepted round robin results and summary statistics provided in Appendix A.

Table 11-2: Summary of Standard Material for boron submitted by the Company in sample submissions

Standard Material	Boron; B (%)		
	Certified Value	SD	Company
Low 1X B	6.17	0.25	Shea Clark Smith, Mineral Exploration and Geochemistry, Reno, USA
Mid 2X B	11.21	0.46	
High 3X B	14.5	0.59	

The Author has reviewed the standard results for boron obtained using titration and is satisfied in general that they demonstrate (with the exception of a limited number of anomalies) a reasonable degree of accuracy at the assaying laboratory. With regards to sample submissions for relating to the use of aqua regia digest (ARD), the Author noted a reasonably significant bias in the medium and high-grade standards towards higher grade (on average +20% for boron). The Author has accounted for the over-estimation of boron grade associated with ARD by applying a regression formula to the affected sample data.

The average results of the standard reference material submissions used in the QAQC programme to date are illustrated in Figure 11-3.

Blanks

A coarse marble blank from an outcrop approximately 40 km by road north-west of Piskanja was included in the sample stream, prior to sample preparation. Blank samples were inserted into the sample stream associated with ARD at a rate of approximately 8%.

The Author has reviewed the results from the blank sample analysis, and whilst there is an indication for low level presence of boron, has determined that in general there is little evidence for significant sample contamination at the preparation facility. The blank sample analysis chart is presented in Appendix A.

Duplicates

Field duplicates from quarter core were inserted into the routine sample submissions, at an overall rate of approximately 2%. Whilst the quantity of data available for review is limited, the duplicates for boron analysed by titration (seven samples) show a good correlation to the original samples, with a correlation coefficient in excess of 0.9. The duplicates for boron analysed using ARD (13 samples) also show a reasonable correlation to the original samples, however with a slight indication for bias of the high-grade duplicates toward higher grade (on average +4%), which supports similar observations noted in the (ARD) QAQC standard results.

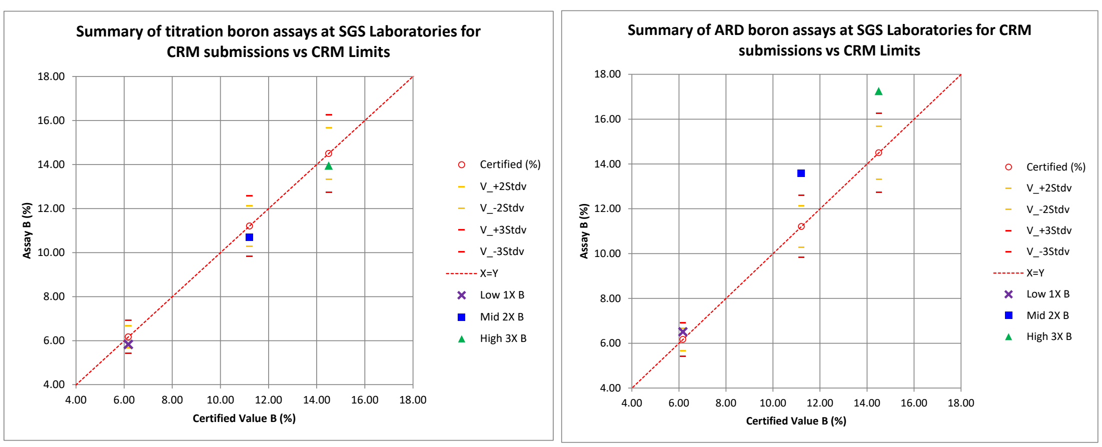


Figure 11-3: **QAQC Standard Summary Charts from submission of Piskanja Samples (2011/2012) showing analysis by titration (left) and ARD (right)**

Umpire Laboratory Analysis

A small number of check samples were submitted to ALS Romania to verify the analytical performance at SGS Lakefield.

A comparison between the results analysed by titration at SGS Lakefield and Na_2O_2-fusion at ALS Romania (11 samples, comprising coarse and pulp reject material) show a good correlation, with a coefficient in excess of 0.98. However, the results analysed using ARD at both the laboratories (30 samples) show a comparatively poor relationship (on average 18% lower at ALS Romania).

In addition, six low, six medium and six high grade standards were submitted to ALS Romania and analysed using Na_2O_2-fusion. The results demonstrate a relatively good accuracy, which were (on average) within 1.5% of the accepted mean of the standards.

2015-2022

All drilling captured inside mineralization wireframes and completed from 2015-2022 is supported by QAQC data.

The QAQC system included the submission of blanks, standards and duplicates in every batch of samples submitted to SGS Ankara, with an overall QAQC insertion rate for the period of 15%. All QAQC materials were analysed using Na_2O_2-fusion.

Standards

The Company has inserted 3 different standards into the analysis sample stream which were developed by MEG and round robin analysis. To date, the mean grades and standard deviations for the standards have not been externally certified.

The Author has reviewed the standard results for boron at SGS Ankara and (whilst in general these demonstrate a reasonable degree of precision), noted a slight bias toward lower grade, on average between 3% to 7% below the expected value. The average results of the standard reference material submissions used in the QAQC programme to date are illustrated in Figure 11-4.

Blanks

A coarse marble blank was inserted into the sample stream at a rate of approximately 5%. The Author has reviewed the results from the blank sample analysis and has determined that in general there is little evidence for sample contamination at the preparation facility. The blank sample analysis chart is presented in Figure 11-4.

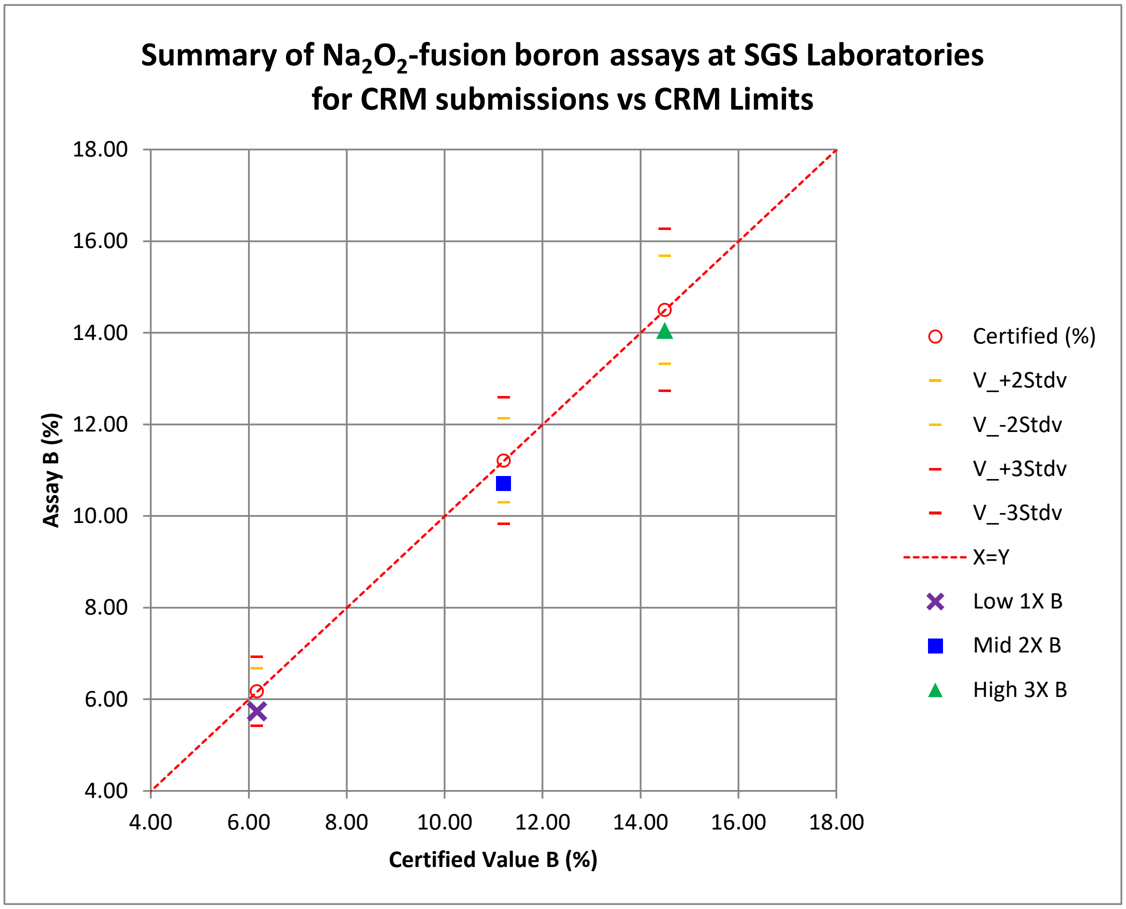
Duplicates

Field duplicates from quarter core were inserted into the routine sample submissions, at an overall rate of approximately 5%. Excluding a single anomalous result, the duplicates for boron (38 samples) show a good correlation to the original samples, with a correlation coefficient in excess of 0.98. A duplicate chart is presented in Figure 11-4.

Verification Duplicates and Umpire Laboratory Analysis

Given the change in primary laboratory for the 2015 programme, Erin submitted 22 samples originally analysed at SGS Lakefield by titration to SGS Ankara and (as a control) to BVM Perth for analysis using Na_2O_2-fusion. The comparison between BVM Perth and SGS Lakefield suggested a good overall correlation (with coefficient > 0.99), however the analysis at SGS Ankara suggested a slight bias towards high grade (on average 8%).

In addition, during the 2015 analytical programme at SGS Ankara, the Company submitted 38 samples to BVM Perth for umpire analysis using Na_2O_2-fusion. A comparison between the results showed a good correlation between the samples, with a coefficient in excess of 0.99.



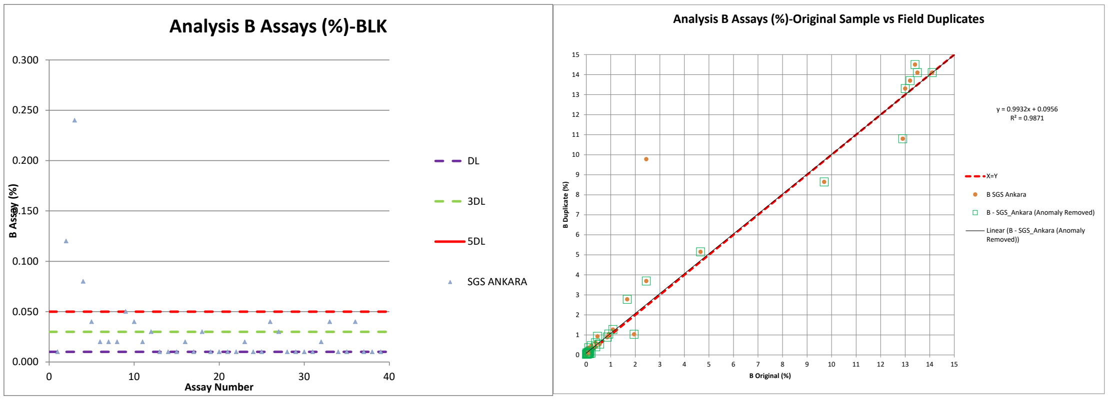


Figure 11-4: QAQC Standard Summary Charts from submission of Piskanja Samples (2015) showing analysis for boron using Na_2O_2-fusion

11.5 Author`s Comments

In the Author`s opinion, the sample preparation, security and analytical procedures in place and used historically in relation to the data used to produce the MRE presented in this report, allowing for the adjustments made to these in some cases by the Author, have been sufficient to ensure that this data could be used for this purpose.

12 DATA VERIFICATION

12.1 Introduction

The data for the Piskanja deposit has been validated for use in the MRE by Prof. M. Banješević. The Author visited the Piskanja project in June 2022. During this visit, the Author:

- Discussed the geology of the project with the Erin's geologists;
- Checked project documentation and graphics;
- Checked logged a selection of drillholes and looked at core boxes in sampling and storage facilities;
- Checked the sampling protocols, QAQC procedures and results from laboratories;
- Checked the Piskanja site, locations of drilling, existing infrastructures on the field, and possible location for decline development; and
- Check database provided by the Client.

12.2 Sampling and Assaying

Different sampling protocols, QAQC procedures, as well as chemical analysis methods, were applied in different drilling campaigns.

During the last phase of exploration, Erin, through Balkan Gold, has constantly improved its own procedures related to sampling, control and chemical testing. In sampling and assaying protocol, they incorporated the suggestions and recommendations made by SRK.

At the beginning from holes EVP-2011-100 to EVP-2012-118, sampling was only within the intervals where mineralization was observed and logged. The main method for determination of boron was titration in SGS Lakefield. Additionally, interlayers with barren rock, parts in footwalls and hanging walls were not sampled and analysed. Parts of the core with lower mineralization between the main mineralized zones were not sampled and analysed.

A robust sampling protocol was created from hole EVP-2012-119 which included the above missed sampling intervals. Additionally, it included both the systematic introduction of the QAQC procedures (with blank, duplicate samples and standards, umpire ALS lab) described in Section 11, and the introduction of the multielement method IMS-14B (AR).

Based on SRK`s recommendation, holes drilled after EVP-2015-138, Erin change chemistry methods and primary laboratory. SGS in Ankara used sodium peroxide for determination of boron and multi-elements.

Periodically, re-sampling of certain core intervals of earlier holes or reinterpretation of mineralized zones was additionally performed during the process of re-logging.

A poor correlation was shown between the results for boron derived using titration versus the results obtained using aqua regia digest (ARD) by IMS14B (during 2012). All ARD samples from the mineralized zones, which had a grade of boron close to the cut-off, were again sent for chemistry determination using a new primary method - sodium peroxide.

As part of the current MRE (2022), an additional 137 samples (60 pulp, 77 core) from 36 holes (from the period 2011-2018) were collected and sent for analysis to the SGS Ankara laboratory (2021).

12.3 Database verification

The drilling database supplied to the Author contained the data obtained during four different drilling campaigns spanning from 1989-2018. During 1987-1992, diamond drilling was performed by Ibar Mines, a government owned company. In 1997 reverse circulation (RC) drilling was performed by Erin through Ras Borati and between 2006 and 2007, diamond drilling was performed by Rio Tinto. More recently, between 2011 and 2018, drilling has been performed by Erin through Balkan Gold.

Drill core from diamond drilling campaigns by Rio Tinto (2006-2007) and Erin (2011-2018) are located in the storage facilities within the Ibar Mine complex. It is stored safely on site for re-examination and re-sampling if required. Geological reports detailing the drilling procedures used and information on the lithological logs is available for these two campaigns.

There is no available drill core from historical drilling campaign by Ibar Mine (1987-1992) or chip samples from Erin's RC drilling program (1997). There is no possibility of resampling these holes to verify the accuracy of the results. For these two campaigns, there are no textual annual reports from the research period. Scanned textual daily drilling logs, graphics drilling logs and original Reports of Analysis from labs for RC drilling (1997) are available. These two campaigns are described and documented (with drilling logs, and chemical analysis reports) within "Report on the results of geological exploration of boron minerals in deposit "Piskanja" near Baljevac on the River Ibar finalised until the end of 2010, by Geological Institute of Serbia (2011)".

During the modelling process, the Author excluded the historic Ibar Mines and Ras Borati drillholes shown below that did not, in the Author's opinion, meet all aspects of the validation procedure. Only the intervals with visual mineralization were analysed during the Ibar Mines and Ras Borati periods. Generally, sampling of adjacent hanging wall and footwall lithologies either side of the identified high-grade mineralization was not systematically undertaken.

These drillholes, which represent about 27% of the drilling database, were used as a guide for geological modelling but were excluded from the statistical and geostatistical analyses and grade interpolation process. The spatial position of the excluded drillholes and support provided by more recent drilling is illustrated in Figure 10-1 and presented in Table 12-1.

Table 12-1: List of Drillholes Excluded from the 2022 MRE

HoleID	Company	Comment
B-127/1	Ibar Mines	Low confidence in depth measurements, which results in up to a 20m offset from the borate horizons intercepted in adjacent more recent drilling. Only certain horizons appear to have been sampled, based on highly selective sampling. There is no remaining historic drillcore, QAQC or protocol information for drilling and sampling to help verify this phase of exploration.
B-2/89		
B-3/90		
B-4/90		
B-5/90		
B-6/90		
B-7/90		
B-8/91		
B-9/91		
B-10/91		
B-11/91		
B-12/91		
B-13/91		
B-14/91		
B-15/91		
B-16/91		
B-17/92		
B-18/92		
B-19/92		
B-20/92		
B-8/97	Erin Ventures through Ras Borati	
B-9/97		
B-10/97		
B-16/97		
B-29/97		
B-36/97		
B-40/97		
B-41/97		
B-47/97		
B-48/97		

12.4 Author's Comments

The author has completed a review of the available data and has rejected or corrected some of this for the purpose of grade interpolation. For the samples selected for use in the MRE, 42% of the data inside the mineralization wireframes is not supported by QAQC, however these samples are well supported by, and interspersed with, more recent intersections which have acceptable QAQC results.

Whilst the Author has noted slight inconsistencies with regards to the QAQC assay results for 2015, the Author considers the overall sample preparation and laboratory performance at SGS Ankara to be appropriate and the data used to be suitable for the purpose of reporting the MRE at the level of confidence this has been reported to in this report.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Colemanite Production

In 2012, Balkan Gold contracted SGS Minerals Services UK, Ltd in order to undertake preliminary laboratory tests of borate. Material was collected from the mineralized intervals of the first 18 holes during the 2011-12 drilling program.

A sample of approximately 25 kg of mineralized material from Piskanja, assaying approximately 30% B_2O_3, was sent to the laboratories of SGS (UK) in 2012 for upgrading testwork. The testwork consisted of magnetic and electrostatic separation tests, all conducted dry, with the aim of investigating the potential to both increase the B_2O_3 content and reduce the Fe content in a concentrate. The Author understands that a typical Fe specification for Colemanite for glass production is 0.08% Fe max.

A “magnetic profiling” test was unsuccessful, in that no significant upgrading of the B_2O_3 content, or reduction of the Fe content, was achieved. Electrostatic separation produced the best grades (up to 34.5% B_2O_3) but the mass yields and B_2O_3 recoveries to these fractions were very low (6-21% B_2O_3 recovery). Fe was not assayed in the electrostatic separation tests.

The most successful test was a High Intensity Magnetic Separation (HIMS) test conducted on a sample crushed to -1 mm and with the -150 μm fraction removed. The results of this test are shown in Table 13-1.

Table 13-1: HIMS Test Results

Stream	Wt. %	B_2O_3 Assay (%)	B_2O_3 Dist. (%)	Fe Assay (%)	Fe Dist. (%)
Feed	100	29.4	100	0.44	100
-150 μm Fraction	35.6	29.1	35.2	0.49	39.6
Magnetic Concentrate 1	6.43	5.28	1.15	3.15	46.0
Magnetic Concentrate 2	1.64	16.6	0.92	0.78	2.90
Combined Magnetic Concentrate	8.07	7.58	2.07	2.66	48.9
Non-Magnetics	56.3	32.8	62.7	0.09	11.5

This test produced a concentrate stream (the Non-Magnetics) with an Fe content very close to the target 0.08% specification, although this was accompanied by only a modest upgrading in B_2O_3 content, lower than the 35% B_2O_3 target level.

13.2 Boric Acid Production

In 2012, Balkan Gold contracted Soc. Chimica Larderello laboratory (SCL - Italy), in order to undertake preliminary laboratory tests of potential for Boric Acid production. Material of approximately 25 kg of high-grade mineralized material from Piskanja was collected from the mineralized intervals of the first 18 holes during the 2011-12 drilling program. The as-received sample assayed 42.3% B_2O_3.

As Colemanite is not water soluble, the production of Boric Acid from Colemanite requires leaching using sulphuric acid. The test was conducted according to the theoretical values of colemanite. Reaction during leaching test is exothermic and occurs naturally. The resulting panel after filtration, if let dry under vacuum for 20 seconds did not crack. The boric acid dissolved in the mother liquor was then separated through cooling and crystallization. Analysis of boric acid by titration was 100.9%. The test was reported as being successful

A bulk (200 t) sample of mineralized material from the Pobrđe mine, near to Piskanja, was sent to a potential off-taker / project partner, who tested it in their commercial Boric Acid plant. The Pobrđe material was reported to have behaved in a similar manner to the Colemanite imported from Turkey that this plant currently processes.

In 2017, a composite from 370 pulp reject samples from different mineralized zones in 26 holes (from the drilling campaign 2011-12) was sent to SGS Lakefield in Canada, for an acid consumption test. During the metallurgical analysis, a boron content of 11.7% (or 37.67% B_2O_3) was achieved, while the contents of the remaining oxides were: 23.10% CaO, 4.46% MgO, and 4.56% SiO_2. The acid leach test was performed at 4 different pH targets (4.0, 3.0, 2.0 and 1.0) and ran at 75°C for 1 hour at each pH target. All the filtrates had a white precipitate in them, mostly due to the high concentration of boron. Solution samples were taken at each pH factor. Usually, the lower the pH the higher the boron concentration in the solution. These results are preliminary and additional testing is required.

13.3 Conclusions and Recommendations

While the testwork conducted to date to test the suitability of the Piskanja mineralized material to act as a feed for the production of Boric Acid has been positive, very little testwork has been conducted to determine the potential to upgrade the Piskanja mineralized material for the production of a saleable Colemanite concentrate.

Significant further testwork is therefore required in order to develop a viable, and successful, process flowsheet for upgrading the Piskanja mineralized material to a marketable Colemanite concentrate, both in terms of the B_2O_3 content and the Fe content. To this end, the Author notes that while the HIMS testwork reported by SGS, and shown in Table 13-1, reduced the Fe content to close to the target level, the level of B_2O_3 upgrading was insufficient, and just under one-third of the material could not be processed, as it was too fine for the selected unit process. Therefore, while this process showed some promise, it may not prove to be an appropriate basis on which to develop a technically and commercially viable process solution.

The Author understand that arsenic (As) is another key deleterious element in a potential Colemanite concentrate. The behaviour of As has not been reported in the testwork conducted to date; therefore the levels and deportment of As should be investigated in any future beneficiation testwork programmes.

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The Mineral Resource Estimate (MRE) presented herein covers the whole of the Piskanja Project under Exploration Licence #1934.

This section of the report is divided in two parts:

- The first part describes the methodology and represents flow of the new calculation of MRE during 2022; and
- The second part describes Mineral Resources Classification and Comparison to Previous Mineral Resource Estimations.

14.2 MRE 2022

14.2.1 Introduction

During 2022, the model of mineralized bodies was updated by Erin geological staff in order to prepare documentation for submission to the competent Ministry of Mining and Energy of Serbia for adoption. The updated model was used as the basis for updating the MRE for the Project.

14.2.2 Available Data

The complete drillhole database includes the data obtained during four different drilling campaigns spanning from 1989 to 2018:

- 20 historical holes, by Ibar Mine, since 1987-92, totalling from 6,508.00 to 7,456.00 m (varied in different source);
- 10 RC holes by Erin, since 1997, totalling 2,822.50 m;
- DD holes by Rio Tinto from period 2006-09, totalling 6,076.90 m; and
- 58 DD holes by Erin Ventures from period 2011-18, totalling 20,109.90 m.

As discussed in Section 11 and Section 12, the Author only used the data relating to the drilling completed by Rio Tinto and by Erin in deriving the MRE presented here.

The final MRE database used includes data for 58 DD drillholes by Erin and 5 of 14 DD drillholes by Rio Tinto, with a total length of 22,618.70 m. These holes are within the contour of Piskanja deposit. They contain full information on collar location, survey, sample data and lithological data. From these final MRE holes, assay information is available for 2,545 primary samples (without duplicate and standards) with a total sampled length of 4,765.06 m. The data includes all Erin assays, comprising determination of boron with 395 samples analysed by the volumetric titration method, 61 samples by AR, 144 samples by KOH, 350 samples by sodium peroxide method through the ICP90Q methodology, 1,406 samples by sodium peroxide method through the ICP90Q methodology, 525 samples analysed through the AR ICP-MS methodology as well as 353 historical assays from the Rio Tinto drilling campaigns.

The database for a new MRE (2022) was audited by the Author, who is of the opinion that the drilling information provided by the Client is sufficiently reliable to support an MRE to be undertaken following CIM Industry Best Practice Guidelines.

14.2.3 New Input Data for 3D model

In construction of SRK`s mineral domains (2014-2019) applied the following guidelines: a grade cut-off of 5.0% B_2O_3 to define the hanging wall and footwall contacts; the minimum domain thickness was set at 0.5 m, and the maximum thickness of barren rock interlayered within a domain was set at 1 m.

By comparison, the following inputs were used for the new mineral domains:

- A new contour of mineralized zones above 12% B_2O_3 and thickness of at least 1 m. Only in few specific situations was the minimum thickness reduced to 0.9 m to ensure continuity of mineralized zones between neighbouring drillholes.
- The volume of barren rock between six bodies, from KZONE1 to KZONE6, was calculated separately and was not included in calculation of average B_2O_3 grade for these bodies
- Intervals between the main mineral zones with lower grades between 5% and 10% B_2O_3 were not included in the new interpretation of main mineral zones and were not part of the calculation.
- The new interpretation of mineralized zones were presented in horizontal projection on maps.
- Based on a review of the core photos of the exploration holes and additional core re-logging, 77 new core samples were collected from high or low mineralized zones and tested in SGS Ankara, to check their continuity with neighbouring holes, or to isolate new separate mineralized levels
- The 60 pulp samples, previously tested with only multi-element AR IMS14B method (which have grade of B_2O_3 close to cut-off), were retested with the main laboratory analysis - sodium peroxide fusion in primary SGS lab (Turkey)

- Based on the results of the new chemical analyses, styles of mineralization, dominant boron minerals, hanging wall and footwall variable, the new interpretation reorganized the previously separated mineralized domains between zones KZONE3 and KZONE6.
  - KZONE6 with generally predominant mineralization of colemanites, KZONA 11 with howlite and subordinate colemanites in clays were singled out, as well as a smaller KZONE12 with howlite and colemanite whose hanging wall and footwall were built of dole rocks. Although KZONE11 covers a significant area, the content in this zone are lower (mean value below 14%) than in smaller KZONE6 (over 27%) and KZONE12 (about 34%).
- Some horizontal contours of previously mineralized zones (2014-2019) were changed in the new interpretation. The following rules were used in contouring the mineralized zones:
  - If the thickness of mineralization in the hole is below 1 m, the contour of the KZONE was set up to 1/3 of the distance on the drilling network (about 30 m)
  - If the thickness of mineralization in the hole is 1 m to 2 m, the contour of the KZONE was set up to 1/2 the distance on the drilling network (about 50 m).
  - If the thickness of mineralization in the holes is over 2 m, the contour of the KZONE was set up to 80 m (rarely up to 100 m).

Figure 14-1, shows the differences in the outer contours of KZONE1 (2016-19) and KZONE1 (2022), in horizontal projection.

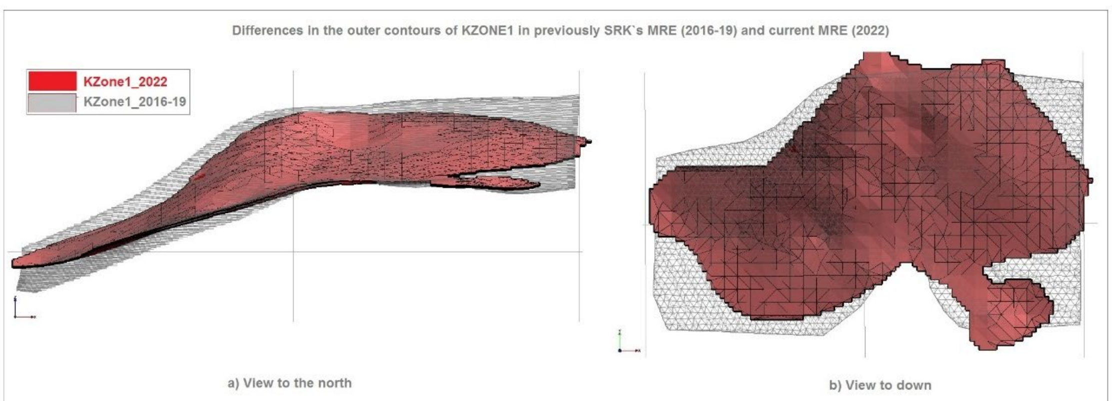


Figure 14-1: Differences in the interpretation of outer contours of KZONE1 (since 2016 and 2022)

Wedge-out parts of the domains between the minimum thickness (1.0 m) and “0” thickness were excluded.

In total, new mineral domain model includes 12 zones with Zone 9 being the deepest zone and Zone 10 being the uppermost zone. The mineralized units dip to the southwest at an angle of approximately 18º.

Figure 14-2 shows general views of 3D models of the mineralization zones in Piskanja - view along the azimuth to south-east and to north-west.

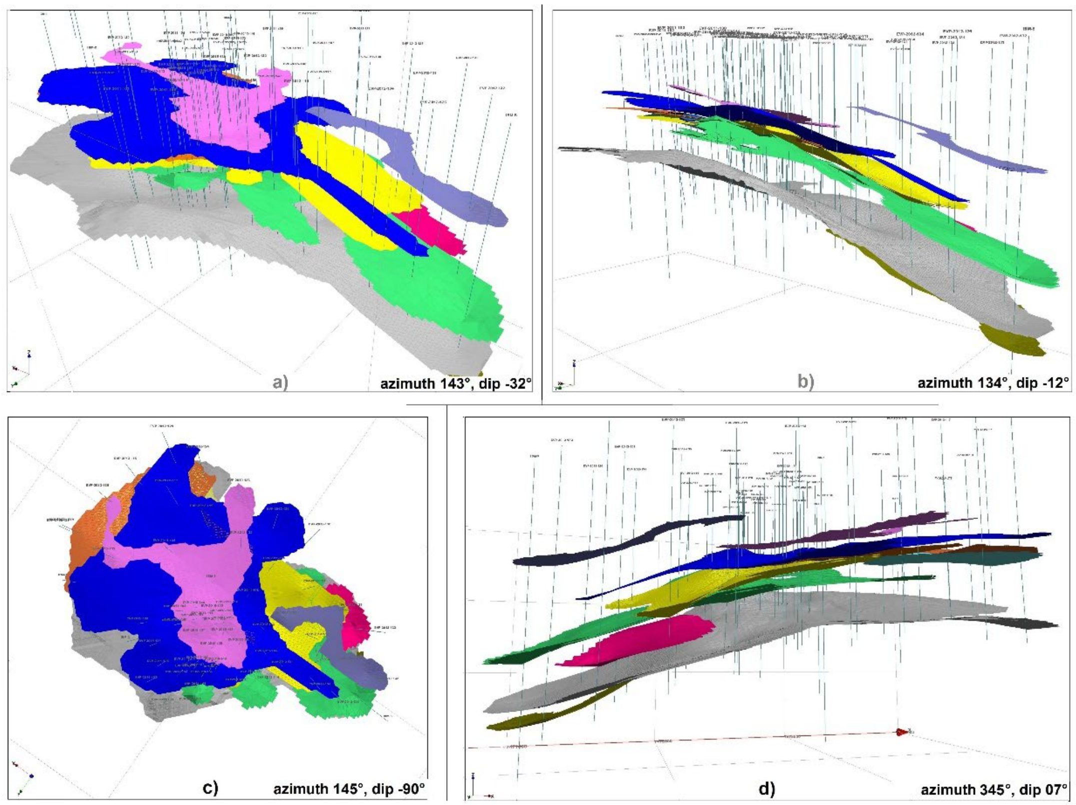


Figure 14-2: 3D model of Mineralized zones in Piskanja (2022), a) azimuth 142°, dip -32°; b) azimuth 134°, dip -12°, c) azimuth 145°, dip -90°, d) azimuth 345°, dip 07°

Table 14-1 summarises the key parameters for the individual zones including the average thickness, average B_2O_3 grade and volumes.

The average thickness of the mineralized zones ranges from 0.34 m to 16.17 m, with an overall average thickness of 1.89 m. The average B_2O_3 grade is 34.57% for all the mineralized zones with a total volume of 3.12 Mm^3. As shown, 63% of the volume is located within Zones 1 and, 3, while 11% of the volume is located within Zone 2 and 12% of the volume is located within Zone 11.

Table 14-1: Summary of mineralized zone properties in the contour of minimum thickness_2022.

ZONE	Normal Thickness, m			Grade B_2O_3, %			Volume, m³		
	Min	Max	Average	Min	Max	Average	Min zone	Barren rock	Wedge - out
1	0.90	8.38	3.13	29.56	49.96	39.75	1,090,590	199,456	35,168
2	0.51	6.49	2.18	13.80	44.54	36.03	353,658	16,673	26,175
3	0.40	16.17	4.40	18.42	47.78	38.77	893,318	42,507	27,871
4	0.48	7.64	2.12	13.30	52.21	38.85	95,673	28,310	10,164

5	0.50	2.19	0.84	27.38	37.48	33.32	44,259	33,541	5,342
6	0.45	4.09	1.42	18.04	43.23	30.53	91,318	18,644	5,289
7	0.34	8.58	3.18	5.15	40.34	20.07	110,587	0	4,888
8	0.50	2.19	0.90	15.61	44.59	31.62	42,650	0	13,494
9	0.50	1.87	0.58	26.65	49.45	38.47	15,148	0	1,748
10	0.48	3.13	0.57	15.49	23.83	19.56	9,918	0	2,046
11	0.50	8.18	2.45	4.17	36.05	12.51	365,946	0	10,459
12	0.48	2.53	0.98	24.09	41.80	34.04	11,533	0	1,065
TOTAL	**0.34**	**16.17**	**1.89**	**4.17**	**36.05**	**34.57**	**3,124,599**	**339,130**	**143,709**

14.3 Block Model

The Author used the GDS Suite software package and the following input data to create a 3D block model of Piskanja deposit:

- Database of exploration drillholes (lithology, coordinates, elements of drillhole slope, results of geochemical analyses);
- Geological profiles; and
- Scanned maps with the horizontal projection of isolated mineralized zones.

Before developing the model, it was agreed with the Companies to constrain the blocks to within the established mineralized domains done using a cut-off grade of 12% B_2O_3.

