# NI 43-101 Technical Report on

# La Estrella Coal Project,

# Colombia.

Prepared for:

Aion Mining Corporation


Prepared by:

Paul B. Bright

Karen M. Volp


Effective date:

17/03/2024

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the technical report titled "NI 43-101 Technical Report on La Estrella Coal Project, Colombia" that has an effective date of 17th March 2024(the "technical report").
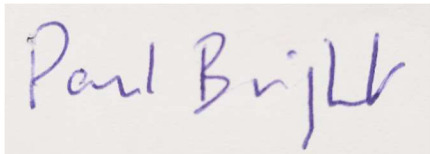
I, Paul Bevan Bright, do hereby certify that:

1. I am an independent Principal Coal Geologist.

2. I am a graduate from London University with an Honours BSc. Degree in Geology (1970). I have in excess of 50 years' experience including 45 years in coal exploration and mining, downhole geophysical logging, coal mining geology, computer modelling and resource/reserve estimation, due diligence work, scoping, prefeasibility and feasibility studies.

3. I am a Member of the Institute of Materials, Minerals and Mining (a Recognised Overseas Professional Organisation (ROPO)) and a Chartered Engineer.

4. I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by reason of my education, affiliation with professional associations and past work experience, I fulfil the requirement to be a Qualified Person for the purposes of this document.

5. I have visited the property in July 2011 and in February 2024 and have made observations around the project site including an inspection of in-situ mineralised material. I had overall QP responsibility for the report.

6. I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report.

7. I am independent of Aion Mining Corp. within the meaning of "independence" as independence is described by Section 1.5 of NI 43–101.

`8. I have read NP 43-101 and Form 43-101F1 and have prepared the technical report in compliance with these and in conformity with generally accepted international mining industry practices.

9. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report to which this certificate is attached contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: 18/03/2024

"signed and sealed"

Paul B. Bright. MIMMM

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# 1    SUMMARY

## 1.1    Introduction

Paul B. Bright and Karen M. Volp, Independent Geological Consultants prepared this technical report ("the Report") for Aion Mining Corp. ("Aion") regarding a single concession area, FLG-111, also known as La Estrella Coal Project (the "Project") located in the department of Santander, Republic of Colombia.

## 1.2    Terms of Reference

The concession was the subject, along with a number of other concessions, of an earlier report in 2012 in which only historical resource estimates, then not considered NI 43-101 compliant, were reported for FLG-111.

This Report provides information on the La Estrella Coal Project and Coal Resource estimates.

Currency is expressed in US dollars (USD$) unless stated otherwise. Units are typically metric units, such as metric tonnes, unless otherwise noted.

Coal Resource estimates are reported using the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.

## 1.3    Project Setting

The La Estrella Coal Project is located in the department of Santander concession in the "Áreas Carbonifera San Vicente area 901" as recognised in El Carbón Colombiano, Recursos, Reservas y Calidad, Ingeominas, 2004 ("ECC") comprising 13,358 hectares (ha) centred around 4,947,588.900 E 2,335,083.586 N situated approximately 22km to the west of Bucaramanga, the department capital.

Within area 901 Cretaceous and Jurassic sediments are bounded on the east by the Bucaramanga fault, a reverse easterly dipping fault, which upthrows crystalline and metamorphic basement rocks. The regional geology of economic interest consists of a series of north-east trending synclinal structures in which coals are contained in the Middle and Upper sections of the Umir Formation of Maestrichtian age. Regionally, coals are reported to be of a good quality with relatively high calorific values with a proportion of potentially higher value metallurgical coal seams reported on some areas.

The La Estrella Coal Project is located on the eastern flank of the New World Syncline and coals of the Umir Formation, including the 6 seams which have been identified at the Project, are known to outcrop, strike northeast over approximately 3 km, and dip at 28 to 30° to the northwest.

## 1.4    Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

Brigard and Urrutia legal advisors provided Mining Title Opinion with respect to concession FLG -111 for Aion.

The author has been provided with a document from the Colombian mining register with respect to mining tenure.

## 1.5    Geology and Mineralisation

The Project lies within "Áreas Carbonifera San Vicente area 901 ", as recognised in "El Carbón Colombiano, Recursos, Reservas y Calidad"(Ingeominas, 2004) and coals occur in the Middle and Upper sections of the Late Cretaceous Maestrichtian age Umir Formation within a series of north-east trending synclinal structures of the Middle Magdalena Valley Basin that are bounded on the east by the Bucaramanga Fault, a reverse easterly-dipping fault, which uplifted crystalline and metamorphic basement rocks.

Within the coal measures at the Project there are three distinct coal occurrences: the Upper (M400 and M410) and the Lower (M200 to M110) seam groups and M300 which lies between the other groups. Higher seams in the succession (M400, M410 and M300) are generally of lower seam quality. Seams considered exploitable range in thickness from 0.6 m to 1.4 m and are considered to be of the Low to Moderate deposit type.

## 1.6    History

Coal exploration carried out by the state entities INGEOMINAS, Carbocol S.A. and Geoconsulta LTDA. were focused on the northeast flank of the Armas Syncline and southwest flank of the New World Syncline between 1977 and 1996 and included mapping at a scale of 1:4,000, twenty (20) trenches, stratigraphic surveys in nine (9) creeks, the drilling of thirty (30) open holes and geophysical well logs. The final report published in 1996, defined sixty-five (65) coal seams of which only twenty (20) seams were considered continuous with thicknesses ranging between 0.6 and 2.0 m and determined from a total of 127 samples that coals ranged from thermal bituminous and high volatile to bituminous medium volatile and coking coals.

## 1.7    Drilling

Aion have undertaken exploration activities in two phases: in 2008 and 2023 which included geological mapping, trenching, topographic surveys and drilling for a total of 15 boreholes for a total of 2,321.80 m. Limited data is available from the 2008 campaign but the 2023 work which focused on the Modelled Area has downhole geophysical logs, core photographs, geological descriptions of the coal seams and ribbons encountered.

## 1.8    Sampling

Sampling of trenches and drill cores in 2023 follow industry standard practices and sample analyses were prepared and analysed by SGS in Colombia, an ISO 9001 certified laboratory. Sample remnants remain which may be utilised for further study.

Nine (9) core samples were analysed in the 2008 drilling campaign and thirty-two (32) core samples were analysed in the 2023 drilling campaign.

Independent laboratory tests carried out by at the SGS Laboratory and Bureau Veritas on material available for coal seams M140, M160, M180, and M200.

## 1.9    Data Verification

Internal data verification was applied in the 2023 field and drill campaign.

The QP was provided with Project data including excel databases, historical coal resource estimates and PTO Update.

The QP performed various data verification checks including verification of geological logging, geophysical logs, coal seam interpretations and analytical data to independently compare seam thicknesses, seam correlation, seam continuity, core recovery, and seam quality in addition to gross checking of coal thicknesses, distances, areas, volumes, tonnages and resource estimation and a site visit on 2nd of February 2024 which included visiting a number of Project drill hole and trench locations and inspection of the core logging area and core store.

## 1.10    Metallurgical Testwork

No metallurgical testwork has been carried out to date at this stage of the Project.

Metallurgical coal is a grade of coal that can be used to produce good-quality coke. Coke is an important fuel and reactant in the blast furnace process for primary steelmaking. Metallurgical coal is low in ash, moisture, sulphur and phosphorus content.

It may be that those seams which have high FSI values could form the basis of a potential alternative higher value product stream for metallurgical coal for which among other tests a value for Phosphorous should be established.

## 1.11   Coal Resource Estimation

Coal Resources were estimated for the "Modelled Area" using the 2014 CIM Definition Standards and are reported in situ. Estimation is supported by fourteen (14) bore holes, coal seam analyses and the downhole geophysical gamma and density logs of 9 bore holes and trench and outcrop data. The seam dips and true thicknesses are calculated based on the borehole, trench and outcrop data. The geological model was constructed using coal depth, thickness and quality data. Geophysical log measurements of the coal depths are accepted as being correct, as is standard in the industry, and are used as the basis for the coal seam thickness in the geological model. High quality topographic data was utilised for surface intercepts. The true thicknesses of the seams are calculated using the dip of the coal seams and the length of the coal deposit. In the opinion of the QP, in consideration of the CGS Paper 88-21, 450 m is a reasonable radius of influence for a coal deposit of Low to Moderate geological complexity.

To assess reasonable prospects of eventual economic extraction the QP considered the Updated Colombian Mining Technical Work Plan, Programa de Trajabos y Obras (known as a "PTO") which proposes .to mine 6 coal seams by underground, short wall mining methods in the "Modelled Area" comprising 24 ha. The original PTO was approved in 2016 by the Colombian Mining Agency AMN (AUTO PARB-1254 of 09/11/2016) and the update is only with respect to a smaller area of 333 ha (8285 m2) as Aion had submitted an application in 2023 to reduce the area of the concession. Aion have since commenced surface operations at the proposed mine entrance site.

The approved PTO and 2023 update, which is awaiting approval, both address the following key aspects of the Project beyond this Report in detail on the basis of Colombian reporting requirements and standards:

- Coal Reserve Estimation

- Mine Plan

- Recovery Plan

- Infrastructure

- Markets and Contracts

- Environmental, Permitting and Social Considerations

- Environmental Considerations

- Closure and Reclamation Planning

- Permitting Considerations

- Social Considerations

- Capital Cost Estimates

- Operating Cost Estimates

- Economic Analysis

These aspects of the Project are not documented within this Report as further work including drilling, sampling and laboratory analyses is required in order to verify and enhance existing data and to form the basis of preliminary mine planning to the reporting standard by Qualified Persons.

Notwithstanding the further work recommended herein, it is considered, the opinion of the QP, that the 2023 PTO Update, which is awaiting approval by the Colombian authorities, has the benefit of satisfying the "reasonable expectations of economic extraction" requirement necessary to estimate CIM compliant resources in this Report.

Mineral Resources reported in this Report have only been estimated for the relatively small "Modelled Area" and are anticipated will support the early years of production planned in the Updated PTO. They are designated "Resources of Immediate Interest" and upon completion of the recommended work may be followed by estimation of "Resources of Future Interest".

## 1.12    Coal Resource Statement

Coal Resources are reporting using the 2014 CIM Definition Standards. The QP for the estimate is Mr Paul B. Bright an Independent Consultant. Coal Resources are tabulated in Table 1-1 and have an effective date of 17/03/ 2024.

Table 1-1  Coal Resource Statement for the Area of Immediate Interest of FLG-111, the "La Estrella" Coal Project

| Seam | Avg. Thickness | Measured Resources (t) | Indicated Resources (t) | Total Measured and Indicated Resources (t) |
|---|---|---|---|---|
| M200 | 0.9 | 233400 | 88600 | 322000 |
| M180 | 0.6 | 132400 | 56600 | 189000 |
| M160 | 0.6 | 87000 | 62400 | 148400 |
| M140 | 0.7 | 113000 | 91400 | 204400 |
| M120 | 0.7 | 73800 | 113529 | 187329 |
| Total | 2.9 | 639600 | 434200 | 1073800 |

Notes to Accompany Coal Resource Table:

1. Coal Resources have been classified using the 2014 CIM Definition Standards. The Coal Resources have an effective date of 17/03/2024.
2. The Qualified Person for the resource estimate is Mr Paul B. Bright BSc M.IMMM C.Eng
3. The Coal Resources are reported in situ.

Areas of uncertainty that may materially impact the Coal Resource estimates include:

- Changes in geological interpretations including the size, shape and distribution of interpreted lithologies;
- Changes in local interpretations of seam geometry, fault geometry, and seam continuity;
- Changes in quality data;
- Variations in geotechnical, hydrogeological and mining assumptions;
- Changes to environmental, permitting and social licence assumptions.

Coal Resources are only reported in the "Modelled Area" (24 ha) and these are designated as Resources of Immediate Interest.

It is considered that further resources may later be reported beyond the Area of Immediate Interest once further work is completed as current data quantity and quality is insufficient to report to CIM standards and these were designated "Resources of Future Interest".

## 1.13    Adjacent Properties

There are no adjacent properties and coal geology at the La Estrella project is interpreted to continue along strike to the northeast and at depth to the northwest and the QP considers that the acquisition of title to the north may allow for extension of "Resources of Future Interest".

## 1.14    Interpretation and Conclusions

QP considers that previous historical resource estimates were not fully compliant with, and include categories of resource outside of, internationally recognised reporting codes as defined by the Combined Reserves International Reporting Standards Committee ("CRIRSCO") which recognise, such reporting codes as those of  as *The 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia"*. Or those of the Canadian Institute of Mining, Metallurgy and Petroleum (the "*CIM Code*") particularly relevant to NI -43101

While the historical estimates give a reasonable indication of total in situ coal volumes further verification drilling and exploration work, including drilling, sampling and laboratory analyses is required in order to verify and enhance existing data and to form the basis of preliminary mine planning.

The 2023 Updated PTO completed by Aion in order to comply with Colombian statutory obligations is awaiting approval but also has the benefit of satisfying the requirement of "reasonable expectations of economic extraction" in order to estimate compliant resources.

Resources have been estimated for this relatively small area, the "Modelled Area" (24 ha) reported in the Updated PTO which are anticipated will support the early years production planned in the PTO.

It is proposed that Coal Resources for La Estrella are estimated as those of Immediate Interest (Table 1-1) which can be followed at a later date by those of Future Interest.

## 1.15   Recommendations

There is upside potential for the Project if some or all of the Measured and Indicated Coal Resources can be converted to Coal Reserves, and if some or all of the Inferred Coal Resources can be converted to higher-confidence categories and subsequently to Coal Reserves, and if the in situ geological coal can be converted to Coal Resources.

To further improve and increase reported resources the QP makes the following recommendations for the La Estrella Coal Project:

Stage 1 – Site and laboratory testing

A.      Further analysis including bulk density and washability testing of reported Coal Resources

and

B.      Limited drilling, analysis and testing of in situ geological coal to the northeast of the Modelled Area

Stage 1A and Sage 1B can be undertaken concurrently.

and

Stage 2 – Review, Estimation, and Reporting

There is upside potential for the Project if some or all of the Measured and Indicated Coal Resources can be converted to Coal Reserves, and if some or all of the Inferred Coal Resources from historical estimates can be converted to higher-confidence categories and subsequently to Coal Reserves, and if the in situ geological coal can be converted to Measured and Indicated Resources Coal Resources.

## 2   INTRODUCTION

### 2.1   Introduction

Paul B. Bright, an Independent Geological Consultant sand QP, has been requested by Camilo Cordovez A., VP of Finance Aion Mining Corp. ("Aion") to prepare this NI 43-101 technical report ("the Report") regarding a single concession area, FLG-111, also known as "La Estrella", or herein referred to as the "Project", in respect of coal exploration and exploitation located in the department of Santander, Republic of Colombia ("Colombia") (Figure 2-1).
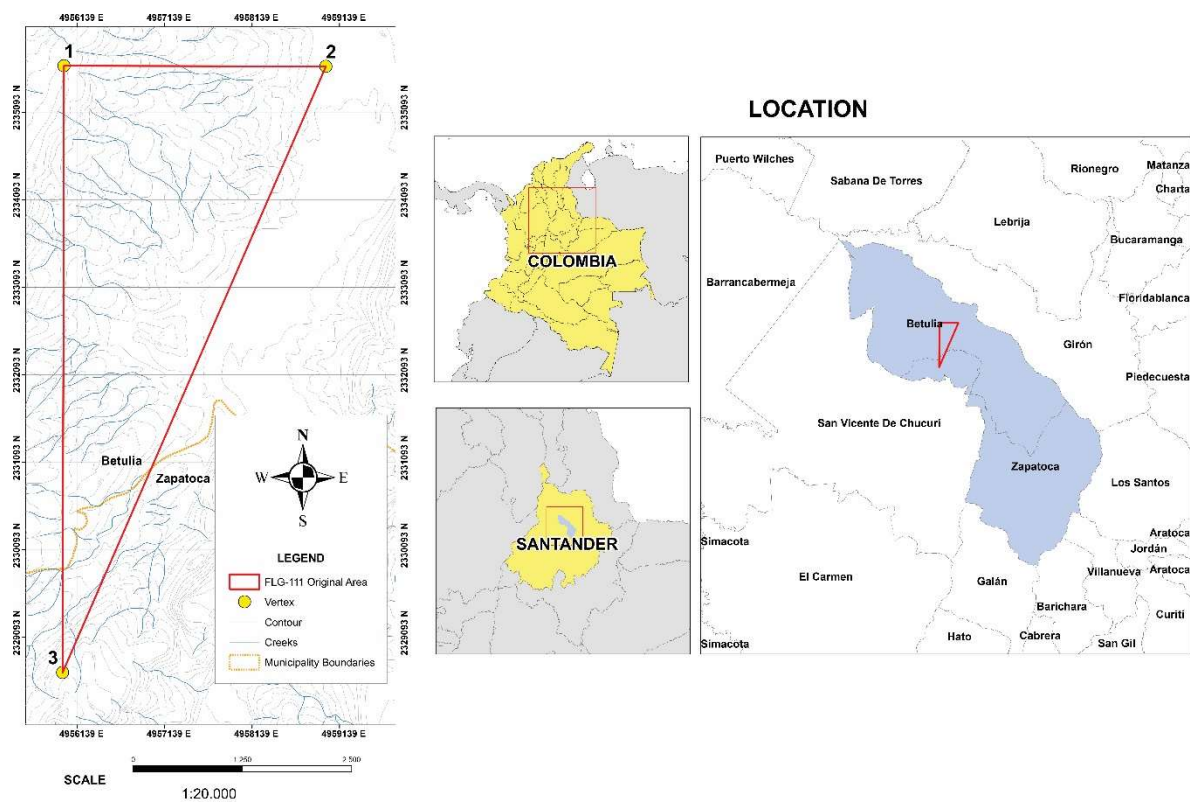


Figure 2-1  Location of the "La Estrella" coal Project, Department of Santander, Republic of Colombia

The QP understands that the requested NI 43-101 report is needed to satisfy the requirements of potential overseas investors.

### 2.2   Terms of Reference

This Report provides information on the La Estrella Coal Project and Coal Resource estimates.

Currency is expressed in US dollars (USD$) unless stated otherwise. Units are typically metric units, such as metric tonnes, unless otherwise noted.

Coal Resource estimates are reported using the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves.

## 2.3    Qualified Persons

Paul B. Bright BSc., MIMMM., C.Eng

## 2.4    Site Visits and Scope of Personal Inspection

A Site Visit was conducted on 2$^{nd}$ of February 2024 by the QP which included visiting a number of Project drill hole and trench locations and inspection of the core logging area and core store.

## 2.5    Effective Date

The Report has an effective date of 17/03/2024.

## 2.6    Information Sources and References

The reports and documents listed in section 27 of this Report were used to support the preparation of the Report.

Additional information was sought from Aion personnel where required.

## 2.7    Previous Technical Reports

No reports were previously filed by Aion.

# 3   RELIANCE ON OTHER EXPERTS

This technical report represents the independent professional opinion of Qualified Person Paul B. Bright BSc., MIMMM., C.Eng. The purpose of this report is to provide an independent Technical Report on the geology and mineral potential of the concession FLG-111 (also known as "La Estrella") for coal exploration and exploitation in the department of Santander, Republic of Colombia. The report is designed to conform to the standards required by NI 43-101 and Form 43-101F. The opinions expressed herein are based on publicly available information and on data and information supplied by, or gathered from, Aion and reflects the professional opinion of the author. The author has reviewed a number of previous reports, including CRISCO reports on the asset by various authors. These are listed in the references section below.

The QP has relied upon and believes that he has a reasonable basis for such reliance, upon legal advice on mining title FLG -111 which Brigard Urrutia legal advisors provided to Aion.

The QP has also been provided with a document from ANH confirming title and is satisfied with regard to the project status and legal title to the project.

