



OROVALLE MINERALS S.L.

TECHNICAL REPORT ON THE OROVALLE OPERATION, ASTURIAS, SPAIN

NI 43-101 Technical Report

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November 30, 2020

Report Control Form

Document Title	Technical Report on the Orovalle Operation, Asturias, Spain		
Client Name & Address	Orovalle Minerals S.L. Planta El Valle – Begega 33836 – Belmonte de Miranda Asturias Spain		
Document Reference	Project #3282	Status & Issue No.	FINAL Version
Issue Date	November 30, 2020		
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Report Distribution	Name		No. of Copies
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1 SUMMARY

EXECUTIVE SUMMARY

Roscoe Postle Associates UK Ltd. (RPA), now part of SLR Consulting Ltd (SLR), was retained by Orovalle Minerals S.L. (Orovalle) to prepare an independent Technical Report on the Orovalle Operation. The purpose of this Technical Report is to disclose Mineral Resource and Mineral Reserve estimates for the Orovalle Operation, as at September 30, 2020. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA initially visited the property from June 1 to 13, 2014 and again from October 19 to 21, 2020.

The Orovalle Operation includes:

- El Valle Boinás and Carlés gold-copper-silver mines, located in Asturias, Spain in the municipalities of Belmonte de Miranda and Salas, along with the El Valle processing plant and El Valle tailings storage facility (TSF), collectively, the El Valle Operation.
- La Brueva and Quintana projects, located in Asturias, Spain in the municipality of Belmonte de Miranda, which consist of mineral rights not currently being exploited.
- La Ortosa-Godán project, located in Asturias, Spain in the municipality of Salas, which consists of mineral rights not currently being exploited.
- Lidia project, located in Asturias, Spain in the municipality of Allande, which consists of mineral rights not currently being exploited.

Orovalle is a wholly owned subsidiary of Orvana Minerals Corp. (Orvana). Orvana is an Ontario registered company and its common shares are listed on the Toronto Stock Exchange (TSX) under the symbol ORV.

Orvana is a gold, copper, and silver producer with properties in Spain, Bolivia, and Argentina. In September 2009, Orvana acquired Orvana Minerals Asturias Corp. (previously Kinbauri Gold Corp. (KGC)) and with it the historically producing El Valle Operation. The El Valle Operation recommenced commercial production in August 2011.

The Boinás underground mine is a currently producing asset, with a nominal mining rate of 2,000 tonnes per day (tpd) ore. Mined ore is classified into oxide and skarn ore. The Carlés open pit and underground mines are currently on care and maintenance.

A gravity-flotation-leach processing plant, located at Boinás, produces doré bars and copper concentrate with gold and silver credits. Total production for the 2020 fiscal year (FY), which runs from October to September, was 51,104 ounces (oz) of gold and 5.6 million pounds (Mlb) of copper. A total of 633,765 tonnes (t) of ore were milled during the FY 2020.

Orovalle Operation Mineral Reserves total 3.4 Mt, at grades of 2.78 g/t Au, 6.86 g/t Ag, 0.36% Cu, and. A Life of Mine Plan (LOMP) for Orovalle forecasts five years of mining at similar production rates to the current operation.

CONCLUSIONS

RPA offers the following conclusions:

GEOLOGY AND MINERAL RESOURCES

- Measured and Indicated Mineral Resources, inclusive of Mineral Reserves, total 7.93 Mt, grading 3.74 g/t Au, 10.38 g/t Ag, and 0.51% Cu, containing 0.955 Moz Au, 2.646 Moz Ag, and 90 Mlb Cu.
- Inferred Mineral Resources total 3.36 Mt, grading 3.80 g/t Au, 8.64 g/t Ag, and 0.33% Cu, containing 0.410 Moz Au, 0.934 Moz Ag, and 24.8 Mlb Cu.
- Drilling, logging, and sampling methodologies meet industry standards and are suitable to support Mineral Resource and Mineral Reserve estimations.
- The sampling method and approach is reasonable to support Mineral Resource estimation.
- The sample preparation, analysis, and security procedures at the Orovalle Operation are adequate for use in Mineral Resource estimation.
- The quality assurance/quality control (QA/QC) program as designed and implemented by Orovalle is appropriate, and the assay results within the database are suitable for use in Mineral Resource and Mineral Reserve estimation.
- The database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA undertook independent checks on the database, wireframing, capping, compositing, variography, and grade estimation and found all differences to be within acceptable limits. The Orovalle Operation database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA considers the 2020 Mineral Resource to be free of material flaws and acceptable for use in estimating Mineral Reserves.
- The final variance between the Mineral Resource model and metal production from the El Valle processing plant is likely to be within 15% of the estimate. These results are

acceptable as they are similar to other high nugget gold operations in comparable geological settings.

MINING AND MINERAL RESERVES

- Proven and Probable Mineral Reserves total 3.43 Mt, grading 2.78 g/t Au, 6.86 g/t Ag, and 0.36% Cu, containing 307,000 oz Au, 756,240 oz Ag, 27.6 Mlb Cu. Mineral Reserves are estimated at metal prices of US\$1,600/oz Au, US\$18/oz Ag, US\$3.00/lb Cu, and a US\$/€ exchange rate of 1.20/1.00.
- Some marginal grade material is included in Mineral Resources, and excluded from Mineral Reserves, due to application of dilution factors and higher cut-off grades.
- Mining unit costs are known to vary significantly by mining method, with low productivity drift and fill mining (D&F) via hydraulic hammer being considerably more expensive than higher productivity sub-level stoping (SLS) mining.
- The production schedule forecasts five years of mining at similar production rates to the current operation.
- Production activities are expected to continue at Boinás underground from developed areas through to the end of the mine life.
- There is potential to increase oxide ore extraction from within the TSF crown pillar exclusion zone. This is subject to a current investigation by an independent international consulting firm and could potentially increase Mineral Reserves further.
- The Carlés underground mine is currently on care and maintenance. Carlés underground Mineral Reserves as of September 2020 comprise 136,000 t at 2.56 g/t Au, 4.71 g/t Ag, and 0.20% Cu classified as Probable. Orovalle is currently evaluating the information obtained from the last drilling campaign in the FY 2020. Mine designs are under review in order to maximize the value of the Carlés orebody and to define the production future schedule. An additional 300,000 t of skarn ore could potentially be extracted from the Carlés open pit. However, this is contingent on Orovalle obtaining the required land and environmental permits. As such, these tonnes have been excluded from the Mineral Reserve estimate at this point in time.
- The average life of mine (LOM) operating cost is estimated to be US\$102/t milled. Sustaining capital costs are estimated to total US\$48.2 million, plus US\$15.1 million (discounted) for reclamation and closure (including a total of US\$8.9 million in bonds already lodged).
- Cash flow analysis of the production plan verified that Mineral Reserves are economically mineable, under the metal price and cost assumptions summarised in this Technical Report.

MINERAL PROCESSING AND METALLURGICAL TESTING

- The El Valle processing plant has historically processed three different types of ore: Boinás oxides, Boinás skarn, and Carlés skarn at varying ratios, and has generally demonstrated its ability to consistently achieve throughput and recovery targets. RPA is not aware of any circumstances that would prevent the El Valle processing plant from continuing to achieve its target performance metrics.

- Based on the gold mineralogy in the oxide and sulphide ores, it is anticipated that gold in oxide ore will generally be recovered as doré product from gravity and carbon in leach (CIL) circuits, while gold in sulphide skarn ore will be recovered into flotation concentrate. RPA analysed the available plant data for correlations, and it is evident that as expected the recovery of gold to copper concentrate and doré is influenced by the plant feed ore mix. A higher oxide to skarn ratio generally results in a higher recovery of gold to doré, with the converse also holding true.
- Recent mineralogical examinations of process streams and reviews of plant procedures are valuable sources of information that assist with improving plant performance. An independent plant metal accounting audit report was produced (SC242) in 2015.
- RPA is in agreement with the conclusions of the 2016, 911 Metallurgy Corp. (911 MC) Transition Ore Test, Report SC257, that transition ore can be processed through the El Valle processing plant as part of the ore feed mix. The gravity and flotation circuits should continue to be used in conjunction with the CIL circuit to ensure that minimal cyanide soluble copper minerals enter the leach.
- RPA has reviewed the independent Mine Laboratory ISO 9001 Audit Report prepared by Aenor and published in March 2020, and certificates for weight scale calibrations undertaken in 2019 by an independent third party. In RPA's opinion the ISO 9001 certification and ongoing audits and independent weight scale calibrations are good practice and contribute to the integrity of metal accounting processes.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

- The Orovalle Operation is permitted and bonded, however Spanish regulatory authorities have taken the position that Orovalle is not complying with all conditions of their permits (as discussed below).
- Orovalle is working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the operations. Remediation activities including water treatment as well as ongoing permitting-related discussions with the Spanish regulatory authorities have been on-going since 2014. Orovalle has noted that there are uncertainties and risks associated with the outcomes of this matter that could significantly affect the Orovalle Operation's ability to continue mining.
- Contamination of receiving water resources (and subsequent downstream impacts) appears to be the main environmental risk identified at the Orovalle Operation. As a result, water treatment and management are identified as a focus area for the operations given the matter identified above.
- Reclamation plans and associated bonds are in place for the mine. The reclamation plans are reviewed every five years and are used to inform ongoing rehabilitation of areas no longer needed for mining activities. This is in line with good industry practise.
- In addition to the bonds already in place, Orovalle has noted that the Spanish regulatory authorities have requested an additional reclamation bond of €5 million (approximately US\$5.854 million) be deposited in their favour to satisfy additional reclamation bond commitments in respect of the El Valle TSF. Orovalle has filed an appeal with the Spanish regulatory authorities against the assessment of the additional bond. Through the administrative appeal process, Orovalle is working with Spanish regulatory

authorities to seek alternatives, which includes, without limitation, relief from posting the additional reclamation bond.

RECOMMENDATIONS

RPA offers the following recommendations:

GEOLOGY AND MINERAL RESOURCES

1. Further refinement of existing sub-domains, and additional sub-domains, where required, be generated to define high grade trends within the lithology wireframes.
2. A 2.5 m block size may better represent local grade variability, but greatly increase processing time. Smaller block sizes should be tested prior to future Mineral Resource updates.
3. Investigations should be undertaken to identify the source of higher copper failures in blank values.
4. A full variography review should be undertaken prior to the next resource estimate to consider the low nugget modelled by Orovalle.
5. Continue to improve the reconciliation process by monitoring the performance of the short term block model against grade control sampling and explore the use of high grade domain wireframes to restrict the interpolation of elevated grades.
6. Continue using underground stope optimization as a standard practice for Mineral Resource reporting to ensure Reasonable Prospects for Eventual Economic Extraction (RPEEE).

MINING AND MINERAL RESERVES

1. Investigate the potential to increase Mineral Reserves from within the current 75 m TSF crown pillar exclusion zone.
2. Incorporate truck tonne kilometres (TKm) reporting, in long term, and short term plans, for more transparency in cost forecasting.
3. Movement of waste is planned on a short term basis, however, the incorporation of waste handling in the long term planning for more accurate costing is recommended.
4. Investigate ways of increasing the utilisation of the rock hoist for transporting increased skarn and waste tonnage thus reducing truck cycles, traffic on the main ramps, and transportation costs.

MINERAL PROCESSING AND METALLURGICAL TESTING

1. Continue to periodically examine gold and copper deportment in process streams and adjust parameters accordingly.

2. Commission a metal accounting audit for FY 2020 as a follow up to the 2015 SC 242 report. It would be beneficial to use the “Amira P754 Metal Accounting Code of Practice and Guidelines” as a guide for best practice metal accounting.
3. A study should be carried out to better understand the source of the highest contributing penalty elements antimony (Sb), bismuth (Bi) and fluorine (F), their host mineralogy, upgrade ratio, and options to limit and control the deportment of these elements to concentrate.
4. Aim to increase run of mine pad mill feed stocks to aid blending of consistent ore feed to the mill.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

1. Orovalle should continue actively engaging the Spanish regulatory authorities to resolve the on-going matter of the discharge level of selenium (first flagged in 2014) and the posting of additional reclamation bonds (first flagged in 2011).
2. Environmental monitoring and investigative studies should continue to further inform water contamination risks and related management thereof and to ensure compliance with applicable environmental standards.
3. Discussions with Orovalle employees for the purposes of this technical review suggest that management systems and processes are in place to continually identify, assess and mitigate potential risks arising from the operations. An opportunity exists for the mine to improve its record keeping.
4. To maintain a social license to operate, it is highly important that the surrounding municipalities and communities are supportive of mining activities at El Valle-Boinás and Carlés. Individually or collectively the social and community considerations discussed in this Technical Report (whether real or perceived, positive or negative) can have a material influence on the ongoing operations and development of the mine. These need to be closely monitored and actively managed to minimise the risk to the operations.

ECONOMIC ANALYSIS

This section is not required as Orovalle is a producing issuer, and the Orovalle Operation is currently in production and there is no material expansion of current production.

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Orovalle Operation is located in north western Spain within the Asturias Province, approximately 35 km west of the Asturian capital, Oviedo, and approximately 30 km south of the north coast of Spain along the Cantabrian Sea.

The mineral rights for the Orovalle Operation are held in the form of Exploitation Concessions (ECs) and Investigative Permits (IPs). The combined ECs occupy a total surface area of 3,812 ha, which includes the La Ortosa-Godán and La Brueva areas which are not currently being exploited. The Orovalle Operation includes three IPs comprising 3,327 ha.

LAND TENURE

ECs and IPs are granted by the regional authorities of Asturias, who maintain the power to oversee these licences.

An EC provides the holder of the concession with the right to extract minerals from a specified area, subject to approval of an Exploitation Plan by the Mining Authorities. ECs are granted on 30 year terms and renewable upon application. The Exploitation Plan includes an Environmental Impact Study and Restoration Plan, which requires approval by the Environmental Authorities. The Orovalle Operation Exploitation Plans and respective Environmental Studies and Restoration Plans, which were approved in 1996, 2000, and 2004, give the holder of the ECs the right to carry out further investigation activity inside the mining areas. Authorisation is required from the Mining Authorities, which is achieved by submitting an annual investigation plan. Work plans must be presented to the Directorate General of Energy, Mining, and Reactivation (DGEMR in Spanish) before January 31st of each year.

An IP provides the holder of the permit the right to investigate the resources in the permit area, subject to approval of an Investigation Plan by the Mining Authorities. The holder has the right to carry out exploration activities including geological studies, soil geochemistry, geophysics, and drilling. If there are any proposed surface activities that the Mining Authorities believe may affect the environment, the holder of the IP may be required to obtain additional approvals from the Environmental Authorities. IPs are granted on three year terms and renewable upon application.

ROYALTIES

There is a royalty agreement in place between Orovalle and Anglo Pacific Group PLC (APG). The net smelter return (NSR) royalty is 2.5% for gold prices up to US\$1,100/oz Au, and 3.0% for gold prices above US\$1,100/oz Au (based on the average gold price per quarter).

HISTORY

Prior to Orovalle's involvement, the Boinás and Carlés deposits have been subject to mining activities dating back to the Roman era. In the 1800s and early 1900s, several small copper mines were in production and mining for arsenopyrite was carried out during World War II.

Modern exploration commenced in the 1970s at Carlés. Sporadic drilling and sampling programs through the 1970s and 1980s gave way to underground exploration in 1990. Further drilling and engineering work by Rio Narcea Gold Mines Limited (RNGM) culminated in the commencement of production in the Boinás West Pit in 1997, followed by the Boinás East and El Valle Pits. Approximately 5.4 Mt of ore was mined from 1998 to 2006 producing approximately 973,000 oz Au.

Underground production began in 2003 at Carlés and 2004 at Boinás, with underground operations ceasing in 2006. In 2009, Orvana acquired the mining rights and in 2010 underground mining resumed.

GEOLOGY AND MINERALISATION

The Río Narcea Gold Belt contains the El Valle-Boinás and Carlés mines, as well as the La Brueva, Quintana, and La Ortosa-Godán exploration projects. The Lidia project is located into Navelgas Gold Belt. Both belts are located in the western portion of the Cantabrian Zone in the north western part of the Hercynian-age Iberian Massif. The Cantabrian Zone and the nearby West Asturian-Leonese Zone consist of a stratigraphic section of Paleozoic sedimentary rocks that range in age from Middle Cambrian to Permian. The lower stratigraphic section of the Cantabrian Zone includes the Láncara Formation (Cambrian limestone), which is underlain by Cambrian feldspathic sandstone. The limestone has a total thickness of approximately 250 m and constitutes the principal host rock for gold and copper mineralisation at El Valle-Boinás.

The Navelgas Gold Belt, which hosts the intrusion-hosted Lidia early exploration project, was extensively mined during Roman times, with workings occurring in the northeast trending fracture system that defines this gold belt (18 km wide and 70 km long).

The 45 km long and four kilometre wide Río Narcea Gold Belt is characterised by the alignment of mineral occurrences, Paleozoic sediments, Tertiary Basins, fracture zones, and igneous

intrusions. The most important igneous intrusions, from north to south, are the La Ortosa-Godán, Carlés, Pando, La Brueva, Villaverde-Pontigo, and El Valle-Boinás intrusives.

Metamorphism in the Río Narcea Gold Belt is related only to intrusion of the igneous rocks, which produced contact metamorphism in the sedimentary rocks. They produce hornfels in the clastic units and skarn in the carbonate units.

Gold mineralisation in the Río Narcea Gold Belt consists mainly of two types:

- **Gold-bearing copper skarn:** related to the interaction between late Hercynian intrusions, mesothermal solutions, and carbonate host rocks. This is the primary type of gold deposit that may be affected by later events (favourable host rocks for skarn include the Láncara Formation at El Valle-Boinás and the Rañeces Group Formation at Carlés).
- **Jasperoid type:** related to subvolcanic dykes and epithermal solutions which cause silicification with argillisation and sericitisation, plus epigenetic, hypogene oxidation. This type of mineralisation may overprint, remobilise, and enrich gold mineralisation within the skarn deposits, as happened at El Valle-Boinás. Also, this can form the breccia-style gold mineralisation that produced higher grades at El Valle-Boinás. Limited to structural zones of varying width, that dip at high angles. They are typically the sites of leaching and enrichment that extend as much as 400 m below the surface.

EL VALLE-BOINÁS

The gold mineralisation system has a strike length of two kilometres and a width of at least 0.5 km. The intrusive is elongated trending N35°E with a length of 500 m, and an average thickness of 300 m. A copper-gold mesothermal skarn was developed mainly along the contact between the igneous rock and the carbonate unit.

CARLÉS

The Carlés deposit is a gold and copper bearing skarn developed predominantly in the Devonian limestones of the lower portion of the Rañeces Formation along the north margin of the Carlés granodiorite. The Carlés intrusion is approximately circular in plan with a diameter of approximately 750 m.

Mineralisation is continuous for over 1,000 m, ranging in thickness from 1.5 m to over 25 m, dipping 50° to 90° away from the granitic intrusion. The skarn is known over a vertical continuity of 400 m and remains open at depth.

LA BRUEVA

La Brueva gold deposit is seven kilometres northeast of the El Valle mine on a 40 m wide, east-west trending fracture zone that cuts the Rio Narcea anticline almost perpendicular to the axial trend. At surface, the fracture zone is located in the contact between the Oville and Barrios Formations. Several million cubic metres of material were mined out from the La Brueva pit by the Romans.

At the eastern end of the historical La Brueva pit, an oxidised, quartz rich jasperoid breccia with partially oxidised patchy veins of arsenopyrite is prominently displayed in a road cut. A channel sample from the exposure assayed 4.15 g/t Au over a 15 m true width.

EXPLORATION STATUS

Drilling at the Orovalle Operation has totalled approximately 500,689 m in 3,538 holes of which 236,770 m in 1,768 holes have been drilled by Orovalle.

For the skarns and some of the epithermal oxide zones, drill holes tend to intercept the mineralisation at varying angles relative to the core axis depending on drill access and the irregular morphologies of the mineral zones. More regular, planar deposits such as A107 have better drilling angles, especially when drilling to depth. In general, drilling is spaced between 20 m and 40 m in active or exploited mining areas. Drilling density away from the core of the underground mine and beneath previous pits is generally greater than 40 m and can be in excess of 100 m in lesser explored areas.

Limited non-drilling exploration activity has been conducted since 2012, with early exploration being summarised in in Section 6 of this Technical Report.

The gold-copper deposits in the Río Narcea Gold Belt are complex deposits that present challenges for exploration. The original mineral deposits are typically internally complex skarn deposits that have been subjected to epithermal alteration and remobilisation of the mineralisation, plus displacement and distortion by both high angle reverse and thrust faults. In addition, individual zones of mineralisation may be high grade, but relatively small and difficult to locate.

Some regional exploration activities have been undertaken to better define regional targets that do not currently have Mineral Resources, such as Lidia, Quintana, and La Ortosa-Godán.

Since the previous RPA 2014 Technical Report, Orovalle has undertaken geological mapping, rock samples, soil geochemistry, and geophysical surveys.

Mineral Resources have been declared at El Valle-Boinás, Carlés, and La Brueva. RPA considers that there is good exploration potential within regional targets. These include La Ortosa-Godán and which is part of the Rio Narcea gold belt and is located three kilometres northwest of Carlés. Several targets have been identified through drilling. The Quintana prospect located southwest of El Valle has been also been tested with drilling.

The Lidia prospect located 20 km west of El Valle is a target within the Navelgas gold belt and has been identified for potential skarn mineralization in the contact between intrusives and limestone.

Exploration is planned to further test the prospectivity of these deposits, and other potential regional targets are being investigated.

MINERAL RESOURCES

The 2020 updated Mineral Resource estimate for the Orovalle Operation was completed by Orovalle personnel and reviewed by RPA.

A summary of the updated Mineral Resources effective as of September 30, 2020 inclusive of Mineral Reserves is provided in Table 1-1.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification and estimation.

As discussed in greater detail Section 20, Orovalle is currently engaged in working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the operations which could materially affect the Mineral Resource estimate. RPA is not aware of any other permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

TABLE 1-1 SUMMARY OF MINERAL RESOURCES INCLUSIVE OF MINERAL RESERVES– SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Measured Mineral Resources							
Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	806	3.84	15.29	0.58	99	396	10,286
Boinás Skarn	2,146	2.69	16.54	0.78	186	1,141	36,741
Carlés	232	3.45	10.00	0.53	26	75	2,696
La Brueva							
Total	3,184	3.04	15.75	0.71	311	1,612	49,723

Indicated Mineral Resources							
Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	3,025	4.78	4.94	0.34	465	480	22,356
Boinás Skarn	398	2.78	17.82	0.75	36	228	6,591
Carlés	1,327	3.37	7.64	0.38	144	326	10,971
La Brueva							
Total	4,749	4.22	6.77	0.38	644	1,034	39,918

Measured + Indicated Mineral Resources							
Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	3,831	4.58	7.12	0.39	564	876	32,642
Boinás Skarn	2,544	2.70	16.74	0.77	221	1,370	43,332
Carlés	1,559	3.38	7.99	0.40	169	400	13,667
La Brueva							
Total	7,934	3.74	10.38	0.51	955	2,646	89,641

Inferred Mineral Resources							
Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	1,665	4.36	8.62	0.30	233	461	11,057
Boinás Skarn	348	2.85	18.51	0.74	32	207	5,698
Carlés	1,163	3.26	4.62	0.30	122	173	7,703
La Brueva	187	3.90	15.53	0.09	23	93	357
Total	3,362	3.80	8.64	0.33	410	934	24,816

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a gold equivalent (AuEq) cut-off grade of 2.52 g/t AuEq for Boinás oxide, 2.20 g/t AuEq for Boinás skarn, 1.96 g/t AuEq for Carlés skarn, and 2.52 g/t AuEq for La Brueva oxides.
3. Mineral Resources are estimated using long term prices of US\$1,700/oz Au, US\$20/oz Ag, and US\$3.25/lb Cu. A US\$/€ exchange rate of 1.20/1.00 was used.
4. Mineral Resources are inclusive of Mineral Reserves.

5. Crown pillars of 60 m and 40 m are excluded from the Mineral Resource below the El Valle TSF and Boinás East open pits, respectively.
6. Unrecoverable material in exploited mining areas has been excluded from the Mineral Resource.
7. Areas of contiguous blocks with volumes less than 500 m³ have been removed from the Mineral Resource report to ensure RPEEE.
8. Numbers may not add due to rounding.

MINERAL RESERVES

Mineral Reserves were estimated by RPA, in conjunction with Orovalle personnel, for the Boinás and Carlés underground mines. Carlés open pit skarn material was not included in the Mineral Reserve estimate at this time as the necessary land and environment permits have not yet been obtained by Orovalle.

Mineral Reserve estimates were based on mine designs applied to Measured and Indicated Resources, with dilution and extraction factors applied based upon the designed mining method. Areas where stopes above cut-off grade were isolated, were removed from the Mineral Reserve estimate with stopes planned for mining up to September 30, 2020 also excluded. Mineral Reserves are summarised in Table 1-2.

TABLE 1-2 MINERAL RESERVES – SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Category	Tonnes		Grade		Contained Metal		
	(000 t)	(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Proven	1,156	2.14	11.61	0.51	79	431	12,922
Probable	2,275	3.1	4.44	0.29	227	325	14,668
Proven and Probable	3,431	2.78	6.86	0.36	307	756	27,590

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated using AuEq break-even cut-off grades by zone, consisting of 3.35 g/t AuEq for Boinás oxides (D&F), 2.90 g/t AuEq for Boinás skarns (SLS), and 2.09 g/t AuEq for Carlés skarn (SLS). AuEq cut-offs are based on recent operating results for recoveries, off-site concentrate costs and on-site operating costs. AuEq factors are based on metal prices, metallurgical recoveries, metal payables, and selling costs.
3. Mineral Reserves are estimated using average long term prices of US\$1,600/oz Au, US\$18/oz Ag, and US\$3.00/lb Cu. A US\$/€ exchange rate of 1.20/1.00 was used.
4. A minimum mining width of 4 m was used.
5. Crown pillars of 75 m and 42 m are excluded from the Mineral Reserve below the El Valle TSF and Boinás East open pits, respectively.
6. A no-mining sterilisation zone of 10 m below mined out stopes and 5 m around waste filled stopes has been applied.
7. Numbers may not add due to rounding.

MINING METHOD

The Orovalle Operation consists of underground mines at Boinás and Carlés and an open pit at Carlés. Currently the Boinás underground mine is the only producing asset, with a nominal mining rate of 2,000 tpd. Both Carlés mines are currently on care and maintenance with underground production planned to recommence in the near future subject to a review of recently acquired drilling data. There is also potential to mine additional skarn ore from the Carlés open pit, subject to land acquisition and mining permissions being obtained.

The current mining methods used at the Boinás underground mine are overhand D&F and transverse and longitudinal longhole SLS. The D&F mining method is utilised in the oxides and some transitional areas of the Boinás mine, as dictated by geological and geotechnical constraints. Longitudinal SLS is used exclusively in the more competent skarns. The Carlés mine is planned to utilise both SLS methods underground, where the orebody dip is suitable, and D&F where the orebody dip is too shallow for SLS mining. Should the open pit at Carlés recommence production in the future, then a conventional drill and blast, truck and shovel method will be used.

RPA has produced a production schedule in conjunction with Orovalle based upon the estimated Mineral Reserves. The schedule includes oxide and skarn ore mined from both the Boinás and Carlés underground mines at an average rate of 706,000 tpa for a period of five years and is shown in Table 1-3. The total production schedule shows 3,431,000 t of ore, mined from both Boinás and Carlés, containing an estimated 307,000 oz Au, 756,240 oz Ag, and 27.6 Mlb Cu.

In the LOMP, proposed Carlés skarn production averages 45,000 tpa over the last three years of the schedule producing 11,200 oz Au, 20,600 oz Ag, and 0.6 Mlb Cu.

Orovalle is currently undertaking a review of alternatives including mining skarn ore from the Carlés open pit which is also currently on care and maintenance. It is possible that approximately 300,000 t of skarn ore could be mined from the open pit, however, this is subject to the relevant permits, and land being obtained. For this reason, this additional potential has not been included in the Mineral Reserve estimates.

TABLE 1-3 LIFE OF MINE PLAN– OCTOBER 2020
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
Mill Feed							
Tonnes	000 t	704	698	681	675	673	3,431
Gold Grade	g/t Au	2.64	2.93	2.68	2.90	2.75	2.78
Silver Grade	g/t Ag	8.24	9.76	6.68	4.88	4.55	6.86
Copper Grade	% Cu	0.42	0.47	0.33	0.32	0.28	0.36
Metal Production							
Gold	000 oz Au	60	66	59	63	60	307
Silver	000 oz Ag	187	219	146	106	98	756
Copper	000 lb Cu	6,552	7,238	4,882	4,829	4,088	27,590

MINERAL PROCESSING

The El Valle processing plant consists of the following process stages:

- Single stage crushing
- Semi Autogenous Grinding (SAG) and pebble crushing
- Ball milling
- Gravity circuit
- Flotation circuit
- CIL circuit
- Desorption and regeneration circuit
- Electrowinning and smelting
- Tailings detox and disposal

The El Valle processing plant has a nameplate capacity of 600,000 tpa, however, subsequent expansions have increased throughput capacity to 750,000 tpa depending on ore types.

Gold recovery is consistently in the 90% to 95% range and averaged 92.4% for the 42 month period from October 2016 to May 2020. Copper and silver recoveries are influenced by the ratio of oxide and transition ore to sulphide ore, and as a result recovery fluctuates month to month, depending on the ore feed. The 42 month average recoveries over the same period were 78.7% for copper and 76.0% for silver.

PROJECT INFRASTRUCTURE

Surface and underground infrastructure at the Orovalle Operation include the following:

- A processing facility with a capacity of up to 750,000 tonnes per annum (tpa).

- A TSF located in the old El Valle open pit.
- Workshops, offices, warehouse facilities, and a mine changeroom facility.
- Site power supply to the Orovalle Operation
- A 420 m deep shaft at Boinás equipped for hoisting ore and waste.
- A decline and a series of ramp-connected levels at each mine site.
- Ventilation raises and escapeways.

The main access to the Boinás site is from the south on a public road that bypasses the village of Boinás; the site entrance includes a gate and security.

Auxiliary equipment includes pump systems to distribute water, water recovery systems, gas storage, control boilers, gas heaters, blowers, compressors, etc.

The office was expanded in 2011. Other surface facilities include changing rooms, lunch rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a reverse osmosis water treatment plant, a shotcrete plant, a complete laboratory that includes a sample preparation area with jaw crusher, roll mill, LM5, LM2, rotary and manual splitter, etc., fire-assay laboratory, an Agilent Technologies (Varian Inc.) ICP emission spectrometer, and a core storage facility, electrical power lines and substations for the Orovalle Operation, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices.

The tailings storage facility (TSF) is located within the old El Valle pit and is lined with an appropriate synthetic geomembrane and clay cap. This is a no-discharge facility.

MARKET STUDIES

The principal products produced at the Orovalle Operation are freely traded, at prices that are widely known, so that prospects for sale of any product is virtually assured, subject to achieving product specifications.

As per industry standards for copper concentrate, penalty charges are incurred for various deleterious elements when they are over specified concentrations. There are also certain deleterious elements that include a hard cap, above which the concentrate is not readily saleable. These elements are fluorine, chlorine, arsenic, and antimony.

Some concentrate lots have been above this cap from time to time, requiring amendments to the original smelter contracts to make allowances for certain deleterious elements. These amendments are agreed upon for specific time periods as opposed to specific concentrate lots.

RPA reviewed the current contracts (and amendments) for smelting and refining copper concentrate and doré bars and considers the terms, rates, and charges for the contracts to be within industry standards.

ENVIRONMENTAL, PERMITTING, AND SOCIAL CONSIDERATIONS

Environmental studies comprising monitoring and impact assessments are undertaken for the Orovalle Operation. Additional studies have taken place since 2014 to understand and inform water contamination risks and related management thereof. These should continue.

Apart from the statements included under the “Conclusions” section above, RPA is not aware of any other items that would impact the ongoing operations.

CAPITAL AND OPERATING COST ESTIMATES

The estimated sustaining capital costs included in the LOMP total US\$48.2 million and include the costs for mine development, mine infrastructure, equipment replacement and refurbishments, plant expansion, and tailings management.

In addition to sustaining capital costs, an estimated cost of US\$15.1 million (discounted) for reclamation and closure is included of which US\$8.9 million is currently held in bond. This estimate includes installation and operation of a post-closure water treatment plant, and decommissioning liabilities through until 2060.

Operating costs in the LOMP are based on recent operating history, and average approximately US\$70 million per year for the next five years. Unit rates are summarised in Table 1-4. The average LOM operating cost is US\$102/t milled.

TABLE 1-4 UNIT OPERATING COSTS – BOINÁS AND CARLÉS
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	Boinás		Carlés
		Oxide	Skarn	Skarn
Geology & Mining	US\$/t milled	75.96	58.55	50.28
Processing & Laboratory	US\$/t milled	20.35	20.35	20.35
Environmental, Safety & G&A ¹	US\$/t milled	13.37	13.37	0.00
Total	US\$/t milled	109.68	92.26	70.63

Note:

1. 100% G&A costs allocated to Boinás Ore.

2 INTRODUCTION

Roscoe Postle Associates UK Ltd. (RPA), now part of SLR Consulting Ltd (SLR), was retained by Orovalle Minerals S.L. (Orovalle) to prepare an independent Technical Report on the Orovalle Operation. The purpose of this Technical Report is to disclose Mineral Resource and Mineral Reserve estimates for the Orovalle Operation, as at September 30, 2020. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA initially visited the property from June 1 to 13, 2014 and again from October 19 to 21, 2020.

The Orovalle Operation includes:

- El Valle-Boinás and Carlés gold-copper-silver mines, located in Asturias, Spain in the municipalities of Belmonte de Miranda and Salas, along with the El Valle processing plant and El Valle tailings storage facility (TSF), collectively, the El Valle Operation.
- La Brueva and Quintana projects, located Asturias, Spain in the municipality of Belmonte de Miranda, which consist of mineral rights not currently being exploited.
- La Ortosa-Godán project, located in Asturias, Spain in the municipality of Salas, which consists of mineral rights not currently being exploited.
- Lidia project, located in Asturias, Spain in the municipality of Allande, which consists of mineral rights not currently being exploited.

Orovalle is wholly owned subsidiary of Orvana Minerals Corp. (Orvana). Orvana is an Ontario registered company and its common shares are listed on the Toronto Stock Exchange (TSX) under the symbol ORV.

Orvana is a gold, copper, and silver producer with properties in Spain, Bolivia, and Argentina. In September 2009, Orvana acquired Orvana Minerals Asturias Corp. (previously Kinbauri Gold Corp. (KGC)) and with it the historically producing El Valle Operation. The El Valle Operation recommenced commercial production in August 2011.

The Boinás underground mine is a currently producing asset, with a nominal mining rate of 2,000 tonnes per day (tpd) ore. Mined ore is classified into oxide and skarn ore. The Carlés open pit and underground mines are currently on care and maintenance.

A gravity-flotation-leach processing plant, located at Boinás, produces doré bars and copper concentrate with gold and silver credits. Total production for the 2020 fiscal year (FY), which

runs from October to September, was 51,104 ounces (oz) of gold and 5.6 million pounds (Mlb) of copper. A total of 633,765 tonnes (t) of ore were milled during the FY 2020.

Orovalle Operation Mineral Reserves total 3.4 Mt, at grades of 2.78 g/t Au, 6.86 g/t Ag, and 0.36% Cu. A Life of Mine Plan (LOMP) for Orovalle forecasts five years of mining at similar production rates to the current operation.

SOURCES OF INFORMATION

Site visits were carried out by RPA Qualified Persons (QP) Mr. Richard C. Taylor, MAusIMM, CP, Principal Mining Engineer, and Mr. Jack P. Lunnon, CGeol, Consultant Geologist, on October 19 to 21, 2020.

Discussions were held with personnel from Orovalle

- Ms. Nuria Menéndez Martínez, General Manager, Orovalle
- Mr. Rubén Collar García, Director of Operations, Orovalle
- Mr. Roberto Cabada Paláez, Director of Processing Plant, Orovalle
- Ms. Laura Garrido García, Chief Metallurgist, Orovalle
- Mr. Pablo González Pernía, Plant Supervisor, Orovalle
- Ms. Guadalupe Collar Menéndez, Director of Geology, Orovalle
- Mr. Hugo de Francisco Villa, Geologist, Orovalle
- Mr. Luis Gilberto Martínez García, Geologist, Orovalle
- Ms. Carmen Sorribas Velicia, Modelling Geologist, Orovalle
- Mr. Frans Gustaaf van Schijndel, Mine Planning Engineer, Orovalle
- Mr. Juan Antonio Fernández García, Head of Engineering, Orovalle
- Mr. Manuel Varela Lucio-Villegas, Long Term Planning Engineer, Orovalle
- Mr. Iván Zapico García, Short Term Planning Engineer, Orovalle
- Ms. Esther Fernández López, Director of Environmental, Orovalle
- Ms. María de Miguel Fernández, Head of Laboratory, Orovalle

Mr. John Makin, MAIG, Senior Geologist, reviewed the Mineral Resource models for the Orovalle Operation, and is responsible for Sections 7, 8, 12, and 14 of the Technical Report. Mr. Lunnon reviewed the Mineral Resource models for the Orovalle Operation, and is responsible for Sections 4, 5, 6, 9, 10, and 11 of the Technical Report. Mr. Taylor reviewed

the life of mine (LOM) design and schedule for the Orovalle Operation, and is responsible for Sections 15, 16, and 21 through 24, with contributions to Section 18 of the Technical Report. Mr. Patrick Donlon, FAusIMM, Associate Principal Metallurgist, reviewed the metallurgical and processing aspects, and is responsible for Sections 13, 17, and 19, with contributions to Section 18 of the Technical Report. Ms. Alessandra (Alex) Pheiffer, M.Sc., PrSciNat, EAPAN, Senior Environmental Consultant, reviewed the environmental aspects and is responsible for Section 20 of the Technical Report. All authors share responsibility for Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.

The documentation reviewed, and other sources of information, are listed at the end of this Technical Report in Section 27 References.

LIST OF ABBREVIATIONS

Units of measurement used in this Technical Report conform to the metric system. All currency in this Technical Report is US dollars (US\$) unless otherwise noted.

μ	micron	kVA	kilovolt-amperes
μg	microgram	kW	kilowatt
a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
Btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	MASL	metres above sea level
cm ²	square centimetre	m ³ /h	cubic metres per hour
d	day	mi	mile
dia	diameter	min	minute
dmt	dry metric tonne	μm	micrometre
dwt	dead-weight ton	mm	millimetre
°F	degree Fahrenheit	mph	miles per hour
ft	foot	MVA	megavolt-amperes
ft ²	square foot	MW	megawatt
ft ³	cubic foot	MWh	megawatt-hour
ft/s	foot per second	oz	Troy ounce (31.1035g)
g	gram	oz/st, opt	ounce per short ton
G	giga (billion)	ppb	part per billion
Gal	Imperial gallon	ppm	part per million
g/L	gram per litre	psia	pound per square inch absolute
Gpm	Imperial gallons per minute	psig	pound per square inch gauge
g/t	gram per tonne	RL	relative elevation
gr/ft ³	grain per cubic foot	s	second
gr/m ³	grain per cubic metre	st	short ton
ha	hectare	stpa	short ton per year
hp	horsepower	stpd	short ton per day
hr	hour	t	metric tonne
Hz	hertz	tpa	metric tonne per year
in.	inch	tpd	metric tonne per day
in ²	square inch	US\$	United States dollar
J	Joule	USg	United States gallon
k	kilo (thousand)	USgpm	US gallon per minute
kcal	kilocalorie	V	volt
kg	kilogram	W	watt
km	kilometre	wmt	wet metric tonne
km ²	square kilometre	wt%	weight percent
km/h	kilometre per hour	yd ³	cubic yard
kPa	kilopascal	yr	year

3 RELIANCE ON OTHER EXPERTS

This Technical Report has been prepared by RPA for Orovalle. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Technical Report.
- Data, reports, and other information supplied by Orovalle and other third party sources.

For the purpose of this Technical Report, RPA has relied on ownership information provided by Orovalle. RPA has not researched property title or mineral rights for the Orovalle Operation and expresses no opinion as to the ownership status of the property.

RPA has relied on Orovalle for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Orovalle Operation.

Except for the purposes legislated under provincial securities laws, any use of this Technical Report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Orovalle Operation is located in north western Spain within the Asturias Province, approximately 35 km west of the Asturian capital, Oviedo, and approximately 30 km south of the north coast of Spain along the Cantabrian Sea (Figure 4-1). The Orovalle Operation is primarily situated within the municipalities of Belmonte de Miranda and Salas. The coordinates of the principal Orovalle Operation properties are latitude 43°16' N and longitude 6°18' W for El Valle-Boinás and latitude 43°21' N and longitude 6°14' W for Carlés.

The mineral rights for the Orovalle Operation are held in the form of Exploitation Concessions (ECs) and Investigative Permits (IPs). The combined ECs occupy a total surface area of 3,812 ha, which includes the La Ortosa-Godán and La Brueva areas which are not currently being exploited. The Orovalle Operation includes three IPs comprising 3,327 ha (Figure 4-2). Furthermore, Orovalle is in the process of acquiring new Investigative Permits which combined occupy a total surface area of 38,024 ha.

The Orovalle Operation is comprised of the following:

- El Valle Operation located in the municipalities of Belmonte de Miranda and Salas.
- La Brueva and Quintana projects, located in the municipality of Belmonte de Miranda, which consists of mineral rights not currently being exploited.
- La Ortosa-Godán project, located in the municipality of Salas, which consists of mineral rights not currently being exploited.
- Lidia project, located in the municipality of Allande, which consists of mineral rights not currently being exploited.

LAND TENURE

The following section on land tenure is summarised from Noble et al., 2012 and has been updated for this Technical Report.

ECs and IPs are granted by the regional authorities of Asturias, who maintain the power to oversee these licences.

An EC provides the holder of the concession with the right to extract minerals from a specified area, subject to approval of an Exploitation Plan by the Mining Authorities. ECs are granted

on 30 year terms and renewable upon application. The Exploitation Plan includes an Environmental Impact Study and Restoration Plan, which requires approval by the Environmental Authorities. The Orovalle Operation Exploitation Plans and respective Environmental Studies and Restoration Plans, which were approved in 1996, 2000, and 2004, give the holder of the ECs the right to carry out further investigation activity inside the mining areas. Authorisation is required from the Mining Authorities, which is achieved by submitting an annual investigation plan. Work plans must be presented to the Dirección General de Energía, Minería, y Reactivación before January 31st of each year.

An IP provides the holder of the permit the right to investigate the resources in the permit area, subject to approval of an Investigation Plan by the Mining Authorities. The holder has the right to carry out exploration activities including geological studies, soil geochemistry, geophysics, and drilling. If there are any proposed surface activities that the Mining Authorities believe may affect the environment, the holder of the IP may be required to obtain additional approvals from the Environmental Authorities. IPs are granted on three year terms and renewable upon application.

The properties comprising the Orovalle Operation are controlled by Orovalle and the majority were obtained through Orvana's acquisition of KGC in September 2009. A list of the Orovalle Operation mineral rights is presented in Table 4-1.

TABLE 4-1 OROVALLE OPERATION MINING AND EXPLOITATION CONCESSIONS
Orvana Minerals Corp. – Orovalle Operation

Name	Project	Register N°	Date Granted (MM/DD/YYYY)	Expiry Date (MM/DD/YYYY)	Area (ha)
Velázquez y Demasía	El Valle-Boinás	24,142	8/1/1940	3/31/2046	271
Mariluz y Demasía	El Valle-Boinás	29,781	7/13/1972	1/10/2068	240
UCA 2 ^a y Demasía	El Valle-Boinás	29,962	5/31/1996	5/31/2026	190
Fortuna	Carlés	23,606	8/18/1932	3/12/2045	14
Electra	Carlés	23,768	6/25/1935	3/13/2046	25
Magnética	Carlés	23,959	3/4/1939	3/31/2046	39
Demasía a Electra	Carlés	24,141	8/26/1940	3/13/2046	2
Felipe fracción 5 ^a	Carlés	30,030	7/26/1989	7/26/2049	1371
Felipe fracción 9 ^a	Carlés	30,030	7/26/1989	7/26/2049	122
Aurita	La Ortosa-Godán (Carlés)	26,385	6/11/1959	3/14/2046	260
Plinio y Demasía	La Ortosa-Godán (Carlés)	26,393	6/11/1959	3/14/2046	812
Metamórfica	La Ortosa-Godán (Carlés)	23,996	3/16/1940	3/14/2046	42
Pepito y Demasía	La Brueva	9,242	3/01/1894	7/9/2046	193
2 ^a Ampliación Nueva Perdiz	La Brueva	29,653	6/19/1978	6/19/2038	232

As discussed in greater detail in Section 20, Orovalle is currently engaged in working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the Orovalle Operation.

Orovalle has all material permits to operate the Orovalle Operation. RPA is not aware of any other significant factors and risks that may affect access, title, or the right or ability to operate the Orovalle Operation.

ROYALTIES

There is a royalty agreement in place between Orovalle and Anglo Pacific Group PLC (APG). The net smelter return (NSR) royalty is 2.5% for gold prices up to US\$1,100/oz Au, and 3.0% for gold prices above US\$1,100/oz Au (based on the average gold price per quarter).

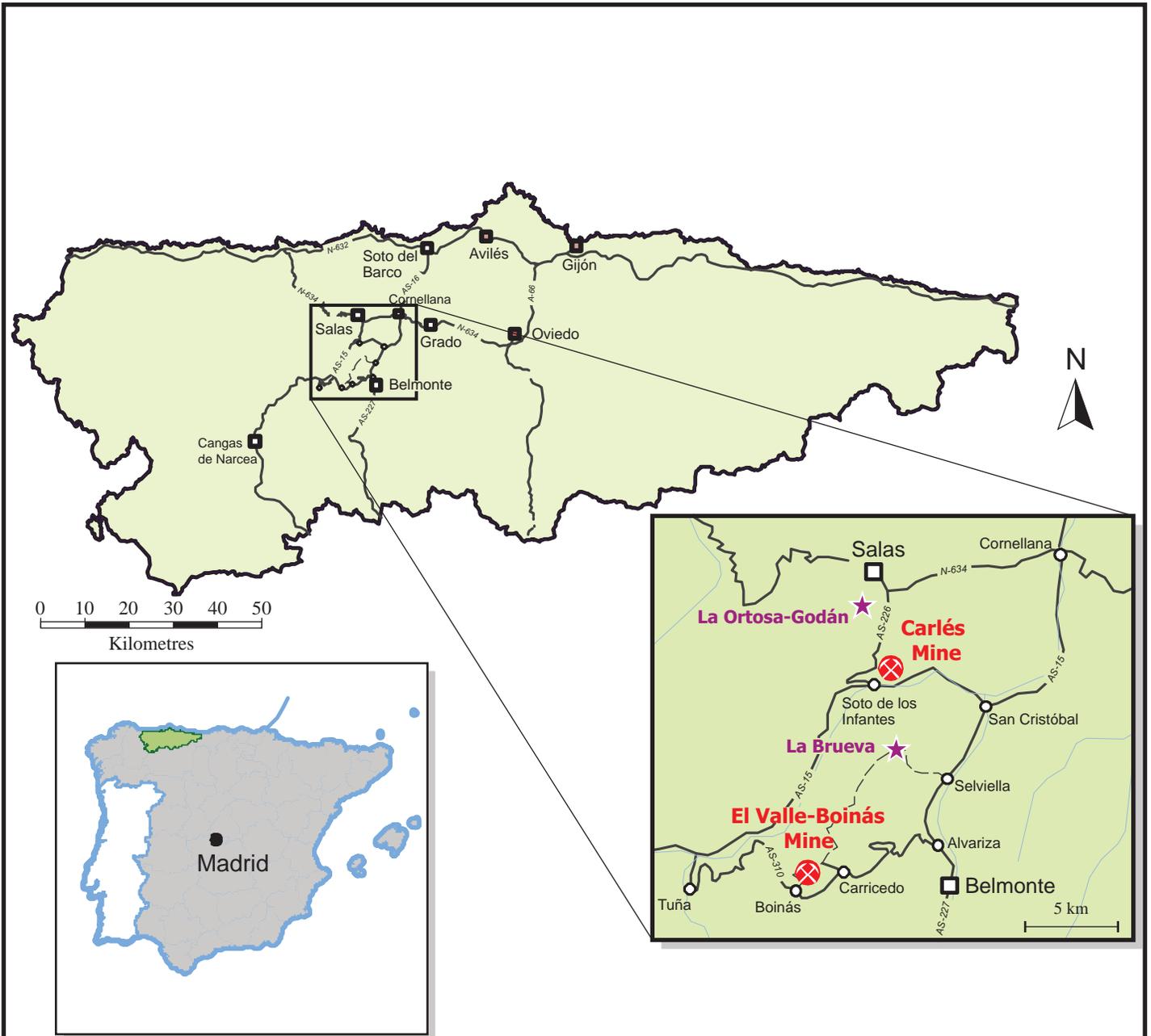


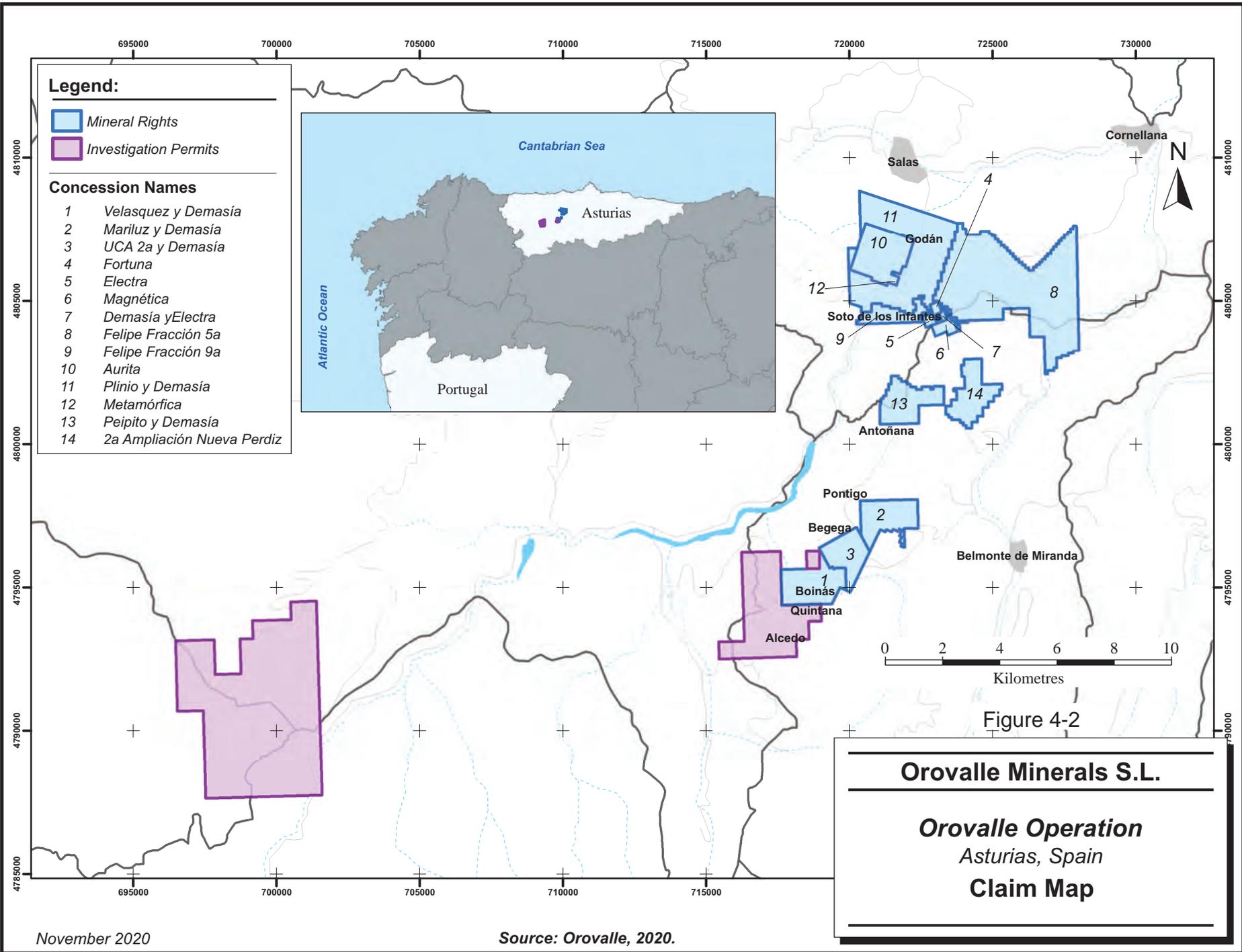
Figure 4-1

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Location Map

4-5



Legend:

- Mineral Rights
- Investigation Permits

- Concession Names**
- 1 Velasquez y Demasia
 - 2 Mariluz y Demasia
 - 3 UCA 2a y Demasia
 - 4 Fortuna
 - 5 Electra
 - 6 Magnética
 - 7 Demasia yElectra
 - 8 Felipe Fracción 5a
 - 9 Felipe Fracción 9a
 - 10 Aurita
 - 11 Plinio y Demasia
 - 12 Metamórfica
 - 13 Peipito y Demasia
 - 14 2a Ampliación Nueva Perdiz

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Claim Map

November 2020

Source: Orovalle, 2020.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

The Río Narcea Gold belt is located in north western Spain within the Asturias Province approximately 35 km west of the Asturian capital of Oviedo and approximately 30 km south of the north coast of Spain. The Asturias airport and port city of Avilés are located approximately 40 km northeast of the property. The Orovalle Operation is primarily situated in the municipalities of Salas and Belmonte de Miranda.