14.3.1 Data validation for block model

The validation of the input data was done during the first entry of the database from drillholes (Excel tables) into the GDM software. The GDM software itself automatically removes errors that occur in the database. In this case, the errors were restricted to incorrectly typed lengths (FROM-TO), duplicate rows and columns, samples without parameters, and merged rows/columns. After correcting the listed errors, GDM accepted and validated the database.

14.3.2 Development of block models / mini blocks method

For the purposes of this section, the description of the methodology is focused on KZONE1, as it is one of the largest mineralized bodies in the deposit.

The contour used in processing the data from this text is “0 contour” (wedge-out of the KZONE1). As previously discussed, the contours of KZONE1 were defined in advance and the Author of the block model did not make any modifications to this contour. Since the obtained contour was in the form of a scanned map, the digitization of “0 contour” in GDM started, during which the parameter mineralized thickness = 0 m was set for each digitized point in the newly formed database.

The block model of the KZONE1 was made based on the parameters from the database and based on the formation of Zone_1. The formation of Zone_1, was defined in advance by the Author of MRE and represents data on the parameters of mineralization obtained from the database mineralization thickness, X, Y, Z coordinates.

The surface of the KZONE1 was obtained by the mini-block method. During the construction of the block model, mini-blocks with dimensions of 10 m by 10 m thickness of mineralization were used. GDM does not make blocks vertically. For vertical values during interpolation, it uses the total thickness, or options of any level: between two elevations, between any depth of minerals, interlayers of barren rock in relation to any elevation of hanging wall or footwall. In this way, there is no elimination of some of the blocks and have a possibility to extract barren (waste) from the block.

GDM software has the option that if a boundary mini block is within a defined contour with more than 50% of its area within the contour, it will be counted as if it were whole in the contour. Also, if the boundary mini block with 50% of its area is out of contour, then it will be calculated as if the whole block is out of the defined contour (Figure 14-3).

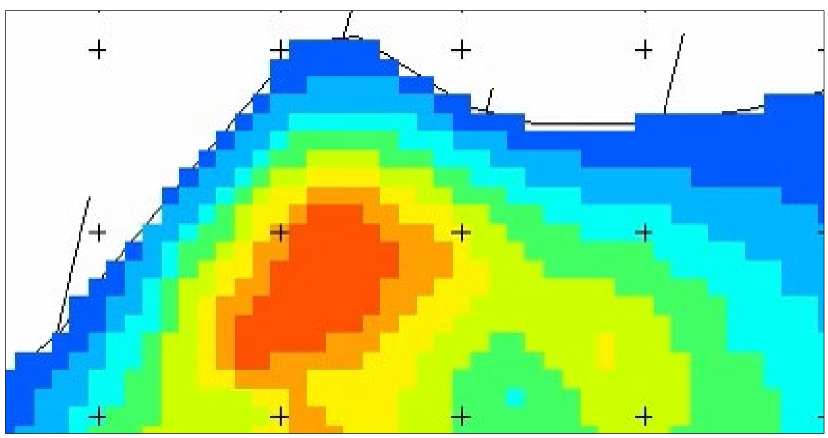


Figure 14-3: Mini blocks around "0 contour"

The thickness of the KZONE1 was obtained based on the thickness data of the Formation Zone_1. It should be stressed here, the previous PEA (2014) noted: borate mineralization observed is concordant with the bedding and the strata with a gentle dip southwest and as the holes are drilled perpendicular to the bedding, it is satisfied that the difference between the drilled sample length and true thickness of mineralization is not an issue and that true thickness is observed in the drill core.

Figure 14-4 illustrates how the thickness of each mini - block was established.

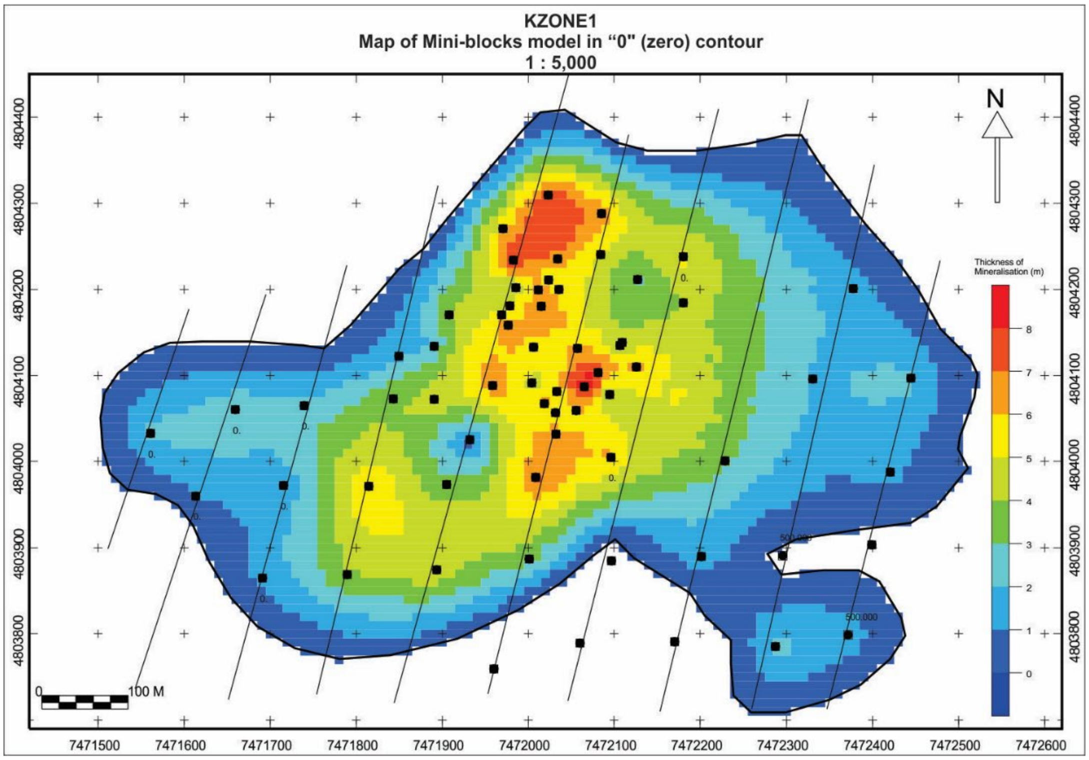


Figure 14-4: Map of mini blocks of KZONE1 - thickness, in "0" contour.

Thickness was estimated by the Ordinary Kriging ("OK") method using the software.

In addition to thickness, the grade of B_2O_3 within the KZONE1 body was estimated by the same method within the KZONE1 (Table 14-4).

Table 14-2: Data obtained by the method Ordinary Kriging for KZONE1 in "0" contour

KZONE1 - Thickness and Grade estimated by Ordinary Kriging							
CODE	**Name**	**Unit**	**No of block**	**Minimum**	**Maximum**	**Average**	**Standard deviation**
THCK	**Thickness**	m	4,251	-0.018688	8.3782	**2.64822**	1.88986
V3	**B_2O_3**	%	4,251	29.5595	49.9571	**39.6458**	3.44819

Inverse distance weighting squared ("IDW^2") was used to verify the OK (Table 14-5).

Table 14-3: Comparison of OK and IDW2 for KZONE1 in "0" contour

KZONE1 - Comparison of OK and IDW2							
Name	***Estimation Method***	***Unit***	***No of block***	***Min***	***Max***	***Average***	***Standard deviation***
Thickness	OK	m	4251	-0.02	8.38	**2.65**	1.89
	IDW2	m	4251	0.03	7.06	**2.31**	1.75
B_2O_3	OK	%	4251	29.56	49.96	**39.65**	3.45
	IDW2	%	4251	31.18	49.34	**39.85**	1.60

As can be seen from above table, comparing the main method "Ordinary Kriging" and the verification method "Inverse distance weighting squared" the following differences were obtained:

- Difference of 0.34 m in average thickness;
- Difference of 0.2% in average grade of B_2O_3.

The difference in thickness between these two methods is most likely the result of "sudden" changes in thickness in the KZONE1 as well as due to the OK method itself which uses a more adequate level of smoothing for local estimates of block thickness (Figure 14-5 and Figure 14-6)

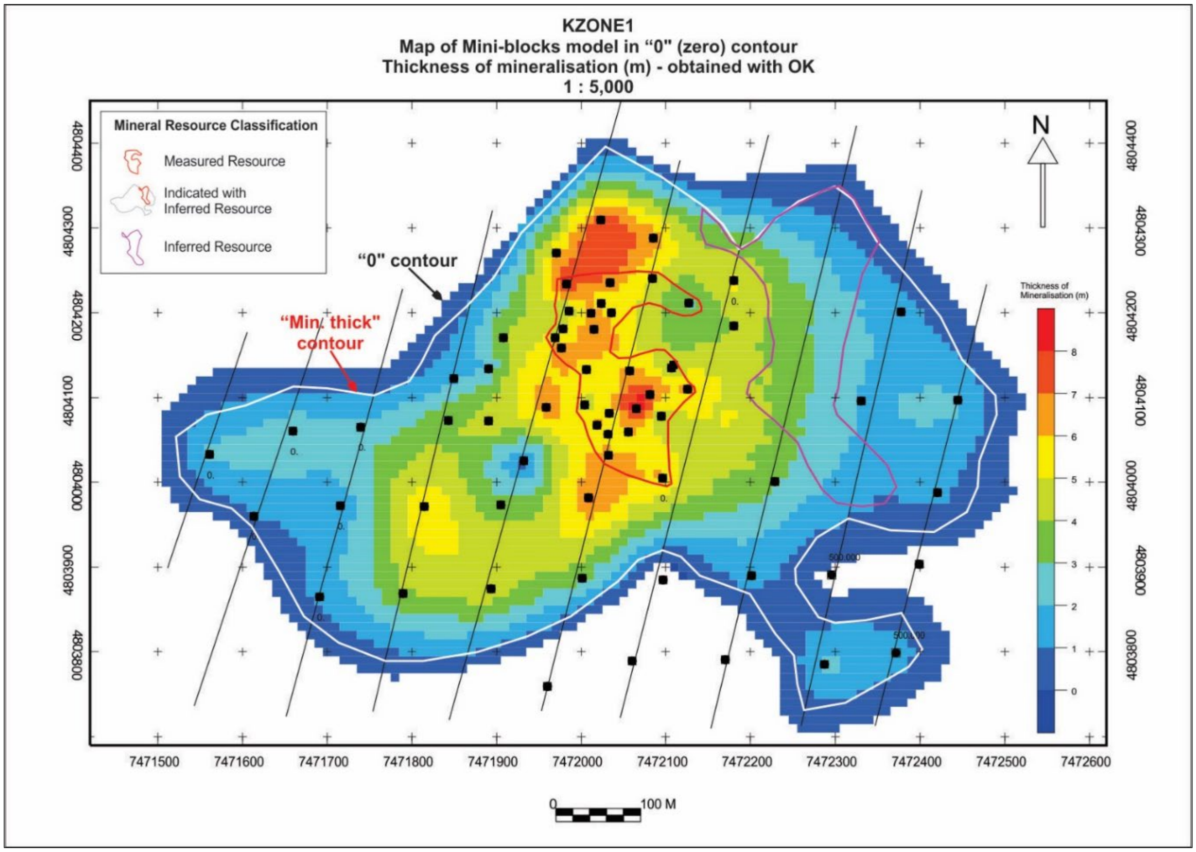


Figure 14-5: Map of mini blocks with thickness obtained with "Ordinary Kriging" (OK), in KZONE1

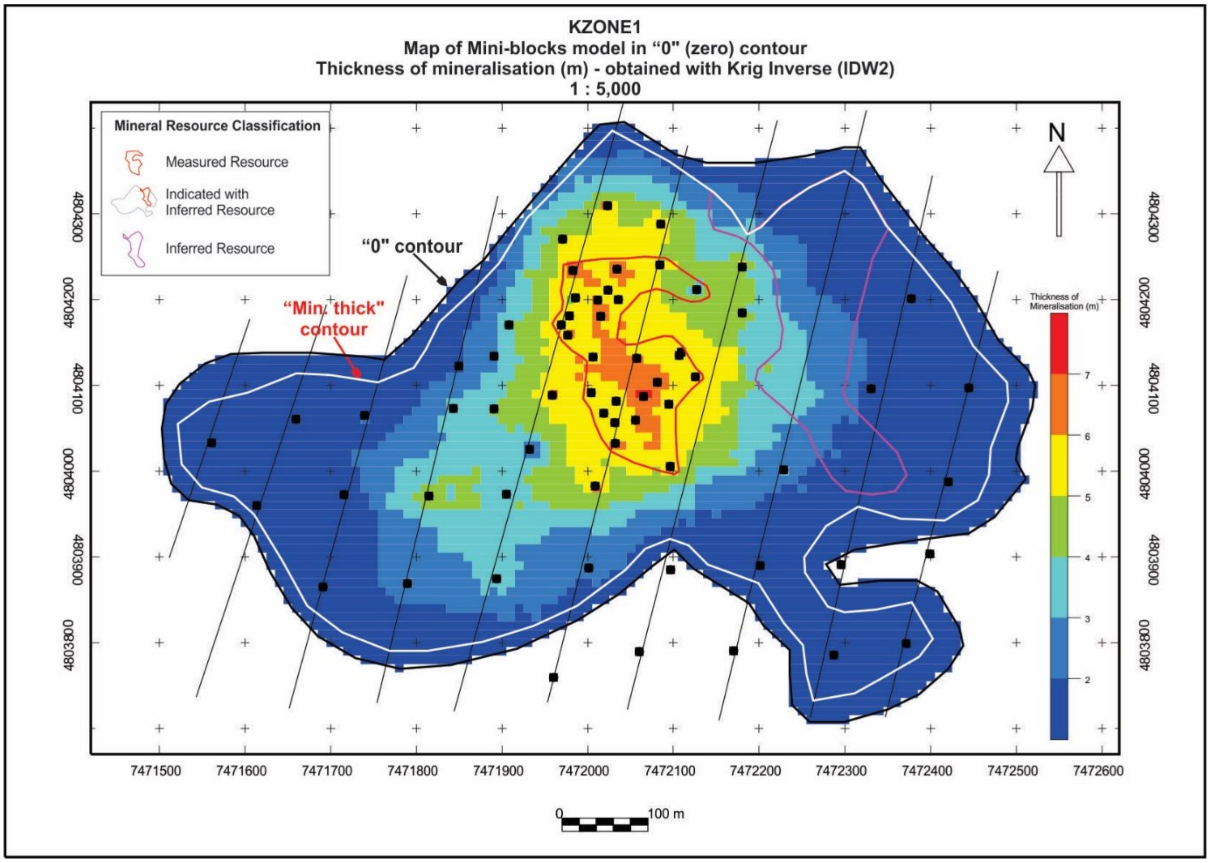


Figure 14-6: Map of mini blocks with thickness obtained with IDW2, in KZONE1

14.3.3 Histograms

Since the Author obtained already defined and arranged data at the beginning of the modelling, no histogram with unregulated data was done. The histogram was made at the end of modelling on data processed by the OK method (Figure 14-7).

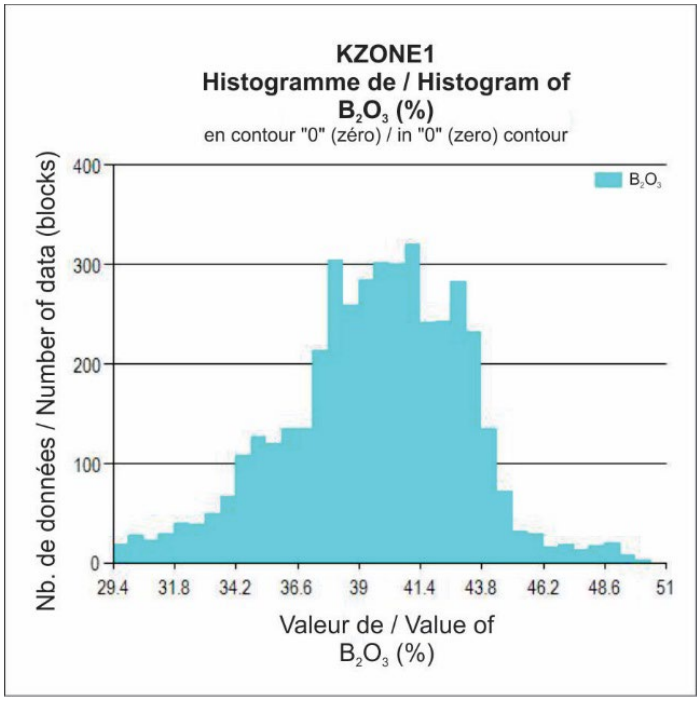


Figure 14-7: Histogram of B_2O_3 in KZONE1, in "0" contour.

14.3.4 Variograms

Variograms were made for thickness and B_2O_3 content for KZONE1, both for OK method and IDW2. By comparing the variograms, it can be seen that the obtained parameters are similar and that there are no major deviations, especially up to the impact distance of 120-130 m (Figure 14-8 and Figure 14-9). After this distance, deviations occur, but this is probably since fewer drillholes were drilled in the north-eastern part of the deposit. Certainly, deviations in the variogram at impact distances over 130 m will not significantly change the parameters of thickness and content, given the relatively good filling of drillholes, primarily in the "central" part of the deposit

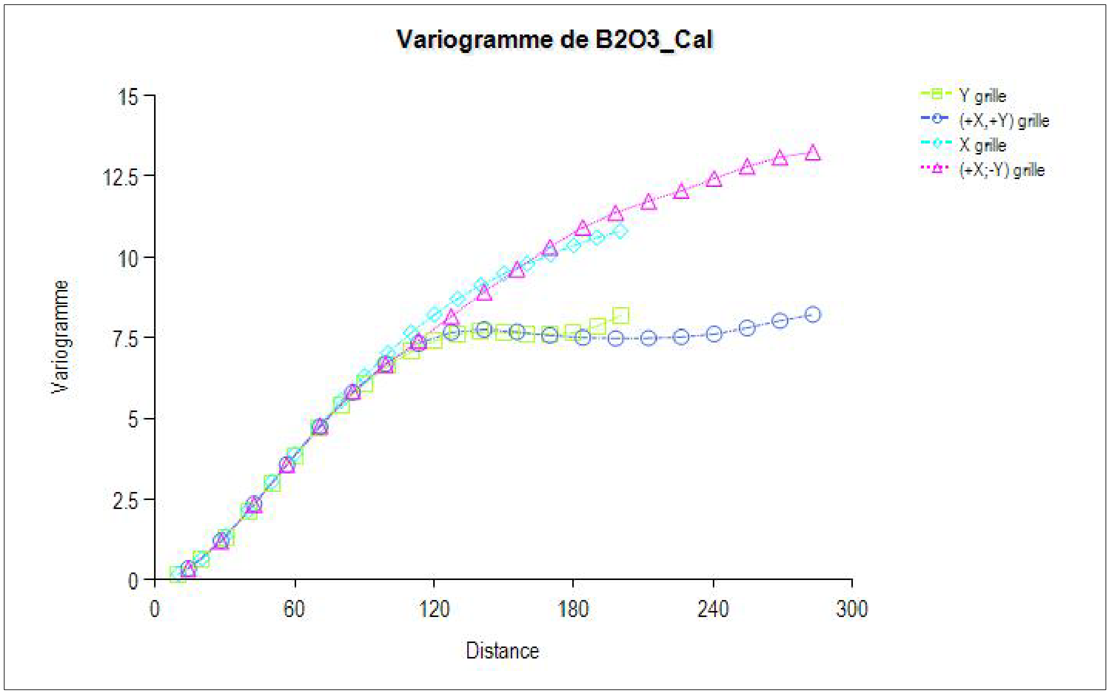


Figure 14-8: Variogram B_2O_3, OK method, KZONE1

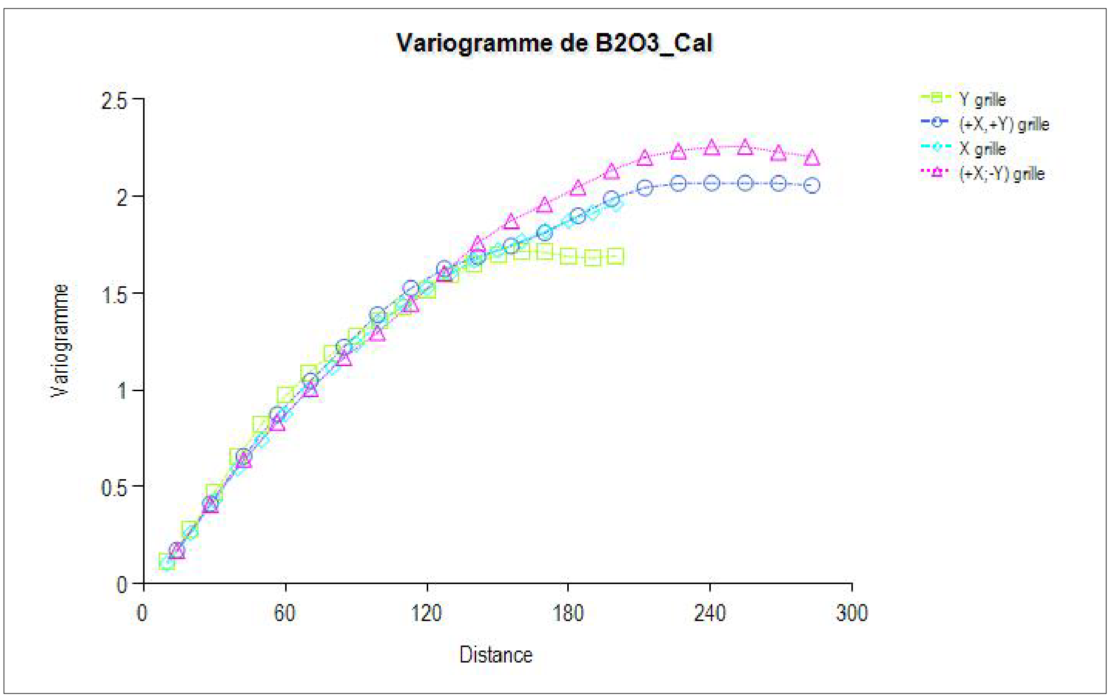


Figure 14-9: Variogram B_2O_3, IDW2 method, KZONE1

14.3.5 Estimated Resources for Mineralized zone

The MRE in all 12 mineralized zones (KZONE1 to KZONE12) was obtained by the OK method. Figure 14-10 illustrates the results of the mini-block models with borate grade distribution in all 12 mineralized zones.

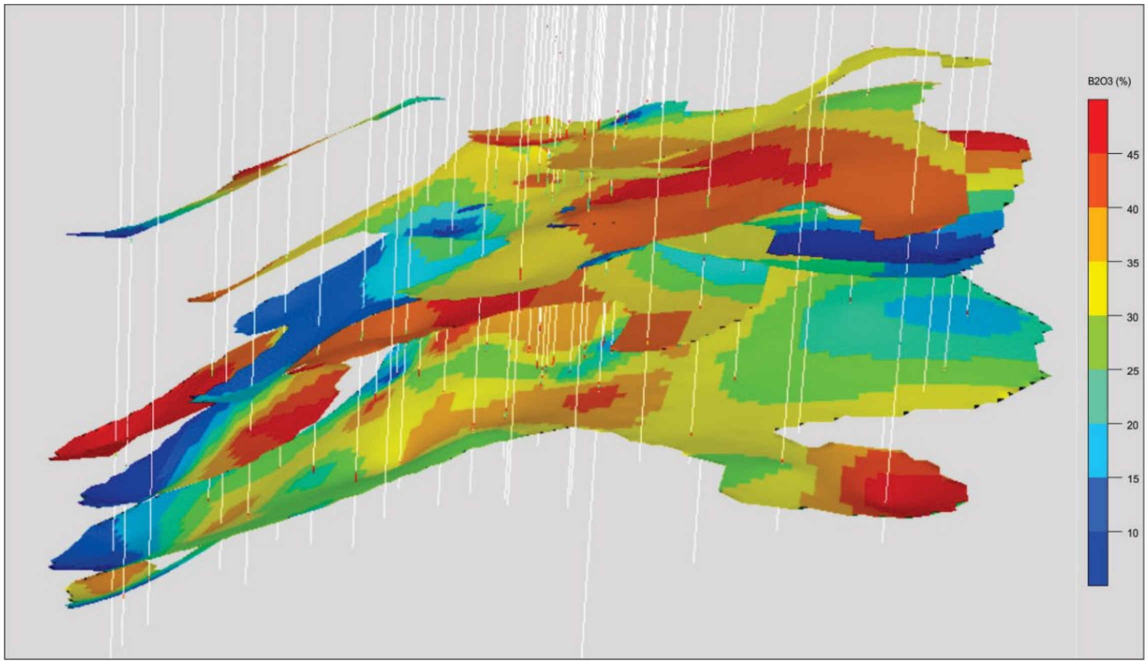


Figure 14-10: Piskanja mini-block model with Borate Grade Distribution (3D view, looking north)

Estimation was performed separately for different contours: "0" zero contour, contour of min. thickness, contours of Indicated, Inferred, and Measured Resources. The results for each are included in Table 4-4.

Table 14-4: Estimated Resources in 12 KZONES in the contour of min. thickness (1.0 m)

KZONE	Resource Classification	Volume (m^3)	Unit weight (t/m^3)	Geological Resources (t)	Grade (B_2O_3%)	Metals (t)
1	Measured	147,212	2.29	337,115	40.42	136,276
	Indicated	851,778	2.29	1,950,572	39.55	771,474
	Measured + Indicated	998,990	2.29	2,287,687	39.68	907,750
	Inferred	91,600	2.29	209,765	40.48	84,914
2	Measured	44,092	2.29	100,972	34.61	34,945
	Indicated	309,566	2.29	708,906	36.24	256,885
	Measured + Indicated	353,658	2.29	809,877	36.03	291,830
	Inferred					
3	Measured	267,043	2.29	611,528	37.91	231,828
	Indicated	593,521	2.29	1,359,163	39.25	533,464
	Measured + Indicated	860,564	2.29	1,970,691	38.83	765,292
	Inferred	32,754	2.29	75,007	37.09	27,817
4	Measured	62,494	2.29	143,111	36.66	52,470
	Indicated	33,179	2.29	75,980	42.96	32,640
	Measured + Indicated	95,673	2.29	219,091	38.85	85,110
	Inferred					
5	Measured	0	0.00	0	0.00	0
	Indicated	44,259	2.29	101,354	33.32	33,774
	Measured + Indicated	44,259	2.29	101,354	33.32	33,774
	Inferred					
6	Measured	25,544	2.29	58,496	33.83	19,788
	Indicated	65,774	2.29	150,621	29.24	44,046
	Measured + Indicated	91,318	2.29	209,117	30.53	63,835
	Inferred					
7	Measured	0	0.00	0	0.00	0
	Indicated	110,587	2.29	253,245	20.07	50,826
	Measured + Indicated	110,587	2.29	253,245	20.07	50,826
	Inferred					
8	Measured	0	0.00	0	0.00	0
	Indicated	42,650	2.29	97,669	31.62	30,883
	Measured + Indicated	42,650	2.29	97,669	31.62	30,883
	Inferred					
9	Measured	0	0.00	0	0.00	0
	Indicated	15,148	2.29	34,690	38.47	13,346
	Measured + Indicated	15,148	2.29	34,690	38.47	13,346
	Inferred					
10	Measured	0	0.00	0	0.00	0
	Indicated	9,918	2.29	22,711	19.56	4,441
	Measured + Indicated	9,918	2.29	22,711	19.56	4,441
	Inferred					
11	Measured	60,401	2.29	138,318	13.91	19,236
	Indicated	305,545	2.29	699,698	12.24	85,614
	Measured + Indicated	365,946	2.29	838,015	12.51	104,849
	Inferred					
12	Measured	888	2.29	2,034	34.82	708
	Indicated	10,645	2.29	24,377	33.98	8,282
	Measured + Indicated	11,533	2.29	26,412	34.04	8,991
	Inferred					
TOTAL	**Measured + Indicated**	3,000,245	2.29	6,870,560	34.36	2,360,928
	Inferred	124,354	2.29	284,771	39.59	112,732

14.4 Mineral Resource Classification

14.4.1 Piskanja MRE Classification

The Author has made an assessment of the following key indicators to classify the updated MRE 2022:

- Geological complexity;
- Quality of the data used in the estimation:
- QAQC data; and
- Quality of the estimated block model.

Geological Complexity

The deposit has been modelled as numerous bodies of borate mineralization. In total, 12 mineralized bodies were delineated at different elevation levels between 366 m and -56 m. All of these zones are slightly folded in a similar manner. Zones 1, 2, 3, 4, 6, and 11 show higher continuity and confidence in interpretation compared to the rest of the zones for which interpretation was usually only based on four to nine holes.

While the numerous mineralized bodies show good continuity at 5% cut-off grade, it should be noted that with an increase in the cut-off grade the mineralized bodies become fragmented.

Overall, it appears that the zones identified are of moderate geological complexity. The following facts are based on geological logging and interpretation:

- The host rocks in deposit Piskanja are Miocene lacustrine sedimentary rocks, as: claystone, siltstone, sandstones, carbonates / dolo rock;
- Some mineralized bodies are formed inside the clay stone, while other bodies have carbonates or dolo rocks in the hanging and/or footwall;
- Generally, boundary between bodies and hanging and footwall are clear, and visible;
- The main mineralized bodies in the deposit are with massive mineralization with high grade boron. Some parts of bodies have grades > 40% B_2O_3, which is at the level of the final product;
- Samples with the main mineralized bodies mostly have grades above 30% B_2O_3. Sporadically, 1-2 individual samples of bodies near the contact with the hanging and footwall may have a content of 12-25%.
- A significant occurrence of interlayer barren rocks (claystone, dolo rocks) is related to the body KZONE1, with total volume of 199,455 m^3 (of total 339,130 m^3). Samples with interlayer barren rock in bodies mostly have grade below 2%.
- Mineralization occurs between the individual mineralized bodies (KZONE3 and KZONE6) in the central part of deposit, which is covered with a drillhole spacing of 15 m to 50 m. In some holes, the zones of mineralization can be of considerable thickness between 17-22 m, with a slightly lower grade compared to the same within the bodies themselves - between 22-32%

As such and based on the current level of data supporting the geological model, the associated risk relating to the geological continuation is considered at a medium level.

There is also the possibility of faulting influencing the current interpretation, which should be examined further with additional data collection and structural interpretation.

Quality of the data used in the estimation

Erin has introduced what is considered to be industry best practice in relation to the QAQC checks with a regular system of standards, duplicates and blanks being inserted into the sample stream.

Validation checks of standards are broadly within acceptable reporting limits and duplicate field samples show a strong correlation to the original sample. Blank samples were reported as showing a low B_2O_3 content.

The initial primary chemical analysis by KOH, titration, AR methods (within SGS Laboratory in Lakefield, Canada and in Bor, Serbia) were replaced during the research period, on the advice of SRK, with sodium peroxide fusion analysis for boron and multi-elements (within SGS Ankara, Turkey). Control laboratory (Bureau Veritas Minerals, Perth) used the same sodium peroxide fusion analysis.

The SRK note about aqua regia ICP-MS method (IMS-14B, SGS Bor) from the previous PEA (2014) was successfully implemented:

- “Different sample analysis methods did however show varying precision in detection of B_2O_3 grade. The proportion of the samples which were used in the MRE and analysed by the less suitable aqua regia ICP-MS method constitute only 10% of the MRE database and have a minimum influence on the estimate.”
- All samples within the mineralized bodies that were tested with the AR (IMS-14B) method, and which had a grade of close to or above the cut-off were additionally sent for analysis by sodium peroxide fusion.

Core recovery is good and exceeds 90%.

Results of the geostatistical analysis

Variograms were made for thickness and for B_2O_3 content for the biggest KZONE1, both for OK method and IDW2.

By comparing the variograms, it can be seen that the obtained parameters are similar and that there are no major deviations, especially up to the impact distance of 120 m to 130 m. After this distance, deviations occur, but this is probably since fewer drillholes were drilled in the north-eastern part of the deposit. Note: The north-east part of the deposit covers five RC holes which were not included in MRE. Without these holes, mutual distance between Rio Tinto (IBM holes) and Erin (EVP holes) is about 200 m.

Certainly, deviations in the variogram at impact distances over 130 m will not significantly change the parameters of thickness and content, given the relatively good filling of drillholes, primarily in the “central” part of the deposit.

Quality of the estimated block model

The grade distribution of the block model in the main mineralized zones 1, 2, 3, 4, and 11 shows that the grade of B_2O_3 populations (without barren rock) are uniform, while other small bodies show that the 2-3 grade populations could still be distinguished.

This indicates that in the future it is necessary to further separate high and low-grade populations within the framework of the wireframe model.

Mineral Resources Classification

Based on the above comments, the resulting MRE for 2022 includes a combination of Measured, Indicated and Inferred categories.

Mineralization in the central part of deposit may be classified as a Measured Resource. Mutual distances between holes in this area are from 15 m to 50 m. Nature, quality, quantity and distribution of data are such that the tonnage and grade of the mineralization can be estimated within close limits and that variation from the estimate would not significantly affect potential economic viability.

Mineralization within relatively well-drilled areas of the model, on an approximate 100 m by 100 m grid, may be classified as an Indicated Resource. In this part of deposit nature, quality, quantity, distribution of data and geological confidence are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization.

The area around five RC holes (without twinned DD holes), in the east part of deposit may be classified as an Inferred Resource. Due to the non-inclusion of RC holes in MRE, the mutual distance between neighbours DD holes (located outside area of the RC holes) is about 200 m. The area around RC holes catch only KZONE1 and KZONE2.

Mineralized bodies from minimum (1 m) to zero thickness (wedge-out) are not included in the MRE.

14.5 Mineral Resource Statement

As with the previous PEA (2014), the MRE generated by the Author has been restricted to the material above a marginal cut-off grade of 12% B_2O_3 and a minimum thickness of 1 m. The Author considers that the estimated material has a reasonable prospect for eventual economic extraction. This assumes that the mineralization will be mined by underground methods, with minimum mining thickness of 1.2 m.

Table 14-5 tabulates the resulting MRE 2022. In summary, the Author's estimate comprises a Measured Mineral Resource of 1.4 Mt with a mean grade of 35.59% B_2O_3, Indicated Mineral Resource of 5.5 Mt with a mean grade of 34.05% B_2O_3 and an Inferred Mineral Resource of 0.28 Mt with a mean grade of 39.59% B_2O_3.

