Technical Report Summary on the Cerro Lindo Mine, Department of Ica, Peru S-K 1300 Report

Nexa Resources S.A.

SLR Project No: 233.03246.R0000

January 29, 2021

Amended October 18, 2021

SLR

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CONTENTS

TABLES

FIGURES

1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Cerro Lindo Mine (Cerro Lindo or the Mine), located in the Department of Ica, Peru. The purpose of this report is to support the Mineral Resource and Mineral Reserve estimates for the Mine as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property from June 4 to 7 and June 18 to 20, 2019. SLR has prepared this amended Technical Report Summary to disclose Mineral Resources and Mineral Reserves attributable to Nexa only, provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

Cerro Lindo is located in the Chavín District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima. Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares. Cerro Lindo commenced operations in 2007 and comprises an underground zinc-lead-copper-silver mine, a conventional comminution flotation process plant, a coastal desalination plant, and associated infrastructure. The Mine produces separate zinc, lead, and copper concentrates with silver content. In 2020, the Mine produced 105,876 tonnes (t) of zinc, 32,499 t of copper, 15,688 t of lead, and 4,254,239 ounces (oz) of silver. As of December 2020, the Mine is scheduled to produce a total of approximately 52 million tonnes (Mt) of Mineral Reserves over a mine life of nine years.

Production in 2020 was significantly lower than in 2019 impacted by the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. As a consequence of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tonnes per day (tpd). Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.

1.1.1 Conclusions

SLR has the following conclusions by area.

1.1.1.1 Geology and Mineral Resources

- As of December 31, 2020, exclusive of Mineral Reserves, Measured Mineral Resources are estimated to total 3.53 Mt at 2.00% Zn, 0.20% Pb, 0.67% Cu, and 19.61 g/t Ag and Indicated Mineral Resources are estimated to total 2.77 Mt at 1.37% Zn, 0.25% Pb, 0.45% Cu, and 24.96 g/t Ag. In addition, Inferred Mineral Resources are estimated to total 6.30 Mt at 1.28% Zn, 0.35% Pb, 0.33% Cu, and 31.23 g/t Ag. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
- Cerro Lindo is a Kuroko-style volcanogenic massive sulphide (VMS) deposit that comprises a number of lens-shaped massive and semi-massive sulphide bodies.
- Three massive sulphide units, one semi-massive sulphide unit, and one mineralized volcanic rock unit have been recognized.
- The control of mineralization is lithological, mineralogical, and structural. Most copper mineralization is located in a pyritic massive sulphide unit and most zinc mineralization is located in baritic massive sulphide units, with lesser disseminated mineralization as patches or stringers in the semi-massive sulphide and mineralized volcanic units.
- The geological setting, geophysical studies, surface samples and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation.
- Protocols for drilling, sampling preparation and analysis, verification, and security meet industry standard practices and are appropriate for the purposes of a Mineral Resource estimate.
- The quality assurance/quality control (QA/QC) program as designed and implemented by Nexa is adequate, with no significant bias, to support the resource database. The resource database was verified by SLR and is suitable for Mineral Resource estimation.
- The geological models are reasonably constructed using available geological information and are appropriate for Mineral Resource estimation.
- The assumptions, parameters, and methodology used for the Cerro Lindo Mineral Resource estimate are appropriate for the style of mineralization and proposed mining methods.

1.1.1.2 Mining and Mineral Reserves

- As of December 31. 2020, Proven and Probable Mineral Reserves are estimated to total 41.76 Mt at 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21.17 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable ownership basis.
- Dilution and extraction factors follow the historical trend and are considered appropriate for the type of stoping methods employed at Cerro Lindo.

- The level of dilution will likely increase in the latter years of production as the stopes on the fringes of the deposit will increase exposing the stopes to more external dilution.
- The level of extraction will likely decrease under similar circumstances as more care will be required to avoid excess dilution in the ore.
- Modifications to the mining approach for the areas requiring a more conventional method such as cut and fill (C&F) will be required in the latter years when mining the fringes of the deposit. Paste backfill delivery is an issue when stopes are distant from the paste fill source requiring dilution with water which in turn can result in lower strength backfill. This does not represent a significant risk to the Mineral Reserve estimate, as C&F represents a small amount of the total Mineral Reserves. Pastefill can also be substituted with cemented rock fill (CRF). CRF can be mixed underground closer to the C&F stopes.