The El Valle-Boinás deposit is located in the west side of the municipality of Belmonte de Miranda and six kilometres west of the village of Belmonte, 15 km by road from Belmonte and 55 km by road from Oviedo.

The Carlés deposit is located five kilometres southeast of the municipality of Salas and 40 km by road from Oviedo. National road AS-15 and the Río Narcea river both cross the Carlés deposit along the valley floor.

The most northerly of the Orovalle Operation properties is the La Ortosa-Godán area, which is located approximately three kilometres south of the municipality of Salas and 40 km by road from Oviedo.

The La Brueva project is located in northern part of the municipality of Belmonte de Miranda six kilometres northwest of the town centre and approximately 50 km by road from Oviedo. The La Brueva project is accessed by a narrow paved road that begins in Selviella on AS-227 and continues west to El Valle-Boinás.

The Quintana project is located adjacent to southern side of the El Valle-Boinás deposit, while the Lidia project is located in the municipalities of Allande, Cangas del Narcea, and Tineo, approximately seven kilometres by road from Allande and 40 km south by road from El Valle-Boinás.

CLIMATE

The climate is temperate with an average temperature of 12°C and approximately 1,180 mm of annual precipitation. Mining and exploration activities can take place year round.

LOCAL RESOURCES

There is a long history of mining in the area, and mine contractors and suppliers are locally available. High rates of unemployment in Spain have resulted in a ready supply of labour. The Orovalle Operation enjoys the support of local communities.

INFRASTRUCTURE

Surface and underground infrastructure at the Orovalle Operation include the following:

- A processing facility with a capacity of up to 750,000 tonnes per annum (tpa).
- A TSF located in the old El Valle open pit.
- Workshops, offices, warehouse facilities, and a mine changeroom facility.
- Site power supply the Orovalle Operation.
- A 420 m deep shaft at Boinás equipped for hoisting ore and waste.
- A decline and a series of ramp-connected levels at each mine site.
- Ventilation raises and escapeways.

Other surface facilities include changing rooms, lunchrooms, clinic, warehouses, maintenance shops, electromechanical workshops, a shotcrete plant, a cement batch plant for backfill, a complete laboratory, a core storage facility, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices.

PHYSIOGRAPHY

The Orovalle Operation lays within a portion of the Río Narcea Gold belt that has a length of 15 km and a width of four kilometres, with a northeast-southwest orientation along its long axis. The terrain is hilly to mountainous and is dissected by numerous streams and rivers including the Río Narcea. The hills are generally grass covered with intermittent wooded areas.

6 HISTORY

Prior to Orovalle's involvement, the Boinás and Carlés deposits have been subject to mining activities dating back to the Roman era. In the 1800s and early 1900s, several small copper mines were in production and mining for arsenopyrite was carried out during World War II.

Modern exploration commenced in the 1970s at Carlés. Sporadic drilling and sampling programs through the 1970s and 1980s gave way to underground exploration in 1990. Further drilling and engineering work by Rio Narcea Gold Mines Limited (RNGM) culminated in the commencement of production in the Boinás West Pit in 1997, followed by the Boinás East and El Valle Pits. Approximately 5.4 Mt of ore was mined from 1998 to 2006 producing approximately 973,000 oz Au.

Underground production began in 2003 at Carlés and 2004 at Boinás, with underground operations ceasing in 2006. In 2009, Orvana acquired the mining rights and in 2010 underground mining resumed.

A summary of historical exploration activities is given in Table 6-1.

**TABLE 6-1 HISTORICAL EXPLORATION AND DEVELOPMENT
 Orovalle Minerals S.L. – Orovalle Operation**

Year	Company	Location	Activity
1971-1972	Gold Fields Española, S.A.	Carlés	Mapped Carlés skarn, soil and outcrop sampling, geochemical analyses, surface magnetometer survey.
1981	Boliden Minerals A.B.	La Ortosa	La Ortosa granodiorite geological mapping, soil geochemical and geophysical surveys on 600 m by 500 m grid, seven drill holes amounting to 1,085 m.
1985	Exploraciones Mineras del Cantábrico S.A.	Carlés	Three drill holes totalling to 346 m.
1985	Anglo American Corporation (AAC)	Carlés	1:6,000 and 1:25,000 aerial photography, photo geologic and outcrop mapping (1:1,000), 253 outcrop samples, 240 soil samples, 1,292 m of RC drilling from 25 holes, 13,147 m of core drilling from 58 drill holes assayed gold, copper, and arsenic, Geotechnical studies and preliminary bench metallurgical test work,
1990	AAC & Hullas del Coto Cortés, S.A. (HCC)	Carlés	910 m of decline, +70, +40, +18 levels, 200 m of ore drives and 80 m of raises, 600 underground panel samples, 189 channel samples, 140 muck samples, 90 samples weighing a total of 36 t sent to American Research Laboratories in Johannesburg, South Africa for large-scale metallurgical test work, 6,012 m of core drilling in 108 holes,
1991	AAC & HCC	Godán/El Valle-Boinás	Mapping of Roman pits, collected 858 samples, magnetometer, soil geochemical surveys,
		Godán/El Valle-Boinás	8,932 m of drilling from 43 holes at Boinás East, El Valle and Godán,
		Carlés	Feasibility study (FS) completed.
1992	AAC, HCC, and Concord Joint Venture	La Brueva/El Valle-Boinás	Mapping, trenching and drilling of the west breccia over 250 m strike length.
1994	RNGM (AAC, HHC and Concord)	La Brueva/El Valle-Boinás	9,727 m of drilling in 50 holes at El Valle, Pontigo, Villaverde, Antoñana, and La Brueva prospects.
1994-1995	RNGM	La Brueva/El Valle-Boinás	Delineation and infill at El Valle and target testing at Villaverde, Antoñana, Millara and La Brueva prospects.

Year	Company	Location	Activity
1996	RNGM	El Valle-Boinás	Infill drilling in the Black Skarn, FS on the Boinás East Zone.
		Carlés	16,283 m in 96 drill holes of infill drilling (drilling to 25 m spacing to 100 m below surface and to 50 m spaced drilling 200 m below surface).
1996-1998		Godán	5,656 m in 17 drill holes.
1997-1998		El Valle-Boinás	Commencement of open pit at Boinás West (870,000 t mined for 115,000 oz Au at a grade of 4.1 g/t Au by end of 1998).
1999, 2001			Commencement of open pit at Boinás East (1,215,000 t for 192,450 oz Au at a grade of 4.93 g/t Au and 0.52% Cu).
1999			Boinás West pit backfilled with waste from Boinás East open pit.
1999-2003			Mining at El Valle open pit (2,760,000 t for approximately 600,000 oz Au). Included mining of Caolinas zones and Charnela zone.
2000-2002		Carlés	Surface mining at Carlés North (64,000 t produced for 9,320 oz Au at a grade of 4.54 g/t Au).
2001		El Valle-Boinás	Discovery of Black Skarn North by underground drilling north of Boinás intrusive.
2002-2003		El Valle-Boinás	FS for underground mining at Boinás East.
2003		Carlés	Dewatering of the decline followed by underground drilling.
2003-2006		Carlés	Underground production (296,000 t for 49,000 oz Au at grade of 5.22 g/t Au and 0.76% Cu).
2003		El Valle-Boinás	Discovery of A208 zone from drilling below El Valle pit.
2004-2006		El Valle-Boinás	Underground mining commenced at Boinás East, closed due to rising costs, insufficient mill feed and excessive dilution.
2004-2006		All properties	38,655 m of drilling.
2007-2008	Orvana	El Valle-Boinás	Discovery of A107 and San Martin zones.
2010			Discovery of S107 zone.
2011			Discovery of Black Skarn Northwest zone.
2016			Discovery of Villar zone.
2017			Definition of Black Skarn, an oxide area in upper zone of Black Skarn West. Definition of Breccia East resource. High Angle East located in southeastern part of El Valle deposit. Extension of mineralisation defined in Carlés NE.

7 GEOLOGICAL SETTING AND MINERALISATION

The description of the geology and mineralisation of the project has been adapted from the Technical Report by Noble et al., 2012.

REGIONAL GEOLOGY

The Río Narcea Gold Belt contains the El Valle Boinás and Carlés mines, as well as the La Brueva, Quintana, and La Ortosa-Godán exploration projects. The Lidia project is located in the Navelgas Gold Belt. Both belts are located in the western portion of the Cantabrian Zone in the north western part of the Hercynian-age Iberian Massif, as shown in Figure 7-1. The Cantabrian Zone is the eastern foreland area that transitions to the west through the West Asturian-Leonese Zone toward the internal zones of the Hercynian orogenic belt. The Cantabrian Zone and the nearby West Asturian-Leonese Zone consist of a stratigraphic section of Paleozoic sedimentary rocks that range in age from Middle Cambrian to Permian. Extensive early broad scale folding and thrusting, and then normal faulting are common in the region, and intrusions of Hercynian and later age have intruded the sedimentary package. Post-dating the igneous intrusions are high angle normal faults that in turn predate Tertiary sedimentation. The geologic situation is further complicated by Alpine thrusting, which may move older rocks over the Tertiary sediments and may also displace mineralisation.

The Cantabrian Zone, a typical foreland thrust belt, takes on an arcuate shape and is characterised by an unmetamorphosed, 3,500 m thick sedimentary succession that includes a pre-orogenic pre-Carboniferous Paleozoic sequence, with clastic and carbonate sediments of shallow water platform facies resting unconformably on upper Proterozoic turbidite facies deposits. The Carboniferous section corresponds to a synorogenic clastic sequence in the Upper Carboniferous.

The West Asturian-Leonese Zone, located west of the Río Narcea Gold Belt, consists of a nearly continuous series of siliciclastic rocks. Approximately 11,000 m of these Cambrian through Ordovician sediments have been subjected to intense deformation.

The Variscan Orogeny gave rise to superficial thrust sheets with associated structures, especially folds. The deformation took place under shallow crustal conditions without metamorphism.

Prior to Tertiary red bed sedimentation and westward verging Alpine thrusting, late Hercynian normal faulting, along which faults dykes intruded, affected the Paleozoic rocks.

The Navelgas Gold Belt, which hosts the intrusion-hosted Lidia early exploration project, was extensively mined during Roman times, with workings occurring in the northeast trending fracture system that defines this gold belt (18 km wide and 70 km long).

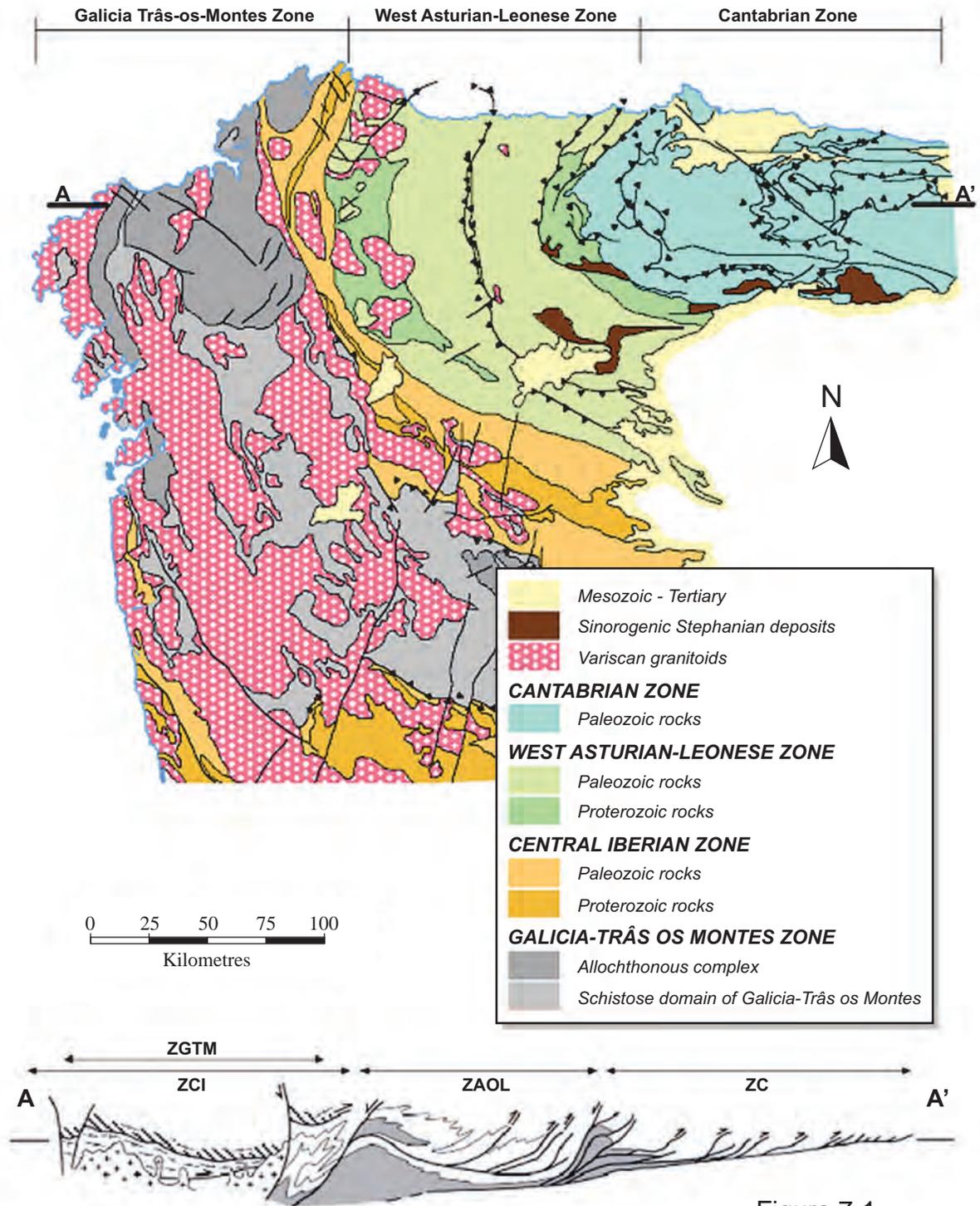


Figure 7-1

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain
Regional Geology

LOCAL GEOLOGY

The Orovalle Operation area is underlain mainly by Lower Paleozoic rocks and unconformably overlain in places by Tertiary sediments that fill a northeast oriented channel eroded along the Río Narcea fracture system (Figure 7-2). The lower stratigraphic section of the Cantabrian Zone includes the Láncara Formation (Cambrian limestone), which is underlain by Cambrian feldspathic sandstone. The limestone has a total thickness of approximately 250 m and constitutes the principal host rock for gold and copper mineralisation at El Valle-Boinás.

The Upper Cambrian Barrios Formation and Ordovician Oville Formation orthoquartzites overlie the earlier Cambrian rocks. The Ordovician section is overlain by 1,500 m of carbonate and clastic rocks (mostly shales) that represent the Silurian, Devonian, and Lower Carboniferous in the region. Approximately 100 m to 300 m of black shale (Lower Silurian Formigoso Formation) is overlain by 80 m to 200 m of ferruginous intertidal to marginal marine sandstone (Middle-Upper Silurian Furada Formation), which constitutes the main host rock for gold mineralisation at the La Ortosa deposit in the north part of the Río Narcea Gold Belt.

Devonian stratigraphy in the Río Narcea Gold Belt is represented by approximately 1,250 m of limestone with interbedded sandstone and shale that comprises the Rañeces Series. This unit is the host for skarn gold-copper mineralisation at the Carlés deposit.

During the Carboniferous, synorogenic sedimentation began with deposition of conglomerate and finished with coal beds. The sedimentation took place in small basins formed during the tectonic deformation related to the Variscan Orogeny.

Upper Eocene-Lower Oligocene alluvial sediments cover nearly all of the mineralised section in a topographic depression along the Río Narcea fracture system. These sediments lie on an erosional unconformity above the Paleozoic bedrock and reach a maximum thickness of 130 m.

The Orovalle Operation is located in the western part of the Cantabrian Zone, called the Somiedo Unit, which is made up of four minor stair-like thrusts belonging to the Variscan Orogeny (Mid-Devonian to Lower Carboniferous age). The lowest thrust unit is located below the Láncara Formation. Later extensional events were responsible for normal faulting that

controlled the emplacement of intrusions and provided conduits for mineralised hydrothermal fluids.

Remobilisation and local enrichment occurred during the latest tectonic event known as the Alpine Orogeny (Tertiary age) along reactivated existing structures. In addition, slices of Paleozoic rocks were thrust over Tertiary sediments. The combination of overthrust Paleozoic sections and Tertiary cover is responsible for minimal exposure of mineralised bedrock with the exception of a few valleys in the Río Narcea Gold Belt.

Igneous activity occurred during various periods in the Cantabrian Zone, the majority being intrusive with minor volcanism consisting of interbedded basalt and trachyte flows and sills occurring during the upper Cambrian. Intrusive activity commenced during the late stages of the Hercynian orogeny and continued intermittently to the end of the Paleozoic. Northeast-southwest orientated faults formed during the extensional event and created preferential sites for post-orogenic calc-alkaline intrusions responsible for skarn and hornfels formation. Gold and copper mineralisation is associated with the hydrothermal activity as a result of the intrusive events.

PROPERTY GEOLOGY

The 45 km long and four kilometre wide Río Narcea Gold Belt is characterised by the alignment of mineral occurrences, Paleozoic sediments, Tertiary Basins, fracture zones, and igneous intrusions.

High angle faults striking sub-parallel to the regional north-northeast trend of older structures pre-date igneous intrusions and Tertiary sediments which partly cover the anticlinal axis zone of the southern portion of the Río Narcea Gold Belt. From El Valle-Boinás in the south to La Brueva further north, gold belt trends coincide with the anticlinal fold axis while north of La Brueva, the belt is truncated resulting in a north-northwest trend shown by the alignment of the Carlés and La Ortosa deposits. Reactivation of older structures during the Tertiary Alpine Orogeny in the southern part of the belt has been found to cut and displace some mineralisation.

The stratigraphy of the Río Narcea Gold Belt is shown in Figure 7-3.

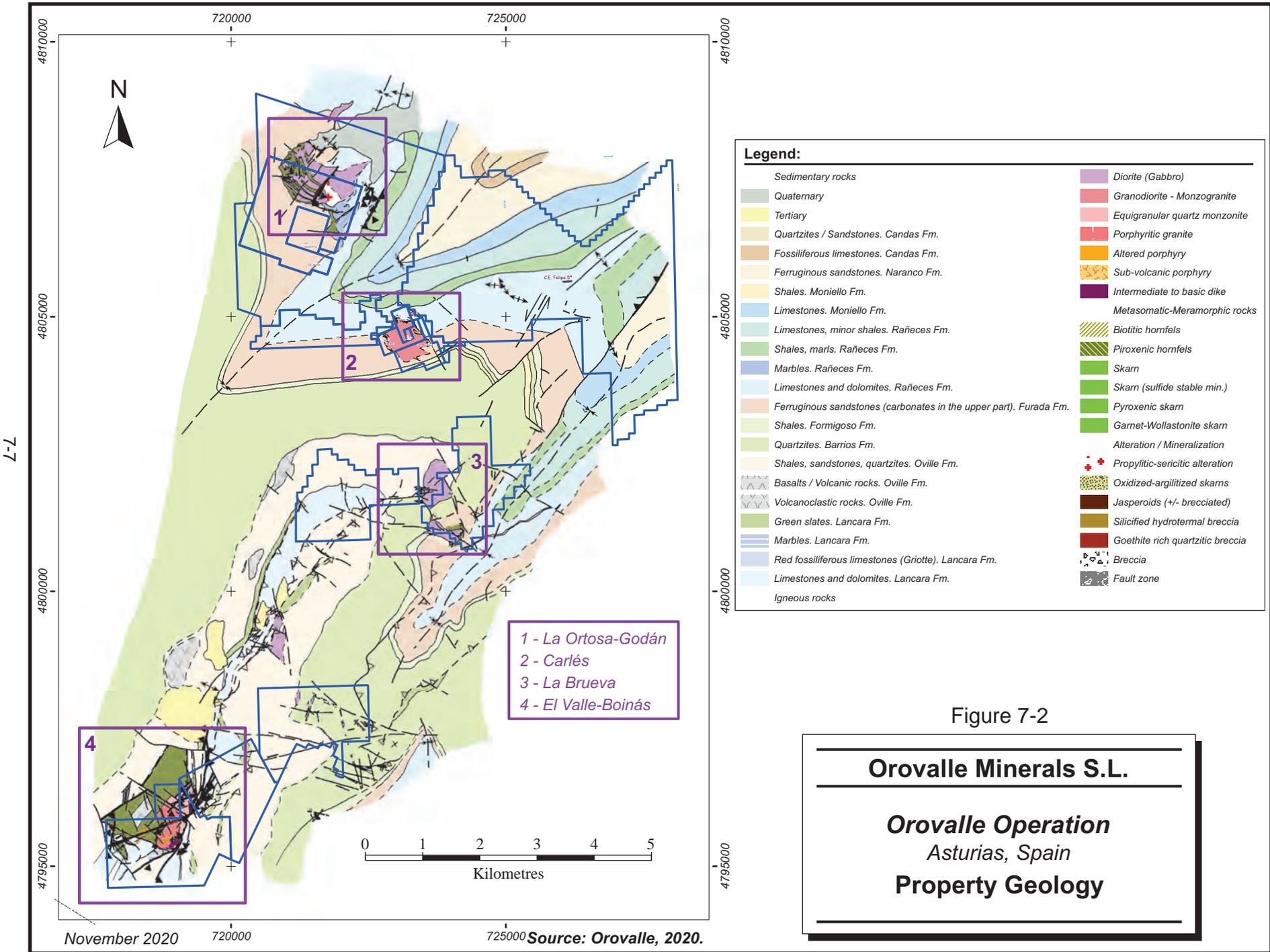
A regional unconformity truncates the Upper Devonian section where small outcrops of sandstone and conglomerates represent the remnants of a thick Carboniferous section that developed toward the centre of the sedimentary basin to form the coal producing region of central and eastern Asturias.

In the N20°E trending part of the Río Narcea Gold Belt, the anticline is overturned to the northwest and the axial plane dips 45° to 70° to the southeast. The structure is affected by a number of relatively low angle reverse faults that produced strong brecciation and a structurally prepared host rock especially at the contact between the siliciclastic Oville Formation and the carbonate rocks of the Láncara Formation. Reactivation of the northeast trending fault structure during an extensive period of erosion was accompanied by hydrothermal activity occurring periodically through the end of the Paleozoic.

During the Mesozoic, the region underwent extensive periods of uplift, erosion, normal faulting, and fault reactivation along northeast, northwest, and east-west trends as the region adjusted to the opening of the Cantabrian Sea during late Triassic to early Cretaceous time. Streams carved valleys along the older mineralised fracture systems, forming a northeast trending ridge along the east flank of the Río Narcea anticline. The overthrust Paleozoic section together with the underlying Tertiary sediments, hide the mineralised bedrock in all but a few recent valleys and Roman pits along the gold belt.

Several Upper Carboniferous intrusive igneous rocks are known along the Río Narcea Gold Belt. The most important, from north to south, are the La Ortosa-Godán, Carlés, Pando, La Brueva, Villaverde-Pontigo, and El Valle-Boinás intrusives.

Metamorphism in the Río Narcea Gold Belt is related only to intrusion of the igneous rocks, which produced contact metamorphism in the sedimentary rocks. They produce hornfels in the clastic units and skarn in the carbonate units.



1 - La Ortosa-Godán
2 - Carlés
3 - La Brueva
4 - El Valle-Boinás

Figure 7-2

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Property Geology

CARBONIFEROUS		Candamo-Baleares Fm.	
DEVONIAN	Fameniense	Ermita Fm. Fueyo Fm.	
	Frasniense	Pineras-Noc. Fm.	
	Givetiense	Candás-Portilla Fm.	
	Eifeliense	Naranco y Hurgas Fm.	
	Emsiense	Moniello-Sta Lucia Fm.	
		Rañeces-La Vid Gr.	Aguión Fm. Ferroñes Fm. Bañugues Nueva Fm.
			Praguiense
Lochkoviense	Formigoso Fm.		
SIL.	Ludjow-Prid.	Viedo Mb.	
	Wenlock		
	Llandovery		
ORDOVICIAN		Castro Fm.	
	Dobrotiviense	Luarca Fm.	
	Oretaniense		
	Arenig	Barrios Fm. (Tanes Mb)	
		Tremadoc ?	
CAMBRIAN	Upper Cambrian	Oville Fm.	
	Middle Cambrian	Láncara Fm.	
	Lower Cambrian	Herrería Fm.	
PRECAMBRIAN		Narcea Fm.	

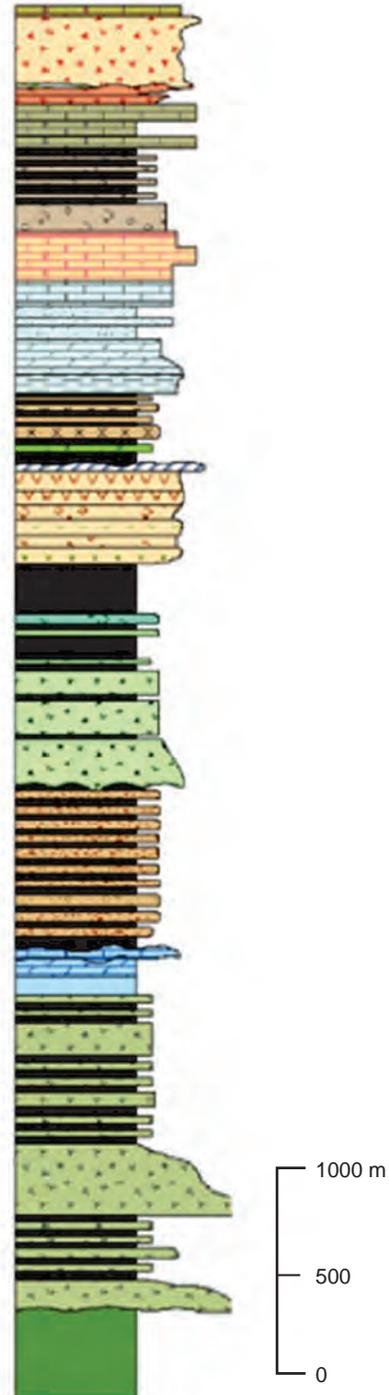


Figure 7-3

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Río Narcea Stratigraphy

MINERALISATION

Gold mineralisation in the Río Narcea Gold Belt consists mainly of two types:

- **Gold bearing copper skarn:** related to the interaction between late Hercynian intrusions, mesothermal solutions, and carbonate host rocks. This is the primary type of gold deposit that may be affected by later events (favourable host rocks for skarn include the Láncara Formation at El Valle-Boinás and the Rañeces Group Formation at Carlés).
- **Jasperoid type:** related to subvolcanic dykes and epithermal solutions which cause silicification with argillisation and sericitisation, plus epigenetic, hypogene oxidation. This type of mineralisation may overprint, remobilise, and enrich gold mineralisation within the skarn deposits, as happened at El Valle-Boinás. Also, this can form the breccia-style gold mineralisation that produced higher grades at El Valle-Boinás. Limited to structural zones of varying width, that dip at high angles. They are typically the sites of leaching and enrichment that extend as much as 400 m below the surface.

EL VALLE-BOINÁS

Mineralisation at the El Valle-Boinás copper-gold deposit can be grouped into several significant deposits related to the Boinás granitic intrusive and carbonate rocks of the Láncara Formation (Cambrian age), as shown in Figure 7-4.

The gold mineralisation system has a strike length of two kilometres and a width of at least 0.5 km. The intrusive is elongated trending N35°E with a length of 500 m and an average thickness of 300 m. A copper-gold mesothermal skarn was developed mainly along the contact between the igneous rock and the carbonate unit.

Late reactivation of the main northeast trending fracture system was accompanied by two or more phases of epithermal mineralisation as well as the intrusion of porphyry dykes. These events produced hypogene oxidation with further enrichment of gold, arsenic, antimony, and mercury (Martin-Izard et al., 1999).

Rhyodacite dykes, which are always sericitised, were emplaced along fractures and breccia zones trending north-northeast.

The intense silicification along fractures and breccia zones resulted in the formation of hematitic jasperoid that is characterised by enrichment in gold, arsenic, antimony, and mercury.

The presence of cuprite and native copper in the structures and breccias suggests the leaching of chalcocite, which is encountered at a depth of approximately 400 m along the A107 structure. This can be viewed as evidence of two-cycle leaching and enrichment.

CARLÉS

The Carlés deposit is a gold and copper bearing skarn developed predominantly in the Devonian limestones of the lower portion of the Rañeces Formation along the north margin of the Carlés granodiorite, as shown in Figure 7-5. The Carlés intrusion is approximately circular in plan with a diameter of approximately 750 m. The intrusion is located at the intersection of major faults (east-west, northeast-southwest, and southeast-northwest) and it is bisected from west to east by the Río Narcea. The northern part of the granodiorite is in contact with the lower part of Rañeces Formation and the southern part of the intrusion is in contact with the siliciclastic Furada Formation. Several barren Permian porphyritic and diabasic dykes crosscut the existing lithologies.

Mineralisation is continuous for over 1,000 m, ranging in thickness from 1.5 m to over 25 m, dipping 50° to 90° away from the granitic intrusion. The skarn is known over a vertical continuity of 400 m and remains open at depth.

The Carlés skarn is of calcic composition and is an exoskarn although irregular endoskarn has developed locally. It consists of layers of garnet (grossularite-andradite composition) intercalated with layers of pyroxene skarn, mostly of hedenbergite composition. Retrograde phases of the skarn results in the formation of irregular magnetite layers associated with amphibole. Inside these bands is where most of the copper sulphides and gold mineralisation occur. The skarn mineralisation transitions into coarse grained marbles then non-altered limestones away from the intrusive. The latter may show narrow intercalations of distal garnet-pyroxene incipient skarn.

Gold mineralisation at Carlés is closely associated with copper sulphides, which consist of disseminated and patchy chalcopyrite and bornite that precipitated mainly in the magnetite zone. Other minerals common in the skarn are arsenopyrite, löellingite, pyrrhotite, and late-stage pyrite.

Mineralisation at Carlés is divided into four areas: Carlés East, Carlés North, Carlés Northwest, and Carlés West.

LA BRUEVA

La Brueva gold deposit is seven kilometres northeast of the El Valle mine on a 40 m wide, east-west trending fracture zone that cuts the Rio Narcea anticline almost perpendicular to the axial trend. At surface, the fracture zone is located in the contact between the Oville and Barrios Formations. Several million cubic metres of material were mined out from the La Brueva pit by the Romans.

At the eastern end of the historical La Brueva pit, an oxidised, quartz rich jasperoid breccia with partially oxidised patchy veins of arsenopyrite is prominently displayed in a road cut. A channel sample from the exposure assayed 4.15 g/t Au over a 15 m true width.

The host fault structure for the La Brueva breccia was tested 500 m to the west along strike by holes LB-12, 15BRU11, 15BRU12, and 15BRU13. Hole LB-12 intercepted 46 m averaging 0.5 g/t Au, including 5 m at 2.2 g/t Au and 2 m at 10.51 g/t Au. Hole 15BRU12 intercepted 3 m at 17.02 g/t Au. These holes established the continuity of the mineralised zone over 700 m of strike, within which shoots of higher grade gold mineralisation are possible.

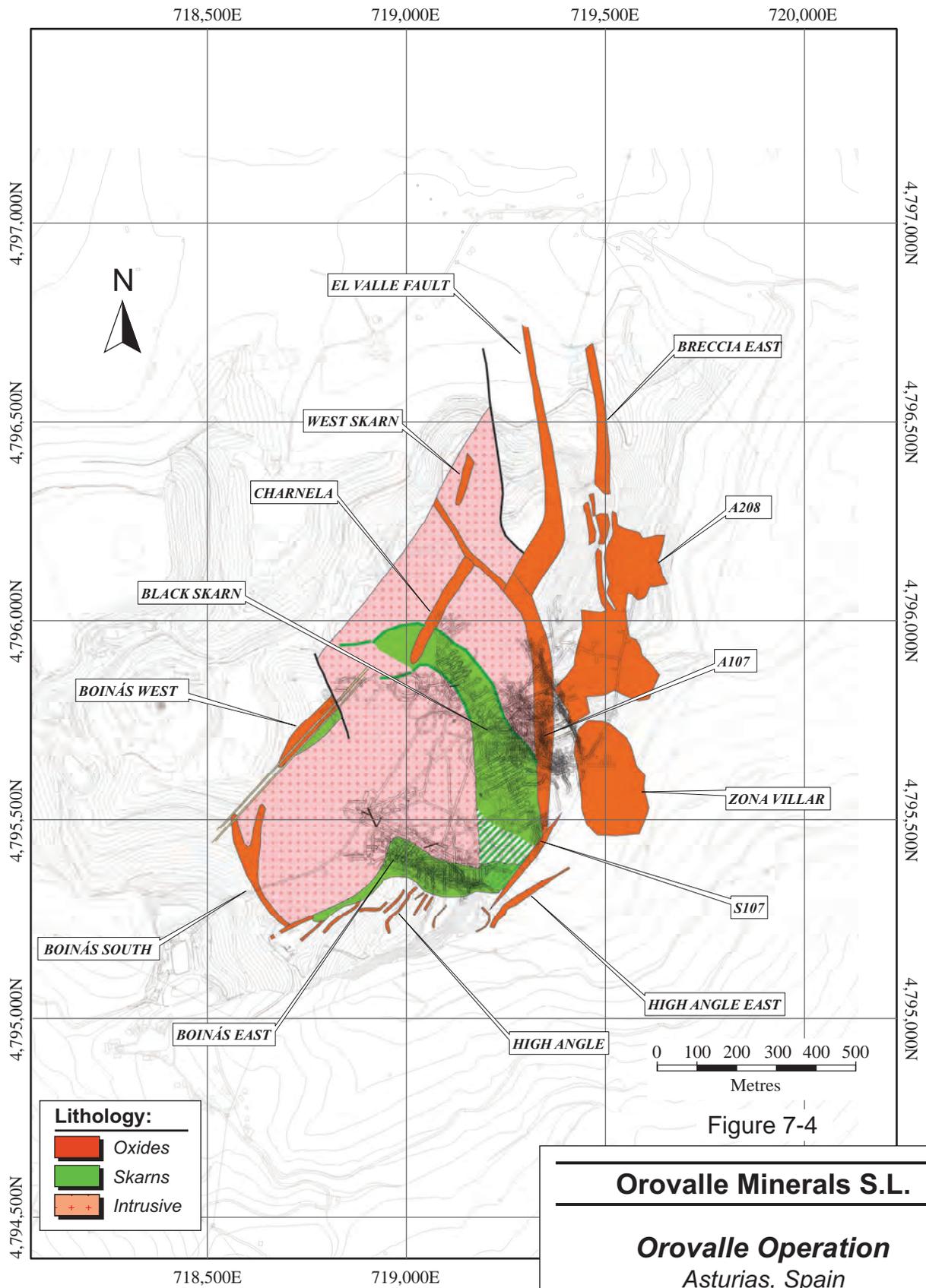
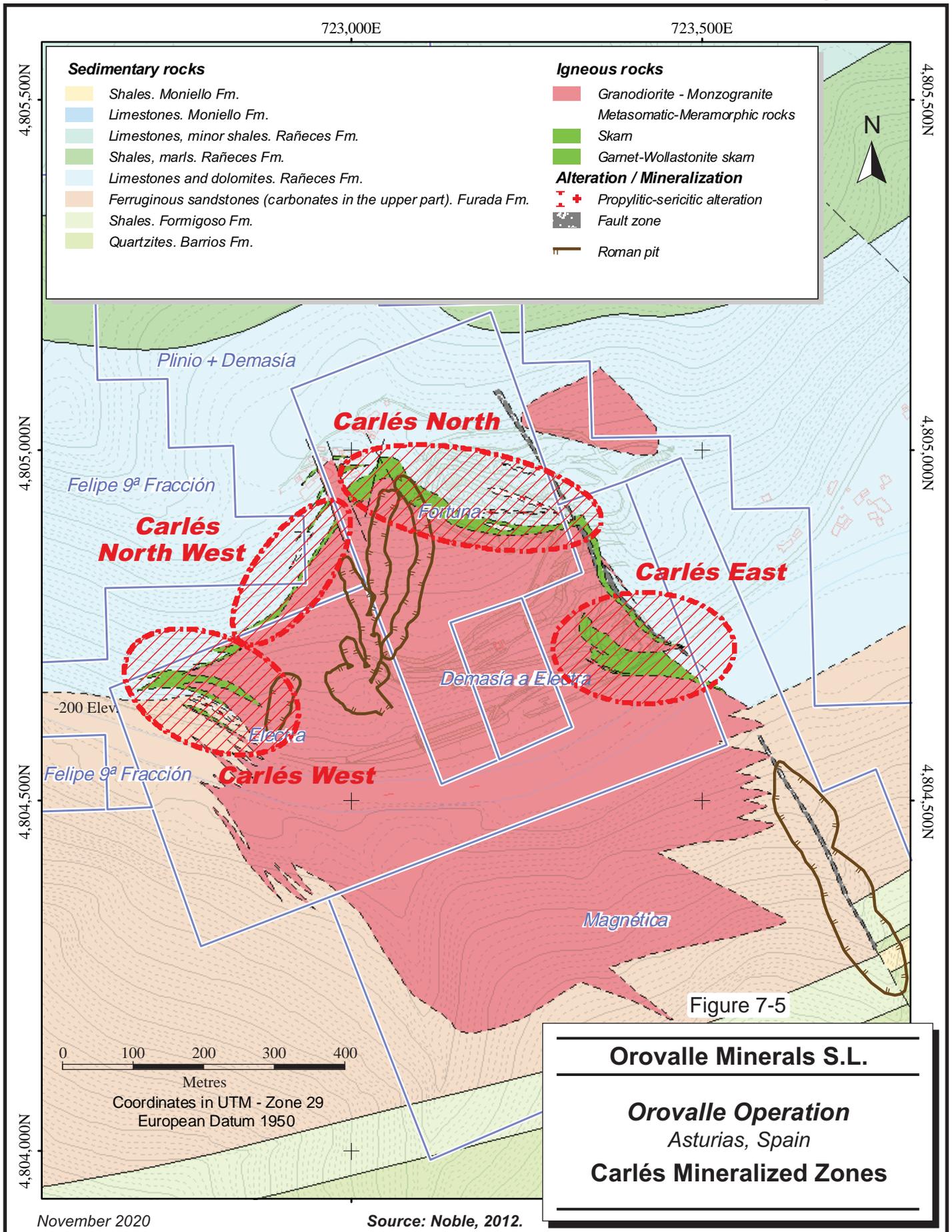


Figure 7-4

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Boinás Mineralised Zones



8 DEPOSIT TYPES

The description of the deposit types at the Orovalle Operation has been adapted from the Technical Report by Noble et al., 2012.

SKARN-TYPE DEPOSITS

Gold-copper skarns have developed mainly along the contact between intrusives and carbonate units. Two different types of skarn have been recognised at El Valle-Boinás. The first is a calcic skarn related to limestone units and the second is a magnesian skarn, called “black skarn”, that is related to dolomite units.

Calcic skarns consist mainly of garnet, pyroxene, and wollastonite. Retrograde calcic skarns consist of epidote, quartz, calcite magnetite, and sulphides (pyrite, arsenopyrite, and chalcocopyrite). Gold mineralisation in this type of skarn is erratic and mostly uneconomic, although some calcic skarns produced ore in the open pits.

Magnesian skarns consist of diopside with some interbedded forsterite. Retrograde magnesian skarn is altered to tremolite, actinolite, serpentine, and magnetite. Commonly it is accompanied by chalcocopyrite, bornite, pyrrhotite, pyrite, and arsenopyrite as well as disseminated electrum. The result of this retrogradation is development of a dark magnesian skarn. Geochemistry indicates a Cu-Ag-Au-As-Bi-Te association. Gold mineralisation in this type of skarn is significantly higher grade than in the calcic skarns and is generally a good target for underground mining. The magnesian skarns tend to have good continuity at cut-off grades below 2.0 g/t Au but can be very difficult to predict above 3.0 g/t Au.

The gold-copper bearing skarns at Carlés are generally calcic skarns. Better grade gold-copper mineralisation is associated with high magnetite and bornite content that is localised in generally continuous, relatively thin (four metres thick) layers of retrograde skarn.

A different type of skarn is observed at La Ortosa where gold is deposited without copper mineralisation. These skarns are calcic skarns formed as thin, discontinuous layers interbedded with hornfels and pyroxene hornfels.

EPITHERMAL-TYPE DEPOSITS

At the El Valle-Boinás deposit, reactivation of fracture zones (along northeast-southwest, east-west, and northwest-southeast orientations) produced widespread brecciation and favoured the emplacement of porphyritic dykes. A low temperature alteration and mineralisation event is spatially and genetically associated with the subvolcanic porphyry dykes, which overprint all previous lithologies. Depending on the host rock, there are different styles of hydrothermal alteration and mineralisation, such as: sericite-adularia-carbonates (+py-asp) in granites and skarns; leaching, enrichment, and silicification in skarns (+ native copper and chalcocite); and silicification (+py) in dolomites.

Highest gold grades occur where the low temperature mineralisation overprints previously mineralised gold-copper skarn, forming jasperoid or semi-jasperoids with native copper and minor chalcocite and cuprite. The associated geochemistry is characterised by an increase in As, Sb, and Hg. This low temperature event is the principal gold mineralising episode at El Valle.

Gold, and in some cases base metal mineralisation, has been found in association with late tectonic breccias related to low angle thrust faults at El Valle-Boinás. The origin of the gold mineralisation in these structures is thought to be due to remobilisation of previous skarn or jasperoid related gold mineralisation. Gold associated with low angle structures is important at El Valle-Boinás where a significant percentage of the open pit minable gold mineralisation extracted from the Boinás East Zone came from this type of structure.

9 EXPLORATION

Parts of this section have been summarised from the Technical Report by Noble et al., 2012.

Limited non-drilling exploration activity has been conducted since 2012, with early exploration being detailed in Noble et al. (2012) and summarised in Section 6 of this Technical Report.

The gold-copper deposits in the Río Narcea Gold Belt are complex deposits that present challenges for exploration. The original mineral deposits are typically internally complex skarn deposits that have been subjected to epithermal alteration and remobilisation of the mineralisation, plus displacement and distortion by both high angle reverse and thrust faults. In addition, individual zones of mineralisation may be high grade, but relatively small and difficult to locate.

As a result, exploration activities on deposits within the Mineral Resource have been principally limited to drilling. No significant exploration, except for drilling has been undertaken on these properties. Drilling is detailed in Section 10. Exploration has been undertaken on regional targets not included in the Mineral Resource.

REGIONAL EXPLORATION

Some regional exploration activities have been undertaken to better define regional targets that do not currently have Mineral Resources such as Lidía, Quintana, and La Ortosa-Godán. Since the previous RPA 2014 Technical Report, Orovalle has undertaken geological mapping, rock samples, soil geochemistry, and geophysical surveys. Table 9-1 documents the regional exploration activities, excluding drilling, that have been documented on the projects.

**TABLE 9-1 REGIONAL EXPLORATION ACTIVITY
Orovalle Minerals S.L. – Orovalle Operation**

Project	Year	Company	Exploration Activity
Lidia	1995-2000	RNGM	Geological mapping (1:10,000 and 1:3,000 scale) Rock litho geochemistry (672 samples) Soil geochemistry (860 samples) for Au-Mo-Cu-Pb-Zn over 6.0 km ² Magnetometry-VLF (eight lines for 11,620 m) Airborne geophysics (magnetometry, radiometry, EM)
	2005-2006		Soil geochemistry of 110 samples Gravimetric survey over 3.5 km ² and 213 stations
Quintana	2000	RNGM	Stream geochemistry
		RNGM	Geophysics, magnetometry, resistivity, and radiometry
La Ortosa-Godán		RNGM	Geophysical surveys, Rock Sampling, Trenching
Quintana	2014	Orovalle	Geological mapping (1:10,000 scale) 16 rock samples
Lidia	2016		Geological mapping (1:10,000 scale) Six rock samples
Quintana	2015-2016		Soil geochemistry of 1,450 Samples
	2016		Six lines of geophysical survey totalling 6,360 m
Lidia	2017-2018		Geophysics (induced polarization, resistivity, chargeability) totalling four lines for 4,365 m Six rock samples

EXPLORATION POTENTIAL

Mineral Resources have been declared at El Valle-Boinás, Carlés, and La Brueva. RPA considers that there is good exploration potential within regional targets. These include La Ortosa-Godán and which is part of the Rio Narcea gold belt and is located three kilometres northwest of Carlés. Several targets have been identified through drilling. The Quintana prospect located southwest of El Valle has been also been tested with drilling.

The Lidia prospect located 20 km west of El Valle is a target within the Navelgas gold belt and has been identified for potential skarn mineralization in the contact between intrusives and limestone.

Exploration is planned to further test the prospectivity of these deposits, and other potential regional targets are being investigated.

10 DRILLING

SUMMARY

Drilling at the Orovalle Operation has totalled approximately 500,689 m in 3,538 holes of which 236,770 m in 1,768 holes have been drilled by Orovalle.

For the skarns and some of the epithermal oxide zones, drill holes tend to intercept the mineralisation at varying angles relative to the core axis depending on drill access and the irregular morphologies of the mineral zones. More regular, planar deposits such as A107 have better drilling angles, especially when drilling to depth. In general, drilling is spaced between 20 m and 40 m in active or exploited mining areas. Drilling density away from the core of the underground mine and beneath previous pits is generally greater than 40 m and can be in excess of 100 m in lesser explored areas.

Drill hole locations are illustrated in Figures 10-1 to 10-3. A summary of drilling is given in Table 10-1.