Table 14-5: Mineral Resource Statement_2022

Mineral Resource Category	Tonnage, Mt	B_2O_3 Grade, %	Contained B_2O_3, Mt
Measured	1,391,574	35.59	495,251
Indicated	5,478,986	34.05	1,865,677
Measured + Indicated	**6,870,560**	**34.36**	**2,360,928**
Inferred	284,771	39.59	112,732

The Author and Erin are not aware of any factors (environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors) that would materially affect the MRE.

The quantity and grade of reported Indicated and Inferred Mineral Resources in this estimation are uncertain in nature. There has been insufficient exploration to report these Mineral Resources in the Measured category and it is uncertain if further exploration will result in upgrading a part of these to this category in due course or if further technical work will enable them to reported as Mineral Reserves. No Mineral Reserves have been estimated for Piskanja. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

14.6 Comparison to Previous Mineral Resource Estimates

The MRE in the PEA (SRK, 2014), based on drilling program by Rio Tinto (2006-2009) and Erin 2011-12. MRE in PEA (2014) was reported at a cut-off grade of 12% B_2O_3 and above a minimum thickness of 1.0 m had Indicated category (5.6 Mt compared to 1.73 Mt) and in the Inferred category (6.2 Mt compared to 1.80 Mt). The previous MRE update on Piskanja project (SRK, 2019), included two phases of drilling from 2015 and 2018. MRE (2019) was reported at a cut-off grade of 12% B_2O_3 and above a mining thickness of 1.2 m has more borate in the Indicated category (7.8 Mt compared to 2.4 Mt) and less borate in the Inferred category (3.4 Mt compared to 1.0 Mt). Both calculations included 10 bodies - mineralized zones.

New MRE 2022 is reported at a cut-off grade of 12% B_2O_3 and above a minimum thickness of 1.0 m. The MRE included only material within contours of mineralized bodies and did not include mineralized zone between bodies with grade below 12% B_2O_3.

Individual changes within the MRE 2022 compared to previous MRE_2019 include:

- Parts of Indicated Mineral Resources in the central part of deposit with a drillhole spacing of 15-50 m have been upgraded to the Measured category. Indicated Mineral Resources now cover drillhole grid spacing of approximately 100 m by 100 m between the contour of Measured mineral resources and contour of minimal thickness of bodies. The zone in east part of deposit with 5 RC holes (without DD twins) is presented Inferred Mineral Resources;
- Wedge out of bodies (between minimum thickness and zero thickness) within six of 12 Zones have been excluded from the MRE 2022;
- Infill drilling confirmed the continuity of two of three major bodies. Average thickness in the holes for body KZONE01 and KZONE03 in holes (2015, 2018) is almost the same as in holes form period 2011-12; and
- A newer hole has defined interruption in continuity of the body KZONE2, which was previously noted in 2011.

Other factors that have affected the MRE_2022 are:

- In addition to the stratigraphic connection, the interpretation of the mineralized bodies was also influenced by the mineralogy and the rocks in which mineralization was formed. Based on these differences, two new bodies (mineralized zones) KZONE11, and KZONE12 were interpreted in the KZONE6 domain;
- More detailed grade modelling, the new infill drilling having improved the definition and continuity of grade layering which has improved the grade overall;
- Improved confidence in the overall geological continuity at the deposit peripheries; and
- Improved confidence in the overall data quality through verifying and amending errors in the database.

15 MINERAL RESERVE ESTIMATES

No Mineral Reserve estimates exist for the Project.

16 MINING METHODS

16.1 Introduction

The geometry and depth of the mineralization identified at Piskanja lends itself to an underground mining method. This section of the report presents the results of work completed to date to determine how the mineralization will be most appropriately worked and extracted. While more detailed analysis is required and will be undertaken in due course it is the assumptions presented here that form the basis of the PEA presented later in this report.

It is envisaged that mining will be by cut and fill method and that the key underground infrastructure will comprise:

- Twin access declines from surface to the deposit: i) main haulage decline (further addressed as MHD) from surface to the floor of KZONE1 and ii) main ventilation decline (further addressed as MVD) from surface to the roof of KZONE3;
- An underground spiral ramp connecting MHD and MVD and enabling access to all levels;
- A shaft connecting MHD and MVD to serve as an ore pass and temporary (if needed) ore stock;
- Footwall drives located below seam horizons of KZONE1, KZONE2 and KZONE3; and
- Level drives and ventilation connections between three footwall drives.

16.2 Mine Access

16.2.1 Currently Proposed Access Location

The proposed access to the underground mine, and that assumed for the purpose of the PEA presented later in this report, is shown in Figure 16-1. Notably, the portal is located within a disused coal yard adjacent to the river.

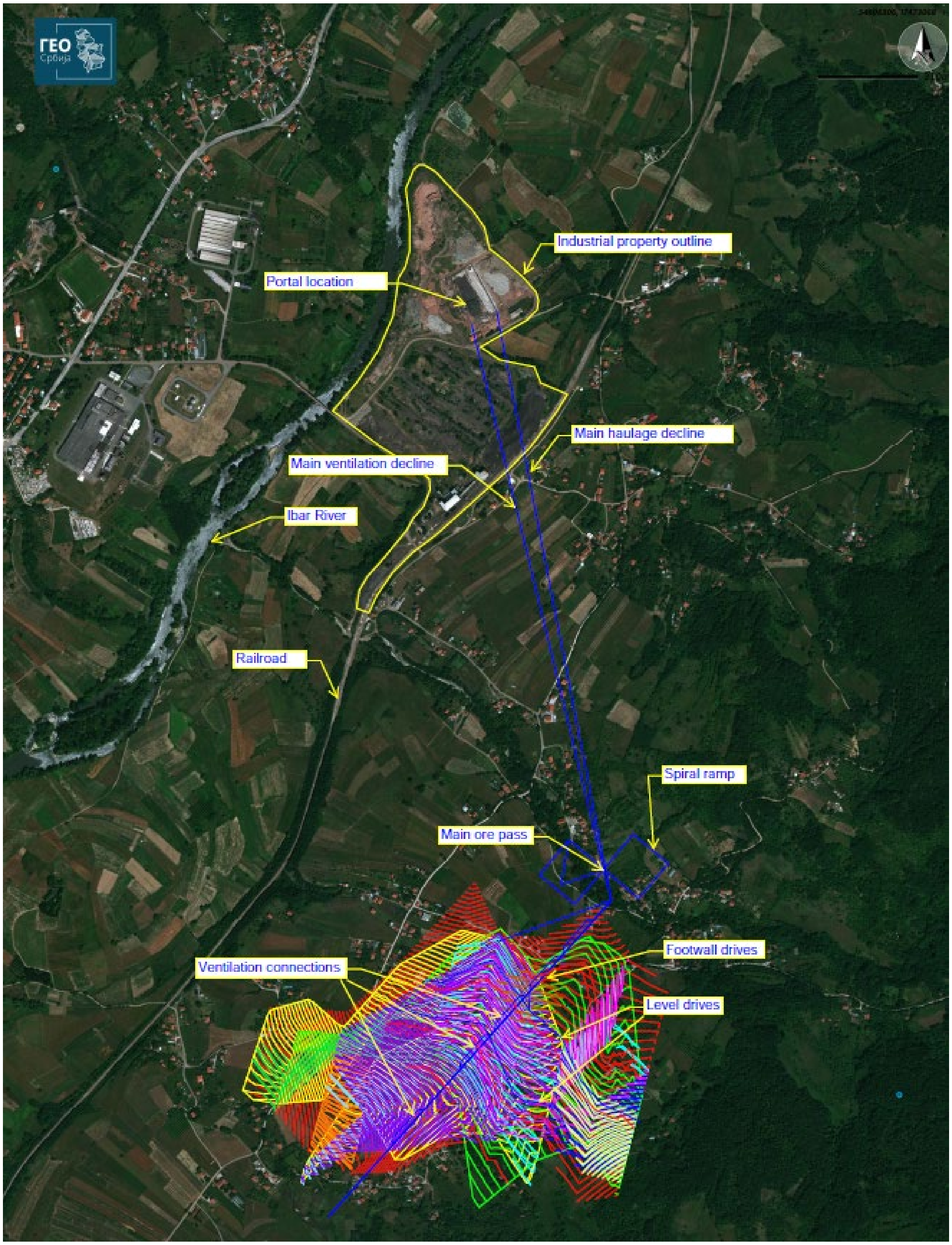


Figure 16-1: **Current Piskanja Site with Proposed Development**

The reasons for choosing this location are:

- The yard is located to the east of a railway line which runs nominally north-south. In order to cross the railway line a bridge or culvert will be required which will have capital cost implications.

- The land is available and has recent industrial use, so zoning for industrial use is likely to be in place. In addition, no additional surface will be degraded by mining activities which will minimize environmental impact of the project.
- There is potential for third party funding to assist with the remediation of the site. The site and the property itself are sufficiently large to allow for the construction of a processing plant, boric acid plant and tailings dump.
- Though some refurbishment is required, it can make use of the rail loading infrastructure currently in place to allow for rail transport of the material from site to market. The coal loading facility currently has a number of sidings which allow for loading to take place away from the main line.

In the current plan, conveyor belts will be used transport run of mine (RoM) material to surface. The implications of this assumption are;

- The conveyor decline is straight to minimize transfer points
- The conveyor will be used to deliver the RoM straight to the plant stockpile which would require the use of overland conveyors to deliver product from the portal to the processing plant site

The potential issue with the proposed access is the probability that existing facilities are located within the flood plain of the River Ibar. In the absence of hard data on the extent of the flood plain, it seems reasonable to assume that existing significant infrastructure is not located within the extents of flood plain. In addition, there is a lack of residential properties immediately adjacent to the river course which can indicate historic flooding in the region. However, the existence of the embankment between the River Ibar and the existing industrial facilities implies that flood plain was taken into account while the location for industrial facilities has been chosen.

The boundary of the flood plain was nominally assumed to be represented by the railway in the east and the road/ presence of properties in the west as shown in Figure 16-1. In order to provide sufficient safety against flooding and ensure compliance with Serbian regulations regarding the flood plain, the proposed access plan suggests extension of the decline tubes. To achieve that, decline portals will be constructed in concrete and concrete tubes would be extended up a ramp.

16.2.2 Alternative Access options

Previous documents prepared for the Piskanja project have proposed alternative access locations. The 2014 PEA by SRK recognizes the 2013 site proposed by Erin as the base case but also proposes five alternatives to base plan as shown in Fig. 16-2, with a total of eight decline options (Fig. 16-3, Table 16-1). The rationale for the alternatives is the probability of decline portal being located within the flood plain. In addition, 2014 PEA considered truck haulage of RoM material as an alternative to belt conveyor consequently leading to alternatives in access.

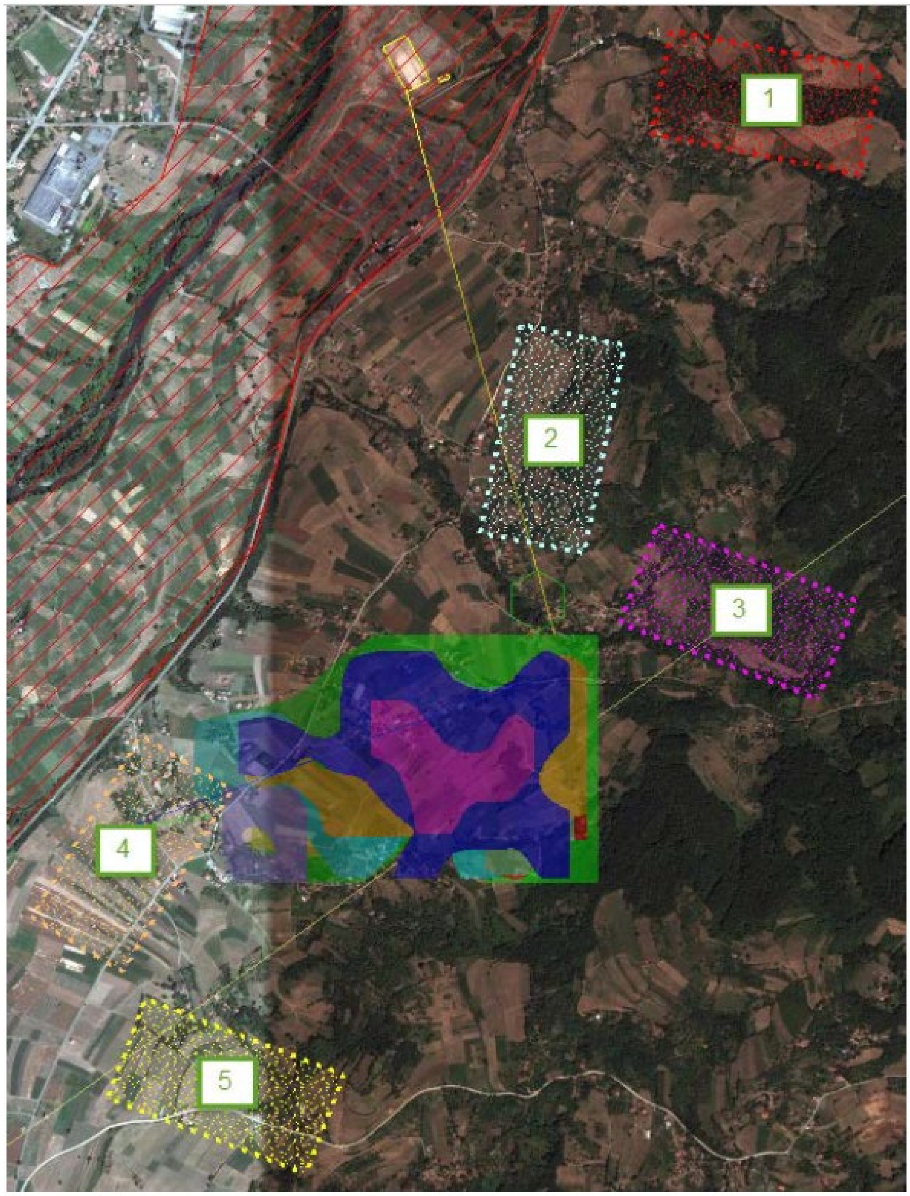


Figure 16-2: 2014 PEA Alternative Site Options

To ensure that it is clear of the floodplain, the 2014 PEA suggested that any alternative portal site would need to be located on the hillsides to the east of the railway line and the mineral would need to be transported overland from the portal to the loading area. This would necessitate a suitable rail crossing point to access the site. However, these alternatives imply the need to acquire private property in the area which consists of residential and farm buildings and agricultural land. The region appears to be reasonably well populated, and buildings are located away from the fertile river valley and outside of the flood level. Any alternative portal location would need to take these community impacts into account.

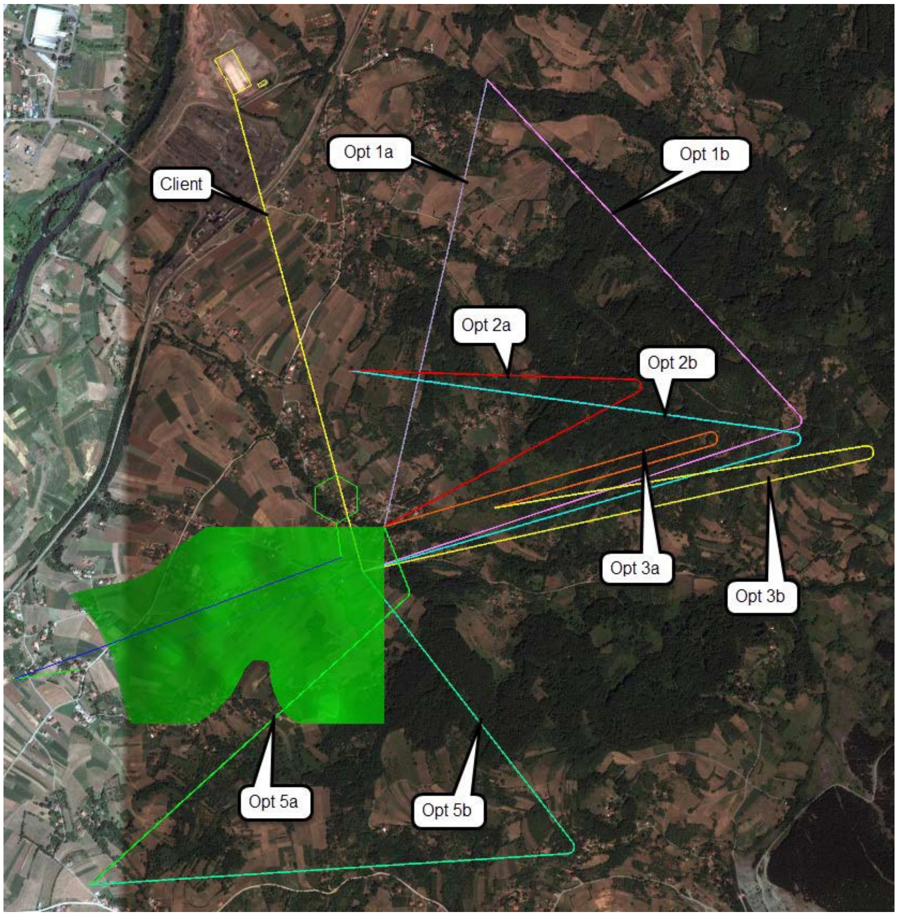


Figure 16-3: 2014 PEA Decline Options

Table 16-1: Decline comparisons

Name	Decline length (m)	Decline in-situ volume, (m^3)	Variance from base case (m)	% of base case length
Present case	1,314	28,513 * (23,652)	-56	88%
BASE CASE 2013 Summary	1,484	32,216	--	--
Site 1 Option A (2014 PEA)	1,370	29,749	-114	92%
Site 1 Option B (2014 PEA)	2,786	60,485	1,302	188%
Site 2 Option A (2014 PEA)	1,776	38,545	292	120%
Site 2 Option B (2014 PEA)	2,765	60,020	1,281	186%
Site 3 Option A (2014 PEA)	1,761	38,230	277	119%
Site 3 Option B (2014 PEA)	2,751	59,710	1,267	185%
Site 5 Option A (2014 PEA)	1,511	32,808	27	102%

Site 5 Option B (2014 PEA)	2,513	54,545	1,029	169%

* *Present case suggests 4.5x4 m decline as opposed to 5.6x4.4 m suggested in 2013 Summary and 2014 PEA*

16.2.3 Second egress

As discussed in 16.1, underground infrastructure will comprise twin access declines from surface to the deposit. The main haulage decline is the main access to the deposit while the main ventilation decline is the second egress to the mine.

The introduction of the second egress in the form of decline as opposed to the shafts proposed by the 2014 PEA is considered better option for:

- Earlier establishment of circulatory ventilation;
- Earlier construction completion;
- Easier construction and maintenance compared to a vertical shaft;
- No additional equipment required (emergency hoists); and
- Lower construction costs compared to a vertical shaft.

16.2.4 Mine Access Conclusions

Further work is required as part of any PFS is to determine the most appropriate access point for the mine. The base case location currently assumed for the PEA may be perfectly feasible and is justified by the ease of access and minimum environmental and community impact. There are, however, several alternative options available which have been commented upon above.

16.3 Geotechnical Considerations

16.3.1 Overview of Geotechnical Studies Completed

A geotechnical report by the Faculty of Mining and Geology, University of Belgrade, titled “A study on engineering and geological parameters of the rock masses and terrain of the wider area of “Piskanja” Boron deposit”, February 2013, details the geotechnical conditions of the rock forming the Piskanja deposit. It was produced in support of the report entitled “Summary Elaborate of Resources and Reserves Piskanja Borate Deposit (Baljevac on the River Ibar) on date 31.12.2012”, (June 2013), produced by the Mining department of Technical Faculty in Bor, University of Belgrade that details potential mining methods. This geotechnical report includes the results of detailed logging of a number of boreholes and laboratory testing up to 2013 to determine the strength characteristics of a number of lithologies present within the project area.

Additional logging and testing campaigns were conducted during 2015 (eleven drillholes EVP-137 to EVP-147, geotechnical logging and PLT tests) and during 2018 (ten drillholes, EVP -2018 – 148 to EVP – 2018 – 157, geotechnical logging and PLT tests).

16.3.2 Geotechnical Characteristics

Sedimentary units in the form of claystones, conglomerates, siltstones, sandstones and carbonates make up the sequence of rocks within the mining horizons. Claystones make up the highest percentage of rock recovered by core drilling and these can often be intensely laminated and will exhibit bimodal strength distribution as a result of the laminations. The table below summarizes the results of the material testing undertaken to date.

Table 16-2: Geotechnical material testing results, mean values

Lithology	Unit weight	Specific density	Moisture content	UCS	Tensile strength	P wave velocity	S wave velocity	Modulus of elasticity (dyn)	Poisson's ratio	Cohesion	Internal friction angle	RQD
	kN/m³	*kN/m³*	*%*	*MPa*	*MPa*	*m/s*	*m/s*	*GPa*	*-*	*MPa*	*°*	*%*
Claystone	24.51	25.60	2.82	21.47	3.15	2893	1603	17.27	0.31	1.99	36	45
Conglomerate	24.78	26.04	1.98	11.59	1.08	2932	1768	21.83	0.30	-	-	75
Borates	22.43	24.02	3.28	14.98	2.16	4389	2141	29.27	0.33	2.00	45	70
Sandstone	29.91	23.62	2.88	22.02	2.87	3319	1688	18.74	0.30	5.34	51	80
Dolomite	24.32	25.03	2.94	31.74	2.86	4184	2338	35.49	0.27	5.33	53	60
Carbonate	21.05	22.11	2.71	18.45	-	4053	-	-	-	-	-	41

Tested lithologies have a similar uniaxial compressive strength in the range of 15 MPa to 25 MPa which would describe the rock as weak to moderately strong. Zones of intense fracturing (possibly drill related) and low RQD values were noted, as were a number of locations where faulting was clearly visible.

16.3.3 Geotechnical Conclusions

The Author has used the results of previous work along with their won opinions following the inspection of the core to derive the preliminary stope dimensions presented later in this section of the report which have been used in turn to determine extraction ratios for the purpose of the PEA. It is clear that additional work is required in order to achieve higher levels of confidence in geotechnical data:

- Establishment of a geotechnical database/model defined to collect parameters for input into internationally accepted rock mass classification schemes such as Q, RMR or GSI. It has to be noted that applicability of GSI classification is limited to specific rock mass structure and that applicability to Piskanja deposit and host bedrock should be assessed;
- Laboratory testing of selected samples to develop strength parameters for use in future stability modelling. A comprehensive PLT campaign is highly desirable to assess anisotropy of rock mass, especially on claystone samples;
- It is concluded that modulus of elasticity was determined upon the data on pressure and shear waves velocities and that no actual elastic moduli tests were performed as per ASTM D-7012;
- Additional UCS, tensile strength and triaxial test are required to determine cohesion and angle of internal friction; and
- Consideration of the need for a small number of specific geotechnical boreholes with the aim of targeting specific structures or achieving geotechnical coverage in the initial mining areas.

16.4 Hydrogeological Considerations

16.4.1 Hydrogeological Characterization

A hydrogeological report was prepared in 2013 by MWH UK Ltd (MWH) entitled “Interim Hydrogeological Report (Phase II), Piskanja boron, near Baljevac, Raška, Serbia.” A more recent hydrogeological report was prepared by Geoprofil d.o.o. Beograd in July 2020 titled “A study on hydrogeological properties of Piskanja boron deposit near Baljevac na Ibru.

The following is a summary of the findings of these studies.

Groundwater flow in the area of the deposit is in a north-westerly direction, towards the valley hosting the River Ibar. The quaternary deposits in the area, which are up to 28 m in thickness, comprise a partially saturated perched aquifer with low to moderate permeability. The underlying Clayey Silt Deluvial Sediments (between 80 m and 300 m thickness) mainly comprise claystone and are considered a low permeability aquitard, although there is evidence for some disturbed/fault zones from loss of circulation recorded on occasions during drilling.

The tertiary claystone, dolomite and volcaniclastics unit (up to 320 m) is a claystone dominant formation with interbedded tuffs, dolomite. Occasional circulation loss during drilling in the borate and adjacent carbonate beds suggests higher permeability locally although generally this formation has a low to moderate permeability. It is considered to act as an aquitard with respect to local aquifers. Preliminary permeability testing in this formation indicated permeabilities ranging between 2E-6 and 2E-8 m/s (i.e., low to moderate permeability). There is little data on the underlying Tertiary Sandstone, Conglomerate and Claystone formation. It is considered to have similar aquifer properties to the overlying formation.

There is a spring up the hill from the deposit with a chemical signature that suggests a deep groundwater source, likely to be via a deep fault structure. This reflects the potential for artesian conditions due to an upwards vertical flow from deep groundwater where pathways (i.e., structural conduits) are available.

16.4.2 Mine Water Inflow and Dewatering Considerations

Average groundwater inflows to an open pit scenario were provisionally estimated by MWH to be in the range 5 l/s to 50 l/s. Inflows to an underground mine development would likely be in the lower range of this estimate.

Geoprofil d.o.o. estimated groundwater inflow to 139 l/s using mathematical modelling and MODFLOW. The study concludes that groundwater conditions are favourable and that mining activities would not have a noticeable impact to groundwater regime

Inflow rates of this magnitude are manageable by straightforward dewatering methods. The workings may intercept fault structures where sustained, localized inflows may occur due to upward flowing groundwater. The flow rates of such inflows cannot be predicted without further characterization of these structures although the flow rate from the observed deep groundwater spring higher in the catchment has a modest flow rate of approximately 0.1 l/s.

16.4.3 Hydrogeological Conclusions

Further work is required as part of any PFS to characterize site hydrogeological conditions and assess mine water inflows, in particular:

- Hydrogeological testing to constrain aquifer parameters and groundwater behaviour;
- Installation of additional piezometers to better constrain groundwater piezometry;
- Integrated structural/hydrogeological studies to better understand the role of geological structures as conduits for groundwater flow;
- Groundwater modelling to constrain predictions on mine water inflows;
- Neither of the two studies have considered water inflows due to backfilling operations so further PFS analyses should include this assessment, especially if hydraulic backfill distribution is to be applied;
- Mine dewatering infrastructure design and costing; and
- In addition, a mine site storm water management study, including surface water hydrology characterization and the development of a mine site water balance is recommended.

16.5 Mining Method

16.5.1 Introduction

Mining method selection is governed by the constraints imposed to Piskanja deposit: 1) the location of Korlaće village which is situated directly above the deposit; and 2) the location of the River Ibar slightly west of the deposit location.

Excavation is currently proposed by mechanical cutting using continuous miners (CM). The rationale of application of mechanical cutting as opposed to drill and blast operations is the need to minimize ground vibrations which could affect the residential structures and cause annoyance to the residents of Korlaće village. Similarly, the application of caving mining methods or any mining methods which could cause ground subsidence is, at the present moment, excluded from further consideration.

Ground subsidence resulting from mining operation could cause damage to the overlaying structures or could create hydraulic connection with the River Ibar causing additional water inflow into the future mine.

Material mined by the CMs would be hauled by shuttles or battery haulers to the nearest ore pass/ore bin and fed to the panel conveyors at the main haulage horizon. The panel conveyor would then haul the mined material to the main ore pass/ore bunker. The main ore pass has two functions:

- To lower the mine material to the Main Haulage Decline and feed it to the Main belt conveyor; and
- To serve as a temporary ore storage/stock.

Once fed to the main belt conveyor the material is transported to the surface and fed to the mines processing system.

Two mining methods have been identified as having potential for extraction; room and pillar and drift and fill. Both would require backfill. The application of room and pillar is limited by the deposit geometry, notably the fact that it is comprised of a series tabular lenses that vary in width between 0.4 m and 15.0 m and which dip at around 18°.

16.5.2 Previous Proposals

16.5.2.1 University of Belgrade, Technical faculty in Bor proposal

The mining method proposed in the report titled “Summary Elaborate of Resources and Reserves Piskanja Borate Deposit (Baljevac on the River Ibar) on date 31.12.2012” (June, 2013), was room and pillar using continuous miners that can excavate to around 1.0 m thickness. This report also proposed that by backfilling rooms, pillars could be spilt and resource recovery increased from around 60% to 75%.

This report also proposed the drifting of preparation declines/ramps through the deposit ensuring that maximum inclination does not exceed 12°. Additional preparation work proposed the division of the deposit into mining blocks 160 m long separated by 20 m wide protective pillars.

The proximity of Ibar and the village excluded the application of caving methods and bearing in mind the Erin's preference for mechanized mining without drill and blast operations, and the structure and the size of the individual mineralized bodies, the only solution considered was room and pillar mining (Figure 16-4). The calculation of room and pillar dimensions was performed using tributary theory and BasRock Room and pillar optimizer software. The value of 6 m was accepted for room width and the pillar dimensions were defined according to this width and the depth of the deposit with the minimum safety factor of 1.5. Due to the low compressive strength of the rock and large depths, the pillars in the deepest parts of the deposits were 12 m by 12 m for the room height of 1.65 m.

Since mineralization is left in the pillars the recovery was in the range of 55% to 67% depending on the depth and pillar size while overall recovery was 60%. To increase recovery a possibility of recovering a part of the pillar after the rooms have been backfilled was considered. By creating a 3.3 m wide room inside a 12 m by 12 m pillar the recovery was increased to 68% and when a full width room (6 m) was assumed, the recovery increased to 78% in the deeper parts of the deposit and to even 84% in the shallower points, providing an overall recovery of 75%.

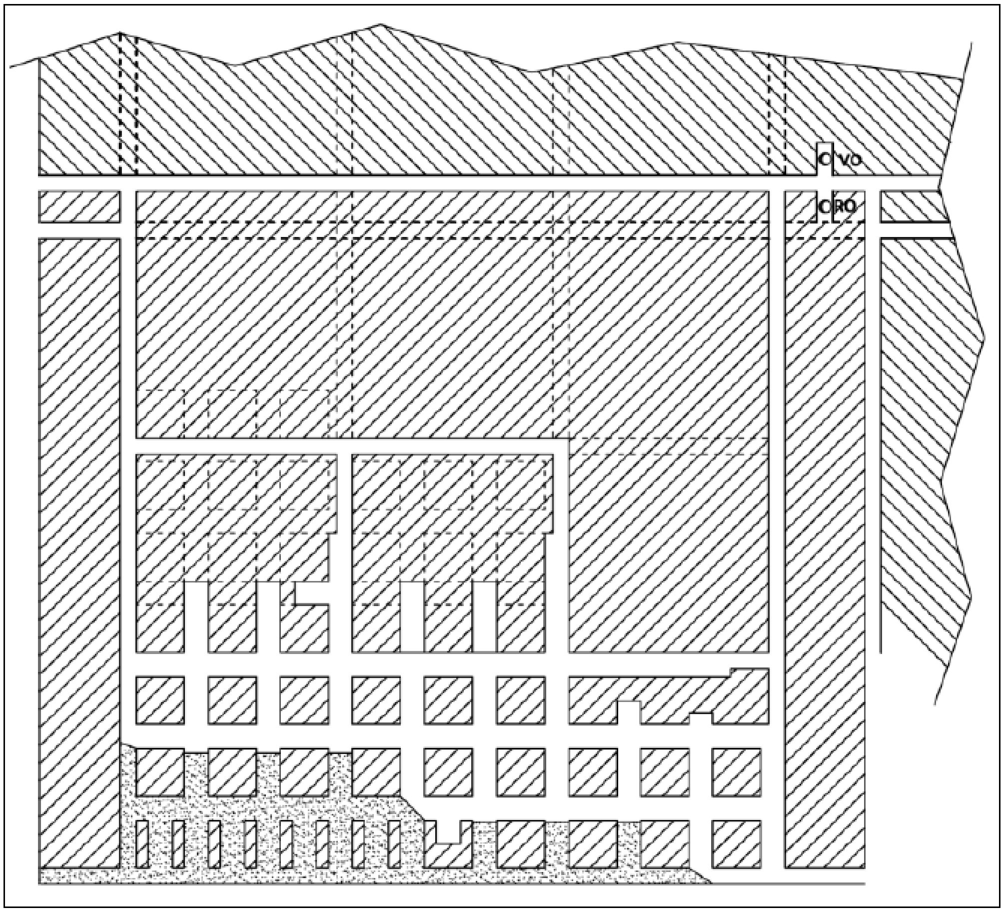


Figure 16-4: The construction of mining blocks and division to mining pillars with room and pillar details ("Summary Elaborate of Resources and Reserves Piskanja Borate Deposit (Baljevac on River Ibar) on date 31.12.2012. June, 2013", p.77.)

16.5.3 SRK Proposals

In SRK's opinion, the deposit dip would prevent mining on dip, and so excavation by continuous miners on strike, or an apparent dip is more likely. This would introduce dilution and loss at the footwall and hanging wall.

Drift and Fill is an alternative approach to extraction that might be more suitable to use of backfill, and variable lens width and deposit dips expected as shown in Figure 16-5. The method has potential for higher proportions of deposit extraction than room and pillar method, in theory up to 100%. There may, however, be a need for regional pillars to be left in-situ for mine stability which would reduce extraction.