# 4 PROPERTY DESCRIPTION AND LOCATION

## 4.1 Introduction

The "La Estrella" Project (the "Project") is located near the village of Sogamoso, La Estrella sector, covering a portion of the border of the municipalities of Betulia and Zapatoca in the department of Santander, some 22km southwest of Bucaramanga, the capital of the department of Santander and approximately 280 kilometres north of the capital of the Republic of Colombia ("Colombia"), Bogotá. The Project originally comprised a single coal exploration and exploitation licence area, FLG-111 with a total of 1,038 ha (7588 m$^2$) with three (3) vertices provided below (Figure 4-1).
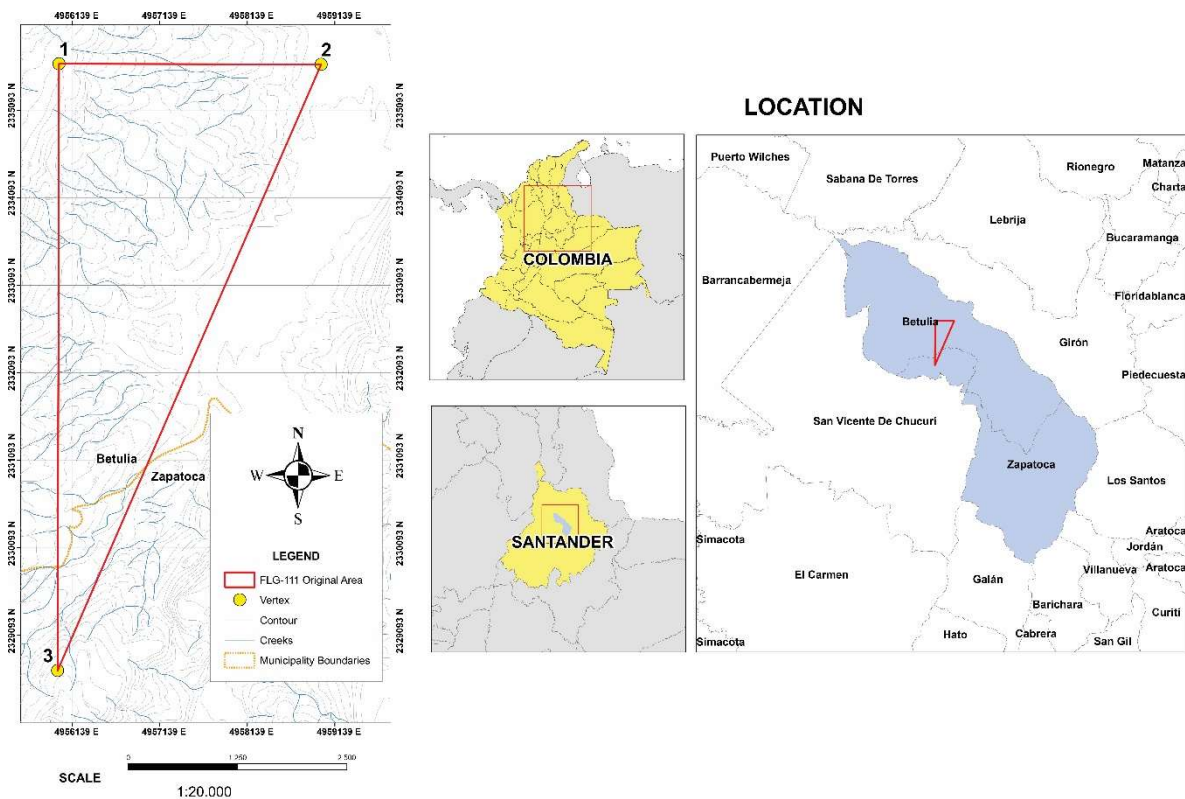


| Vertex | Original X | Original Y | Converted X | Converted Y |
|---|---|---|---|---|
| 1 | 1270000 | 1075000 | 4955985.87770 | 2335622.50436 |
| 2 | 1270000 | 1078000 | 4958983.31932 | 2335615.56158 |
| 3 | 1263063 | 1075000 | 4955969.89507 | 2328691.56977 |

Figure 4-1 Location of the "La Estrella" Coal Project single concession FLG-111, Department of Santander, Republic of Colombia including table of licence vertices.

When the concession title was granted the ANM had not yet adopted the current grid system (Resolution 504 of September 18, 2018). Under the current grid system the licence relates to 935 grid cells.

Since the time the concession title was granted the coordinate system has changed to CMT12 (see section 9.1) and both the original and converted coordinates are provided above (Figure 4-1).

### 4.1.1   Proposed Licence Reduction

Since the concession was granted the licence area has been affected by Resolution No. 260 of July 30, 2008 in which the Ministry of Mines and Energy declared an interest in land necessary for the construction of the Sogamoso Hydroelectric Project in favour of ISAGEN S.A. This resulted in an area within the FLG-111 licence for which ISAGEN S.A. must authorise or give permission for the licence holder to carry out works of exploration and exploration of coal from surface to a depth of 330 m above sea level.

In addition, geological exploration has established that potentially economic coal only occurs in the northern portion of the concession and the area of potential economic interest is not affected by the Sogamoso Hydroelectric Project.

As a result Aion has made an application dated 12th December 2023, with reference to Article 82 of Law 685 of 2001 "Delimitation and return of areas", to reduce the licence area to only 333 ha (8285 m$^2$), a retention of only 32% which relates to 293 grid cells (as designated by Resolution 505 of August 2, 2019) and relinquishment of a total of 706 ha comprising the area requiring permission from ISAGEN S.A. and the area lacking coal potential (Figure 4-2). This request details 50 coordinate vertices (see Figure 4-2) and is currently awaiting approval by the ANM.
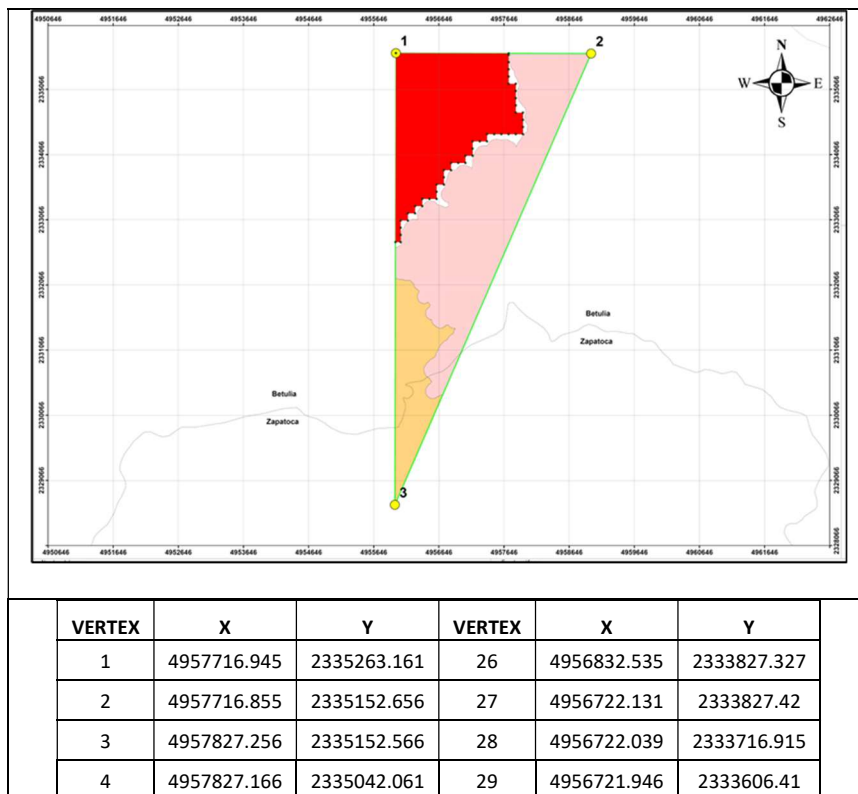


| VERTEX | X | Y | VERTEX | X | Y |
|--------|---|---|--------|---|---|
| 1 | 4957716.945 | 2335263.161 | 26 | 4956832.535 | 2333827.327 |
| 2 | 4957716.855 | 2335152.656 | 27 | 4956722.131 | 2333827.42 |
| 3 | 4957827.256 | 2335152.566 | 28 | 4956722.039 | 2333716.915 |
| 4 | 4957827.166 | 2335042.061 | 29 | 4956721.946 | 2333606.41 |

| 5 | 4957827.076 | 2334931.556 | 30 | 4956611.541 | 2333606.502 | |
|---|---|---|---|---|---|---|
| 6 | 4957826.985 | 2334821.051 | 31 | 4956611.449 | 2333495.997 | |
| 7 | 4957826.895 | 2334710.546 | 32 | 4956611.356 | 2333385.492 | |
| 8 | 4957937.298 | 2334710.457 | 33 | 4956500.951 | 2333385.585 | |
| 9 | 4957937.208 | 2334599.952 | 34 | 4956390.545 | 2333385.678 | |
| 10 | 4957937.118 | 2334489.447 | 35 | 4956390.452 | 2333275.173 | |
| 11 | 4957937.028 | 2334378.942 | 36 | 4956280.047 | 2333275.266 | |
| 12 | 4957826.625 | 2334379.032 | 37 | 4956279.953 | 2333164.761 | |
| 13 | 4957716.222 | 2334379.122 | 38 | 4956169.547 | 2333164.854 | |
| 14 | 4957605.819 | 2334379.213 | 39 | 4956169.454 | 2333054.349 | |
| 15 | 4957495.415 | 2334379.303 | 40 | 4956059.048 | 2333054.443 | |
| 16 | 4957385.012 | 2334379.394 | 41 | 4956058.954 | 2332943.938 | |
| 17 | 4957384.921 | 2334268.889 | 42 | 4956058.86 | 2332833.433 | |
| 18 | 4957274.518 | 2334268.98 | 43 | 4956058.767 | 2332722.928 | |
| 19 | 4957164.114 | 2334269.072 | 44 | 4955979.185 | 2332722.996 | |
| 20 | 4957164.023 | 2334158.567 | 45 | 4955985.878 | 2335622.504 | |
| 21 | 4957163.931 | 2334048.062 | 46 | 4957717.236 | 2335618.473 | |
| 22 | 4957053.527 | 2334048.153 | 47 | 4957717.216 | 2335594.676 | |
| 23 | 4957053.436 | 2333937.648 | 48 | 4957717.126 | 2335484.171 | |
| 24 | 4956943.032 | 2333937.74 | 49 | 4957717.035 | 2335373.666 | |
| 25 | 4956832.628 | 2333937.832 | 50 | 4957716.945 | 2335263.161 | |

Figure 4-2  The proposed licence area under application with 50 vertices illustrating relinquishment of areas requiring ISAGEN S.A. permission and lacking in coal potential.

## 4.2    Project Ownership

The concession was granted to Mr Heber Boris Cordovez Vargas on 13th of December 2006 for a term of 30 years and registered in the national mining registry on 19th of January 2007 (

Figure 4-3).

Figure 4-3  "La Estrella" FLG-111 Certificate of Registration at the National Mining Agency.

## 4.3    Mineral Tenure

The main regulation in force with respect to mineral rights, exploration and mining in Colombia is the Mining Code issued through Law 685 of 2001 ("the Mining Code"). The National Mining Agency ("ANM"), created through Decree 4134 of 2011, is responsible for executing the title and registration processes, technically assisting projects, and promoting and observing the obligations arising from mining concessions.

Mining regulations in Colombia follow the principle that, notwithstanding exempted rights, the subsoil and all mineral resources located therein are owned by the state and as a result may only be exploited with prior authorisation in the form of a mining title issued by the competent authority (to date, the ANM).

The Mining Code defines mining titles as concession agreements that grant the licensee a personal, exclusive and temporary right to explore and exploit minerals in the subsoil and within the contracted area. In addition, the concession agreement grants the licensee the right to acquire ownership rights of the extracted minerals in exchange for royalties. Mining titles are granted for a maximum period of 30 years, renewable for another 30 years, counted from the date of registration of the mining title before the National Mining Registry.

Under Colombian law the concession agreement is divided into three (3) phases: exploration, construction, and mining.

Upon registration of the concession agreement before the ANM the exploration phase can start and is valid for three years and may be extended for an additional two-year period and up to a total of 11 years. Once the exploration phase concludes, the agreement enters the construction phase, which lasts for a term of three years, renewable for an additional period ranging from one year and up to four years. Finally, the agreement enters the mining phase, which lasts for the remaining life of the concession and is also extendable for 30 more years.

In 2009 concession FLG-111 was the subject of a suspension from 21/07/2009 to 03/06/2010 and it is understood, as per Colombian law, that this period is not added to the life of the concession.

With approval of the PTO in 2016 the La Estrella Coal Project progressed to the construction phase.

## 4.4    Surface Rights

The Mining Code provides that mining titles grant rights only for the exploration and exploitation of minerals in the subsoil and, thus, any right or title to the surface where mining operations are to be conducted must be negotiated and acquired by the licensee.

Under Colombian law mining is considered a public interest activity and National Development Plan 2018-2022, issued via Law 1955 of 2019, included the possibility of extending regulation for oil and gas easements contained in Law 1274 of 2009 to mining activities thereby enabling the holder of a

mining title to request expropriation and the imposition of easements over properties required for the development of permitted mining activities.

Surface rights will be sought as required.

## 4.5 Water Rights

Water rights will be sought as required.

## 4.6 Royalties and Encumbrances

Companies committed to any production of renewable natural resources are liable to a royalty in favour of the state. Declaration, liquidation, and payment of royalties must be made by mining operators in either monthly or quarterly instalments, depending on the mineral exploited, for which a unique form has been designed by the ANM. The 'Form for Declaration of Production and Liquidation of Royalties, Compensation and other Fees for the Exploitation of Minerals' was developed in accordance with stipulations in Decrees 145 of 1995 and 600 of 1996.

Royalties must be paid on mine-head production based on the production volume and the type of extracted mineral. Royalties are independent from any tax payments. Royalties for coal are as follows:

| | |
|---|---|
| Coal (exploitation of less than 3 million tons per year): | 5 per cent |
| Coal (exploitation of more than 3 million tons per year): | 10 per cent |

Depending on the stage of the project licence holders must pay a surface canon. This fee is calculated annually and is based on a multiple of daily legal wages per hectare depending on the term of the mining title and the area of the mining title.

Other national and regional taxes include:

- Income Tax;
- Industry and Commerce Tax;
- Bank Debit Tax;
  and
- Value Added Tax.

There are also a number of tax incentives pertinent to the mining industry.

## 4.7    Permitting Considerations

In addition to the environmental permits and licences explained below a mining title-holder is required under Law 685 of 2001 and Resolution 338 of 2014 to take out a mining and environmental insurance policy that was issued by an insurance company authorised by the Finance Superintendency of Colombia and this must be in force during the entire project.

During the exploration phase, the insured amount must be 5 per cent of the value of the planned annual exploration expenditure. For the construction phase, the insured value must be 5 per cent of the planned investment for assembly and construction. During the exploitation phase, the insurance policy must cover 10 per cent of the result of multiplying the amount of estimated annual production by the mine pit price of the extracted mineral, as established by the Colombian government.

## 4.8    Environmental Considerations

The Colombian legal and institutional framework for environmental management provides that projects and activities that may severely affect natural resources require environmental authorisation in the form of an environmental licence which must be granted by the Environmental Licence Agency or by a regional environmental authority depending on the projected production as indicated by Decree 1076 of 2015.

During the exploration phase, the licence holder must obtain the necessary environmental permits depending on the natural resources affected.

In order to progress the project from the exploration phase to the construction phase an Environmental Impact Study ("EIA") and Environmental Management Plan ("PMA") must be approved by the relevant authority.

The Project was granted an environmental licence by the Regional Autonomous Corporation of Santander on February 3, 2012, with administrative act No. 0000023.

## 4.9    Social Licence Considerations

Under Colombian law projects and activities that may potentially affect cultural diversity must consult all ethnic communities located within the area of influence prior to commencement of any activity.

To date, meetings have been held between the licence holder and the social leaders of the community, publicising the project and the benefits it will bring by implementing a social management plan according to the needs of the community. Aion has appointed a social professional Elvira Vera Bolaño.

## 4.10    Comments on Section 4

In the opinion of the QP Aion has satisfied the Colombian requirements in respect of its obligations for the concession in section 4.

# 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

## 5.1 Accessibility

The La Estrella coal Project is accessed by an eight (8) kilometre long gravel road of recent construction which connects to the highway that links Bucaramanga on the east to Barrancabermeja on the west via San Vicente de Chucuri and Lisboa (Figure 5-1). It is located to the west of the municipality of Betulia in the village of Sogamoso (see Figure 5-1).
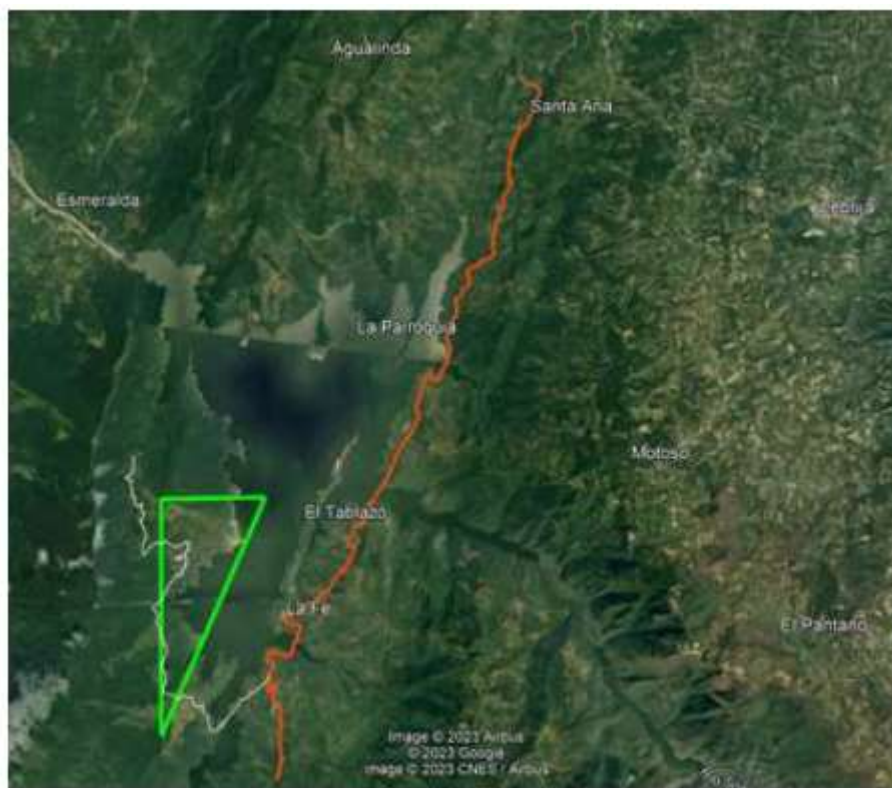


Figure 5-1  Location of the "La Estrella" coal Project Concession Contract Area FLG-111 illustrating access roads to the Project from the department capital, Bucaramanga (to the east) and Barrancabermeja (to the west) and the village of Sogamoso.

There are no domestic properties on the Project area and none fronting the gravel access road.

A major highway with access to both the north and south of Colombia, including Barrancabermeja and the Caribbean ports, lies to the west of the Project in the Magdalena River Valley.

The Magdalena River itself offers the possibility of barge transport to and from the Caribbean.

## 5.2    Climate

The Project is located in an area of tropical humid forest with an average annual temperature ranging from 23 to 33 ºC and rainfall that varies between 2000 and 4000 mm/year.

Operations are conducted year-round.

## 5.3    Local Resources and Infrastructure

Bucaramanga and Barrancabermeja are both large cities with a range of technical, logistical, social and commercial support and services in addition to several universities. The Bucaramanga University is well regarded in geology and mining.

Coal mining activity has been ongoing in the region for many years, and the infrastructure is well developed, including all-weather roads.

## 5.4    Physiography

The "La Estrella" Project is situated on the western flank of the Cordillera Oriental (Eastern Mountain Range) of the Colombian Andes in the sub-basin of the Sogamoso River within the greater basin of the Middle Magdalena Valley. Height above sea level varies between 200 and 1000 m. The tropical humid forest comprises a mixture of mature hardwood and fruit forests, as well as typical pastures of rural farmland and cattle ranching with cocoa production in upland areas.

## 5.5    Comments on Section 5

In the opinion of the QP:

- The existing local infrastructure, availability of staff, methods whereby goods are transported to and from the Project area supports the current stage of work.
- Within the mineral lease, there is sufficient area for the infrastructure to support the current stage of work.
- Operations are conducted year-round.

# 6 HISTORY

## 6.1 Exploration History

The region in which the concession area lies has been the subject of interest in coal and petroleum since 1917. Key work regarding coal includes the INGEOMINAS report 1700 of 1976 which evaluated the west and east flanks of the New World Syncline and reported a total of 28 economically profitable coal seams with thicknesses ranging from 0.6 to 5 m. Some seventy-five 75) surface samples were analysed. The coal beds were reported to be especially bituminous in nature and high in volatiles.