TABLE 10-1 SUMMARY OF DRILLING
Orovalle Minerals S.L. – Orovalle Operation

Deposit Hole Type Company	Year	El Valle-Boinás Diamond Core		Carlés		Diamond Core		Others Diamond Core		Year Total		
		Hole Count	Metres (m)	RC Hole Count	Metres (m)	Hole Count	Metres (m)	Deposit Name	Hole Count	Metres (m)	Hole Count	Metres (m)
Boliden Minerals A.B.	1981	-	-	-	-	-	-	La Ortosa-Godán	7	1,085	7	1,085
Exploraciones Mineras del Cantabrico S.A.	1985	-	-	-	-	-	-	La Ortosa-Godán	4	970	4	970
AAC	1985	-	-	25	1,292	58	13,147	-	-	-	83	14,439
AAC + HCC	1990	-	-	108	6,012	-	-	-	-	-	108	6,012
RNGM A.I.E	1991	39	8,029	-	-	-	-	La Ortosa-Godán	4	903	43	8,932
	1994	32	7,090	-	-	-	-	El Pontigo	3	371	50	9,727
RNGM & Barrick	2000	-	-	-	-	-	-	Villaverde	3	577	5	1,152
								La Brueva (RC)	8	1,148		
								Antoñana	4	541		
								-	-	-		
RNGM	1996	-	-	-	-	96	16,283	-	-	96	16,283	
	1998	-	-	-	-	-	-	La Ortosa-Godán	17	5,656	17	5,656
Orovalle	2004-2006	921	161,955	-	-	436	37,708	-	-	-	1,357	199,663
	2007	37	8,685	-	-	6	815	-	-	-	45	10,399
	2008	132	22,383	-	-	3	477	La Ortosa-Godán	2	899	135	22,860
	2009	21	7,042	-	-	12	1,938	-	-	-	33	8,980
	2010	9	1,034	-	-	16	2,070	-	-	-	25	3,104
	2011	95	9,080	-	-	27	4,140	-	-	-	122	13,220
	2012	90	6,703	-	-	70	7,484	-	-	-	160	14,187
	2013	95	7,351	-	-	60	8,746	-	-	-	155	16,097
	2014	132	10,908	-	-	36	4,532	La Brueva	5	895	173	16,334
	2015	138	17,756	-	-	10	1,186	La Brueva	11	2,810	159	21,752
	2016	136	19,995	-	-	-	-	-	-	-	136	19,995
	2017	236	24,996	-	-	58	4,498	-	-	-	294	29,494
	2018	124	22,161	-	-	-	-	Quintana	2	1,203	126	23,364
	2019	148	22,963	-	-	-	-	-	-	-	148	22,963
June 2020	53	9,644	-	-	4	4,377	-	-	-	57	14,021	
Total		2,438	367,775	133	7,304	892	107,401	Total Others	70	17,057	3,538	500,689

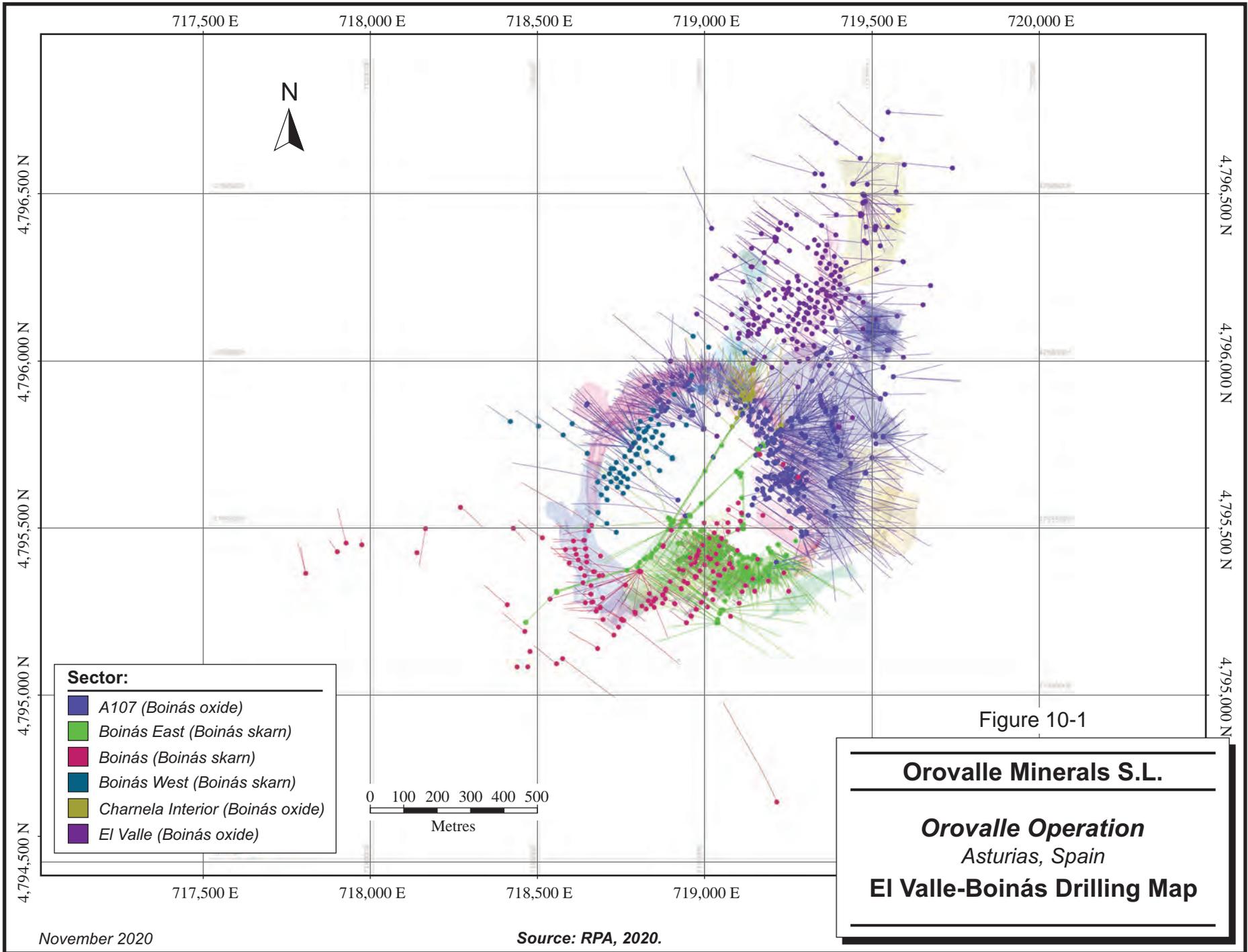
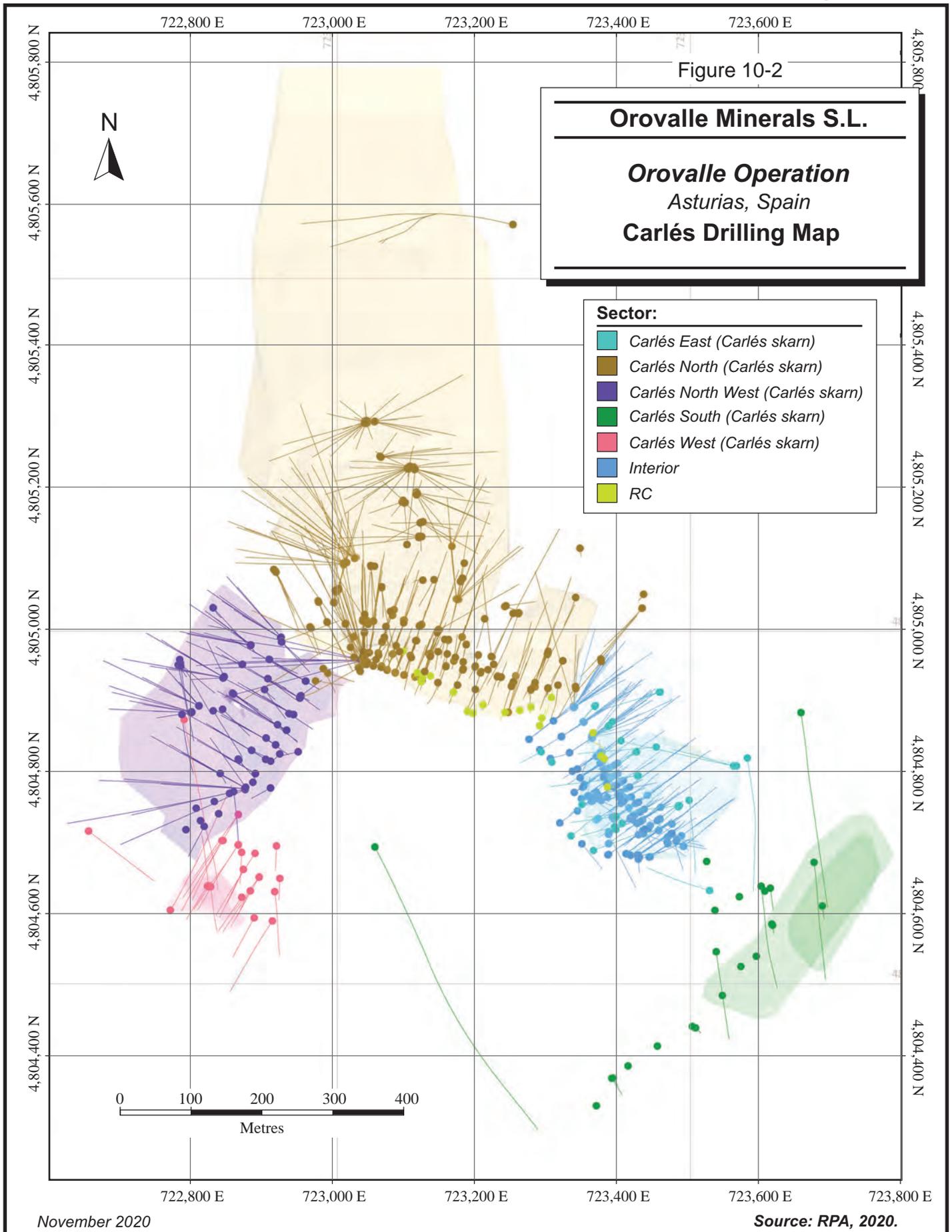


Figure 10-1

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

El Valle-Boinás Drilling Map



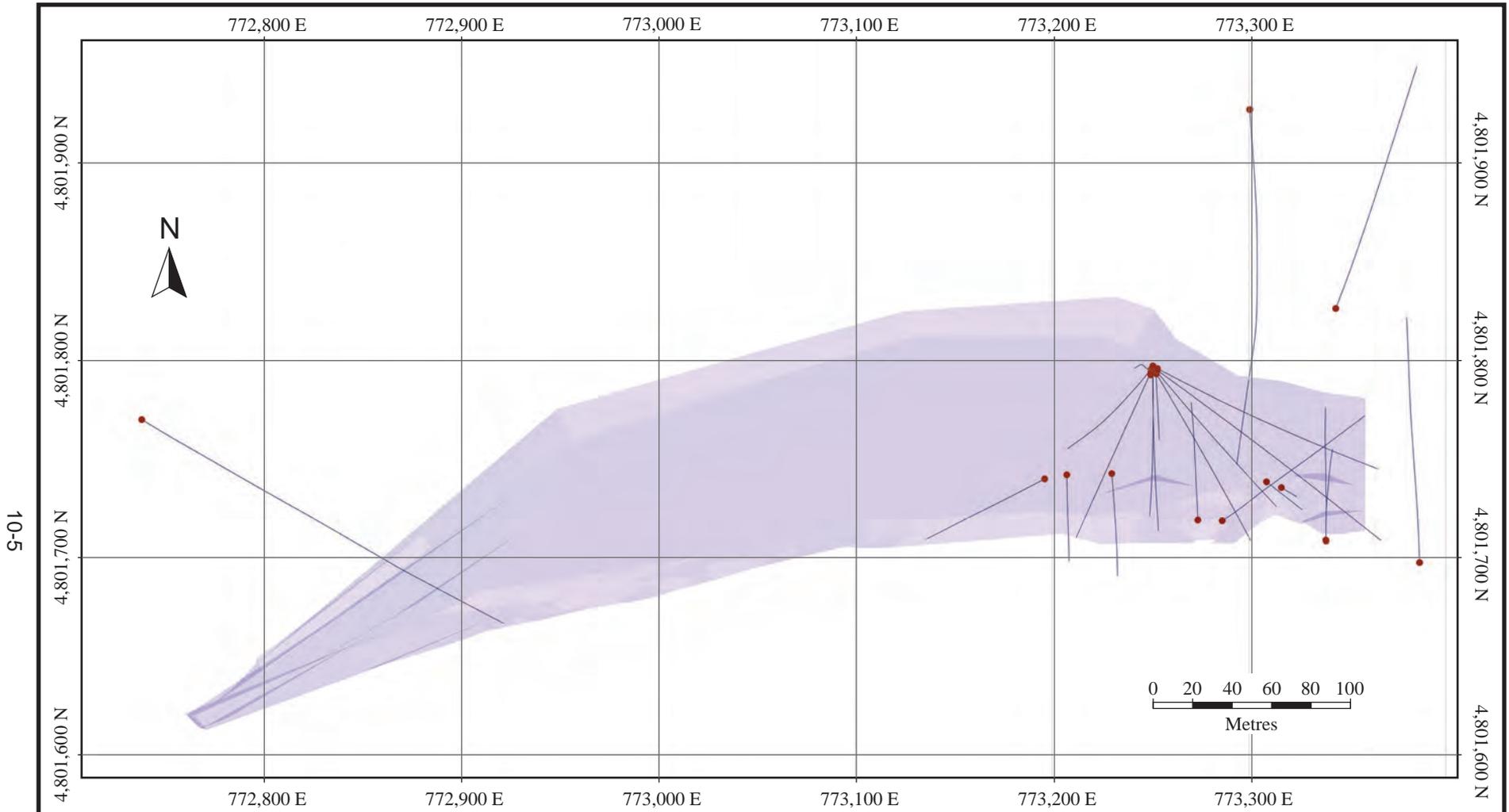


Figure 10-3

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

La Brueva Drilling Map

DRILLING BY PREVIOUS OPERATORS

Information on drilling by previous operators has been adapted from the 2012 Technical Report prepared by Noble et al.

Early AAC drilling used core rigs, but was plagued with poor recovery, especially in the oxide zones at El Valle. Recoveries were acceptable in the more competent rock at Carlés.

The initial work used reverse circulation (RC) drilling, which was successful in identifying new areas of mineralisation, but had difficulty with high flows of water. Seven RC holes were drilled in El Valle, however, these were not used in resource estimates because of concerns with the quality of samples.

In 1993, RNGM started using core drilling, however, unsatisfactory core recovery prompted a review of methods and contracting a mud engineer to supervise the drilling. These steps resulted in an increase of recoveries to generally better than 90%.

In 1995, three combination drill rigs were brought to El Valle that allowed both core and RC drilling. These rigs were used to drill the upper portions of the holes, primarily Tertiary sediments, with RC and the lower mineralised portions with core.

Underground core drilling from the El Valle drainage adit was started in 1997. Additional underground drilling has included detailed drilling of the Mónica Zone, the discovery and exploration drilling of the BSN and Charnela South, and exploration drilling in A107. A particular issue with underground core drilling is that core recoveries are low in holes drilled upwards into ground that has not been dewatered and is under high water pressure. In this case, the drilling mud cannot be maintained in the hole and high water flows wash out fines resulting in poor core recovery. The Charnela South Zone and A107 Zone both have some holes with low core recovery drilled by previous operators, although drilling by Orovalle has shown higher recoveries due to improving drilling equipment.

DRILLING AND LOGGING

All drilling by Orovalle has been conducted from underground. During RPA's site visit, three drill rigs were in operation at El Valle-Boinás. The majority of the holes drilled are HQ

(63.5 mm) diameter. When required at Carlés due to ground conditions, NQ (47.6 mm) core is used to extend HQ holes to their target depth. PQ (85 mm) core is used for the initial few metres of exploration holes, and for metallurgical purposes.

Core boxes are transported daily from underground, delivered to the core shed and laboratory facility in Begega. The core is photographed wet with the name of the hole and the depth. The core is then laid on core logging benches awaiting both geotechnical and geological logging by the Orovalle geologists.

Geotechnical logging consists of:

- Division of core into geotechnical zones
- Total Core Recovery (TCR)
- Solid Core Recovery (SCR)
- Rock Quality Designation (RQD)
- Number of joint sets
- Fracture frequency
- Joint type
- Intact rock strength
- Point load testing
- Large scale roughness
- Small scale roughness
- Joint alteration
- Type of infill
- Strength of infill
- Water flow

A mining Rock Mass Rating (RMR) is then determined by the geologist and is later entered into the geological database. The RMR is also stored in the block models and is used for mine planning purposes.

Once the geotechnical logs are complete, geologists proceed to log lithology, alteration, mineralisation, and structure using pre-defined geological legends. The logs are hard copy hand-written logs with graphical representations of the down hole geology. The start and end of geological units are marked on the boxes.

The sampling method and approach is discussed in Section 11 Sample Preparation, Analyses and Security of this Technical Report.

Upon completion of the geotechnical logging, geological logging, sampling, and density calculation, the hand-written logs are transferred to the senior geologist who scans the logs and enters the information into the RecMin database.

Collar locations are measured during drilling by underground surveyors. The collar location, azimuth, and inclination of the drill hole are measured and are subsequently used to replace pre-entered planned collar locations in the drill hole database.

Down hole survey measurements are conducted using a Reflex Maxibor instrument. Data is exported from the instrument to an Excel file and then transferred to the drill hole database.

The QP reviewed the drilling, logging, and sampling methodologies and is of the opinion that they meet industry standards and are suitable to support Mineral Resource and Mineral Reserve estimation.

DENSITY MEASUREMENTS

Density information is collected after logging at a density measurement station within the core logging facility. Density measurements are taken on two to three lithologies different in every drill hole. The density sample is returned to the box after density measurement. The following procedure is used:

- A length of core approximately 15 cm long is selected, and the lithology recorded.
- The core is weighed in air.
- The core is weighed in water.
- The core is then dried overnight at 105°C and weighed again; this is the dry weight.

Density is then calculated using the formula:

$$\text{Density} = \text{Dry Weight} / (\text{Weight in Air} - \text{Weight in Water})$$

For highly fractured zones where density measurements cannot be reliably measured using the methodology described, densities were determined based on production results.

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

The Orovalle Operation has its own on-site assay laboratory located on the hill side in Begega, above the El Valle open pit, approximately 15 minutes by road from the administration and processing facilities for the mine. Both sample preparation and analysis are performed at the laboratory. The laboratory is ISO 9001 certified which is renewed each year. The laboratory analyses all exploration sampling for the site, and a separate metallurgical laboratory is present within the mine licence.

The two primary long term core storage facilities are located adjacent to the laboratory, although there are two other additional core storage facilities off site that were not reviewed during the site visit.

SAMPLING METHOD AND APPROACH

Intervals selected for assaying are marked on the core boxes by the logging geologists, including the sample code corresponding to the drill hole identification number and the sample depth. Sample tags are not used as the sample can be traced back based on the hole name and sample depth. Barcoded adhesive labels are prepared by geologists using the hole name and depth code.

For quality assurance/quality control (QA/QC) samples, a false code is generated. The target sampling length is 1.5 m, rarely exceeding two metres. The minimum sampling length is 25 cm. Samples are taken for 4.0 m on either side of the mineralisation.

All exploration drill core is retained. Infill drill core that is not sent for assaying is discarded while the core selected for sampling is split with half the core being sent for assay and the remaining half of the core returned to the core box and stored in covered core storage facilities near the logging facility. Harder drill core is split using a water-cooled diamond saw while softer oxide material is split manually with a hammer and chisel. Due to the characteristics of the skarn and oxide mineralisation, the core is not marked with a cutting line, however, the core splitters are trained to rotate the core to cut perpendicular to any observed structures.

No channel face sampling from Boinás is used in the resource estimation as sampling of the oxide faces is problematic due to the timing of ground support/heading availability and only partial exposure of the face due to shotcrete cover.

At Carlés, underground chip samples are taken honouring a nominal 1.5 m interval and litho-structural boundaries. Given the similarity in sample support and the layered nature of the Carlés zones, the underground chip samples are used for resource estimation.

The QP is of the opinion that the sampling method and approach is reasonable to support resource estimation.

SAMPLE PREPARATION AND ANALYSIS

Once split, drill core samples are placed in a metallic sample tray with a large envelope containing two adhesive barcoded labels and one barcoded label pasted to the envelope. The remaining labels are stored within the envelope to accompany the sample throughout the sample preparation process.

The sample preparation procedure is as follows:

- Core samples are dried at a temperature of 105°C.
- The entire dried sample is crushed through a jaw crusher to 95% < 6 mm.
- The coarse crushed sample is further reduced to 95% < 425 microns using an LM5 bowl-and-puck pulveriser.
- An Essa rotary splitter is used to take a 450 g to 550 g subsample of each split for pulverising. The remaining reject portion is bagged and stored.
- The sample is reduced to a nominal -200 mesh using an LM2 bowl-and-puck pulveriser.
- 150 g subsamples are split using a special vertical sided scoop to cut channels through the sample which has been spread into a pancake on a sampling mat.
- Samples are then sent to the laboratory for gold and base metal analysis. Leftover pulp is bagged and stored.

After sample preparation, 30 g samples are analysed for gold by fire assay with an atomic absorption spectroscopy (AAS) finish and two gram samples for Ag, As, Bi, Cu, Hg, Pb, Sb, Se, and Zn by ICP-optical emission spectroscopy (ICP-OES) after an aqua regia digestion. Sampling is carried out in batches of 26, with one blank and one CRM inserted and with the

first and last samples being analysed twice with the average of the two values being reported. Gold values exceeding 15 g/t Au are automatically repeated to confirm the grade of the sample.

Fluorine is also analysed, although by a different method. The sample is sintered with a mixture of zinc oxide and sodium carbonate and the soluble fluorine is leached with hot water and filtered. The fluorine solution is adjusted to pH 5.2 to pH 5.5 with nitric acid and an ionic strength adjusting buffer (TISAB III) before the final fluorine concentration being determined with a fluoride selective electrode.

Assay results are received by the mine site geological personnel in an MS Excel spreadsheet to be entered into the drill hole database. Assay results for samples in zones being advanced and stockpiles are typically received within 24 hours to 48 hours of being submitted for analysis. Drilling for infill and brownfield exploration is typically returned in two weeks.

In the QP's opinion, the sample preparation and analysis procedures are adequate for use in the estimation of Mineral Resources.

QUALITY ASSURANCE AND QUALITY CONTROL

The QA/QC program comprised submission of certified reference material (CRM), blanks, and duplicate samples into the sample stream. The on-site senior geologist reviews the results prior to acceptance of the assay results. The QA/QC protocol was reviewed by RPA.

Orovalle repeat the entire batch analysis if the standard falls outside of acceptable limits. If a blank or duplicate is observed to fail, 20% of the batch is re-assayed. If the 20% that is re-assayed does not match the original analysis, then the entire batch is re-analysed.

CERTIFIED REFERENCE MATERIALS

Orovalle currently inserts two different CRMs into the sample stream, GBMS911-2 and GBMS304-4. These standards are inserted at a rate of 1 in 20 samples. The certified grades for the two CRMs are presented in Table 11-1.

**TABLE 11-1 CURRENT CERTIFIED REFERENCE MATERIALS
Orovalle Minerals S.L. – Orovalle Operation**

CRM ID	Metal	Certified Value (ppm)	One Standard Deviation (ppm)
GBMS911-2	Au - FA	2.88	0.11
	Au - AR	2.82	0.16
	Ag	12.4	0.7
	Cu	1417	67
GBMS304-4	Au - FA	5.67	0.31
	Au - AR	5.29	0.49
	Ag	3.4	0.9
	Cu	9786	378

An example of the CRM responses for Au, Ag, and Cu during the last full year (2019) prior to the current resource estimation is illustrated in Figures 11-1 and 11-2 for CRM GBMS304-4 and GBMS911-2, respectively. RPA has also reviewed the results of other CRMs that were used previously and is of the opinion that the performance of the CRMs is reasonable

RPA considers that in both CRMs, the gold response can be observed to be biased low, with the mean approximately one standard deviation below the certified mean, although the CRMs are not observed to be regularly failing. Review of the current and previous years indicates that this has been continuous since mid-2018. RPA considers that the source of this low bias requires investigating, however, as the values are biased low and the mean is not outside of one standard deviation from the certified mean, the data can be relied upon for a resource estimate.

FIGURE 11-1 CRM GBMS304-4 RESPONSES FOR AU (TOP), AG (MIDDLE), AND CU (BOTTOM) DURING 2019

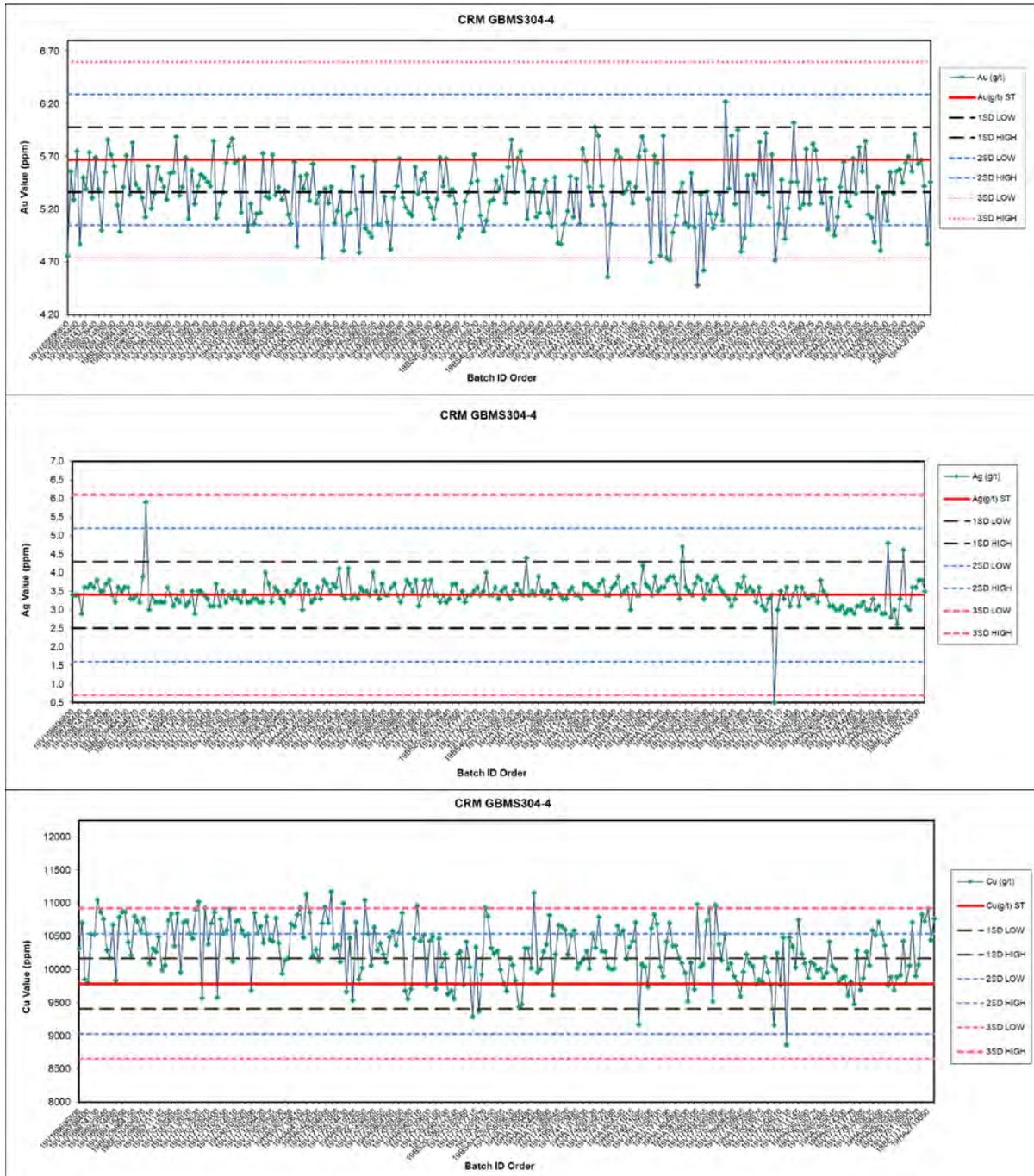
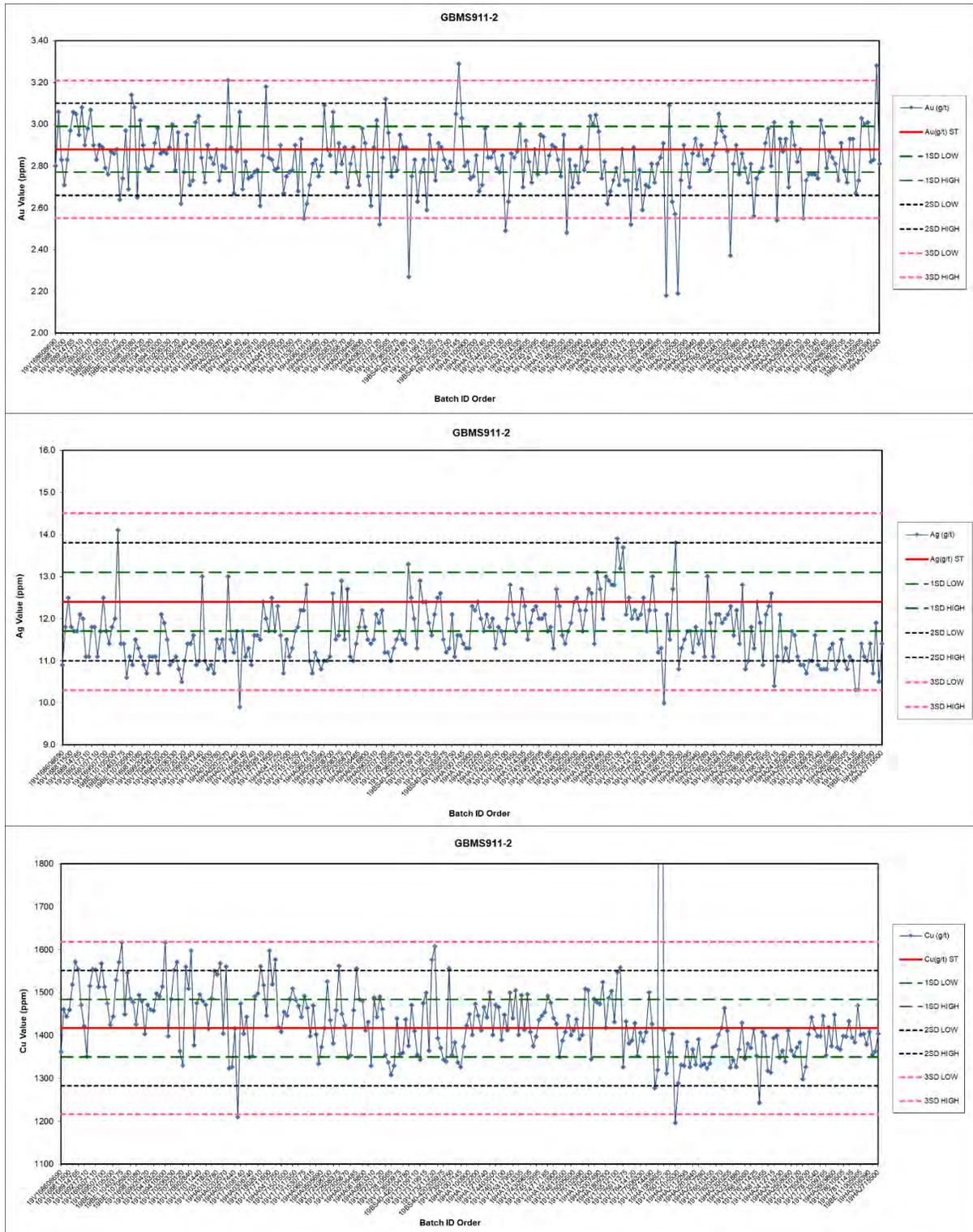


FIGURE 11-2 CRM GBMS911-2 RESPONSES FOR AU (TOP), AG (MIDDLE), AND CU (BOTTOM) DURING 2019



BLANKS

Blanks are inserted into the sample stream during sample preparation by a laboratory technician upon the request of the geologist. One blank is inserted into the sample stream for every 20 core samples. Blanks are composed of a coarse silica sand that is exposed to the entire sample preparation process. The coarse silica material has been in use since 2007. Prior to this, unmineralised granite core was used as the blank material. A five times detection limit is applied for a failure limit in blank samples for gold and silver, and four times for copper.

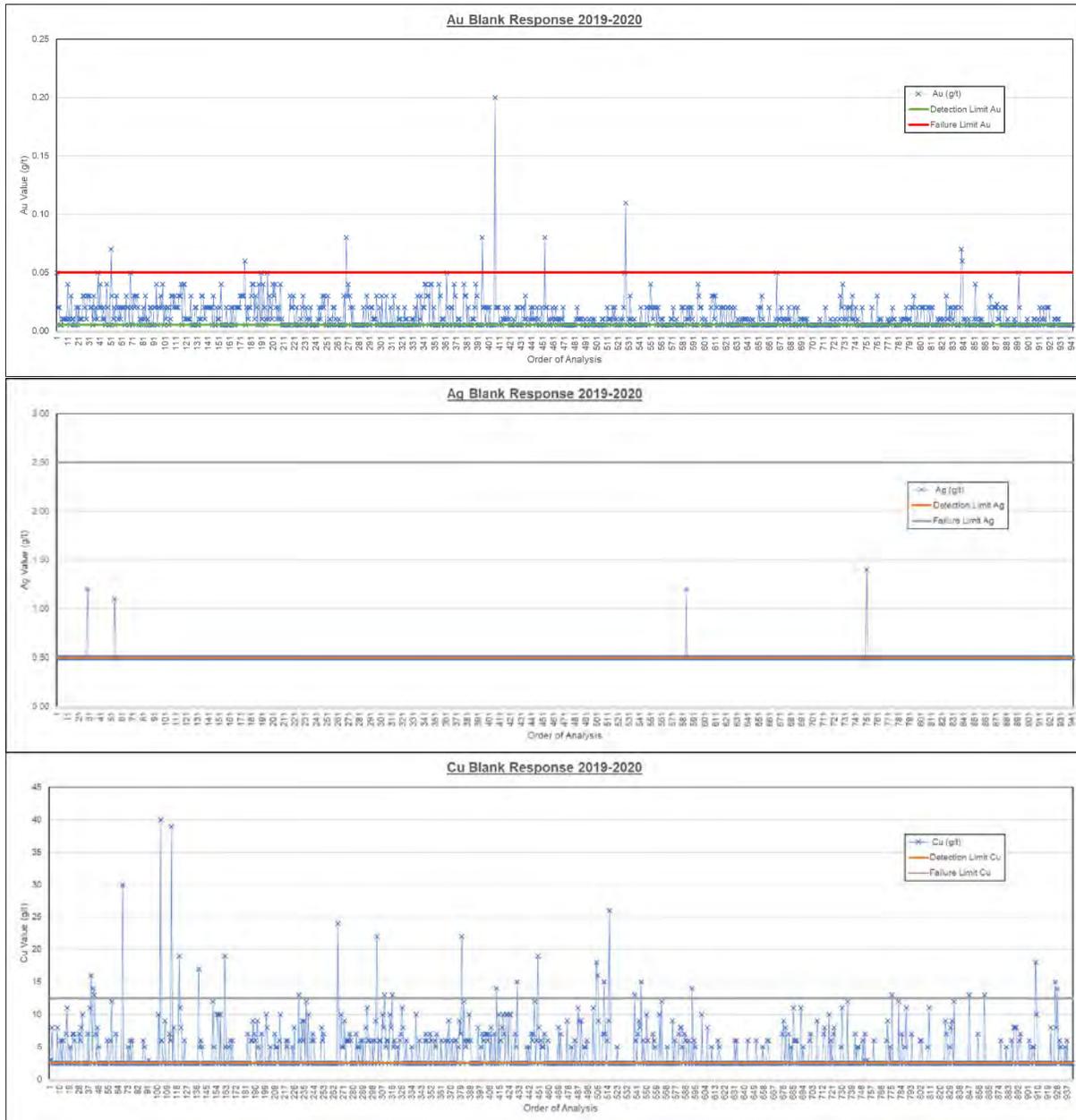
The blank control charts for 2019 and 2020 up until the database cut-off date of June 30, 2020 are shown in Figure 11-3. A total of 942 blank samples were submitted during this period, with the following failures:

- Au – Nine samples (1.0%)
- Ag – Zero samples (0.0%)
- Cu – 52 samples (5.5%)

Although the blank response charts illustrate some failures, RPA is confident that the re-analysis that is undertaken after a sample failure is sufficient. RPA notes that although the copper failure rate is noticeably higher, copper cut-off values in the deposit are significantly higher than the failure threshold. As copper is a minor contribution to project economics, the QP is of the opinion that there is a reduced risk associated with it. Nevertheless, RPA recommends that the source of the higher copper contamination be investigated.

RPA reviewed the blank performance and is of the opinion that there is no significant or systematic contamination occurring during the sample analysis process.

FIGURE 11-3 BLANK RESPONSES FOR AU (TOP), AG (MIDDLE), AND CU (BOTTOM) FROM 2019 TO 2020 CUT-OFF



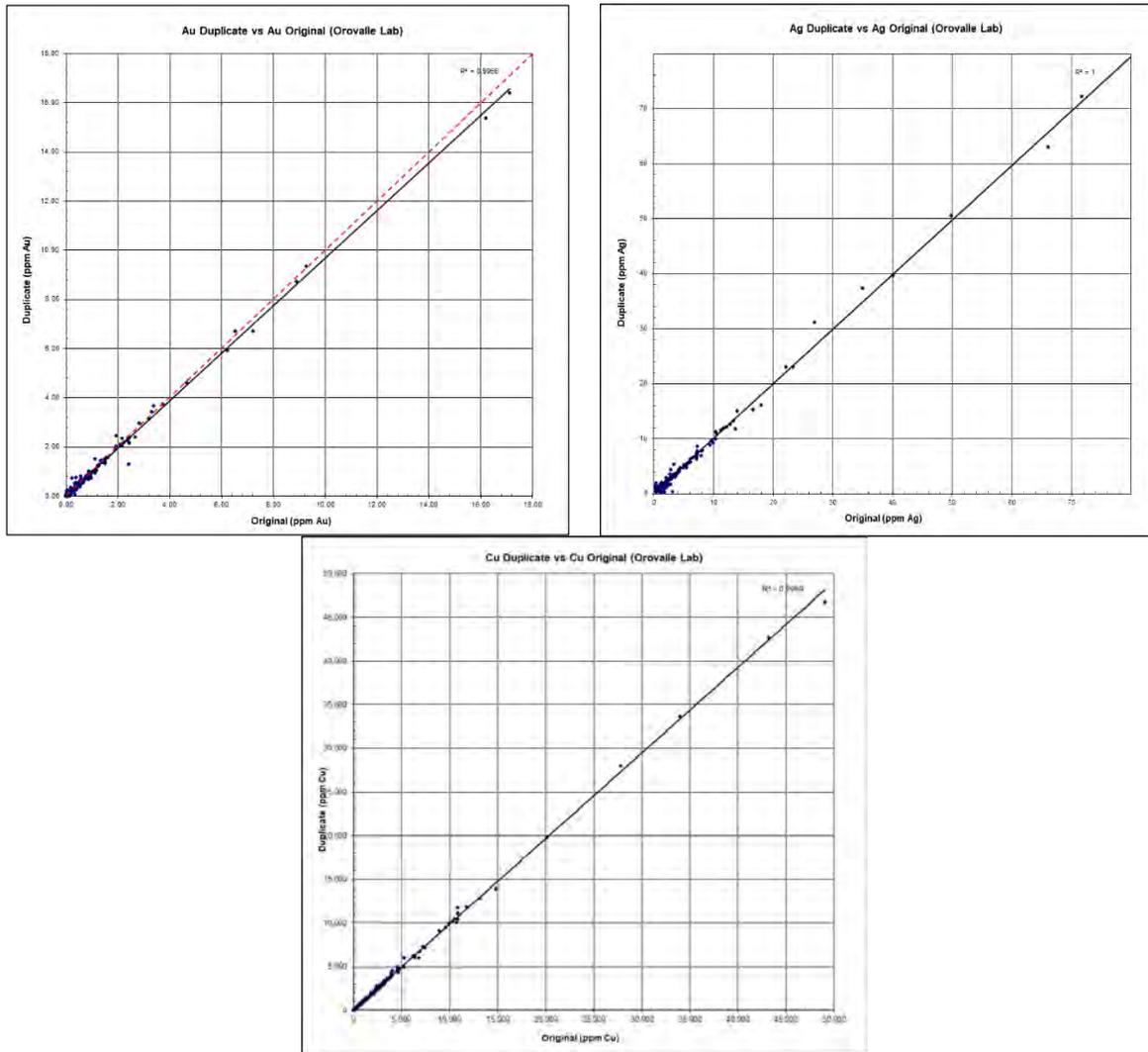
DUPLICATES

Pulp duplicates are inserted into the sample stream with one duplicate in every 20 samples.

Figure 11-4 illustrates the duplicate response for the 2019, the last full year of data available prior to the database cut-off date. RPA reviewed the results both in original units and as lognormal scales and considers that the Orovalle laboratory repeatability is very good, which

is illustrated by the high coefficient of determination (R^2) value for the paired samples (all over 0.99). RPA reviewed other time periods and observed the same high correlation for duplicates.

FIGURE 11-4 PULP DUPLICATE PLOTS FOR OROVALLE LABORATORY FOR AU (TOP LEFT), AG (TOP RIGHT), AND CU (BOTTOM) DURING 2019



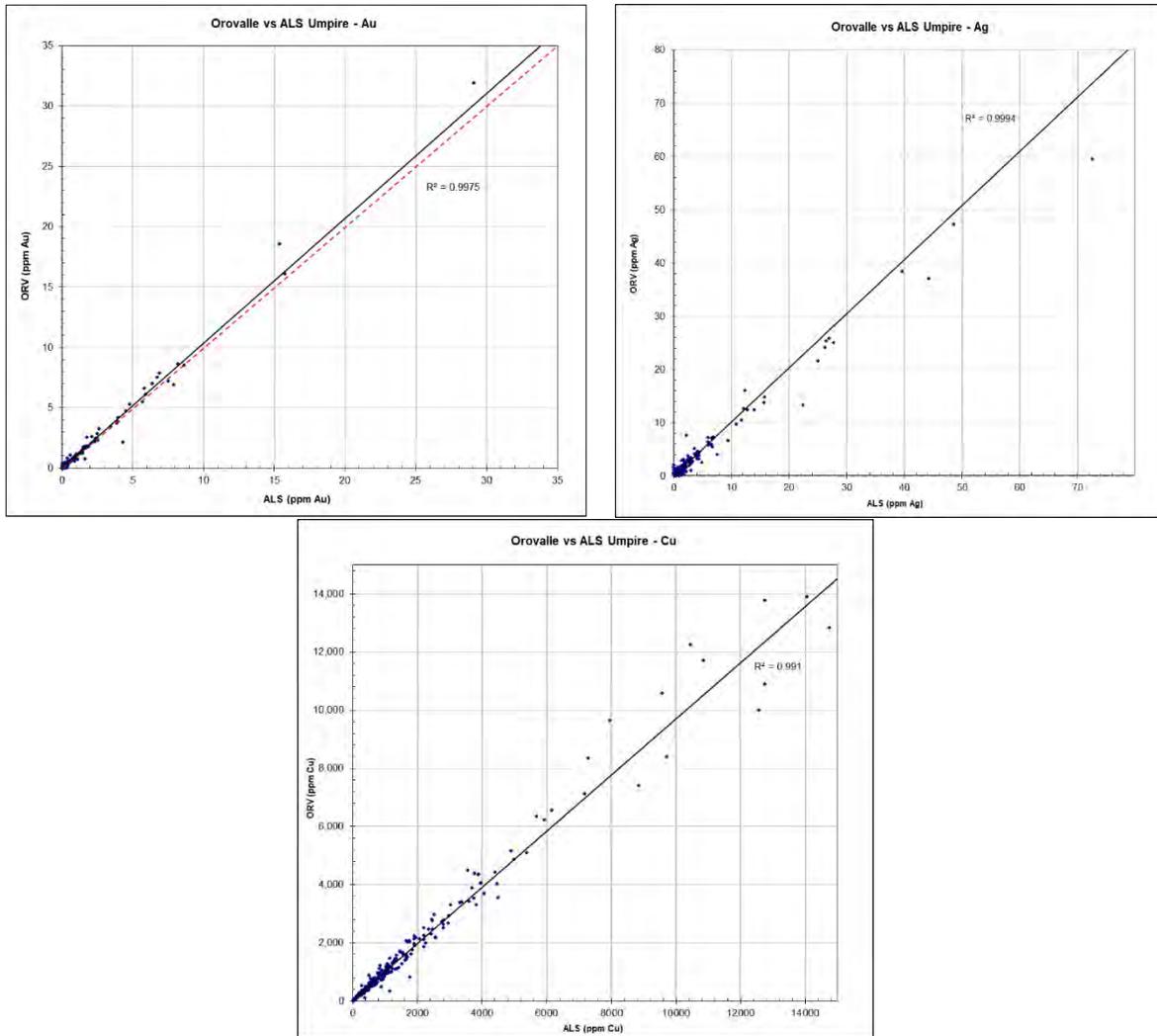
RPA reviewed the coarse duplicate performance and found no significant concerns with the sample preparation and analysis processes.

UMPIRE SAMPLING

One external pulp duplicate (umpire) sample is undertaken in every 20 samples. The umpire sample is submitted to ALS Seville. Samples are sent to ALS Seville in batches of 200 samples every two to four months, with results available within two weeks.

Figure 11-5 illustrates the umpire analysis results for the previous full year prior to the database cut-off date. These plots all show a very high (>0.99) correlation between the sample analysed at the on-site laboratory and the umpire analysis conducted by ALS Seville. This is also observed for other time periods reviewed by the QP.

FIGURE 11-5 UMPIRE ANALYSIS PLOTS FOR OROVALLE LABORATORY AND ALS SEVILLE FOR AU (TOP LEFT), AG (TOP RIGHT), AND CU (BOTTOM) DURING 2019



The umpire analysis indicates that there is no systematic bias observed in the Orovalle laboratory.

LABORATORY QA/QC

The on-site laboratory undertakes its own internal QA/QC sampling independent of the check samples submitted by Orovalle geologists. The performance of the laboratory QA/QC has not been reviewed by RPA however, a QA/QC meeting is scheduled every six months between the laboratory staff and Orovalle geologists to discuss QA/QC performance to comply with ISO 9001 standards.

SAMPLE SECURITY

Core trays are collected daily from the underground drill rigs by an experienced Orovalle staff member. The core trays are moved to the core logging facility in a 4x4 vehicle which is driven slowly to avoid core being moved/broken during transit. The core logging, sampling, laboratory, and major long term storage facilities are in one location immediately outside of to the mine fence and can be accessed by vehicle through a side gate located close to the TSF. Core and samples do not leave the licence permit and no non-Orovalle personnel have access to the samples.

Once the core arrives in the core logging facility, the core/samples do not leave the main building, unless being placed into long term storage after analysis has been complete. The laboratory runs from 6 am until 11 pm and all buildings are locked when staff are not present.

RPA understands that although the core logging, sampling, and laboratory are accessible by public road, the remote location and good local support for the mine means trespassing is not a concern.

In the QP's opinion, the sample security meet industry standards and are adequate for use in Mineral Resource estimation.

RPA COMMENTS AND RECOMMENDATIONS

The QP has the following observations and recommendations with respect to sample preparation, analysis, and security:

- Copper is observed to have a higher rate of contamination than gold and silver, which is shown by a 5.5% failure rate in blanks during 2019-2020. RPA recommends that additional investigations be undertaken to review the source of the contamination.

- Since mid-2018, the gold response is biased low, although within acceptable limits. RPA highly recommends that the source of the low bias be investigated.
- Although there is some concern regarding the reliability of the copper assays observed in the CRMs, this is not reflected in the duplicate or umpire analysis. Additionally, copper is not a primary driver for the Orovalle Operation, and there is a long history of production here that gives confidence to the underlying data.
- Currently, only pulp duplicates are being inserted into the sample stream and tend to represent material below the break-even cut-off grade. RPA recommends inserting field, coarse, and pulp duplicates into the sample stream and attempt to target the duplicate insertion with grade ranges of economic interest.

In RPA's opinion, the sample preparation, analysis, and security procedures at Orovalle are adequate for use in the estimation of Mineral Resources.

In RPA's opinion, the QA/QC program as designed and implemented by Orovalle is adequate and the assay results within the database are suitable for use in a Mineral Resource estimate.

12 DATA VERIFICATION

Orovalle undertakes as a minimum, the following data verification prior to the finalisation of the database:

- Collar surveys conducted by in-house personnel are entered in a spreadsheet, transformed to UTM coordinates and checked by the project geologist.
- Geological logs are transcribed from the paper logs into an excel spreadsheet by the geologist responsible for logging the hole. When complete the database geologist checks and adds the data into the database.
- Results received from the labs are subject to QA/QC which is reviewed by the project geologist.
- Data entered into the RecMin database is subject to numerous controls to identify gaps, double-entry, overlaps, duplication, and absent values.
- When the information is verified, it is added to the Datamine database. There are two security database copies: one in RecMin and the other in Datamine.

During 2013, AMC Consultants (AMC) performed a review of the sampling method and approach, data entry, data verification and Mineral Resource estimation. AMC found minor errors with regard to incorrect sample labelling which were subsequently corrected. No other errors were identified by AMC.