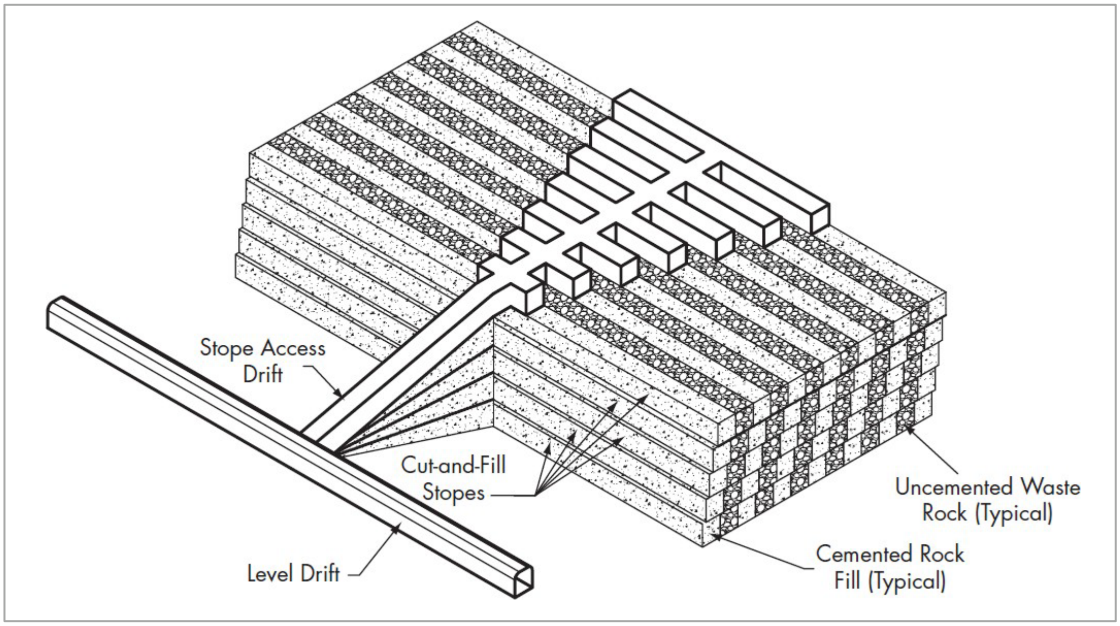


Figure 16-5: Typical Overhand Drift and Fill (SME handbook).

16.5.4 2022 Proposed mining method

Considering the limitations of the deposit geometry in the form of shape, dip and thickness (both real and apparent – horizontal) the proposed mining method is drift and fill with slight modifications in relation to SRK proposal.

The proposed method suggests the vertical division of mineralized bodies into sections of 30 m in height, separated by 5 m thick protective slabs. These protective slabs isolate individual vertical sections of the mineralized bodies and enable mining from top downwards (regarding the deposit) and from bottom up (regarding the individual section). It is these slabs that will induce the main losses in mineralization during mining. Loss will vary within the individual bodies depending on the thickness but will not exceed 15%. Accounting for eventual protective pillars which will need to be constructed to protect some of the essential mine structures such as ore bins and ventilation ramps and drifts the overall loss for the deposit as a whole will not exceed 25%.

Apart from vertical division, each section is divided into 60 m wide mining panels by access ramps as shown in Figure 16-6.

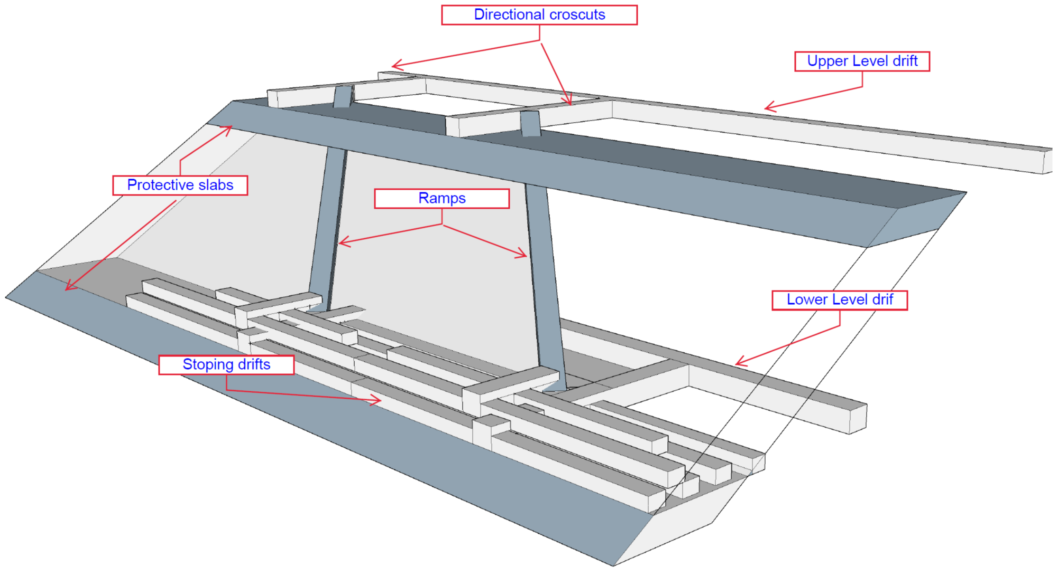


Figure 16-6: Proposed variation of Drift and Fill to be applied in Piskanja deposit

In order to achieve the maximum recovery and ensure the stability of excavated spaces it will be necessary to apply solidifying material for a backfill. Further geotechnical assessment inclusive of an assessment of the geometry, rock strength, and backfill characteristics will also be required.

Backfill design and materials selection will be subject of future investigation into the availability and characterization of materials. The waste material excavated and processed and subsequently available as tailings are expected to comprise fine grained sandstones and mudstones. It is unlikely this material alone will be suitable to develop backfill appropriate for the mining method, and additional materials will be required to achieve design characteristics.

Additional backfill materials would be expected to be sourced locally from sand and gravel pits or nearby quarries and may also include imported cement or pozzolonic materials. There is potential that the gypsum waste resulting from the boric acid plant process could be incorporated into the backfill design, and if the gypsum is calcined it might be used to provide binding qualities to the backfill.

The backfill will be required to have strength to as a working platform to support equipment in thicker sections.

Additional backfill consideration is linked to ground subsidence. To prevent ground subsidence and thus damage to residential structures in Korlaće village it is assumed that more than 85 % of the excavated spaces need to be filled with backfill. To achieve this, backfill should be pumped which suggests distribution by hydraulic system. However, ground subsidence needs to be modelled and properly assessed in the future studies.

The use of groundwater evacuated from the mine and water used for beneficiation process should be considered for preparation and delivery of backfill. Further testing is required on the chemistry of such waters and its impact to cement binding time.

16.6 Mining Tonnage

16.6.1 Introduction

Notwithstanding the fact that more work is required to be done to confirm the most appropriate mining method, for the purpose of the PEA the potential tonnage available for mining is determined by applying the following factors to the Mineral Resource:

- A minimum mining width of 1 m.
- 75% deposit extraction with 25% of mineralized material left in-situ as pillars for ground stability.
- Resource loss introduced on the hanging wall and footwall based on the hanging wall dip.
- A requirement for the mined B_2O_3 grade to be over 15%.

16.6.2 Minimum Mining Width

While the selected mining equipment can excavate to a minimum width of 1 m but the shuttle car needs a minimum of 1.2 m height in which to operate, and this is considered a minimum practical mining height utilizing mechanical equipment.

It has been assumed therefore that around 10% of the footprint of each lens is between 1 m and 1.2 m thick, with an average thickness of 1.1 m. The tonnage associated with this area has been excluded from Mineral Resources available to mine.

16.6.3 In-situ pillars

Both the 2012 Summary and the 2014 PEA suggest that, due to the variability of the deposit dip, room and pillar mining may be applicable and more appropriate than drift and fill in some flatter zones of the deposit. However, for the purposes of this PEA, it is assumed that application of drift and fill mining will result in higher recovery/lower losses and that combination of mining methods during mine operation would result in problems in logistics and operation and would require changes in mine development.

The main minerals occurring in the deposit are colemanite and ulexite and Erin intents to produce separate concentrate of these two main minerals. That being said, drift and fill method is more appropriate than room and fill because it enables selective mining, that is, the drift mining sequence can be scheduled to mine ulexite or colemanite and avoid them being mixed.

Application of room and pillar method is not excluded and should be included in future analyses.

Major deposit loss will be a result of protective slabs left between the vertical sections. Mineralized bodies will be divided into vertical sections, 30 m in height, separated by a 5 m protective slabs. The amount of mineralization left in the slabs varies in the range of 5% to 15%, depending on the geometry and position of the individual mineralized bodies.

Application of either room and pillar or drift and fill mining methods can be used to extract the mineralization. With the application of backfill, and accounting for the loses due to minimum thickness, mineralization left in protective pillars and slabs, it has been assumed that a minimum ore extraction ratio of 75% will be achieved.

16.6.4 Loss and Dilution Due to Deposit Dip

An average mineralized body dip of 14° has been selected to calculate possible loss of mineralization from dilution during mine production. This is based on room widths of 8 m and has been applied to 75% of the deposit lens area (Figures. 16-7 and 16-8). For the purpose of the technical economic model (TEM), it was assumed that surrounding rock contains no mineralization (B_2O_3 grade 0%) which, in reality, is not the case. The surrounding rock, treated as waste in TEM, and interlayered waste within the mineralized zones, contain low grade mineralization and carry certain amount of B_2O_3 and thus contribute to the overall B_2O_3 balance.

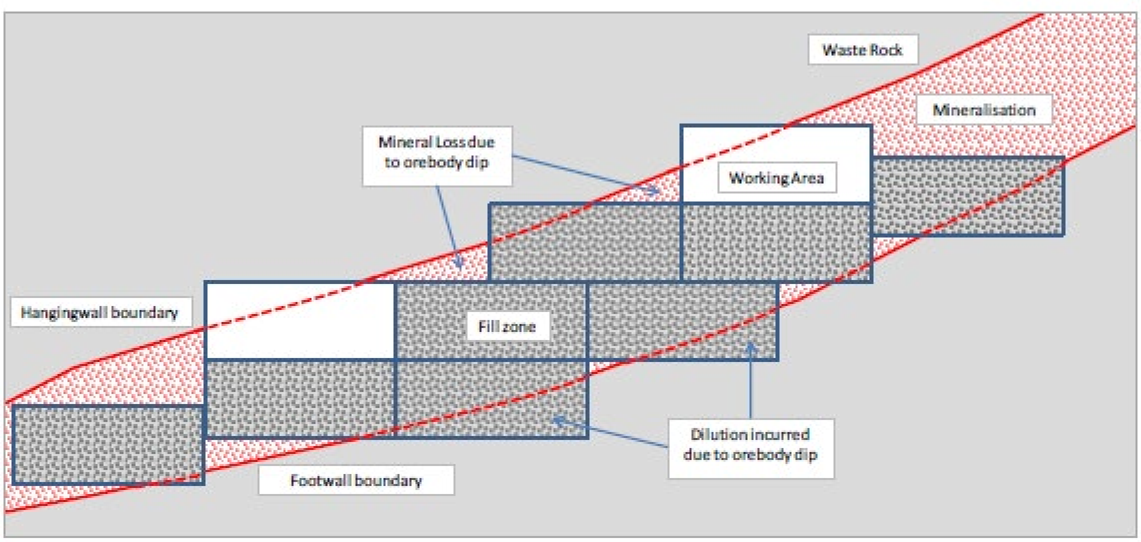


Figure 16-7: Schematic Section showing ore loss and Dilution in a drift and fill layout (SRK, 2014).

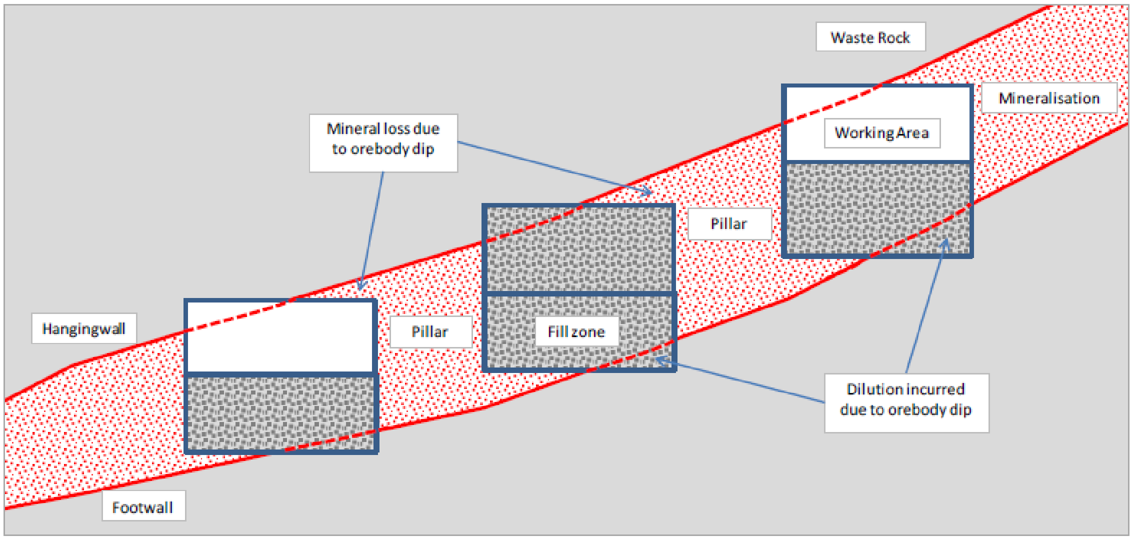


Figure 16-8: Schematic section showing loss and dilution in a room and pillar layout (SRK, 2014).

16.6.5 Production requirements

Drillhole data show the existence of distinct mineralization of colemanite and ulexite in lenses KZONE2 and KZONE3. Mineralization includes a mixture of various boron minerals in the overall ratio of 40 – 40 – 20 (colemanite – ulexite – mix). This indicates the possibility to selectively mine these minerals and produce separate concentrates of colemanite and ulexite. However, considering the amounts of ulexite as monomineralization, for the purpose of this PEA it is envisioned that two products are planned from the Project: a total of 250,000 tpa of colemanite concentrate grading of 40% B_2O_3, and 25,000 tpa boric acid later in the LOM (production start at year six).

On the basis of available data on boron minerals beneficiation in Turkish experience, a possible processing route is conceptualized in order to develop an understanding of possible mine production rates that would be required to support planned production. This is described in more detail in Section 17 of this report but in summary this assumes that:

- The Colemanite product grade achievable is 40% B_2O_3;
- Boric Acid loses 20% of B_2O_3 to the tailings; and
- The beneficiation plant loses 7.5% B_2O_3 to the tailings.

On this basis, annual run of mine (RoM) production requires a B_2O_3 content of 94,300 t (Table 16-3).

Table 16-3: Potential RoM production rate

Colemanite product grade		% B_2O_3	40%
Colemanite Sales @ 40% B_2O_3		tpa	250,000
B_2O_3contained in Colemanite		tpa	60,000
B_2O_3 Requirement for Boric Acid			
BA requirement		tpa	25,000
B_2O_3 content		t	14,074
Losses in processing		%	20%
B_2O_3 content in Plant Feed		t	17,593
Total B_2O_3 requirement from beneficiation			122,593
Beneficiation plant: recovery of B_2O_3 (1)			92.9%
B_2O_3 contained in RoM		tpa	132,533

(1) Based on an average Beneficiation Plant feed grade of 27.8% B_2O_3.

RoM production rate is dependent on the B_2O_3 grade of the mineralization being mined. The grade-recovery relationships for each process are not yet determined and are subject to further work. On the basis of grade defined by individual mineralized zone and sequence of mining determined by grade, a life of mine schedule over 18 years has been developed, including two years for mine construction.

16.6.6 Mine Production Modifying Factors

The mineralized bodies were assessed in terms of thickness, grade, and dip to develop the RoM plant feed tonnage from the Mineral Resource. Specifically, the zones have been ranked in order of contained B_2O_3; 79% of B_2O_3 is contained within KZONES 1, 2 and 3 as seen on Table 16-4. As said previously, waste rock entering RoM feed as dilution due to the geometry of mining method and waste rock coming from interlayered waste within the mineralized zones are carriers of boron mineralization and are included in the overall mined tonnage. That is why the in-situ volume and tonnage to be mined, for the purpose of mine schedule, deviates from the volumes and tonnages shown in the resource estimate.

Table 16-4: Mineralized bodies scheduled for mining.

Mineral Domain	In-situ Tonnage (Mineral Resource)	B_2O_3 Grade	Recoverable material	Tonnage available to mine	Scheduled Tonnage	Contained B_2O_3 in RoM
	t	(% B_2O_3)	t	t	t	t
KZ6MEAS+IND	208 844	30.53	156 633	154 532	154 532	43 636
KZ6INF	12 096	40.08	9 072	8 950	8 950	3 318
KZ3MEAS+IND	1 968 110	38.83	1 476 082	1 468 591	1 468 591	554 186
KZ3INF	138 649	32.24	103 987	103 459	103 459	32 415
KZ4MEAS+IND	218 804	38.85	164 103	161 638	161 638	57 506
KZ4INF	23 243	39.39	17 432	17 170	17 170	6 194
KZ12MEAS+IND	26 376	34.04	19 782	19 251	19 251	5 555

KZ12INF	2 433	37.48	1 825	1 776	1 776	564
KZ2MEAS+IND	808 816	36.03	606 612	595 764	595 764	193 063
KZ2INF	59 862	29.26	44 897	44 094	44 094	11 604
KZ5MEAS+IND	101 220	33.32	75 915	73 879	73 879	20 868
KZ5INF	12 217	30.57	9 163	8 917	8 917	2 311
KZ7MEAS+IND	252 912	20.07	189 684	187 947	187 947	35 795
KZ7INF	11 179	20.07	8 384	8 307	8 307	1 582
KZ8MEAS+IND	97 541	31.62	73 155	71 438	71 438	19 590
KZ8INF	30 861	24.92	23 146	22 602	22 602	4 885
KZ1MEAS+IND	2 284 690	39.68	1 713 518	1 693 408	1 693 408	627 867
KZ1INF	289 918	39.38	217 439	214 887	214 887	79 072
KZ9MEAS+IND	34 643	38.47	25 983	25 332	25 332	8 363
KZ9INF	3 995	40.13	2 997	2 922	2 922	1 006
KZ10MEAS+IND	22 680	19.56	17 010	16 212	0	0
KZ10INF	4 677	19.06	3 508	3 343	0	0
KZ11MEAS+IND	836 916	12.51	627 687	618 258	0	0
KZ11INF	23 920	18.32	17 940	17 670	0	0

Mineral Domains Excluded from the Mine Schedule

KZONES 10 and 11 have been excluded from the schedule on the basis of contained grade being below cut-off grade of 15%. KZONE11, although containing less than 15% of B_2O_3 should be considered as resource for future consideration since it contains 900 000 t of low-grade mineralization. The possibility of pre-processing (pre-beneficiation) of this low-grade material and mixing with high grade to produce BA plant feed should be investigated in the future studies.

KZONE10 has been excluded on the basis of having insignificant tonnage, combined with low grade and distance from the main deposit to provide practical mining efficiencies.

Domain Thickness

Mineral domain grade is expected to graduate over short distances at the hanging and footwall boundaries. The Mineral Resource is defined >1 m thickness. The mining equipment selected can efficiently excavate in minimum mining heights of 1.0 m, but the shuttle car used to transport mineral requires a minimum operating height of 1.2 m.

The areal extent of each lens with thickness 1 m to 1.2 m is assumed to be in the order 10%, and this has been excluded from the mineable resource.

Deposit Dip

The adverse impact of material loss is dependent on the domain dip and room width. The deposit has an average dip of 12°, with a maximum dip of 18°. A room width of 8 m has been applied for the calculation. Material losses have been applied equally across all zones, at the resource extraction ratio of 75%.

Hanging wall and Footwall Dilution

In the same way material is lost due to dip, dilution is introduced into run of mine production. Volumes are the same, but the greater density of waste rock (sg 2.48) results in greater tonnage.

Dilution grade has been applied at 0% B_2O_3.

Summary of Modifying Factors

A summary of the tonnage movement from Mineral Resource to RoM is shown in Figure 16-9 and Table 16-6.

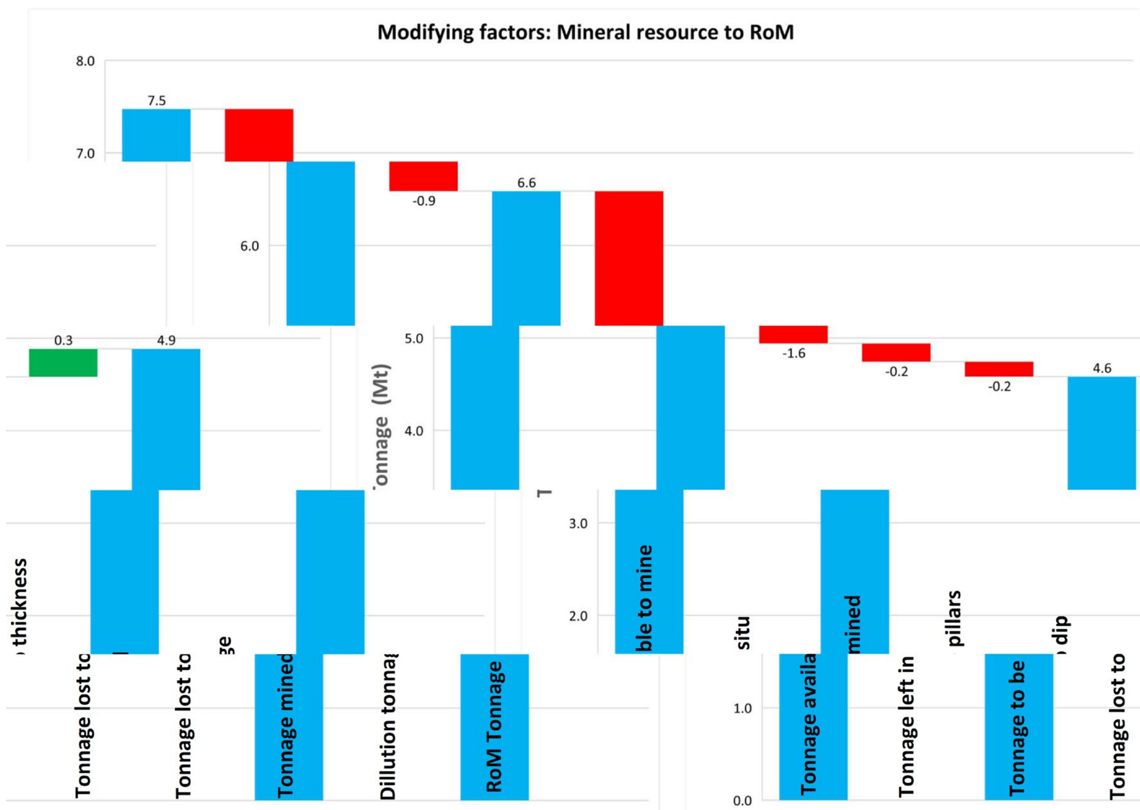


Figure 16-9: Mining Modifying Factors applied to Mineral Resource to Run of Mine

Table 16-5: Mineral Resource to Run of Mine

Mineral Domain	In-situ Tonnage available to mine (Mineral Resource)	B_2O_3 Grade	Scheduled	Tonnage left in situ	Tonnage to be mined	Tonnage lost to pillars	Recoverable tonnage (less pillars)	Tonnage lost to dip	Tonnage lost to <1.2m thick	Tonnage mined	Dilution Tonnage at 0% B2O3	Scheduled Tonnage	Mine Grade
	t	%		t	t	t	t	t	t	t	t	t	%
KZ6MEAS+IND	208 844	30.53	1	0	208 844	52 211	156 633	7 552	6 153	142 928	11 605	154 532	28.24
KZ6INF	12 096	40.08	1	0	12 096	3 024	9 072	437	356	8 278	672	8 950	37.07
KZ3MEAS+IND	1 968 110	38.83	1	0	1 968 110	492 027	1 476 082	26 929	21 942	1 427 212	41 379	1 468 591	37.74
KZ3INF	138 649	32.24	1	0	138 649	34 662	103 987	1 897	1 546	100 544	2 915	103 459	31.33
KZ4MEAS+IND	218 804	38.85	1	0	218 804	54 701	164 103	8 862	7 221	148 021	13 617	161 638	35.58
KZ4INF	23 243	39.39	1	0	23 243	5 811	17 432	941	767	15 724	1 446	17 170	36.07
KZ12MEAS+IND	26 376	34.04	1	0	26 376	6 594	19 782	1 908	1 554	16 320	2 931	19 251	28.86
KZ12INF	2 433	37.48	1	0	2 433	608	1 825	176	143	1 506	270	1 776	31.77
KZ2MEAS+IND	808 816	36.03	1	0	808 816	202 204	606 612	38 996	31 775	535 840	59 923	595 764	32.41
KZ2INF	59 862	29.26	1	0	59 862	14 966	44 897	2 886	2 352	39 659	4 435	44 094	26.32
KZ5MEAS+IND	101 220	33.32	1	0	101 220	25 305	75 915	7 320	5 965	62 630	11 249	73 879	28.25
KZ5INF	12 217	30.57	1	0	12 217	3 054	9 163	884	720	7 559	1 358	8 917	25.92
KZ7MEAS+IND	252 912	20.07	1	0	252 912	63 228	189 684	6 246	5 089	178 350	9 597	187 947	19.05
KZ7INF	11 179	20.07	1	0	11 179	2 795	8 384	276	225	7 883	424	8 307	19.05
KZ8MEAS+IND	97 541	31.62	1	0	97 541	24 385	73 155	6 172	5 029	61 953	9 485	71 438	27.42
KZ8INF	30 861	24.92	1	0	30 861	7 715	23 146	1 953	1 591	19 601	3 001	22 602	21.61
KZ1MEAS+IND	2 284 690	39.68	1	0	2 284 690	571 173	1 713 518	72 289	58 902	1 582 326	111 081	1 693 408	37.08
KZ1INF	289 918	39.38	1	0	289 918	72 480	217 439	9 173	7 474	200 791	14 096	214 887	36.80
KZ9MEAS+IND	34 643	38.47	1	0	34 643	8 661	25 983	2 338	1 905	21 739	3 593	25 332	33.01
KZ9INF	3 995	40.13	1	0	3 995	999	2 997	270	220	2 507	414	2 922	34.44
KZ10MEAS+IND	22 680	19.56	0	22 680	0	0	0	0	0	0	0	0	0
KZ10INF	4 677	19.06	0	4 677	0	0	0	0	0	0	0	0	0
KZ11MEAS+IND	836 916	12.51	0	83 6916	0	0	0	0	0	0	0	0	0
KZ11INF	23 920	18.32	0	23 920	0	0	0	0	0	0	0	0	0
	7 474 604	32.83		888 193	6 586 411	1 646 603	4 939 809	197 506	160 930	4 581 373	303 493	4 884 865	

16.6.7 Mine Production Schedule

The schedule was developed to target the shallowest parts of the deposit thus minimizing the pre-production time. In addition, each mineralized body will be depleted in succession. The resulting mined tonnage varies by year according to its B_2O_3 grade such that the B_2O_3 content supplied to the process plant is at a constant rate of 100 000 tpa from the beginning of mining operations until boric acid plant becomes operational in year 6. From that point, B_2O_3 content supply increases to 117 000 tpa.

Mineralized zones included in the mining schedule

All mineralized bodies, except for the KZONE11 and KZONE10, are included in the mine schedule which represents 90% of the resource tonnage and contains 88% of the B_2O_3 of the diluted material available to mine (Table 16-6).

Table 16-6: Diluted tonnage and grade available for Mining by Min Zone

		Measured+Indicated		**Inferred**	
		(Mt)	**(%B2O3)**	**(Mt)**	**(%B2O3)**
KZ1	Scheduled	2.285	39.68	0.290	39.38
KZ2		0.809	37.48	0.060	29.26
KZ3		1.968	38.83	0.139	26.30
KZ4		0.023	38.85	0.023	39.39
KZ5		0.101	33.32	0.012	20.07
KZ6		0.209	30.53	0.012	40.08
KZ7		0.253	20.07	0.011	20.07
KZ8		0.098	31.62	0.031	39.38
KZ9		0.035	38.47	0.004	40.13
KZ10	Excluded from Schedule	0.023	19.56	0.005	19.06
KZ11		0.837	12.51	0.024	18.32
KZ12	Scheduled	0.026	34.04	0.002	37.48
	Total	**5.81**	**37.62**	**0.58**	**34.48**

Mining Sequence

Some 16 years of mining is scheduled from the deposit in a sequence, first a group KZ3, KZ4, KZ6 and KZ12, followed by KZ2, KZ5, KZ7 and KZ8 and, finally, KZ1 and KZ9, at an average rate of 390,000 tpa at 34.9% B_2O_3.

The resulting mining schedule is shown in Figure 16-10 and Table 16-7.

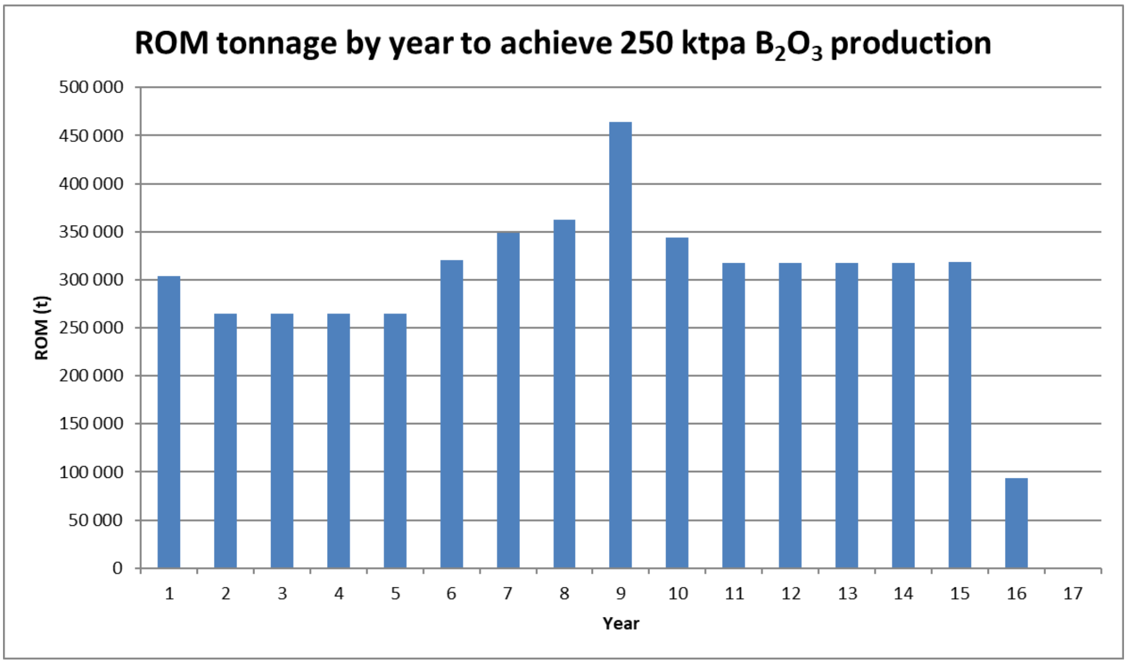


Figure 16-10: LOM Schedule to achieve 250 ktpa B_2O_3 concentrate.

Table 16-7: PEA Production Schedule over proposed LOM.

Mineral domain	Mined Tonnage (t)	Mined Grade (% B_2O_3)	B_2O_3 (t)	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12	Yr13	Yr14	Yr15	Yr16
KZ6MEAS+IND	154 532	28.2	43 636	154 532	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KZ6INF	8 950	37.1	3 318	8 950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KZ3MEAS+IND	1 468 591	37.7	554 186	140 572	264 999	264 999	264 999	264 999	268 021	0	0	0	0	0	0	0	0	0	0
KZ3INF	103 459	31.3	32 415	0	0	0	0	0	52 511	50 948	0	0	0	0	0	0	0	0	0
KZ4MEAS+IND	161 638	35.6	57 506	0	0	0	0	0	0	161 638	0	0	0	0	0	0	0	0	0
KZ4INF	17 170	36.1	6 194	0	0	0	0	0	0	17 170	0	0	0	0	0	0	0	0	0
KZ12MEAS+IND	19 251	28.9	5 555	0	0	0	0	0	0	19 251	0	0	0	0	0	0	0	0	0
KZ12INF	1 776	31.8	564	0	0	0	0	0	0	1 776	0	0	0	0	0	0	0	0	0
KZ2MEAS+IND	595 764	32.4	193 063	0	0	0	0	0	0	98 162	362 873	134 728	0	0	0	0	0	0	0
KZ2INF	44 094	26.3	11 604	0	0	0	0	0	0	0	0	44 094	0	0	0	0	0	0	0
KZ5MEAS+IND	73 879	28.2	20 868	0	0	0	0	0	0	0	0	73 879	0	0	0	0	0	0	0
KZ5INF	8 917	25.9	2 311	0	0	0	0	0	0	0	0	8 917	0	0	0	0	0	0	0
KZ7MEAS+IND	187 947	19.0	35 795	0	0	0	0	0	0	0	0	187 947	0	0	0	0	0	0	0
KZ7INF	8 307	19.0	1 582	0	0	0	0	0	0	0	0	8 307	0	0	0	0	0	0	0
KZ8MEAS+IND	71 438	27.4	19 590	0	0	0	0	0	0	0	0	6 463	64 975	0	0	0	0	0	0
KZ8INF	22 602	21.6	4 885	0	0	0	0	0	0	0	0	0	22 602	0	0	0	0	0	0
KZ1MEAS+IND	1 693 408	37.1	627 867	0	0	0	0	0	0	0	0	0	255 928	317 157	317 157	317 157	317 157	168 851	0
KZ1INF	214 887	36.8	79 072	0	0	0	0	0	0	0	0	0	0	0	0	0	0	149 435	65 451
KZ9MEAS+IND	25 332	33.0	8 363	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25 332
KZ9INF	2 922	34.4	1 006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 922
KZ10MEAS+IND	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KZ10INF	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KZ11MEAS+IND	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KZ11INF	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4 884 865	35.0	1 709 381	304 055	264 999	264 999	264 999	264 999	320 532	348 946	362 873	464 336	343 505	317 157	317 157	317 157	317 157	318 287	93 705
RoM grade		B_2O_3)		32.9	37.7	37.7	37.7	37.7	36.7	33.7	32.4	25.3	34.2	37.1	37.1	37.1	37.1	36.9	35.7
MEAS+IND	4 451 780		1 566 430	295 105	264 999	264 999	264 999	264 999	268 021	279 051	362 873	403 017	320 903	317 157	317 157	317 157	317 157	168 851	25 332
IINF	433 085		142 951	8 950	0	0	0	0	52 511	69 894	0	61 318	22 602	0	0	0	0	149 435	68 373

16.7 Mine Operations and Construction

16.7.1 Ventilation

For the purposes of this PEA, it is envisioned that the mining operation will not utilize blasting, that all equipment will be electric (powerline or battery) and that maximum number of workers per shift in the underground facilities will not exceed 50. Having this in mind required air intake is calculated upon the number of workers as 6 m^3/min/worker. This results in a minimum air intake of 300 m^3/min.