Prior to work by the licence holder the Project had only been the subject of regional scale mapping.

Exploration within the concession by the licence holder started with surface mapping and trenching and the drilling of five boreholes in 2008 followed by further mapping, pitting and trenching and a 2023 drilling campaign of 9 boreholes.

In addition there were a number of regional studies that covered the licence area including a 2015 regional study of almost 500 km$^2$ only two (2) samples were collected from one coal seam of almost 50cm in thickness located within the "La Estrella" Project area and on that basis a total "resource" of more than 1.2 million tons of coal was estimated for the eastern flank of the New World Syncline where the "La Estrella" Project is situated (Sandoval and Monroy, 2015).

# 7   GEOLOGICAL SETTING AND MINERALISATION

## 7.1   Regional Geology

The regional geology of the "La Estrella" is defined by an intra-Andean basin that dips towards the east that was tectonically affected by a set of northeast striking folds and reverse faults which dip to the east and comprises continental sedimentary rocks with minor marine incursions with ages ranging from Cretaceous to Quaternary (Figure 7-1).The Project lies within "Áreas Carbonifera San Vicente area 901 ", as recognised in "El Carbón Colombiano, Recursos, Reservas y Calidad"(Ingeominas, 2004) and coals occur in the Middle and Upper sections of the Late Cretaceous Maestrichtian age Umir Formation within a series of north-east trending synclinal structures of the Middle Magdalena Valley Basin that are bounded on the east by the Bucaramanga Fault, a reverse easterly-dipping fault, which uplifted crystalline and metamorphic basement rocks.

Based on the palynological assemblages, it was suggested that the Middle Umir Formation was deposited in a lagoonal environment with coastal swamps and estuarine conditions that evolved into a semi-restricted bay with river influx for the Upper Umir formation (Santos, 2012).
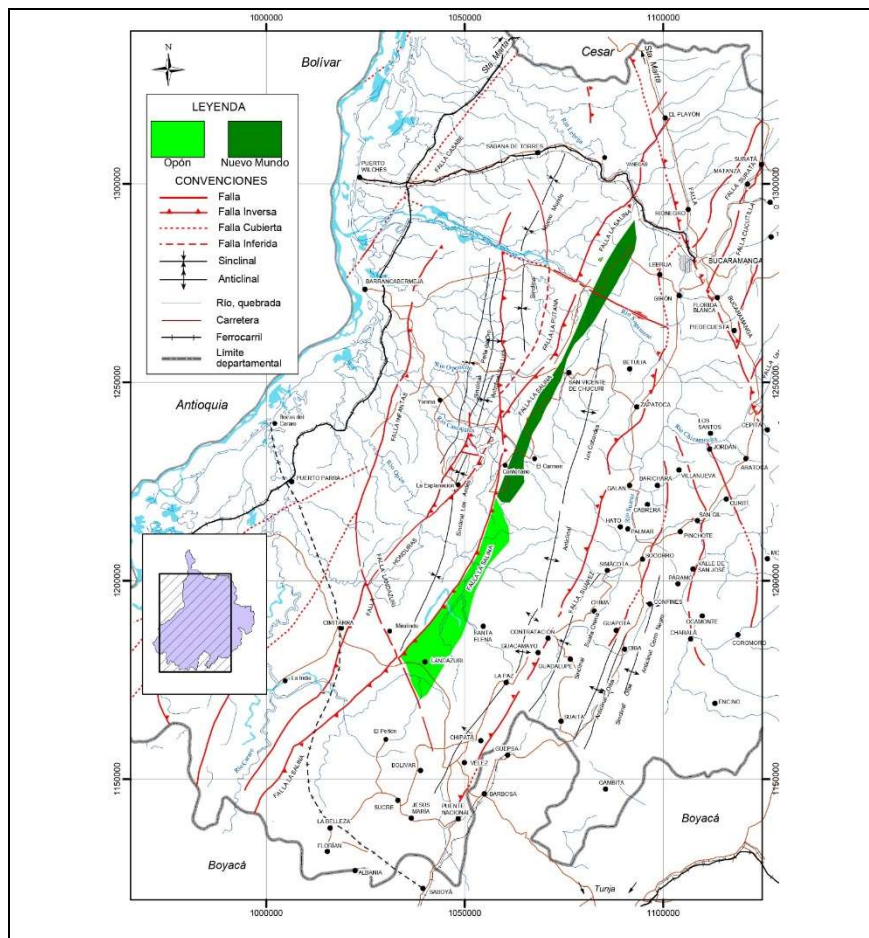
Figure 7-1  Regional Geology Plan illustrating the coal areas of the department of Santander and Áreas Carbonifera San Vicente area 901.

Coal exploration carried out by the state entities INGEOMINAS, Carbocol S.A. and Geoconsulta LTDA., were focused on the northeast flank of the Armas Syncline and southwest flank of the New World Syncline between 1977 and 1996 and included mapping at a scale of 1:4,000, twenty (20) trenches, stratigraphic surveys in nine (9) creeks, the drilling of thirty (30) open holes and geophysical well logs. The final report published in 1996, defined sixty-five (65) coal seams of which only twenty (20) seams were considered continuous with thicknesses ranging between 0.6 and 2.0 m and determined from a total of 127 samples that coals ranged from thermal bituminous and high volatile to bituminous medium volatile and coking coals.

## 7.2    Project Geology

La Estrella coal Project is located on the eastern flank of the New World Syncline and comprises coal of the Middle and Upper Umir Formation with known outcrops striking northeast over approximately 3 km and dipping at 28 to 30° to the northwest within the licence area (Figure 7-2).
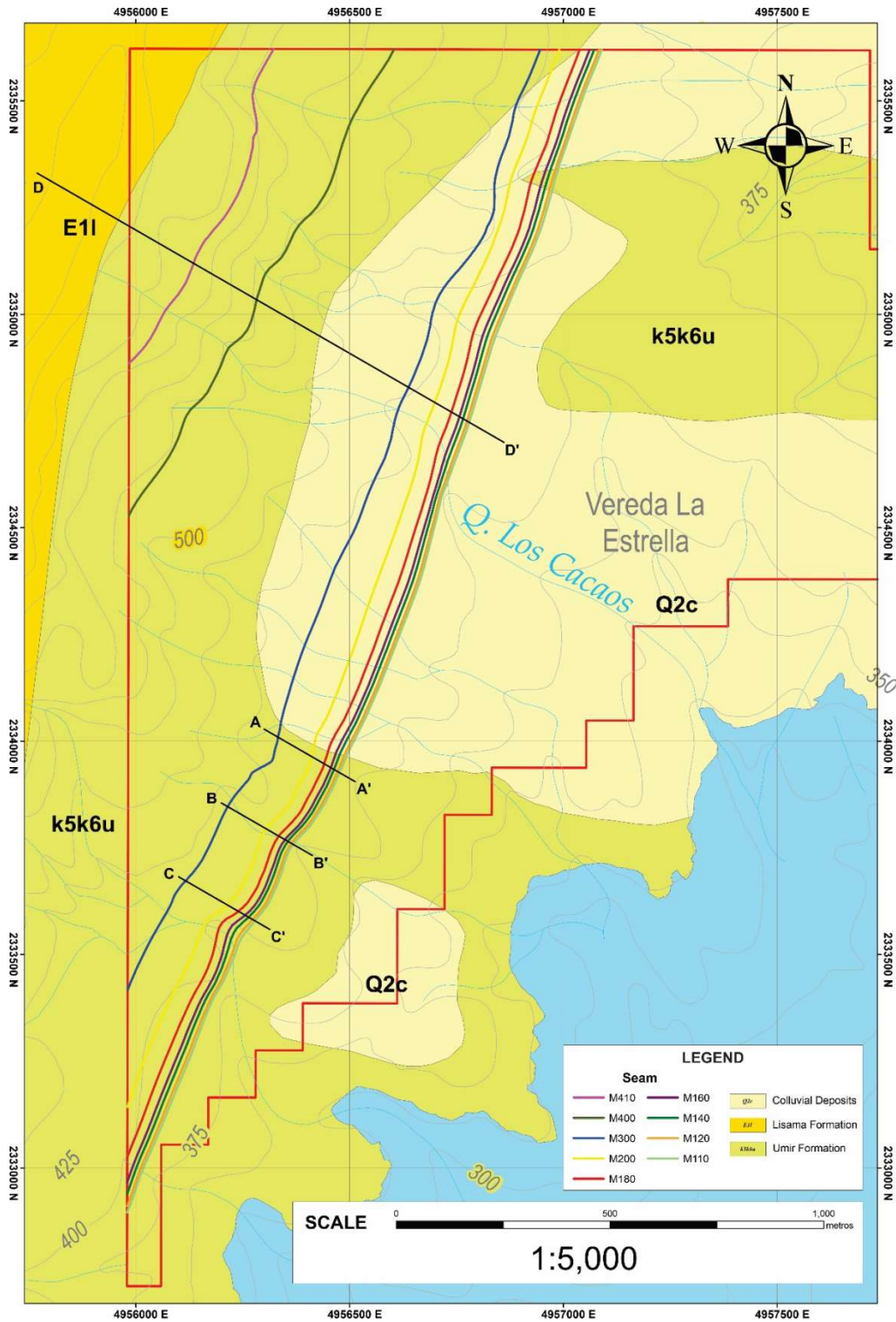
Figure 7-2  Project Geology Plan illustrating the licence area.

## 7.2.1    Lithologies

Q2c – Quaternary colluvial deposits

The blocks that make up the colluvial deposits are conglomeratic sandstones with edges that vary between 0.3 and 5.0 m, they are embedded in a silt-sandy matrix.

K5k6u – Umir Fm

In the project area, the Umir Formation is located on the eastern flank of the New World Syncline; It is arranged along a strip in a southwest-northeast direction, which is narrow in the southern part and wider in the northern part.

The Umir Formation is made up of a cyclic series of sandstones, claystones, siltstones, interbedded with coal belts and coal beds. Arenites are fine-grained to very fine-grained in thin to mid-layers with non-parallel wavy layering planes, with thicknesses ranging from 5 to 12 meters thick.

Levels of claystones are interspersed with siliceous siltstones with parallel plane stratification planes in thin layers and middle layers that give it a staggered appearance. This sequence is also interspersed with coal ribbons that are wedged and lose continuity in the course and dip. The siltstones are grey in color with continuous parallel flat stratification, in thin layers and thick sheets. In this formation are found the coal beds of interest for the title area in the form of coal ribbons and seams from 0.7 meters to 1.4 meters thick.

The Umir Formation rests in stratigraphic discontinuity on the Galembo member of the La Luna Formation. Contact with the overlying Lizama Formation is concordant. The Umir Formation rests in stratigraphic discontinuity on the Galembo member of the La Luna Formation. Contact with the overlying Lizama Formation is concordant.

Described by L Huntley (1968).

Within the coal measures there are three distinct coal occurrences: the Upper (M400 and M410) and the Lower (M200 to M120) seam groups and M300 which lies between the other groups.

E1l – Lisama Fm

The Lisama Formation includes the Paleocene sediments that represent the transition from Umir deposits to continental deposits; they are found concordantly and gradually on the Umir. The Lisama Formation has a thickness of approximately 1000 meters, and is composed of a cyclic sequence of fine- to medium-grained grey to greenish-grey sandstones with non-parallel wavy stratification in medium and thick layers of 1.2 to 2.0 meters thick, interbedded with light grey, greenish-grey claystones, Purple with reddish hues due to oxidation, silty sandstones of light grey and greenish-grey color are also present in thin and medium layers. This formation is assigned a Paleocene age (Pardo, 2004).

It was originally described by Th. Link (in Morales et al., 1958) and first published by Wheeler (in De Porta et al. 1974).

### 7.2.2    Structure

The "La Estrella" Project is located on the eastern flank of the New World Syncline where tectonic compressive dynamics developed as a result of the uplift of the eastern mountain range that generated a system of reverse faults with direction NNW with vergence towards the east and anticlines and synclines were formed with axial plane of southwest - northeast direction.

### 7.2.3    Mineralisation

The coal measures at the "La Estrella" Project are coal seams with varying volatile matter contents and coal quality varies with depth and location along the strike of the deposit. Higher seams in the succession (M400, M410 and M300) are generally of lower seam quality.

Seams considered exploitable range in thickness from 0.6 m to 1.4 m.

Schematic illustrations of the outcrops of coal seams and cross-sections showing the coals at depth in the Project area indicate that coal potential is open along strike at surface to the northeast and at depth to the northwest of the licence area (Figure 7-4). The Generalised Stratigraphic column is provided in Figure 7-4.

**Map View**

W — E

Scale: 1:4400

0m — 100m

N

Legend
- M110
- M140
- M180
- M120
- M160
- M200
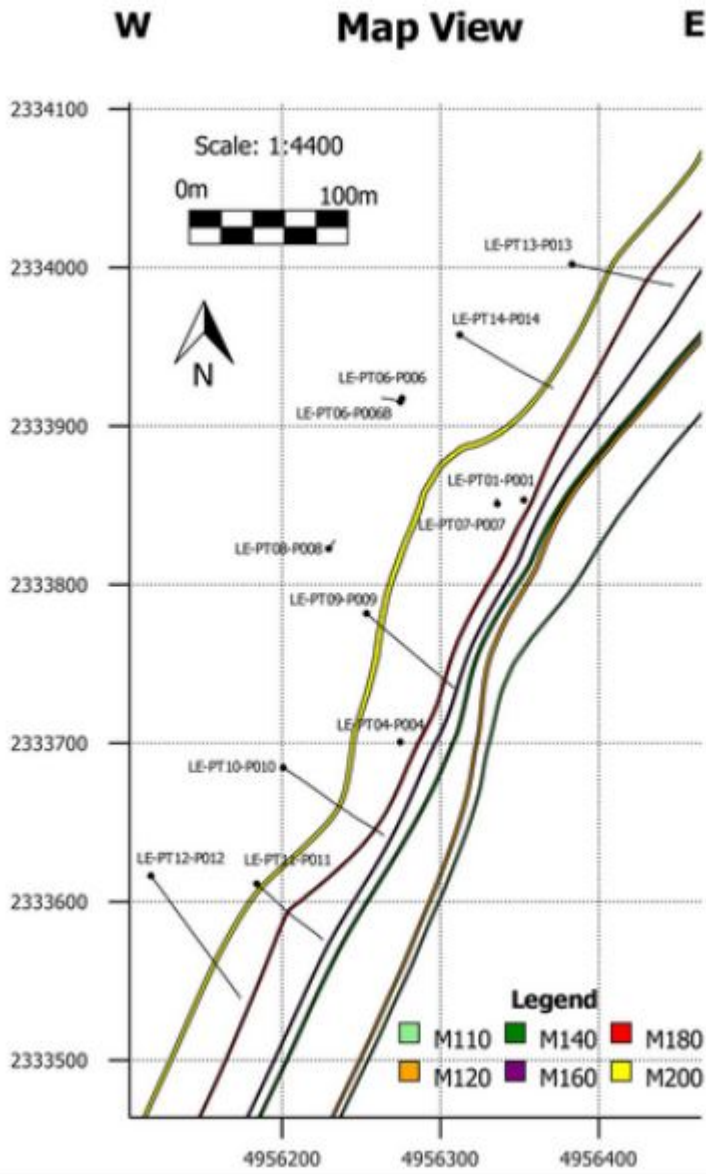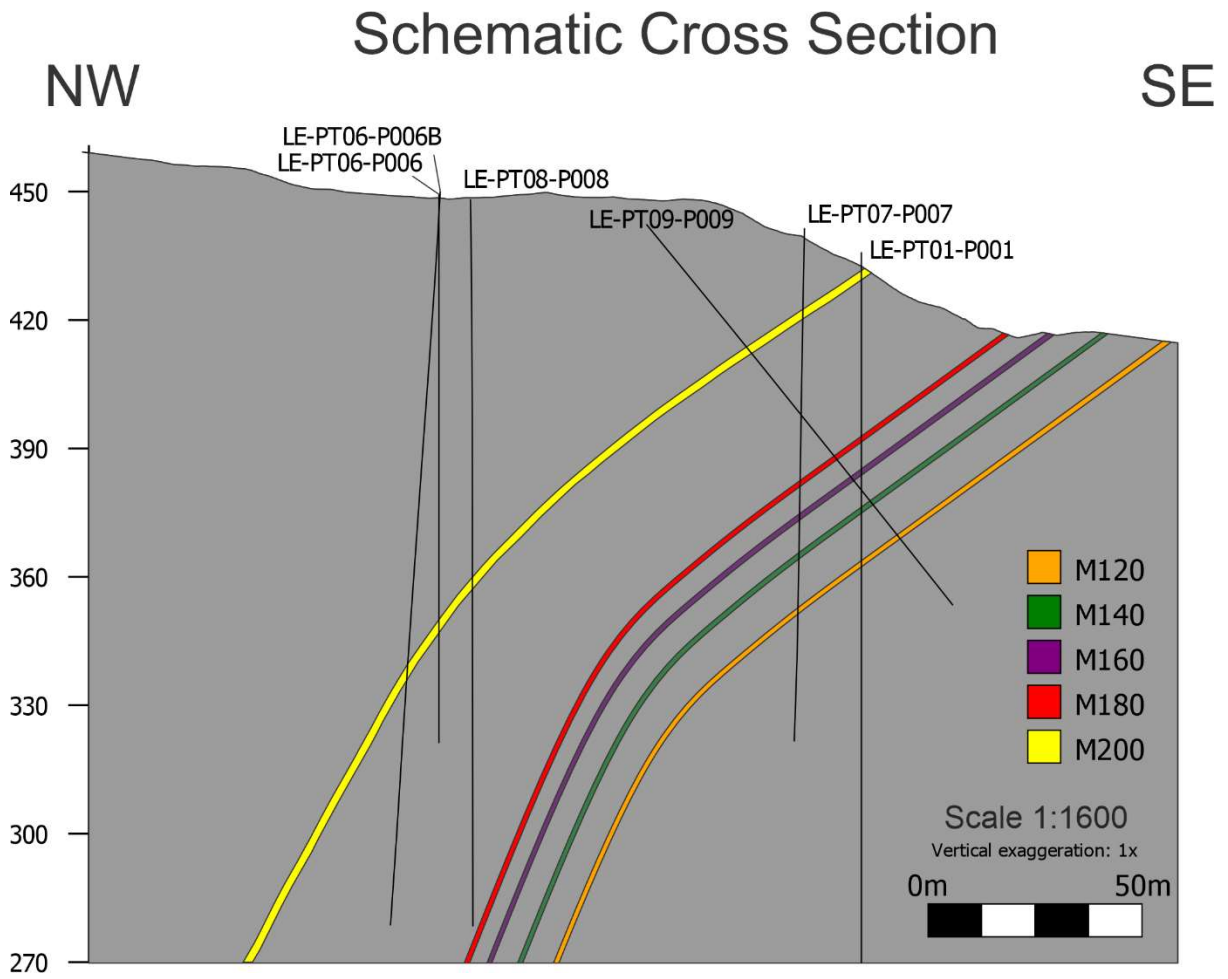
Figure 7-3   BH location plan and schematic cross-section
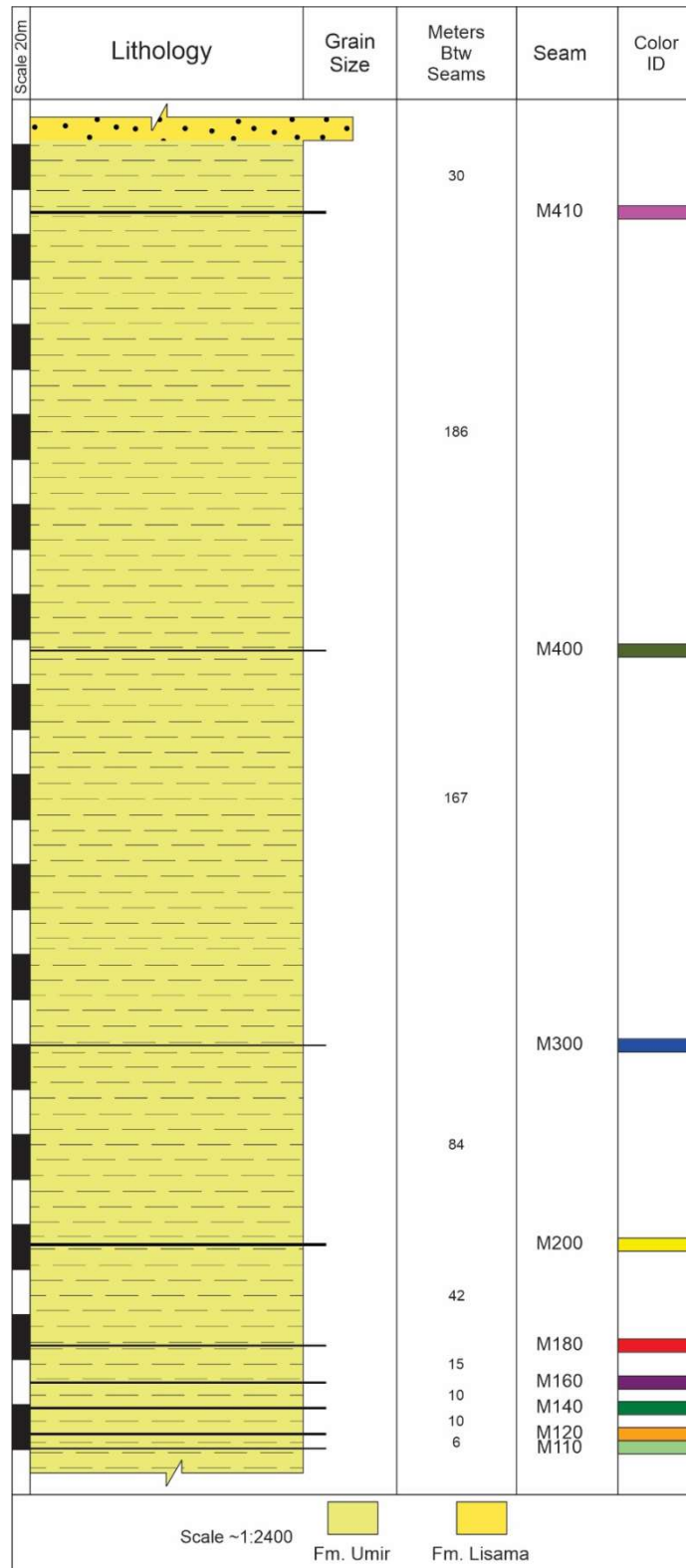
Figure 7-4  Generalised Stratigraphic Column illustrating location of coal seams at the La Estrella Coal Project

## 7.3    Comments on Section 7

In the opinion of the QP, the understanding of the deposit setting, lithologies, and geological and structural controls is sufficient to support estimation of in situ coal volumes throughout the concession area. Coal Resources would benefit from additional analyses from further sampling, washability and bulk density testing and other work as recommended elsewhere in this Report.