RPA undertook the following verification on the data:

- Review of paper logging versus digitised logs on site.
- Review of data validation and importing process with site staff.
- Checked selection of laboratory assays against the database received.
- Checked for samples beyond hole depth, missing samples, overlapping samples, duplicate records.
- Checked for missing surveys, large survey deviations.

No validation errors were observed.

The QP is of the opinion that database verification procedures for the Orovalle Operation comply with industry standards and are adequate for the purposes of Mineral Resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

HISTORY OF METALLURGICAL TESTING

AAC started exploration drilling in the Rio Narcea gold belt in 1985. In 1990, AAC sent 36 t of samples from the Rio Narcea gold belt to its Johannesburg laboratory for metallurgical testing. A FS was carried out in 1991 indicating that it was technically and economically feasible to develop a mine on the Carlés deposit. In October 1996, a FS conducted by MinCorp Engineers & Constructors, a division of MinCorp Ltd. (MinCorp), was completed on the Carlés and Boinás deposits for what became known as the El Valle Operation. In 1997, RNGM commissioned Fluor Daniel Signet to design and construct a gold processing plant based on the metallurgical test work programs that were carried out as part of the two previous FSs. The construction of the El Valle processing plant was completed in 1998, with operations commencing in the same year. The El Valle processing plant was initially designed to process 600,000 tpa and was later upgraded to process a mix of oxidised, transition, and primary sulphides up to 750,000 tpa depending on overall rock hardness. The gravity circuit was expanded incrementally in 1999 and 2000 by the addition of more spirals, a third Knelson concentrator, and improvements to the shaking tables. These additions were made to ensure maximum recovery of gold to high grade gravity concentrates with superior smelting terms at the time. In 2001, modifications were made to the flotation circuit to increase capacity and flexibility for maximisation of copper recovery ahead of the carbon in leach (CIL) circuit, and to improve concentrate grades. In 2002, the intensive lixiviation reactor (ILIX) was installed and commissioned in order to produce higher paying gold doré from gravity concentrate. In 2003, a further expansion of the flotation and concentrate filtration sections took place to prepare for higher copper production from underground ores.

The El Valle processing plant can currently process the softer oxidised ores at a rate of 95 tonnes per hour (tph) and the harder sulphide skarn ores at a reduced rate of 60 tph.

The El Valle processing plant operated from February 1998 through to December 2006 when RNGM ceased mining operations as a result of low gold prices. The El Valle Operation was subsequently acquired by Orovalle. The El Valle processing plant was renovated for operational readiness by Orovalle and restarted in May 2011.

MINERALOGY AND PROCESS DESIGN

Orovalle ores require relatively complex metallurgical processes for the economic recovery of gold, copper, and silver.

The El Valle processing plant has the flexibility to achieve the following objectives:

- Remove native gold and copper from oxide ore using gravity concentration methods.
- Comminution circuit flexibility to cope with ore type variability and relatively harder skarn ore.
- Adjust the reagent dosage regimes to cater for the different requirements of each ore type (Boinás skarn, Carlés skarn, Boinás oxides, and transition ore).
- Control the arsenic content (and other lesser penalty elements) in the copper concentrate.

Oxidised ore is relatively soft and contains native copper and gold while sulphide skarn is relatively hard containing copper minerals chalcopyrite and bornite with gold silver alloy (electrum) associated with the copper sulphides and arsenopyrite.

The El Valle processing plant was designed based on the early metallurgical bench scale and pilot test work from the 1991 and 1996 FSs and included the following main processes:

- Primary crushing followed by a Semi Autogenous Grinding (SAG) mill operating in closed circuit with pebble crushers, followed by secondary ball milling.
- A gravity circuit, utilising centrifugal forces and the difference between the density of free gold (19.3 g/cc) and copper (8.9 g/cc) particles versus gangue particles (2.6 g/cc), recovers native gold and copper. A screened bleed stream from the mill circulating load feeds the gravity circuit. The circuit consists of three Knelson concentrators (rougher, scavenger and cleaner), cleaning spirals, and shaking tables. The gravity process is currently used to recover native gold and copper into a concentrate for further processing.
- Gravity concentrate is processed through an ILIX, with gold recovered from the high grade ILIX solution by electrowinning.
- Milled product is fed to a flotation circuit. Copper concentrate, also containing gold and silver, is sold to a smelter refiner.
- The flotation tail stream is processed through a CIL circuit for recovery of most of the remaining gold. Doré bars, produced from the CIL and ILIX processes are sent to a gold refinery.
- CIL residue passes through a cyanide destruction section and is deposited in the El Valle TSF.

RECENT METALLURGICAL INVESTIGATIONS

2015 PLANT METAL ACCOUNTING AUDIT

In December 2015, a plant metal accounting audit was undertaken by ALS under the direction of 911 Metallurgy Corp. (911 MC) and recorded as Project SC 242. The 2015 plant metal accounting audit report listed 21 recommended actions required to resolve deficiencies identified in the metal accounting process.

RPA recommends that a new independent follow up metal accounting audit of the Orovalle Operation plant and laboratory be undertaken in the near future. The metal accounting audit should be aligned to the industry recognised best practice Amira P754 Metal Accounting Code of Practice and Guidelines.

RPA has reviewed the independent Mine Laboratory ISO 9001 Audit Report prepared by Aenor and published in March 2020, and certificates for weigh scale calibrations undertaken in 2019 by an independent third party. In RPA's opinion the ISO 9001 certification and ongoing audits and independent weigh scale calibrations are good practice and contribute to the integrity of metal accounting processes.

2016 METALLURGICAL TESTING OF TRANSITION ZONE ORE

In January 2016, 911 MC conducted metallurgical tests on transition zone samples.

The Orovalle Operation laboratory prepared a total of 14.3 kg of sample material for testing originating from a transition zone drill core identified as CHBS+100GL2311215. The objective was to assess the metallurgical performance, specifically whether gold could be recovered while limiting arsenic recovery. The approach was to test the effect of leaching with and without prior flotation.

The chemical composition of the test sample is shown in Table 13-1.

TABLE 13-1 TRANSITION ZONE SAMPLE CHEMICAL COMPOSITION
Orovalle Minerals S.L. – Orovalle Operation

Sample	Cu %	Au g/t	Ag g/t	Fe %	S %	As %	CuOx %	CuCN %	Cu Res %
Transition Zone	0.89	0.55	20.3	15.3	0.39	0.41	0.27	0.51	0.07

A three stage copper sequential leach analysis was used to estimate the mass fraction of copper susceptible to weak acid and cyanide dissolution, and strong acid digestion.

The metallurgical test work report (Transition Ore Test, Report SC257 (911, 2016)) made the following observations in Table 13-2.

TABLE 13-2 SEQUENTIAL COPPER ANALYSIS OF TRANSITION ZONE SAMPLE
Orovalle Minerals S.L. – Orovalle Operation

Sequence Step	Observation	Comment
Weak sulphuric acid leach.	0.27% of the contained copper dissolved in weak acid.	Copper minerals that dissolve in weak acid are the copper oxides: Cuprite (Cu ₂ O), Azurite (C ₂ H ₂ Cu ₃ O ₈), Tenorite (CuO), and Malachite (Cu ₂ CO ₃ (OH) ₂) These copper minerals are generally not easily recoverable by flotation.
Cyanide leach conducted on the residue of the weak acid leach.	0.51% of the contained copper was dissolved in cyanide.	Cyanide will dissolve weak acid soluble copper oxides mentioned above and will also dissolve non-acid soluble native copper (Cu), and the sulphide copper minerals chalcocite (Cu ₂ S) and covellite (CuS).
Aqua regia leach (HNO ₃ + 3HCl) conducted on the residue of the cyanide leach.	There was very little copper remaining in the cyanide leach residue (0.07% Cu).	Aqua regia leach would dissolve chalcopyrite if present. The indication is that the transition zone contains very little primary sulphide chalcopyrite, but mostly secondary sulphide copper with some native copper and copper oxides.

X-Ray diffraction analysis (XRD) of pulverised samples (Table 13-3) indicates that chalcocite is the dominant copper mineral in the transition zone. Native copper or cuprite was also present in very minor amounts.

**TABLE 13-3 XRD ANALYSIS OF TRANSITION ZONE SAMPLE
Orovalle Minerals S.L. – Orovalle Operation**

Mineral	Mineral Content Weight %
Chalcocite	1.0
Native copper /Cuprite	<0.1
Pyrite	0.2
Arsenopyrite	0.7
Goethite/Limonite	24.7
Quartz	61.9
Gangue	11.4
Total	100.0

Bench scale tests were conducted on transition ore using gravity, flotation, and leach processes at a grind size of 80% passing (P_{80}) 68 μm . Gravity gold recovery was 7.2% and gold recovery to concentrate was 68%. Leach recovery of the remaining gold was 87%, 19.8% of the overall input gold, resulting in an overall gold recovery of 95%. Cyanide consumption was 5.5 kg/t. Copper recovery was 53.4%, which was relatively low due to the predominant copper minerals being poor floating secondary sulphides. Concentrate grade was reported as 61 g/t Au and 35% Cu.

RPA is in agreement with the report that transition ore can be processed at the El Valle processing plant as part of the ore feed mix. The gravity and flotation circuits should continue to be used in conjunction with the leach circuit to ensure that minimal cyanide soluble copper minerals enter the leach section.

2017 MINERALOGICAL EXAMINATION

In 2017, samples were prepared from Boinás East and Carlés for mineralogical examination. Gold inclusions up to 5 μm were found in copper minerals, particularly chalcopyrite, while very fine inclusions of 1 μm were present in silicates. Gold was present in arsenopyrite as submicron occlusions.

The mineralogical investigation was undertaken to provide insight to gold deportment in the ore so that gold recovery could be optimised. The 2017 study indicated that fine gold associated with copper sulphide minerals will be recovered into flotation concentrates. Submicron gold locked in silicate particles will inevitably be lost to tailings as it is uneconomical

to grind to the fineness that would be required (P_{80} 15 μ m) for cyanide leaching of the occluded submicron gold.

2018 MINERALOGICAL EXAMINATION OF SELECTED PLANT SAMPLES

In 2018, Orovalle retained the Universidad de Oviedo to conduct a mineralogical study on samples produced from the following mixed ore streams: SAG mill discharge, cyclone overflow, flotation concentrate, feed to cyanide leach, and final tailings. The purpose of the 2018 mineralogy study was to confirm and gain further insight into mineral department in the streams so that optimisation opportunities could be identified.

The following observations are taken from the 2018 mineralogy study:

- Gold was present in the flotation concentrate in association with or encapsulated by copper minerals and as free gold particles.
- Copper sulphide minerals were abundant in concentrate and not evident in tailings.
- Gold in tailings was generally associated with arsenopyrite as inclusions <1 μ m within particles.

In RPA's opinion the observations indicate that the El Valle processing plant flotation section was successfully recovering copper sulphide minerals and gold into the flotation concentrate. There is indication of minimal gold loss locked in arsenopyrite. It is unlikely that this is economically recoverable due to the costs associated with dilution of concentrate and further department of arsenic and other penalty elements into concentrate, thus attracting penalties.

PLANT PRODUCTION REVIEW

El Valle processing plant production statistics for the past five years are presented in Table 13-4. The consistency of performance indicators over the past five years demonstrate that the El Valle processing plant technologies employed for ore comminution and metal recovery are appropriate for the Orovalle ores.

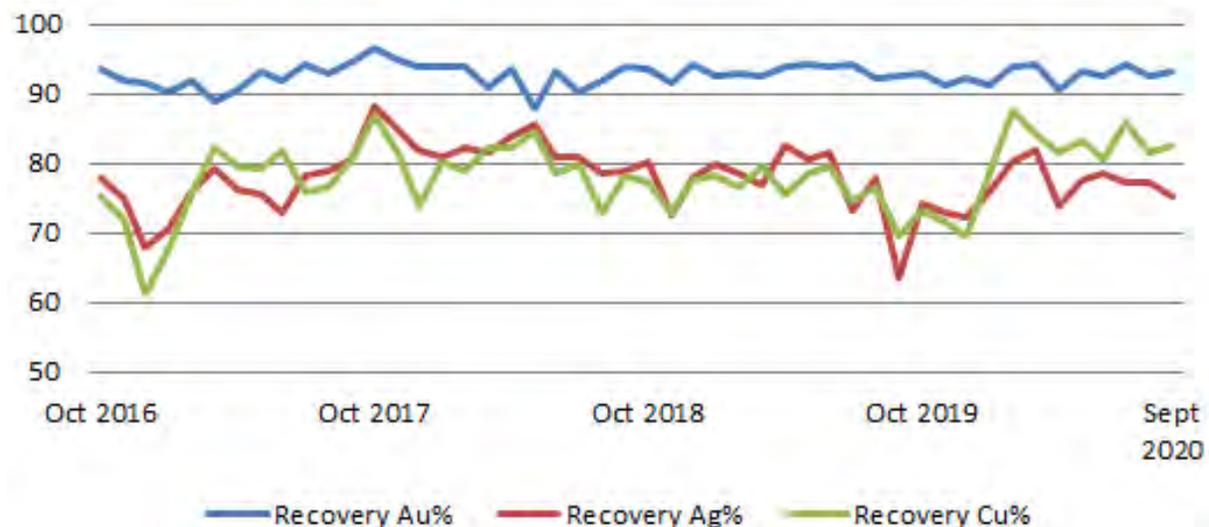
**TABLE 13-4 PLANT PRODUCTION HEADLINES FY 2016 TO FY 2020
Orovalle Minerals S.L. – Orovalle Operation**

Item	Unit	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Tonnes Milled	t	452 003	707 362	623 137	658 046	633 765
Gold Head Grade	g/t Au	3.27	2.46	3.13	3.26	2.71
Silver Head Grade	g/t Ag	12.47	10.61	11.57	9.43	9.48
Copper Head Grade	% Cu	0.56	0.46	0.47	0.45	0.5
Gold Produced	oz Au	44 682	51 546	58 259	64 237	51 104
Silver Produced	oz Ag	144 411	182 635	190 775	162 070	148 542
Copper Produced	Mlb Cu	4.257	5.507	5.123	5.015	5.611

PLANT PERFORMANCE

Recovery of gold, copper, and silver is shown in the time series graph in Figure 13-1. The 48 month period presented is from the start of FY 2017 through to the end of FY 2020.

FIGURE 13-1 MONTHLY RECOVERIES OVER THE PAST 48 MONTHS



Head grades and recoveries for the first eight months of FY 2020 are presented in Table 13-5. The average monthly processing rate for this period was 51,400 t per month.

**TABLE 13-5 HEAD GRADES AND RECOVERIES ACHIEVED FOR FY 2020
Orovalle Minerals S.L. – Orovalle Operation**

Metal	Head Grade	Recovery (%)			Total
		Gravity	Flotation	CIL	
Gold	2.74 g/t Au	12.7	56.3	23.7	92.7
Silver	10.33 g/t Ag	1.3	69.7	5.9	76.9
Copper	0.45% Cu	-	80.8	-	80.8

The QP is of the opinion that the forecast recoveries are in line with historic recoveries and previous test work. Gold recovery is consistently in the 90% to 95% range and averaged 92.4% for the 42 month period from October 2016 to May 2020. Copper and silver recoveries are influenced by the ratio of oxide and transition ore to sulphide ore, and hence the wider range of recoveries as indicated from month to month. The 42 month average recoveries were 78.7% for copper and 76.0% for silver.

SALEABLE PRODUCTS

The El Valle processing plant produces 43% of its gold in the form of doré bars and 57% in the form of gold in copper concentrate. Copper concentrate yield on a dry mass basis is typically 1.6% of plant feed. The average grade of concentrate and doré bars for FY 2020 compared to FY 2016 to FY 2019 is presented in Table 13-6.

**TABLE 13-6 PRODUCTS DISPATCHED FROM THE PLANT AVERAGE SPLIT
TO CONCENTRATE AND DORÉ AND PRODUCT GRADES
Orovalle Minerals S.L. – Orovalle Operation**

Product	Period	% of Gold Production	Gold Grade (g/t Au) Conc % Doré	Split of Silver Production (%)	Silver Grade (g/t Ag)	Split of Copper Production (%)	Copper Grade (% Cu)
Flotation concentrate	FY 2020	61	85.8	91	377	100	24.8
	2016-2019	57	106	87	481	100	23.7
Doré produced from gravity and leach circuits	FY 2020	39	45	9	31	-	-
	2016-2019	43	37	13	38	-	-

Based on the gold mineralogy in the oxide and sulphide ores, it is anticipated that gold in oxide ore will generally be recovered as doré product from gravity and CIL circuits, while gold in the sulphide skarn ore will be recovered into flotation concentrate. The deportment of gold from transition ore to either doré or copper concentrate will be influenced by the degree of weathering alteration. RPA analysed the available plant data for correlations, and it is evident

that as expected the recovery of gold to copper concentrate and doré is influenced by the plant feed ore mix. A higher oxide to skarn ratio generally results in a higher recovery of gold to doré, with the converse also holding true.

For FY 2020 the copper content of copper concentrates dispatched to the smelter was on target at 24.8% Cu. Some deleterious elements (Bi, Hg, Sb, Se, F) exceeded the free limits and attracted penalties. The average concentrate grade of pay and penalty elements as dispatched to the smelter is presented in Table 13-7. Figures in red indicate that they exceed the penalty trigger point. RPA notes that the indication from mine cash flow models is that penalty charges can be in the order of approximately 5% of annual revenues.

RPA recommends that a study be carried out to better understand the source of the highest contributing penalty elements antimony (Sb), bismuth (Bi) and fluorine (F), their host mineralogy, the upgrade ratio, and options to limit and control the department of these elements to concentrate.

**TABLE 13-7 CONCENTRATE DISPATCHED ANALYSES AVERAGED FOR
FY 2020
Orovalle Minerals S.L. – Orovalle Operation**

	Au	Ag	Cu	As	Bi	Hg	Pb	Zn	Sb	Se	F	Cl
	g/t	g/t	%	%	%	g/t	%	%	%	g/t	g/t	g/t
Average Grade	99.2	372	24.2	0.50	0.07	29	0.07	0.33	0.18	156	2,606	136
Penalty Trigger	-	-	-	>0.20	>0.02	>15	Pb+Zn >2.5	>0.03	>100	F+Cl >300		

14 MINERAL RESOURCE ESTIMATE

SUMMARY

The 2020 updated Mineral Resource estimate for the Orovalle Operation was completed by Orovalle personnel and reviewed by RPA.

A summary of the updated Mineral Resources effective as of September 30, 2020, inclusive of Mineral Reserves, is provided in Table 14-1. A summary of the mineral zones constituting the Mineral Resource estimate is presented in Table 14-2.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification and estimation.

As discussed in greater detail in Section 20, Orovalle is currently engaged in working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting, or legal consequences for the Orovalle Operation, potentially materially affecting the Mineral Resource estimate. RPA is not aware of any other permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

TABLE 14-1 SUMMARY OF MINERAL RESOURCES INCLUSIVE OF MINERAL RESERVES– SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Zone	Measured Mineral Resources				Contained Metal		
	Tonnes (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	806	3.84	15.29	0.58	99	396	10,286
Boinás Skarn	2,146	2.69	16.54	0.78	186	1,141	36,741
Carlés	232	3.45	10.00	0.53	26	75	2,696
La Brueva							
Total	3,184	3.04	15.75	0.71	311	1,612	49,723

Indicated Mineral Resources

Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	3,025	4.78	4.94	0.34	465	480	22,356
Boinás Skarn	398	2.78	17.82	0.75	36	228	6,591
Carlés	1,327	3.37	7.64	0.38	144	326	10,971
La Brueva							
Total	4,749	4.22	6.77	0.38	644	1,034	39,918

Measured + Indicated Mineral Resources

Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	3,831	4.58	7.12	0.39	564	876	32,642
Boinás Skarn	2,544	2.70	16.74	0.77	221	1,370	43,332
Carlés	1,559	3.38	7.99	0.40	169	400	13,667
La Brueva							
Total	7,934	3.74	10.38	0.51	955	2,646	89,641

Inferred Mineral Resources

Zone	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Boinás Oxide	1,665	4.36	8.62	0.30	233	461	11,057
Boinás Skarn	348	2.85	18.51	0.74	32	207	5,698
Carlés	1,163	3.26	4.62	0.30	122	173	7,703
La Brueva	187	3.90	15.53	0.09	23.40	93.13	357.30
Total	3,362	3.80	8.64	0.33	410	934	24,816

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a gold equivalent (AuEq) cut-off grade of 2.52 g/t AuEq for Boinás oxide, 2.20 g/t AuEq for Boinás skarn, 1.96 g/t AuEq for Carlés skarn, and 2.52 g/t AuEq for La Brueva oxides.
3. Mineral Resources are estimated using long term prices of US\$1,700/oz Au, US\$20/oz Ag, and US\$3.25/lb Cu. A US\$/€ exchange rate of 1.20/1.00 was used.
4. Mineral Resources are inclusive of Mineral Reserves.
5. Crown pillars of 60 m and 40 m are excluded from the Mineral Resource below the El Valle TSF and Boinás East open pits, respectively.
6. Unrecoverable material in exploited mining areas has been excluded from the Mineral Resource.
7. Areas of contiguous blocks with volumes less than 500 m³ have been removed from the Mineral Resource report to ensure Reasonable Prospects for Eventual Economic Extraction (RPEEE).
8. Numbers may not add due to rounding.

TABLE 14-2 MINERAL RESOURCE MODEL DESCRIPTIONS
Orovalle Minerals S.L. – Orovalle Operation

Zone	Mine	Type	Block Model Name	Estimation Method	Depletion		Model Updated
					Crown Pillar	Mining/ Sterilisation	
A107	El Valle-Boinás	Oxide	A107_2020	OK	✓	✓	2020
Charnela South	El Valle-Boinás	Oxide	CH	OK	✓	✓	2019
EV Fault	El Valle-Boinás	Oxide	VF_2020	OK	✓		2020
S107	El Valle-Boinás	Oxide	S1_2020	OK		✓	2020
East Breccia	El Valle-Boinás	Oxide	EBX	OK			2018
A208	El Valle-Boinás	Oxide	A208_2020	OK	✓		2020
High Angle	El Valle-Boinás	Oxide	HA_2020	OK	✓		2020
High Angle East	El Valle-Boinás	Oxide	HE_2020	OK			2020
Zona Villar	El Valle-Boinás	Oxide	ZV_2020	OK		✓	2020
West Skarn	El Valle-Boinás	Oxide	WS_2020	OK	✓		2020
Boinás East	El Valle-Boinás	Oxide	BE_2020	OK	✓	✓	2020
Boinás South	El Valle-Boinás	Oxide	SB	OK			2019
Black Skarn North	El Valle-Boinás	Skarn	BS_2020	OK		✓	2020
Boinás East	El Valle-Boinás	Skarn	BE_2020	OK	✓	✓	2020
Black Skarn - North West	El Valle-Boinás	Skarn	BS_2020	OK		✓	2020
San Martin	El Valle-Boinás	Skarn	BS_2020	OK		✓	2020
Boinás South	El Valle-Boinás	Skarn	SB	OK			2019
Carlés North	Carlés	Skarn	CN	OK		✓	2020
Carlés East	Carlés	Skarn	CE	OK		✓	2018
Carlés NW	Carlés	Skarn	CNW	OK		✓	2018
Carlés Capa Z	Carlés	Skarn	CZ	OK			2018
Carlés West	Carlés	Skarn	CW	OK			2020
Carlés South	Carlés	Skarn	CS	OK			2020
La Brueva	La Brueva	Oxide	LB	OK			2015

RESOURCE DATABASE

The databases used for the Mineral Resource estimation were cut off on June 30, 2020. No drilling that would have a material impact on the Mineral Resource estimate or understanding of the geology was completed between the timing of writing and the effective date of the Mineral Resources. Some resource models were not updated during 2020 (Table 14-2), however, no significant exploration has been undertaken on these deposits and as such there is no requirement to update the Mineral Resource estimates in these zones. Any model that was not updated in 2020 but was mined up to the effective date was depleted by the appropriate amount.

The resource database is stored within a Microsoft (MS) Access database that resides on a secure part of the Orovalle server that is only accessible by geological staff who are required access. The MS Access database is administered by RecMin and Datamine software packages. El Valle-Boinás, Carlés, and La Brueva drilling are stored in separate databases.

A summary of the drill hole database used at El Valle-Boinás for Mineral Resource estimation are provided in Table 14-3.

TABLE 14-3 EL VALLE-BOINÁS ESTIMATION DATABASE
Orovalle Minerals S.L. – Orovalle Operation

Statistic		A107	BEI	BOINÁS	BW	CHI	EL VALLE	Total
	Hole Count	1,246	677	226	90	92	287	2,618
Au	Assay Count	63,321	29,055	27,795	4,383	5,935	24,905	155,394
	Assay Length (m)	91,000	40,861	37,185	7,714	9,074	39,072	224,907
Ag	Assay Count	62,291	26,844	26,012	4,378	4,828	19,479	143,832
	Assay Length (m)	89,020	37,619	34,324	7,694	7,283	29,717	205,657
Cu	Assay Count	63,259	28,657	27,311	4,383	5,930	24,867	154,407
	Assay Length (m)	90,578	40,368	36,486	7,714	9,069	38,617	222,833
Detailed Lith	Count	6,852	6,372	3,666	24	2,558	5,595	25,067
Logging	Length (m)	53,796	34,180	36,600	361	12,633	53,368	190,938
Broad Lith	Count	20,107	10,980	4,253	848	2,726	5,995	44,909
Logging	Length (m)	167,612	68,531	51,166	12,041	13,262	61,110	373,721
	Downhole Surveys	33,236	15,368	3,428	692	1,755	5,984	60,463
	Geotechnical Entries	27,319	9,320	1,957	0	1,912	2,868	43,376
	RQD Measurements	27,136	11,296	10,000	86	2,332	5,464	56,314

Unlike El Valle-Boinás, the Carlés Mineral Resource utilised underground channel samples. A summary of the drill hole database used for the Carlés Mineral Resource estimation is provided in Table 14-4. Table 14-5 details the channel samples available for the Carlés Mineral Resource estimation, as well as the drill hole database for La Brueva.

TABLE 14-4 CARLÉS DRILL HOLE ESTIMATION DATABASE
Orovalle Minerals S.L. – Orovalle Operation

Statistic		CN	CW	CNW	CE	CS	INTERIOR	RC	Total
	Hole Count	380	28	143	34	24	258	19	886
Au	Assay Count	9,821	1,573	3,413	1,524	584	6,140	166	23,221
	Assay Length (m)	41,466	3,180	14,747	1,998	1,302	13,058	258	76,008
Ag	Assay Count	9,137	1,573	3,409	1,524	313	3,967	0	19,923
	Assay Length (m)	41,466	3,180	14,747	1,998	1,302	13,058	258	76,008
Cu	Assay Count	4,549	1,573	1,674	1,524	293	2,402	161	12,176
	Assay Length (m)	41,466	3,180	14,747	1,998	1,302	13,058	258	76,008
Detailed Lith	Count	3,382	0	826	569	59	3,161	0	7,997
Logging	Length (m)	29,885	0	9,421	4,204	894	15,474	0	59,880
Broad Lith	Count	3,326	773	926	520	223	2,814	63	8,645
Logging	Length (m)	28,986	4,409	10,966	4,410	2,808	13,565	267	65,410
	Downhole Surveys	8,026	204	2,660	146	97	2,615	213	13,961
	Geotechnical Entries	4,249	0	1,273	0	139	1,593	0	7,254
	RQD Measurements	4,239	0	1,272	0	139	1,593	0	7,243

TABLE 14-5 CARLÉS CHANNEL SAMPLE AND LA BRUEVA ESTIMATION DATABASE
Orovalle Minerals S.L. – Orovalle Operation

Statistic	Carlés Channel			Total	La Brueva	
	PANELES	FRENTE	JUMBO			
Hole Count	5,018	43	19	5,080	21	
Au	Assay Count	20,688	209	38	20,935	510
	Assay Length (m)	20,153	171	114	20,438	7,126
Ag	Assay Count	17,523	209	38	17,770	510
	Assay Length (m)	14,598	171	114	14,883	7,126
Cu	Assay Count	-	-	-	-	476
	Assay Length (m)	-	-	-	-	6,650

No validation errors were observed. In RPA's opinion, the resource database is suitable for use in the Mineral Resource estimate.

GEOLOGICAL INTERPRETATION

Geological interpretation of the lithologies are initially hand drawn on printed sections orientated along the drilling direction by the geologists overseeing the logging. These hand drawn sections are then digitised in Datamine by site geologists to form polylines on each section. Polylines are snapped to the lithological contacts, which should match the assay contact as separate samples are undertaken when there are changes in geology.

Sectional interpretations are wireframed together to form valid 3D solids that represent the lithology model. As the mineralisation is broadly controlled by the lithology (skarns, oxides, etc), these lithological wireframes are used as boundaries for constraining the mineralisation during Mineral Resource estimation.

Internal waste intercepts within a lithology are modelled out of the lithology wireframes if they can be correlated across multiple drill holes/sections.

Separate wireframes are generated where there are noted changes in geology, lithology, or mineralisation characteristics. Two main types of geological constraints were modelled at Boinás, with the exception of Charnela (Figure 14-2), which was constrained by polylines constructed on plan views spaced two metres apart:

- Calcic or magnesian skarns in contact with granite and dolomite or limestone.
- Jasperoid bearing oxide zones related to epithermal faults consisting of a number of lithologies.

At Carlés, wireframe solids were modelled for the mineralised skarn occurring at the contact between the granite and the limestones/dolomites to the north. In addition, wireframes were generated for barren/low grade garnet skarn horizons occurring within the mineralised skarn and in the hanging wall. The garnet skarn was not modelled as a distinct domain during block modelling but was used for geotechnical purposes during mine planning.

At La Brueva, wireframe solids are modelled following the mineralised oxide lithologies located within the sandstones.

Figures 14-1 to 14-3 illustrate the wireframe interpretations at El Valle-Boinás, Carlés, and La Brueva.

Figure 14-1

Orovalle Minerals S.L.

Orovalle Operation

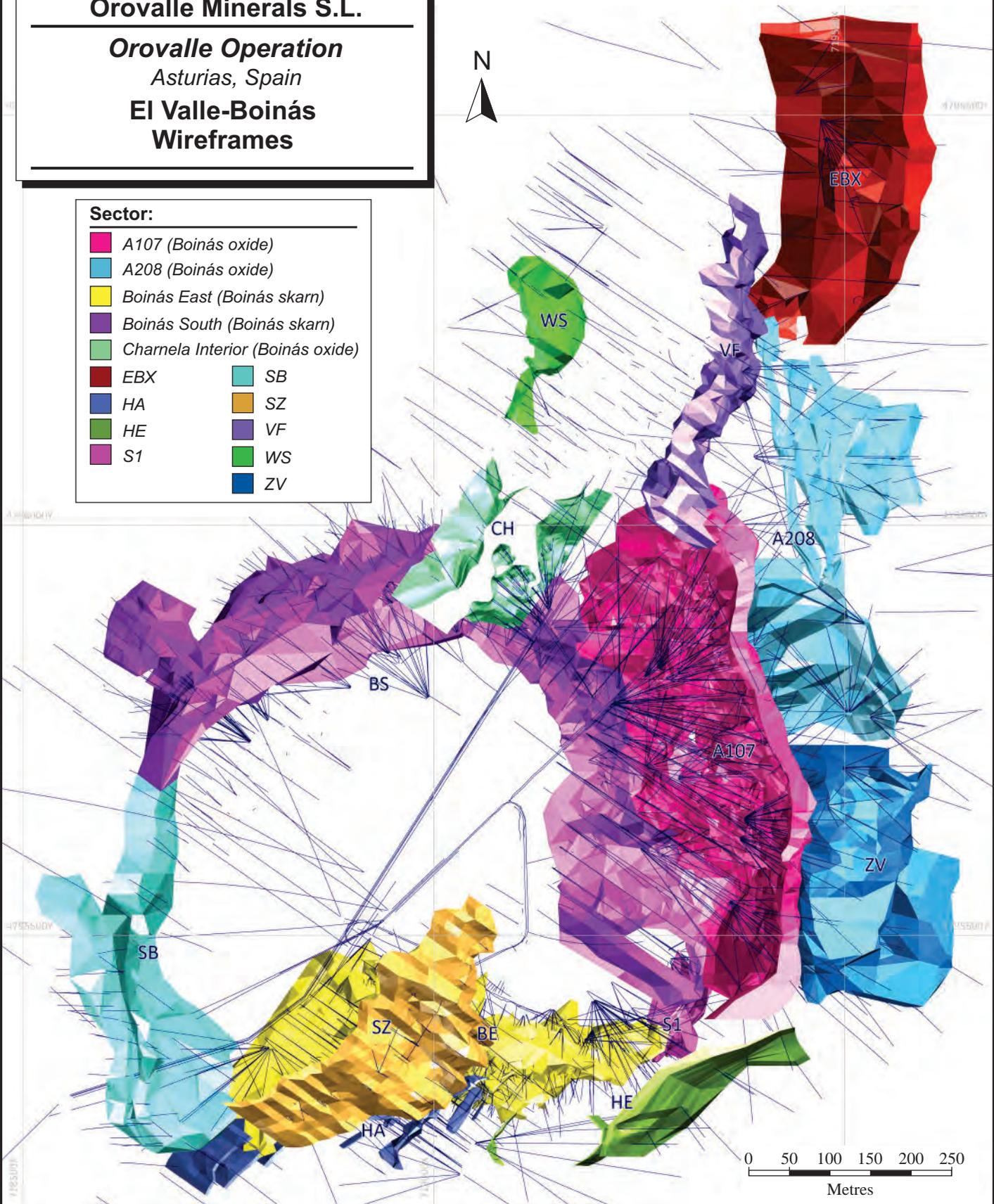
Asturias, Spain

El Valle-Boinás

Wireframes

Sector:

- A107 (Boinás oxide)
- A208 (Boinás oxide)
- Boinás East (Boinás skarn)
- Boinás South (Boinás skarn)
- Charnela Interior (Boinás oxide)
- EBX
- HA
- HE
- S1
- SB
- SZ
- VF
- WS
- ZV



November 2020

Source: RPA, 2020.

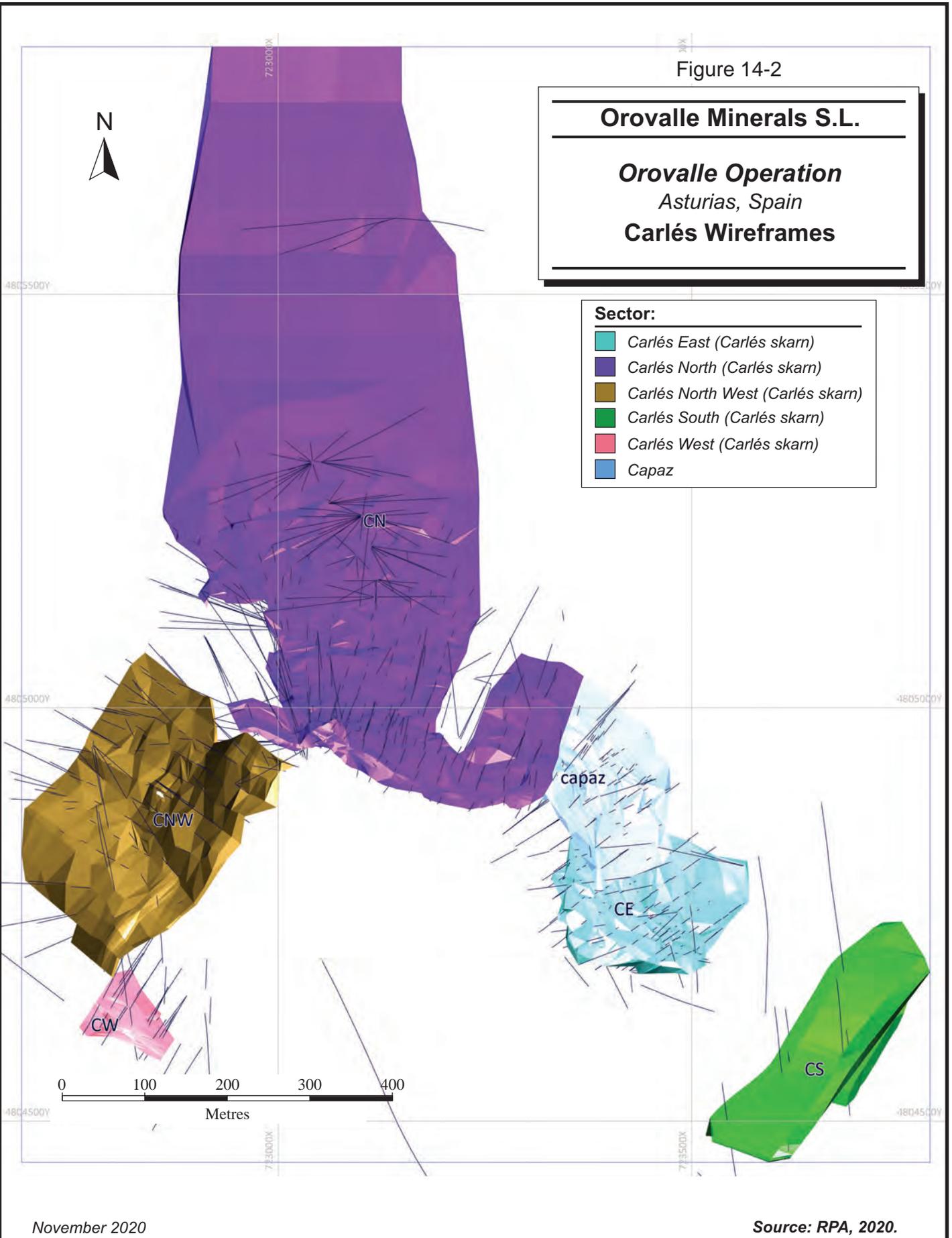
Figure 14-2

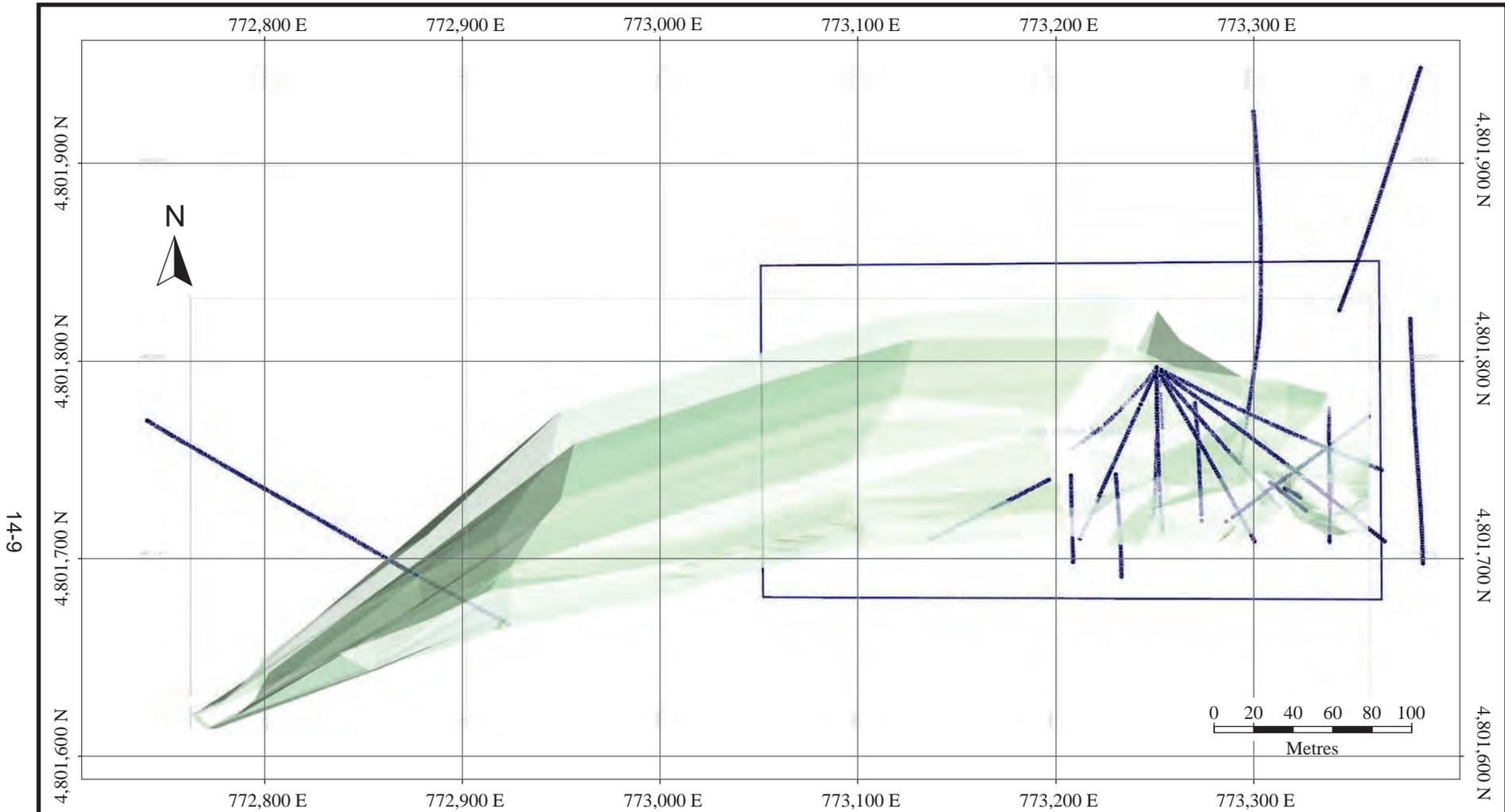
Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain
Carlés Wireframes

Sector:

- Carlés East (Carlés skarn)
- Carlés North (Carlés skarn)
- Carlés North West (Carlés skarn)
- Carlés South (Carlés skarn)
- Carlés West (Carlés skarn)
- Capaz





14-9

Figure 14-3

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

La Brueva Wireframes

Due to the orientation of drilling in relation to the mineralised bodies, as a result of underground access, the wireframes are often intersected by the drilling at low angles. This results in difficulties with sectional interpretation and linking polylines between sections, although RPA notes that the lithological wireframes are reasonable overall.

No minimum thickness is applied to the wireframes, as they are designed to follow the lithology, however, the QP is of the opinion that the mineralised zones are generally of sufficient thickness that minimum thicknesses is not considered an issue.

While underground drilling is undertaken on 25 m spacing in fans due to intersections, wireframes are generally extrapolated past the last mineralised drill hole intersection by 20 m or half drill the spacing if the wireframes cannot be extrapolated onto the neighbouring drill hole. Where required, extrapolations were extended to reduce wireframing artefacts such as inconsistent termination of wireframes between sections. In areas where wireframes extrapolated beyond reasonable distances, such as at Carlés CN, extrapolation was controlled with the classification criteria.

Faults are modelled in 3D from drill hole data and used to constrain the lithology wireframes where required.

In addition to wireframe solids, Orovalle constructs trend surfaces which represent the general trend of each domain and observed trends in the grade distributions within a domain. An example of the trend wireframes for A208 is illustrated in Figure 14-4. The trend surfaces are used to define the strike and dip orientations of the search ellipse and variograms used within the dynamic anisotropy (DA) function of Datamine software. Trend surfaces are also used to coordinate the transformation of blocks and composites in zones that use flattening rather than DA.

For domains with complicated morphologies, such as the Black Skarn at Boinás, the domains were divided into sub-domains based on their general orientations and a trend surface for each sub-domain was modelled.

Looking South

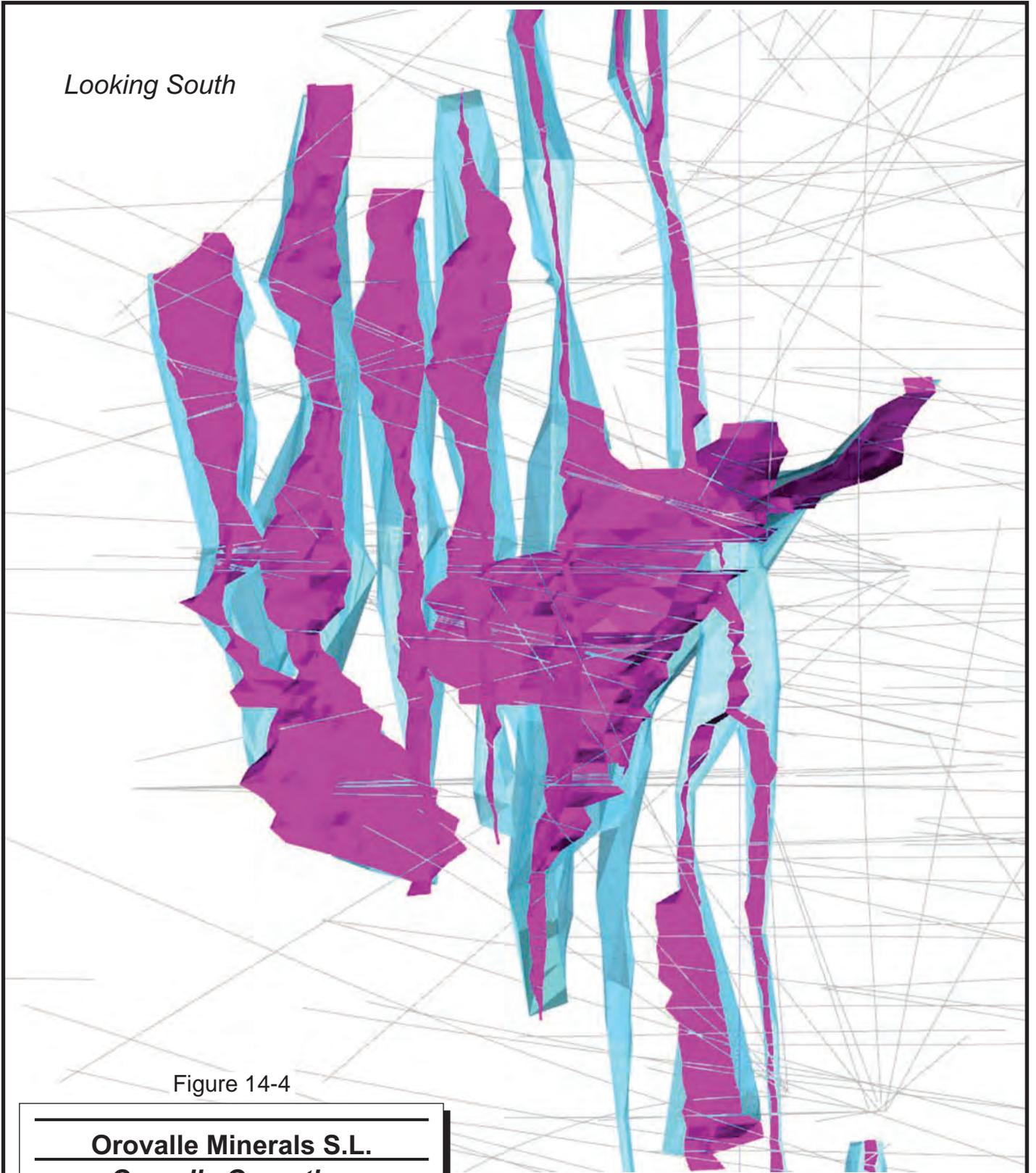


Figure 14-4

Orovalle Minerals S.L.
Orovalle Operation
Asturias, Spain
A208 Trend Wireframes
(Pink) Inside Domain (Blue)

Not to Scale

November 2020

Source: RPA, 2020.

RPA considers the use of hand drawn cross-sectional interpretations, which are later digitised, to be an effective method for ensuring that the Orovalle geologists have a good understanding of the geology, and the resulting wireframes to be generally of high quality. RPA notes that the lithology wireframes broadly constrain the mineralisation and some sub-domaining has been undertaken in areas such as A208. RPA recommends that further refinement of sub-domains, and additional sub-domains, where required, be undertaken to define high grade trends within the lithology wireframes. This could be considered with the use of internal implicit wireframes. The QP does not consider this a material issue in the current Mineral Resource estimation.

TREATMENT OF HIGH GRADE ASSAYS

Capping was undertaken on assays prior to compositing, with capping analysis undertaken on each zone or zone sub-domain individually. Table 14-6 details the capping levels applied to the composites.