The experience in Serbian coal mines, with similar annual production, and operating in methane conditions, with drill and blast operations, show that air intake does not exceed 33 m^3/s.

On the other hand, a continuous miner will produce significant amounts of dust so dust emission and required air quantity for dust removal need to be considered. With two continuous miners in operation, with dust suppressors installed, the required air amount should not exceed 50 m^3/s. Dust emission from continuous miner operations and the required amount of air for dust removal needs to be assessed in detail in the future studies.

On the basis that the decline is the main air intake to the mine, with planned cross-sectional area of 14.6 m^2, maximum air intake into the mine should not exceed 90 m^3/s to comply with legislated maximum air speed of 6 m/s in the travel way.

16.7.2 Backfill

It has been assumed that 85% of the mined void would be filled. As discussed, backfill design and materials selection will be the subject of future investigation into the availability and characterization of materials from which a plan to provide backfill before the mining operation can be developed.

Given the relatively small mine production rate, a number of placement options are likely to available ranging from trucked backfill and mechanical placement (stowing) to borehole and pipe distribution and placement. This will need to be the subject of further study.

To minimize airgaps left after backfilling, which could result in potentially damaging subsidence, the backfill should be pumped in placed. This would require hydraulic transport of the backfill material as a slurry. There is a potential to transport the dry backfill material underground and mix it into slurry on site and then use a concrete pump to build it into place which would require backfill transport routes to be free of equipment, leaving the only possible route to be within the main ventilation decline.

Having analysed the former, the Author determines the best option is for backfill delivery to working area to be by a pipeline. The pipeline could be placed inside the ventilation decline but a more viable option is to drill a hole from the surface and construct an underground delivery pipeline. The backfill mix could then be prepared at the surface, hauled to the delivery drill hole, lowered underground and distributed through the mine.

The system can be used to deliver either wet or dry prepared backfill mixture. For the purposes of the PEA, a delivery of dry backfill mix has been conceptualized.

The cement slurry system would be containerized, the arrangement including hopper, mixing tank and slurry pump, and would be located underground near to the area being backfilled. The equipment would be electrically powered and skid mounted to enable relocation in the mine.

16.7.3 Second egress

Given that mine will be opened by two declines, the main ventilation decline will provide a second means of egress for the mine.

16.7.4 Materials handling

Materials handling is considered to be by conveyor direct to surface and a surface storage facility adjacent to the mine portal. This will be located in the mine haulage decline and will run parallel with other mine traffic.

A materials handling study will be required to identify the most appropriate way to deliver mined material from stopes to surface.

16.7.5 Decline construction

As the only ventilation intake, a 14 m^2 decline heading will be required. This size of development will also help accommodate the materials handling conveyor use to take excavated material from the mine.

The geotechnical conditions in which the decline will be constructed need investigation and a ground control plan created. However, it is expected that weak, bedded siltstone/mudstone will be the predominant host rocks. As a main travel way, the heading will need to be supported along its length; and in areas of poor and very poor ground conditions that might be expected around structural features additional ground support will be required.

A decline approximately 1,300 m long is required to access the orebody. For the purposes of this cost estimate, 60% of the decline length is classified Fair, 10% Good, and the remaining 30% as Poor. Since Piskanja shares similar geology and geologic structures with the nearby underground mine, Pobrđe, the experience from that mine was utilized to assess which type of ground control might be employed at Piskanja. The drifts and declines in Pobrđe are supported in steel so the same support is planned for Piskanja. The distance between steel frames and the properties of steel support will be a matter of future analyses.

In addition, 15% of decline length for development is included to account for pumping, materials handling, and ventilation requirements.

16.7.6 Mining equipment

Two continuous miners with a pair of shuttle cars or haulers each are envisaged as being required for mine production. A productivity study will be required once mine layouts are completed for the mine design to determine the fleet make. However, although it is considered that two continuous miners are likely to be heavily under-utilized, two machines are likely to be required to ensure there are sufficient working places available to maintain production and to mitigate against the risk of production stoppages due to unavailability of equipment.

17 RECOVERY METHODS

17.1 Processing Assumptions

As noted in Section 13, additional testing needs to be done to determine the optimal method for upgrading the Piskanja mineralization to what is considered to represent a minimum marketable concentrate grade. However, the process of B_2O_3 ore beneficiation does exist and is widely used in Turkish boron mines.

According to Burat (2008), concentration of colemanite ores in Turkey is carried out by disintegration, washing and classification in the size fractions. In large sizes, colemanite concentrate is obtained through attrition tumbling and hand sorting. While in fine sizes (–6 mm), attrition scrubbing and classification in the size fractions are carried out. At Emet Colemanite Concentration plant at a capacity of 600,000 tpa a colemanite ore of 27% B_2O_3 content is treated to produce a concentrate having 43% B_2O_3 at 300,000 tpa. Flow sheet of the concentration plant is given Figure 17-1.

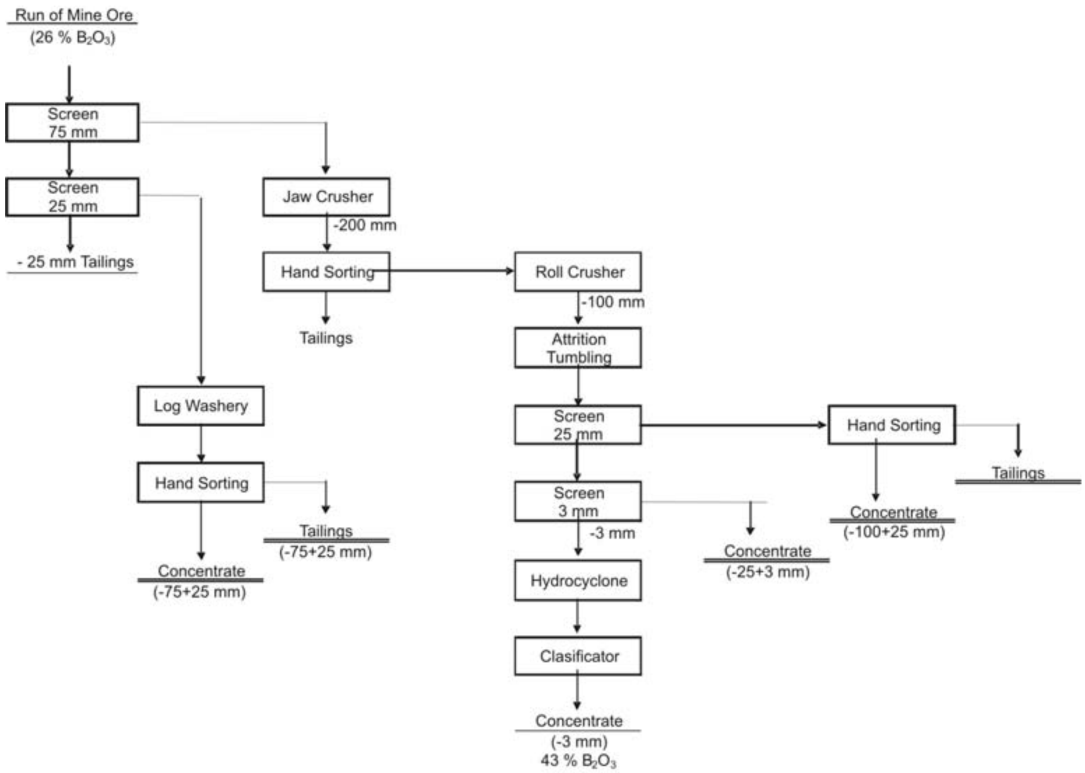


Figure 17-1: Emet Colemanite Concentration plant flow sheet (Burat, 2008)

For the purpose of the PEA, it was assumed that a process presented in Fig. 17-1 can be utilized to upgrade the mineralization to satisfactory levels of B_2O_3, to the following criteria:

- A colemanite concentrate grade of 40% B_2O_3, Ulexite concentrate grade of 45% and Colemanite/Ulexite mix Concentrate grade of 40% for the range of head grades in the proposed mine plan (an average of 34.99% B_2O_3); and
- A tailings grade of 7.5% B_2O_3, the figure achieved for the magnetite fraction in the SGS HIMS testwork as shown in Table 13-1.

The plan calls for the production of both Colemanite and Ulexite concentrates and Boric Acid (later in LOM), the latter at a rate of 25 ktpa, and the former at a rate of approximately 250 ktpa in total. This production scenario is modelled according to the process route shown in block form in Figure 17-2.

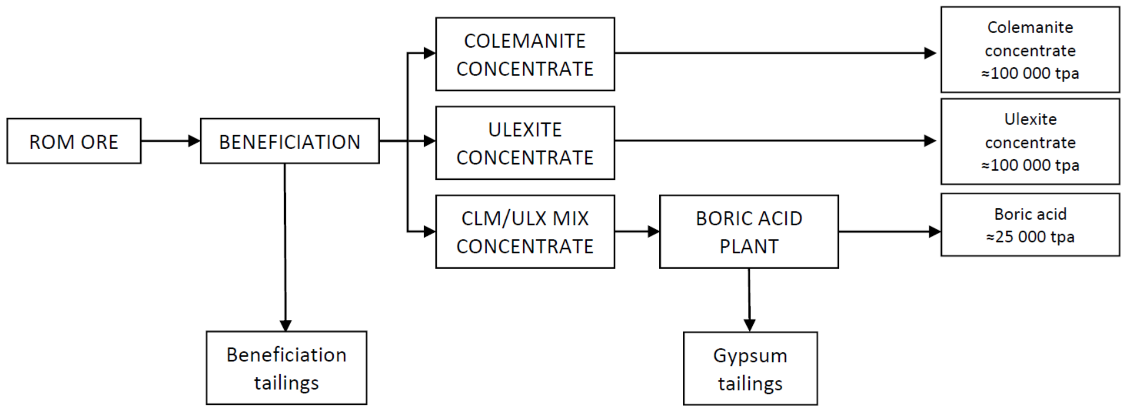


Figure 17-2: Conceptual Process Flow Sheet

The mass yield and B_2O_3 recovery across the beneficiation stage are variable, a function of the variable RoM grade and the fixed concentrate and tails grades detailed above. For the Boric Acid plant, a fixed B_2O_3 recovery of 80% has been assumed as representing a typical industry value.

The quantity of beneficiation plant tailings is projected to range from 18 ktpa to 200 ktpa over the life of the project, averaging 47 ktpa. The quantity of tailings from the Boric Acid plant is expected to be 42 ktpa.

17.2 Tailings Management

17.2.1 Introduction

To support the PEA, a study was undertaken to determine the possible location for the tailings storage facility (TSF) to store 5% of 750 kt of colemanite and 5% of 460 kt of boric acid tailings material. The amount of tailings material to be stored within the TSF total 0.06 Mt, i.e., 0.055 Mm^3 (Table 17-1) at the dry density of 1.1 t/m^3. The remaining 95% of boric acid and colemanite tailings will be utilized for backfill.

Table 17-1: Tailings Material Distribution

Tailings Material	Total Produced	95% to backfill	5% to TSF
Tonnage (t)			
From Colemanite Plant	752 509	714 883	37 625
From Boric Acid Plant	465 101	441 846	23 255
Total	1 217 610	1 156 729	60 880
Volume (m3)			

From Colemanite Plant	684 099	649 894	34 205
From Boric Acid Plant	422 819	401 678	21 141
Total	1 106 918	1 051 572	55 346

Site Selection Study

The site selection study was not carried out as the Erin's preferred location was the site located immediately south of the proposed plant. This site was previously used by the Ibar Mine as a settling pond to clarify water for the coal washing plant. Having in mind that the land is already degraded by industrial use, available, and easily accessible and is in the near proximity, it is therefore a logical location for the TSF.

The location of the site including the proposed plant and portal area is shown in Figure 17-3.

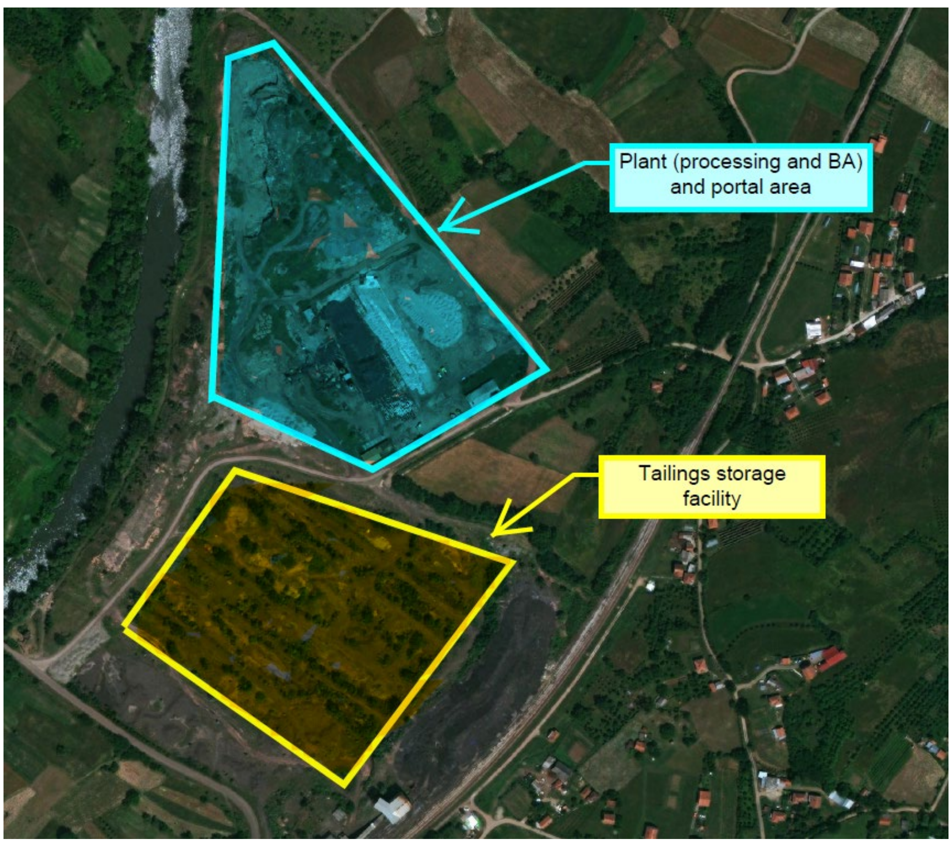


Figure 17-3: Tailings Storage Facility Location

17.2.2 TSF Design

A conceptual TSF design has been developed to store about 150,000 m^3 of tailings material that occupies an area of about 6 ha, including the dam footprint area. The conceptualized tailings facility has three times larger volume than needed to allow the construction of emergency excess spill catchment. In the 2014 PEA, SRK considered a downstream construction method for the proposed facility which will be adopted for the purposes of this PEA. The construction of the dam will require the construction of full height dam walls using suitable material for construction acquired from local borrow areas. The dam wall will have slopes of 1V:2.5H on the downstream side and 1V:3H on the upstream side and a crest width of 5 m. The maximum dam height at the lowest ground is about 4.4 m, and the crest elevation at 381 masl. A freeboard of 1 m was added to the dam height.

Tailings waste will be disposed as slurry which will be delivered via a pipeline into the facilities. Dry stacking at this stage was not considered as there are many unknowns regarding the final tailings product but it is an option. In order to evaluate the preferred tailings deposition method, it is recommended that the geophysical, rheological and geochemical testing on tailings material is carried out.

TSF design is based on the following criteria:

- The need to accommodate 61,000 m^3 of colemanite and boric acid tailings at a slurry density of 1.1 t/m^3;
- 5% of 0.7 Mt colemanite tailings production – about 40,000 t;
- 5% of 0.4 Mt boric acid tailings production – about 20,000 t;
- 95% of total tailings production will be used for backfill;
- The dam configuration consists of 5 m wide crest with the side slopes of 1V:2.5H on the downstream side and 1V:3H on the upstream side. The dam will be constructed out of mine waste or from the local borrow areas;
- The TSF will have decant system to decant/pump any excess water from the facilities. The drainage system will drain to a collector sump by gravity that will be located at the lowest point of the TSF. Supernatant water recovered from the facility will be pumped back to the plant;
- An emergency spillway will be constructed to accommodate storm conditions; and
- Knowing the nature of boric acid and colemanite tailings, a double 2 mm HDPE liner system should be incorporated. In addition, a leakage detection system between the liners and below the bottom liner will be installed to detect any HDPE liner leakage.

17.3 Recommendations

As noted in Section 13, only a very limited amount of metallurgical testwork has been undertaken in support of the production of this PEA. This work consisted of some upgrading testwork, which, while resulting in a reduction in the Fe content of the product to close to the assumed target level, did not result in any significant upgrading of the boron content to the assumed minimum figure of 40% B_2O_3 for a saleable colemanite concentrate.

The metallurgical parameters developed for the PEA are therefore largely assumptions based on similar operations in Turkey. In addition, virtually no specific engineering was conducted with regard to the process plant design, and the process plant capital and operating costs subsequently generated are high level estimates based on generic databases and parallel project data.

Further development of the Piskanja project will therefore require the execution of metallurgical testwork and plant engineering programs commensurate with the level of study being undertaken. Given the flowsheet proposed in this PEA, a future metallurgical testwork program should focus on the technical feasibility of upgrading the mineralization to meet the B_2O_3 specifications, and the effect of head grade on both this potential for upgrading, and on the resulting recovery. Boric acid production testwork should determine the effect on key parameters, such as the sulphuric acid consumption, of variations in the feed grade to boric acid production.

Samples selected for the metallurgical testwork programme should cover the expected range of potential variability within the Piskanja mineralization. The variability parameters should include grade and mineralogy (i.e., varying ratios of Colemanite to Ulexite to Howlite), as well as location within the mineralized zone, such as lateral extent and depth.

On the basis of more specific process parameters developed from this testwork, a more detailed plant engineering study can be undertaken, again commensurate with the precision of the overall study.

The following studies are required at the next level of study to further define the project components and confirm the tailings management assumptions made within the PEA:

- Identification of borrow areas location;
- Land access and acquisition to be confirmed;
- Geotechnical, geochemical and rheology testing of tailings material; and
- Geotechnical and geochemical testing of borrow areas and the in-situ ground conditions within the TSF footprint.

18 PROJECT INFRASTRUCTURE

18.1 Introduction

This section of the report presents the results of preliminary studies undertaken to determine the infrastructure and services/utilities requirements needed to facilitate the mining and commercial export of the borate product(s), Colemanite concentrate and boric acid as presented in the preceding sections.

18.2 Existing Project Area Infrastructure

18.2.1 Overview

The Project area is serviced by existing regional rail, road, power and water supply infrastructure. The town of Baljevac is located immediately to the west and a number of operational mines are located in the vicinity of the project as well as other manufacturing and industry.

18.2.2 Existing Operations

Operational and disused mines are located within the vicinity of the Project.

Ibar Coal Mines Company produces around 30,000 to 50,000 tpa of coal from a number of open pits and underground operations both in in Baljevac and to the northwest of Baljevac. Coal is transported to a reception facility at Baljevac by aerial tramway where a transfer station directs to the Coal Preparation Plant (crushing, screening, and washing) on the east side of the River Ibar. At the Preparation Plant, washing and screening occurs and coarse material is loaded directly to ore wagons while the fines which contains high moisture, are settled and dried and loaded by front end loader (FEL) or truck.

Ibar Coal Mines Company also owns a number of packages of land for mining, processing and support facilities including:

- Coal mine and support areas;
- Coal preparation / processing buildings;
- Waste dump;
- Settling area for fines and wet process products;
- Stockyard area (also for Pobrđe borate); and
- Sidings / loading area.

Currently, Erin Ventures utilizes existing core store facilities currently owned by Ibar Coal Mines Company under a lease arrangement.

A producing borate mine is located at Pobrđe, 2.6 km to the west, north-west of the Project. The mine produces around 500 tpa of borate feed material. The run of mine material is transported by road to a sorting area at the Ibar Coal Mines Company (comprising an office and concrete laydown area) where it is sorted by hand, bagged and exported by road.

Historically, both Magnesite and Asbestos were mined in the area. Asbestos was mined 2.5 km east of the Korlaće, which is located at the eastern edge of the Project. The Magnesite mine was located 2.5 km west. Other industry, and former industry, also occurs at Baljevac, including a former Fiberglass Factory located to the southwest of the coal preparation plant.

18.2.3 Road

Access to the Project is by paved road from Belgrade, a journey that takes approximately four hours and passes through the towns of Kragujevac and Kraljevo. The proposed mine site is in close proximity to the "E-761 regional road" via a small access road that crosses the river Ibar. The E-761 road is paved with asphalt and links the project area to the city of Kraljevo to the north (66 km) and further to A1 (E-75) highway. To the south, E-761 links the project area to Raska (15 km), Novi Pazar (35 km) and Bar port in Montenegro (320 km)

18.2.4 Rail

A standard gauge single track railway passes through the licence area and connects to Belgrade via the town of Kraljevo and Batočina. Further connections to Thessaloniki in Greece are possible from Batočina or to the south from Baljevac through Skopje of Macedonia. The railway is used for both commuter and freight traffic.

Kraljevo possess a good regional and international rail networks enabling it to be linked to the following inland river port terminals at Belgrade and Smederevo, and Ports of Constanța (Romania, north-east), Thessaloniki (Greece, south) and the Port of Bar in Montenegro (west)

Rail infrastructure is owned and maintained by The Railways of Serbia Company (Železnice Srbije) (RSC), a state-owned entity. RSC also operate commuter and freight services within the country and can provide a range of rolling stock types. Independent freight service providers are also available within the country.

The existing coal operations utilize the railway for export of coal products. Three sidings are located at the facility running adjacent to the main line. The existing loading facility is in poor condition. The rail alignment comprises wooden sleepers; the sidings are in variable condition with one shown to be serviceable however the mainline appears maintained and in generally reasonable condition; track speeds, gradients, capacity and logistics are, in general, below EU averages but, given the production rate, likely available capacity, and provided adequate planning and scheduling is undertaken, this isn't anticipated to affect the Project.

18.2.5 Inland Waterways

The River Ibar runs adjacent to the project area but is not suitable for navigation. The nearest inland river port for consideration is in Belgrade from where products can be transported by barge along the Danube to the black sea or to Western Europe.

18.2.6 Power

Power generation in Serbia is 70% coal fired and 30% by renewable energy sources. The general project area is supplied by a 110 kV and 35 kV transmission line and a 10 kV distribution lines which were observed during the visit.

Local industry, including the Coal Preparation plant, the Coal mine and factories are supplied by a 6 kV distribution line from a 35 kV/6 kV substation and transformer located at a former fibreglass factory site. The coal preparation plant has an installed demand of 1.6 MW. To meet local demand the 10 kV line is stepped-down to 220 V and 380 V supplies.

18.2.7 Water

The Project area has a developed water supply network and both raw and potable water are supplied to the nearby mines and business. Historically the existing coal preparation plant extracted raw water from River Ibar for wet processing.

18.3 Production Scenario

The current envisaged mining rate is anticipated to be approximately 400 ktpa) RoM to produce around 275 ktpa of saleable products. Saleable products comprise 250 ktpa of colemanite concentrate, crushed, screened and bagged for export. A waste stream will result from the crushing and screening. A boric acid plant will be located at the site to produce around 25 ktpa of boric acid. The productions scenarios have considered to inform the PEA are presented in Table 18-1.

Table 18-1: Run of Mine production Scenarios

Product	Annual Production Rate	RoM	Export Scenarios
Colemanite and ulexite concentrates	~250,000 t	Granular material (dry / wet) with a P80 of around 20 mm.	West Europe (various including Mediterranean and northwest Europe) China.
Boric Acid	~25,000 t	Acid (Powder)	Europe

Both Colemanite and Ulexite concentrate products will be sold "free on board ("FOB") mine site" with the FOB point the point of loading for export. Access road construction, transportation, load out area and mobile equipment is considered within the PEA costing. It is assumed the project can utilize the existing areas and sidings of the Ibar Coal Company with activities can be coordinated with the Ibar Coal Company.

A Boric Acid Plant (modular) will be located on site and will a) produce a granular boric acid product, b) require Sulfuric acid to be transported to site, and c) produce a waste stream for disposal.

Sulfuric acid can be obtained from Bor (240 km by road) where it is produced as a by-product in copper smelter. Chinese owned ZiJin Copper plans an increase in copper production from the present 80 ktpa to 250 ktpa which will be accordingly followed by an increase in sulfuric acid production. Sulfuric acid can be transported from Bor either via road or via rail. Based on this, the load-out area shall require a sulfuric acid reception tank and appropriate mobile equipment to transfer sulfuric acid to the boric acid plant.

The project requires support infrastructure (administration, change house, 122elfaree and canteen facilities), warehousing, laydown areas, and workshops and for the purpose of this PEA it is envisioned that support infrastructure will be modular, container type. Loading facilities (or sufficient surface area) will be required for packaging and export also considered to be prefabricated in construction.

18.4 Proposed Infrastructure

18.4.1 Overview

The Piskanja Mine will utilize existing industrial zoned land located to the east of Baljevac, adjacent to the Ibar Coal Mines Company coal processing facility. A discussion of the risks, benefits of the location, and possible access alternatives, is included in Section 16.

An entrance "portal" will be constructed with mine support infrastructure, a crushing and screening operations area and the boric acid plant at surface. The product load-out will be located around 200 m away to the southeast adjacent to existing railway sidings which will be refurbished. Associated utility supplies and security will be provided and the site shall be accessed via an existing access road alignment which will require refurbishment.

The existing industrial infrastructure is presented in Figure 18-1 below:

Figure 18-1: Existing industrial infrastructure

18.4.2 Site Support Infrastructure

The following support and operations infrastructure will be located to support mining and processing:

- Administration and planning building for mine planning and technical services, welfare/change-house, security and first aid (approximately 40 m by 30 m single story);
- multi-purpose workshop, laydown area and warehouse (approximately 40 m by 20 m single story); and
- Water supply and storage, power supply infrastructure.

The exact land requirements will be determined at a later stage of the Project. For the purpose of this study, a working area of approximately 150 m by 150 m has been allocated for this infrastructure around the portal entrance. There is additional land to the north and east should it be required subject to negotiation with the current landowners.

Figure 18-2: **(For location, see Figure 18-1 “P1”) Existing Industrial Land proposed for site infrastructure and Portal (photograph taken from proposed portal location looking south towards Ibar Coal Mines coal processing facility). Note existing power infrastructure. June, 2022.**

Figure 18-3: **(For location, see Figure 18-1 “P2”) Existing Industrial Land (photograph taken from proposed portal location looking southeast). June, 2022.**

Figure 18-4: **(For location, see Figure 18-1 "P3") Existing Industrial Land (photograph taken from proposed portal location looking west). June, 2022.**

18.4.3 Crushing & Screening Area

Exact land and foundation requirements will be determined at a late stage of study. For the purpose of this study, a working area of approximately 50 m by 150 m has been allocated for crushing and screening plant in proximity to the portal entrance. A RoM stockpile and crushing and screening plant shall be situated on a concrete apron. The crushing and screening plant and product stockpiles may need to be covered and structures are allocated.

18.4.4 Product Handling

There are two possible options for product load-out of Colemanite concentrate:

- Product is bagged (e.g., into "1 ton bulk bag") which is then containerized for load out onto flat-bed rail wagons (or road haulage trucks) using a reach stacker; or,
- Conveyor transport to a covered warehouse for direct/indirect feed to ore-hoppers. Indirect feed would be using a front end loader ("FEL").

The PEA concept utilizes containerization of 20 t into "twenty feet equivalent unit standard container units (TEU)" for load-out. Based on the assumptions presented in Table 18-2 below, approximately 45 TEU will be completed, handled and loaded per working day.

Table 18-2: **Assumptions for Product Handling and Load-Out**

Basis	Number	Unit
Production rate per year (total)	250,000	Tons
Tons per TEU	20	Tons
TEU per year	12,500	TEU

Shipment days per year (5 days per week, 50 weeks per year)	250	days
TEU shipped per day	50	TEU
TEU filled per day (7 days for 50 weeks)	40	TEU
TEU per consist (assumption)	50	TEU
Trains per day (assuming 30 TEUs per consist)	1	Day
Length of train (6.10 m per TEU) excluding locomotives	310	m

An approximate 75 m by 150 m area has been allocated for the containerization area. Within this area, empty TEUs will be stockpiled (15 m^2 area per TEU) up to 2 TEUs height and TEUs will be loaded ready for transport. The containerization area will be serviced by two “reach cranes” for manipulation of TEUs and transport to the load-out area.

An alternative option, dependent on the market destination, would be to transport TEUs using road haulage.

18.4.5 Load-Out Area

For product load out, the project assumes a parcel of land adjacent to existing sidings immediately to the southeast of the Portal. An area with dimensions of 300 m by 50 m has been allocated for the load-out area. The parcel of land currently forms part of a stockpile area owned by Ibar Coal Mining Company (5). The area can be access via an existing access road and earthwork which requires refurbishment or rebuilding. A cost for rebuilding has been considered in the estimate.

Figure 18-5: (For location, see Figure 18-1 label “P4”) Existing Industrial Land adjacent to mainline railway and sidings to be refurbished and utilized for load-out. Photo looking towards the north-northeast. June, 2022.

Based on the expected length and numbers of trains and accounting for return of empty TEUs and train marshalling, two 750 m lengths of existing rail siding require acquisition and refurbishment (renewal of rails, ballast and ties). Load-out will utilize mobile equipment from the containerization area. An allowance for an open sided portal steel framed warehouse has been made at the load-out area.

An alternative location for load out exists to the south of the Ibar Coal Mining Company processing facility however this would result in increased transfer distances and use of public access roads.

18.4.6 Boric Acid Plant

It is proposed that the boric acid plant will be located proximal to the mine entrance. The modular plant facility will be supplied, installed and commissioned by a third party and will include all civil, structural, electrical, piping, utilities, water and fuel storage and back-up power generation.

The exact land requirements will be determined at a late stage of study but for the purposes of the study, a working area of approximately 200 m by 200 m has been allocated for this infrastructure. A development pad assuming only ground preparation and levelling will be provided as well as perimeter fencing and dedicated access point.

18.4.7 Site Access Road

An approximate 1 km of site access road between the existing public road, the mine entrance and the load-out facility will require partial upgrading and refurbishment. The current alignment exists and has been freshly paved by asphalt but a portion of the access road will require preparation and development of an unbound surface for access as well as drainage ditches on each side.

18.4.8 Earthworks

The Portal Entrance to haulage and ventilation declines is located adjacent to the River Ibar on the floodplain area. A “box-cut” will be formed to access rockhead through a thickness of soft sediments which overlie. The box-cut at Piskanja will utilize a soil retaining structure (temporary or permanent) to minimize footprint and retain the groundwater. The entrances of both declines will have to be raised to comply with national regulations regarding mine openings and flood risk. It will require additional earthworks however this shall be assessed at a later stage of study together with the portal location itself. An area of 50 m by 100 m has been delineated for the final portal footprint.

General earthworks will be required at the access road entrance to the load-out. The existing ground levels rise by around 3 m to 5 m in elevation to the existing vertical alignment of the railway. An earthwork constructed from imported placed and engineered fill will be required to support the access road.

18.4.9 Utilities / Security

Power will be supplied from the national grid. A 1 km overhead distribution line from the nearest appropriate point with substation and switchgear is to be required.

Raw water will be abstracted from the River Ibar subject to the required permitting. A suitable pump and pipework will be required. A water settling pond is provided for mine water.

A 1.5 m to 2 m chain link fence will be erected around the perimeter of the various infrastructure elements to protect the site from theft and to also segregate the general public from the mining and processing activities. A security cabin and barriers will be positioned by both the mine entrance and boric acid plant.

18.5 Export Logistics

The intended point of sale for products is "FOB mine site" determined as the point of loading onto either rail wagons or road vehicles thus downstream costs for freight and rehandling costs at river ports are not considered. Possible logistical solutions to confirm export routes to the anticipated markets are shown in Table 18-3.

Table 18-3: Export Scenarios

Option	Description	Approximate Distance
1	Rail to the Port of Bar via Kraljevo. Bulk terminal facilities are available and destinations in Western Europe and trans Atlantic, Middle East and Far East are accessible.	430 km by rail
2-A	Rail to the Port of Constantia via Kraljevo. Bulk terminal facilities are available and destinations in the Far East are accessible.	1042 km by rail
2-B	Rail direct to destinations in Western Europe.	1146 km by rail (Germany border)
2-B or 3-B	Rail to inland river ports at either Belgrade and Smederevo for barge transportation along the Danube into Western Europe or to the Port of Constanța	Rail to Belgrade or Smederevo: 250 km / 198 km Barge transport to Constanta: 861 km or Barge transport to Germany: 1150 km
5	Rail to the Port of Thessaloniki via Macedonia	444 km

For this PEA study, the Author proposes utilising the nearby rail infrastructure to reach inland destinations in Western Europe or international ports on the Mediterranean or Black Sea. Site observations suggests there to be available capacity on the adjacent rail.

Alternatives options may consider barge transportation from Belgrade to Western Europe or international ports on the Black Sea although this would result in an additional stage of double handling. However, the site is adequately accessed by national roads and considering the tonnages anticipated a road haulage option also exists.

18.6 Recommendations

The following studies are required at the next level of study to further define the project components and confirm the assumptions made within the PEA:

- Portal entrance trade-off study should be conducted to establish optimal location;
- Land access and acquisition will be a consideration that will need to include community engagement and consideration of regional land use plans;
- The layout and interrelationships of infrastructure components to be defined for material flows and efficiencies;
- Logistics study is required to confirm rail capacity and a power study and engagement of the power provider(s) to confirm supply and capacity;
- Preliminary engineering design for portal development, standard foundation detail and structures and/or budget estimates for equipment, refurbishments and structures as appropriate; and
- There is a risk of poor ground conditions beneath the site and an intrusive ground investigation is required for the portal entrance, boric acid plant location and other structures to properly define the risk.

19 MARKET STUDIES AND CONTRACTS

No market or contracts study has been undertaken for this report.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental and Social Setting

The Project is located in south-central Serbia, approximately 160 km south of Belgrade. Administratively, the Project is in the Raška District and Municipality. The nearest villages are Brvenik, which is in the immediate vicinity of the deposit area, and Baljevac, which is approximately 1.5 km north-west of the project area. The regional administrative centre, Raška, lies approximately 10 km to the south of the project area.