# 8   DEPOSIT TYPES

## 8.1   Overview

Coal deposits are originally laid down as sub horizontal tabular deposits of peat-forming materials that accumulated at or near their place of formation within swamps and marshes occurring in deltaic, alluvial and lacustrine environments, often over a relatively large area.

Coal is complex because of the wide variety of factors that determine the quality of coal. These factors include the following: (1) the plants, plant remains, and other organisms (such as bacteria) in the peat swamp; (2) biological and chemical processes, and the degree of preservation of the plant matter; (3) the depositional environment, geometry and location which can result in local interruption to deposition caused by moving channels and/or marine incursions causing "seam splitting", variation in seam thicknesses and seam absences or "washouts" due to local non deposition or erosion following deposition; (4) the mineral matter that accumulated with the plant material, or was introduced at some later stage; and (5) coalification, a continuing post-depositional process involving increases in both temperature and pressure resulting from burial in the earth and tectonic history which converts the vegetable matter through peat into higher "ranks" of coal.

Coal is a combustible sedimentary rock in which organic material, including residual moisture (as defined by ASTM International procedure 3180 -84; https://www.astm.org/d3180-15) comprises more than 50% by weight and 70% by volume of carbonaceous material derived from altered plant remains through processes of compaction, diagenesis, and chemical alteration since their original deposition as vegetable matter and the extent to which these coalification processes have taken place defines the rank of the coal and is determined by the percentage of fixed carbon, moisture (water), volatile matter, and calorific value in British thermal units (Btu) after the sulphur and mineral-matter content have been subtracted using standards published by ASTM International (2002) (Schweinfurth 2002). On the microscopic level, coal is made up of organic particles called macerals which are the altered remains and by-products of the original plant material and microscopic studies identify the constituents, how they are arranged and to provide knowledge of their composition and distribution.

Coals that are suitable for the production of metallurgical coke are referred to as metallurgical coals. Coals that are used to fuel electric power generating plants are referred to as thermal coals.

The major coal ranks, from lowest to highest, i.e., least to most carbon, are lignite (also called "brown coal" in some parts of the world), subbituminous coal, bituminous coal, and anthracite. Each rank may be further subdivided.

In addition to carbon, coals contain hydrogen, oxygen, nitrogen and varying amounts of sulphur. High-rank coals are high in carbon and therefore they have great heat value but are low in hydrogen and oxygen. Low-rank coals are low in carbon but high in hydrogen and oxygen content.

Analytical, reflection, microscopic studies, and other procedures are also utilised to determine the rank of the coal and amounts of the constituent substances.

When coal is burned, most of the mineral matter and trace elements generally form ash; however, some minerals break down into gaseous compounds. The mineral content of coal determines what kind of ash will be produced when it is burned. The fusion temperature (melting point) of the ash dictates the design of furnaces and boilers.

## 8.2    Deposit Type by Seam Geometry

Coal deposits are characterised by GSC Paper 88-21 into four categories of geology type, which are intended to "address differences in the complexity of seam geometry within deposits" based on differences in seam geometry which is the result of sedimentary processes during coal deposition and subsequent deformation. In order of increasing complexity, these include Low, Moderate, Complex and Severe.

> Low – relatively unaffected by tectonic deformation with coal seams that are flat-lying to very gently dipping (0-5 degrees).

> Moderate – affected to some extent by tectonic deformation with coal seams that are characterised by or broad open folds (wavelength greater than 1.5 km) with bedding inclinations of generally less than 30 degrees; faults may be present but are relatively uncommon and generally have displacement of less than ten metres.

> Complex – subjected to relatively high levels of tectonic deformation with tightly folded coal seams, some with steeply inclined or overturned limbs may be present and offsets by faults are common; individual fault-bounded sections generally retain normal stratigraphic sequences and seam thicknesses have only rarely been substantially modified from their pre-deformational thickness.

> Severe – subjected to extreme levels of tectonic deformation with common tight folds, steeply inclined and overturned beds and large fault displacements making ascertainment of the stratigraphic succession between faults difficult and coal seams are commonly structurally thickened and thinned from their pre-deformational thicknesses.

Coals at "La Estrella" Project are considered to be of the Low to Moderate deposit type because of the relatively low degree of deformation, apparent absence of washouts, and lack of evidence of tensional structural features such as normal faults which may cause local absences or "wants" in seams. There is one borehole (BH7) which provides evidence of a compressional environment with a repeat of seam M200 by reverse faulting. A section of the geophysical log is shown below (Figure 8-1).

**Borehole 7 Geophysical Log**
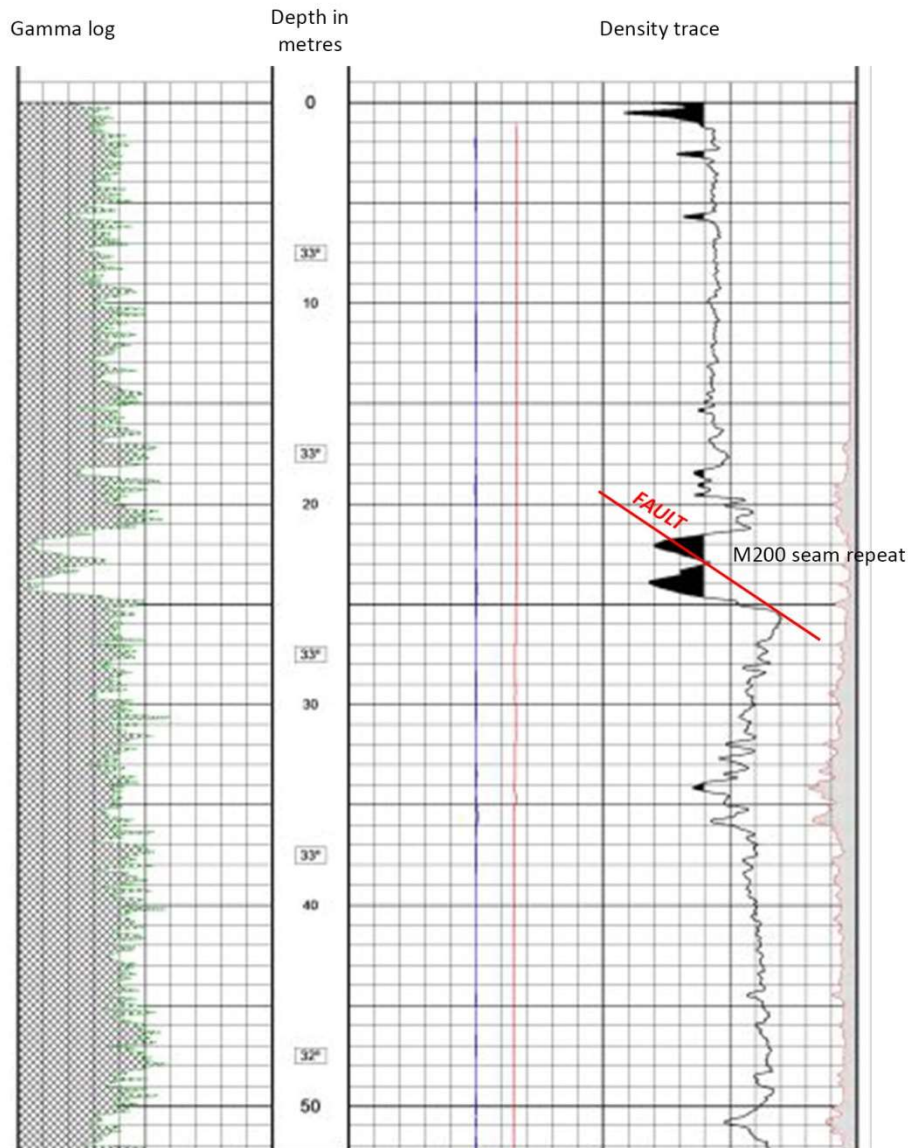


Figure 8-1   part of Geophysical log of borehole 7 illustrating fault repetition of coal seam M200.

## 8.3     Deposit Type by Mining Method

The Geological Survey of Canada also classifies coal deposits on the basis of the probable extraction method that would be used to recover coal. Classifications include surface, underground, non-conventional, and sterilized.

The coal measures in the "La Estrella" Project area are classified as "underground" with very minor "surface" expression.

Surface deposits are amenable to extraction by removal of overburden from the surface using truck/shovel, dragline or other surface mining techniques.

Underground deposits are amenable to extraction by various techniques. The PTO has proposed a technique commonly utilised in Colombia – short wall mining – for the Project.

Coal may be exploited by surface (open pit) or underground methods. The method chosen will usually be dictated by the thickness, attitude or dip and depth of burial of the coal seams. Topography of the licence area will influence the latter. Surface mining methods may be selected where the value of the cumulative thickness of seams in the mining area which lie at a relatively shallow depth is sufficient to justify the cost of excavating the coal and overlying and interbedded waste material. The ratio of coal to waste material to be excavated ("Stripping Ratio") is usually expressed as Bank Cubic Metres of waste per Tonne of coal mined (bcm/t) and this Stripping Ratio can be effectively viewed as a basic economic indicator between likely mining costs and revenues.

Underground methods are often selected where individual seams in a sequence are separated by a sequence of interbedded material and can have less of an environmental foot print than surface mining. The minimum thickness of individual seams which can be extracted by underground methods will depend on the dip but for efficient, mechanised mining shallow dips, areas of fairly simple and consistent geological structure and seams with a minimum thickness of 1.50m are favoured. Thinner seams, steeper dips and more complex geological structures are not excluded as potential mining areas but seams thinner than 0.6 m are not likely to be attractive even for small scale as they are labour intensive unless dips are steep.

The Updated PTO for La Estrella Project proposes an underground method of extraction, short wall, which is widely used and commonly known in Colombia as "tajo corto".

## 8.4    Comments on Section 8

The QP considers that the coal deposits of the "La Estrella" Project are typical of those found within Coal Area 901 in Santander, Colombia which have been subjected to a relatively low compressive tectonic deformation. Exploration programs that are used in this setting are considered applicable to the Project area and target coal seam thickness parameters of 0.6 m and greater are appropriate for common extraction methods.

# 9 EXPLORATION

Aion have undertaken field mapping and have recorded coal outcrop positions, coal seam thicknesses, and other geological and structural data from trenches. A number of coal seam outcrops have been identified and mapped on the Estrella concession. The location of points where coal has been recorded or thickness measured or samples taken is shown on Figure 9-1.

Continuity of structure and seams is indicated and correlated with BH data and downhole geophysics.

Aion have undertaken exploration activities in two key phases: 2008 drilling and associated field work and 2023 drilling and associated field work.

## 9.1    Grids and Surveys

Work at the La Estrella Coal Project encompasses periods in which two different coordinate systems have been used. In modern times, prior to 2020 the Colombian National coordinate system Bogota datum was utilised and under Resolution 471 de 2020 Colombia now utilises the MAGNA Colombia CTM12 coordinate system (Table 9-1).

Table 9-1  MAGNA Colombia CTM12 coordinate system

Projection: Transverse Mercator

Datum: MAGNA

False Easting: 5,000,000.0000

False Northing: 2,000,000.0000

Central Meridian: -73.0000

Scale Factor: 0.9992

Latitude Of Origin: 4.0000

Units: metre

The Colombian government via the Geographic Institute of Agustín Codazzi ("IGAC") provides further information and methods of conversion including an online converter at:
https://origen.igac.gov.co/herramientas.html

In 2008, a topographic surface was obtained at a scale of 1:5,000 with contour lines every 5m for the entire title, in order to develop the different exploration campaigns. The equipment used for the

field measurements was a total station of the LEICATC800 brand, two prisms, two 2.15 m metal poles and a Garmin MAP GPS.

In 2023, a topographic surface at a scale of 1:2,000 was obtained with contour lines every 2m for an area of approximately 25 ha, where the second exploration campaign was carried out and where the first exploitation works will be carried out. The equipment used was a Mavic 2 drone and GNSS equipment (RTK and Rover) and for the subsequent office work, Agisoft Metashape and ArcGIS were used for post-processing of the information obtained in the field. The resolution of the survey was stated to be approximately 2cm. The data collected included all borehole locations.

## 9.2    Geological Mapping

Mapping by the licence-holder at La Estrella is carried out by the geologist with GPS and air photos and hand-drawn at a suitable scale. It is later digitally produced as required. Geological mapping commenced in 2006.

Information collected included:

- Location of coal outcrops;
- Seam thicknesses in pits and trenches;
- Significant structures;
- Coal type;
- Weathering state.

The locations of key coal outcrops and trenches are provided in Figure 9-1.
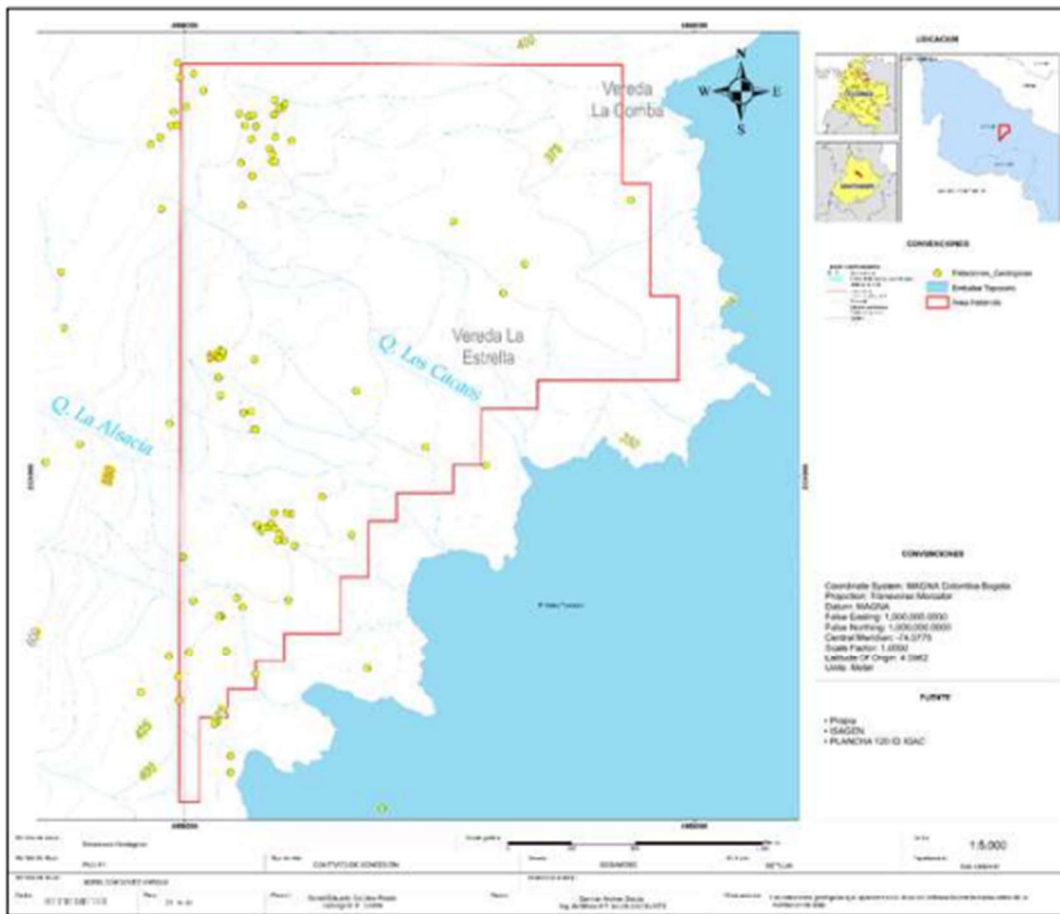
Figure 51 Map of geological stations at scale 1.5000 correlating with the database.
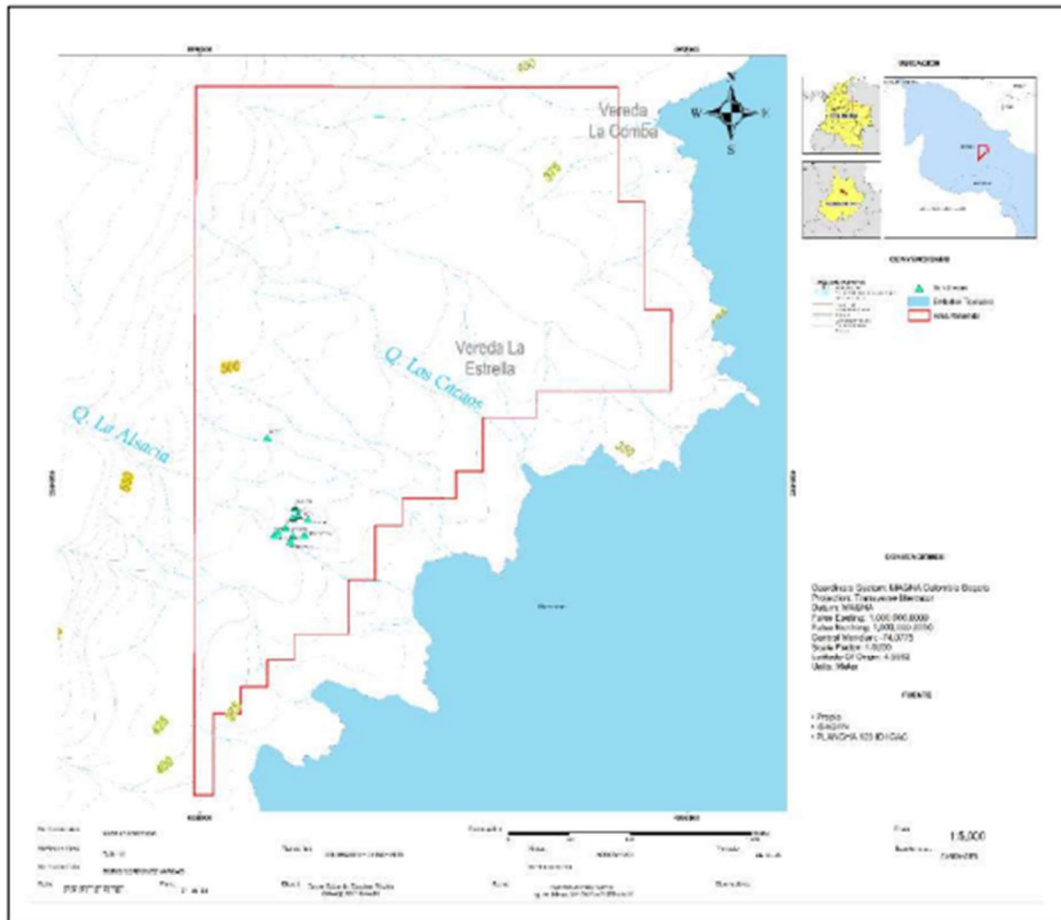
*Figure 53 Location map of trenches made in the project*

Figure 9-1  The location of key outcrops and trenches at La Estrella Coal Project

combine these into one figure

## 9.3    Geophysics

Downhole geophysics was performed during borehole drilling and is described in Section 10 and also for hydrological study to support future mining.