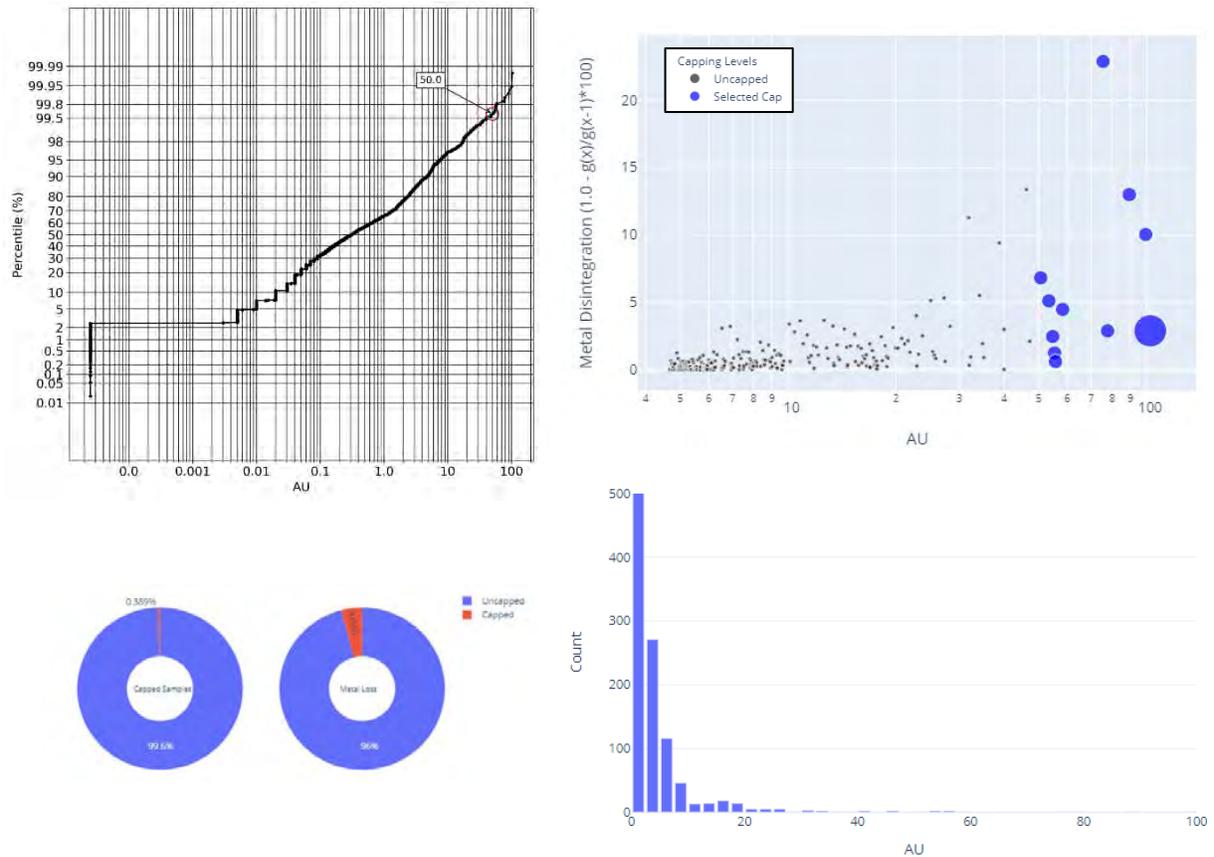
TABLE 14-6 CAPPING LEVELS
Orovalle Minerals S.L. – Orovalle Operation

Zone/Sub-Domain	Capped Value		
	(g/t Au)	(g/t Ag)	(% Cu)
Charnela South High Grade	60	120	2.5
Charnela South Mid Grade	30	-	2
Charnela South Low Grade	2	-	0.2
A107	75	150	8
S107	20	130	10
El Valle Fault High	50	-	5
El Valle Fault Low	1.5	-	1
East Breccia High	50	100	5
East Breccia Low	1.5	15	1
A208	30	150	5
High Angle	50	180	7
High Angle East	50	180	7
Zona Villar	50	150	5
Boinás East	30	150	6
BSN-San Martín	30	150	10
Boinás South High	30	100	2.5
Boinás South Low	0.5	10	0.75
West Skarn	75	150	8
Carlés East High	30	130	9
Carlés East Low	4	50	0.2
Charnela South High Grade	60	120	2.5

Zone/Sub-Domain	Capped Value		
	(g/t Au)	(g/t Ag)	(% Cu)
Charnela South Mid Grade	30	-	2
Charnela South Low Grade	2	-	0.2
A107	75	150	8
S107	20	130	10
El Valle Fault High	50	-	5
El Valle Fault Low	1.5	-	1
East Breccia High	50	100	5
East Breccia Low	1.5	15	1
A208	30	150	5
High Angle	50	180	7
High Angle East	50	180	7
Zona Villar	50	150	5
Boinás East	30	150	6
BSN-San Martín	30	150	10
Boinás South High	30	100	2.5
Boinás South Low	0.5	10	0.75
West Skarn	75	150	8
Carlés East High	30	130	9
Carlés East Low	4	50	0.2
Carlés South	50	300	15
Carlés West	50	300	15
Capa Z High	30	150	6
Capa Z Low	3	10	1
Carlés North High	50	300	15
Carlés North Low	5	50	3
Carlés Northwest High	30	-	10
Carlés Northwest Low	4	-	1
La Brueva	-	150	1.25

RPA agrees with undertaking capping prior to compositing to ensure excess metal is not generated from high grade short samples. RPA undertook independent capping checks on the composite samples. Figure 14-5 illustrates an example of the capping analysis at the High Angle zone. The QP considers the capping values used to be appropriate.

FIGURE 14-5 CAPPING ANALYSIS CHECKS ON THE HIGH ANGLE ZONE



COMPOSITING

A variable compositing length strategy was applied at Carlés taking into consideration the orientation of the drill hole relative to the local trend of the mineralisation. The variable length compositing procedure is as follows:

- Drill hole intercepts are composited to full length.
- Trend surfaces are used to calculate the local trend of mineralisation.
- The dot product between the composite dip and azimuth and the pole to the trend surface is used to establish the angle at which the drill hole intersects the mineralisation.
- Based on this angle, the true thickness of the intercept can be calculated and then used to define the compositing length required such that each composite would represent a one metre true thickness composite.

At El Valle-Boinás and La Brueva, compositing was undertaken on 1.5 m and 2.0 m intervals respectively within the domain boundaries, which matches the mean sample length of the raw assays (Figure 14-6).

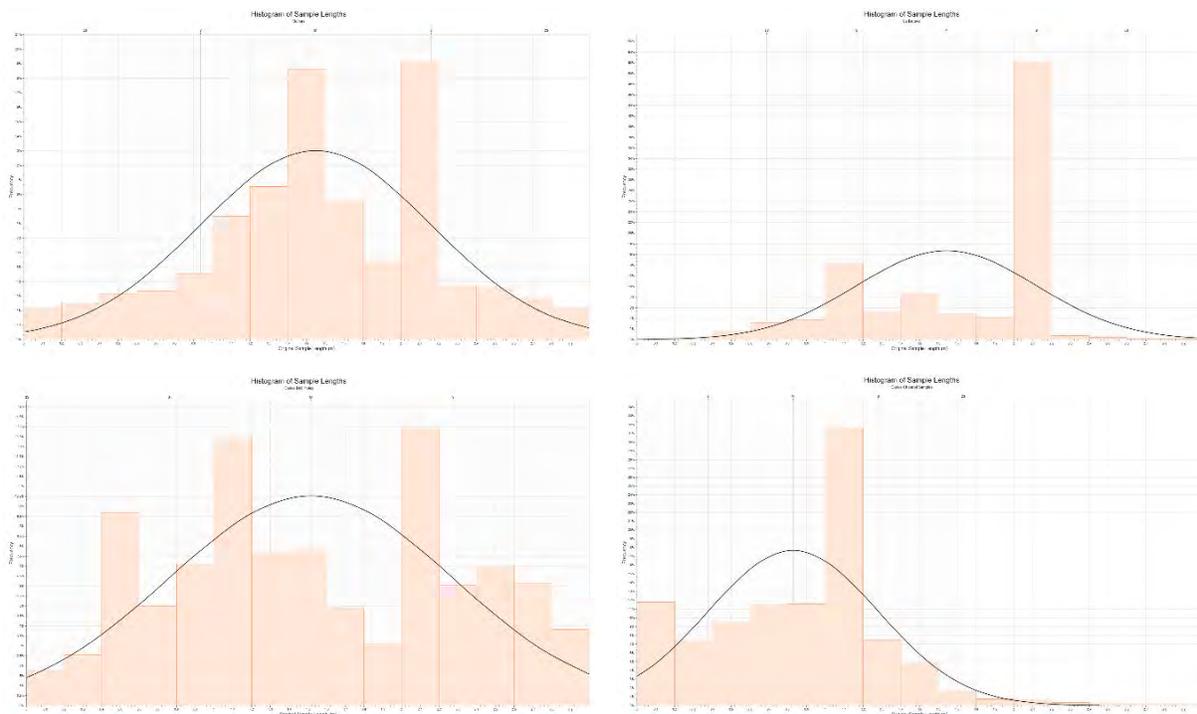
Table 14-7 details the composite statistics for recently updated models.

TABLE 14-7 COMPOSITE STATISTICS FOR UPDATED MODELS
Orovalle Minerals S.L. – Orovalle Operation

Deposit	Zone Code	Field	Sample Count	Grade				Stdev	CV	Drillhole Count
				Mean	Median	Min	Max			
		AuCAP (g/t)		1.98	0.31	0.00	102.33	5.90	2.99	
	A2	AgCAP (g/t)	2,826	3.48	0.90	0.00	370.00	16.40	4.71	195
		CuCAP (%)		0.16	0.08	0.00	7.70	0.33	2.08	
		AuCAP (g/t)		2.97	0.40	0.00	487.25	12.81	4.32	
	AR	AgCAP (g/t)	6,111	5.59	1.20	0.00	1,528.00	26.88	4.81	394
		CuCAP (%)		0.32	0.09	0.00	28.55	0.93	2.88	
		AuCAP (g/t)		2.08	0.82	0.00	380.53	6.83	3.29	
	BE	AgCAP (g/t)	18,036	15.03	4.70	0.00	5,560.00	64.59	4.30	592
		CuCAP (%)		0.58	0.20	0.00	61.33	1.36	2.36	
		AuCAP (g/t)		1.60	0.45	0.00	1,163.47	10.20	6.36	
	BS	AgCAP (g/t)	22,585	8.94	2.20	0.00	2,198.40	34.35	3.84	681
		CuCAP (%)		0.32	0.07	0.00	39.95	0.95	2.98	
		AuCAP (g/t)		3.60	0.38	0.00	161.37	10.26	2.85	
	HA	AgCAP (g/t)	749	9.61	0.50	0.00	939.00	48.43	5.04	91
		CuCAP (%)		0.48	0.07	0.00	13.30	1.45	3.02	
		AuCAP (g/t)		4.31	0.69	0.00	75.37	11.18	2.59	
El Valle-	HE	AgCAP (g/t)	138	5.13	0.60	0.00	75.00	11.60	2.26	23
Boinás		CuCAP (%)		0.20	0.06	0.00	2.17	0.39	1.99	
		AuCAP (g/t)		3.57	1.65	0.00	42.60	5.98	1.68	
	S1	AgCAP (g/t)	166	24.67	12.15	0.00	257.00	34.64	1.40	37
		CuCAP (%)		2.27	1.00	0.00	16.49	3.17	1.40	
		AuCAP (g/t)		2.63	0.30	0.00	368.70	10.60	4.02	
	VF	AgCAP (g/t)	3,430	2.97	0.60	0.00	238.00	12.28	4.14	81
		CuCAP (%)		0.19	0.07	0.00	12.40	0.46	2.36	
		AuCAP (g/t)		2.06	0.17	0.00	70.17	6.99	3.39	
	WS	AgCAP (g/t)	240	9.85	0.60	0.00	282.00	29.53	3.00	17
		CuCAP (%)		0.33	0.04	0.00	6.92	0.86	2.63	
		AuCAP (g/t)		1.38	0.13	0.00	198.30	6.23	4.52	
	ZV1	AgCAP (g/t)	1,971	4.16	0.50	0.00	448.60	21.61	5.20	64
		CuCAP (%)		0.18	0.06	0.00	10.83	0.53	2.96	
	ZV2	AuCAP (g/t)	409	0.43	0.08	0.00	6.48	0.92	2.13	10
		AgCAP (g/t)		2.30	0.50	0.00	163.80	8.98	3.90	

Deposit	Zone Code	Field	Sample Count	Grade				Stdev	CV	Drillhole Count
				Mean	Median	Min	Max			
Carlés	CN	CuCAP (%)	14,490	0.06	0.02	0.00	2.05	0.18	2.82	181
		AuCAP (g/t)		3.76	1.77	0.00	558.99	10.39	2.76	
		AgCAP (g/t)		9.18	2.50	0.00	2,300.00	35.21	3.84	
		CuCAP (%)		0.40	0.07	0.00	11.40	0.78	1.94	
		AuCAP (g/t)		1.16	0.05	0.00	36.8	3.79	3.27	
	CS	AgCAP (g/t)	127	1.42	0.20	0.00	37.1	4.10	2.88	18
		CuCAP (%)	0.20	0.03	0.00	4.6	0.57	2.81		
		AuCAP (g/t)	3.15	0.60	0.00	100.00	9.38	2.97		
	CW	AgCAP (g/t)	263	17.80	0.30	0.00	3,851.00	238.46	13.40	18
		CuCAP (%)	0.28	0.02	0.00	13.00	1.41	4.96		
AuCAP (g/t)		372	1.73	0.86	0.005	20.31	2.59	1.49		
La Brueva	LB	AgCAP (g/t)	376	6.15	1.50	0	150.00	18.07	2.94	21
		CuCAP (%)	376	0.05	0.07	0	1.25	0.10	1.98	

FIGURE 14-6 RAW ASSAY LENGTH HISTOGRAMS FOR BOINÁS (TOP LEFT), LA BRUEVA (TOP RIGHT), CARLÉS DRILL HOLES (BOTTOM LEFT), AND CARLÉS CHANNEL SAMPLES (BOTTOM RIGHT)



RPA reviewed the compositing strategy adopted by Orovalle and is of the opinion that the decision to use a fixed length composite at Boinás is warranted. RPA has observed instances where two short composite intervals have been generated where only one normal length

composite sample would suffice. RPA notes that although this would give additional weight to these samples, this is countered by the fact that:

- There are relatively few occurrences of these samples.
- The impact would be reduced by the declustering spatial effect of ordinary kriging (OK).
- They occur across the grade range and thus do not bias the model in any particular direction.

While RPA does not consider this to be material to the Mineral Resource estimate, it should be amended in future updates.

RPA notes that variable length compositing is effective for dealing with the difficult drilling angles and more banded curvi-planar mineralisation trends at Carlés.

TREND ANALYSIS

VARIOGRAPHY

Variography was performed on composites using Sage and Datamine software. Where coordinates were flattened, variogram rotations are azimuth rotations relative to the transformed coordinate set. In the original coordinate system, the variogram rotation represents a plunge to the mineralisation.

Orovalle generated correlograms and traditional variograms for the data in either original units or log transformed. The variogram parameters used to support search ellipsoid parameters and for OK estimation are presented in Table 14-8.

RPA has reviewed the Orovalle variography and considers the nugget effect to be underestimated at a number of deposits. RPA notes that the impact of having a lower nugget effect is the reduction of smoothing within the model, as the spatial model will be allowed to influence the estimation. This reduction would counteract the smoothing that is a result of using a geological based domaining which can contain separate variable grade populations.

RPA has undertaken an independent re-check estimate on the Black Skarn North deposit using the same parameters as Orovalle but using three different nuggets values of 0%, 24%, and 50% to match the varying nuggets reported by Orovalle and those observed by RPA. The QP notes that the results of the re-interpolation using different nugget values at the deposit

identified that the nugget effect being under-estimated is not having a material impact on the Mineral Resource estimate and thus the Orovalle estimate can be relied upon. RPA recommends that a full variography review be undertaken prior to future updates.

TABLE 14-8 VARIOGRAM PARAMETERS
 Orovalle Minerals S.L. – Orovalle Operation

Zone	Metal	Nugget	Sill 1	Range 1 (m)			Sill 2	Range 2 (m)			Rotation		
				X Axis	Y Axis	Z Axis		X Axis	Y Axis	Z Axis	Z Axis	X Axis	Z Axis
Carlés North	Au	0	0.64	8.4	1	2.2	0.36	17.3	51.7	16.6	-16	0	0
	Ag	0	0.74	3	2.1	72.6	0.26	47.2	45.6	14.1	-56	0	0
	Cu	0	0.77	2.9	2.3	81	0.22	67.8	15.8	19.4	-2	0	0
Carlés East Upper	Au	0.02	0.8	3.6	2.1	2.9	0.17	23.2	51.9	5.9	-59	0	0
	Ag	0	0.72	8.8	2.9	3.3	0.28	35.8	29.8	12.9	-60	0	0
	Cu	0.02	0.85	7.5	2.8	3	0.13	27.7	109.9	5.3	-26	0	0
Carlés East Lower	Au	0.01	0.76	1.7	2.3	129	0.22	33.6	55.8	10.2	26	0	0
	Ag	0.3	0.36	21.5	3.2	17.4	0.34	3.6	4.9	45.9	-4	0	0
	Cu	0.09	0.62	2	2.4	13.8	0.29	28.1	45.2	10.9	-30	0	0
Carlés Northwest	Au	0.05	0.76	0.2	10.9	3	0.2	27.7	126.7	17.6	16	0	2
	Ag	0	0.89	0.8	21.5	60.8	0.11	31.3	29.3	118.7	35	64	-43
	Cu	0	0.82	1.8	4.9	11.6	0.18	25.3	6.6	46.8	13	84	-25
Charnela South	Au	0.01	0.49	1.9	3	3.7	0.51	21	32.2	16.4	135	65	47
	Ag	0	1	1.9	4.4	6.7	0	32.5	170.3	123	13	2	112
	Cu	0.13	0.44	14.3	7.4	5.3	0.43	27.5	13.7	33.1	210	-30	-14
S107	Au	0	0.7	11.4	38.9	1.8	0.3	4.2	76.7	11.8	-53	75	-17
	Ag	0	0.47	13.9	14.7	1.1	0.53	15.7	62.8	31.1	-53	75	-29
	Cu	0	0.49	97.8	10.2	5	0.51	32.3	166.5	36.9	-53	75	-45
Boinás East	Au	0.24	0.71	9.2	8.7	8.1	0.06	135.7	83.3	73.5	21	-90	44
	Ag	0.27	0.68	9.2	10	10.3	0.06	98.1	102.2	104.4	23	-87	43
	Cu	0.28	0.64	9.9	10.6	9.2	0.08	123.7	1456.4	115	16	76	-20
A107	Au	0.19	0.77	11.4	7.6	6.8	0.05	235.9	298.4	86.9	75	-52	45
	Ag	0.23	0.42	8.6	12.8	8.3	0.35	916.8	62.1	96.7	81	-17	2
	Cu	0.29	0.4	8.9	20	7.7	0.32	401.1	105.2	90.5	103	-22	-37
BSN - San Martín (Oxidado)	Au	0.21	0.67	10.2	9.2	8.1	0.11	48.2	385.4	52.7	8	27	114
	Ag	0.12	0.76	13.5	8.5	8.6	0.13	54.1	580.6	92.2	23	53	96
	Cu	0.06	0.74	12.1	8	17.1	0.2	91.8	524.3	61.3	32	-51	79

Zone	Metal	Nugget	Sill 1	Range 1 (m)			Sill 2	Range 2 (m)			Rotation		
				X Axis	Y Axis	Z Axis		X Axis	Y Axis	Z Axis	Z Axis	X Axis	Z Axis
BSN - San Martín (Skarn)	Au	0.24	0.64	8	7.6	7.6	0.12	185	113.3	89.8	-10	46	36
	Ag	0.43	0.46	9.5	10.2	9.9	0.11	135.3	225.3	49.4	34	35	77
	Cu	0.4	0.45	9.5	10.5	9.6	0.16	192.5	200.8	209.8	59	-3	0
High Angle	Au	0.01	0.68	3.5	15.5	3.1	0.31	47.3	276.7	305.8	-12	-5	60
	Ag	0.14	0.34	14	22.3	5.4	0.51	19.8	212.4	570.8	-49	-46	31
	Cu	0.04	0.63	94.2	14.3	41.8	0.34	48.1	412.2	887.8	-53	44	79
Boinás South	Au	0.26	0.48	12.9	0.6	65.6	0.26	54	31.7	29.2	94	70	56
	Ag	0.03	0.84	4.9	4.2	53.6	0.13	47	37.3	20.1	72	-104	-19
	Cu	0.01	0.78	9.5	16.4	1.9	0.22	48.6	51.5	79.7	79	46	0
East Breccia	Au	0.44	0.52	41.8	19.5	8.7	0.04	22.1	39.4	63.8	-66	28	35
	Ag	0.44	0.23	3.9	25.4	21.7	0.34	18	84.9	70.6	-66	28	35
	Cu	0.44	0.55	93.6	16.7	33.1	0.02	48.3	176.3	23.9	-67	-16	9
Capa Z	Au	0	0.88	13.1	2.9	2.6	0.12	45	66	6.9	-70	0	0
	Ag	0.03	0.79	3.1	5.2	3.3	0.18	17.3	81.9	40.6	0	0	0
	Cu	0.04	0.72	3.5	3.8	6.4	0.24	28.1	264.4	24.2	-74	0	0
A208 - E107	Au	0.05	0.93	6.2	7.5	6.7	0.03	90.9	120.2	592.8	-51	45	43
	Ag	0.06	0.74	6.9	10.9	106.1	0.2	22.8	509.5	592	-58	48	36
	Cu	0.07	0.81	10.8	7.5	11.2	0.11	46.9	116.4	373.6	-109	70	57
Zona Villar	Au	0.58	0.36	20.4	7.9	8.6	0.06	128	268.2	20.1	116	3	-2
	Ag	0.1	0.66	9	10.8	7.4	0.24	25	265	24.9	14	-13	-30
	Cu	0.13	0.32	2.1	1.5	46.3	0.54	28.3	233.4	12.5	-26	-18	9
La Brueva	Au	0.05	0.86	30.1	6.6	0.8	0.1	204.9	106.8	68.8	-29	85	0
	Ag	0.05	0.86	30.1	6.6	0.8	0.1	204.9	106.8	68.8	-29	85	0
	Cu	0.05	0.86	30.1	6.6	0.8	0.1	204.9	106.8	68.8	-29	85	0

Notes:

1. A107 (Cu and Ag) and East Breccia (Au, Cu, and Ag) have Z-Y-X (3-2-1) rotation.

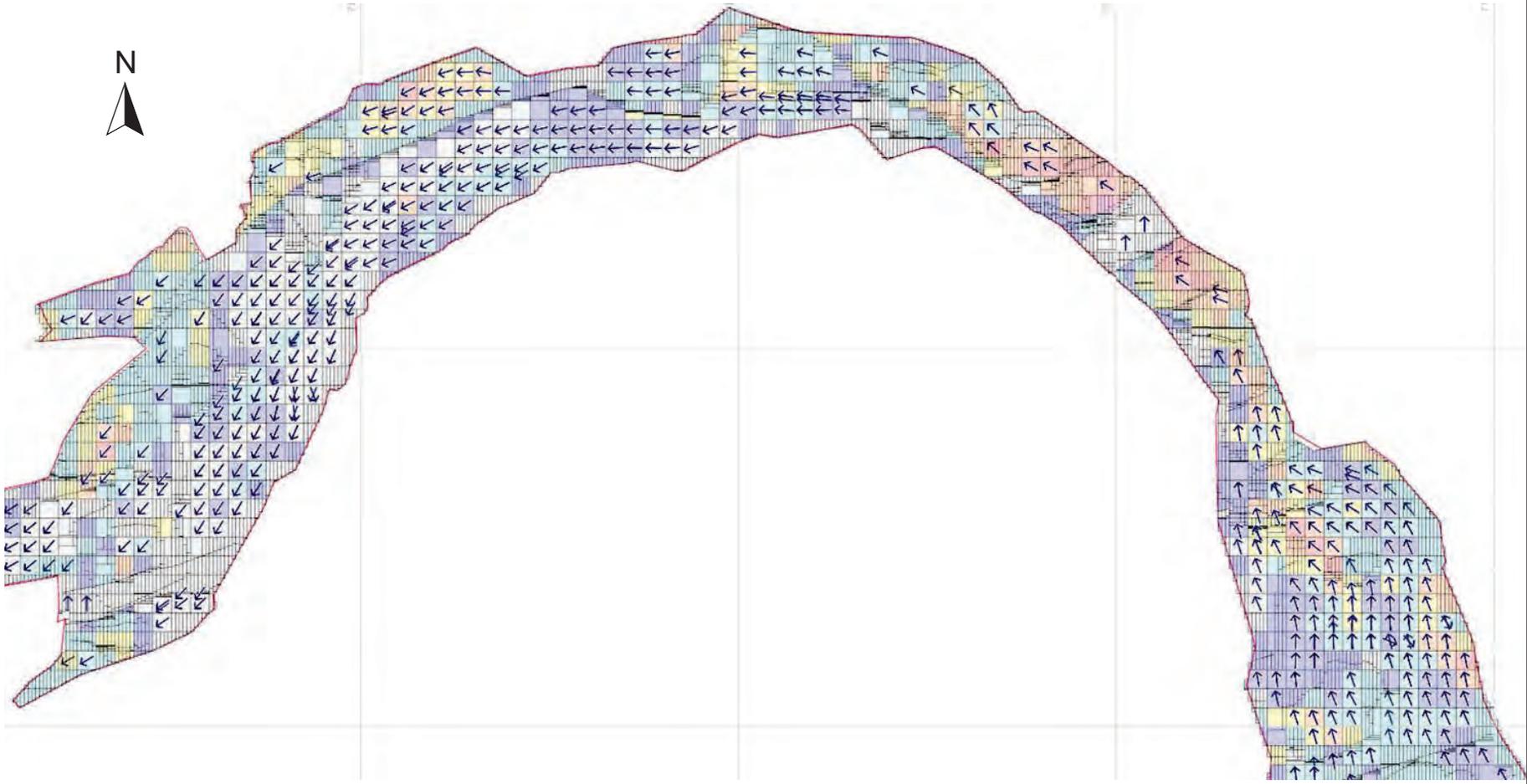
DYNAMIC ANISOTROPY

Due to the varying trends of the data, particularly in zones such as Black Skarn North, varying local trends (DA) is employed to alter the orientation of the search ellipsoid locally. Wireframe surfaces are generated by site geologists using polylines generated along the centre of the lithology wireframes. These polylines are adjusted locally to follow any observed trends. These surfaces are then used in Datamine to provide a dip and dip direction to the individual blocks using nearest neighbour estimation prior to grade estimation. Figure 14-7 illustrates the calculated azimuth within the blocks of Black Skarn North adjusting to the local varying direction.

The Carlés models utilised a flattening (unfolding) technique rather than using locally varying trends which transform the block model and composite coordinates to be in the same linear trend during estimation. This results in the same effect as using locally varying anisotropy where grades are correlated between corresponding drill holes in a curvi-linear mineralised body.

The QP reviewed the DA approach and considers it to be performing acceptably.

14-22



Au Grade: (g/t)

Grey	< 0.5
Blue	0.5 - 1.0
Teal	1.0 - 2.0
Yellow	2.0 - 3.0
Orange	3.0 - 5.0
Red	5.0 - 10
Purple	≥ 10

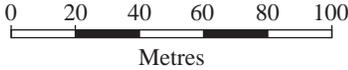


Figure 14-7

Orovalle Minerals S.L.
Orovalle Operation
Asturias, Spain
Dynamic Anisotropy
Angles Geology

November 2020

Source: RPA, 2020.

BLOCK MODELS

A block model definition strategy utilising two model prototypes is used by Orovalle. The objective of the two prototypes, when flattening the domain, is to estimate blocks to a realistic resolution based on the drill hole spacing in flattened coordinates and to then represent the estimated blocks in the original coordinate system without the loss of geological resolution. Otherwise, sub-blocking was used to better represent the wireframe volumes. Table 14-9 summarises the block model definitions used by Orovalle.

TABLE 14-9 BLOCK MODEL PROTOTYPES
Orovalle Minerals S.L. – Orovalle Operation

Zone	Model Origin			Reporting Prototype/Sub-blocking (m)			Estimation Prototype (m)		
	X	Y	Z	X	Y	Z	X	Y	Z
Charnela South	718945	4795825	195	1	1	1	5	5	5
A107	719155	4795390	115	1	1	1	5	5	5
Boinás East	718700	4795200	-120	1	1	1	5	5	5
Black Skarn North - San Martín	718590	4795400	-90	1	1	1	5	5	5
Boinás South	718500	4795200	0	1	1	1	5	5	5
East Breccia	719250	4796200	200	1	1	1	5	5	5
El Valle Fault	719200	4795960	100	1	2	1	1	2	1
High Angle	718660	4795170	40	1	1	1	5	5	5
High Angle East	718660	4795170	40	1	1	1	5	5	5
S107	719160	4795300	0	1	1	1	5	5	5
A208	719300	4795650	90	1	1	1	5	5	5
West Skarn	719050	4796050	250	1	1	1	5	5	5
Carlés East	723300	4804578	-155	1	1	1	5	5	1
Carlés South	723460	4804410	-230	8	8	8	8	8	8
Carlés North	722825	4804775	-425	1	1	1	5	5	1
Carlés Northwest	722620	4804660	-160	1	1	1	5	5	1
Carlés West	722730	4804540	-90	8	8	8	8	8	8
Capa Z	723265	4804720	-125	1	1	1	5	5	1
La Brueva	723290	4801700	420	2	2	2	4	4	4
Zona Villar	719390	4795405	195	1	1	1	5	5	5

SEARCH STRATEGY AND GRADE INTERPOLATION PARAMETERS

OK was used to inform block grades, while DA or flattening was used to ensure the search estimation correctly correlated grades between neighbouring drill holes.

Semi-soft boundaries were used to control grade estimation for Black Skarn and A107 due to the transitional nature of the contacts between Black Skarn North, Black Skarn San Martín, and the transition between skarn and oxide in A107. Black Skarn North, Boinás East, and A107 were further divided into additional structural domains prior to interpolation to deal with the irregular morphology of the zones.

The search parameters utilised for grade estimation are documented in Table 14-10.

TABLE 14-10 BLOCK MODEL SEARCH PARAMETERS
Orovalle Minerals S.L. – Orovalle Operation

Zone	Metal	Search Ellipse Size (m)			Rotation			Sample Count			Method
		X	Y	Z	Z	X	Z	Min	Max	Max per Hole	
A107	Au				75	-74	21				
	Ag	35	35	5	118	-34	-16	5	10	3	OK (DA)
	Cu				103	-22	-37				
Boinás East	Au				21	-90	44				
	Ag	50	50	30	23	-87	42	4	12	3	OK (DA)
	Cu				16	76	-20				
BSN - San Martín (Oxide)	Au, Ag, Cu	50	50	35	8	27	114	4	8	3	OK (DA)
BSN - San Martín (Skarn)	Au, Ag, Cu	50	50	35	-3	43	36	4	8	3	OK (DA)
A208	Au				45	43	3				
	Ag	35	50	60	70	57	3	5	10	3	OK (DA)
	Cu				48	36	3				
High Angle	Au				-12	-5	60				
	Ag	35	35	15	-49	-46	31	5	10	2	OK (DA)
	Cu				-53	44	79				
High Angle East	Au				-12	-5	60				
	Ag	35	35	15	-49	-46	31	5	10	2	OK (DA)
	Cu				-53	44	79				
Charnela	Au										
	Ag	35	35	5	0	0	0	5	10	2	OK (DA)
	Cu										
El Valle Fault	Au										
	Ag	35	35	5	0	0	0	5	10	3	OK (DA)
	Cu										
West Skarn	Au				75	-74	21				
	Ag	35	35	5	103	-22	-37	5	10	3	OK (DA)
	Cu				118	-34	-16				

Zone	Metal	Search Ellipse Size (m)			Rotation			Sample Count			Method
		X	Y	Z	Z	X	Z	Min	Max	Max per Hole	
S107	Au				-53	75	-17				
	Ag	50	50	35	-53	75	-29	5	10	3	OK (DA)
	Cu				-53	75	-45				
Boinás South	Au			35	94	70	56				
	Ag	50	50	35	72	-104	-19	6	10	1	OK (DA)
	Cu			50	79	46	0				
East Breccia	Au				-66	28	35				
	Ag	50	50	35	-66	28	35	5	10	2	OK (DA)
	Cu				-67	-16	9				
Capa Z	Au				-70				12		
	Ag	50	50	2.5	0	0	0	4	8	2	OK (Flattened)
	Cu				-74				10		
Carlés North	Au				-16				12		
	Ag	50	50	2.5	-56	0	0	4	8	2	OK (Flattened)
	Cu				-2				10		
Carlés East	Au								12		
	Ag	50	50	1.5	0	0	0	4	8	3	OK (Flattened)
	Cu								10		
Carlés South	Au								12		
	Ag	50	50	2.5	0	0	0	4	10	3	OK (Flattened)
	Cu								8		
Carlés Northwest	Au				16	0	2		12		
	Ag	50	50	1.5	35	64	-43	4	8	2	OK (Flattened)
	Cu				13	84	-25		10		
Carlés West	Au								12		
	Ag	50	50	2.5	0	0	0	4	10	3	OK (Flattened)
	Cu								8		
Zona Villar	Au, Ag, Cu	50	50	15	0	0	0	5	10	3	OK (DA)

Notes:

1. A107 (Cu and Ag) and East Breccia (Au, Ag, and Cu) have Z-Y-X (3-2-1) rotation.

RPA notes that the trend surface methodology for flattening the mineralisation is effective and perhaps superior to many conventional techniques in certain areas such as the curvi-planar Carlés zones. The QP is of the opinion that, in general, the interpolation approach is reasonable to support the resource block model grades.

BULK DENSITY

Table 14-11 details the bulk densities assigned to each model. These densities are based upon the average density for each zone. The upper portion of Boinás East becomes transitional or oxide material and the density demonstrates a relationship between depth and gold grades (Table 14-12).

TABLE 14-11 BLOCK MODEL ASSIGNED DENSITIES
Orovalle Minerals S.L. – Orovalle Operation

Zone	Mine	Type	Density (g/cm ³)
A107	El Valle/Boinás	Oxide	2.25
A208	El Valle/Boinás	Oxide	2.25
Boinás East	El Valle/Boinás	Skarn/Oxide	Dependent on Au, depth, skarn/oxide surface
Boinás South	El Valle/Boinás	Skarn	3.03
Boinás South	El Valle/Boinás	Oxide	2.25
San Martín	El Valle/Boinás	Skarn	3.03
Black Skarn North	El Valle/Boinás	Skarn/Oxide	Skarn = 3.03, Oxide = 2.58
Charnela South	El Valle/Boinás	Oxide	2.25
East Breccia	El Valle/Boinás	Oxide	2.25
El Valle Fault	El Valle/Boinás	Oxide	2.25
High Angle	El Valle/Boinás	Oxide	2.25
S107	El Valle/Boinás	Oxide	2.25
West Skarn	El Valle/Boinás	Oxide	2.25
Carlés East	Carlés	Skarn	3.30
Carlés North	Carlés	Skarn	3.30
Carlés Northwest	Carlés	Skarn	3.30
Carlés South	Carlés	Skarn	3.30
Capa Z	Carlés	Skarn	3.30
La Brueva	La Brueva	Oxide	2.25
Zona Villar	El Valle/Boinás	Oxide	2.25

TABLE 14-12 BOINÁS EAST BLOCK MODEL DENSITY DETERMINATION
Orovalle Minerals S.L. – Orovalle Operation

Elevation Range	Density (In the Presence of Gold Grade)	Density (In the Absence of Gold Grade)
<150	3.15	3.15
150 to 250	3.2-0.0008483*Au-0.00034*Elevation	3.13
250 to 300	3.59-0.02173070*Au-0.00206*Elevation	2.97
>300	3.59-0.2173070*0.00206*Elevation	2.83

Source: Noble et al., 2012

DEPLETION

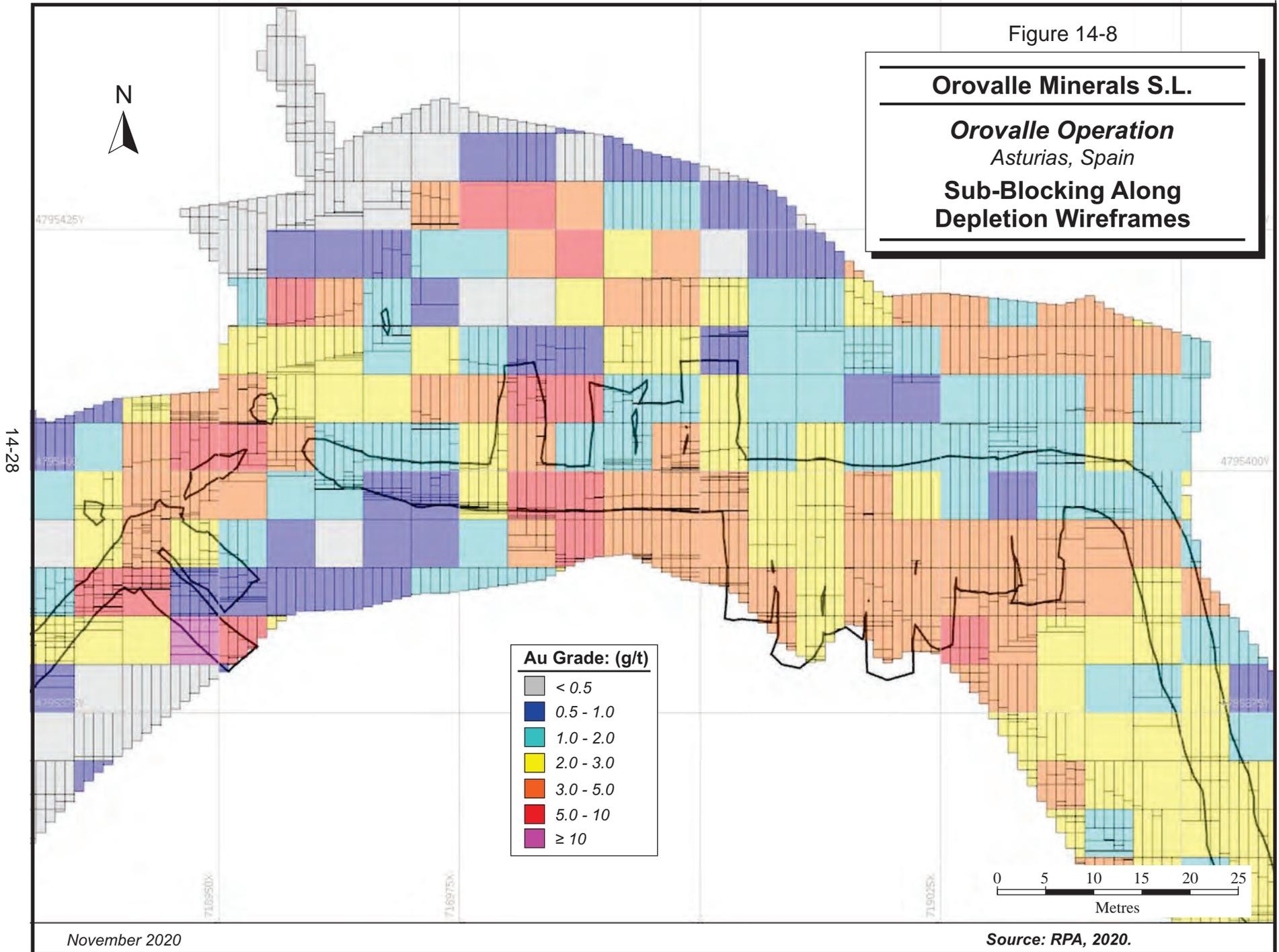
The block models are flagged with a Mined=1 code where a block is within a mined out shape, and sub-blocked, where required, to match the mined out shapes. RPA notes that the sub-blocks retain the parent cell grade. The depletion wireframes represent mining up to September 30, 2020. Figure 14-8 illustrates the sub-blocking undertaken along the edge of depletion wireframes at Boinás East at 290 mRL elevation.

Figure 14-8

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

**Sub-Blocking Along
Depletion Wireframes**



CUT-OFF GRADE AND WHITTLE PARAMETERS

Metal prices used for Mineral Reserves are based on consensus, long term forecasts from banks, financial institutions, and other sources. For Mineral Resources, metal prices used are slightly higher than those for Mineral Reserves.

The AuEq was calculated in all models using the following formula:

$$\text{AuEq} = \text{Au} + (\text{Ag} * \text{Ag Factor}) + (\text{Cu} * \text{Cu Factor})$$

A summary of the cut-off grade parameters for Mineral Resources is given in Table 14-13.

TABLE 14-13 CUT-OFF GRADE PARAMATERS
Orovalle Minerals S.L. – Orovalle Operation

Source	Boinás Skarn	Boinás Oxides	Carlés Skarn	La Brueva Oxides
Break-Even Cut-Off (g/t AuEq)	2.67	3.08	1.96	3.08
Stope Cut-off (g/t AuEq)	2.20	2.52	1.58	2.52
Au Factor	1	1	1	1
Ag Factor	0.009	0.009	0.009	0.009
Cu Factor	1.053	1.089	1.111	1.089
Mining Cost (\$/t)	36	43	50	43
Plant & Admin (\$/t)	56	67	20	67
Gold Price (\$/oz Au)		1,700		1,700
Silver Price (\$/oz Ag)		20		18
Copper Price (\$/lb Cu)		3.25		3.25

For the purposes of reporting the Mineral Resource, the stope cut-off grade was used at Boinás and La Brueva. At Carlés, the stope cut-off grade was reviewed, however, Orovalle opted to use the higher break-even cut-off grade as Orovalle considers there to be additional risk as the Carlés mine is not currently operational.

CLASSIFICATION

Definitions for resource categories used in this Technical Report are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as “a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable

prospects for eventual economic extraction”. Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the “economically mineable part of a Measured and/or Indicated Mineral Resource” demonstrated by studies at Pre-Feasibility Study (PFS) or FS level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

Orovalle adopted a sample spacing approach based on the kriging variances computed. The methodology is as follows:

- Using a near zero nugget isotropic variogram with a linear structure with a slope of 0.5 and an idealised square drill hole grid, it was determined that the kriging variance is equal to the distance to the nearest point when the block estimate is outside of the idealised grid and equal to approximately 28% of the drill spacing when the block is at the centre of the grid.
- The kriging variances selected for classification were 5.6 and 11.2 which correspond to 20 m and 40 m spaced drilling, for Measured and Indicated categories, respectively. Inferred classification is used above this distance.

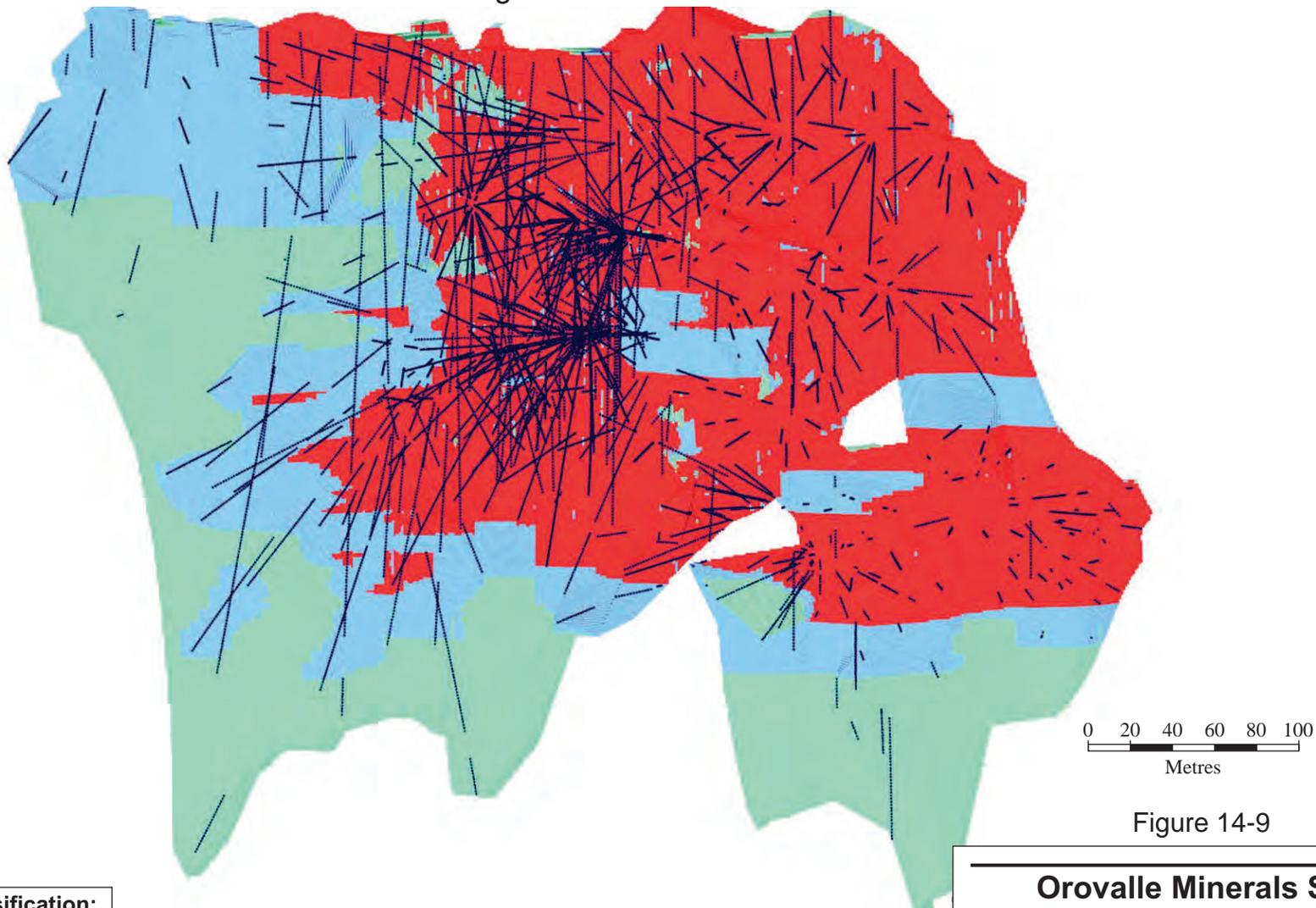
Due to good drill coverage, and detailed wireframing, the Inferred classification does not generally require an upper limit, although it has been clipped out where extrapolations are observed to be overly aggressive.

Orovalle geologists generate classification wireframes for each model that encompass zones where the drill hole spacing meets the required criteria. These classification wireframes are used to flag the block models to ensure that the classification is contiguous. In zones where geological confidence is less due to the mineralisation being more variable, Measured classification is not used.

An example of the classification is illustrated for Boinás East in Figure 14-9.

The QP considers the classification criteria and approach to be justified and performing well.

Looking North



0 20 40 60 80 100
Metres

Figure 14-9

Orovalle Minerals S.L.

Orovalle Operation

Asturias, Spain

Boinás East Classification

Classification:

- *Measured*
- *Indicated*
- *Inferred*

14-31

November 2020

Source: RPA, 2020.

BLOCK MODEL VALIDATION

The Orovalle models were validated using swath plots (Figures 14-10 and 14-11), visual inspections (Figures 14-12 to 14-14) and reconciling the models to production. RPA notes that due to the curvi-linear nature of the deposit, swath plots can result in values that can be misleading.

In addition, RPA performed the following validation checks:

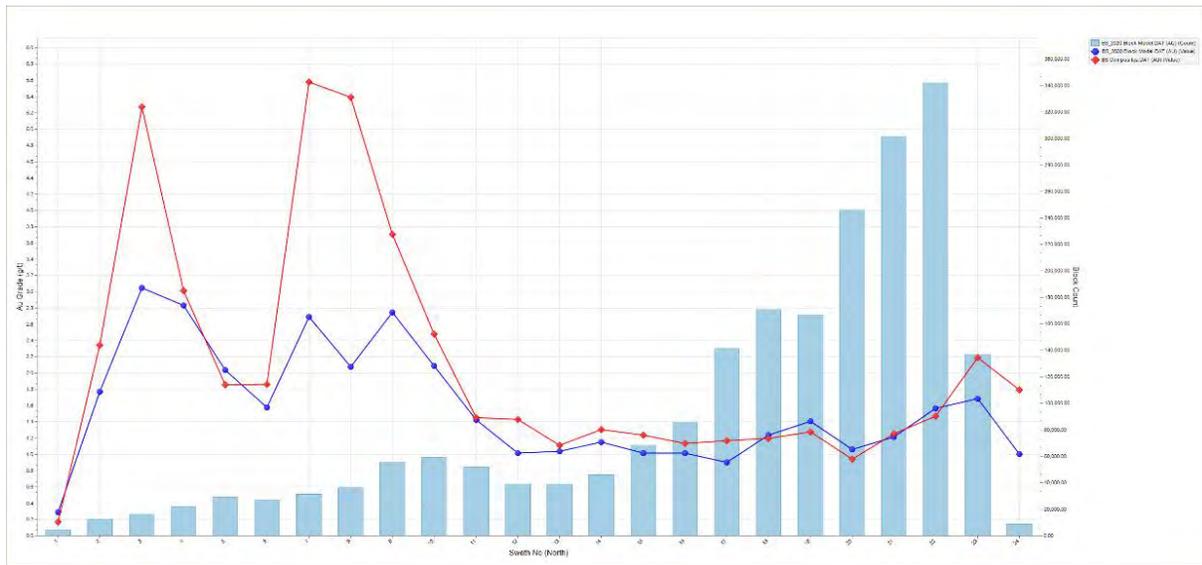
- Comparison of the composite samples to block grades.
- Comparison of grade control data to block grades.
- Independent check estimates.
- Comparison of mined out Boinás skarns to grade control records.