The project area is located on the lower north-western slopes of the Kopaonik Mountain Range; the largest mountain range in Serbia. Altitudes in the project area range between approximately

375 m and 625 m above mean sea level and the climate is characterized as moderately continental. The average temperature in January is -1°C, while that in July is around 19°C. Winter temperatures are not as low as in other areas of Serbia, due to the southerly location. Average annual precipitation measured in the region of the site is 647 mm (Priboj Selo station), with the highest rainfall in the months of May to September (monthly average around 49-62 mm).

The Project is located within the River Ibar drainage basin, a trans-boundary river which flows through eastern Montenegro and Serbia prior to discharging into Morava River, Danube and the Black Sea. The deposit area is drained by three streams; Korlaćki, Radić and Kurićki. All are tributaries of the River Ibar. Kurićki stream, located to the north of the deposit area, is approximately 5 km long and has a catchment area of approximately 5.5 km^2. There are a number of springs in the upper reaches maintaining a small perennial flow, which is augmented during runoff events. Korlaćki stream, located to the south of the deposit area, is approximately 5 km long, with a catchment area of approximately 6.5 km^2. Radić stream is located between the Kurićki and Korlaćki streams.

Groundwater is recharged within the slopes of Kopaonik Mountain. Localized spring discharge occurs where the slope decreases and at the bases of creek valleys. The dominant groundwater use is garden irrigation and small-scale subsistence farming; use of groundwater as a source of potable drinking water occurs at a few properties.

The dominant land use is small-scale subsistence farming. The river flood plains and lower mountain slopes are cultivated for crops and fruit. Steeper slopes, above 500 masl, are generally covered by sparse deciduous woodland.

Brvenik, Baljevac and Raška have populations of 64 (2011 census), 1,482 (2011 census) and 6,590 (2011 census), respectively. The population in the Raška municipality was 24,678 in the 2011 census. About 4,000 people have migrated out of the municipality in the last two decades. The negative population growth can be attributed to the stagnation of economic development of the region, which has led to population migration from the municipality to more developed parts of Serbia and abroad. The unemployment rate in the Raška municipality was 41.33% in 2011.

The deposit is located in the Kopaonik metallogenic district of Serbia; the district has seen production from many small deposits of lead, zinc, silver and iron since the Middle Ages. Exploration during the past 100 years has resulted in the discovery and development of asbestos, coal and magnetite properties. State-owned Ibarski Rudnici Coal Mine, a part of Public Enterprise for Underground Coal Extraction (JP PEU) operates a coal mine north of Baljevac as well as the Pobrđe borates mine.

20.2 Permitting process and status

20.2.1 Mining authorizations

Mining rights in Serbia are currently governed by the Mining and Geological Exploration Act (Official Gazette RS Number 101/2015, 95/2018 and 40/2021); the responsible government agency is the Ministry of Mining and Energy.

In order to obtain the mining permit, Erin must go through several steps which include the preparation of a number of documents and obtainment of several approvals from agencies other than the Ministry of Mining and Energy. The key documents needed for mining licence approval must be prepared by a licenced institution and must undergo technical control. Technical control is an independent review of the documents for compliance with legislation and professional rules of thumb.

The first step is the validation of reserves within the deposit. To validate the reserves, Erin must submit a document titled “”Elaborate on Reserves” to the Ministry of Mining and Energy. The document must be accompanied by two “Competent Person Review” reports for both geology and mining. The validation document issued by the Ministry of Mining and Energy is a certificate on resources and reserves. The estimated time to receiving approval is two months from the submission of the request.

The second step is the exploitation field approval. The exploitation field is an area surrounding the deposit which encloses the planned infrastructure at the surface and the extents of the mining operations underground. To obtain the exploitation field approval, Erin must submit the following:

- A 1:2500 scale map outlining the deposit, infrastructure and communications, cadastral data etc.;
- Certificate on resources and reserves from the beginning;
- Feasibility study for the Project with a detailed economic assessment of the Project which needs to be prepared by a licenced institution and subjected to technical review;
- Proof of compliance with urban planning and compliance with municipality spatial plan;
- Scope of work for an Environmental Impact Assessment study issued by the Ministry of Environment;
- Proof of compliance with cultural heritage legislation; and
- Proof of compliance with water management conditions.

Upon the receipt of request, the Ministry of Mining and Energy issues the approval for the exploitation field, the expected time is two munts from the request submission.

Once the exploitation field has been approved, Erin must prepare additional documentation prior to taking the third step in the process of permitting.

The key document is the "Main Mining Project", which is essentially the mine design. It must be prepared by a licenced institution and is subjected to technical review. This is a detailed design document comprising conceptual solutions, a detailed technical design for each of the technological phases and an economic assessment. The key point is that mining operations must be performed in accordance with the main design. Any divergence from the design must be reported to the authorities and, in some cases, additional designs have to be prepared to enable a transition.

The second document is the Environmental Impact Assessment (EIA) study which will be addressed in Section 20.4.

The third step in the mining permitting process is the approval for mine construction. Erin must submit a request for approval to the Ministry of Mining and the request is accompanied by

- The Main Mining Project;
- Proof of compliance with the Municipality spatial plan issued by the Municipality authorities;
- Proof of ownership on the land planned for infrastructure;
- Certificate on resources and reserves from step one;
- Environmental Impact Assessment Study;
- Proof of compliance with cultural heritage legislation;
- Proof of compliance with water management conditions;
- Proof of compliance with fire safety regulations; and
- Bankable guarantee/ negotiable instrument for reclamation/remediation costs.

Upon the receipt of submission request, the Ministry of Mining and Energy issues the approval for mine construction. This will allow Erin to start with the construction of mine facilities both the surface and the physical mine.

The constructed facilities are subjected to an official inspection by a commission approved by the Ministry of Mining and Energy. The inspection must confirm that mine facilities are constructed in accordance with the Main Mining Project and in compliance with legislation. The commission has several members, covering all aspects of construction including mining, civil, construction, mechanical and electrical.

The final step in the mining permitting project is the "Mine Usage Approval" which is, in essence, the Mining Permit. Erin must submit a request accompanied by the Main Mining Project and the technical inspection report. Once the Ministry of Mining and Energy issues the mining permit, Erin can start production.

The technical submissions required in support of applications for exploitation approval, approval of mining works and use of mining facilities is outlined in Table 20-1.

Table 20-1: Documents required for mining permit applications

Mining approval	Document required	Further detail on the evidence required
Exploitation field/ Approval for mine construction	Map (1:25,000)	-
	Certificate of Mineral Resources and Reserves	-
	Feasibility Study / Main Mining Project	Feasibility Study - for the approval of Exploitation field. Environmental impact assessment Study – Scope of study for exploitation field and full study for mine construction Main Mining Project – for approval of mine construction.
	Proof of compliance with urban planning	An act of municipal authorities in charge of urban planning with regard to exploitation compliance with the appropriate spatial and urban planning. A Spatial Plan for Special Purposes will have to be prepared to inform this agreement and has to be approved by regulatory authorities. Erin has to initiate the preparation of Special Purposes Spatial Plan
	Proof of compliance with legislation on environmental protection	An act of the ministry competent for environmental protection on compliance of the exploitation with the environmental protection regulations.
	Proof of compliance with cultural heritage legislation	An act of the ministry competent for protection of cultural heritage on compliance of the exploitation with the cultural heritage regulations.
	Proof of compliance with water management legislation	approval from the water management body, if mining operations affect the water regime.
	Proof of ownership	Proof of ownership or easement (usufruct) rights to the land designated for the construction of mining and mineral processing infrastructure.
Approval for the use of mining facilities	Proof that the mining facilities have been constructed in accordance with the Main Mining Project on the basis of which the approval for mining works was granted.	

20.2.2 Environmental authorizations

The Law of Environmental Protection (Official Journal RS, No. 135/2004, 36/2009, 36/2009, 72/2009, 43/2011 – decision of Constitutional court, 14/2016, 76/2018, 95/2018) oversees the management, support, restoration and preservation of natural resources and natural, cultural and historical heritage. It aims to prevent all forms of pollution, nuisance and deterioration of natural, social and cultural environments, and to preserve human, animal and plant health and to ensure the security of property and people. This law also deals with atmospheric emissions, waste disposal and the import, production or use of hazardous substances.

The Law on Environmental Impact Assessment (Official Journal RS, No. 135/04, 36/09) requires that environmental impact assessment (EIA) licences are obtained for projects with potential to have significant impacts. Projects subject to an environmental impact assessment are outlined in the Decree on Determining the List of Projects Requiring Mandatory Environmental Impact Assessment and List of Projects Requiring Optional Environmental Impact Assessment (Official Journal RS, No. 114/08). The Law on Environmental Impact Assessment charts the procedure to obtain an EIA licence briefly, as outlined below.

- An application is submitted to the competent authority to determine the scope and content of the EIA. As part of determining the scope and content of the EIA, the competent authority will seek public opinion.
- The applicant should then prepare an EIA (applicants have one year to prepare the EIA following receipt of the required scope and content from the competent authority).
- On receipt of the EIA, the competent authority will open the EIA for public inspection and there will be a public hearing. The competent authority will notify the public of this (with an interval of at least 20 days between the public notice and public hearing).
- The EPA will submit the comments on the EIA, together with the EIA, to a Technical Commission that will provide comments (and a suggested decision) to the competent authority.
- The competent authority will make the decision whether to issue an EIA licence. An EIA licence will have a period of validity and contain conditions for the protection of the environment.
- The competent authority is required to inform stakeholders of the decision, including the contents of the decision, the justification for the decision, and the key measures to be implemented to prevent, mitigate or remediate impacts.

The EIA procedure is part of the permitting process for construction, integrated pollution prevention and control (IPPC) and waste management permits.

20.2.3 International legislation

Serbia officially applied for European Union membership in December 2009 and is aiming to achieve European Union accession. For this reason, the project should strive to comply with European Union Law (regulations, directives and decisions) as far as possible. Up to date all of the European Union norms regarding environment have been transposed to Serbian legislation or are in the transposing process. European Directives, particularly important to mining projects are:

- 85/337/EEC – The Environmental Impact Assessment Directive
- 2004/35/EC – The Environmental Liability Directive
- 2010/75/EU – The Industrial Emissions Directive
- 2006/21/EC – The Mine Waste Directive
- 2008/98/EC – The Waste Framework Directive

- 2000/60/EC – The Water Framework Directive
- 2008/50/EC – The Ambient Air Quality Directive (Pure Air for Europe)
- 1992/43/EC – The Habitats Directive (Natura 2000)

20.2.4 Voluntary international standards

There are a number of business charters, codes of conduct / ethics / practice and good- practice guidelines that have been developed by industry (often in partnership with key stakeholders). Those of particular importance to environmental management and sustainable development in the mining sector are:

- The International Council on Mining and Metals' Sustainable Development Framework (which comprises a set of ten principles, public reporting and independent assurance) and numerous best practice guidelines.
- The Voluntary Principles on Security and Human Rights.
- e3Plus – guidance on responsible exploration developed by the Prospectors and Developers Association of Canada (PDAC).
- Towards Sustainable Mining (TSM) – an initiative of The Mining Association of Canada.
- Enduring Value – the Australian minerals industry framework for sustainable development.

While these are largely voluntary, membership of certain industry associations requires compliance. At the same time, increasing numbers of stakeholders expect to see the environmental and social performance of individual companies aligned with these voluntary standards irrespective of membership of the relevant industry association.

20.3 Approach to Environmental and Social Management

Erin recognizes the importance of stakeholder engagement and communicates with government at national, provincial and district levels and with local communities on an on- going basis. Based on the information available during preparation of this PEA, there appears to be a good relationship between Erin and government and local-level stakeholders. Erin acknowledged that the on-going stakeholder engagement has not yet been formalized through a stakeholder mapping (identification) exercise to identify stakeholders interested in or affected by the project, development of a stakeholder engagement plan (SEP) and establishing a database of records of past stakeholder engagements.

With respect to the EIA, two types of consultation are recognized as outlined in Table 20-2, Serbian EIA legislation requires stakeholder engagement as part of the EIA process (Section 20.2), however the responsibility for engagement is assigned to local authorities. International standards on environmental and social management, as well as common practice of Mining and Exploration companies in Serbia promote a more active approach to community stakeholder engagement to ensure constructive relationships with stakeholders are developed and maintained. Active stakeholder engagement, beyond the immediate scope of the EIA, is also considered to be an important tool for identifying and managing environmental and social risks to the project during both development and into operations.

Table 20-2: EIA-specific stakeholder engagements

Type of engagement	Engagement events
Legally required EIA stakeholder consultation	Scoping consultations with project stakeholders (including regulatory authorities and governmental groups, non-government organizations, and local communities) Public hearings on the EIA, which are organized by the relevant regulatory authority in partnership with the company
Additional stakeholder engagement to improve the quality of EIA, baseline studies and environmental and social management plans	Environmental-permitting consultations with regulatory authorities, particularly where these pertain to the approach to the EIA, the content of the EIA and EMP and other detailed management plans and environmental approvals to be obtained Consultations with local communities and local authorities and community service providers during baseline studies as needed to provide information for these studies ESIA-related consultation with specialist interest groups during baseline studies, including non- governmental organizations (NGOs) to provide input on various matters, such as biodiversity matters

20.4 Environmental and Social Impacts and Risks

20.4.1 Anticipated Environmental and Social Impacts

This section provides an indication of the anticipated environmental and social impacts associated with the Piskanja Project and is based on information gathered during the site visit, review of available literature and the experience of the ESIAS team on other similar projects in Serbia.

The list of anticipated impacts in Table 20-3 are at a scoping level and therefore could change in terms of the type, nature and severity and additional impacts could emerge during the characterization and assessment of environmental and social features of the site and the development of the mining and processing approaches and infrastructure service corridors for road, rail, water and power for the project. Table 20-3 is intended to provide an indication of the likely impacts (positive and negative) that could be expected from a mining development of this nature.

Table 20-3: Anticipated environmental and social impacts of the Piskanja Project

Aspect group	Aspect	Mechanism	Potential impacts
Land trans-formation	Surface disturbance and topographic change at the mine site	Site clearance within footprint of mine and associated infrastructure	• Disturbance of sites of archaeological, historic or cultural importance • Loss of land available to local communities • Changes to land capability • If the industrial land currently owned by the Ibarski Rudnici Coal Company is acquired, there could be positive impacts through rehabilitation of this area
Water resources	Water take	Water abstraction for supply Dewatering of workings	• Interference or reduced availability of water to other users and ecological receptors • Alteration of watercourse flow regimes, resulting in changes to flood patterns, fluvial processes, erosion, aquatic habitat, ecosystems and ecosystem services.
	Water diversion	Interruption of or changes to surface water channels from construction of mine infrastructure	
	Discharges from point and diffuse sources	Seepage from mine and mineral-processing residue disposal / dirty water holding facilities Uncontrolled discharges (such as during storm events, spills, leaks etc.) Wastewater discharges Runoff from exposed surfaces	• Deterioration of groundwater and surface water quality potentially used by communities and ecological systems, for example from increased turbidity from sediment laden runoff, leachate from mine facilities and nutrients from blasting or sewage treatment etc.
Air quality	Point emissions	Vehicle emissions Stack emissions Stationary sources (such as generators, crusher) Incinerators	• Increase in background concentrations of particulate matter (dust) leading to nuisance and health effects for nearby communities • Increase in background concentrations of gaseous pollutants (such as sulfur dioxide, nitrogen dioxide and carbon dioxide etc.) potentially causing health risks to nearby communities
	Diffuse emissions	Fugitive dust emissions from dry surfaces	• Increase in concentrations of particulate matter (dust) leading to nuisance and health effects for nearby communities
Noise and vibration	Equipment / vehicle operation Blasting	Noise emissions	• Increased disturbance to site workers and nearby sensitive receptors • Sensory disturbance resulting in animal displacement
Waste production (wastes other than mine wastes)	Domestic, construction and operational wastes	Litter Sewage Non-process related industrial wastes Hazardous wastes (such as waste oils, chemicals, spent packaging)	• Waste disposal sites resulting in creation of an attractive nuisance to scavenger animals • Contamination of soil and/or water • Degradation of land and health risks associated with the above impacts

Aspect group	Aspect	Mechanism	Potential impacts
Stimulation of economic growth	Job creation Procurement of services and supplies	Direct employment during construction and operation Indirect employment by service providers and suppliers	• Employment of local people • Skills acquisition through job training • Improved infrastructure and services • Potential for sustainable economic developments
	Payment of tax and levies	Tax on profits Duties on imports Payroll tax Value added tax	
	Community investment	Investment in social development initiatives	
Resettlement	Land acquisition within the project site	Economic displacement (loss of access to land used for agriculture, natural resources etc.)	• Loss of access to common property resources (such as wells, boreholes, etc.) • Loss of access to cultural resources
Closure	Retrenchment Cease of operations		• Inter-related potential impacts including: • Unemployment and loss of income • Closure of support and service businesses • Outward migration of skilled workers, leaving the elderly and the unskilled behind leading to the eradication of the consumer base • Psychological impacts on individuals manifesting as apathy, helplessness and a sense of inadequacy • Erosion of Governments' revenue base leading to a reduction in the allocation of funds to the area and subsequently deterioration in quality of life

These will be re-defined throughout the ESIA process, particularly following stakeholder consultation.

20.4.2 Key Technical Environmental and Social Issues

Historical liabilities

The industrial area currently owned by Ibarski Rudnici Coal Company has historically been used for processing and waste disposal facilities. Sources of contamination are likely to include surface disturbance and degradation from land clearance, uncontrolled disposal of waste rock and fine coal tailings, and contamination of soil and water.

As any other mining company in Serbia, Ibarski Rudnici Coal Company is obligated to undertake remediation/reclamation/recultivation measures upon mine closure. As Ibarski Rudnici became operational before the Mining and Geology Exploration Act imposed the obligation to mining companies to present bankable negotiable instrument as guarantee, there are no guaranties that Ibarski Rudnici will undertake any mitigation measures.

The Environmental Liability directive establishes a framework of environmental liability based on the “polluter pays” principle to prevent and remedy environmental damage. The principle of liability applies to environmental damage and imminent threat of damage resulting from occupational activities, where there is a link between the damage and the activity in question. Transposition of the Industrial Emissions Directive is also likely to result in new obligations being imposed on existing installations to identify and remediate contamination (during operation and closure) and monitoring the risks of contamination in the future.

Redevelopment of any brownfield sites by Erin therefore presents a liability risk. If surface rights are acquired, Erin could be obligated to remediate past environmental or social damage that has occurred, or there could be complicated legal negotiations regarding liability for historic environmental contamination. The most recent experience of RTB Bor acquisition by Chinese ZiJin group indicates that obligation to remediate historical environmental damage is not likely to be imposed, however, a robust environmental liabilities assessment prior to acquisition (or shortly afterwards) to understand the extent of existing contamination and its impacts on the surrounding environment can assist in mitigating the uncertainties around this risk.

Water management

In spring 2012 Erin contracted MWH UK LTD, a UK based water management, engineering and monitoring company, to undertake an ongoing hydrogeological study for the Project. This work has included a review of pre-existing hydrological, meteorological and hydrogeological studies covering the Jarandol Basin, hydrogeological mapping, an initial survey of domestic wells and water supply, geophysical logging of Erin's drill holes, and design of a preliminary hydrogeological conceptual model.

- In the period 2011-2012, piezometric structures were installed in 6 holes – shallow and deep piezometer constructions in 3 holes and deep piezometer constructions in the 3 holes.
- MWHUK LTD prepared two reports about hydrological research, titled "Hydrogeological Assessment (Phase II) – Final Report Piskanja Boron Near Baljevac, Raska, Serbia" and "Technical Note: Comparison of Groundwater and Surface Water Samples to Drinking Water Quality Standards at Piskanja Boron, Near Baljevac, Raska, Serbia" (2013).
- Sampling, chemical analysing (SGS Serbia and Institute of Public Health in Belgrade), and monitoring surface and underground water (from water spring, domestic well and pipeline, and piezometers) in Piskanja deposit and its surroundings, took place in period from 2012-2017. Note: underground water from piezometers were analysed within a one-year cycle 2013-2014.
- In 2020, Balkan Gold contracted Geoprofil d.o.o., Belgrade, to undertake a study on the hydrogeological structure of the deposit itself; give an assessment of the impact of groundwater on the performance of mining works; to develop and calibrate a hydrodynamic (mathematical) model of the deposit and analyse groundwater evacuation outside the working contours of the future mine based on the balance calculation in the model. This research is summarised in the report titled "Hydrogeological characteristics Piskanja boron deposit near Baljevac on the Ibar river".

Two independent preliminary water management studies (2013 and 2020) have been undertaken for the project. These studies predicts that inflows into the mine workings could be in the order of between 5 and 140 l/s. The water quality of the inflows into the eventual mine may be of relatively high pH, with elevated boron. The implications of the mine operations on the quality of any eventual dewater and where this would be released to have not yet been investigated.

Potential water supply sources have not been investigated but could include water abstracted from the River Ibar or groundwater from the mine dewatering operations.

Further work will be required during the PFS to define potential impacts and water management requirements.

Environmental quality monitoring

In 2020, Balkan Gold contracted Mining Institute, Belgrade, in order to undertake environmental quality monitoring during the summer and winter period 2018-2019. Ambient air quality testing and measurement of noise levels in the environment were performed by Mining Institute, Belgrade, while the examination of soil quality and determination of heavy metals (Pb, Cd, Zn, As) in sedimentary materials was done by the Institute Mol d.o.o., Stara Pazova.

Mining Institute prepared two separate reports about environmental quality monitoring for summer and winter period and final “Report on the baseline of environmental quality in the exploration area of boron mineral deposits “Piskanja“at Baljevac, on the Ibar river, No I-05/19”.

The report on the baseline of environmental quality also included data on measurements and quality of surface and groundwater (from the period 2011-2017), which were performed by the SGS Serbia, Institute of Public Health in Belgrade, and Balkan Gold.

Hazardous waste storage facilities

One of the waste streams resulting from the manufacture of boric acid is a solid waste known as boro-gypsum (it is an output from the reaction of colemanite and sulfuric acid). Boro- gypsum has a high content of boron oxide, which is water soluble and known to form complexes with heavy metals. Boro-gypsum is classified as a hazardous waste.

Risks associated with disposal of any hazardous waste should be thoroughly evaluated in the EIA and by project engineers and managed through the project design. The project should plan for appropriate characterization of waste streams and the findings of these studies will need to be incorporated into the EIA to ensure impacts have been appropriately identified and adequate management is incorporated into project design.

High expectations of the positive socio-economic impacts

Communities generally have high expectations of socio-economic benefits derived from mining companies. There are high expectations in terms of reviving declining regional and local economies, promoting and stabilizing a decreasing population and contributing towards improvement of infrastructure.

Management of stakeholder expectations is likely to be an on-going challenge. Many socio-economic benefits will not be realized without the commitment and effort of both Erin and government. Tension and conflict could arise if these benefits are not realized.

Specific strategies/plans should be developed to ensure the community expectations are addressed or managed, and that anticipated benefits are realized and maximized in favour of the local population. Responsibilities of other parties, such as government, for implementation of management measures should be clearly identified and communicated to local stakeholders.

Environmental activists

Within the last couple of years Serbia has been witnessing a rise in Environmental activism. A number of Non-Governmental Organisations strongly oppose any mining activities, especially linked to lithium and boron due to joint occurrence of lithium and boron in Jadar deposit currently developed by Rio Tinto. The majority of environmental activism is directed towards the Jadar project but affects other projects too. The activism does not seem to have a serious political support but has a certain amount of media coverage. While present through Serbia, environmental activism does not have any significant stronghold in historically mining areas such as Baljevac. The reason to that is in the fact that communities in mining areas understand the benefits of mining which outlines the importance of stakeholder engagement and transparency of the project from the very beginning.

20.5 Recommendations

It is highly recommended that Erin initiates the EIA process for the Project in accordance with Law on Environmental Impact Assessment (Official Journal RS, No. 135/O4, 36/09) and international guidelines. The EIA process comprises the elements summarized in Table 20-4 which outlines the overall objectives, activities, stakeholders likely to be involved and deliverables of each phase of the proposed EIA process, highlighting how these phases link to the overall project development phases – i.e., PEA, PFS, FS (as recognized by IRRS).

This work will also need to be undertaken for any “associated facilities”, which is any facility being developed as a direct result of the Project and upon which the Project is reliant on. This is particularly pertinent where Erin has committed to assisting with the permitting and licensing aspects of the boric acid plant.

It is recognized the terminology used for the overall project development phases differs between IRRS and Serbian legislation (i.e., Elaborate, Feasibility Study and Main Mining Project); therefore, Erin needs to assess the required content of the technical studies required to support requirements of both IRRS and Serbian legislation to establish how these development phases align with each other.

The EIA process below includes recommendations on stakeholder engagement as input to the environmental permitting process but building a robust relationship with stakeholders requires engagement above and beyond the scope of the EIA. Erin may also want to maintain and/or initiate engagement to address the following issues:

- General maintenance of constructive relationships between the project proponent and government agencies, community leaders and communities as the project develops;
- Access to land for on-going activities and intrusive engineering studies (such as geotechnical studies);
- Project grievance mechanism for receiving and responding to grievances of people from local communities that are/will be affected by project activities; and
- Obtaining other project approvals (such as approvals for infrastructure development, mining works and building approvals).

In addition to the EIA process, a comprehensive environmental liability assessment must be undertaken for any brownfield sites likely to be redeveloped for the project. Although some of the sampling, data analysis and evaluation will be part of the bigger EIA project, more comprehensive sampling, particularly of soil, water and vegetation, in the vicinity of the brownfield sites may be needed to adequately characterize the extent of any historical liabilities so that legal responsibility can be more clearly defined.

Table 20-4: Overview of the ESIA process and linkages to project development

ESIA Phase	Project Development Phase	Objectives	Activities	Stakeholders involved	Documents produced by ESIA team
Screening	Engineering Scoping Study/ PEA	• Determine if ESIA required	• Review available secondary information on the project's social and environmental setting • Brief review of the proposed development and potential impacts • Discuss project with regulatory authorities	• Regulatory authorities	• Input to the Engineering Scoping Study
Environmental and Social Scoping	Pre-feasibility study (PFS)	• Identify the potential impacts requiring study • Identify project alternatives to be evaluated during the course of the ESIA process • Engage stakeholders • Identify law and standards applicable to the project (in particular, identify key environmental and social authorisations required and criteria that should be applied in the design of the project) • Identify environmental and social design criteria for the project engineers	• Undertake a review of environmental and social law and standards applicable to the project • Stakeholder identification and analysis (social scan) • Development of a stakeholder engagement plan (SEP) • Prepare a scoping report for submission to the competent authority who issue the ToR for the EIA (the content of the scoping report is outlined in OJ RS, No. 69/05) ○ Preliminary project description, preliminary evaluation of alternatives, preliminary identification of impacts etc. • The competent authority will notify stakeholders of the EIA process and provide information to facilitate their input into the decision on the ToR for the EIA	• Local communities, regulatory authorities, non-governmental organisations and other stake-holders that could have an interest in the project	• Write ups on relevant law and standards and environmental and social design criteria • Preliminary SEP • Stakeholder database • Background information document (BID) for stakeholders • Records of stakeholder consultations • Scoping report summarising the results of the scoping phase, including updated SEP, if necessary • Input to the PFS
Baseline characterization	Starts at PFS and continues into feasibility study (FS)	• Collect background information and describe the physical, biological, social and economic setting of the project • Establish pre-project conditions	• Baseline studies, where needed • Consultation with stakeholders as necessary to support baseline characterization	• Stakeholders who can provide input to baseline studies	• Interim and final baseline reports • Records of stakeholder consultations

ESIA Phase	Project Development Phase	Objectives	Activities	Stakeholders involved	Documents produced by ESIA team
Impact assessment and report compilation	Impact assessment occurs towards the end of the FS once a sufficiently defined project description is available	• Define and evaluate potential impacts (identified by stakeholders and project specialists) • Define measures for management of impacts • Determine the significance of potential impacts with and without management • Develop framework environmental and social management system (ESMS) • If necessary, continue to build capacity of stakeholders to participate in the ESIA process, where necessary • Record decisions on project alternatives and the environmental and social inputs to these decisions	• Review project information, stakeholder issues and baseline studies • Evaluate project alternatives from a technical, economic, environmental and social perspective • Eliminate or mitigate impacts through modification of the project design • Predictive modelling studies • Impact evaluation • Report compilation • Discuss specific procedural and/or substantive matters with stakeholders as required	• Stakeholders identified as requiring capacity building • Stakeholders who may need to input into project design	• Predictive modelling reports • ESIA report, which includes an ESMP • Records of stakeholder consultations
ESIA report review and decision making	Prior to construction, unless required by regulatory authorities as part of the approval process	• Government decision and conditions of approval • Feedback to stakeholders on progress with project planning, expected impacts and proposed mitigation • Acknowledge issues raised by stakeholders and explain how these will be addressed	• Review of ESIA report by regulatory authorities and other interested stakeholders • Notification and engagement of stakeholders • Feedback meetings, as determined in the SEP • Government public hearing/s (if prescribed by government) • Government decision and definition of the conditions of approval	• Stakeholders who participated in the ESIA process to date • Stakeholders responding to notices of feedback meetings (and any government public hearing/s)	• Notice from the regulatory authority • Advertisement/s in provincial newspapers • Records of stakeholder consultations • Record of hearing • Government record of decision and conditions of approval
Development of detailed management system and plans	Depending on regulatory authority requirements either occurs as part of FS or prior to construction	• Enable successful implementation of the management measures identified through the ESIA process during construction and operation	• Further develop the framework ESMS into a fully implementable ESMS • Develop detailed management plans, policies, protocols, procedures etc., to support the implementation of the ESMS	• Stakeholders potentially impacted by the project	• ESMS description • Policies, plans, procedures and protocols

21 CAPITAL AND OPERATING COSTS

21.1 Introduction

This section summarizes the capital and operating cost assumptions which were made in order to develop the preliminary economic analysis presented in Section 22.

21.2 Mining

21.2.1 Mining Capital Expenditure

Estimated expenditure for mining capital is US$ 39.4 million. A breakdown of this is shown in Table 21-1 which also shows the impact of the 30% contingency which has been applied to all capital costs derived for the Project for the purposes of the PEA presented in Section 22 of this report. The principal areas of mine capital expenditure are:

- Surface infrastructure including: roads; offices, workshops and stores facilities; RoM pad and loader; and security;
- Mine portal;
- Decline access (haulage decline), nominally 1,300 m in length;
- Ventilation decline, nominally 1,200 m in length, and primary ventilation fan;
- Back fill equipment: a cement slurry plant and a truck and LHD for backfill handling;
- Materials handling system including: belt conveyors and storage system;
- Mining equipment including: continuous miners, shuttle cars, roof bolters;
- Service equipment: light vehicles;
- Service infrastructure, including power supply, dewatering, secondary ventilation, proximity detection and communications equipment; and
- An allowance of 15% of mobile equipment costs has been made for freight; and 3% of mobile equipment costs for commissioning.

Table 21-1: Mining Capital Costs

Mining Project Capital Cost Estimate			Unit	Unit Cost	Total (US)
Surface Infrastructure					
	Waste Dump site preparation	LS	1	60 000	60 000
	Workshop equipping	LS	1	150 000	150 000
Back fill mix plant & delivery system					
	Additional truck	LS	1	150 000	150 000
	Backfill Loader / Scoop	LS	1	600 000	600 000
	Ejector conveyor and belt cleaner	LS	1	150 000	150 000
	Additional belt for managing B/F	meter	800	400	320 000
	Containerized cement slurry mixer, hopper and pump	LS	1	500 000	500 000
Mine Portal		LS	1	350 000	350 000
Decline access					
	Mobilization and set up	LS	1	450 000	450 000
	Decline excavation and ground support				
	Good Ground	meter	130	2 594	337 220
	Fair Ground	meter	780	3 404	2 655 120
	Poor Ground	meter	390	4 215	1 643 850
	Off decline headings	%	15%	4 636 190	695 429
Level development		meter	1 200	3 500	4 200 000
Ore pass shaft					
	Sinking	meter	210	6 500	1 365 000
Ventilation					
	Ventilation Fan	LS	1	403 000	403 000
	Panel Ventilation Fans	LS	4	9 125	36 500
Second Means of Egress					
	Decline excavation and ground support				
	Good Ground	meter	120	2 594	311 280
	Fair Ground	meter	720	3 404	2 450 880
	Poor Ground	meter	360	4 215	1 517 400
	Off decline headings	%	5%	4 279 560	213 978
Spiral ramp					
	Ramp excavation and ground support				
	Good Ground	meter	110	2 594	285 340
	Fair Ground	meter	660	3 404	2 246 640
	Poor Ground	meter	330	4 215	1 390 950
Materials Handling System					
	Conveyor	meter	1 350	1 600	2 160 000
	Footwall conveyor	meter	950	1 600	1 520 000
	Bridge conveyor	LS	1	75 300	75 300
	Storage System	LS	1	218 600	218 600
Mining Equipment					
	Continuous Miners	each	2	1 800 000	3 600 000
	Shuttle Cars	each	4	950 000	3 800 000
	Roof Bolter	each	1	750 000	750 000
	Scoop	each	1	500 000	500 000
	Shuttle cars spare	each	1	950 000	950 000
Service Equipment					
	Light vehicles	each	6	50 000	300 000
	UG Service Vehicle	LS	1	100 000	100 000
	Miscellaneous	LS	1	100 000	100 000
	RoM pad loader	LS	1	100 000	100 000
Service Infrastructure					
	Mine Power System	LS	1	450 000	450 000
	Mine Pumping System	LS	1	250 000	250 000
	Proximity detection system	LS	1	200 000	200 000
	Mine Communications System	LS	1	100 000	100 000
Freight			15%		1 440 000
Commissioning			3%		288 000
Sub – total					**39 400 000**
Contingency				30%	11 820 000
Total					**51 220 000**

Backfill

Sources of fill materials to achieve backfill design characteristics still need to be determined. Infrastructure will be required for transport, stockpile and rehandle of feed materials, provision of services including power and water, mixing and transport of fill underground and placement into the stopes. In total around US$1.72 million has been allocated for these aspects.