## 9.4    Comments on Section 9

In the QP's opinion, the exploration programs completed to date is appropriate to the style of the deposit. Drill data supersedes the data collected during surface sampling campaigns.

# 10 DRILLING

## 10.1 Introduction

The "La Estrella" database contains 15 drill holes for a total of 2321.80 m which was completed in two phases of drilling: five (5) boreholes in 2008 and nine (9) boreholes in 2023 (Figure 10-1, Table 10-1).
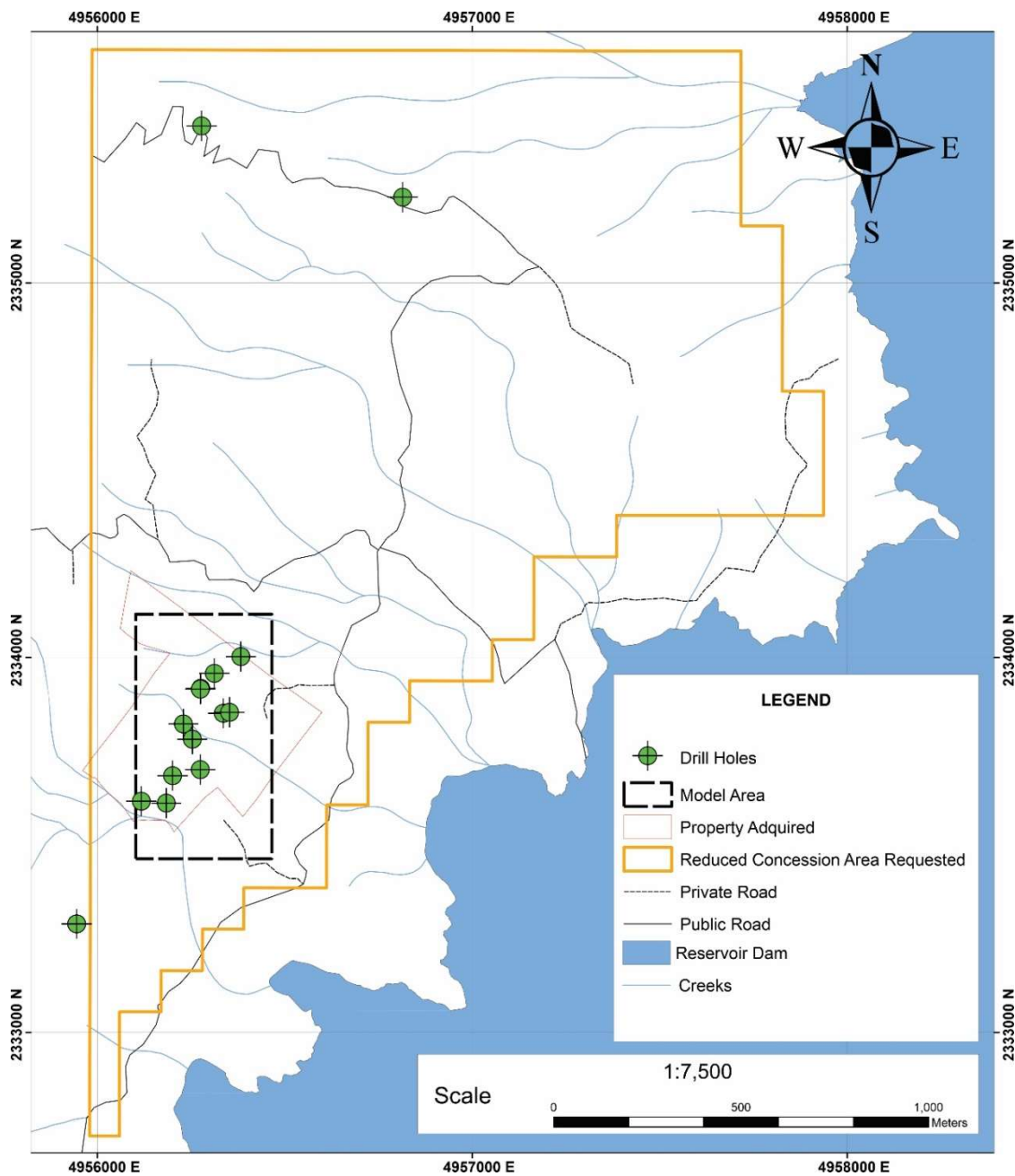


Figure 10-1 Location of "La Estrella" drill hole collars.

Table 10-1  Summary of Borehole data at the La Estrella Coal Project

| Hole | Drilling Campaign | Easting | Northing | Collar Elevation (m) | Depth (m) | Inclination | Direction | Drill Diameter | Geophysical Logging |
|---|---|---|---|---|---|---|---|---|---|
| LE-PT01-P001 | 2008 | 4956353 | 2333853 | 435.862 | 242 | -90° | No data provided | NQ | No data provided |
| LE-PT02-P002 | 2008 | 4956269 | 2335420 | 575 | 251 | -90° | No data provided | NQ | No data provided |
| LE-PT03-P003 | 2008 | 4955945 | 2333289 | 418 | 251 | -90° | No data provided | NQ | No data provided |
| LE-PT04-P004 | 2008 | 4956275 | 2333701 | 430.8 | 100 | -90° | No data provided | NQ | No data provided |
| LE-PT05-P005 | 2008 | 4956809 | 2335216 | 464 | 150 | -90° | No data provided | NQ | No data provided |
| LE-PT06-P006 | 2023 | 4956276 | 2333918 | 449.368 | 128 | -90° | 300° | HQ | yes |
| LE-PT06-P006B | 2023 | 4956275 | 2333915 | 450.131 | 172 | -90° | 300° | HQ | yes |
| LE-PT07-P007 | 2023 | 4956336 | 2333851 | 441.498 | 120 | -90° | 0° | HQ | yes |
| LE-PT08-P008 | 2023 | 4956229 | 2333823 | 448.222 | 170 | -90° | 245° | HQ | yes |
| LE-PT09-P009 | 2023 | 4956253 | 2333782 | 442.373 | 114 | -50° | 131° | HQ | yes |
| LE-PT10-P010 | 2023 | 4956201 | 2333685 | 438.444 | 120 | -49.5° | 124° | HQ | yes |
| LE-PT11-P011 | 2023 | 4956184 | 2333611 | 428.692 | 83 | -46.6° | 140° | HQ | yes |
| LE-PT12-P012 | 2023 | 4956117 | 2333616 | 430.637 | 150 | -50° | 142° | HQ | yes |
| LE-PT13-P013 | 2023 | 4956383 | 2334002 | 435.556 | 102.3 | -49.7° | 101° | HQ | yes |
| LE-PT14-P014 | 2023 | 4956312 | 2333958 | 438.415 | 168.5 | -65.6° | 122° | HQ | yes |

## 10.2    Drill Methods

Exploration drilling is typically phased, as follows:

- Primary phase is conducted on which no or limited exploration drilling activity has occurred;
- Follow-up drilling is used to assess the continuity of the coal seams, provide accurate correlations between the primary phase drill holes and supply additional coal quality information.
- Infill drilling provides geological and in situ coal quality information at sufficient detail to progress the economic potential of the Project.

The 2008 drilling programme comprised five (5) vertical NQ core holes which were located over a strike length of approximately 2.5 km (see Figure 10-1). No geophysical logs, core containing coal or sufficiently-well labelled core photographs were available for these boreholes. Analyses are available for 9 samples.

In the 2023 campaign nine (9) HQ drill holes were completed and comprised 3 vertical and 6 inclined holes (see). The 2023 campaign concentrated on the "Modelled Area" which totals almost 24 square hectares. Core trays with coal, well labelled core photographs, geophysical logs are available for these boreholes and analyses are available for 32 samples.

To date a total of 107 coal intercepts were reported and interpreted with 97 coming from the 2023 drill campaign and comprising intercepts of the 6 main coal seams along with thinner coal bands.

## 10.3    Logging and Handling Procedures

### 10.3.1   Geological logging

There is no data available for the 2008 campaign.

In the 2023 campaign geological logging was done on all core samples collected from diamond drilling. The information collected from the core logging included:

- Lithological identification (coal and rock types) and description of characteristics;
- Coal seam identification and correlation:
- Recovery estimates particularly for coal intervals;
- Seam quality sample collection and interpretation;
- Structural data collection;
- Geotechnical data collection

The coal seam data are stored in an Excel spreadsheet.

### 10.3.2   Geophysical logging

No data is available from the 2008 drill campaign.

Aion has a standardized practice for geophysical logging. In the 2023 campaign all drill holes were geophysically logged, where possible, using a suite of geophysical logging tools including gamma-density, and calliper and downhole deviation surveys. Geophysical log data, sample data and geologist's seam picks are used to determine seam intercepts. If geophysical logs are not available the geologist's picks are used but with a lower assigned level of confidence.

## 10.4   Recovery

No data is available from the 2008 drill campaign.

In the 2023 drill campaign core recovery was determined utilising geophysical logs, geological logs, and further core examination drill hole core coal thicknesses were determined and interpreted and core recoveries were calculated in the excel database.

## 10.5   Collar Surveys

All exploration drill holes collar locations were surveyed during topographic surveys and locations were entered into the excel drill hole database.

## 10.6   Down Hole Surveys

No downhole surveys were carried out in the 2008 drill campaign of five (5) vertical drillholes.

All 2023 exploration drill holes are surveyed down hole as part of the standard suite of geophysical tools used. This is completed by a third-party contractor.

## 10.7   Sample Length/ True Thickness

Coal sample lengths comprise all of the available material from the coal intercept interval.

Seam true thickness is calculated based on drilled thickness, deviation surveys, and dip information. On average, the true seam thickness is less than the drilled seam thickness, depending on the local orientation of the coal seam and the angle of the intercepting drill hole. Using borehole intercepts and downhole surveys real world locations of seam roof and floor positions were modelled for each seam in the 3D geological modelling package Leapfrog and true thickness and coal volumes were calculated using the software.

## 10.8    Comments on Section 10

In the QP's opinion, the exploration programs completed to date are appropriate to the style of the deposit.

The QP considers that there are no known material drilling, sampling, or recovery factors that would materially impact the accuracy and reliability of the results, and therefore impact the Coal Resource Estimation for the model area.

# 11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

## 11.1 Overview

The QP has not seen or been provided with any documentation on protocols or procedures used in the collection, sampling, security or transport of cored or other coal samples at the Project but interviewed Daniel Eduardo Escobar Pinzón, the geologist responsible and present throughout the 2023 drill campaign.

## 11.2 Sampling Methods

### 11.2.1 Core Holes

In the 2023 drill campaign a Longyear-G10 drilling rig, using mud flush and wire line coring was used to collect core samples including coal intervals. The drill core was placed from the core tube into metal core boxes under the supervision of the geologist. No in-field washing is conducted. Core depth markers are placed in the core box, at the end of each cored interval. Core boxes are lidded then transferred to the designated logging and sampling area.

Core boxes are then photographed, and initial core measurements collected, including an estimate of recovery (Figure 11-1).

Figure 11-1  Core tray photographs at the "La Estrella" Project: A. Core photographs (digital) from the 2008 Campaign are of poor quality, unlabelled and lacking a scale. B. Core photographs (digital) from the 2023 Campaign are of high quality, well-labelled, and h

The drill cores are then geologically logged taking care to handle the core so as to keep disturbance to a minimum.

Coal seams were typically sampled between three (3) and seven (7) days after drilling.

Samples comprise the material available for an entire coal seam. Samples are double-bagged and labelled - one label is placed on the outside and a second label is put inside the exterior bag. Sample bags are stored in such a way as to minimize sample disturbance prior to shipment to the laboratory in batches via 4x4 to Bucaramanga and then couriered to the lab.

Core trays are stored in a locked core shed adjacent to the logging facility under ambient conditions with core trays placed on wooden pallets where one pallet is assigned per drill hole ensuring that the drill cores are shielded from direct sunlight and remain isolated from soil and environmental humidity (Figure 11-2).



Figure 11-2  Core tray storage at the "La Estrella" Project.

## 11.3    Analytical and Test Laboratories

The SGS Laboratory in Colombia was used in the 2008 campaign

The SGS Laboratory in Colombia was used in the 2023 campaign and is accredited to ISO 9001.

Independent laboratory tests carried out by SGS Laboratory and Bureau Veritas on material available for coal seams M140, M160, M180, and M200 was undertaken at the (see 11.9).

## 11.4    Sample Preparation and Analysis

Coal samples may be received at the laboratory in a variety of conditions. Accordingly, analytical results may be reported in a variety of ways, depending on the condition of the samples when received and the use of the analysis. Some samples arrive in a fresh condition, not long after sampling; these may be analysed without further processing, except grinding and mixing. The analytical results for these samples are reported on an "as-received" basis. Some samples arrive dried out due to long storage, transportation over long distances, or mishandling. The results of analyses on dried-out samples are reported on a "dry" basis. The opposite conditions may also occur if the sample arrives wet because of excess moisture in the sample that may or may not be present in the coal bed; in this case the analyses may be reported on a "moist" basis.

Analyses also may be reported on a "mineral-matter free" or "dry, mineral-matter-free" basis for use in calculating coal rank because rank is a function only of the maturity of the organic matter (USGS circular 1143):

> "Mineral-matter-free" means that the amount of mineral matter in the sample has been subtracted from the total analytical results to provide only the amount that is organic.

> "Dry, mineral-matter-free" means that the sample was received in a dry or nearly dry state, or was dried out before an analysis was made.

### 11.4.1   Sample Preparation

In the 2023 campaign samples were weighed on arrival in the laboratory, dried, crushed and analysed for a range of coal quality parameters following standard ASTM procedures.

The SGS Colombia SAS Laboratories used have supplied various quality assurance certificates and are accredited to ISO 9001.

### 11.4.2   Analysis

In the 2023 campaign analytical results, both Proximate and Ultimate analyses, are provided on both air dried and as received bases for the main coal quality parameters and constituents and the laboratory sets out the methods to be used when preparing and analysing samples following ASTM standards in their reports (Table 11-1).

Table 11-1  ASTM standards used in analyses at the SGS Laboratory.

Proximate Analysis Total Moisture percentage by weight D-3302-05

Ash percentage by weight D-3174-04

Volatile Matter percentage by weight D-3175-02

Fixed Carbon percentage by weight by difference

Sulphur percentage by weight D-4239-05 method B

Gross Calorific Value Btu/lb or Kcal/Kg D-5865-04

Ultimate Analysis Moisture percentage by weight D-3302-05

Carbon percentage by weight D-5373-02

Hydrogen percentage by weight D-5373-02

Nitrogen percentage by weight D-5373-02

Ash percentage by weight D-3174-04

Sulphur percentage by weight D-4239-05 method B

Chlorine percentage by weight D-4208-02

Oxygen percentage by weight by difference

Nine (9) core samples were analysed in the 2008 drilling campaign.

Thirty-two (32) core samples were analysed in the 2023 drilling campaign.

## 11.5    Quality Assurance and Quality Control

The SGS Laboratory sets out the quality assurance and quality control methods to be used when preparing and analysing samples in the laboratory and following ASTM standards.

The ash content of intervals is assessed by comparing the geophysical density logs versus the laboratory-reported ash, checking for obvious errors.

Independent laboratory tests were carried out on material available for seams M140, M160, M180, M200 was undertaken for comparison between SGS Laboratory and Bureau Veritas (Table 11-2).

Table 11-2  Independent Laboratory Test results

| Lab | Sample ID | Date | Hole | From | To | Thickness | Interpreted Seam | As Determined Basis | Dry Basis | Dry Basis | Dry Basis | Dry Basis | Dry Basis | Dry Basis | Dry Basis | Dry Basis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Thickness | Interpreted Seam | FSI | Ash | Volatile | Fixed Carbon | Total Sulfur | Organic Sulfur | Pyritic Sulfur | Sulfate Sulfur | GCV (Btu/Lb) |
| SGS | LE-PT09-P009-M04C | 18/04/2023 | LE-PT09-P009 | 86.8 | 87.9 | 1.1 | M140 | 7 | 12.61 | 40.21 | 47.18 | 2.2 | 1.008 | 1.146 | 0.04 | 13472 |
| Bureau Veritas | **LE-PT09-P009-M04C** | August 17th – 26th, 2023 | LE-PT09-P009 | 86.8 | 87.9 | 1.1 | M140 | 7.5 | 12.43 | 40.74 | 46.83 | 2.18 | 1.62 | 0.54 | 0.02 | 13365 |
| SGS | LE-PT10-P010-M03C | 18/04/2023 | LE-PT10-P010 | 91.38 | 92.04 | 0.66 | M160 | 7.5 | 10.37 | 40.31 | 49.32 | 2.57 | 1.063 | 1.475 | 0.041 | 13830 |
| Bureau Veritas | **LE-PT10-P010-M03C** | August 17th – 26th, 2023 | LE-PT10-P010 | 91.38 | 92.04 | 0.66 | M160 | 7.5 | 10.41 | 41.43 | 48.16 | 2.59 | 1.91 | 0.62 | 0.06 | 13659 |
| SGS | LE-PT11-P011-M02C | 18/04/2023 | LE-PT11-P011 | 38.93 | 39.64 | 0.71 | M180 | 3 | 24.84 | 36.73 | 38.44 | 2.19 | 0.991 | 1.181 | 0.01 | 11475 |
| Bureau Veritas | LE-PT11-P011-M02C | August 17th – 26th, 2023 | LE-PT11-P011 | 38.93 | 39.64 | 0.71 | M180 | 7.5 | 25.2 | 37.09 | 37.71 | 2.18 | 1.6 | 0.57 | 0.01 | 11294 |
| SGS | LE-PT11-P011-M01C | 18/04/2023 | LE-PT11-P011 | 21.75 | 22.57 | 0.82 | M200 | 6.5 | 15.48 | 38.13 | 46.39 | 1.28 | 0.671 | 0.572 | 0.018 | 12863 |
| Bureau Veritas | **LE-PT11-P011-M01C** | August 17th – 26th, 2023 | LE-PT11-P011 | 21.75 | 22.57 | 0.82 | M200 | 7 | 15.66 | 38.95 | 45.39 | 1.27 | 1.27 | 0.38 | 0.01 | 12712 |

## 11.6    Databases

Drill hole collar data, associated seam intercepts, seam quality, and deviation survey data are stored in the excel database.

Where possible data are loaded directly from survey companies and laboratories into the excel database. This minimizes any transcription errors.

As data returns from the laboratory, before it is loaded to the excel database, a visual check is done of the qualities to ensure no obvious outliers are present. If there is something unusual, a request is sent to the laboratory for reanalysis.

The database is regularly backed up.

All original logs and laboratory reports are stored securely.

## 11.7    Sample Security

Samples are transported to Bucaramanga where they are transported to the Laboratory using a reputable courier service. No special security methods for the shipping and storage of coal samples were employed.

## 11.8    Sample Storage

Coal remnant samples are kept by the analytical laboratory. It is understood that no sample material remains from the 2008 drill campaign but material is available from the 2023 campaign.

## 11.9    Comments on Section 11

The QP considers that there are no known material issues with the sample preparation, security, and analytical procedures that could materially impact the accuracy and reliability of the results, and therefore impact the Coal Resource Estimation.