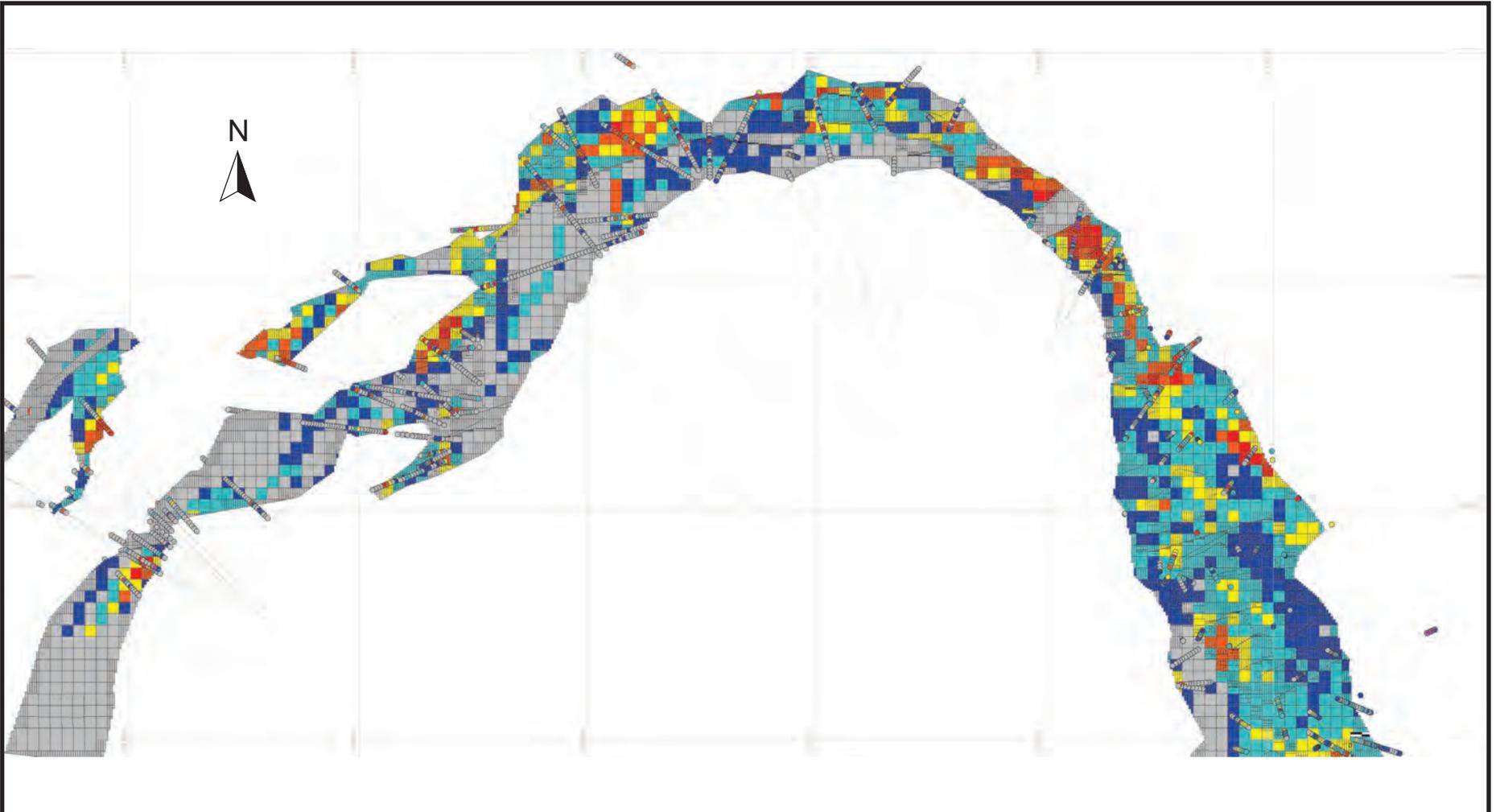
RPA validation highlighted no material concerns with the Orovalle Mineral Resource estimation.

FIGURE 14-10 BLACK SKARN SWATH PLOT - EASTING



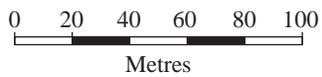
FIGURE 14-11 BLACK SKARN SWATH PLOT - NORTHING





14-34

Au Grade: (g/t)	
Grey	< 0.5
Dark Blue	0.5 - 1.0
Light Blue	1.0 - 2.0
Yellow	2.0 - 3.0
Orange	3.0 - 5.0
Red	5.0 - 10
Purple	≥ 10



November 2020

Source: RPA, 2020.

Figure 14-12

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

**Black Skarn Block Model
 and Composites – 125mRL**

Looking West

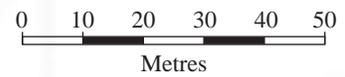
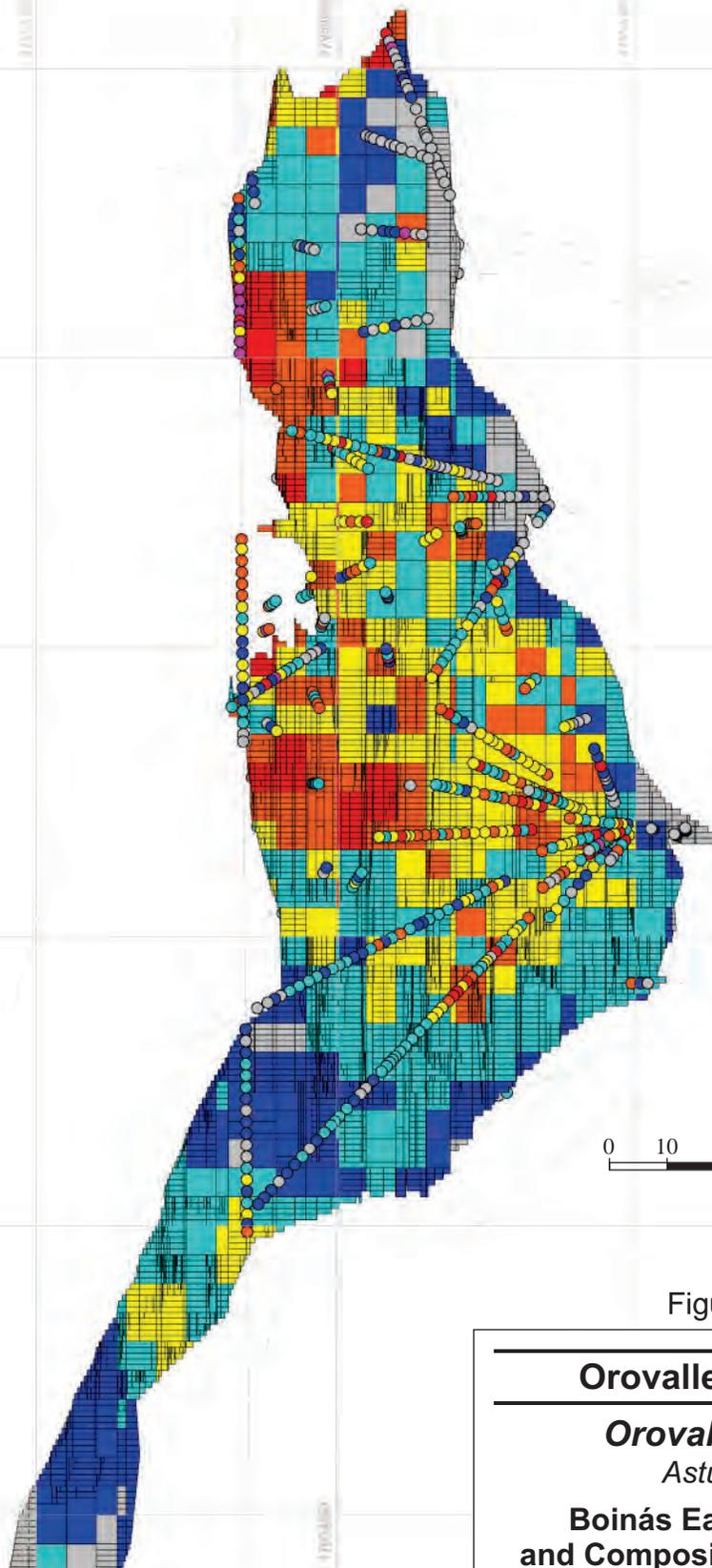
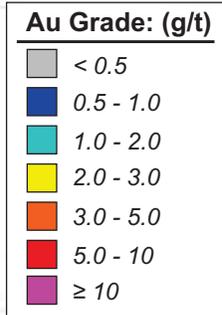
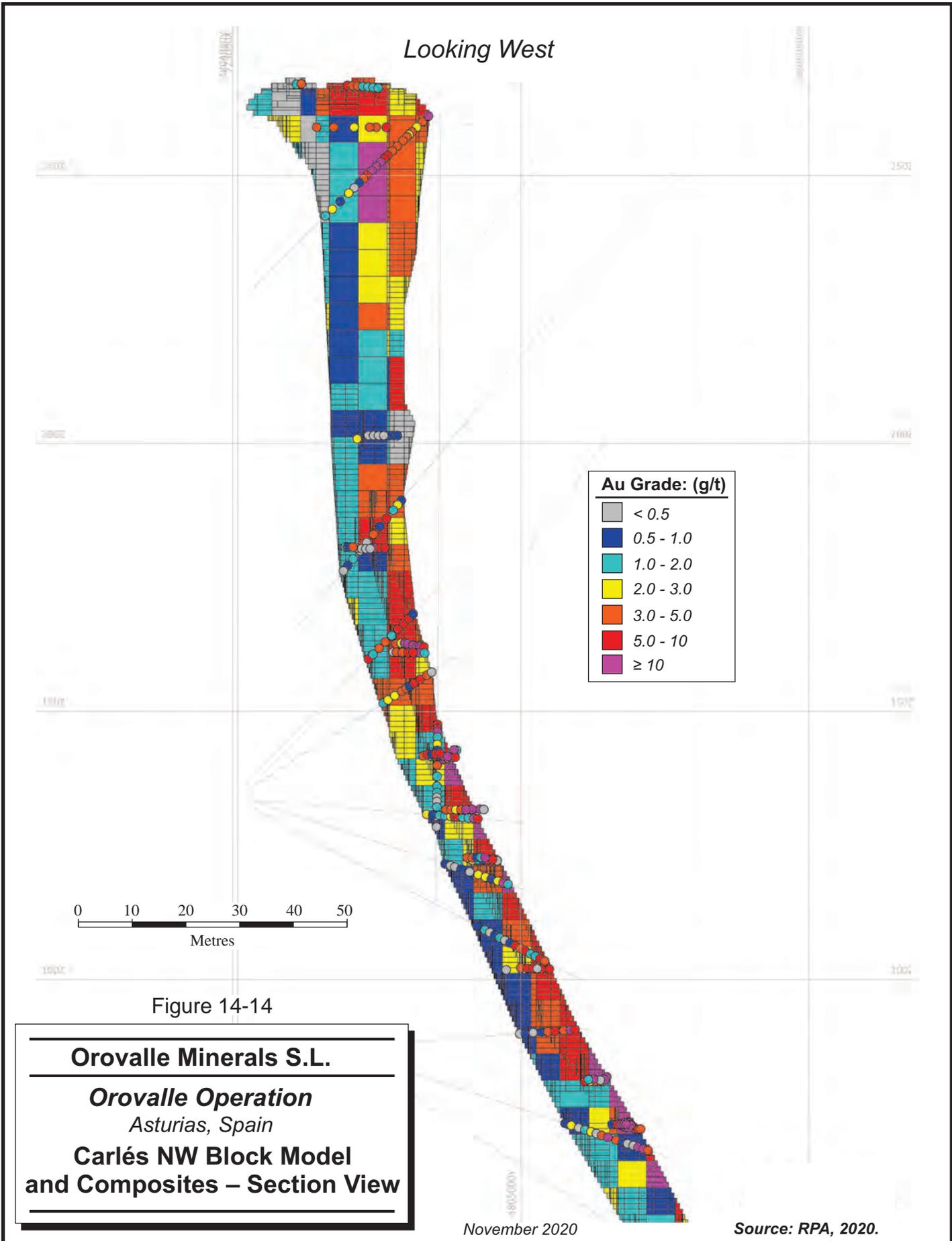


Figure 14-13

Orovalle Minerals S.L.
Orovalle Operation
Asturias, Spain
Boinás East Block Model
and Composites – Section View



RECONCILIATION

In July 2020 RPA undertook a detailed review of reconciliation practices and results for the underground production at the Black Skarn and Boinás East zones of the El Valle area. RPA compared the variance between the long term model and short term model on a stope by stope basis and by area for drift and fill (D&F) mining. RPA also compared the results of Orovalle's grade control system (muck sampling and truck weights) to the tonnage and back calculated head grade from the El Valle processing plant. RPA was unable to assess the variance between the short term block model and the grade control system using the available data.

The results of the reconciliation exercises demonstrated that for the Black Skarn area mined by longhole sub-level stoping (SLS) the variance in gold grade for an individual stope could be as large +30% and -35%, which is most likely the result of overbreak. The typical stope by stope grade variance was within less than 10%. Across all stopes the total was 8% below the long term estimate.

At Boinás East the individual stope variances were larger than for Black Skarn. Individual stopes could vary from -40% to +45%, which again is most likely caused by overbreak. The total was 12% lower than the long term estimate.

RPA assessed the variances for D&F mining in the Boinás East, Black Skarn and A107 areas and found that the level by level variances were similar to areas mined by SLS. The total estimate was 4.5% lower in the short term model than the long term model in D&F mining areas.

Across all mining areas for the LOM, the short term model estimate was 6% below the long term model and the grade control estimate was 2% higher than the metal production from the El Valle processing plant. While the variance between the short term model and grade control sampling could not be assessed at the time of writing, the QP is of the opinion that it would be reasonable to assume that it would also be in the range of 2% to 6%. If these variances are additive, then the QP is of the opinion that the final variance between the Mineral Resource model and metal production from the El Valle processing plant is likely to be within 15% of the estimate. These results are acceptable as they are similar to other high nugget gold operations in comparable geological settings. RPA recommends that Orovalle continue to improve their reconciliation process by monitoring the performance of the short term block model against

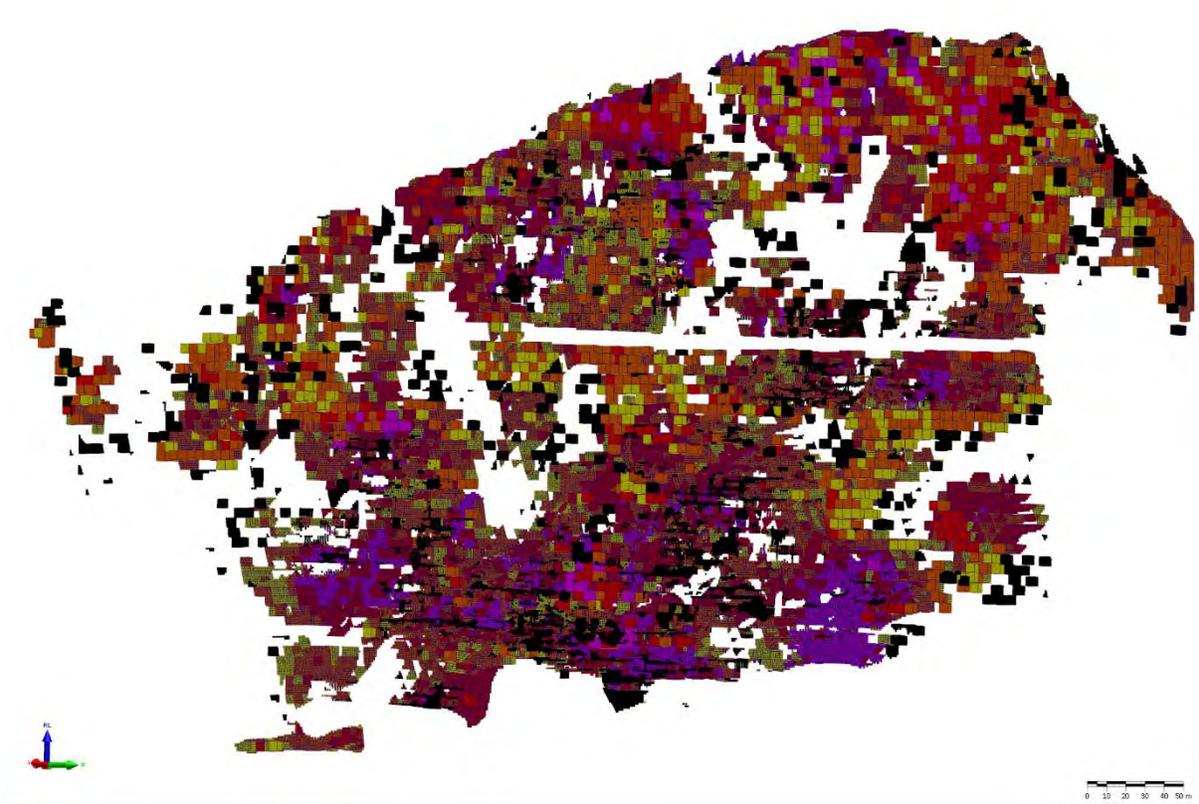
the grade control sampling and exploring the use of high grade domain wireframes to restrict the interpolation of elevated grades.

The updated 2020 Mineral Resource model for the Boinás East area was compared to the previous long term model used in the reconciliation study and the total change in either D&F or SLS areas was less than 1%. Individual stopes could vary by as much as -20% to +30% although most were within +/-10%. The D&F mining areas varied from -12% to +20% although most were within +/- 5%. From this, the QP concludes that the changes in estimation parameters for the 2020 Mineral Resource Update have not had a material impact on the Mineral Resource estimate and that the result of the reconciliation study are applicable to the updated Mineral Resource.

REASONABLE PROSPECTS

To ensure that the Mineral Resource meets the requirement of having RPEEE, the Mineral Resource was optimised to remove blocks which were non-contiguous. Areas of each block model which, when depletion was removed, did not contain at least 500 m³ of contiguous blocks above the Mineral Resource cut-off grade were excluded. This was undertaken to remove both small parts of the model that were distant from the main model, and also any resource skins that remained from depletion. Figure 14-15 illustrates an example of the blocks removed from the A107 zone in black.

FIGURE 14-15 A107 RESOURCE MODEL WITH REMOVED BLOCKS IN BLACK



While, in the QP's opinion, this process is performing acceptably, the process could be improved by implementing underground stope optimization as a standard practice for Mineral Resource reporting

MINERAL RESOURCE REPORTING

Mineral Resources are reported following CIM (2014) definitions. Block models were depleted in mined out areas and crown pillars of 60 m and 40 m, below the El Valle TSF and Boinás East open pits respectively, were excluded from the Mineral Resource estimate. In addition, Orovalle supplied wireframe solids to further exclude areas that do not meet the requirements for reasonable expectations for eventual economic extraction. Such areas include:

- Stope pillars that cannot be accessed or recovered.
- Peripheries of mined out levels.
- Areas where stope failure has occurred.

Table 14-14 details the Orovalle Mineral Resource estimation as of September 30, 2020.

Measured and Indicated Mineral Resources total 7.93 Mt, grading 3.74 g/t Au, 10.38 g/t Ag, and 0.51% Cu, containing 0.955 Moz Au, 2.646 Moz Ag, and 90 Mlb Cu. Inferred Mineral Resources total 3.36 Mt, grading 3.80 g/t Au, 8.64 g/t Ag, and 0.33% Cu containing 0.410 Moz Au, 0.934 Moz Ag, and 24 Mlb Cu.

As discussed in greater detail in Section 20, Orovalle is currently engaged in working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting, or legal consequences for the operations which could materially affect the Mineral Resource estimate. RPA is not aware of any other permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

TABLE 14-14 2020 MINERAL RESOURCE ESTIMATE TABULATION EFFECTIVE SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Zone	Measured Resources						Indicated Resources						Measured + Indicated Resources						Inferred Resources									
	Tonnes (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (%Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)	Tonnes (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (%Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)	Tonnes (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (%Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)	Tonnes (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (%Cu)	Contained Metal (000 oz Au)	Contained Metal (000 oz Ag)	Contained Metal (000 lb Cu)
A107	-	-	-	-	-	-	1,257.00	5.27	6.08	0.35	213.00	246.00	9,636.00	1,257.00	5.27	6.08	0.35	213.00	246.00	9,636.00	47.00	3.88	1.72	0.11	6.00	3.00	116.00	
Charmela South	-	-	-	-	-	-	43.00	8.61	11.95	0.31	12.00	17.00	298.00	43.00	8.61	11.95	0.31	12.00	17.00	298.00	32.00	7.78	18.92	0.71	8.00	20.00	506.00	
EV Fault	36.00	4.93	2.71	0.23	6.00	3.00	183.00	111.00	4.77	2.01	0.29	17.00	7.00	712.00	147.00	4.81	2.18	0.28	23.00	10.00	894.00	236.00	5.39	1.97	0.24	41.00	15.00	1,271.00
S107	27.00	3.82	23.67	2.15	3.00	20.00	1,263.00	17.00	3.80	21.17	1.59	2.00	11.00	617.00	43.00	3.81	22.71	1.97	5.00	32.00	1,880.00	61.00	2.92	23.12	1.92	6.00	46.00	2,588.00
East Breccia	-	-	-	-	-	-	492.00	4.37	1.77	0.50	69.00	28.00	5,379.00	492.00	4.37	1.77	0.50	69.00	28.00	5,379.00	229.00	3.87	1.99	0.25	29.00	15.00	1,247.00	
Area 208	-	-	-	-	-	-	909.00	4.04	2.99	0.14	118.00	87.00	2,816.00	909.00	4.04	2.99	0.14	118.00	87.00	2,816.00	467.00	4.08	4.84	0.24	61.00	73.00	2,461.00	
High Angle Zones	-	-	-	-	-	-	111.00	6.17	19.18	1.03	22.00	68.00	2,519.00	111.00	6.17	19.18	1.03	22.00	68.00	2,519.00	20.00	4.13	2.44	0.24	3.00	2.00	104.00	
High Angle East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	257.00	4.16	16.59	0.17	34.00	137.00	966.00	
Zona Villar	284.00	3.71	6.60	0.34	34.00	60.00	2,158.00	26.00	5.64	1.67	0.16	5.00	1.00	90.00	310.00	3.87	6.19	0.33	39.00	62.00	2,249.00	17.00	3.41	0.87	0.17	2.00	-	63.00
West Skarn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	168.00	5.49	27.18	0.41	30.00	147.00	1,536.00	
Boinás East	197.00	4.04	21.39	0.92	26.00	136.00	3,997.00	51.00	3.76	4.68	0.17	6.00	8.00	192.00	248.00	3.98	17.98	0.77	32.00	143.00	4,190.00	50.00	3.25	1.40	0.09	5.00	2.00	100.00
Boinás South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.00	3.51	1.00	0.05	9.00	3.00	81.00	
Black Skarn North	262.00	3.67	21.03	0.47	31.00	177.00	2,685.00	9.00	2.61	22.94	0.48	1.00	7.00	97.00	271.00	3.63	21.09	0.47	32.00	184.00	2,782.00	1.00	5.01	29.12	0.59	-	1.00	7.00
Sub-total	806.00	3.84	15.29	0.58	99.00	396.00	10,286.00	3,025.00	4.78	4.94	0.34	465.00	480.00	22,356.00	3,831.00	4.58	7.12	0.39	564.00	876.00	32,642.00	1,665.00	4.36	8.62	0.30	233.00	461.00	11,057.00
Boinás East	1,550.00	2.76	18.38	0.90	137.00	916.00	30,692.00	178.00	2.40	18.99	0.88	14.00	109.00	3,435.00	1,727.00	2.72	18.44	0.90	151.00	1,024.00	34,127.00	119.00	1.96	21.43	1.04	7.00	82.00	2,723.00
Black Skarn - North West	597.00	2.51	11.77	0.46	48.00	226.00	6,049.00	220.00	3.09	16.87	0.65	22.00	120.00	3,156.00	817.00	2.67	13.14	0.51	70.00	345.00	9,205.00	222.00	3.27	17.52	0.61	23.00	125.00	2,974.00
Boinás South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.00	4.86	1.23	0.01	1.00	-	1.00	
Sub-total	2,146.00	2.69	16.54	0.78	186.00	1,141.00	36,741.00	398.00	2.78	17.82	0.75	36.00	228.00	6,591.00	2,544.00	2.70	16.74	0.77	221.00	1,370.00	43,332.00	348.00	2.85	18.51	0.74	32.00	207.00	5,698.00
Total Boinás	2,952.00	3.00	16.20	0.72	285.00	1,538.00	47,027.00	3,423.00	4.55	6.44	0.38	500.00	708.00	28,947.00	6,375.00	3.83	10.96	0.54	785.00	2,246.00	75,974.00	2,013.00	4.10	10.33	0.38	265.00	668.00	16,755.00
Carlés North	-	-	-	-	-	-	598.00	3.60	9.73	0.50	89.00	187.00	6,634.00	598.00	3.60	9.73	0.50	89.00	187.00	6,634.00	168.00	3.49	6.99	0.34	19.00	38.00	1,273.00	
Carlés East	181.00	3.62	9.23	0.48	21.00	54.00	1,916.00	217.00	3.00	8.41	0.42	21.00	59.00	2,035.00	398.00	3.28	8.78	0.45	42.00	112.00	3,951.00	169.00	2.96	8.10	0.28	16.00	44.00	1,036.00
Carlés NW	-	-	-	-	-	-	409.00	3.36	2.84	0.14	44.00	37.00	1,284.00	409.00	3.36	2.84	0.14	44.00	37.00	1,284.00	193.00	3.60	2.73	0.14	22.00	17.00	610.00	
Carlés Capa Z	51.00	2.83	12.71	0.69	5.00	21.00	779.00	103.00	2.80	12.95	0.45	9.00	43.00	1,018.00	154.00	2.81	12.87	0.53	14.00	64.00	1,798.00	49.00	2.25	8.22	0.47	4.00	13.00	507.00
Carlés West	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171.00	3.45	5.41	0.28	19.00	30.00	1,044.00	
Carlés South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	412.00	3.16	2.35	0.36	42.00	31.00	3,232.00	
Total Carlés	232.00	3.45	10.00	0.53	26.00	75.00	2,696.00	1,329.00	3.37	7.64	0.38	144.00	326.00	10,971.00	1,559.00	3.38	7.99	0.40	169.00	400.00	13,667.00	1,163.00	3.26	4.62	0.30	122.00	173.00	7,703.00
La Brueva	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	187.00	3.90	15.53	0.09	23.00	93.00	357.00	
Total	3,184.00	3.04	15.75	0.71	311.00	1,612.00	49,723.00	4,749.00	4.22	6.77	0.38	644.00	1,034.00	39,918.00	7,934.00	3.74	10.38	0.51	955.00	2,646.00	89,641.00	3,362.00	3.80	8.64	0.33	410.00	934.00	24,816.00

- Notes:
- CIM (2014) definitions were followed for Mineral Resources.
 - Mineral Resources are estimated at an gold equivalent cut-off grade of 2.52 g/t AuEq for Boinás oxide, 2.20 g/t AuEq for Boinás Skarn, 1.96 g/t AuEq for Carlés, and 2.52 g/t AuEq for La Brueva.
 - Mineral Resources are estimated using long term prices of US\$1,700/oz Au, US\$3.25/lb Cu, and US\$20.0z Ag. A US\$/€ exchange rate of 1.20/1.00 was used.
 - Mineral Resources are inclusive of Mineral Reserves
 - Column pillars of 80 m and 40 m are excluded from the Mineral Resource below the El Valle TSP and Boinás-East open pits, respectively.
 - Unrecoverable material in exploited mining areas has been excluded from the Mineral Resource.
 - Areas of contiguous blocks with volumes less than 500 m³ have been removed from the Mineral Resource report to ensure Reasonable Prospects for Eventual Economic Extraction (RPEEE).
 - Numbers may not add due to rounding.

COMPARISON TO PREVIOUS ESTIMATES

RPA has compared the 2020 Mineral Resource estimate to the previous 2014 Mineral Resource estimate completed by RPA (Table 14-15). Between 2014 and 2020, material changes have been undertaken at the Orovalle Operation that would impact the Mineral Resource estimation. RPA has identified these as including:

- 40% (143,489 m) increase of drilling.
- Delineation of new zones and extensions to existing zones.
- Significant depletion of resource, particularly at Boinás.
- Significant increase in gold price used for resource cut-off from US\$1,300/oz Au to US\$1,700/oz Au.
- Inclusion of La Brueva deposit in the Mineral Resource.
- More restrictive wireframes that are adjusted to the zones containing grade and avoiding areas containing waste.

RPA COMMENTS

RPA reviewed the Mineral Resource model supplied by Orovalle and did not observe any issues that would have a material impact on the 2020 Mineral Resource estimate. RPA undertook independent checks on the database, wireframing, capping, compositing, variography, and grade estimation and found all differences to be within acceptable limits.

The QP considers the 2020 Mineral Resource to be free of fatal flaws and acceptable for use in Mineral Reserve estimation.

A number of small issues were observed, which RPA recommends be addressed prior the next Mineral Resource estimate:

- Further refinement of existing sub-domains, and additional sub-domains, where required, be generated to define high grade trends within the lithology wireframes.
- A 2.5 m block size may better represent local grade variability, but greatly increase processing time. Smaller block sizes should be tested prior to future Mineral Resource updates.
- Investigations should be undertaken to identify the source of higher copper failures in blank values.
- A full variography review should be undertaken prior to the next resource estimate to consider the low nugget modelled by Orovalle.

-
- Continue to improve the reconciliation process by monitoring the performance of the short term block model against grade control sampling and explore the use of high grade domain wireframes to restrict the interpolation of elevated grades.
 - Implementing underground stope optimization as a standard practice for Mineral Resource reporting to ensure RPEE.

TABLE 14-15 COMPARISON BETWEEN 2014 AND 2020 MINERAL RESOURCE ESTIMATES
 Orovalle Minerals S.L. – Orovalle Operation

Zone	2014 Estimate					Measured + Indicated 2020 Estimate					Difference				
	Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)		Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)		Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)	
Boinás Oxides	2,474	6.16	0.86	490	46,897	3,831	4.58	0.39	564	32,642	55%	-26%	-55%	15%	-30%
Boinás Skarn	2,435	3.06	0.64	240	34,363	2,544	2.7	0.77	221	43,332	4%	-12%	21%	-8%	26%
Carlés	1,097	3.44	0.42	121	10,159	1,559	3.38	0.4	169	13,667	42%	-2%	-5%	40%	35%
La Brueva	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6,006	4.41	0.69	851	91,419	7,934	3.74	0.51	955	89,641	32%	-15%	-26%	12%	-2%

Zone	2014 Estimate					Inferred 2020 Estimate					Difference				
	Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)		Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)		Tonnes (000 t)	Grade (g/t Au)	(%Cu)	Contained Metal (000 oz Au) (000 lb Cu)	
Boinás Oxides	2,499	7.16	0.46	575	25,342	1,665	4.36	0.3	233	11,057	-33%	-39%	-35%	-59%	-56%
Boinás Skarn	2,135	3.35	0.45	230	21,184	348	2.85	0.74	32	5,698	-84%	-15%	65%	-86%	-73%
Carlés	1,393	3.9	0.43	175	13,201	1,163	3.26	0.3	122	7,703	-17%	-17%	-30%	-30%	-42%
La Brueva	-	-	-	-	-	187	3.9	0.33	23	357	100%	100%	100%	100%	100%
Total	6,027	5.06	0.45	980	59,728	3,362	3.8	0.33	410	24,816	-44%	-25%	-26%	-58%	-58%

15 MINERAL RESERVE ESTIMATE

SUMMARY

Orovalle is currently focused on mining oxide and skarn ore from the Boinás underground mine, with additional underground mining potential at Carlés in the near future subject to the evaluation of recently acquired drilling data. During the second half of 2019, a limited contractor operated operation mined a total of 27,000 t of skarn ore from the Carlés open pit which was transported to the Boinás mill for processing. Orovalle plans to recommence the mining of skarn ore at the Carlés mine within the next five years. There is potential to add skarn ore from a cut back in the Carlés open pit subject to obtaining the necessary land rights and mining permissions, however, this has not been included in the Mineral Reserve estimate.

The Boinás underground mine employs two mining methods, SLS predominantly in the skarn ore, and overhand D&F in the oxide ore. The Carlés underground mine will employ SLS and D&F methods in the skarns. Any mining at the Carlés open pit will utilise conventional open pit mining methods.

Mineral Reserves were estimated by RPA, in conjunction with Orovalle personnel, for the Boinás and Carlés underground mines.

Mineral Reserve estimates were based on mine designs applied to Measured and Indicated Resources, with dilution and extraction factors applied based upon the designed mining method. Areas where stopes above cut-off grade were isolated, were removed from the Mineral Reserve estimate with stopes planned for mining up to September 30, 2020 also excluded. Mineral Reserves are summarised in Table 15-1.

TABLE 15-1 MINERAL RESERVES – SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Category	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Proven	1,156	2.14	11.61	0.51	79	431	12,922
Probable	2,275	3.10	4.44	0.29	227	325	14,668
Proven and Probable	3,431	2.78	6.86	0.36	307	756	27,590

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated using AuEq break-even cut-off grades by zone, consisting of 3.35 g/t AuEq for Boinás oxides (D&F), 2.90 g/t AuEq for Boinás skarns (SLS), and 2.09 g/t AuEq for Carlés skarn (SLS). AuEq cut-offs are based on recent operating results for recoveries, off-site concentrate costs and on-site operating costs. AuEq factors are based on metal prices, metallurgical recoveries, metal payables, and selling costs.
3. Mineral Reserves are estimated using average long term prices of US\$1,600/oz Au, US\$18/oz Ag, and US\$3.00/ lb Cu. A US\$/€ exchange rate of 1.20/1.00 was used.
4. A minimum mining width of 4 m was used.
5. Crown pillars of 75 m and 42 m are excluded from the Mineral Reserve below the El Valle TSF and Boinás East open pits, respectively.
6. A no-mining sterilisation zone of 10 m below mined out stopes and 5 m around waste filled stopes has been applied.
7. Numbers may not add due to rounding.

Mineral Reserves detailed by zone are shown in Table 15-2.

TABLE 15-2 MINERAL RESERVES BY ZONE – SEPTEMBER 30, 2020
Orovalle Minerals S.L. – Orovalle Operation

Category	Tonnes (000 t)	Grade			Contained Metal		
		(g/t Au)	(g/t Ag)	(% Cu)	(000 oz Au)	(000 oz Ag)	(000 lb Cu)
Proven							
Boinás Oxide	380	2.76	10.97	0.38	34	134	3,183
Boinás Skarns	775	1.84	11.92	0.57	46	297	9,739
Carlés	-	-	-	-	-	-	-
Total Proven	1,156	2.14	11.61	0.51	79	431	12,922
Probable							
Boinás Oxide	1,812	3.37	3.02	0.27	196	176	10,645
Boinás Skarns	328	1.87	12.21	0.48	20	129	3,434
Carlés	136	2.56	4.71	0.2	11	21	588
Total Probable	2,275	3.10	4.44	0.29	227	325	14,668
Proven & Probable							
Boinás Oxide	2,192	3.26	4.4	0.29	230	310	13,826
Boinás Skarns	1,103	1.85	12.01	0.54	65	426	13,176
Carlés	136	2.56	4.71	0.2	11	21	588
Total Proven & Probable	3,431	2.78	6.86	0.36	307	756	27,590

DILUTION

An overall dilution of 10% was used for the SLS mined stopes, while an overall dilution of 5% was used for the D&F mined oxides. The D&F mining method is more selective than SLS which is reflected in the lower dilution factor. All dilution was added at zero grades. The dilution estimates are based on average operating results for each of the two mining methods, and a tonnage / grade reconciliation study carried out by RPA and Orovalle in June 2020. Actual dilution is determined by comparing real executed stopes versus mine design, measured by scanner (cavity monitoring system).

EXTRACTION

An extraction of 90% was used for the skarns, mined using the SLS method, which is based upon historical cavity monitoring surveys of mined out stopes at the Boinás and Carlés mines.

An extraction of 95% was used for the oxides, mined by D&F methods which, due to the selectivity of the method, allows for greater extraction against planned. Some ore is lost due to blasting onto fill, however overall, historical averages at the Boinás mine have shown consistent extraction ratios of 100% or greater in the oxides, made possible by the ability to maintain good local grade control from face sampling. Thus 95% is deemed to be on the conservative side.

CUT-OFF GRADE

Cut-off grades were based on AuEq calculations, and include consideration for:

- Process recoveries based on recent operating performance.
- Metal prices and exchange rates, consistent with long term forecasts.
- Off-site costs for doré bars and copper concentrate, including:
 - Payability
 - Transportation
 - Treatment
 - Refining
 - Penalty elements
- NSR royalty of 2.5% at a gold price below US\$1,100/oz Au, 3% otherwise.
- Operating costs, based on recent history, and used in the FY 2021 mine budget.

Skarn and oxide material were treated separately due to differences in mining methods, process recoveries, and costs.

Resulting AuEq factors and break-even cut-off grades are summarised in Table 15-3.

**TABLE 15-3 MINERAL RESERVES CUT-OFF GRADE PARAMETERS
Orovalle Minerals S.L. – Orovalle Operation**

Ore Type	Unit	Boinás				Carlés
		Oxide SLS	Oxides D&F	Skarn SLS	Skarn D&F	Skarn SLS
Cut-Off	(g/t AuEq)	2.67	3.35	2.90	2.81	2.09
Au Factor		1.000	1.000	1.000	1.000	1.000
Ag Factor		0.009	0.009	0.008	0.008	0.009
Cu Factor		1.067	1.062	1.009	1.039	1.085
Capital Devt + Sustaining	(US\$/t)	13	26	23	13	17
Mining Cost	(US\$/t)	32	44	32	43	50
Plant & Admin	(US\$/t)	65	67	56	55	20
Gold Price	(US\$/oz Au)			1,600		
Silver Price	(US\$/oz Ag)			18.00		
Copper Price	(US\$/lb Cu)			3.00		

Mine designs were based on break-even cut-off grades. Dilution and extraction were applied, and the resulting stopes sorted by grade. A small quantity of incremental material within the stope designs was included in the Mineral Reserves for oxides. Inclusion of this material was necessary to maintain a balanced skarn to oxide ratio in the process plant feed for efficient milling.

16 MINING METHODS

SUMMARY

The Orovalle Operation consists of underground mines at Boinás and Carlés and an open pit at Carlés. Currently the Boinás underground mine is the only producing asset, with a nominal mining rate of 2,000 tpd. Both Carlés mines are currently on care and maintenance with underground production planned to recommence in the near future. There is also potential to mine additional skarn ore from the Carlés open pit subject to land acquisition and mining permissions being obtained.

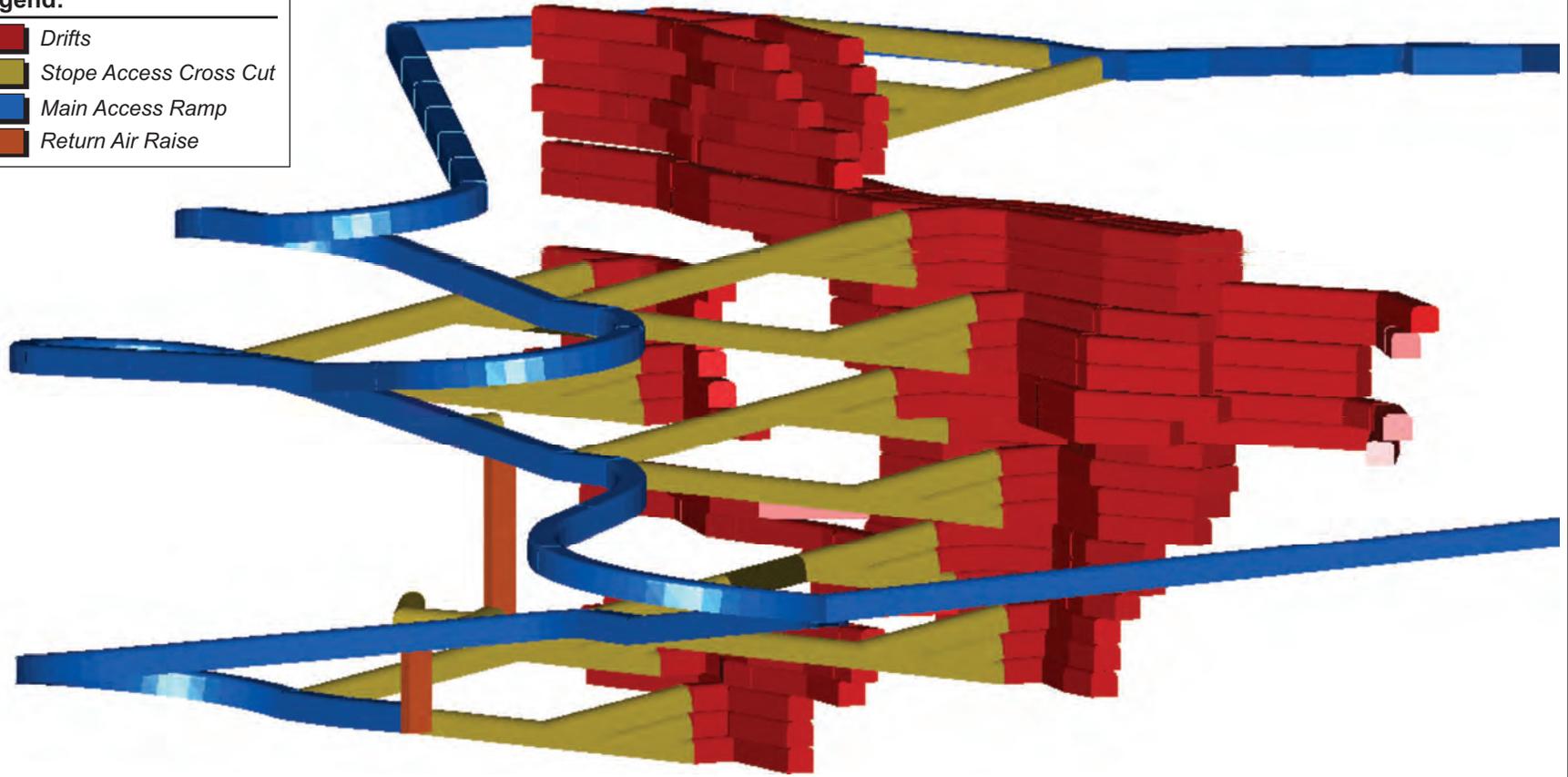
The current mining methods used at Boinás underground mine are overhand D&F and transverse and longitudinal longhole SLS. The D&F mining method is utilised in oxides and some transitional areas of the Boinás mine, as dictated by geological and geotechnical constraints. Longitudinal SLS is used exclusively in the more competent skarns. The Carlés mine is planned to utilise both SLS methods underground, where the orebody dip is suitable, and D&F where the orebody dip is too shallow for SLS mining. Should the open pit at Carlés recommence production, then a conventional drill and blast, truck and shovel method will be used.

Typical layouts for D&F, transverse SLS, and longitudinal SLS methods are illustrated in Figures 16-1, 16-2, and 16-3, respectively.

Looking Northwest

Legend:

- Drifts
- Stope Access Cross Cut
- Main Access Ramp
- Return Air Raise



16-2

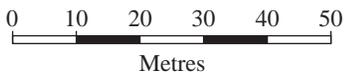


Figure 16-1

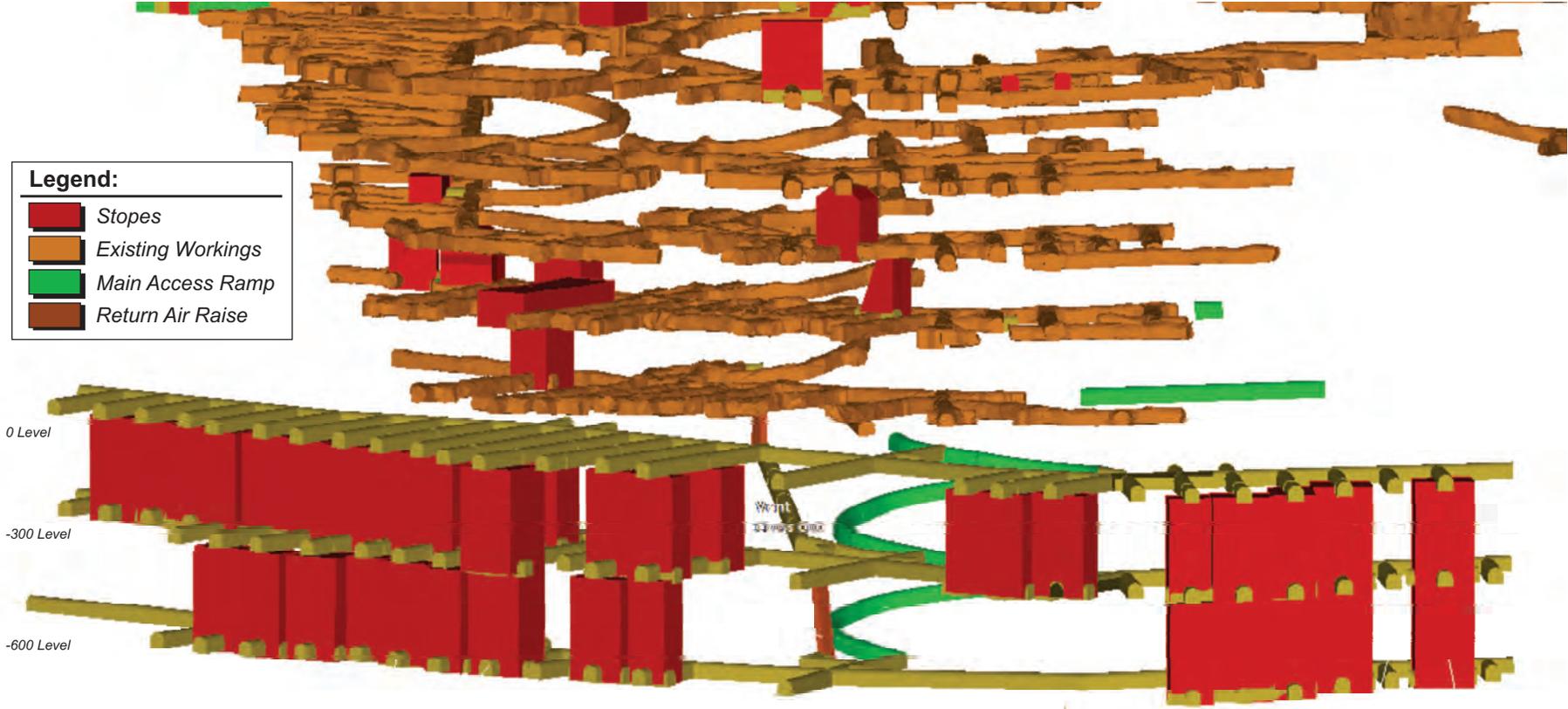
Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Example of Drift and Fill
– El Valle Fault Zone

Looking Southeast

- Legend:**
- Stopes
 - Existing Workings
 - Main Access Ramp
 - Return Air Raise



16-3

Figure 16-2

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

**Example of Transverse
 Longhole Stopping – Black Skarn**

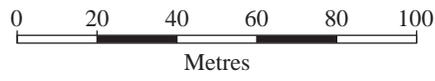


Figure 16-3

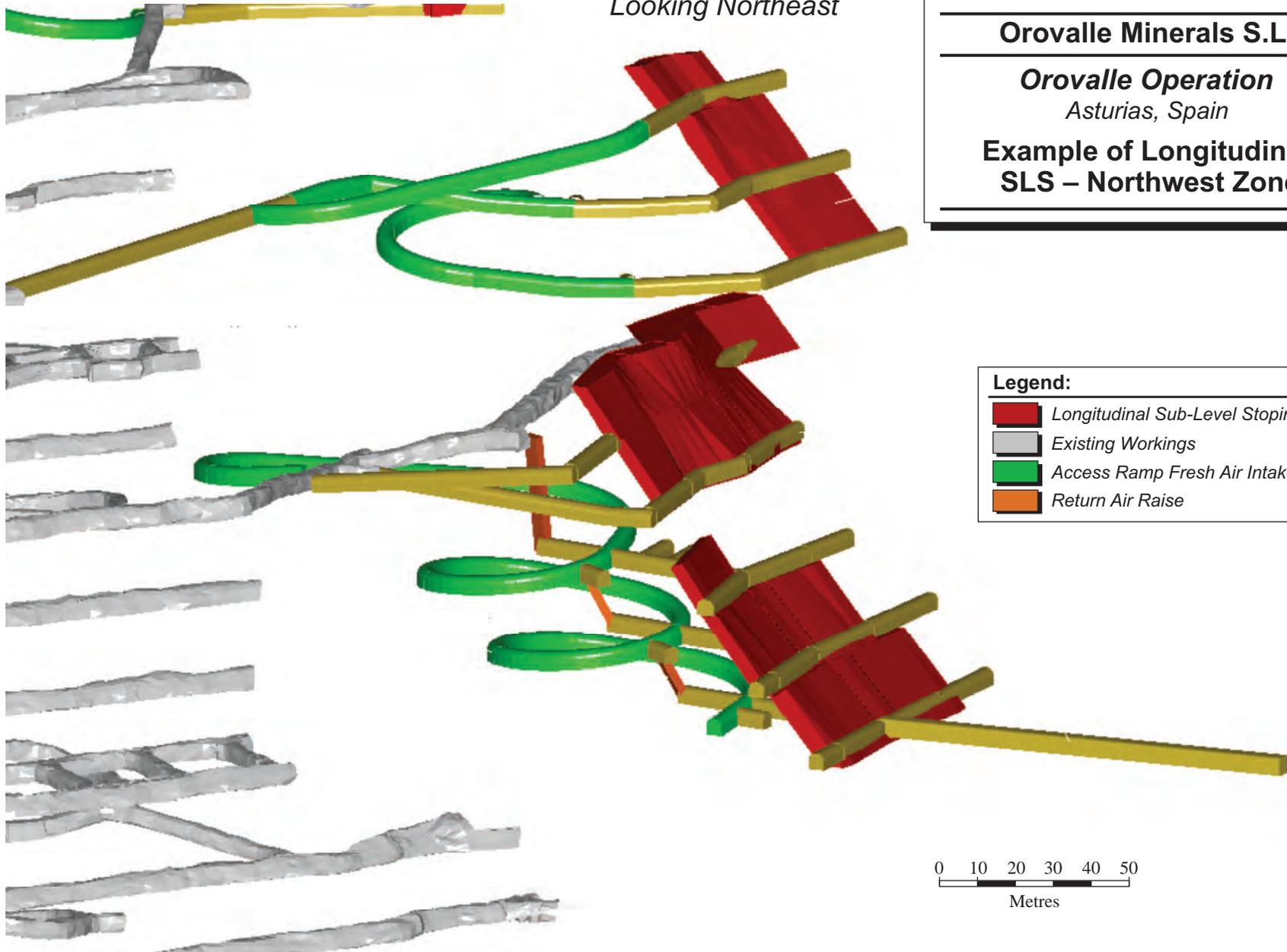
Orovalle Minerals S.L.