Second Egress

A second means of egress is provided by construction of ventilation decline equipping the return air shaft with an emergency hoist. US$ 4.3 million has been allocated for this.

Decline construction

Three nominal rates (pre contingency) have been applied for declines construction dependent on possible ground conditions: US$ 2 594 per month for Good ground; US$ 3 404 per month for Fair ground; and US$ 4 215 per month for Poor ground. The construction rates were sourced directly from Thyssen Schachtbau, a German mining contractor with experience in operating in Serbia. The basis for nominal rates estimate was mechanized excavation (road headers) and support in steel friction support frames. On this basis the nominal capital cost per meter of decline is US$ 3 500 per month.

21.2.2 Mining Operating Cost

Factored Mine Operating costs have been applied and a total mine operating cost of some US$ 41/t (RoM) (pre-contingency) estimated as shown in Table 21-2.

Table 21-2: Estimated Annual Operating Costs

Cost	% of Total	Unit Cost (US$/t)	Total (US$/a)
Total Mining Cost	46%	18.89	7 555 000
Total Labor Cost	18%	7.21	2 885 000
Total Backfill cost	12%	5.00	2 000 000
Total Support cost	5%	2.00	800 000
Total Power cost	19%	7.60	3 040 000
Total Mining Operating Costs		40.70	16 280 000

Backfill

Backfill is considered to be a significant operating cost. As beneficiation plant and boric acid plant will not produce sufficient amounts of tailings to meet the backfill demand, additional materials are expected to be imported to the mine site. Therefore there will be considerable logistic and purchase costs, definition of which would be subject to a backfill study.

It has been assumed that 85% of the mined void would be filled, and that a placement cost of around US$ 12/m^3 would apply.

Labour

To assess the labour costs a systematization of workforce was performed resulting in a total of 86 workers needed to operate the mine. The base for cost calculation was a minimum net salary of 1000 US$/month per worker. In accordance to Serbian regulations the net salary was burdened by taxes, social security and health care burden to 1630 US$/month. The minimum wage was also factored by a position/workplace factor. The resulting gross salaries ranged between 1630 and 4075 US$/month. A total of US$2.9M has been allocated to cover for salaries resulting in labour cost of US$ 7.21/t(RoM).

Power

Power costs have been estimated based on 2 MW installed power based on equipment requirements as shown in Table 21-3.

Power consumption cost are assumed to be US$0.2/kWh.

Table 21-3: Underground Power Demand

Item	No. Units	Load Factor	Load (kW)	Utilization Factor	**Energy/ month (kW hours)**
Surface Plant – Main decline Area					
Shop equipment	1	70%	30	20%	3 024
Hot water heaters	1	100%	50	65%	23 400
Batch plant	1	80%	45	30%	7 776
Surface pumps	1	60%	30	50%	6 480
Lighting	1	90%	20	60%	7 776
Office, etc.	1	40%	9	40%	1 037
Surface Plant -Ventilation					0
Main Ventilation Fans	1	95%	500	100%	342 000
Pumps	1	75%	15	67%	5 427
Lighting	1	90%	5	50%	1 620
Underground					0
Main dewatering pumps	1	80%	300	80%	138 240
Sump and mud pumps	2	80%	30	50%	8 640
Conveyor Drive	1	80%	550	60%	190 080
Stope fans	3	70%	45	100%	22 680
Continuous miner	2	70%	700	40%	141 120
Shuttle car/hauler	4	80%	200	70%	80 640
MacLean roof bolter	2	80%	120	70%	48 384
Lunch room	1	80%	12	20%	1 382
Underground lighting	1	90%	40	100%	25 920

Subtotals			1 997		1 055 626
Contingency			20%		20%
Total load (kW)			2 396		
Diversification factor			70%		
Maximum Demand (kW)			**1 677**		
Energy consumption – month	(kWh)				1 266 751
Energy consumption – day	(kWh)				**42 225**

21.3 Processing

21.3.1 Process Plant Capital Cost Estimate

Capital cost for both the proposed conceptual beneficiation plant and the boric acid plant were estimated based on information and general references provided by Erin and based upon a cost breakdown from representatives of SCL.

The estimated capital costs for the process plants are as follows:

- Beneficiation plant: US$ 2 million; and
- Boric Acid plant: US$ 15 million.

However, capital cost for the boric acid plant was introduced as a sustained capital since it is envisioned that the boric acid plant will be constructed later in the LoM and financed from the cashflow.

These figures, which are estimates suitable for a conceptual/scoping level of study only, can be considered to be inclusive of indirect costs such as EPCM. A 30% contingency has, however, been applied on top of the stated capital costs for the purposes of the PEA presented in Section 22.

21.3.2 Process Plant Operating Cost Estimate

The processing operating costs have been estimated using the same background data as used for the capital cost estimates.

The estimated operating cost for the process plant, suitable for a conceptual / scoping level of study only, is as follows:

- Beneficiation plant: US$ 2.30/t feed (pre contingency); and
- Boric Acid plant: US$ 100/t Boric Acid plant feed.

21.4 Tailings Management

21.4.1 Capital Costs

A capital cost estimate has been prepared for the proposed Tailins Storage Facility (TSF) that includes direct earthworks and associated structures costs. The cost budget estimate is based on typical unit costs and experience of similar civil work projects. The unit rates assumed for the cost estimate are as follows:

- A rate of US$ 14,000/km for access and service road construction;
- A rate of US$7/$m^2$ for site clearance;
- A rate of US$10/$m^3$ for dam construction;
- A lump sum of US$0.5M for drainage system including the pumps;
- Decant system – a lump sum of US$0.5 million;
- Emergency spillway – a lump sum of US$0.1 million;
- Supply and installation of the HDPE liner at the rate of US$7.5/$m^2$;
- A lump sum of US$ 0.2 million for leakage detection system.

The capital cost estimates derived for the design of the facilities per stages are summarized in Table 21-4. A 30% contingency has also been added to the cost which is considered to have an overall accuracy of ±50%.

Table 21-4: TSF Capital Costs

Item No.	Description	Unit	Rate	Quantity	Amount
3	TSF Construction				
3.1	Access road	km	14,000	0.5	7,000
3.2	Service road	km	14,000	1	14,000
3.3	Site clearance - dam footprint	m^2	7	15000	105,000
3.5	Site clearance basin for liner	m^2	7	60000	420,000
3.6	Site clearance pipeline route	m^2	7	2500	17,500
3.9	Dam building - excavation spread and compact incl 0.5m strippin	m^3	10	35000	350,000
4.2	Drainage including drainage pump station	Lsum	500,000	1	500,000
4.3	Decant system	Lsum	500,000	1	500,000
4.5	Spillway	Lsum	100,000	1	100,000
4.6	Distribution Pipelines	Lsum	500,000	1.0	500,000
4.7	HDPE Liner (2mm) - double liner	m^2	7.5	120000	900,000
4.8	Leakage detection system	Lsum	200,000	2	400,000
	Total Capex (USD)				3,813,500

21.4.2 Operating Costs

An operating cost ("OPEX") for pumps and pipelines maintenance has been estimated as US$ 0.2/t.

21.5 Infrastructure

21.5.1 Introduction

Infrastructure capital costs have been established based upon the following assumptions:

- Land and rail sidings will be made available by Ibar Coal Mines Company as proposed for the required infrastructure;
- Surface infrastructure footprints and layouts have been defined for costing purposes and will be confirmed at a later stage of study;
- Point of sale is FOB mine site determined as the point of loading onto rail or road vehicles and therefore, all downstream costs for freight and rehandling costs at river ports are not considered;
- Power will be supplied from the national grid and there is sufficient capacity within the system;
- Capital costs have been estimated through benchmarking against similar operations, however, where regional cost data was not available, costs were developed based on Western Europe / North American standards and location factor of applied to get to local country costs;
- The main access roads to require upgrading and yearly maintenance; and
- No accommodation is required as staff will reside locally.

21.5.2 Capital Costs

Table 21-5 presents the anticipated capital costs exclusive of the 30% contingency added for the purpose of the PEA.

Table 21-5: Infrastructure Capital Cost Summary

Capital Item	US$ M
Access Road	0.25
Portal Entrance Civil Works	2.50
Development (Earthworks)	1.75
Security Measures	0.15
Structures / Buildings	1.35
Water and Surface Water Management	0.40
Power	0.75
Load-Out Area (Development and Refurbishment)	1.10
Detailed design	8.0
Sub-Total	16.25

The item titled Detailed design accounts for the preparation of necessary technical documentation required by Serbian regulations (FS, Mine design, technical designs, Permitting etc.).

21.5.3 Infrastructure Operating Costs

Table 21-6 details the derived operating costs. It should be noted that:

- These include costs for product load-out and maintenance. Lighting and energy for site infrastructure buildings is considered within the General and Administration costs ("G&A") which are considered separately. Operating costs for crushing and screening plant (considered elsewhere) include for power and water supply; and
- Operating costs for bagging of product is included within the processing and / or crushing and screening costs.
- The cost for purchase and transport of sulfuric acid for the Boric Acid is within the operating cost for the Boric Acid Plant.

Annual operating costs ("OPEX") for product load out and road maintenance are estimated as US$ 0.66 million (US$ 3.00/t product).

Table 21-6: Infrastructure Operating Cost Summary per year

Operating Cost	US$ M
Containerization	0.23
Transport	0.05
Loading / Unloading	0.23
Road Maintenance	0.15
Sub-Total	**0.66**

21.6 Closure requirements and cost

A closure plan has not yet been prepared for the project but will be included in the EIA submission. It is not possible to provide an accurate closure cost without a closure plan but on the basis of experience of closure costs for similar types of operations in similar environments (Both in Serbia and international) the provisional ballpark estimate for the closure of this site has been estimated to be in the region of US$ 15 million.

22 ECONOMIC ANALYSIS

22.1 Introduction

An Excel based Technical Economic Model (TEM) was constructed to assess the Project reflecting the assumptions as set out in the previous sections of this report.

Notably, a pre-finance and pre- and post-tax TEM on an annual basis were constructed and assumed that:

- The currency is US$ in H1-2022 real terms;
- A base case discount rate of 10%;
- Construction starts in 2025 and continues over a two-year period with processing of ore commencing in 2027;
- Construction of Boric Acid plant starts in 2030 and continues over a two-year period with production of Boric Acid commencing in 2032
- Working capital assumptions of:
  - Debtor days – 30
  - Creditor days – 30
  - Stores days – 30 (based on 10% of all operating costs)
- Corporation tax of 15% of taxable profits following a 10-year tax ‘holiday’ (commencing from the start of construction); and
- Depreciation of project and sustaining capital costs on a straight-line basis over 10 and five years respectively.

No allowance has been made for VAT movements and as noted above, no financing assumptions are included.

22.2 Model Assumptions

22.2.1 Physical Mining and Processing Schedule

Figure 22-1 to Figure 22-6 illustrate, on an annual basis, the key physical assumptions reported from the mining and processing schedules

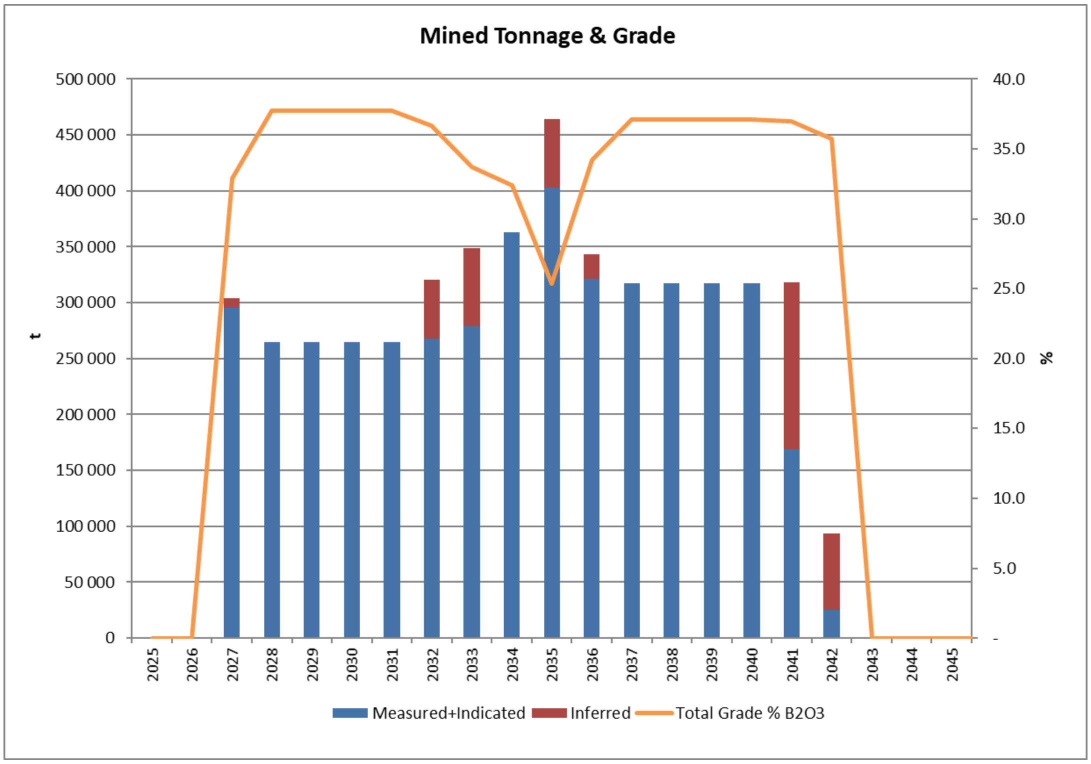


Figure 22-1: Mined tonnage by classification and overall mined grade

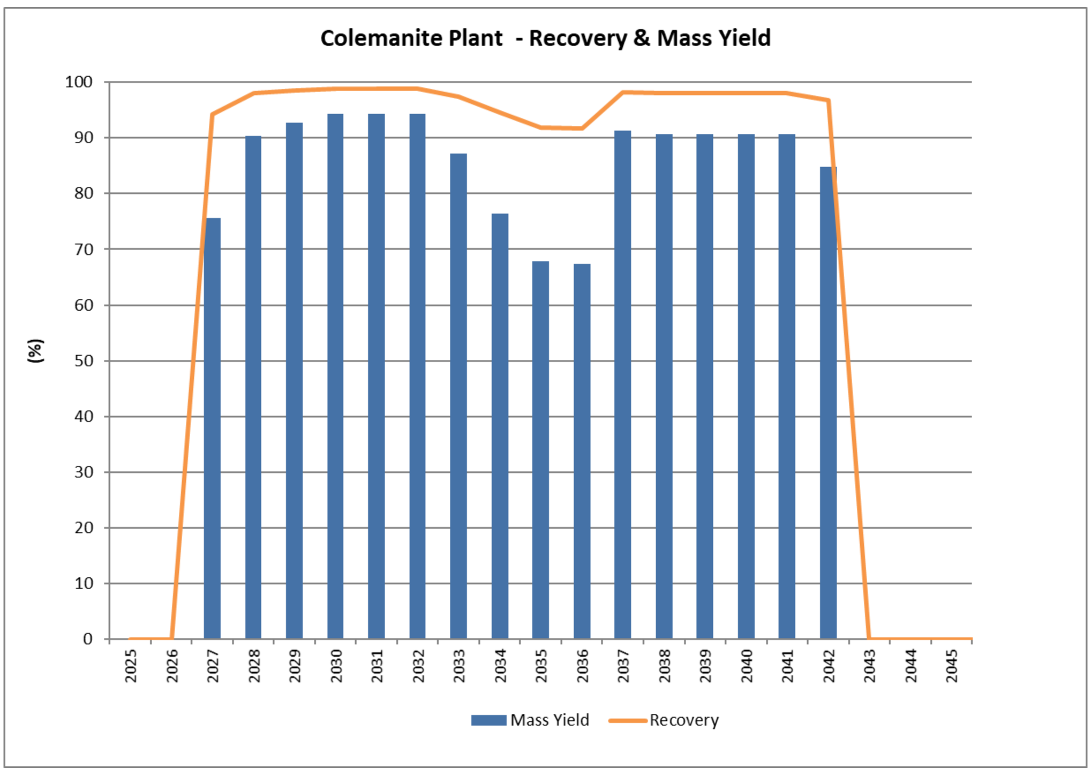


Figure 22-2: Colemanite Plant mass yield and recovery

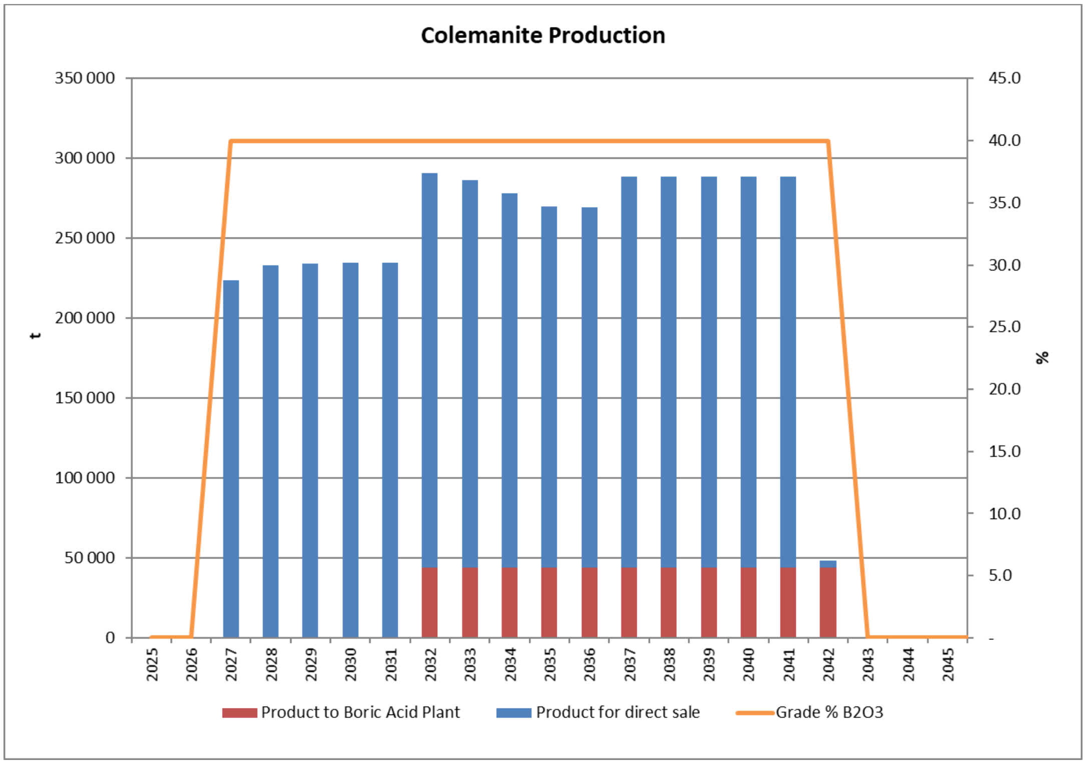


Figure 22-3: Total Colemanite production

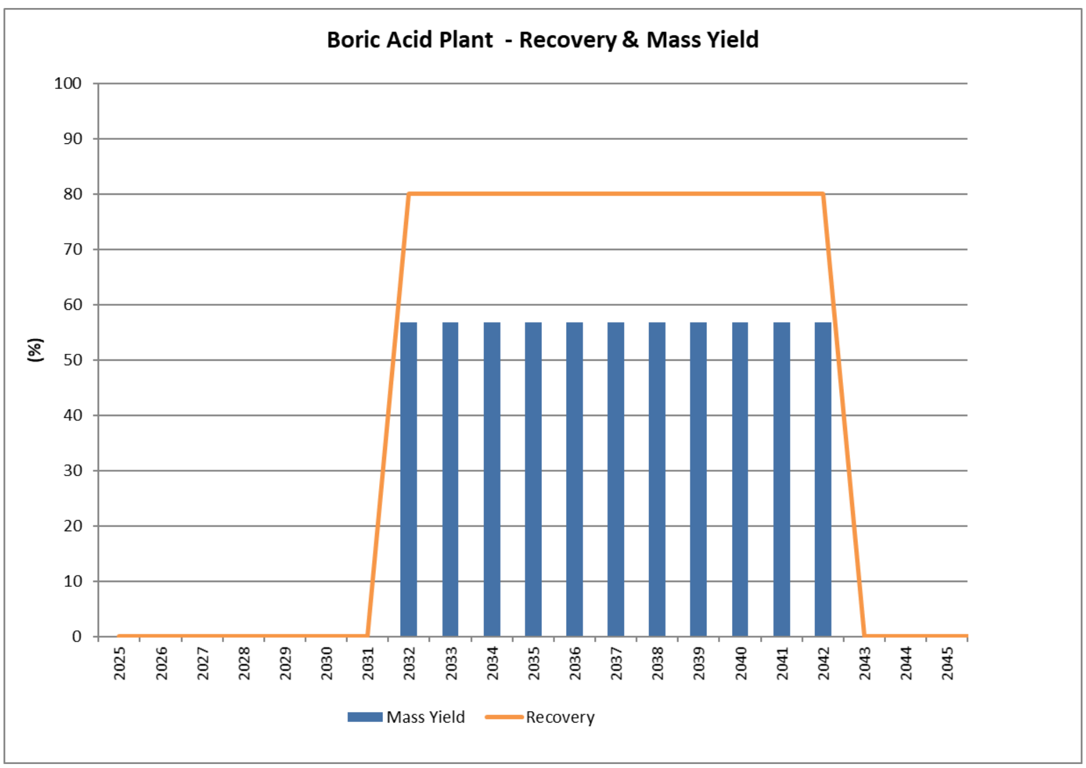


Figure 22-4: Boric Acid Plant yield and recovery

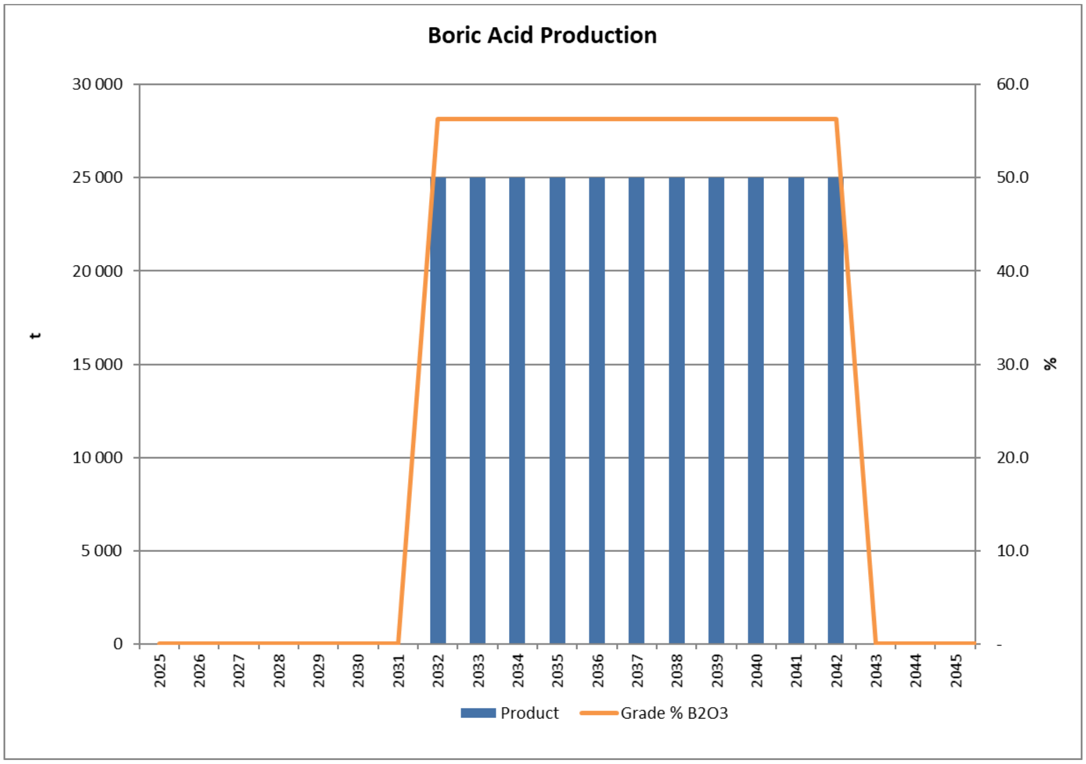


Figure 22-5: Boric Acid Plant production

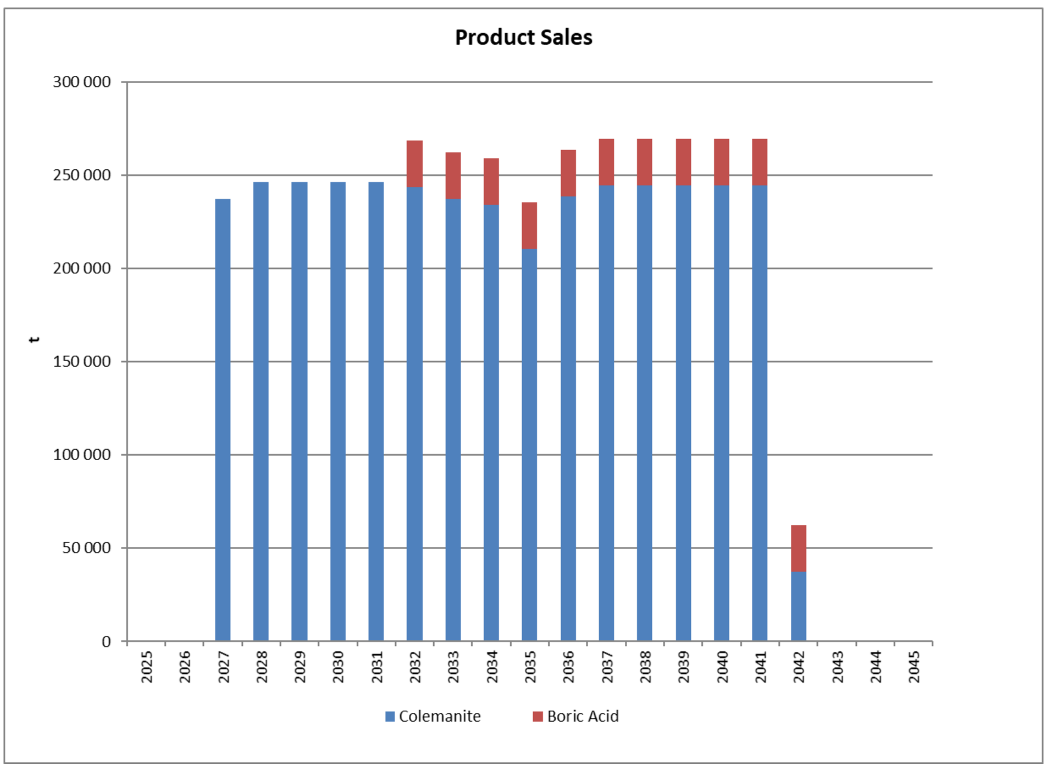


Figure 22-6: Product sales

In summary the following key physical assumptions are made to derive the production schedules presented in the TEM:

- The total tonnage of material mined and fed to the Colemanite Plant on annual basis varies between some 260,000 t and 410,000 t, averaging some 320,000 tpa for a Life of Mine (LoM) and a total of 4.5 Mt of Measured and Indicated Mineral Resources and some 0.4 Mt of Inferred Mineral Resources are scheduled to be mined;
- Mined grades varying between 20.1% and 40.1% B_2O_3 in situ or 19.1% and 37.7% B_2O_3 mined. An average B_2O_3 grade of Measured and Indicated Resources over the LoM is 35.3% and of Inferred Resources is 32.5%;
- All of the Run of Mine (RoM) material is fed to the Colemanite Plant for Colemanite production. A constant product grade of 40% B_2O_3 and tails grade of 7.5% B_2O_3 is assumed. Starting year 6, the annual RoM production, and consequently Colemanite concentrate production, are increased to meet the requirements for Boric Acid feed;
- The resulting mass yield of RoM material to Colemanite product varies between 63.8% and 92.9%, averaging 85% over the LoM;
- The recovery of B_2O_3 from RoM material to Colemanite product varies between 90.4% and 98.6%, averaging 96.8% over the LoM;
- Starting from year six some 44,000 tpa of Colemanite product (at 40% B_2O_3) is fed for subsequent processing to produce 25,000 tpa of Boric Acid product with an assumed grade of 56.3% B_2O_3. The remaining Colemanite product not fed to the Boric Acid plant is sold;
- The mass yield of Colemanite to Boric Acid product averages 56.8% and it is assumed 80% of the B_2O_3 is recovered to the product.
- Over the LoM some 3.9 Mt of Colemanite product at 40% B_2O_3 is assumed to be produced and sold, varying between some 67,000 tpa and 246,000 tpa and averaging 230,000tpa; and
- Over the LoM some 300 kt of Boric Acid product at 56.3% B_2O_3 is assumed to be produced and sold at 25,000 ktpa.

Table 22-1 presents a summary of the LoM physical assumptions.

Table 22-1: Life of Mine Physical Assumptions Summary

Mining	Units	Total
Life of Mine	(yrs)	16
Measured+Indicated Tonnage	(t)	4 451 780
Grade B_2O_3	(%)	35.19
Contained B_2O_3	(t)	1 566 430
Inferred Tonnage	(t)	433 085
Grade B_2O_3	(%)	33.01
Contained B_2O_3	(t)	142 951

Processing - Colemanite Production	Units	Total
RoM Feed Tonnage	(t)	4 884 865
Grade B_2O_3	(%)	34.99
Contained B_2O_3	(t)	1 709 381
Mass Yield	(%)	84.60
Recovery	(%)	96.70
Colemanite Tonnage	(t)	4 132 357
Grade B_2O_3	(%)	40.00
Contained B_2O_3	(t)	1 652 943
Processing - Boric Acid Production	Units	Total
Colemanite Feed Tonnage	(t)	483 801
Grade B_2O_3	(%)	40.00
Contained B_2O_3	(t)	193 520
Mass Yield	(%)	56.84
Recovery	(%)	80.00
Boric Acid Tonnage	(t)	275 000
Grade B_2O_3	(%)	56.30
Contained B_2O_3	(t)	154 816
Product Sales	Units	Total
Colemanite (@35% B_2O_3)	(t)	3 648 555
Boric Acid (@56% B_2O_3)	(t)	275 000
Total Product	(t)	3 923 555

22.2.2 Commodity Prices and Revenue Deductions

Key revenue assumptions used in the TEM are as follows:

- Colemanite (at 40% B_2O_3) price of US$500/t product (flat lined)
- Boric Acid (at 56.3% B_2O_3) price of US$700/t product (flat lined)
- Royalty deduction of 5% on gross revenue
- Other sales and marketing costs of US$1.5/t product sold

Table 22-2 below shows a LoM summary of revenue and deductions, while Figure 22-7 shows the annual gross revenue split by the contribution from Colemanite and Boric Acid sales.

Table 22-2: LoM Revenue and Deductions

Commodity Prices	**Units**	**Total**
Colemanite (@40% B_2O_3)	**(US$/t)**	500
Boric Acid (@56% B_2O_3)	**(US$/t)**	700
Revenue	**Units**	**Total**

Colemanite (@40% B_2O_3)	**(US$'000)**	1 824 278
Boric Acid (@56% B_2O_3)	**(US$'000)**	192 500
Gross Revenue	**(US$'000)**	**2 016 778**
Royalty	**(US$'000)**	100 839
Sales/Marketing	**(US$'000)**	5 885
Deductions	**(US$'000)**	**106 724**
Net Revenue	**(US$'000)**	**1 910 053**

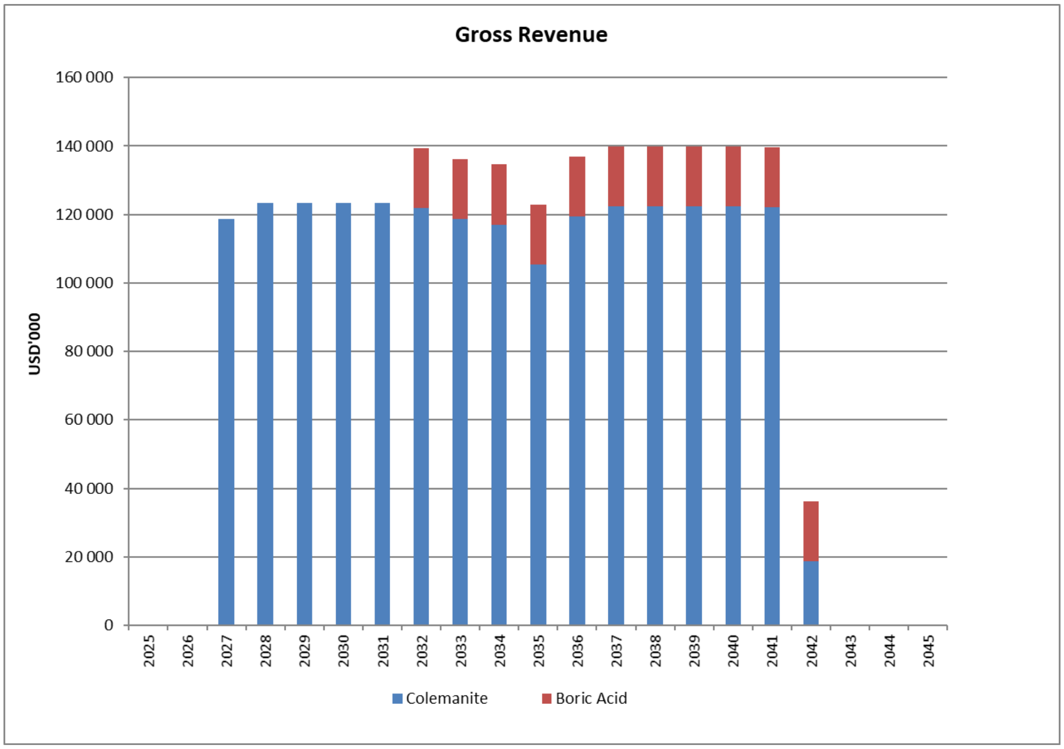


Figure 22-7: Gross Revenue

22.2.3 Operating Costs

Operating costs have been derived for the purpose of this PEA and are described in detail in Section 21 above. Table 22-3 presents a summary of the base unit cost assumptions including a 30% contingency allowance to give the total unit costs assumed in the TEM.