Samples are weighed on site to provide an additional QA/QC check with the weight recorded on receipt at the laboratory.

For higher ash seams a higher specific gravity value than 1.4 may be appropriate. (GSC paper 88-21).

The QP considers that the independent laboratory tests on seams M140, M160, M180, and M200 carried out by Bureau Veritas show reasonable confirmation of previous analytical results. The QP advises against utilising all sample material and negating the possibility of future reanalysis.

# 12 DATA VERIFICATION

The process used to ensure accurate geological data has not been documented.

Data verification for work undertaken by Aion was explained to the QP, in person, by Aion's site geologist, Daniel Eduardo Escobar Pinzón.

## 12.1    Internal Data Verification

An important step in data accuracy and repeatability is that the laboratories and the geologists use the same procedures.

Drill hole data verification begins with a check of the collar coordinates of each hole against the planned location. Both the planned and actual locations are laid out and recorded with GPS equipment in the field. Any deviation on holes is recorded on tools provided by the contract company used to produce the geophysical logs. Once the locations are verified by the geologist, the logs are picked following set protocols. Once the coal contacts are picked on each geophysical log, the contacts and collar data are entered into the excel database by the geologist running the exploration program.

Analytical data from the laboratory are evaluated for anomalies and atypical results. Any data that appear erroneous are reanalysed by the laboratory to check for accuracy. Steps required to build a geological model. The geologist also visited the SGS laboratory and witnessed aspects of sample handling and sample analysis.

Independent laboratory tests were carried out on material available for seams M140, M160, M180, M200 was undertaken for comparison between SGS Laboratory and Bureau Veritas (see Table 11-2).

## 12.2    External Data Verification

## 12.3    Verification Performed by Qualified Person

The QP has prior experience and knowledge of coal projects in the region. The QP was previously QP for a report (SRK, 2012) which included the "La Estrella" Project along with a number of other concessions, in which only historical resource estimates, then not considered NI 43-101 compliant, were reported for the Project. For that report the QP visited the Project in 2011.

The QP was provided with all Project data available since the SRK report including:

- Excel database and digital copies of geophysical logs.

- Evaluation and Valuation of Existing Geological and Mining Information for 18 areas located in the Coal Districts of the States of Cordoba and Santander" Meridian Consulting and Geoestudios Colombia, 2011 Historical resource estmates including FLG 111herein referred to as "The 2011 Resource Report"
- CRIRSCO Annual Technical Report, Coal Resources Update, Title FLG-111 – La Estrella Colombia herein referred to as "The 2023 CRIRSCO Report"
- Update of the works and development program ("PTO") and CRIRSCO Report FIG-111 concession contract by Aion, herein referred to as "The 2023 Aion Resource Report"

The QP performed the following data verification checks:

- Regional Information from public records and publications, including from government agencies such as the state geological agency, Ingeominas, references such as El Carbón Colombiano, Recursos, Reservas y Calidad ("ECC"), the National Mining Agency and the Nation Hydrocarbon Agency ("ANH") - please refer to section 24 for the specific references utilised in this report;
- A Site Visit was conducted on 2nd of February 2024 which included visiting a number of Project drill hole and trench locations and inspection of the core logging area and core store;
- Basic database verification of geological logging, geophysical logs, coal seam interpretations and analytical data to independently compare seam thicknesses, seam correlation, seam continuity, core recovery, and seam quality from the data provided;
- Gross checking of coal thicknesses, distances, areas, volumes, tonnages and resource estimation from the data provided.
- Review of other available data and reports - please refer to section 24 for the specific references utilised in this report;

## 12.4   Comments on Section 12

The checks performed by Aion geologists are in line with industry standards for data verification. These checks have identified no material issues with the data or the database.

The QP has performed an appropriate site visit.

As a result of the data verification, the QP concludes that the data and database are acceptable for use in Coal Resource estimation.

## 13  MINERAL PROCESSING AND METALLURGICAL TESTING

No Metallurgical testing has been carried out for the Project to date.

# 14  MINERAL RESOURCE ESTIMATES

## 14.1  Historical Mineral Resource and Reserve Estimates

The "La Estrella" Project area has been the subject of a number of historical mineral resource and reserve estimates including:

- The 2011 Colombian Report: "Evaluation and Valuation of Existing Geological and Mining Information for 18 areas located in the Coal Districts of the States of Cordoba and Santander" Meridian Consulting and Geoestudios Colombia, 2011
- The 2023 CRIRSCO Report: "Update of the works and development program (PTO) and CRIRSCO report FLG-111 concession contract", 2023.

and

- The 2023 Aion Report: "Executive Summary Geological Model", 2023 which only covers a small portion of the FLG-111 licence and other reports that include resource and reserve estimates at a regional scale which include the Project area and the reader is referred to the 2023 CRIRSCO Report for further information.
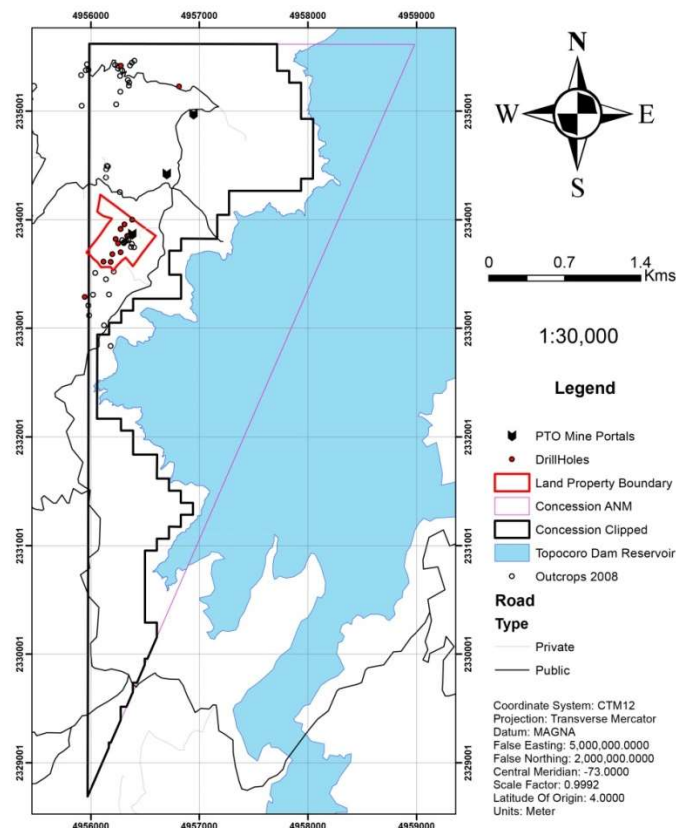


Figure 14-1  Plan Map of the FLG-111 concession area indicating the location of the "Modelled Area" included in historical mineral resource estimates.

14.1.1   The 2011 Resource Estimate

The 2011 Resource Estimate (Table 14-1) was stated to be reported to Colombian standards:

- Normas generales de muestreo y análisis de carbones. ECOCARBÓN, 1995.

  and

- El carbón, muestreo, análisis y clasificación de recursos y reservas. INGEOMINAS, 2010.

Table 14-1  2011 Historical Colombian Resource Estimate for FLG-111

| 2011 Colombian Resource Estimate for FLG -111 | | | |
|---|---|---|---|
| measured  (t) | indicated (t) | inferred (t) | total (t) |
| 1,846,470 | 4,339,147 | 16,471,037 | 22,656,654 |

The categories used were defined as:

"Resources Measured" the highest degree of geological confidence supported  by points of reference  whose radius of influence is up to 250m.

"Resources Indicated" a moderate degree of geological confidence, whose data points of measurement have an area of influence that varies between 250 and 750m.

"Resources Inferred" the lowest degree of geological confidence.

14.1.2   The 2023 CRIRSCO Resource Estimate

The 2023 CRIRSCO Resource Estimate is here summarised in the same fashion as the 2011 Resource Estimate above (Table 14-2).

Table 14-2  2023 Historical CRIRSCO Resource Estimate for FLG-111

| 2023 CRIRSCO Resource Estimate for FLG -111 | | | |
|---|---|---|---|
| measured  (t) | indicated (t) | inferred (t) | total (t) |
| 2,482,151 | 6,589,621 | 14,043,054 | 23,114,826 |

A detailed estimate was calculated for each coal seam (Table 14-3).

Table 14-3  2023 CRIRSCO Mineral Resource Estimate for FLG-111 by coal seam

| Mantle | Total Volume (m³) | Average thickness (m) | Measured resources (tons) | Indicated Resources (ton) | Inferred Resources (ton) | Total Resources (tons) |
|---|---|---|---|---|---|---|
| M410 | 183670 | 0.5 | 53481 | 199256 | 4402 | 257138 |
| M400 | 246370 | 0.3 | 96746 | 188938 | 59234 | 344918 |
| M300 | 944250 | 0.4 | 129777 | 329855 | 862318 | 1321950 |
| M200 | 3292300 | 1.4 | 799145 | 1909009 | 1901066 | 4609220 |
| M180 | 2185400 | 0.9 | 396316 | 757704 | 1905540 | 3059560 |
| M160 | 2031800 | 0.8 | 331530 | 613644 | 1899345 | 2844520 |
| M140 | 2752000 | 1.1 | 340350 | 1270174 | 2242276 | 3852800 |
| M120 | 2673000 | 1.1 | 208170 | 828713 | 2705317 | 3742200 |
| M110 | 2201800 | 0.9 | 126636 | 492328 | 2463556 | 3082520 |
| Total | 16510590 | 7 | 2482151 | 6589621 | 14043054 | 23114826 |

This estimate takes into account the terminology indicated in the Colombian Standard of Resources and Reserves for Public Reports related to Exploration Results, Mineral Resources or Mineral Reserves 2018:

 "Measured Resources: Influence between control points up to 120 meters.

Indicated Resources: Influence between control points up to 240 meters.

Inferred Resources: Because the limits of the geological modelling were established from a minimum geological certainty either by control points, or regional geological knowledge, the remaining calculated resources will be the inferred resources".

Inferred Resources are limited to a 1.5 kilometres from a valid data point.

This is because, in spite of detailed statistical and geostatistical analysis for each of the seams, the authors stated:

> "Due to the low density of data per seam, both structural and in thickness and qualities, it is not possible to perform data interpolation with Kriging to estimate the quantity of each type of resource".

Coal resources were reported as in situ tonnage being the total tonnage of coal available in the deposit is reported, without taking into account potential losses or recoveries during the mining process.

The 2023 CRIRSCO Report also included estimation of reserves as per the Colombian Standard of Mineral Resources and Reserves for Public Reports related to Exploration Results, Mineral Resources or Mineral Reserves 2018

For both the 2011 and 2023 historical estimates the QP has not done sufficient work to classify the historical estimates as current resource estimates.

The issuer is not treating the historical estimates as current resource estimates.

14.1.3   The 2023 Historical Aion Resource Estimate for the "Modelled Area"

The 2023 Aion Resource Estimate for the "Modelled Area" is summarised in Table 14-4. Note that it only covers a small portion of the FLG-111 concession area).

Table 14-4  2023 Historical Estimate by Aion for FLG-111 "Modelled Area"

| | Measured Resources (t) | Indicated Resources | Total Measured and Indicated Resources | Inferred Resources |
|---|---|---|---|---|
| Total | 664,000 | 484,356 | 1,148,356 | 51,444 |

The Aion Resource Estimate for the "Modelled Area" does not state the definitions or standards applied but were verbally confirmed to be Colombian standards with:

Measured Resources: Influence between control points up to 100 meters.

Indicated Resources: Influence between control points up to 200 meters.

Inferred Resources: Because the limits of the geological modelling were established from a minimum geological certainty either by control points, or regional geological knowledge, the remaining calculated resources will be the Inferred Resources.

The Aion Resource Estimate for the "Modelled Area" contains a very limited quantity of Inferred Resources.

14.1.4   Discussion of Historical Mineral Resource Estimates

Historical estimates have been based on two groups of seams (Figure 14-2):

- a group of 6 seams - M200,  M180, M160, M140, M120, M110 - which outcrop from the southwest to the north east of the concession area;

and

- a group comprising only two (2) seams - M400 and M410 - which strike in the same general direction and outcrop in the north west corner of the concession.
- Plus a single seam - M300 - which lies stratigraphically between the two groups of seams.
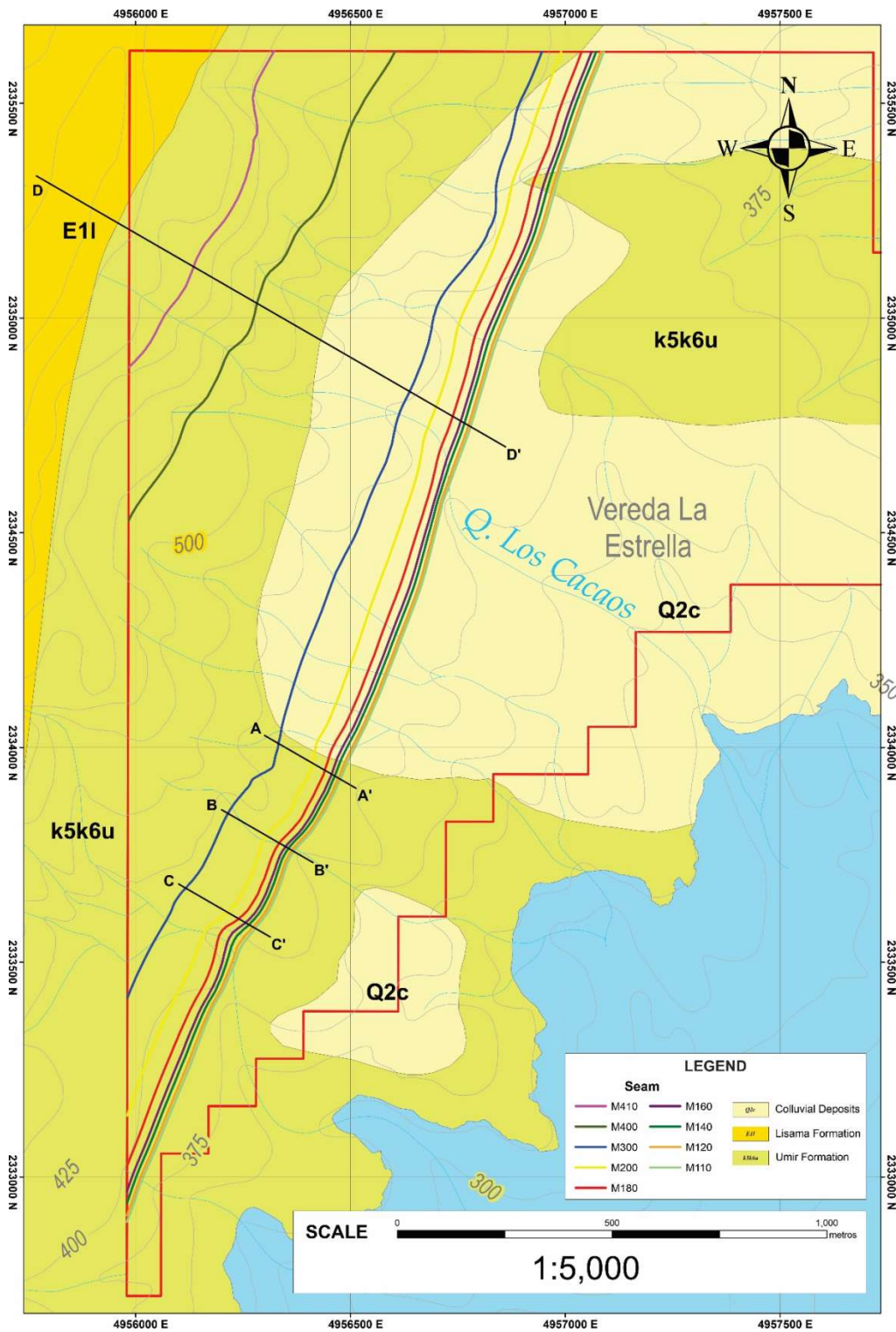
Figure 14-2  Plan Map of coal seams included in historical mineral resource estimates.

Seam naming has varied from report to report. A table of equivalent seam names used has been provided by Aion and is shown in Table 14-5 below.

The 2011 Report and 2023 CRISRSCO Report both report resources within the current concession. 2023 Aion "Modelled Area" focuses on a small portion of the concession area.

Table 14-5  Equivalent Seam Names for FLG-111

| Equivalent Seam Names for FLG-111 | | |
|---|---|---|
| Colombian 2011 Report | CRIRSCO 2023 Report | Aion 2023 "Modelled Area" Report |
| Upper Seam not modelled | M410 | Upper Seam not modelled |
| Modelled as Manto 1 | M400 | Upper Seam not modelled |
| Manto 1 | M300 | Seam not included |
| Manto 2 | M200 | M200 |
| Manto 3 | M130 | M180 |
| Manto 4 | M120 | M160 |
| Manto 5 | M110 | M140 |
| Manto 6 | M100 | M120 |
| Lower Seam not modelled | Lower Seam not modelled | M110 |

The QP offers the following general comments on the parameters selected and the methodologies used in the various historical resource estimates.

**Units**

Units are all in the metric (SI) system. "Tons" are metric tonnes. Calorific values in analyses are Btu (British thermal units).

**Coordinate systems**

Two coordinate systems have been used in historical resource estimates depending on the date they were performed as the Colombian National Co-ordinate system changed in 2020. Please refer to section 9.1.

**Radius of influence**

Radius of influence from validated data points varied between historical estimates.

Radius of influence was reported in the 2011 historical estimate:

"Resources Measured" supported by points of reference whose radius of influence is up to 250m.

"Resources Indicated" whose data points of measurement have an area of influence between 250 and 750m.

"Resources Inferred" the lowest degree of geological confidence.

The 2023 estimate used the following:

"Measured Resources: Influence between control points up to 120 meters.

Indicated Resources: Influence between control points up to 240 meters.

Inferred Resources: Because the limits of the geological modelling were established from a minimum geological certainty either by control points, or regional geological knowledge, the remaining calculated resources will be the inferred resources".

The 2023 Aion "Modelled Area" utilised 100m as a "buffer zone" for Measured Resources and 200m for Indicated Resources.

The QP proposes, in light of the guidelines provided by Paper 88-21 Geological Society of Canada (1988), that both 2023 estimates have used a radius of influence that may be a significantly low radius for a coal deposit of low to moderate geological complexity. The QP considers that up to 450m may be reasonable for the Project. This will significantly positively impact the reportable resources for the Project.

**Thickness parameter**

Thickness parameters are here considered for estimating resources which are potentially recoverable by underground mining methods.

The QP accepts that underground mining in Colombia by the methods proposed in the 2023 PTO will require minimum mining thicknesses of 0.6m for the dips of the seams as recorded and modelled in the Project.

Drilling-derived thickness intercepts may provide true or apparent thicknesses depending on the angle of interception between the borehole and the seam. Modern 3D geological modelling packages combined with downhole borehole surveys model roof and floor surfaces in real world positions in order to provide estimated seam volumes. Such models are iterative and subject to review.

Seam thicknesses used in the 2011 estimate are greater than more recent estimates, for example, M200 is 1.4m in the 2011 estimate and 0.9m in the Aion 2023 estimate for the "Modelled Area".

The QP considers the significant difference between historical estimates and the accepted thickness of 0.6m indicates the potential for reporting larger resource tonnages.

**Density parameter**

Downhole Geophysical logging has become an important tool in the exploration for and evaluation of potential coal deposits. Density or "gamma - gamma" logs use the fact that coal is unusual in that it has a both low gamma response and also a low relative density compared to typical interbedded coal measure sediments which facilitates the identification, accurate measurement, and correlation of coal seams.

The density derived from downhole logging at La Estrella is a "compensated density" as it is derived from two downhole sensor tools one being "long spaced" and the other "short spaced" where the former scans further into the borehole walls than the latter which, when used along with the downhole geophysical calliper trace helps to remove the negative influence of cavities on the density value.

Whether in situ density derived from downhole geophysical logs can be equated to bulk density the standard criteria relies on consideration of whether regular calibration of the tools used against standards or known value samples was carried out.

The QP reviewed a lithology geophysical logs (.las) files in a text editor and considered that the contrast between coal and strata is clearly evident and the use of an in situ density of 1.4 (or higher) appears justified.