Orovalle Operation

Asturias, Spain

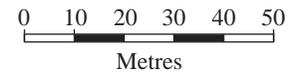
**Example of Longitudinal
 SLS – Northwest Zone**

Looking Northeast



Legend:

- Longitudinal Sub-Level Stoping
- Existing Workings
- Access Ramp Fresh Air Intake
- Return Air Raise



Geotechnical conditions in the skarns suit SLS, which has a good to weak rock mass with good joint spacing and low rock stresses. Access is typical for SLS methods, with an upper drill drift and lower mucking drift. Cable bolting is carried out to support the hanging wall and help reduce dilution. In Boinás there are primary and secondary stopes. Primary stopes are backfilled with cemented rock fill (CRF) and secondary stopes are backfilled with uncemented rock fill (URF). In Carlés all the stopes will be backfilled with URF. Waste suitable for CRF production will be hauled to surface where it is screened and mixed with 4% cement before being transported back underground in trucks for placement.

SLS stopes vary in size depending upon their location and whether they are transverse stopes in the Black Skarn zone of the Boinás mine, or longitudinal stopes in the High Angle zone or underground at Carlés northwest. Stope sizes also vary depending on whether they are primary or secondary stopes. Primary stopes are smaller by design in order to optimise the usage of CRF.

D&F mining of oxide ore is also driven by the ground conditions. The oxides form a very weak rock mass consisting of a silicified gravel type material. Mining is completed using a rock breaker mounted on an excavator. Muck is moved using a load-haul-dump (LHD) unit and trucks. CRF is used in the primary drifts and URF is used in secondary drifts. Ground support used in the oxides consists of shotcrete, swellex, and wire mesh if the drift will be open for an extended period of time. The main ramps and hauling drifts in weak rock are also supported with arches positioned every five meters.

The following mining zones and mining methods have been included in the Mineral Reserves, with zones comprised predominantly of Inferred material excluded.

- Planned for SLS mining at Boinás:
 - Black Skarn (BS) - Partial, Boinás East (BE) – Partial, High Angle (HA).
- Planned for SLS mining underground at Carlés:
 - Carlés Northwest (NW) - Skarns.
- Planned for D&F mining at Boinás:
 - Area 208 (A2), Area 107 (AR), Zona Villar (ZV), Boinás East (BE) – Partial, East Breccia (EB), El Valle Fault (VF), Charnela South (CH), S107 (S1), Black Skarn (BS) – Partial.
- Planned for D&F mining underground at Carlés:
 - Carlés North (CN) - Skarns.

Mining of oxide ore has been designed so that multiple panels can be worked concurrently in each zone. No sill pillars are left between successive panels, maximising extraction, and ensuring no high stress concentrations are created within a single mining horizon.

A 75 m crown pillar has been demarcated between the El Valle TSF and the upper level workings, which mainly constrains extraction from the A107, and El Valle fault zones. This pillar is in accordance with the recommendations received from AMC in their February 2015 Report titled “Kinbauri Tailings Storage Facility Pillar”. RPA understands that these crown pillar recommendations are currently being reviewed by an independent international consulting firm and that the 75 m mining exclusion zone could potentially be reduced in the future.

Also, a 42 m crown pillar has been demarcated between the Boinás East pit and the upper level workings, which mainly constrains extraction from Boinás East, and High Angle zones. This pillar is in accordance with the recommendations received from Mining One Pty Ltd. in their March 2016 Report titled “*Boinás East Crown pillar stability assessment*”.

Existing ramps and ramp designs have a maximum gradient of 15%.

PRODUCTIVITIES

Productivities used for long term planning were based on the recent Orovalle Operation operating history. Development in fresh rock is by conventional twin and single boom jumbos mucked out by scoop trams. Development rates are scheduled to reach a maximum of 3.0 metres per day (m/d) in a single heading with cross sections of 5.0 m wide x 4.8 m high, or 4.5 m wide x 4.8 m high in the declines, and 4.5m x 4.5 m in horizontal drives. For oxide development using a rock breaker mounted on an excavator, the maximum advance rate is 3.0 m/d with standard drift sizes of 5.0 m wide x 4.5 m high. Maximum advance in the oxides is 1.5 m cuts before support is required. The advance rate for ventilation raises is 4.0 m/d with a 5.0 m x 2.3 m raise as the standard size.

Long term planning production rates for SLS range from 700 tpd to 1,000 tpd, with 900 tpd being the common rate used to achieve the tonnages required to meet production targets.

The schedule is sensitive to equipment availability, utilisation, and the backfill placement rate. The cyclic nature of the D&F operation is such that interruptions in that cycle can have a significant knock-on effect and lead to a drop in productivity. To achieve the production profile, backfill placement rates of 280 m³/d for CRF and 560 m³/d for URF will be required, for an average total of 840 m³/d. Actual fill placement over the last half of FY 2020 has averaged 317 m³/d, 538 m³/d, and 855 m³/d, respectively.

Over the same period an average ore production rate of 1,750 tpd was achieved, climbing to 1,860 tpd during the second half of FY 2020, for an annualised rate of 673,000 tpa. Total ore production during FY 2020 was 634,377 t.

LIFE OF MINE PLAN

RPA has produced a production schedule in conjunction with Orovalle based upon the estimated Mineral Reserves. The schedule includes oxide and skarn ore mined from both the Boinás and Carlés underground mines at an average rate of 686,000 tpa for a period of five years and is presented in Table 16-1. The total production schedule shows 3,431,000 t of ore, mined from both Boinás and Carlés, containing an estimated 307,000 oz Au, 756,240 oz Ag, and 27.6 Mlb Cu.

Underground mining at Carlés is planned to re-commence in the near future subject to evaluation of the results from the current drilling campaign. In the LOMP, proposed Carlés skarn production averages 45,000 tpa over the last three years of the schedule producing 11,200 oz Au, 20,600 oz Ag and 0.6 Mlb Cu.

Until such time as mining operations resume at the Carlés underground mine, it will be kept on care and maintenance. Orovalle is currently undertaking a review of alternatives including mining skarn ore from the Carlés open pit. It is possible that approximately 300,000 t of skarn ore could be mined from the Carlés open pit, however, this is subject to the relevant permits, and land being obtained. For this reason, this additional potential has not been included in the Mineral Reserve estimate.

TABLE 16-1 LIFE OF MINE PLAN – OCTOBER 2020
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
Mill Feed							
Tonnes	000 t	704	698	681	675	673	3,431
Gold Grade	g/t Au	2.64	2.93	2.68	2.90	2.75	2.78
Silver Grade	g/t Ag	8.24	9.76	6.68	4.88	4.55	6.86
Copper Grade	% Cu	0.42	0.47	0.33	0.32	0.28	0.36
Metal Production							
Gold	000 oz Au	60	66	59	63	60	307
Silver	000 oz Ag	187	219	146	106	98	756
Copper	000 lb Cu	6,552	7,238	4,882	4,829	4,088	27,590

MINE INFRASTRUCTURE

Infrastructure at the Boinás mine consists of ramp access and a rock hoist shaft. Intake ventilation is provided via the main access declines and return air raises connected to a surface fan via a shaft draw fresh air through the mine to the various work areas via a series of regulators.

A 420 m deep shaft equipped with rock skips is used to hoist most of the skarn ore and waste rock to the surface. Some skarn ore and waste, and all oxide material, is transported to the surface by truck via the main access ramp. The sticky nature of the oxide material causes skipping issues in the shaft, so oxide ore is typically moved using 20 t and 25 t articulated trucks. RPA notes that the rock hoist is currently not fully utilised and Orovalle is investigating ways to increase the shaft hoisted tonnes.

The underground workings at the Boinás mine have fixed installations including main and auxiliary ventilation, workshops, pumping systems, electrical distribution, and clean-water supply circuit. Mine and surface water treatment circuits, drainage, and water decant ponds are also in use.

Dewatering is achieved through a sump and pump system that follows the main ramps and collects in sumps near the shaft at the 100 level. Water is pumped to surface and collected in a settling pond near the portal, while ground water and process water are handled through entirely separate systems.

At Carlés, infrastructure includes a laydown yard, surface access roads, mine office and changing rooms, and ramp access to underground workings.

Power is provided to the Orovalle Operation via lines connected to the regions power grid, with a separate 8 MW power grid for Boinás. Substations exist at the El Valle processing plant and both mines to provide electricity to the working areas.

Maintenance for the underground fleet is carried out on surface. Each mine has a suitable workshop.

Communication is via a radio system at both mine sites using a “leaky feeder” type system. In Boinás, optical fibre communications are currently being installed to provide Wi-Fi for the mine.

Explosives are stored in a purpose-built magazine at the surface of Boinás mine, which was constructed in 2017. The magazine was previously located underground, however, as it was blocking some of the return air flow it was moved to surface.

MOBILE EQUIPMENT

The mining equipment used underground at Boinás, summarised in Table 16-2, is sourced from various reputable vendors.

The main truck fleet comprises 20 t and 25 t articulated trucks that are capable of hauling all ore and waste material types to surface. While the rock hoist can handle the Boinás skarn ore and waste more efficiently than truck haulage, due to the sticky nature of the oxide material, oxide material is not hoisted and instead is truck hauled to surface. CRF is prepared on surface and hauled back underground by returning trucks to be placed into stopes and primary D&F drifts, which increases the overall truck productivity. Development mining outside the oxide zones uses jumbos to advance the face using drill and blast. Inside the oxide zones a rock breaker mounted on an excavator frame is used to advance the face. The current main mining equipment used underground at Boinás is listed in Table 16-2:

TABLE 16-2 BOINÁS EQUIPMENT FLEET
Orovalle Minerals S.L. – Orovalle Operation

Type	Brand	No.	Model	Capacity (t)	Power (kW)
Loader LHD	Sandvik	3	LH 514	14	256/265
Loader LHD	Atlas Copco	3	ST 1030	10	186
Loader LHD	Sandvik	5	LH 410	10	210/220
Truck	Atlas Copco	5	MT 2010	20	224
Truck	Volvo	6	A25G	25	235
Jumbo	Atlas Copco	1	Boomer 282		125
Jumbo	Atlas Copco	2	Boomer S1D		79
Jumbo	Sandvik	1	DD320-41		135
Jumbo	Epiroc	1	Boomer S2		90
Longhole Drill	Atlas Copco	2	Simba 1354		70
Longhole Drill	Atlas Copco	1	Simba M6		150
Rock Bolting Rig	Atlas Copco	2	Boltec MD		63
Rock Bolting Rig	Atlas Copco	1	Boltec DS311		62
Retro Hammer	Yanmar	3	VIO80-1A		39
Retro Hammer	Yanmar	5	SV100-2A		54
Robot	Putzmeister	3	SPM 4210		82
Robot	Putzmeister	1	Wetkret-4		85
Concrete trucks	Putzmeister	5	Mixkret-4	10	130
Telehandlers	Manitou	5	MT 1135		75
Telehandlers	Manitou	2	MT 1440		75

Access to each of the individual areas of the underground mines is via independent ramps that feed off the main decline ramp to surface. Ore pass systems are generally no longer utilised at Boinás due to the geographical dispersal of the operating mining zones.

A layout of the mine plan can be seen in Figures 16-4 and 16-5 for the Boinás and Carlés mines, respectively. The images delineate separate mining zones while displaying topography or actuals in grey. The figures incorporate all possible design options with realistic design constraints whether inferred or otherwise. Some of these zones are not included in the Mineral Reserve estimate as they are currently classified as Inferred Mineral Resources.

Looking Northwest

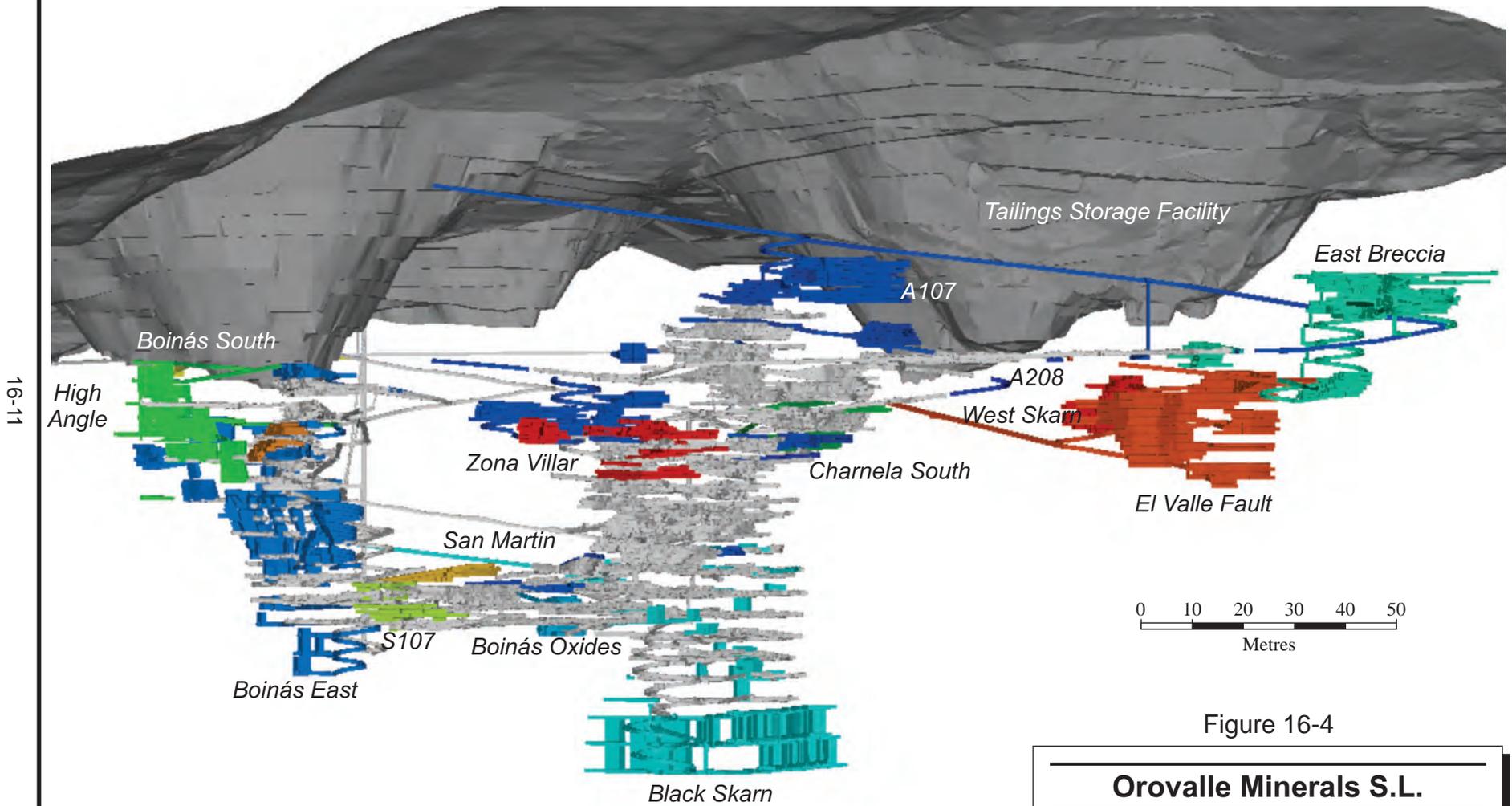


Figure 16-4

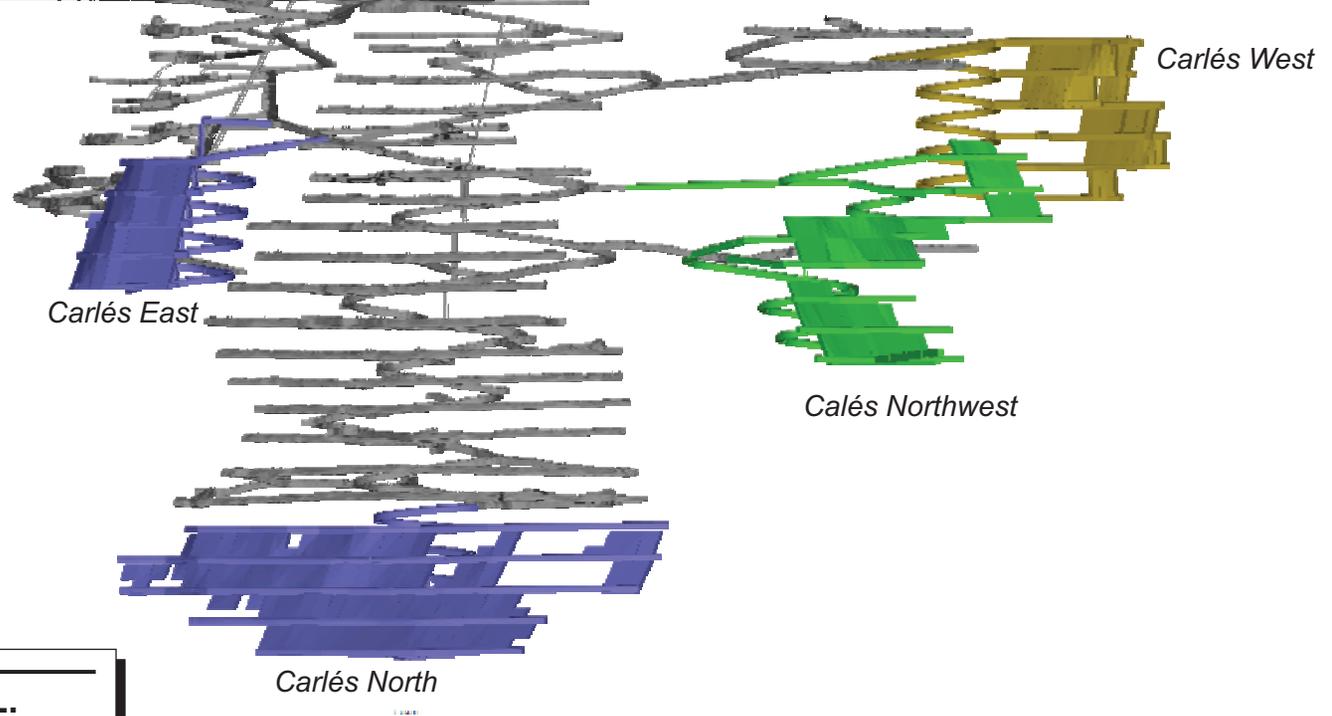
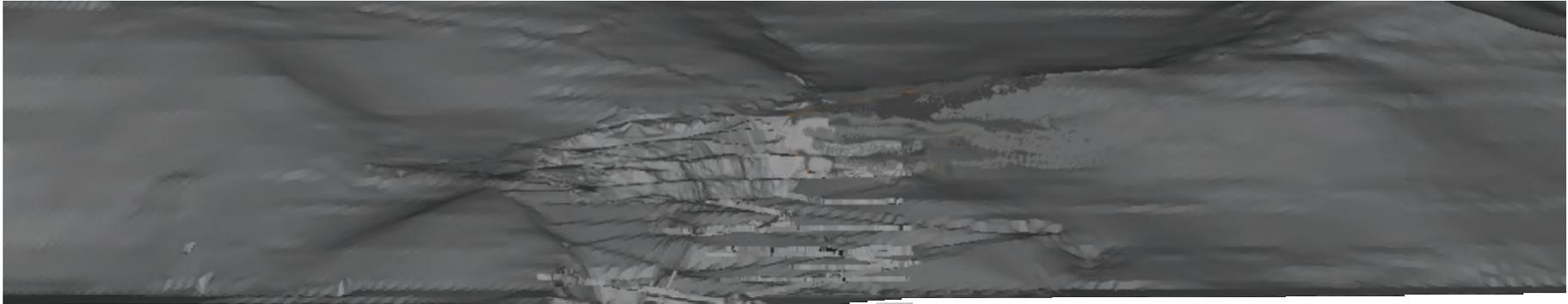
Orovalle Minerals S.L.

Orovalle Operation

Asturias, Spain

Boinás Mine

Looking North



16-12

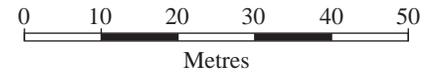
Figure 16-5

Orovalle Minerals S.L.

Orovalle Operation

Asturias, Spain

Carlés Mine



November 2020

Source: Orovalle, 2020.

VENTILATION

The current ventilation circuit has been modelled in VentSIM, to simulate scenarios to improve the existing and future circuit.

The Boinás ventilation circuit is based on air entering the underground workings via the main portal and rock hoist shaft and being distributed to the main workplaces via a 355 kW Zitron ZVN 1-25-355/6 with a total pressure of 1,800 Pa and a total flow rate of 150 m³/s.

In the primary ventilation circuit fresh air enters the Boinás mine in two ways:

- The first intake airway is the surface decline which ventilates the CH zone, upper A107, and A208.
- The second intake airway is the shaft which delivers air to the rest of the Boinás mine.

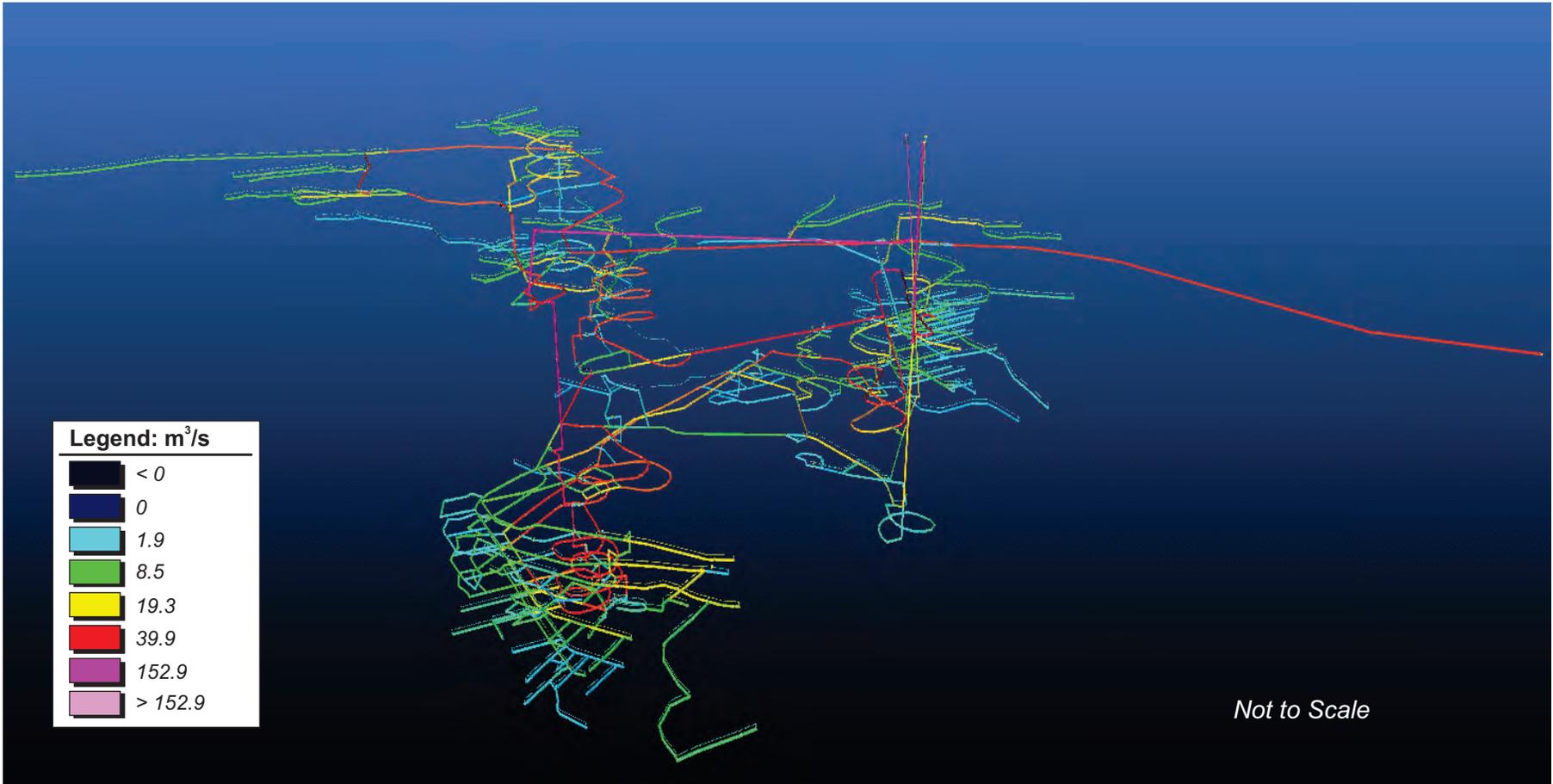
Local fresh air is delivered to the workplaces via secondary ventilation circuit using 37 kW, 45 kW, 55 kW, 75 kW, and 110 kW boosters and axial auxiliary fans.

Return air is exhausted from the Boinás mine via a raisebored raise close to the main rock hoist shaft.

The Carlés underground mine is ventilated via a 110 kW Zitron ZVR 1-18-110/4 surface primary fan via a vertical return air raise with a total flow rate of 60 m³/s. Intake air is drawn into the mine via the main access portal.

Primary Boinás and Carlés ventilation circuit schematics are shown in Figures 16-6 and 16-7, respectively.

Looking East



16-14

Figure 16-6

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Current Boinás Ventilation Circuit

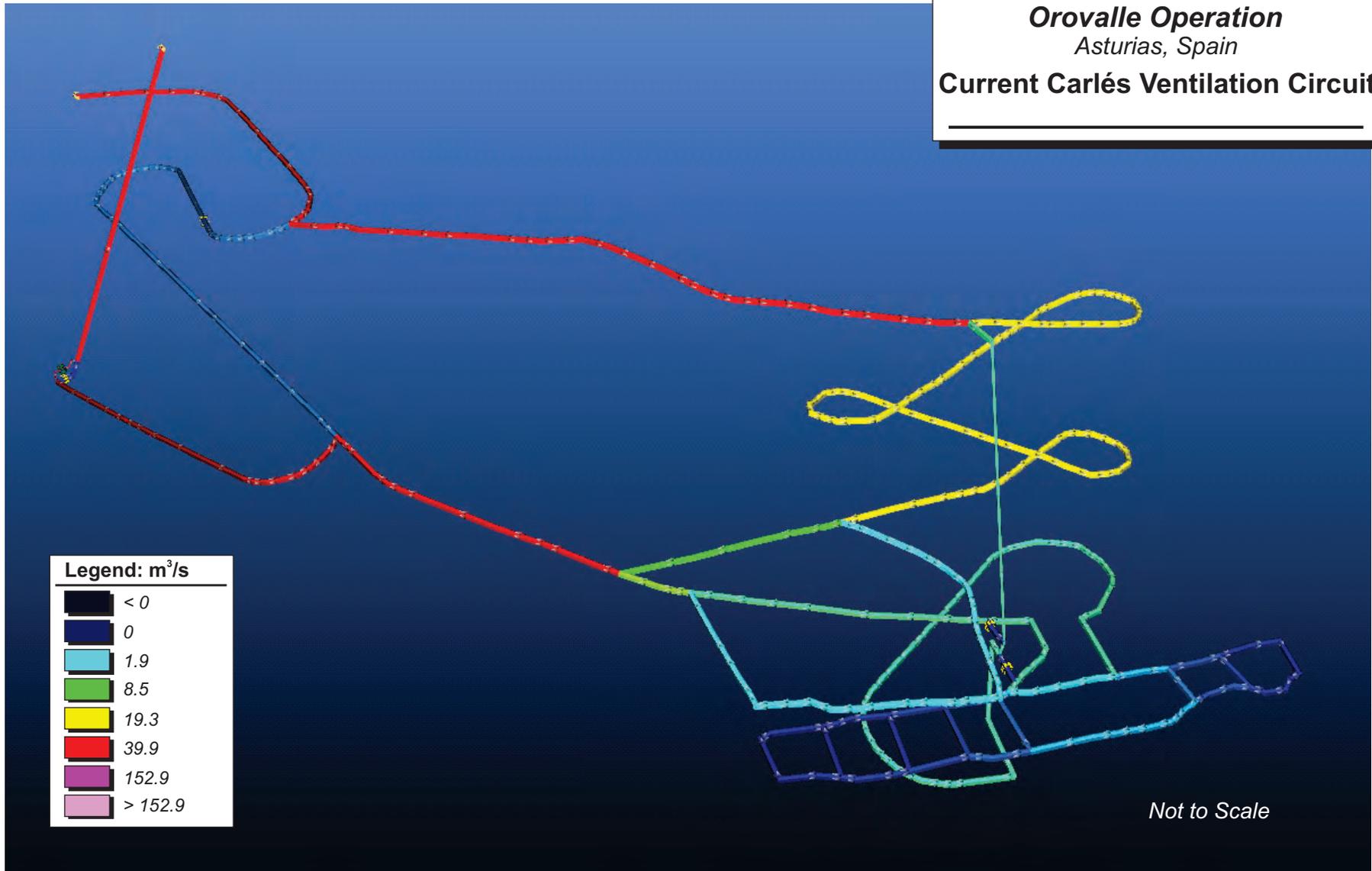
Figure 16-7

Looking East

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Current Carlés Ventilation Circuit



Legend: m³/s

Black	< 0
Dark Blue	0
Light Blue	1.9
Green	8.5
Yellow	19.3
Red	39.9
Purple	152.9
Light Pink	> 152.9

Not to Scale

17 RECOVERY METHODS

INTRODUCTION

The El Valle processing plant consists of the following process stages:

- Single stage crushing
- SAG and pebble crushing
- Ball milling
- Gravity circuit
- Flotation circuit
- CIL circuit
- Desorption and regeneration circuit
- Electrowinning and smelting
- Tailings detox and disposal

A flowsheet of the plant is shown in Figure 17-1.

PROCESS DESCRIPTION

Ore is delivered to the El Valle processing plant receiving pad and stockpiled according to source and ore type to enable blending of the plant feed to achieve target gold, copper, and arsenic grades into the plant.

A front end loader feeds the ore blend to the primary crusher tip which is equipped with a 600 mm grizzly. Minus 600 mm ore is fed by apron feeder at a controlled rate to a 110 kW jaw crusher which reduces the rock size to < 153 mm. RPA notes that the original Dragon MR-10 jaw crusher was replaced by a new Sandvik CJ411 jaw crusher in 2018. Crushed ore is conveyed to a 100 tonne capacity level controlled mill feed bin after passing under a tramp iron magnet. The crushing circuit can operate at up to 200 tph. RPA notes that there is provision for an emergency stockpile of crushed ore to be available to feed the mill when the crusher plant has extended downtime.

Ore is withdrawn from the mill feed bin via apron feeder and conveyed to the SAG mill. The mill feed conveyor also receives recycled crushed pebbles. The mass of the new feed plus the recycled pebbles is continuously recorded as the belt passes over an in-line weightometer. Recycled crushed pebbles are also weighed by a belt weightometer prior to joining the feed to the mill.

SAG MILL AND PEBBLE CRUSHER

The mill feed conveyor discharges ore into the SAG mill feed hopper at a typical feed rate of 90 tph to 100 tph (new feed 80 tph to 100 tph + recycled pebbles 20 tph to 30 tph). The mill feed rate is controlled electronically to maintain load and power draw targets. Water is also added to the mill feed hopper to maintain a desired in-mill pulp density.

The 700 kW SAG mill dimensions are 5.5 m internal diameter and 2.3 m effective grinding length. The SAG mill discharges through an end grate slotted with 70 mm pebble ports. A discharge trommel screen with 12 mm apertures separates the pebbles from the slurry. Pebbles are conveyed to a 132 kW cone crusher for crushing down to <12 mm. The crusher is protected from tramp metal in the feed by an overhead magnet and metal detector on the feed conveyor belt. The crusher product particle top size is 10 mm.

BALL MILL

SAG mill trommel screen underflow and ball mill discharge are collected in a common pump box,. The slurry is pumped to a cyclone cluster for classification, with fine overflow ($P_{80} 75 \mu\text{m}$) reporting to the flotation section. The coarse underflow is split into two streams, a bleed stream which undergoes gravity concentration, and the main stream which is directed to the ball mill feed spout.

GRAVITY CONCENTRATION AND INTENSIVE LEACHING OF HIGH GRADE GRAVITY CONCENTRATE

The feed to the gravity circuit is screened to remove $>2 \text{ mm}$ particles, which are returned to the ball mill, screen underflow reports to a rougher Knelson concentrator. Tails from the rougher Knelson are deslimed in spirals, with spiral concentrate reporting to a scavenger Knelson concentrator. Rougher and scavenger Knelson concentrates report to a cleaner Knelson concentrator. The rougher gravity concentrate is upgraded in a cleaner Knelson concentrator. Tails from the cleaner concentrator return to the rougher concentrator in closed circuit. Tails from the scavenger Knelson concentrator are returned to the mill pump box. RPA notes that there is an option to produce a low grade gold copper gravity concentrate using spirals and shaking tables. This was practiced in the past however is currently not required.

The cleaned gold rich concentrate is treated in an ILIX to dissolve the gold. After each batch leach is completed, the gold rich solution is decanted and pumped to an electrowinning cell for recovery of the gold in the form of electrowinning sludge. The sludge is smelted and doré is produced. The leached solids from the ILIX are returned to the mill pump box.

FLOTATION

The flotation section consists of one conditioning tank where reagents are added, seven rougher cells followed by seven scavenger cells in series, and four cleaning cells (two cleaners and two recleaners).

The gravity section recovers relatively coarse particles of native gold and copper $>25 \mu\text{m}$, while the flotation section recovers copper sulphide minerals and some of the remaining fine particles of native copper and gold.

The final concentrate mass pull is typically 1.6% of the feed mass and contains 23% Cu to 25% Cu.

The concentrate is thickened and filtered to reduce the moisture content to 12% for safe transport to the smelter. Filtrate is clarified and recycled as process water.

CARBON IN LEACH (CIL)

The flotation tailings stream is thickened and screened at 0.6 mm for removal of grit and fibers. Screen underflow gravitates to the leach tank where lime, cyanide, and oxygen are added. Slurry gravitates from the leach tank down stream through five CIL tanks and one ILIX tank in series. The slurry CIL residence time is 24 hours. Slurry flows downstream from ILIX Tank 1 to CIL Tank 5 while carbon is pumped upstream from CIL Tank 5 to CIL Tank 1. The CIL tailings stream passes through two cyanide detox tanks which use the International Nickel Company (INCO) detox system. The final tails are screened for capture of fugitive carbon particles and pumped to the El Valle TSF.

CARBON ELUTION AND REGENERATION

The loaded carbon screened from CIL Tank 1 slurry is transferred to an elution column in four tonne batches for acid washing of the carbon followed by desorption of the gold. The (Anglo American Research Laboratory (AARL) elution process is used. Eluted carbon is dewatered and passed through a carbon regeneration kiln for heating to 700°C for 20 minutes. The regenerated carbon is quenched and screened for removal of <0.5 mm particles and transferred back to CIL Tank 5 to begin the adsorption desorption regeneration cycle again.

ELECTROWINNING AND SMELTING

Gold rich eluate solution from the elution process is collected in an electrolyte recirculation tank. The batch of solution is recirculated through four in-line electrowinning cells where gold is electrowon onto stainless steel wool cathodes. The cathodes are removed periodically and washed with high pressure water for removal of the gold. The resultant sludge is dried and smelted in batches with fluxes to produce doré bars.

TAILINGS DETOX AND DISPOSAL

The CIL tails flows to two agitated tanks for cyanide destruction using the INCO process. Residual cyanide is destroyed, and dissolved heavy metals are precipitated by mixing the tailings with sulphur dioxide and air in the presence of a soluble copper catalyst (copper

sulphate if there is no dissolved copper in the tailings) at a controlled pH between pH 8 and pH 10.

18 PROJECT INFRASTRUCTURE

The Orovalle Operation infrastructure consists of the following components:

- The El Valle processing plant as described in Section 17. The plant is supported by stores, workshops, offices, control room, and services supplying compressed air, reagent make up, potable, fire, and process water reticulation, electricity distribution, instrument and control, communication systems, metallurgical laboratory, and change houses.
- The lined El Valle TSF.
- Mine offices located centrally adjacent to the El Valle processing plant.
- Clinic.
- Mine rock hoist shaft and winder house.
- Mine crusher.
- Return air shaft and surface fan.
- Water Reverse Osmosis treatment plant.
- Shotcrete plant.
- Waste screening facilities and cemented rock fill batch and mixing plant.
- Surface bulk explosives and accessories magazine.
- Core storage facility.
- Mine wide power reticulation, radio, internet, intranet, and telecommunications.
- Underground workings auxiliary fixed installations including ventilation, pumping systems, electrical distribution, and potable water reticulation.
- Drainage and water decant ponds.
- Mine site access roads, fence, and gate.
- Security office and control boom at Boinás mine entrance.
- Laboratory and sample preparation facility.
- Weigh scale for haul trucks.
- Additional power line and generator

Recent upgrades and changes are recorded in Table 18-1.

**TABLE 18-1 INFRASTRUCTURE UPDATES
Orovalle Minerals S.L. – Orovalle Operation**

Area	Year	Modification
Processing Plant	2017	Pebble treatment changes from open to closed.
	2018	Dragon MR-10 crusher replaced by Sandvik CJ411.
	2018	Installation of Ammonium gas extraction in milling area.
Laboratory	2015	Second ICP.
	2016	AA (automatic absorption) + water distillatory.
	2016	Replacement of electric furnace to gas furnace (higher capacity).
	2016	A fifth person is added to the workforce.
	2017	Instalment of second distillatory and drier.
	2017	Replacement of muffle furnace to one of higher capacity.
	2017	Construction of new storage area for melting pots, flux and other consumables.
	2019	Replacement of AA (automatic absorption) and older ICPs.
General Infrastructure	2015	The different warehouses are combined in one newly build larger warehouse. Explosives bunkers (magazines) on surface.
	2017	Main fan upgrade.
	2018	Power line – 8 MW
	2019	Purchase of truck weigh scale.

The layout of the Orovalle Operation project site is illustrated in Figure 18-1.

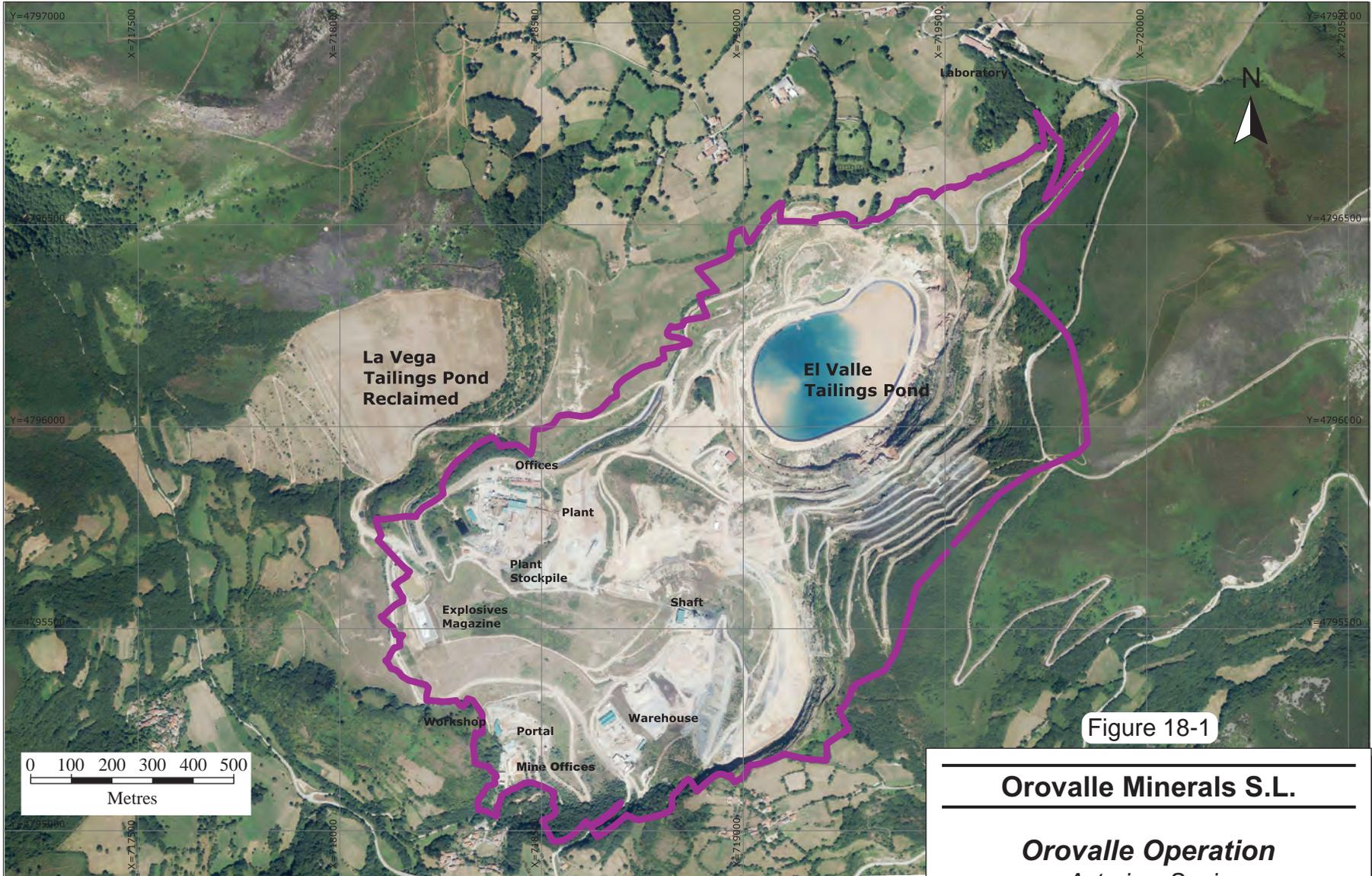


Figure 18-1

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain
Site Infrastructure Layout

The main access to the Boinás site is from the south on a public road that bypasses the village of Boinás; the site entrance includes a gate and security.

The El Valle processing plant has a nameplate capacity of 600,000 tpa, however, subsequent expansions have increased throughput capacity to 750,000 tpa depending on ore types; a full description of the El Valle processing plant is found in Section 17. Auxiliary equipment includes pump systems to distribute water, water recovery systems, gas storage, control boilers, gas heaters, blowers, compressors, etc.

The office was expanded in 2011. Other surface facilities include changing rooms, lunch rooms, clinic, warehouses, maintenance shops, electromechanical workshops, a reverse osmosis water treatment plant, a shotcrete plant, a complete laboratory (including a sample preparation area with jaw crusher, roll mill, LM5, LM2, rotary and manual splitter, etc., fire-assay laboratory, an Agilent Technologies (Varian Inc.) ICP emission spectrometer, and a core storage facility), electrical power lines and substations for the Orovalle Operation, and a complete telecommunication system providing phone lines and fast internet and intranet connections for the various offices.

The TSF is located within the old El Valle pit. The use of the pit as a TSF allows for two objectives to be achieved, to minimize the risk of the deposit as it is contained within an existing excavation (no dam required), and to restore the natural topography of the area by filling it in with tailings. The high impermeability of the TSF is achieved using a combination of a synthetic geomembrane barrier and a watertight clay lining, with the following characteristics: i) six metres high by five metres wide clay dike deposited in layers with a maximum thickness of 250 mm, and ii) geosynthetic HDPE (high density polyethylene) liner with a thickness of 1.5 mm.

The TSF design comprises two design phases, from its base at 444 meters above sea level (MASL) to 510 MASL and from 510 MASL to 540 MASL. Currently Orovalle has permits in place up to 510 MASL and is developing detailed engineering from level 510 MASL to 540 MASL for further construction permits.

The construction of the TSF up to 510 MASL comprises a total of 11 six metre lifts. To date, ten lifts have been carried out, up to 504 MASL, and construction has begun on the last level of the first phase, up to 510 MASL.

Detailed engineering and supervision of the construction process are carried out by internationally recognized engineering companies. RPA provides no conclusions or opinions regarding the stability of the listed dams and impoundments.

19 MARKET STUDIES AND CONTRACTS

MARKETS

The principal products (gold doré and copper concentrates) produced at the Orovalle Operation are freely traded, at prices that are widely known, so that prospects for sale of any product is virtually assured, subject to achieving the product specifications discussed below.

Orovalle used metal prices of US\$1,600/oz Au, US\$18/oz Ag, and US\$3.00/lb Cu for estimating Mineral Reserves.

Products include doré bars, and copper concentrate with gold and silver credits. The copper concentrate is subject to limitations on certain deleterious elements, including:

- Arsenic
- Bismuth
- Antimony
- Lead
- Zinc
- Mercury
- Selenium
- Fluorine
- Chlorine

As per industry standards for copper concentrate, penalty charges are incurred for various deleterious elements when they are over specified concentrations. There are also certain deleterious elements that include a hard cap, above which the concentrate is not readily saleable. These elements are fluorine, chlorine, arsenic, and antimony.

Some concentrate lots have been above this cap from time to time, requiring amendments to the original smelter contracts to allow for allowances for certain deleterious elements. These amendments are agreed upon for specific time periods as opposed to specific concentrate lots.

RPA reviewed the current contracts (and amendments) for smelting and refining copper concentrate and doré bars and considers the terms, rates, and charges for the contracts to be within industry standards.

CONTRACTS

Orovalle employs contractors for security, mine surface haulage, cable bolting, mine maintenance, diamond drilling, and TSF lifts construction and maintenance.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

Key environmental, permitting, and social or community aspects of the Orovalle Operation are outlined in the subsections below. Information in this section of the Technical Report is based on data provided by Orovalle and discussions with key personnel.

ENVIRONMENTAL STUDIES

This subsection provides a discussion of any known environmental issues that could materially impact the Orovalle Operation's ability to extract the Mineral Resources or Mineral Reserves.

ONGOING ENVIRONMENTAL MONITORING

On-going monitoring at the Orovalle Operation is focused on assessing aspects of the operation that can influence the restoration of an impacted area.

Tailings and water samples are collected monthly for testing from the Boinás mine (Figure 20-1) and the results are reported to authorities. Water samples include samples taken from within the TSF, surface waters at the mine, subterranean underground water and the Caúxa River (upstream and downstream of the Orovalle Operation). Figure 20-1 also shows infrastructure owned by Mineira del Corcoesto (labelled La Veiga Basin), a wholly owned subsidiary of Edgewater Exploration Ltd (Edgewater). While this infrastructure is not the responsibility of Orovalle, recycled water from Edgewater's La Veiga TSF is pumped to the treatment plant for full use and therefore this infrastructure is reflected on the water management plan. The authorities are responsible for processing the data submitted and analysing any trends in the results.

Ongoing studies have taken place since 2014 to understand and inform water contamination risks and related management thereof. These have included:

- Environmental improvement in the space affected by mining activity in the Boinás mine (Belmonte de Miranda, Asturias). Planning phase. Dates: 11/02/2016-11/06/2016.
- Environmental improvement in the space affected by mining activity in the Boinás mine (Belmonte de Miranda, Asturias). Phase I expansion. Dates: 20/12/2016-31/12/2017, extended to 30/06/2018.

- Evaluation of the electrobiological reactor system for selenium removal in pouring water.
- Implementation of an early warning system for the management of the waters of the Boinás mine (Belmonte de Miranda, Asturias). Dates: 01/09/2017-01/02/2018, extended to 31/07/2018.
- Technical work and advice for the Orovalle Strategic Surface Plan. Dates: 01/10/2018-31/12/2019, extended until 30/06/2020.
- Hybrid technologies for the on-site stabilisation of mining waste using nanomaterials, organic additives and phytoremediation. Dates: Started in November 2019. Contract date 03/01/2020-30/11/2021. Co-financed: Call for grants aimed at the implementation of research and development projects in the Principality of Asturias for the 2019 financial year (RIS3-Company Program) reference IDE/2019/000265.
- Modification of the pretreated stage of the RO Plant to improve rack efficiency. Dates: 01/09/2020 – 30/09/2020.

In Orvana's Q3 FY 2020 report, regarding water management risks, the following is stated:

- Orovalle continues to work through an environmental matter (since 2014) involving selenium discharges into the Caúxa River in Asturias, Spain.
- The Caúxa River flows past the El Valle-Boinás mine well as other industrial properties owned by third parties. In Orvana's opinion the results of scientific studies conducted by Orvana have confirmed that past and prevailing levels of selenium in waterways impacted by the Orovalle Operation do not constitute a health or environmental risk.
- The Spanish Water Authority has taken the position that the levels of selenium in the Caúxa River flowing past El Valle-Boinás mine exceed the levels permitted by applicable regulations as a result of discharges attributed to the Orovalle Operation which may not be in compliance with some of the Orovalle Operation's permits (the SE Discharge Matter).
- In recent years, Orovalle has received approximately €955,000 in fines relating to these matters and may face further additional fines or other sanctions, including the revocation or suspension of certain permits, in the future. Orovalle is appealing the outstanding fines (€629,000) and the enforcement of certain fines has been suspended pending the related legal matter.
- A judge of the legal court of the Grado municipality (a municipality in the region of Asturias) has conducted an investigation into the potential commission by Orovalle of a reckless crime under the Spanish penal code relating to the SE Discharge Matter. After six years of investigation, during the third quarter of FY 2020 the Grado Court issued the order to commence an oral trial to address the SE Discharge Matter in the legal court of Oviedo (the capital of Asturias). A date for the commencement of the oral trial has not been set as of the date of this Technical Report.
- Orovalle states that it has been working to remediate the SE Discharge Matter through various activities including the implementation of a reverse osmosis water treatment plant in September 2014 and the development of a long term water management plan which is noted to be in progress at the time of this review. Orovalle has reported that these remediation efforts appear to be addressing these matters.