Table 22-3: Unit Operating Costs

Operating Costs	Unit	Base Cost	Contingency (30%)	Total
Mining	**(US$$/t mined)**	40.70	12.21	52.91
Processing - Colemanite	**(US$$/t processed)**	2.30	0.69	2.99
Processing - BA Plant	**(US$$/t processed)**	100.00	30.00	130.00
Tailings/Waste Disposal	**(US$$/t tailings placed)**	0.23	0.07	0.30
Infrastructure	**(US$/t product)**	3.45	1.04	4.49
G&A	**(US$$/t product)**	15.00	4.50	19.50

Table 22-4 presents a summary of the LoM operating costs (including royalty, sales/marketing and corporation tax) and expresses the total costs as a unit cost per ton of total product sold (Colemanite plus Boric Acid). Figure 22-8 and 22-9 show the operating costs over the LoM and unit cost per ton of product sold respectively on an annual basis.

Table 22-4: LoM Operating Costs

Operating Costs	US$$'000	US$/t product
Mining	258 458	65.87
Processing - Colemanite	14 606	3.72
Processing - BA Plant	62 894	16.03
Tailings/Waste Disposal	364	0.09
Infrastructure	17 597	4.49
G&A	95 255	24.28
Royalty (5%)	100 839	25.70
Sales/Marketing	5 885	1.50
Corporation Tax	101 094	25.77
Total	**656 992**	**167.45**

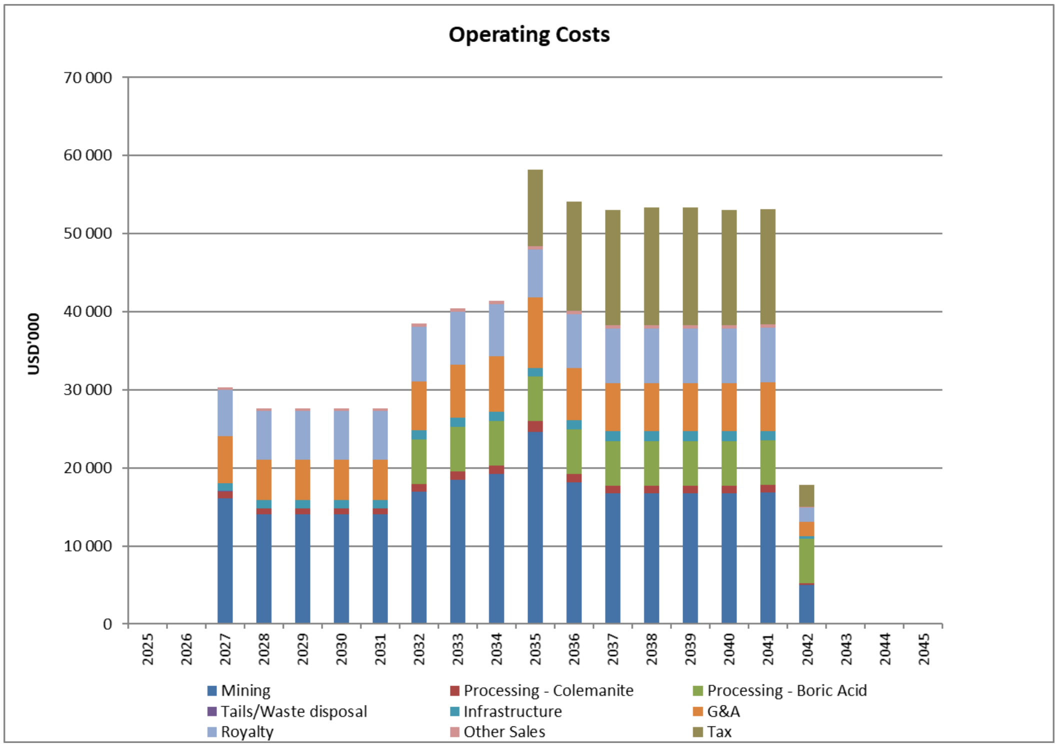


Figure 22-8: LoM Operating Costs

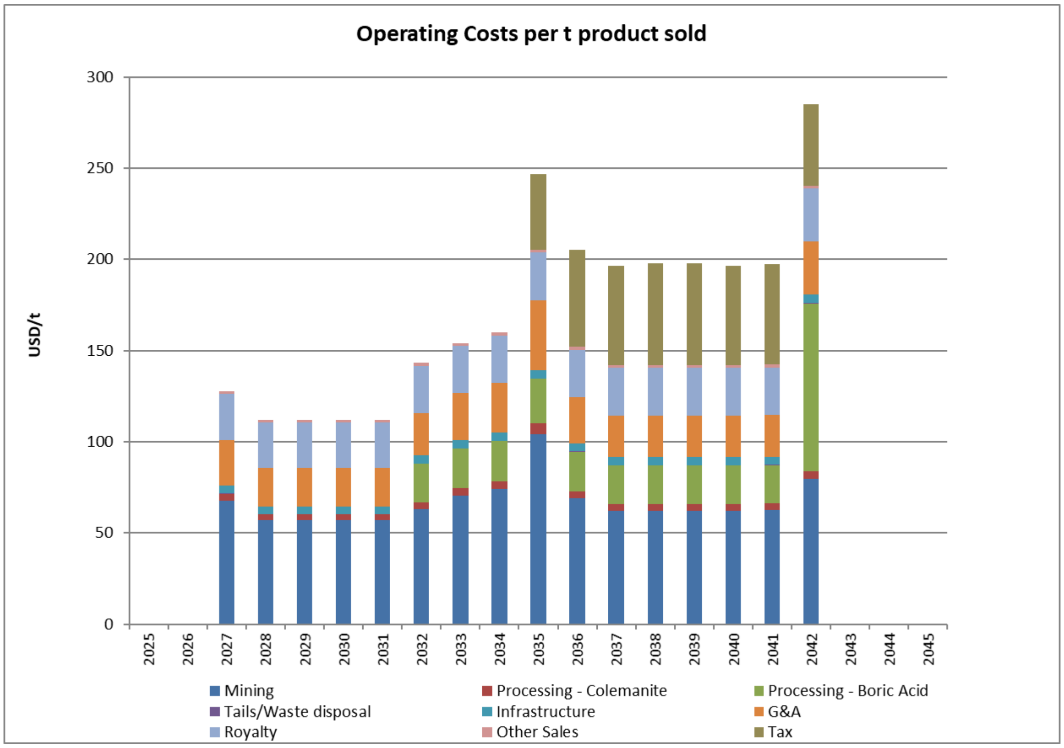


Figure 22-9: LoM Unit Operating Costs

22.2.4 Project Capital Costs

Project Capital costs have been derived for the purpose of this PEA and are described in detail in Section 21 above. Table 22-5 presents a summary of the base cost assumptions and a 30% contingency allowance has been added to give the total costs assumed in the TEM.

It is assumed that construction of the project facilities will take place over a two- year period and the capital expenditure has been spread equally over each year in the TEM.

Table 22-5: Project Capital Costs

Project Capital	Base Cost	Contingency	Total	% Contingency
Mining	39 400	11 820	51 220	30.0%
Processing - Colemanite	2 000	600	2 600	30.0%
Processing - Boric Acid	-	-	-	-
Infrastructure	16 250	4 875	21 125	30.0%
Tailings	3 814	1 144	4 958	30.0%
Other				
Total	**61 464**	**18 439**	**79 903**	**30.0%**

22.2.5 Sustaining Capital

Sustaining Capital costs have also been derived for the purpose of this PEA and are described in detail in Section 21 above. Table 22-6 below presents a summary of the LoM cost assumptions. A 30% contingency allowance has been included to give the total costs assumed below in the TEM.

Table 22-6: LoM Sustaining Capital Costs

Sustaining Capital	US$'000
Mining	26 266
Processing - Colemanite	-
Processing - Boric Acid	19 500
Infrastructure	5 070
Tailings	-
Total	**50 836**

Specific allowances have been made for mining related sustaining capital as summarized below in Table 22-7 and as illustrated in Figure 22-10. A general allowance for infrastructure has been estimated based on 2% of initial infrastructure capital costs to be incurred annually following two years of production and ceasing within two years of the end the LoM.

Table 22-7: LoM Mining Sustaining Capital Costs

Mining Sustaining Capital	US$'000
Backfill plant and delivery system	1 976
Decline access	427
Materials handling system	1 914
Mining equipment	20 215
Service equipment	1 170
Service infrastructure	845
Total	**26 547**

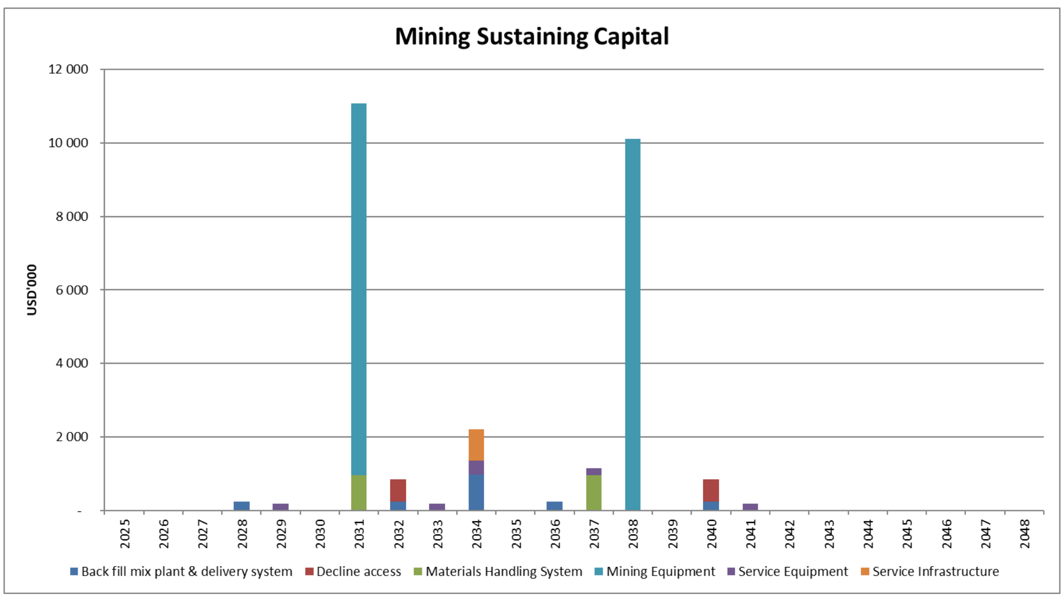


Figure 22-10: LoM Mining Sustaining Capital Costs

22.2.6 Closure Cost

An allowance of US$15 million has been included for closure related costs and these have been incorporated at the end of the project life for cashflow purposes.

22.3 Project Economics

In summary the Project has a LoM net project cashflow (pre-finance and post-tax) of some US$1,214M which returns a post-tax NPV (10%) of US$545 million and an IRR of 79%. Table 22-9 presents the summary LoM cashflow resulting from the TEM.

It should be noted that this PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves and there is no certainty that the PEA will be realized.

Table 22-8: Summary Results

Project Cashflow	US$'000
Gross Revenue	2 016 778
Deductions	106 724
Net Revenue	**1 910 053**
Operating Costs	449 174
Project Capital	79 903
Sustaining Capital	50 836
Closure	15 000
Project Cashflow	**1 315 141**
Working Capital	0
Corporation Tax	101 094
Net Project Cashflow	**1 214 047**

22.4 Sensitivities

22.4.1 Discount Rate

Table 22-9 shows the pre- and post-tax NPV's at varying discount rates.

Table 22-9: NPV at varying discount rates

NPV	Pre-Tax	Post-Tax
5%	831 083	777 955
8%	647 789	610 987
10% (Base Case)	553 917	524 893

12%	476 926	453 909
15%	385 467	369 049
20%	277 440	267 857
25%	204 787	199 032
IRR	78.7%	78.7%

The companies have applied a 10% discount rate in this study.

22.4.2 Commodity Prices

Table 22-10 below shows the impact on the post-tax NPV (10% discount rate) at specific commodity price scenarios.

Table 22-10: NPV at varying discount rates

Post Tax NPV at 10% discount rate		**US$'000**
Commodity Price (US$/t)		
Colemanite	**Boric Acid**	
400	600	366 309
450	650	445 601
500	700	524 893
550	750	604 185
600	800	683 477

22.4.3 Single Parameter

Figure 22-11 shows the varying NPV for varying single parameter sensitivities at a 10% discount rate for commodity price, operating costs, capital costs, colemanite price and BA price.

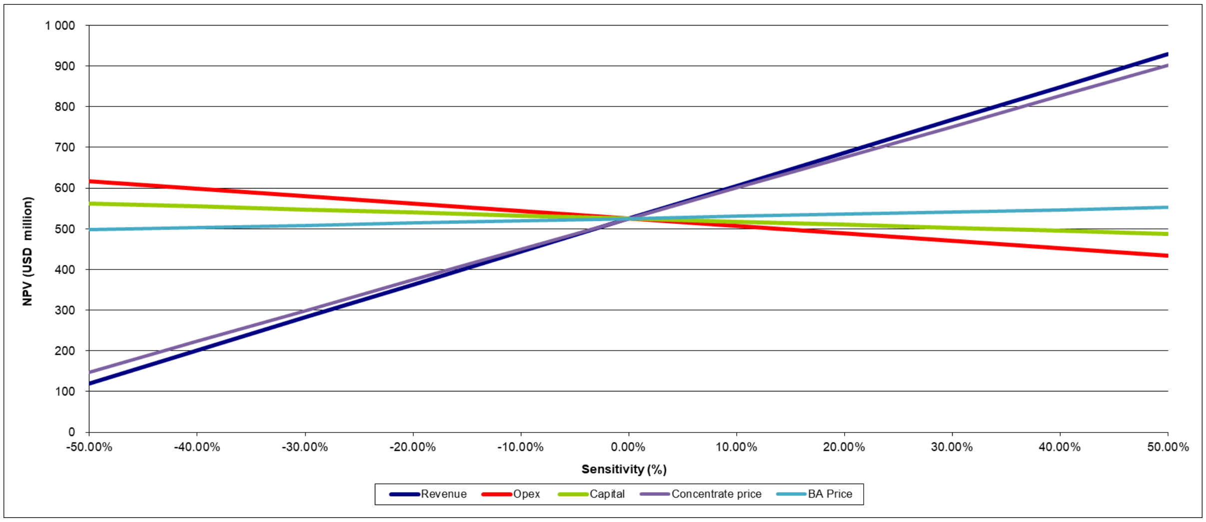


Figure 22-11: Single Parameter Sensitivity

22.4.4 Twin Parameter

Table 22-11 to Table 22-13 show the sensitivity of the Project, using a base case discount rate of 10%, to simultaneous changes in two parameters for revenue and operating costs, revenue and capital costs and operating costs and capital costs respectively.

Table 22-11: Twin Parameter Sensitivity, Revenue v Operating Costs

NPV (USD'000)		REVENUE										
	524 893	-50%	-40%	-30%	-20%	-10%	0%	10%	20%	30%	40%	50%
OPEX	-50%	211 797	292 656	373 514	454 373	535 231	616 090	696 948	777 807	858 665	939 524	1 020 382
	-40%	193 558	274 417	355 275	436 134	516 992	597 851	678 709	759 568	840 426	921 285	1 002 143
	-30%	175 319	256 177	337 036	417 894	498 753	579 611	660 470	741 328	822 187	903 045	983 904
	-20%	157 079	237 938	318 796	399 655	480 513	561 372	642 230	723 089	803 947	884 806	965 664
	-10%	138 840	219 698	300 557	381 415	462 274	543 132	623 991	704 849	785 708	866 566	947 425
	0%	120 600	201 459	282 317	363 176	444 034	524 893	605 751	686 610	767 468	848 327	929 185
	10%	102 361	183 220	264 078	344 937	425 795	506 654	587 512	668 371	749 229	830 088	910 946
	20%	84 081	164 980	245 839	326 697	407 556	488 414	569 273	650 131	730 990	811 848	892 707
	30%	65 780	146 741	227 599	308 458	389 316	470 175	551 033	631 892	712 750	793 609	874 467
	40%	47 480	128 490	209 360	290 218	371 077	451 935	532 794	613 652	694 511	775 369	856 228
	50%	29 324	110 201	191 120	271 979	352 837	433 696	514 555	595 413	676 272	757 130	837 989

Table 22-12: Twin Parameter Sensitivity, Revenue v Capital Costs

NPV (USD'000)		REVENUE										
	524 893	-50%	-40%	-30%	-20%	-10%	0%	10%	20%	30%	40%	50%
CAPEX	-50%	157 744	238 602	319 461	400 319	481 178	562 036	642 895	723 753	804 612	885 470	966 329
	-40%	150 315	231 174	312 032	392 891	473 749	554 608	635 466	716 325	797 183	878 042	958 900
	-30%	142 886	223 745	304 603	385 462	466 320	547 179	628 037	708 896	789 754	870 613	951 471
	-20%	135 458	216 316	297 175	378 033	458 892	539 750	620 609	701 467	782 326	863 184	944 043
	-10%	128 029	208 888	289 746	370 605	451 463	532 322	613 180	694 039	774 897	855 756	936 614
	0%	120 600	201 459	282 317	363 176	444 034	524 893	605 751	686 610	767 468	848 327	929 185
	10%	113 172	194 030	274 889	355 747	436 606	517 464	598 323	679 181	760 040	840 898	921 757
	20%	105 743	186 602	267 460	348 319	429 177	510 036	590 894	671 753	752 611	833 470	914 328
	30%	98 315	179 173	260 032	340 890	421 749	502 607	583 466	664 324	745 183	826 041	906 900
	40%	90 886	171 744	252 603	333 461	414 320	495 178	576 037	656 895	737 754	818 612	899 471
	50%	83 457	164 316	245 174	326 033	406 891	487 750	568 608	649 467	730 325	811 184	892 042

Table 22-13: Twin Parameter Sensitivity, Operating v Capital Costs

NPV (USD'000)		OPEX										
	524 893	**-50%**	**-40%**	**-30%**	**-20%**	**-10%**	**0%**	**10%**	**20%**	**30%**	**40%**	**50%**
CAPEX	**-50%**	653 233	634 994	616 754	598 515	580 276	562 036	543 797	525 557	507 318	489 079	470 839
	-40%	645 805	627 565	609 326	591 086	572 847	554 608	536 368	518 129	499 889	481 650	463 411
	-30%	638 376	620 136	601 897	583 658	565 418	547 179	528 940	510 700	492 461	474 221	455 982
	-20%	630 947	612 708	594 468	576 229	557 990	539 750	521 511	503 271	485 032	466 793	448 553
	-10%	623 519	605 279	587 040	568 800	550 561	532 322	514 082	495 843	477 603	459 364	441 125
	0%	616 090	597 851	579 611	561 372	543 132	524 893	506 654	488 414	470 175	451 935	433 696
	10%	608 661	590 422	572 183	553 943	535 704	517 464	499 225	480 986	462 746	444 507	426 267
	20%	601 233	582 993	564 754	546 514	528 275	510 036	491 796	473 557	455 318	437 078	418 839
	30%	593 804	575 565	557 325	539 086	520 846	502 607	484 368	466 128	447 889	429 649	411 410
	40%	586 375	568 136	549 897	531 657	513 418	495 178	476 939	458 700	440 460	422 221	403 981
	50%	578 947	560 707	542 468	524 229	505 989	487 750	469 510	451 271	433 032	414 792	396 553

22.4.1 Impact of Including Inferred Mineral Resources

As noted, the mine schedule and associated TEM as presented above includes Inferred Resources.

Excluding the Inferred Resources would not affect the mine life. Table 22-15 illustrates the summary LoM cashflow resulting from excluding this material while Table 22-16 shows the resulting NPV at various discount rates.

Table 22-15: Summary Cashflow Excluding Inferred Material

Project Cashflow	**US$'000**
Gross Revenue	1 849 285
Deductions	97 855
Net Revenue	**1 751 430**
Operating Costs	411 875
Project Capital	79 903
Sustaining Capital	50 836
Closure	15 000
Project Cashflow	**1 193 817**
Working Capital	- 0
Corporation Tax	88 474
Net Project Cashflow	**1 105 343**

Table 22-16: NPV Excluding Inferred Material

NPV	**Pre-Tax**	**Post-Tax**
5%	764 747	717 653
8%	599 940	567 103
10%	514 891	488 894
12%	444 758	424 068

15%	360 941	346 112
20%	261 108	252 395
25%	193 357	188 099
IRR	77%	77%

As can be seen, in summary, excluding the Inferred material does not have a significant impact to Project economy. Exclusion of inferred material reduces the overall LoM net project cashflow by approximately 10% and the post-tax NPV as a 10% discount rate to US$488M.

23 ADJACENT PROPERTIES

At present, through Balkan Gold d.o.o., Erin has kept the Piskanja #1934 licence as a sustained area (shown in Figure 23-1).

State-owned anthracite coal mine Ibarski Rudnici (JP PEU Resavica) has a boron mineral exploitation licence (cadastral number 470) for the Pobrđe mineral deposit located 2.6 km north-west of the Erin licence and on the western bank of the Ibar river (Figure 23-1). Pobrđe produces a certain amount of boron RoM material, but no official figures have been published. According to information sourced from the Ministry of Mining and Energy of the Republic of Serbia “ore reserves” of borates in categories A+B+C1 were estimated at 140,000 t and the “estimated resources” (P category) at 60,000 t of B_2O_3. These figures have not been reported in accordance with NI 43 - 101 but are in compliance with national legislation.

At present (June 2022), Pobrđe Mine is in operation as a productive unit within Ibar coalmines. Ibar Mines is a part of Public Enterprise for Underground Coal Extraction Resavica (JP PEU Resavica), a publicly owned Serbian coal producing company.

A number of other exploration and small-scale mining licences have been issued in the region, predominantly for coal, boron, gold, lead zinc and magnesite as shown in Figure 23-1 and listed in Table 23-1.

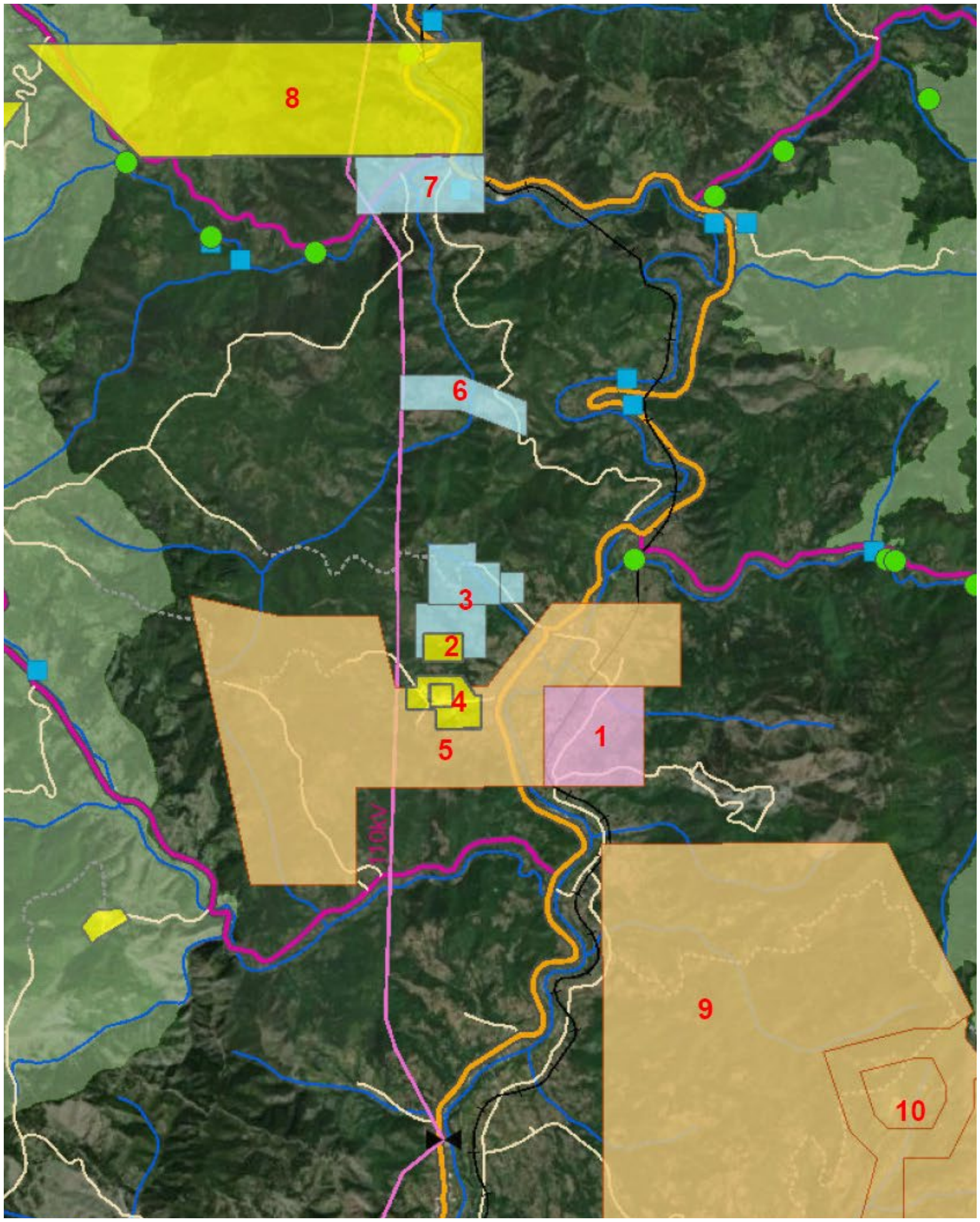


Figure 23-1: **Exploration and mining licences immediately adjacent to the Piskanja Borate Project, (Ministry of Mining and Energy of the Republic of Serbia, webgis, https://gis.mre.gov.rs/smartPortal/Srbija, last updated 7 March 2022)**

Table 23-1: Mineral exploration and mining licences proximal to the Piskanja licence

	Owner	Project name	Commodity	Licence number	Licence type	Distance from the Piskanja Project
1	Balkan Gold d.o.o (Erin ventures)	Piskanja	Borates	1934	Sustained area	-
2	JP PEU Ibar Mines	Pobrđe	Borates	470	Mining	2.2 km NW
3	JP PEU Ibar Mines	Baljevac Jarando	Anthracite	178 11	Mining	2.5 km NW
4	Magnohrom	Bela stena	Magnesite	100	Mining	2 km W
5	Broject Kop d.o.o.	Jarando	Magnesite, borates, zeolites	2320	Exploration	Immediately adjacent - W
6	JP PEU Ibar Mines	Tadenje	Coal	485	Mining	6 km N
7	JP PEU Ibar Mines	Usće	Coal	12	Mining	10 km N
8	Bogutovac magnesite mine	Golo brdo	Magnesite	201	Mining	11 km N
9	Deep research d.o.o.	Raska	Lead and zinc, copper, gold and iron	2150	Exploration	4 km S
10	Taor d.o.o.	Kremići	Copper, lead and zinc	2176	Exploration	6 km S

24 OTHER RELEVANT DATA & INFORMATION

No additional information or explanation deemed necessary for the purposes of this report.

25 INTERPRETATION AND CONCLUSIONS

Exploration activities undertaken by Erin to date, combined with the results of previous exploratory work outlined a significant boron mineral deposit which, in the opinion of this Author, justifies further exploration assessment. Future activities should be undertaken to assess the potential of further project development and eventual mine construction.

This PEA reports a Mineral Resource estimate for the Project which includes comprising a Measured and Indicated Mineral Resource of 6.87 Mt with a mean grade of 34.36% B_2O_3 and an Inferred Mineral Resource of 0.28 Mt with a mean grade of 39.59% B_2O_3.

The report presents a PEA for the Project and shows the potential of the project by demonstrating a post-tax NPV for the Project at a 10% discount rate of US$524 million and an IRR of 78.7%. If the economic assessment was based solely on Indicated Mineral Resources NPV would have decreased to US$488 million. However, if 8% is used as a discount rate the NPV would increase to US$610 million.

This PEA is a preliminary assessment and NVP calculations include Inferred Mineral Resources. Although the amounts of the included Inferred Mineral Resources do not have significant impact to NPV, it should be noted that Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorised as Mineral Reserves and there is no certainty that the PEA will be realised.

Piskanja is still at an early stage of assessment. There is a significant amount of future work to be undertaken in order to remove or minimize the risks before entering the mine construction phase. The Author of this PEA recommended appropriate actions and activities needed to properly assess and address associated risks. It is recommended that additional testwork is needed to define geotechnical parameters of the rock mass. Additional modelling or model refining is required (geotechnical, structural, resource and economical) as an aid to appropriate mine design. It should be stressed again that metallurgical testwork is required to demonstrate the potential to produce a saleable colemanite concentrate. Recent environmental activities in Serbia reiterate the already identified need for a comprehensive environmental impact assessment and a demonstration of mitigation measures is absolutely necessary as part of design and assessment.

A future work program will be discussed with the companies in order to define the necessary steps towards the PFS stage, FS stage and mine construction stage in accordance with Serbian regulatory requirements and international standards as well as define the decision making milestones along the way to help decide whether to advance to the next stage or not.

26 RECOMMENDATIONS

The following work is recommended as the necessary steps towards advancing to Project to a Pre-Feasibility level. The work program is conceptualized in such manner to meet the requirements of Serbian regulations but also the international standards. Conceptual list of work required is given in the table 26-1 below. Items 12 – 16 are contingent upon the successful completion of items 1 – 11.

Table 26-1: Recommended future work

	Activity	Stage	Cost (US$)
1	Decline geotech drilling	PFS stage	1,500,000
2	Geotechnical testing	PFS stage	750,000
3	Metallurgical testing	PFS stage	2,000,000
4	Hydrological and hydrogeological analysis	PFS stage	1,500,000
5	Infrastructure CAPEX estimate (colemanite plant and BA plant)		250,000
6	Resource block model refining	PFS stage	650,000
7	Modelling (geotechnical, structural, economic)	PFS stage	50,000
8	Environmental studies	PFS stage	1,500,000
9	Rock mass classification	PFS stage	150,000
10	Underground stress modelling	PFS stage	???,???
11	Backfill testing	PFS stage	250,000
12	Detailed mine design	FS stage	250,000
13	Detailed CAPEX assessment (mining, processing, infrastructure, design…)	FS stage	350,000
14	Detailed planning (construction, civil…)	FS stage	750,000
15	Final mine design and technical documentation	FS stage	350,000
16	Permitting	FS stage	500,000

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28 CERTIFICATE OF QUALIFIED PERSON

To accompany the report entitled: "TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT FOR THE PISKANJA BORATE PROJECT, SERBIA", with an effective date of June 24, 2022

I, Miodrag Banješević, EurGeol, residing at Cvijićeva Str. 5, Belgrade, Serbia, do hereby certify that:

1. I am a Doctor of Technical Sciences, Senior Geologist and Deputy General Manager with the firm of Balkan Exploration and Mining, Kralja Petra I Str. 23, Bor, Serbia, member of ZiJin Mining Group Co. Ltd., China and Associated Professor at Technical faculty in Bor, University of Belgrade, Vojske Jugoslavije Str. 12, Bor, Serbia;
2. I am an Assistant Professor then Associated Professor at Technical faculty in Bor, University of Belgrade since 2009. Engaged at geological group lectures as part of the curriculum at the Department for Mining Engineering in Basic Academic Studies;
3. I am a graduate from the University of Belgrade, Faculty of Mining and Geology an BSc in 1988, on Petrology and Geochemistry Department. I obtained a MSc degree 1999, followed by a PhD in 2006 on the same Faculty;
4. I have practiced my profession continuously since 1988 (over 30 years' experience) in different geological disciplines and over 10 years in mineral exploration. I participated in the development and implementation of a large number of international and regional scientific and professional projects in geology and mineral explorations. I am also author or co-author of more than 60 scientific and professional papers in geology;
5. I am a Member of the European Federation of Geologists (no. 1810) since 2013 and Member of Serbian Geological Society since 2004. I received the prestigious The Thayer Lindsley Award for International Mineral Discovery in 2016 at the PDAC, Toronto, Canada, for discovery of epithermal and porphyry copper and gold deposit Čukaru Peki near Bor, Serbia;
6. I have personally visited the project area one day on June 17th, 2022;
7. I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of this report;
8. I am responsible for all sections of this report;
9. As a Qualified Person, I am independent of both Erin Ventures and Temas Resources;
10. I state that I have had no prior involvement with the Piskanja Project/Balkan Gold d.o.o./Erin Ventures Inc./Temas Resource, and I have no interest in the project other than my compensation for authoring this Technical Report and PEA.
11. As of the Effective Date of this report, to the best of my knowledge, information and belief, this report contains all scientific and technical information that is required to be disclosed to make the report not misleading;

12. I consent to the filing of the report with any stock exchange and other regulatory authority and any publication for regulatory purposes, including electronic publication in the public company files on their websites accessible to the public of extracts from the technical report; and

13. I have read National Instrument 43-101 and Form 43-101F1, and consider this report to have been prepared in compliance with that instrument and Form.

Date: August 1, 2022

Prof. Miodrag Banješević PhD. EurGeol
Senior Geologist and Deputy General Manager
Balkan Exploration and Mining, Bor Serbia

29 GLOSSARY

µm	Micrometer
cm	Centimeter
g	Grammes
g/cm^3	Gram per cubic centimeter
ha	Hectare
km	Kilometer
Kt	Kilo tonnes
Ktpa	Kilo tonnes per annum
kV	Kilovolt
kWh	Kilowatt hour
l/s	Liters a second
m	Meter
m/s	Meters per second
m^2	Meters squared
m^3	Cubic meter
m^3/min	Cubic meters per minute
Masl	Meters above sea level
Mm^3	Cubic miloleter
MPa	megapascal
Mt	Million tonnes
Mw	Megawatt
Nil	None
NVP	Net present value
QAQC	Quality Assurance/Quality Control
t	Tonne
t/ m^2	Tonnes per meter squared
t/m^3	Tonnes per cubic meter
tpa	Tonnes per annum
V	Volt