In addition, Paper 88 -21 have established a relationship between ash and in situ bulk density for coals of different ranks utilising specific analysis conditions, since the coal ranks themselves are related to coal density and pore spaces including cleats, and on this basis the QP considers that the use of 1.4 (or higher) is appropriate given the data available from downhole geophysical logs and ash content of the various seams (Table 14-6 and Table 14-7).

Table 14-6  Relationship between ash and in situ bulk density for coals of different ranks from Paper 88-21

| Rank: High Volatile Bituminous | |
|---|---|
| Weight % Ash (Dry Basis) | Recommended In Situ bulk density |
| 5 | 1.33 |
| 10 | 1.37 |
| 15 | 1.41 |
| 20 | 1.45 |

| 25 | 1.49 |
|---|---|
| 30 | 1.54 |

Table 14-7  Ash content and suggested in situ bulk density for coal seams

| seam | Weight % Ash (Dry Basis) | Suggested in situ Bulk Density corrected for ash |
|---|---|---|
| M200 | 22.25 | 1.47 |
| M180 | 16.75 | 1.41 |
| M160 | 13.14 | 1.39 |
| M140 | 14.47 | 1.41 |
| M120 | 15.01 | 1.41 |
| M110 | 13.86 | 1.4 |

Laboratory Bulk density tests may be carried out when sufficient material is available (testing typically requires samples in the order of 50 kg which is not currently available for the Project).

All historical resource estimates have used 1.4 as the conversion factor and the QP considers that this is reasonable except that it may be a little low for seams with high ash content.

**Depth parameter**

The CIM standards allow a maximum mining depth of 1200 m for underground mining.

The maximum depth was not stated in the historical 2011, 2023 CRISRCO or 2023 Aion resource estimates.

The lowest mining level provided in the 2023 PTO was to the 270m level.

The QP suggests that it is possible to expect to report a significant tonnage of additional resources at depth in a new deeper depth estimate given the dip of the coal seams and it is of particular note that the concession is open, down dip, to the northwest.

**Quality/ economic parameters**

CIM defines a mineral (coal) resource as:

"a deposit of a natural, solid inorganic or fossilised organic substance in such quantity and at *such grade or quality* that extraction of the mineral at a profit is or may be possible." And that a "preliminary feasibility mining study has been carried out".

The QP considers that the current approved Colombian PTO satisfies the requirements of at least a CIM PEA study of the technical economic, social and environmental factors of the Project and provides for the "reasonable expectation of economic extraction".

The QP notes that only very limited information on coal quality had been presented at the time of the 2011 estimate and further coring, sampling and analyses was recommended in order to facilitate resource estimation to CIM reporting standards.

Further coring, sampling and analyses were carried out prior to the 2023 historical estimates.

Of the seams included in the 2023 historical estimates the QP notes the continued lack of quality data (Table 14-8).

Table 14-8  Coal quality

| Coal Seam | Number of Borehole Analyses | Comment |
|-----------|-----------------------------|---------|
| M300 | 0 | |
| M400 | 1 | |
| M200 | 10 | also 2 trench samples |
| M180 | 6 | |
| M160 | 5 | |
| M140 | 3 | |
| M120 | 3 | |
| M110 | 1 | |

Notwithstanding the paucity of quality data, as also stated by the authors of the 2023 CRIRSCO report, Paper 88-21 of the Geological Society of Canada (1988) allows for further subdivision of Resources into:

"Resources of immediate interest are contained in coal seams that, because of favourable combinations of thickness, depth, quality and location, are considered to be of immediate interest for possible exploitation."

"Resources of future interest are contained in coals seams that, because of less favourable combinations of thickness, depth, quality and location, are not of immediate interest for possible exploitation, but which may become of interest in the foreseeable future with some changes in economic factors and/or production technologies".

The QP is of the opinion that this subdivision may be applied where economic or quality data is not yet available, but may be acquired in the near future, for those seams whose geological, structural and thickness continuity have already been established with a sufficient degree of confidence.

The QP considers that this CIM subdivision of resources is relevant for coal within the "Modelled Area" given the degree of confidence present for the geological structural and thickness continuity of coal seams that are the subject of the approved PTO. This may then positively impact reporting of

resources in the "Modelled Area". Further the QP has done sufficient work to satisfy himself that the resource estimate for the modelled area can form the basis of the estimate of resources of Immediate interest.

## 14.2 Production

There is no production history at the Project.

## 14.3        Coal Resource Estimate

### 14.3.1  Introduction to Coal Resource Estimation

Given the degree of confidence present for the geological structural and thickness continuity of coal seams that are the subject of the approved PTO the QP considers the Aion "Modelled Area" (24 ha) to be an area of "Resources of Immediate Interest" as per Paper 88-21 of the Geological Society of Canada (1988).

The QP, being of the opinion that the geological model developed for the Aion 2023 "Modelled Area" is reasonable, with modification, herein reports the model and modifications utilised in this Coal Resource Estimate for the "La Estrella" Coal Project which is restricted to the "Modelled Area", being the Area of Immediate Interest, and herein referred to as "Resources of Immediate Interest". Estimation in the "Modelled Area" is supported by 12 drill holes totalling 1929.80 m.

The Coal Resource estimates are based primarily on the results of borehole samples and downhole geophysical gamma and density logs. The 3D model is built using the seam roof and floor intercepts of seams from the excel database, modified by downhole deviation surveys and taken into a 3d geological modelling package, "leapfrog". The seam structure, dips and volumes are derived from the 3d model.

### 14.3.2  Geological Model

The 3D geological model was constructed using coal roof and floor intercepts corrected for borehole deviation and quality data.

The Aion excel database, and model as validated by the QP, was utilised to create the plan and sections for the model (Figure 14-4).
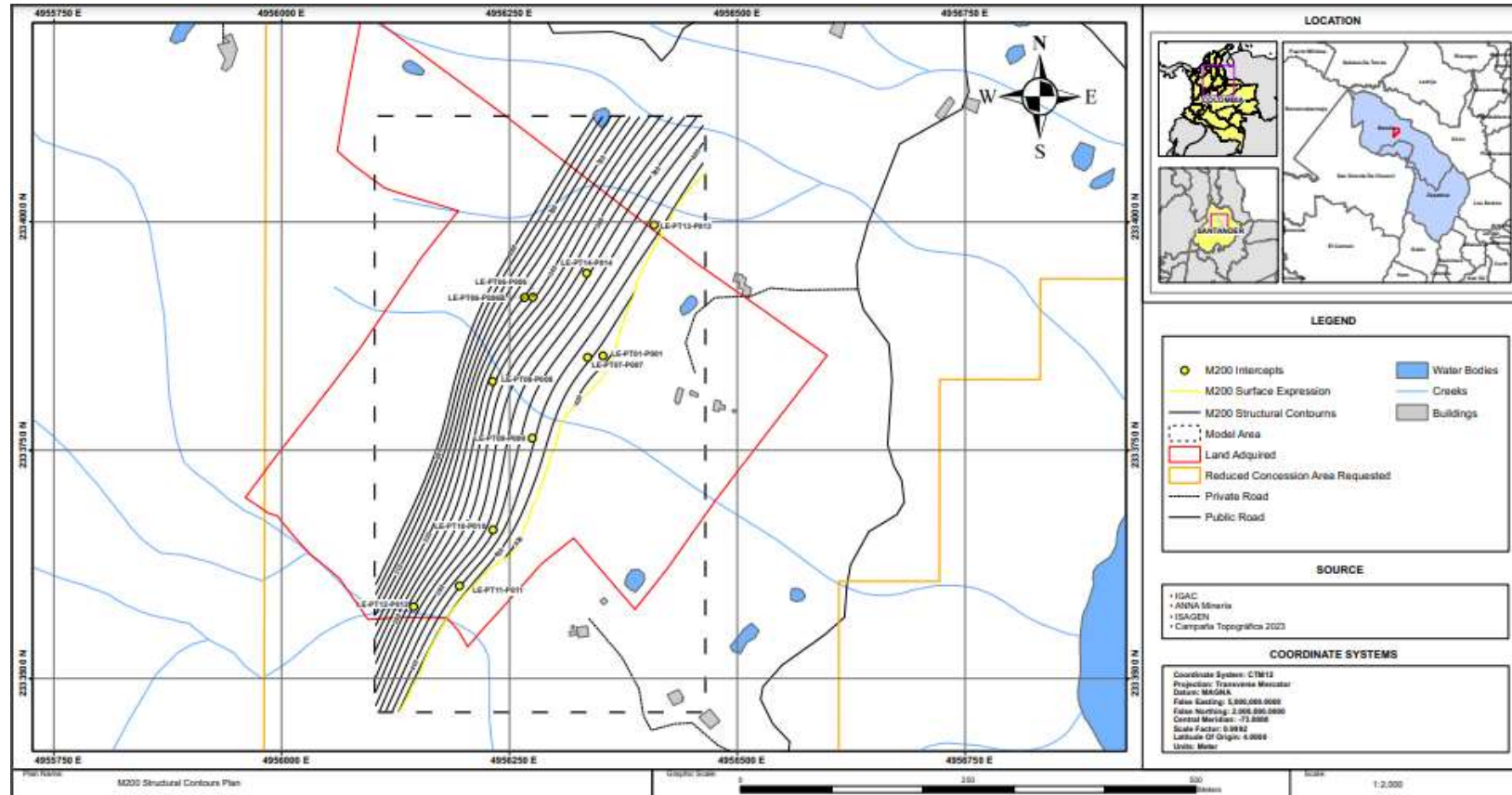
Figure 14-3 M200 structural contours
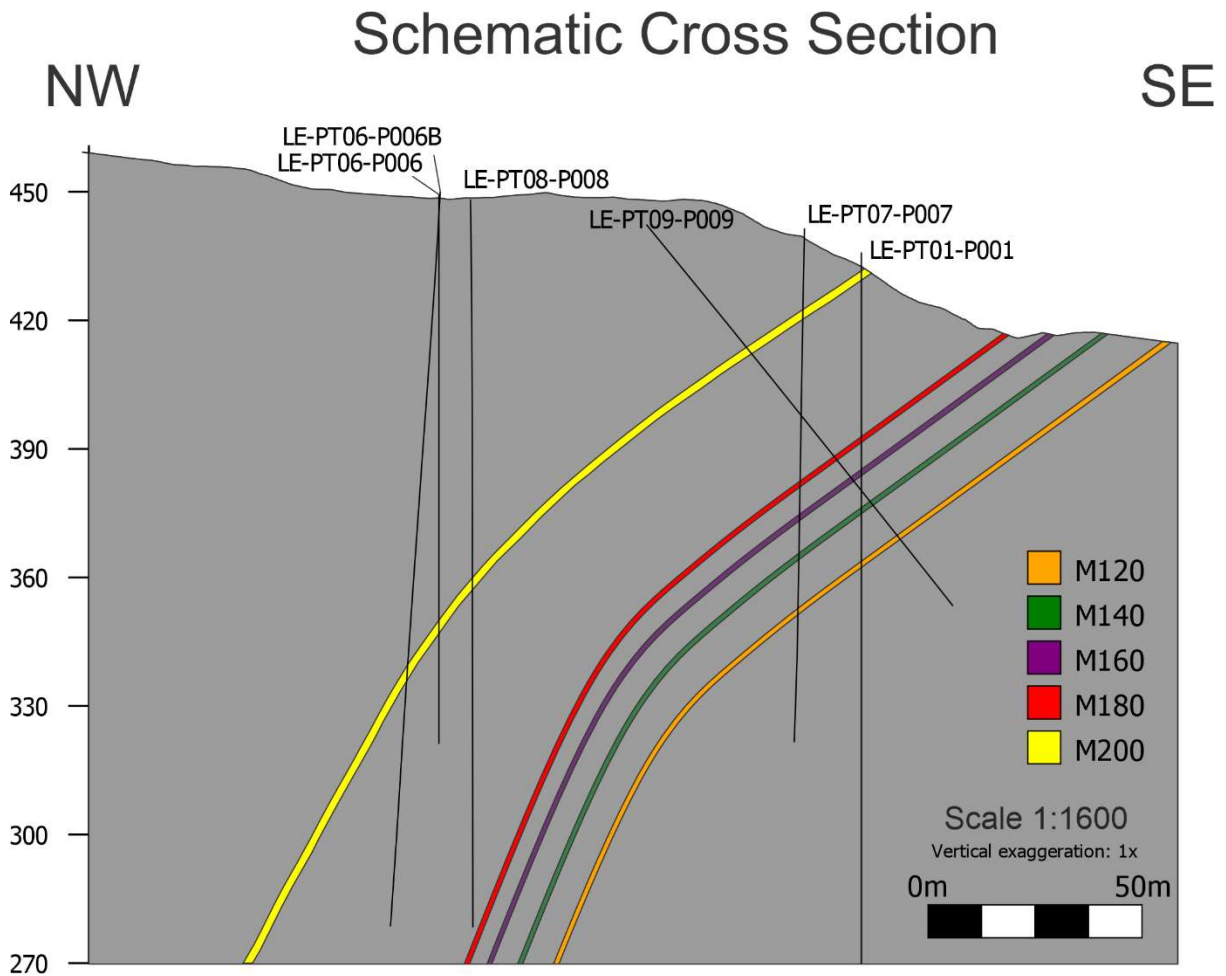
Figure 14-4  Geological Model plan and sections created for the Mineral Resource Estimate

14.3.3   Seam Thickness

To revise Aion's resource estimate for the "Modelled Area" (see Table 14-4) the QP validated the detailed seam data provided and seams lacking quality data were excluded from the estimate (Table 14-9).

Table 14-9  Seam thickness data for the coal seams within the Aion 2023 Historical Mineral Resource of the "Modelled Area"

| Coal Seam | Number of Samples Analysed | Sample Type | Average Coal Intercept Thickness | Seam included within the |
|-----------|---------------------------|-------------|----------------------------------|--------------------------|

| | | | (m) | Mineral Resource Estimate? |
|---|---|---|---|---|
| M200 | 10 | Borehole and 2 trench samples | 0.9 | Yes |
| M180 | 6 | Borehole | 0.6 | Yes |
| M160 | 5 | Borehole | 0.6 | Yes |
| M140 | 3 | Borehole | 0.7 | Yes |
| M120 | 3 | Borehole | 0.7 | Yes |
| M110 | 1 | Borehole | na | No |

The resource estimate was based on a minimum coal minable thickness of 0.6 m.

The drill core thickness is determined from evaluation of the gamma, density, and calliper geophysical logs. The coal seam tops and bottoms are measured primarily from the gamma density log and secondarily from the gamma neutron logs. The geophysical log measurements of the coal depths are accepted as being correct, as is standard in the industry, and are used as the basis for the coal seam thickness in the geological model.

14.3.4   Seam Quality

Quality results provide an indicative value of the in situ ash content of the coal, as defined by the geophysical logs. The raw seam quality results are matched to the geophysical log and corrected to true seam thickness (depth adjusted) in the excel database to be utilised in the geological model. A summary of seam quality data for the "La Estrella" Project is provided in Table 14-10.

The QP considers that the quantity and quality of the lithological, geological, geotechnical, geophysical, collar, and downhole survey data collected in the 2023 drill program are sufficient to support Coal Resource estimation over the "Modelled Area".

Table 14-10  Summary of seam quality data for the "La Estrella" Coal Project

| Seam | Number of Samples | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV Gross Calorific Value (Btu/lb) | SuSulfur (Total Sulfur %) | FSI Free Swelling Index |
|---|---|---|---|---|---|---|---|
| M200 | 12 | 22.41 | 35.66 | 39.05 | 11367 | 2.4 | 2.9 |
| M180 | 7 | 17.28 | 37.55 | 42.43 | 12262 | 2.51 | 5.0 |
| M160 | 5 | 13.14 | 40.26 | 47.26 | 13497 | 2.75 | 7 |
| M140 | 3 | 14.83 | 38.26 | 44.33 | 12600 | 2.79 | 6.4 |
| M120 | 4 | 15.01 | 38.18 | 46.463 | 12747 | 2.67 | 6.5 |
| M110 | 1 | 13.86 | 38.56 | 45.26 | 12849 | 4.15 | 7.0 |
| Average | na | 17.01 | 37.64 | 42.74 | 12313 | 2.86 | 5.7 |

Seam by Seam compiled analyses for the "Modelled Area" are provided in Table 14-11.

Table 14-11  Seam by Seam compiled analyses for the "Modelled Area"

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| MUESTRA 2 - OSCAR AVILA AFLORAMIENTO CARBON 1.4m | 13.93 | 33.59 | 39.49 | 9929 | 0.67 | 0 | 1.4 |
| MUESTRA 1 - PEC01 CAJA 3 | 23.48 | 35.26 | 38.35 | 11165 | 2.62 | 2.5 | 1.4 |
| MUESTRA 9 - PEC03 CAJA 33 | 30.68 | 34.73 | 31.63 | 10261 | 0.58 | 1 | 1.25 |
| LE-PT06-P006-M01C | 22.87 | 35.9 | 39.1 | 11398 | 2.64 | | 0.86 |
| LE-PT06-P006B-M01C | 59.93 | 19.15 | 15.48 | 4442 | 3.06 | | 0.88 |
| LE-PT07-P007-M01C | 22.37 | 35.33 | 39.25 | 11271 | 2.55 | 4 | 1.47 |
| LE-PT07-P007-M03C | 22.11 | 35.5 | 39.32 | 11367 | 1.61 | 4 | 1.38 |
| LE-PT08-P008-M01C | 21.01 | 37.07 | 39.38 | 11603 | 2.99 | 3 | 0.55 |
| LE-PT09-P009-M01C | 22.55 | 34.88 | 38.89 | 11141 | 3.32 | 2.5 | 1.25 |
| LE-PT10-P010-M01C | 22.12 | 36.04 | 39.4 | 11474 | 2.42 | 2.5 | 1.58 |
| LE-PT11-P011-M01C | 14.95 | 36.82 | 44.79 | 12421 | 1.24 | 6.5 | 0.82 |
| LE-PT12-P012-M01C | 22.58 | 35.4 | 39.86 | 11463 | 1.21 | 5.5 | 1.06 |
| LE-PT13-P013-M01C | 20.66 | 36.26 | 40.09 | 11679 | 2.37 | 1 | 1.21 |
| LE-PT14-P014-M02C | 17.04 | 36.6 | 43.52 | 12220 | 2.51 | 1.5 | 0.5 |
| LE-AP2-M01C | 23.43 | 29.78 | 32.43 | 8043 | 0.66 | 0 | 1.44 |
| LE-AP2-M02C | 15.18 | 28.3 | 31.24 | 7194 | 0.48 | 0 | 1.44 |
| Weighted average by Intercept Thickness | 21.84 | 35.87 | 39.48 | 11478.62 | 2.00 | 3.18 | |
| Min | 14.95 | 34.73 | 31.63 | 10261.00 | 0.58 | 1.00 | |
| Max | 30.68 | 37.07 | 44.79 | 12421.00 | 3.32 | 6.50 | |
| Median | 22.25 | 35.70 | 39.35 | 11430.50 | 2.47 | 2.50 | |
| Variation | 105% | 7% | 42% | 21% | 472% | 550% | |

| Average intercept thickness | 1.17 | | | | | | |
|---|---|---|---|---|---|---|---|
| **M200** | | not included in statistics | | | | | |

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| MUESTRA 3 - PEC01 CAJA 10 | 49.42 | 23.88 | 23.34 | 6607 | 4.09 | 0 | 0.75 |
| LE-PT07-P007-M04C | 16.24 | 38.62 | 42.99 | 12417 | 3.98 | 7 | 0.86 |
| LE-PT09-P009-M02C | 17.08 | 37.59 | 42.65 | 12274 | 3.97 | 7 | 0.58 |
| LE-PT10-P010-M02C | 16.41 | 37.26 | 43.6 | 12429 | 2.47 | 6 | 1.12 |
| LE-PT11-P011-M02C | 23.82 | 35.21 | 36.86 | 11003 | 2.1 | 3 | 0.71 |
| LE-PT12-P012-M02C | 18.09 | 37.61 | 42.3 | 12303 | 2.54 | 3 | 0.68 |
| LE-PT13-P013-M02C | 11.48 | 39.36 | 46.32 | 13243 | 2.26 | 3 | 0.55 |
| Weighted average by Intercept Thickness | 16.96 | 37.71 | 42.67 | 12312.34 | 3.14 | 5.55 | |
| Min | 11.48 | 35.21 | 36.86 | 11003.00 | 2.10 | 3.00 | |
| Max | 23.82 | 39.36 | 46.32 | 13243.00 | 3.98 | 7.00 | |
| Median | 16.75 | 37.60 | 42.82 | 12360.00 | 2.51 | 4.50 | |
| Variation | 107% | 12% | 26% | 20% | 90% | 133% | |
| Average intercept thickness | 0.75 | | | | | | |
| **M180** | | not included in statistics | | | | | |