Orovalle should continue to monitor its operations, undertake investigative studies and engage with the authorities to reach a resolution on the SE discharge matter and to ensure compliance with applicable environmental standards.

20-4

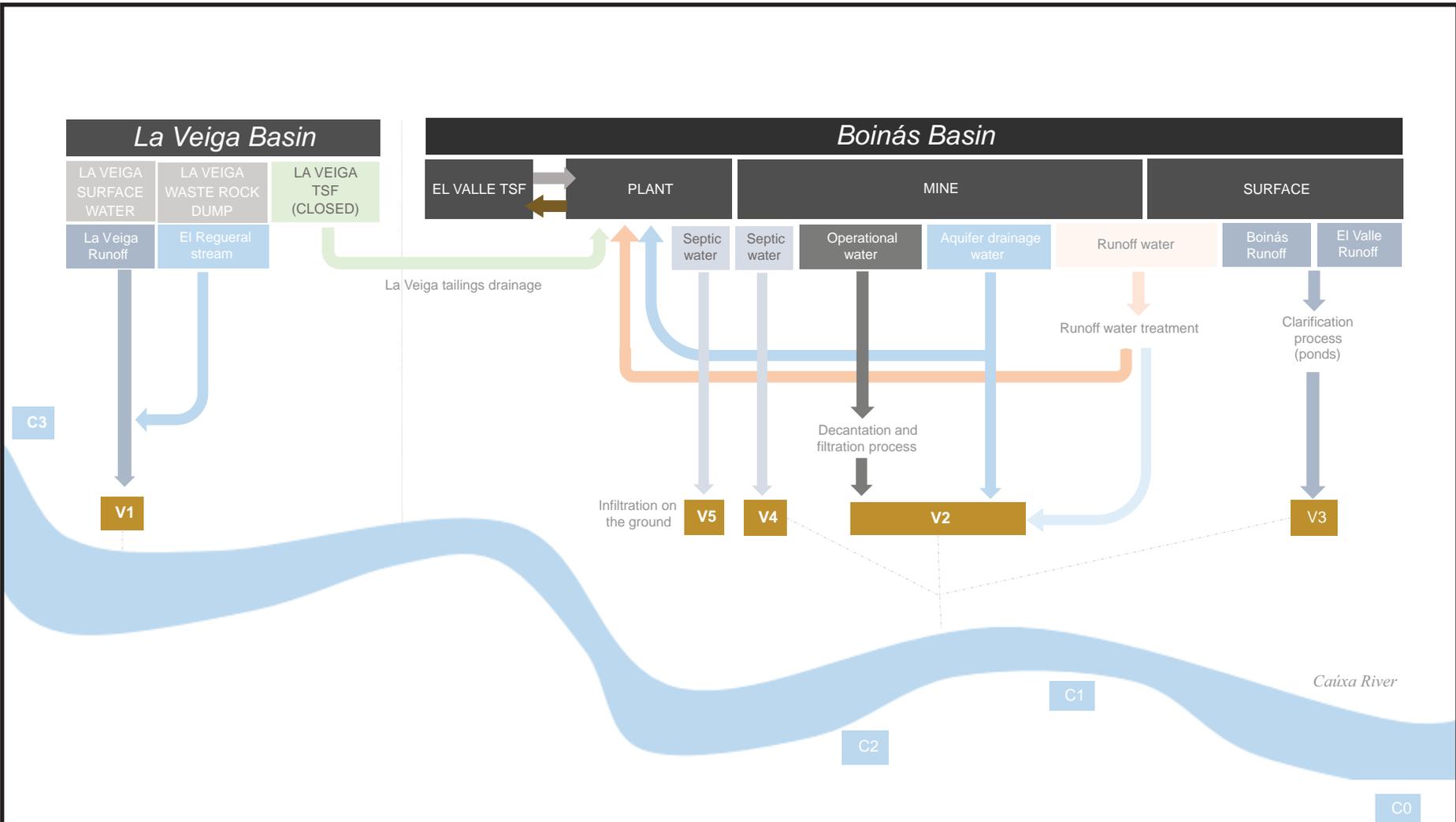


Figure 20-1

Orovalle Minerals S.L.
Orovalle Operation
Asturias, Spain
Water Monitoring and Management at El Valle-Boinás

Legend:

BOINÁS BASIN WATER CIRCUIT		<i>Plant, Mine, El Valle TSF, Surface</i>	
	Process water		Permeate
	Tailings		Runoff water
	Runoff basin		Reject
	Operational water		Septic tank water
	Aquifer/River/Stream		La Veiga tailings drainage
RIVER/STREAM CONTROL POINTS		C0, C1, C2, C3	
DISCHARGES		V1, V2, V3, V4, V5	

November 2020

Source: Orovalle, 2020.

ENVIRONMENTAL IMPACT ASSESSMENT STUDIES

Environmental Impact Assessment (EIA) studies are noted to be undertaken in line with Spanish legislation when there are changes planned at the Orovalle Operation that fall within the defined categories and/or thresholds of the Environmental Assessment Law of Spain. These include either a simplified EIA for changes that are deemed to not have significant effects on the environment or an ordinary EIA when the change is substantial, for instance, a new TSF.

Since 2014, only one simplified environmental assessment has been undertaken. The assessment was undertaken in 2017 in support of the construction of an industrial explosives' storage facility at Boinás. The Ministry's review confirmed the applicability of a simplified EIA and that no significant effects on the environment were expected. The site is located within an existing dump (West Boinás) and away from inhabited places, reducing its risk to people and the environment, in general. The site and facility will be included in the 2020 Restoration Plan for El Valle-Boinás.

PROJECT PERMITTING

This subsection outlines the Orovalle Operation permitting requirements, status of any permit applications, and any known requirements to post performance or reclamation bonds.

The Orovalle Operation is permitted and bonded, however the following statements have been made by Orvana (Orvana's Annual Information Form (AIF) FY 2019 report):

- Spanish regulatory authorities have taken the position that Orovalle is not in compliance with all conditions of certain permits, including the discharge level of selenium and the posting of additional reclamation bonds. Orovalle is working with Spanish regulatory authorities to develop a solution for compliance. Orovalle is also appealing these permit conditions in courts. There can be no assurances that these actions will be successful in changing the Spanish regulatory authorities' position on Orovalle's permit compliance.
- Failure to obtain and/or comply with the necessary permits can have serious consequences, including damage to Orovalle's, and by extension Orvana's, reputation; stopping Orovalle from proceeding with the development of the Orovalle Operation; negatively impacting the operation or further development of the mines; increasing the costs of development or production and litigation or regulatory action against Orovalle, which may materially adversely affect Orovalle's business, results of operations, or financial condition.

- Orvana is committed to developing and operating its mines and projects in full compliance with local environmental regulations and recognised international environmental standards.

Orovalle holds material permits required to operate the mines, processing plant, and TSF. Table 20-1 lists the permits which are currently held by Orovalle including the date of issuance and validity period.

In June 2011, the Asturias Ministry of Environment required the posting of a €10 million bond for the El Valle TSF. Up until September 2019, Orovalle has posted €7.6 million in response to its bond requirements. Of the €7.6 million, €5 million corresponds to the bond for the El Valle TSF, with an additional €5 million still being requested by the Ministry. Orovalle is challenging the additional bond requirement and is working with the Spanish regulatory authorities to come to an agreement regarding posting the bond, including the consideration of alternatives.

In connection with the pending oral trial regarding the SE Discharge Matter, the Grado Court set a requirement on Orovalle to provide a bond in the amount of €7 million as warranty for contingent liabilities, subject to the outcome of the oral trial. Orovalle has appealed the bond taking the position that past and prevailing levels of selenium in waterways impacted by Orovalle did not cause any damage to the environment. The appeal is in progress as of the date of this Technical Report. With respect to the oral trial, Orovalle has filed its preliminary statement of defence asking for the acquittal on the basis that, among other things, there is absence of a committed legal offence. If Orovalle is ultimately found responsible, monetary penalties, amongst other sanctions, may be applied. These sanctions could have a material impact on Orovalle and the Orovalle Operation.

**TABLE 20-1 PERMITTING STATUS
 Orovalle Minerals S.L. – Orovalle Operation**

Scope	Resolution	Date (YYYY/MM/DD)	Validity (YYYY/MM/DD)
Both Mines			
Explosives	Authorising the regular use of explosives.	2019/11/12	2024/11/12
Registration of small producers of hazardous waste	Authorising a producer of hazardous waste and registering small producers of hazardous waste.	2010/05/11	No expiration
El Valle-Boinás			
El Valle Project Authorisation - Boinás	Approval of the Project of Exploitation and Restoration Plan.	1996/08/23	In force
El Valle-Boinás Mine (DIA)	Environmental impact statement of the 2004 update of the operation and its Restoration Plan.	2005/06/27	In force
AAI Sludge Deposit – Initial AAI	Granting integrated environmental authorisation to industrial installation.	2006/06/02	In force
AAI Sludge Deposit – Modification	Amending the integrated environmental authorisation of the industrial facility called "Deposit of sludge in La Corta El Valle".	2011/06/23	In force
AAI Mineral Treatment Plant – Initial AAI	Granting integrated environmental authorisation.	2008/04/30	In force
AAI Mineral Treatment Plant – Modification	Granting integrated environmental authorisation.	2009/11/12	In force
AAI Mineral Treatment Plant – Modification	Change of ownership of facilities subject to integrated environmental authorisation.	2020/02/06	In force
Registration of hazardous waste	Registration of production and activity producing hazardous waste.	2015/04/22	No expiration
Modification Enrolment	Modification of the Registration of production and waste management register.	2015/10/27	No expiration
Explosives	Putting explosives into service.	2018/02/13	No expiration
Radioactive facilities	Supervisory License Radioactive Facilities.	2019/09/02	2024/09/02



Scope	Resolution	Date (YYYY/MM/DD)	Validity (YYYY/MM/DD)
Carlés			
Project Approval	Approval of the project for the Exploitation and Restoration Plan of the Inner and Open Pit Mine of Carlés.	2000/06/30	In force
DIA Carlés mine	Environmental Impact Statement of the Carlés Inland Mine and Open Pit Exploitation Project.	2000/05/29	In force
Authorisation to discharge	Wastewater discharge authorisation for Carlés mine.	2007/07/13	In force
Registration of hazardous waste	Registration of production and activity producing hazardous waste.	2010/05/11	In force
Authorisation of Atmospheric Emissions	Authorising a potentially polluting activity of the atmosphere.	2018/09/27	2026/09/27
Authorisation of explosives use	Authorisation as explosives usual user.	2019/11/12	2024/11/12

WASTE, TAILINGS, MONITORING AND WATER MANAGEMENT

This subsection provides the requirements and plans for waste and tailings management, site monitoring, and water management both during operations and post mine closure.

TAILINGS MANAGEMENT AND DISPOSAL

As outlined in Section 18 of this Technical Report, the TSF is located within the old El Valle pit and is lined with an appropriate synthetic geomembrane and clay cap. This is a no-discharge facility.

WASTE ROCK MANAGEMENT AND DISPOSAL

As outlined in Section 16 of this Technical Report, relevant mined out underground areas are backfilled with CRF. Waste suitable for CRF production is hauled to surface where it is screened and mixed with 4% cement before being transported back underground in trucks for placement. RPA understands that the majority of the waste is only stored temporarily before being sent back underground. There are some long term waste dumps that can be used for additional CRF production and it is RPA's understanding that this material is non-acid generating.

NON-MINING WASTE MANAGEMENT

Non-mining waste is dealt with within the environmental authorisations for the processing plant and tailings impoundment and waste management authorisations for both sites.

SITE MONITORING

The requirements for environmental monitoring, including compliance limits, are documented in the various permits held by Orovalle. These include surface water quality at discharge points and in receiving waters, groundwater quality, tailings material; air emissions from the El Valle processing plant, PM₁₀/PM_{2.5} emissions, noise, ecological potential of the water mass (Narcea River), and fauna.

WATER MANAGEMENT

Water management circuits at El Valle-Boinás are shown on Figure 20-1. As previously stated, tailings are discharged to the El Valle TSF, which is operated as a closed circuit with no

discharges to the environment. Discharges to the environment are permitted for both El Valle-Boinás and Carlés. Overall water management is informed through ongoing studies as listed in the Ongoing Environmental Monitoring subsection.

SOCIAL OR COMMUNITY REQUIREMENTS

This subsection includes a discussion of any potential social or community related requirements and plans for the Orovalle Operation and the status of any negotiations or agreements with local communities. Included under social requirements are relevant worker considerations, and cultural or natural heritage considerations. Individually, or collectively, the social and community considerations discussed (whether real or perceived, positive or negative) can have a material influence on the ongoing operations and development of the Orovalle Operation.

COMMUNITY

Orovalle notes that it has very good relationships with the two mayoral offices within which El Valle Boinás and Carlés are located. Notwithstanding this, citizen associations and non-governmental organizations have raised concerns in relation to the Orovalle Operation. Most of the concerns are in regard to the perceived effect of mining activities on the environment and on communities impacted by such activities, more specifically cyanide use and other hazardous substances used in processing activities. RPA has not reviewed nor verified the grievances in the preparation of this Technical Report.

In Orvana's AIF 2019 FY report, Orvana notes its commitment to the social development and wellbeing of the communities in which it operates.

Orovalle has implemented community relations initiatives within its areas of influence in the Asturias, in order to anticipate and manage social issues that may arise at its operations. The Orovalle community development strategy is indicated to be based on the following elements:

- Being a source of employment for the surrounding municipalities.
- Using local contractors.
- Partnership agreement with the local university on training, research programs, scientific and technical assistance related to mining.
- Sponsoring of cultural institutions, activities and educative trainings in local schools related to mining activities.

- Sponsoring of sport activities and competitions (i.e. salmon fair, marathon).
- Sponsoring of environmental activities (i.e. restocking of fish species into local rivers, campaign for park cleaning).
- Sponsoring of local infrastructure construction or improvement (i.e. road).

Orovalle is represented in key business and professional organisations in the region of Asturias and in the mining industry.

HEALTH AND SAFETY

Health and safety are an important consideration for the mine and specific health and safety policies or plans are in place. Orvana provided a statement related to health and safety as follows (Orvana's AIF 2019 FY report):

- Orvana has implemented health and safety initiatives at its sites to ensure the health and safety of its employees, contractors, and members of the communities affected by its operations. Orvana is safeguarding the health of employees, while continuing to operate safely, and responsibly. Orvana continues to implement comprehensive and proactive measures to respond to the COVID-19 Pandemic, and to work closely with local governments and authorities to ensure proper health protocols are followed.

CULTURAL OR NATURAL HERITAGE

As noted in RPA's 2014 review, in terms of archaeological and cultural considerations, heritage sites have been identified in the area and include Roman workings, old Roman pits, channels, ponds, and fortifications. This is more specifically related to the Carlés mine which is currently on care and maintenance. In November 2020, the regional authorities approved the Orovalle Archaeological Monitoring Plan. Approval of an Archaeological Intervention (which is necessary to conduct surveys of potential new deposits at the mine) has been obtained for some areas and is ongoing for other areas.

As noted in RPA's 2014 review, the area has notable natural characteristics as follows:

- All the Orovalle Operation deposits are inside areas classified as "mining interest" except the La Ortosa-Godán, which is classified as "agrarian interest", and the north part of the La Brueva, which is classified as "landscape (scenic) interest". The regulations of the municipality of Salas indicate that mining would be compatible in areas of agrarian interest or landscape interest in areas where an Exploitation Concession has been granted, such as that at La Ortosa Godán. The regulations of the municipality of Belmonte de Miranda are more restrictive with respect to areas of landscape interest, such as the northern part of the La Brueva deposit. These limitations may restrict Orovalle's ability to drill or conduct mining activities on the

northern side of the concession. In 2014, approval to drill in La Brueva was obtained. The process for obtaining the drilling permit at La Ortosa-Godán is still ongoing.

- The Narcea River is considered to be a place with communal value because the area contains at least three natural habitats, seven species of interest, and is considered to be one of the best salmon rivers in Spain, which attracts many tourists. RPA notes this remains unchanged from the 2014 review. According to the Environmental Impacts Declaration of Carlés, Orovalle has to conduct a study on the ecological potential of the Narcea River in which one of the parameters is the determination of the status of the ichthyofauna as a biological control parameter. These studies are ongoing.
- The La Ortosa-Godán area has a population of Asturian brown bears and their distribution could impact future operations outside of the mining and processing area. Additional permitting from environmental authorities in the La Brueva and La Ortosa-Godán area may be required. No additional approvals are required inside of the El Valle-Boinás Exploitation Plan, because the Exploitation Plan has been approved. RPA notes this remains unchanged from the 2014 review.

MINE CLOSURE REQUIREMENTS

This subsection provides a discussion on mine closure, remediation and reclamation, requirements and costs.

Orovalle is required to submit, for government approval, a reclamation plan for each of its mining sites, including financial assurance. The reclamation plan outlines the Orovalle Operation's obligation in terms of reclaiming the land after minerals have been mined from the site. Financial assurance is provided in the form of a bond. The plan is updated every five years.

Updated restoration diagrams have been provided by Orovalle for the El Valle-Boinás and Carlés areas, respectively. These plans reflect the extent of the Orovalle Operation and the status of areas for reclamation. In this regard and with reference to each of the plans:

- For the El Valle-Boinás area (Figure 20-2):
 - Zones A and B are areas comprising permanent infrastructure which will not be restored until the closure of the El Valle-Boinás mine.
 - Zone C corresponds to Boinás East.
 - Zone D corresponds to the berms (east slope above the El Valle TSF).
 - Zones E and H correspond to the El Valle TSF.
- For the Carlés area (Figure 20-3):
 - Zone S corresponds to the zone already restored.
 - Zone B corresponds to the short side of Carlés.

The restoration plans are understood to be supported by work plans. The main objectives of the restoration plan are to recover landforms and achieve geostabilisation of the terrain, and geochemical stabilisation.

Regarding decommissioning liabilities, Orvana provided the following statement (Orvana's Q3 FY 2020 report):

Decommissioning liabilities associated with Orovalle's operations relate to the dismantling of the mine facilities and environmental reclamation of the areas affected by mining operations. Mine facilities include structures and the tailings dam. Environmental reclamation requirements include mine water treatment, reforestation, and dealing with soil contamination. It is possible that the Company's [Orvana's] estimates of the ultimate amounts required to decommission its mines could change as a result of changes in regulations, the extent of environmental remediation required, the means of reclamation, cost estimates or the estimated remaining ore reserves.

Orovalle's remediation and closure costs include the following:

- Total remediation and decommissioning costs are estimated at US\$15.1 million (discounted) and will be implemented from 2025 (2% of total).
- 88% of the cost will be incurred between 2026 and 2029. The remaining balance (10%) will be spent between 2030 and 2060.
- Reclamation bonds of US\$8.9 million (100%) to be collected after decommissioning work is performed.

20-14

- Legend:**
- EID 2005 Area
 - Areas reclaimed in 2019
 - C11 = 0.16 Ha E6 = 0.37 Ha
 - C12 = 0.65 Ha F3 = 0.28 Ha
 - E4 = 1.32 Ha H1 = 0.54 Ha
 - E5 = 0.18 Ha TOTAL: 3.50 Ha
 - Areas of topographic restoration
 - C3 = 1.58 Ha
 - Areas of topographic restoration 2020
 - H2 = 2.32 Ha
 - Areas to restore in 2020
 - C3 = 1.58 Ha C13 = 1.34 Ha
 - F1 = 2.18 Ha C14 = 3.10 Ha
 - H2 = 2.32 Ha C15 = 0.70 Ha
 - TOTAL: 11.22 Ha
 - Reinforcement areas in 2020
 - D1 = 0.85 Ha
 - D2 = 1.41 Ha TOTAL: 3.58 Ha
 - E4 = 1.32 Ha
 - Affected Areas to January 2020
 - A = 2.83 Ha C10 = 0.07 Ha
 - B = 10.43 Ha C11 = 0.04 Ha
 - C1 = 0.86 Ha E1 = 2.30 Ha
 - C2 = 6.10 Ha E2 = 27.35 Ha
 - C4 = 1.30 Ha E3 = 0.49 Ha
 - C5 = 1.71 Ha F2 = 0.5 Ha
 - C6 = 1.01 Ha D3 = 1.11 Ha
 - C7 = 0.11 Ha D4 = 0.86 Ha
 - C8R = 0.28 Ha TOTAL: 57.35 Ha

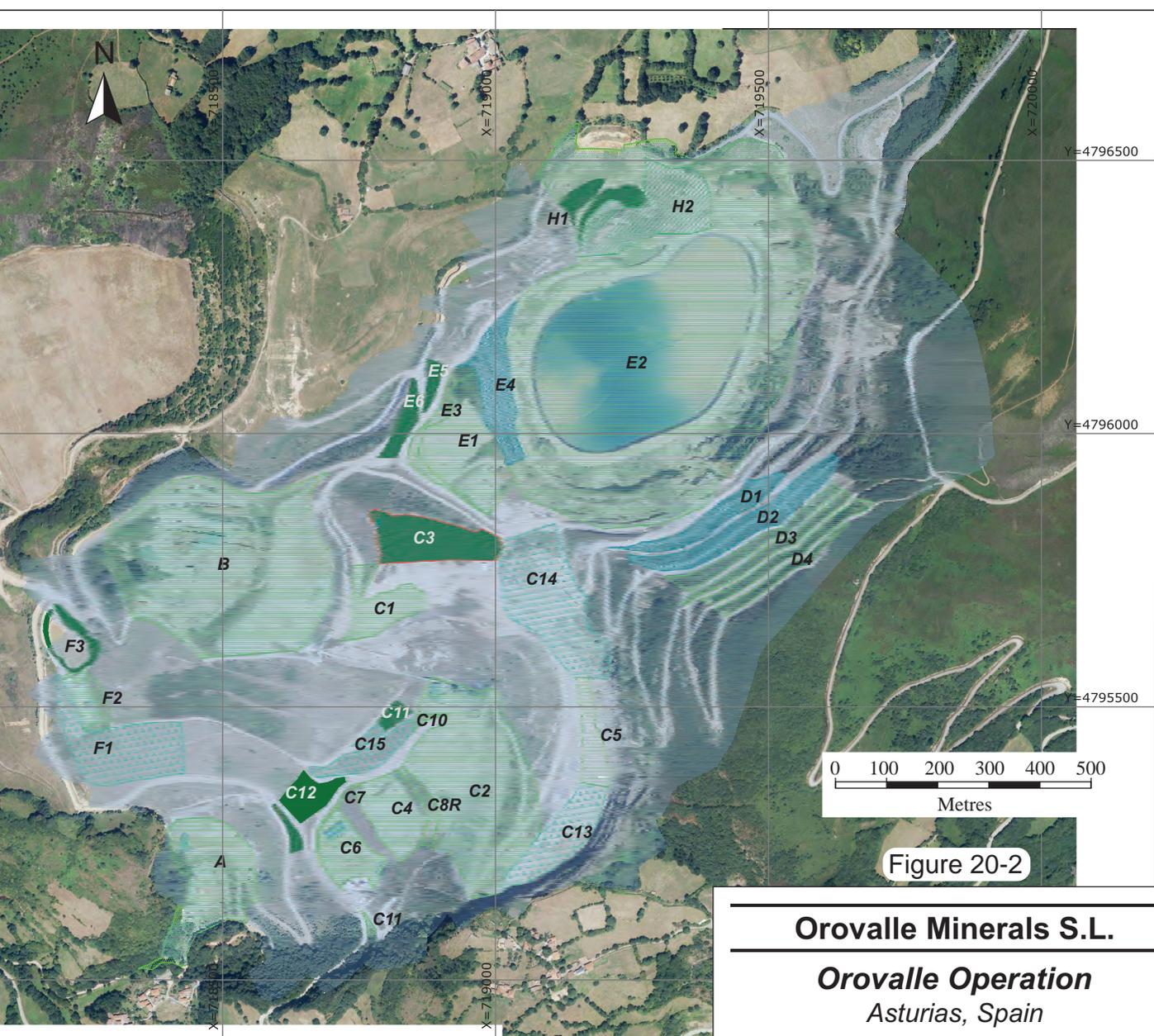


Figure 20-2

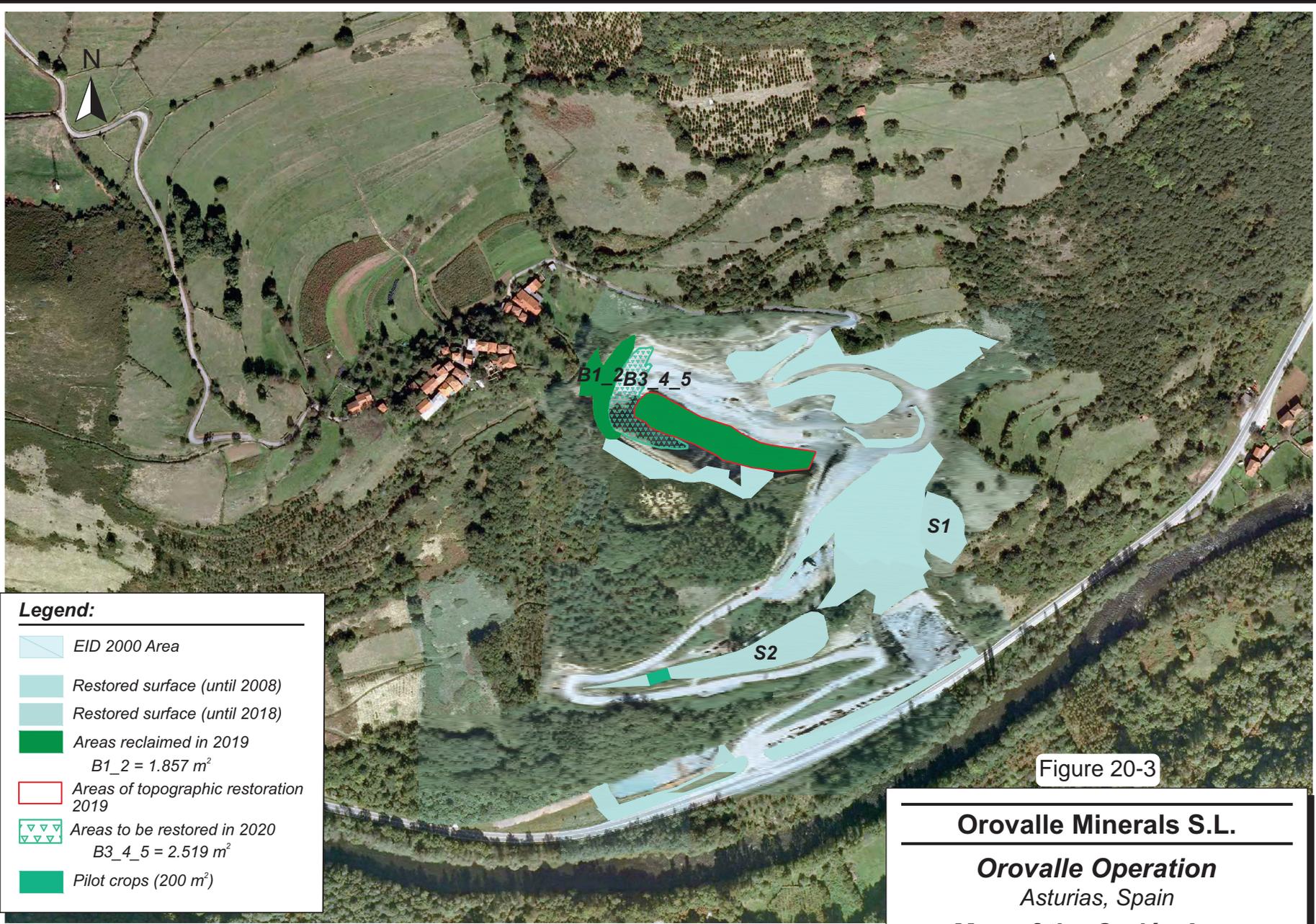
Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Map of the El Valle-Boinás Area Requiring Reclamation



www.rpacan.com



Legend:

-  EID 2000 Area
-  Restored surface (until 2008)
-  Restored surface (until 2018)
-  Areas reclaimed in 2019
B1_2 = 1.857 m²
-  Areas of topographic restoration 2019
-  Areas to be restored in 2020
B3_4_5 = 2.519 m²
-  Pilot crops (200 m²)

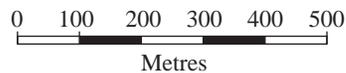


Figure 20-3

Orovalle Minerals S.L.

Orovalle Operation
Asturias, Spain

Map of the Carlés Area
Requiring Reclamation

21 CAPITAL AND OPERATING COSTS

CAPITAL COSTS

The estimated sustaining capital costs included in the LOMP total US\$48.2 million and include the costs for mine development, mine infrastructure, equipment replacement and refurbishments, plant expansion, and tailings management (Table 21-1).

TABLE 21-1 SUSTAINING CAPITAL COSTS
Orovalle Minerals S.L. – Orovalle Operation

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
Tailings Storage Facility	1.7	1.4	1.5	1.3	1.0	6.9
Capital Development	4.1	4.5	3.5	1.7	0.0	13.8
Power	0.0	0.5	0.5	0.2	0.0	1.2
Water	0.2	0.1	0.1	0.1	0.0	0.6
Raise Boring	0.0	0.9	0.4	0.0	0.0	1.2
Ventilation	0.1	0.1	0.1	0.0	0.0	0.3
Mining Equipment	5.1	1.7	6.0	0.5	0.0	13.4
Mine Infrastructure	0.1	0.5	0.3	0.3	0.3	1.5
Carlés Mine	0.1	2.6	0.3	0.2	0.0	3.2
Hoist	0.0	0.1	0.5	0.1	0.1	0.7
Process Plant	0.9	1.3	1.4	0.8	0.2	4.6
Laboratory	0.1	0.2	0.1	0.1	0.1	0.5
G&A	0.1	0.1	0.1	0.1	0.0	0.4
Total (US\$ million)	12.7	13.8	14.7	5.4	1.6	48.2

Mine development costs are based upon operating experience, the FY 2021 budget, and the LOM five-year development schedule. Mining equipment costs include mobile equipment rebuilds and replacement. The Carlés mine includes care and maintenance and capital for re-activation of operations at Carlés. Tailings costs are for ongoing maintenance and dam lifts.

RECLAMATION AND CLOSURE

In addition to sustaining capital costs, an estimated cost of US\$15.1 million (discounted) for reclamation and closure is included of which US\$8.9 million is currently held in bond. This estimate includes decommissioning liabilities through until 2060.

OPERATING COSTS

Operating cost forecasts for the Boinás underground mine were based on recent operating history and the FY 2021 budget. Unit operating costs vary by material type mined and the mining method. RPA notes that this also affects technical services costs, as low productivity D&F mining using hydraulic breaker is considerably more expensive than higher productivity SLS mining.

Operating costs in the LOMP are based on recent operating history, and average approximately US\$70 million per year over the next five years. Unit rates are summarised in Table 21-2 and 21-3. The average LOM operating cost is US\$102/t milled.

Unit rates are summarised in Table 21-2.

TABLE 21-2 LIFE OF MINE UNIT OPERATING COSTS – BOINÁS
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	Oxide	Skarn
Geology & Mining	US\$/t milled	75.96	58.55
Processing & Laboratory	US\$/t milled	20.35	20.35
Environmental, Safety & G&A ¹	US\$/t milled	13.37	13.37
Total	US\$/t milled	109.68	92.26

Note:

1. 100% G&A costs allocated to Boinás Ore

The Carlés skarns will be transported by haulage contractor to the Boinás processing plant. As no contract was in place at the time of review, RPA and Orovalle have estimated combined operating costs, for both methods as shown in Table 21-3

TABLE 21-3 LIFE OF MINE UNIT OPERATING COSTS - CARLÉS
Orovalle Minerals S.L. – Orovalle Operation

Item	Units	Skarn
Geology & Mining	US\$/t milled	50.28
Processing & Laboratory	US\$/t milled	20.35
Environmental, Safety & G&A ¹	US\$/t milled	0.00
Total	US\$/t milled	70.63

Note:

1. 100% G&A costs allocated to Boinás Ore

WORKFORCE

The current workforce for Orovalle is summarised in Table 21-4, which includes company and contractor employees. It includes the company workforce for mine development and production, process plant, mechanical and electrical work, and technical and administrative staff, plus contractors for security, mine surface haulage, cable bolting, mine maintenance, diamond drilling, and TSF maintenance.

TABLE 21-4 2020 WORKFORCE SUMMARY
Orovalle Minerals S.L. – Orovalle Operation

Department	Company	Contractor	Total
Mine – Boinás	250	60	310
Mine - Carlés	0	0	0
Plant	65	2	67
Mine Maintenance	61	12	73
Engineering	19	0	19
Geology + Lab	43	19	62
Environmental	13	6	19
Administration	39	11	50
Total	490	110	600

22 ECONOMIC ANALYSIS

This section is not required, as the Orovalle Operation is currently in production and there is no material expansion of current production.

RPA evaluated the Mineral Reserves in a cash flow analysis, and verified that they are economically mineable, under the metal price and cost assumptions summarised in this Technical Report.

23 ADJACENT PROPERTIES

RPA is not aware of any adjacent properties as defined by NI 43-101.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION AND CONCLUSIONS

GEOLOGY AND MINERAL RESOURCES

- Measured and Indicated Mineral Resources, inclusive of Mineral Reserves, total 7.93 Mt, grading 3.74 g/t Au, 10.38 g/t Ag, and 0.51% Cu, containing 0.955 Moz Au, 2.646 Moz Ag, and 90 Mlb Cu.
- Inferred Mineral Resources total 3.36 Mt, grading 3.80 g/t Au, 8.64 g/t Ag, and 0.33% Cu, containing 0.410 Moz Au, 0.934 Moz Ag, and 24.8 Mlb Cu.
- Drilling, logging, and sampling methodologies meet industry standards and are suitable to support Mineral Resource and Mineral Reserve estimations.
- The sampling method and approach is reasonable to support Mineral Resource estimation.
- The sample preparation, analysis, and security procedures at the Orovalle Operation are adequate for use in Mineral Resource estimation.
- The QA/QC program as designed and implemented by Orovalle is appropriate, and the assay results within the database are suitable for use in Mineral Resource and Mineral Reserve estimation.
- The database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA undertook independent checks on the database, wireframing, capping, compositing, variography, and grade estimation and found all differences to be within acceptable limits. The Orovalle Operation database contains no significant errors and is suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA considers the 2020 Mineral Resource to be free of material flaws and acceptable for use in estimating Mineral Reserves.
- The final variance between the Mineral Resource model and metal production from the El Valle processing plant is likely to be within 15% of the estimate. These results are acceptable as they are similar to other high nugget gold operations in comparable geological settings.

MINING AND MINERAL RESERVES

- Proven and Probable Mineral Reserves total 3.43 Mt, grading 2.78 g/t Au, 6.86 g/t Ag, and 0.36% Cu, containing 307,000 oz Au, 756,240 oz Ag, 27.6 Mlb Cu. Mineral Reserves are estimated at metal prices of US\$1,600/oz Au, US\$18/oz Ag, US\$3.00/lb Cu, and a US\$/€ exchange rate of 1.20/1.00.
- Some marginal grade material is included in Mineral Resources, and excluded from Mineral Reserves, due to application of dilution factors and higher cut-off grades.

- Mining unit costs are known to vary significantly by mining method, with low productivity D&F mining via hydraulic hammer being considerably more expensive than higher productivity SLS mining.
- The production schedule forecasts five years of mining at similar production rates to the current operation.
- Production activities are expected to continue at Boinás underground from developed areas through to the end of the mine life.
- There is potential to increase oxide ore extraction from within the TSF crown pillar exclusion zone. This is subject to a current investigation by an independent international consulting firm and could potentially increase Mineral Reserves further.
- The Carlés underground mine is currently on care and maintenance. Carlés underground Mineral Reserves as of September 2020 comprise 136,000 t at 2.56 g/t Au, 4.71 g/t Ag, and 0.20% Cu classified as Probable. Orovalle is currently evaluating the information obtained from the last drilling campaign in the FY 2020. Mine designs are under review in order to maximize the value of the Carlés orebody and to define the production future schedule. An additional 300,000 t of skarn ore could potentially be extracted from the Carlés open pit. However, this is contingent on Orovalle obtaining the required land and environmental permits. As such, these tonnes have been excluded from the Mineral Reserve estimate at this point in time.
- The average LOM operating cost is estimated to be US\$102/t milled. Sustaining capital costs are estimated to total US\$48.2 million, plus US\$15.1 million (discounted) for reclamation and closure (including a total of US\$8.9 million in bonds already lodged).
- Cash flow analysis of the production plan verified that Mineral Reserves are economically mineable, under the metal price and cost assumptions summarised in this Technical Report.

MINERAL PROCESSING AND METALLURGICAL TESTING

- The El Valle processing plant has historically processed three different types of ore: Boinás oxides, Boinás skarn, and Carlés skarn at varying ratios, and has generally demonstrated its ability to consistently achieve throughput and recovery targets. RPA is not aware of any circumstances that would prevent the El Valle processing plant from continuing to achieve its target performance metrics.
- Based on the gold mineralogy in the oxide and sulphide ores, it is anticipated that gold in oxide ore will generally be recovered as doré product from gravity and CIL circuits, while gold in sulphide skarn ore will be recovered into flotation concentrate. RPA analysed the available plant data for correlations, and it is evident that as expected the recovery of gold to copper concentrate and doré is influenced by the plant feed ore mix. A higher oxide to skarn ratio generally results in a higher recovery of gold to doré, with the converse also holding true.
- Recent mineralogical examinations of process streams and reviews of plant procedures are valuable sources of information that assist with improving plant performance. An independent plant metal accounting audit report was produced (SC242) in 2015.

- RPA is in agreement with the conclusions of the 2016, 911 MC Transition Ore Test, Report SC257, that transition ore can be processed through the El Valle processing plant as part of the ore feed mix. The gravity and flotation circuits should continue to be used in conjunction with the CIL circuit to ensure that minimal cyanide soluble copper minerals enter the leach.
- RPA has reviewed the independent Mine Laboratory ISO 9001 Audit Report prepared by Aenor and published in March 2020, and certificates for weight scale calibrations undertaken in 2019 by an independent third party. In RPA's opinion the ISO 9001 certification and ongoing audits and independent weight scale calibrations are good practice and contribute to the integrity of metal accounting processes.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

- The Orovalle Operation is permitted and bonded, however Spanish regulatory authorities have taken the position that Orovalle is not complying with all conditions of their permits (as discussed below).
- Orovalle is working through an environmental matter involving selenium discharges to the Caúxa River, which has had financial implications and may have additional financial, permitting or legal consequences for the operations. Remediation activities including water treatment as well as ongoing permitting-related discussions with the Spanish regulatory authorities have been on-going since 2014. Orovalle has noted that there are uncertainties and risks associated with the outcomes of this matter that could significantly affect the Orovalle Operation's ability to continue mining.
- Contamination of receiving water resources (and subsequent downstream impacts) appears to be the main environmental risk identified at the Orovalle Operation. As a result, water treatment and management are identified as a focus area for the operations given the matter identified above.
- Reclamation plans and associated bonds are in place for the mine. The reclamation plans are reviewed every five years and are used to inform ongoing rehabilitation of areas no longer needed for mining activities. This is in line with good industry practise.
- In addition to the bonds already in place, Orovalle has noted that the Spanish regulatory authorities have requested an additional reclamation bond of €5 million (approximately US\$5.854 million) be deposited in their favour to satisfy additional reclamation bond commitments in respect of the El Valle TSF. Orovalle has filed an appeal with the Spanish regulatory authorities against the assessment of the additional bond. Through the administrative appeal process, Orovalle is working with Spanish regulatory authorities to seek alternatives, which includes, without limitation, relief from posting the additional reclamation bond.

26 RECOMMENDATIONS

GEOLOGY AND MINERAL RESOURCES

1. Further refinement of existing sub-domains, and additional sub-domains, where required, be generated to define high grade trends within the lithology wireframes.
2. A 2.5 m block size may better represent local grade variability, but greatly increase processing time. Smaller block sizes should be tested prior to future Mineral Resource updates.
3. Investigations should be undertaken to identify the source of higher copper failures in blank values.
4. A full variography review should be undertaken prior to the next resource estimate to consider the low nugget modelled by Orovalle.
5. Continue to improve the reconciliation process by monitoring the performance of the short term block model against grade control sampling and explore the use of high grade domain wireframes to restrict the interpolation of elevated grades.
6. Continue using underground stope optimization as a standard practice for Mineral Resource reporting to ensure Reasonable Prospects for Eventual Economic Extraction (RPEEE).

MINING AND MINERAL RESERVES

1. Investigate the potential to increase Mineral Reserves from within the current 75 m TSF crown pillar exclusion zone.
2. Incorporate truck TKm reporting, in long term, and short term plans, for more transparency in cost forecasting.
3. Movement of waste is planned on a short term basis, however, the incorporation of waste handling in the long term planning for more accurate costing is recommended.
4. Investigate ways of increasing the utilisation of the rock hoist for transporting increased skarn and waste tonnage thus reducing truck cycles, traffic on the main ramps, and transportation costs.

MINERAL PROCESSING AND METALLURGICAL TESTING

1. Continue to periodically examine gold and copper deportment in process streams and adjust parameters accordingly.
2. Commission a metal accounting audit for FY 2020 as a follow up to the 2015 SC 242 report. It would be beneficial to use the "Amira P754 Metal Accounting Code of Practice and Guidelines" as a guide for best practice metal accounting.
3. A study should be carried out to better understand the source of the highest contributing penalty elements antimony (Sb), bismuth (Bi) and fluorine (F), their host mineralogy,

upgrade ratio, and options to limit and control the department of these elements to concentrate.

4. Aim to increase run of mine pad mill feed stocks to aid blending of consistent ore feed to the mill.

ENVIRONMENT, PERMITTING, AND SOCIAL/COMMUNITY

1. Orovalle should continue actively engaging the Spanish regulatory authorities to resolve the on-going matter of the discharge level of selenium (first flagged in 2014) and the posting of additional reclamation bonds (first flagged in 2011).
2. Environmental monitoring and investigative studies should continue to further inform water contamination risks and related management thereof and to ensure compliance with applicable environmental standards.
3. Discussions with Orovalle employees for the purposes of this technical review suggest that management systems and processes are in place to continually identify, assess and mitigate potential risks arising from the operations. An opportunity exists for the mine to improve its record keeping.
4. To maintain a social license to operate, it is highly important that the surrounding municipalities and communities are supportive of mining activities at El Valle-Boinás and Carlés. Individually or collectively the social and community considerations discussed in this Technical Report (whether real or perceived, positive or negative) can have a material influence on the ongoing operations and development of the mine. These need to be closely monitored and actively managed to minimise the risk to the operations.

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28 DATE AND SIGNATURE PAGE

This report titled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020 was prepared and signed by the following authors:

(Signed & Sealed) Richard C. Taylor

Dated at Devon, UK
November 30, 2020

Richard C. Taylor, MAusIMM, CP
Principal Mining Engineer

(Signed & Sealed) John Makin

Dated at Toronto, ON
November 30, 2020

John Makin, MAIG
Senior Geologist

(Signed & Sealed) Jack P. Lunnon

Dated at London, UK
November 30, 2020

Jack P. Lunnon, CGeol, EurGeol
Consultant Geologist

(Signed & Sealed) Patrick Donlon

Dated at Aylesbury, UK
November 30, 2020

Patrick Donlon, FAusIMM
Associate Principal Metallurgist

(Signed & Sealed) Alessandra Pheiffer

Dated at Grenoble, FR
November 30, 2020

Alessandra (Alex) Pheiffer, M.Sc
PrSciNat, EAPAN
Senior Environmental Consultant

29 CERTIFICATE OF QUALIFIED PERSON

RICHARD C. TAYLOR

I, Richard C. Taylor, MAusIMM, CP, as an author of this report entitled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020, do hereby certify that:

1. I am Principal Mining Engineer with Roscoe Postle Associates UK Inc., now part of SLR Consulting Ltd, 69 Polsloe Road, Exeter, EX1 2NF, Devon, UK.
2. I am a graduate of North Staffordshire Polytechnic in 1987 with a B.Eng. degree in mining engineering.
3. I am registered as a Chartered Professional in Australia with the AusIMM (Reg.# 222470). I have worked as a mining engineer for a total of 33 years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Review and report as a consultant on many mining operations and projects around the world for feasibility study, due diligence and regulatory requirements
 - Operational experience as Senior Planning Engineer, and Technical Services Manager at six mines in South Africa, Australia, Central Asia and UK, both open pit and underground.
 - Manager at three mining consultant companies in South Africa and Australia
 - Planning and operational experience in coal, gold, copper, nickel, diamonds, tungsten and PGMs.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Orovalle Operation from October 19 to October 21, 2020.
6. I am responsible for Sections 15, 16, and 21 to 24, with contributions to Section 18, and related disclosure in Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

-
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of November, 2020

(Signed & Sealed) *Richard C. Taylor*

Richard C. Taylor, MAusIMM, CP

JOHN MAKIN

I, John Makin, MAIG, as an author of this report entitled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020, do hereby certify that:

1. I am Senior Geologist with Roscoe Postle Associates Inc., now part of SLR Consulting Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2. I am a graduate of the University of Melbourne, Australia, in 2010 with a B.Sc.(Hons.) in Geology.
3. I am a Member of the Australasian Institute of Geoscientists (MAIG 7313). I have worked as a geologist for a total of nine years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Geologist responsible for resource estimation, resource definition drilling, ore control and reconciliation and the preparation of NI 43-101 technical reports for an open pit and underground gold mine in Sweden;
 - Resource and Production Geologist for an antimony and gold mine in Australia;
 - Resource estimation and consulting to base and precious metal mine operators in South and Central America;
 - Experienced user of Surpac, Leapfrog, and other database and geological modelling software.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I did not visit the Orovalle Operation.
6. I am responsible for Sections 7, 8, 12, and 14, and related disclosure in Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of November, 2020

(Signed & Sealed) John Makin

John Makin, MAIG

JACK P. LUNNON

I, Jack P. Lunnion, CGeol, EurGeol, as an author of this report entitled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020, do hereby certify that:

1. I am Consultant Geologist of Roscoe Postle Associates UK Ltd., now part of SLR Consulting Ltd, of 29 Throgmorton Street, Suite 2.9, Warnford Court, London, UK EC2N 2AT.
2. I am a graduate of the University of Southampton, United Kingdom, in 2009 with a Master of Geology (MGeol) degree.
3. I am registered as a Chartered Geologist with the Geological Society of London (Reg. #1022611) and European Geologist with the Federation of European Geologists (Reg. #1456). I have worked as a geologist for a total of ten years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Mineral Resource estimation and reporting on deposits worldwide for due diligence and regulatory requirements.
 - Experienced user of geological and resource modelling software.
 - Supervision of exploration properties in Africa and the Middle East.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Orovalle Operation from October 19 to 21, 2020.
6. I am responsible for Sections 4, 5, 6, 9, 10, and 11 and related disclosure in Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of November, 2020

(Signed & Sealed) Jack P. Lunnion

Jack P. Lunnion, CGeol, EurGeol

PATRICK DONLON

I, Patrick Donlon, FAusIMM, as an author of this report entitled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020, do hereby certify that:

1. I am an Associate Principal Metallurgist with RPA, part of SLR Consulting Limited, 7 Wornal Park, Manmarsh Road, Worminghall, Aylesbury, HP18 9PH, UK
2. I am a graduate of Witwatersrand School of Mines, Johannesburg, South Africa in 1986 with NHD Extraction Metallurgy
3. I am a Fellow of the Australian Institute of Mining and Metallurgy, and a Fellow of the South African Institute of Mining and Metallurgy. I have worked as a metallurgist for a total of 33 years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Operation management of Gold and PGM (including Cu) plants in South Africa
 - Metallurgical test work and process design for numerous plants including gold and copper ore processing.
 - I have previous Independent Engineer Due Diligence experience on numerous mineral processing plants employing similar processes as applied at Orovalle.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have not visited the Orovalle Operation.
6. I am responsible for Sections 13, 17, and 19 with contributions to Section 18, and related disclosure in Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of November, 2020

(Signed & Sealed) Patrick Donlon

Patrick Donlon, FAusIMM

ALESSANDRA (ALEX) PHEIFFER

I, Alessandra (Alex) Pheiffer, M.Sc., PrSciNat, EAPAN, as an author of this report entitled “Technical Report on the Orovalle Operation, Asturias, Spain”, prepared for Orovalle Minerals S.L., and dated November 30, 2020, do hereby certify that:

1. I am Technical Director, ESIA, with SLR Consulting France SAS, of 13 Rue Martin Luther King, Saint Martin d’Hères, 38400, Grenoble.
2. I am a graduate of Rand Afrikaans University in 2004 with a M.Sc. Environmental Management.
3. I am registered as a Professional Natural Scientist (PrSciNat) in Environmental Science (Reg. No. 400183/05) with the South African Council for Natural Scientific Professions. I have worked as an environmental scientist for a total of 18 years. My relevant experience for the purpose of the Technical Report is:
 - Review and report as a consultant on many mining operations and projects for feasibility, due diligence and regulatory requirements.
 - Operational experience for a period of one year as an Assistant to the Chief Environmental Officer within Anglo Platinum’s Waterval Smelter in South Africa.
 - Experience as an Environmental Scientist in coal, gold, copper, PGMs, iron, manganese, uranium, chrome, ferrochrome.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have not visited the Orovalle Operation.
6. I am responsible for Section 20 and related disclosure in Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of November, 2020

(Signed & Sealed) Alessandra Pheiffer

Alessandra (Alex) Pheiffer, M.Sc., PrSciNat, EAPAN