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| MUESTRA 3 - PEC01 CAJA 10 | 49.42 | 23.88 | 23.34 | 6607 | 4.09 | 6 | 0.62 |
| LE -AP! <01C | 29.03 | 37.73 | 33.24 | 10848 | 0.58 | 2 | 0.6 |
| LE -AP! <02C | 35.35 | 34.83 | 29.82 | 9642 | 0.56 | 0.5 | 0.5 |

| | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| LE-PT07-P007-M05C | 16.3 | 39.46 | 44.24 | 12821 | 3.85 | 6 | 0.86 |
| LE-PT09-P009-M03C | 9.98 | 40.64 | 49.38 | 13903 | 2,94 | 7.5 | 0.66 |
| LE-PT10-P010-M03C | 10.37 | 40.31 | 49.32 | 13830 | 2.57 | 7.5 | 0.66 |
| LE-PT11-P011-M03C | 15.92 | 38.9 | 45.18 | 12909 | 2.92 | 7 | 0.71 |
| LE-PT13-P013-M02C | 12.48 | 40.26 | 47.26 | 13497 | 2.26 | 6.50 | 0.5 |
| Weighted average by Intercept Thickness | 15.86 | 39.87 | 45.02 | 13017 | 3.64 | 6.12 | |
| Min | 9.98 | 38.9 | 44.24 | 12821 | 2.26 | 6 | |
| Max | 16.3 | 40.64 | 49.38 | 13903 | 3.85 | 7.5 | |
| Median | 13.14 | 40.26 | 47.26 | 13497 | 2.745 | 7 | |
| Variation | 63% | 4% | 12% | 8% | 70% | 25% | |
| Average intercept thickness | 0.66 | | | | | | |
| M160 | | not included in statistics | | | | | |

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| MUESTRA 5 - PEC01 CAJA 14 | 16.28 | 37.83 | 43.82 | 12191 | 2.9795 | 6 | 1.01 |
| LE-PT07-P007-M06C | 12.66 | 39.53 | 45.5 | 13109 | 2.67 | 8 | 0.7 |
| LE-PT09-P009-M04C | 12.27 | 39.13 | 45.91 | 13109 | 2.19 | 7 | 1.1 |
| LE-PT11-P011-M04C | 18.91 | 36.26 | 41.39 | 11882 | 2.91 | 4.5 | 0.7 |
| Weighted average by Intercept Thickness | 14.83 | 38.26 | 44.33 | 12600 | 2.66 | 6.41 | |
| Min | 12.27 | 36.26 | 41.39 | 11882 | 2.19 | 4.50 | |
| Max | 18.91 | 39.53 | 45.91 | 13109 | 2.98 | 8.00 | |
| Median | 14.47 | 38.48 | 44.66 | 12650 | 2.79 | 6.50 | |
| Variation | 54% | 9% | 11% | 10% | 36% | 78% | |
| Average intercept thickness | 0.88 | | | | | | |
| M140 | | | | | | | |

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| MUESTRA 6 - PEC01 CAJA 14 | 20.87 | 37.9 | 39.23 | 11859 | 2.5 | 6.5 | 1.05 |
| LE-PT07-P007-M07C | 15.01 | 38 | 43.94 | 12747 | 2.06 | 5 | 1.2 |
| LE-PT09-P009-M05C | 12.08 | 39.14 | 46.4 | 13134 | 2.67 | 6.5 | 0.53 |
| Weighted average by Intercept Thickness | 16.07 | 38.38 | 43.13 | 12566.08 | 2.44 | 6.08 | |
| Min | 12.08 | 37.90 | 39.23 | 11859.00 | 2.06 | 5.00 | |
| Max | 20.87 | 39.14 | 46.40 | 13134.00 | 2.67 | 6.50 | |
| Median | 15.01 | 38.00 | 43.94 | 12747.00 | 2.50 | 6.50 | |
| Variation | 73% | 3% | 18% | 11% | 30% | 23% | |
| Average intercept thickness | 0.93 | | | | | | |
| **M120** | | | | | | | |

| Sample ID | Ash (wt %) | Volatile (wt %) | Fixed Carbon (wt %) | GCV (Btu/Lb) | Total Sulfur (wt %) | FSI | Intercept Thickness |
|---|---|---|---|---|---|---|---|
| LE-PT09-P009-M06C | 13.86 | 38.56 | 45.26 | 12849 | 4.15 | 7 | 0.6 |
| Weighted average by Intercept Thickness | 13.86 | 38.56 | 45.26 | 12849.00 | 4.15 | 7.00 | |

single sample

### 14.3.5   Topography, Waste and Seam Models

The current topographic model as discussed in section 9.1 is applied to the geological model.

Data from outcrops and trenches illustrate that weathered coal (oxide) is present but very restricted in depth and has not been differentiated in the geological model.

### 14.3.6   Density Parameter

As per the discussion at 14.1.4 a conversion factor of 1.4 is considered appropriate for the rank of coal at the Project except for the seam M200 with ash over 20% which may require a higher value.

## 14.4   Estimation/ Interpolation Methods

The true thicknesses of the seams are calculated using the dip of the coal seams and the length of the coal deposit. Classification of Coal Resources

For classification of the Coal Resource Estimate for the "Modelled Area" the QP has utilised Aion's model which had a 100 m "buffer zone" for Measured Resources and 200 m "buffer zone" for Indicated Resources in the "Modelled Area". The QP notes that these are conservative parameters

.

## 14.5   Resource estimate for the remaining concession area

A Mineral Resource Estimate is not provided for the remainder of the concession area as classification of this in situ geological coal is limited by the lack of quality data.

## 14.6   Reasonable prospects for economic extraction

Upon thorough review of the approved 2016 PTO the QP considers that the requirement for "reasonable prospects for economic extraction" is satisfied as it includes economic analysis of potential mining capex and opex costs, revenues, and markets.

Mining depth or geological considerations are more likely to be a constraint on eventual economic extraction than concession boundary considerations. In situ geological coal within the concession is "open" to the northwest (down dip) and northeast (along strike).

## 14.7        Coal Resource Statement

Coal Resources are reported using the 2014 CIM Definition Standards and are reported in situ.

The QP for the estimate is Mr Paul B. Bright. MIMMM. Coal Resources are tabulated in Table 14-12 and have an effective date of 17/03/2024.

A Mineral Resource Estimate for the "Modelled Area" (24 ha) comprises 552,600 t in Measured Resources and 350,100 t in Indicated Resources for a combined total of 902,700 t (Table 14-12).

Table 14-12  Coal Resource Statement for the Area of Immediate Interest of FLG-111, the La Estrella Coal Project

| Seam | Average thickness (m) | Measured Resource (t) | Indicated Resource (t) | Total Measured and Indicated Resource (t) |
|---|---|---|---|---|
| M200 | 0.9 | 233,400 | 88,600 | 322,000 |
| M180 | 0.6 | 132,400 | 56,600 | 189,000 |
| M160 | 0.6 | 87,000 | 61,400 | 148,400 |
| M140 | 0.7 | 113,000 | 91,400 | 204,400 |
| M120 | 0.7 | 73,800 | 113,500 | 187,300 |
| Total | | 639,600 | 434,200 | 1,073,800 |

Notes to Accompany Coal Resource Table:

4.  Coal Resources have been classified using the 2014 CIM Definition Standards. The Coal Resources have an effective date of 17/03/2024.
5.  The Qualified Person for the resource estimate is Mr Paul B. Bright MIMMM.
6.  The Coal Resources are reported in situ.
7.  Tonnages are rounded.

It is anticipated that resources estimated for this relatively small area (24 ha) will support the early years of production which have been submitted to the Colombian government in the Updated PTO.

## 14.8        Factors That May Affect the Coal Resource Estimate

Areas of uncertainty that may materially impact the Coal Resource estimates include:

- Changes in geological interpretations including the size, shape, and distribution of interpreted seams and waste;
- Changes in local interpretations of seam geometry, fault geometry, and seam continuity;
- Changes in quality data;
- Variations in geotechnical, hydrogeological, and mining assumptions;
- Changes to environmental, permitting, and social license assumptions.

14.9    Comments on Section14

**Comment regarding Historical Mineral Resource Estimates**

The QP considers that historical resource estimates were not fully compliant with, and include categories of resource outside of, internationally recognised reporting codes such as the 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia" or those of the Canadian Institute of Mining, Metallurgy and Petroleum (the "CIM Code") which is particularly relevant to NI-43-101.

The historical estimates, performed by professional geologists and Colombian geological consulting companies indicate a sound understanding of the geology of the concession and have similar estimates of potential total in situ coal volumes of 22,656,654 t (2011) and 24,851,160 t (2023), respectively, offering some confidence as to the potential total in situ coal. However, both 2008 and 2023 drilling campaigns which underlie all previous estimates were relatively deficient in seam quality analyses over much of the concession area, and of particular note a density value of 1.4 was applied in all previous estimates and the QP considers that its appropriateness should be confirmed by further sample testing.

While the historical estimates give a reasonable indication of total in situ coal volumes further verification drilling and exploration work including drilling, sampling, and laboratory analyses is required in order to verify and enhance existing data and to form the basis of preliminary mine planning.


**Comment regarding the Coal Resource Estimate**

The QP is of the opinion that Coal Resources were estimated using industry-accepted practices and conform to the 2014 CIM Definition Standards.

The QP has not done sufficient work to satisfy himself that the 20011 and 2023 Crisco resource estimates to classify the two estimates as   current estimates.

The Coal Resources are forward-looking information and actual results may vary.

There are no other environmental, legal, title, taxation, socio economic, marketing, and political or other relevant factors known to the QP that would materially affect the estimation of Coal Resources that are not discussed in this Report.

Upon thorough review of the approved 2016 PTO the QP considers that the requirement for "reasonable prospects for economic extraction" is satisfied as it includes economic analysis of potential mining capex and opex costs, revenues, and markets.

The Updated PTO has plans for a crosscut early in the development at the 365m level which it is anticipated will intercept the six (6) seams in the Modelled Area not only providing additional data

points but the opportunity for bulk and channel sampling and analysis including laboratory bulk density tests and washability tests, and the additional data may allow for improvement in product specifications (and value) by processing, blending and/or selective mining. Coal Resources have been estimated in the Modelled Area and it is anticipated will support the early production as proposed in the Updated PTO.

Sections 15 through to 22 are not considered relevant to this Report as they apply to projects that are advanced projects.

# 23  ADJACENT PROPERTIES

## 23.1    Introduction

There are no adjacent mining concessions.

## 23.2    QP Comments on Section 23

Coal geology at the La Estrella project is interpreted to continue along strike to the northeast and at depth to the northwest and the QP considers that the acquisition of title to the northeast may allow for extension of future resources.

## 24  OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to this Report.

# 25 INTERPRETATION AND CONCLUSIONS

## 25.1    Introduction

The QPs note the following interpretations and conclusions, based on the review of data available for this Report.

## 25.2    Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The QP was provided with information and documents as to the mineral tenure, surface rights, water rights, royalties and agreements and reasonably relied upon this information which does not amount to legal due diligence.

## 25.3    Geology and Mineralisation

The Project "geology type" classified by the Geological Survey of Canada criteria is considered as "low to moderate".

The "deposit type" is classified as a "underground mining" type, also based on Geological Survey of Canada criteria.

The geological understanding of the settings, lithologies, and structural controls on the coal seams is sufficient to support estimation of Coal Resources.

## 25.4    Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

The exploration programs completed to date are appropriate for the "low to moderate" style.

Sampling methods are acceptable for Coal Resource estimation.

Sample preparation, analysis and security are generally performed in accordance with coal industry accepted practices and standards.

The quantity and quality of the lithological, geotechnical, collar and down-hole survey data collected during the exploration and delineation drilling programs are sufficient to support Coal Resource estimation for the "Modelled Area" (24 ha) which is the subject of the Updated PTO submitted to the Colombian government.

The collected sample data adequately reflect seam dimensions, seam true widths of mineralisation, and the "low to moderate" seam style. Sampling is representative of the coal quality.

The data verification programs concluded that the data collected from the Project adequately support the geological interpretations and constitute a database of sufficient quality to support the use of the data in Coal Resource estimation.

## 25.5    Coal Resource Estimates

The Coal Resource estimation for the Project conforms to industry best practices and is reported using the 2014 CIM Definition Standards.

The Coal Resources are forward-looking information and actual results may vary.

Factors that may affect the Coal Resource estimate include:

- Changes in geological interpretations including the size, shape, and distribution of interpreted seams and waste;
- Changes in local interpretations of seam geometry, fault geometry, and seam continuity;
- Changes in quality data;
- Variations in geotechnical, hydrogeological, and mining assumptions;
- Changes to environmental, permitting, and social license assumptions.

Coal Resources have been estimated in the Modelled Area and it is anticipated will support the production of the proposed early years of production in the Updated PTO.

There is upside potential for the Project if some or all of the Measured and Indicated Coal Resources can be converted to Coal Reserves, and with further work that the potential resources outside the "Resources of Immediate Interest" can be reported as Measured and Indicated Coal Resources.

## 25.6    Conclusions

Under this Report the Coal Resource Statement is supported by geological understanding, seam quality data, and reasonable prospects for economic extraction.

# 26 Recommendations

## 26.1 Introduction

This Report focuses on Coal Resources of Immediate Interest as defined herein as being those resources situated within the Modelled Area (24 ha). It is anticipated that the estimate reported will support early production at the Project as per the approved PTO and Updated PTO submission.

To further improve and increase the Coal Resources the QP makes the following recommendations for the La Estrella Coal Project:

Stage 1 – Site and laboratory testing

A. Sampling of the seams intersected by the 365m level cross-cut followed by further seam analysis including bulk density and washability testing leading to potential adjustment to the Resources of Immediate Interest

and

B. Limited drilling, analysis and testing of in situ geological coal to the northwest of the Modelled Area

It is expected that this will permit an updated estimation of Coal Resources of Immediate Interest and allow for estimation of Coal Resources of Future Interest throughout the concession area.

Stage 1A and Sage 1B can be undertaken concurrently or in either order.

Stage 2 – Review, Estimation and Reporting

There is upside potential for the Project if some or all of the Measured and Indicated Coal Resources can be converted to Coal Reserves, and if some or all of the inferred coal resources from historical estimates can be converted to higher-confidence categories and subsequently to Coal Reserves, and if the in situ geological coal can be converted to Measured and Indicated Coal Resources.

A thorough review of the Project and the application of "modifying factors" by Qualified Persons to enable Proven and Probable Reserves to be estimated and published from the Measured and Indicated Resources then available.

The recommended work is expected to not only increase confidence in the Coal Resource Statement reported herein but is also expected to significantly increase the tonnage of coal resources at the Project and provide necessary data for future estimation of reserves.

## 26.2       Stage 1A - Further analysis and testing of Coal Resources of Immediate Interest

The QP recommends testing and analyses to improve confidence in reported Coal Resources and also to determine whether product specifications (and value) could be improved by processing, blending and/or selective mining, particularly for seam M200 which has relatively high ash and sulphur levels. Indications of a thin parting near the seam base of M200 have been observed on geophysical logs and this may be a significant contributor to ash and sulphur levels in analyses to date. It is then further recommended that seam plies are sampled and analysed above and below this ply where observed.

It is noted that the Updated PTO proposes an early cross-cut at the 365m level from the main access incline which will intercept the 6 coal seams in the proposed mining plan. It is recommended that the opportunity be taken to channel or bulk sample the seam and use the samples for further quality analyses, density and washing tests in order to determine whether processing or blending would enhance product value by improving product specifications. It may be that those seams which have high FSI values could form the basis of a potential alternative higher value product stream of metallurgical coal for which a value for Phosphorous, in particular, should be established.

On this basis the QP estimates a total of twenty-four (24) samples to be collected comprising eighteen (18) samples for standard sample preparation and analysis distributed throughout each of the six (6) coal seams intercepted in the crosscut and six (6) samples specifically for washability testing and analysis and density testing comprising one sample per coal seam and the laboratory costs for this work are presented in Table 26-1.

Table 26-1  Estimated laboratory costs of the Recommended Sample Analysis and Testing

| item | Amount | unit cost (COP) | Total cost (COP) | unit cost (USD) | Total cost (USD) | unit cost (CAD) | Total cost (CAD) |
|---|---|---|---|---|---|---|---|
| Sample Preparation | 18 | 45,643 | 821,574 | 12 | 216 | 15 | 270 |
| Proximate Analysis | 18 | 221,913 | 3,994,434 | 56.18 | 1,011 | 75 | 1,354 |
| Washability Testing & Analysis | 6 | 5,047,705 | 30,286,230 | 1,278 | 7,668 | 1,711 | 10,266 |
| TOTALS | | | 35,102,238 | | 8,895 | | 11,890 |

These data will allow for an updated Coal Resource Estimate for the Modelled Area which may then include coal seams which previously lacked quality data, permit improvement of Indicated Resources to Measured Resources, and assignment of more appropriate density values, on a seam basis, to the tonnage estimate.

## 26.3    Stage 1B - Limited drilling, analysis and testing of in situ geological coal

The Coal Resource Estimate of Immediate Interest here reported is only for the Modelled Area (24 ha) and no estimate was performed for the remainder of the concession area which, historically, was the subject of Colombian and CRIRSCO estimates which suggest over 20 million tonnes of in situ geological coal in the concession area.

To improve the geological model and seam quality data and potentially upgrade reported and interpreted in situ geological coal to Coal Resources, herein referred to as Coal Resources of Future Interest, the QP notes that the coal geology, structure and seams in the Modelled Area continue on strike to the north-east for over 2 km within the concession. There is an interval of approximately 1200 m between BH13 at the northeastern limit of the Modelled Area and BH 5 located to the northeast along strike.  Therefore the QP recommends that a limited, targeted programme of additional exploration is undertaken with four (4) boreholes drilled in downdip pairs on two (2) section lines 400 m apart (being a reasonable radius of influence for Measured Resources for deposits of low to moderate complexity).

This work is expected to provide for Measured and Indicated Resources which will facilitate a timely extension to planned production with succeeding mining blocks from the over 20 million tonnes of in situ geological coal which historical estimates suggest exist within the concession area.

The approximate locations of the two (2) recommended section lines are indicated below. The precise location of boreholes on the section lines is best determined by the geologist in the field depending on site conditions. It is anticipated that boreholes will be approximately 100 to 250 m deep inclined 50$^{\circ}$ to the southeast in order to intercept the six (6) main coal seams and a cost estimate for the proposed drill programme is provided in Table 26-2.

| Borehole Section Line 1 | | | |
|---|---|---|---|
| Northing From | Easting From | Northing To | Easting To |
| 4956830 | 2334180 | 4956110 | 2334715 |
| Borehole Section Line 2 | | | |
| Northing From | Easting From | Northing To | Easting To |
| 4957070 | 2334500 | 4956380 | 2335000 |

Table 26-2  Cost estimate for recommended drill programme and sample analysis

| item | unit | Amount | unit cost (COP) | Total cost (COP) | unit cost (USD) | Total cost (USD) | unit cost (CAD) | Total cost (CAD) |
|---|---|---|---|---|---|---|---|---|
| Estimated cost of Phase 2 programme | | | | | | | | |
| overall costs of drill programme * | m | 700 | 641,165 | 448,815,792 | 162 | 113,624 | 217 | 152,141 |
| Sample Analyses | | | | | | | | |
| sample prep | item | 24 | 45,643 | 1,095,432 | 12 | 288 | 15 | 360 |
| proximate analysis | item | 24 | 221,913 | 5,325,912 | 56.18 | 1,348 | 75 | 1,805 |
| washability Analysis | item | 4 | 5,047,705 | 20,190,820 | 1,278 | 5,112 | 1,711 | 6,844 |
| TOTALS | | | | 475,427,956 | | 120,372 | | 161,151 |

*derived from Aion quotation for 2023 drilling programme overall cost to include mobilization and geophysical logging*

## 26.4 Stage 2 – Review, Estimation and Reporting

A thorough review of the Project and the application of "modifying factors" by Qualified Persons is expected to enable Proven and Probable Reserves to be estimated and published from the Measured and Indicated Resources then available for the entire concession area.

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