1.1.1.3 Mineral Processing

- The development of a geometallurgical model to predict metallurgical response during future processing at Cerro Lindo remains a work in progress. Additional work and metallurgical testing are necessary to confirm the validity of the relationships derived to date for throughput, grinding media consumption, recovery, and concentrate quality.
- Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades.
- Average life of mine (LOM) planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily from 1.8% after 2020.
- Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then predicted to fall as head grades decrease.
- Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the Qualified Person's (QP) opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecast due to the lack of data on processing material with these low head grades.
- A small amount of transition or supergene ore has been identified in two stopes, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

1.1.1.4 Environment, Permitting and Social Considerations

- No known environmental issues were identified during the site visit and documentation review. The Cerro Lindo Mine operation complies with applicable Peruvian permitting requirements and Nexa maintains a list of permits for the Project, which was provided to SLR. The approved permits address the authority's requirements for operation of the underground mine, tailings storage facilities (TSF), waste rock dumps, process plant, water usage, and effluents discharge. There is no discharge of industrial or domestic water to the environment at the mine site.

- There is a comprehensive Environmental Management Plan (EMP) in place, which includes a complete monitoring program for effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, soil quality, terrestrial biology (vegetation and wildlife), and aquatic biology. Cerro Lindo reports the results of the monitoring program to the authorities according to the frequency stated in the approved resolutions and no compliance issues have been raised by the authorities. In the SLR QP's opinion the proposed environmental plans are adequate to address potential issues related to environmental compliance.
- Regarding the tailings dry-stack storage facilities, some movement of the tailings relative to the foundation has been noted from the tailings monitoring data, however, phreatic levels in the tailings are very low and the range of movement is considered to be within normal parameters. It is noted that the likelihood of the mine site experiencing a severe seismic event is relatively high given the mine site proximity to a major tectonic plate subduction zone.
- Water management involves complete recirculation of water at the mine site where there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment. Fresh water is being supplied from a desalination plant located at the coast to meet site and process water make-up requirements. Water quality monitoring is carried out monthly at stations located along the Topará Creek at the mine site and in Jahuay beach at the discharge location from the desalination plant.
- A Mine Closure Plan has been developed for all the Mine components within the context of Peruvian legislation and is periodically updated.
- A social baseline description, assessment of socio-economic impacts, and a social management plan have been carried out to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. These components are generally consistent with social impact assessment practices. The Social Management Plan is comprised of three plans (Communications Plan, Community Relations Plan, and Community Development Plan) and includes measures and indicators to track social management performance. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the Social Management Plan and the grievance mechanism in place are adequate to address potential issues related to local communities.
- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs.
- The review of social aspects indicates that, at present, Nexa's operations at the Cerro Lindo site in Peru are a positive contribution to sustainability and community well-being. Nexa has established and continues to implement its various Corporate policies, procedures, and practices in a manner consistent with relevant International Finance Corporation (IFC) Performance Standards. Nexa has, and continues to make, a positive contribution to the communities most affected by the Mine and has done a thorough job in collecting information to support its environmental effects assessment. Information regarding the outcomes of the complaints and grievances reports and site-specific health and safety practices was not provided at the time of this review, however, the corporate policies that guide these activities are clear and aligned with IFC Performance Standards.
- The water quality concerns outside of the mine site that communities express from time to time remain a risk for the operations at Cerro Lindo.

1.1.1.5 Costs and Economic Analysis

- SLR reviewed the sustaining capital costs and considers them to be appropriate for the remaining mine life. The sustaining capital costs are spread over the LOM period from 2021 to 2029, with mine closure in 2030. The bulk of the sustaining capital is mine development required to both access and develop the stoping blocks for mining. Equipment replacement is comprised of new equipment and equipment overhauls.
- The LOM operating cost forecast reflects the existing operating status of the mine. The SLR QP has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Cerro Lindo mine operation. Cerro Lindo staff also continue to assess operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Cerro Lindo mine operation are robust over the LOM, confirming that the Cerro Lindo Mineral Reserves are economically viable. The economic analysis shows an after-tax net present value (NPV), at an 9% base discount rate, of $304 million, on a 100% Mine basis (Nexa owns 80.16%).

1.1.2 Recommendations

SLR has the following recommendations by area.

1.1.2.1 Geology and Mineral Resources

1. Improve reconciliation processes by implementing a formal procedure and by forming a multi-disciplinary team to organize and analyze reconciliation results so that production data can be used to calibrate future resource and reserve models.
2. Investigate the potential 5% negative bias for lead at Inspectorate Lima.
3. Incorporate controls to reduce failure rates observed for some lead and silver CRMs.
4. Actively monitor blank results so any contamination issues can be corrected immediately, particularly the mine samples where there is no remaining core for re-analysis.
5. Take density measurements for pyritic oxidized sulphides (SOP), baritic oxidized sulphides (SOB), and leached massive sulphides (SLB) domains, and collect more density samples at the extremities of the mineralization where resource and reserve shapes were generated.
6. Investigate building grade domains without separating them by geological domain to preserve grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains
7. Improve dynamic anisotropy (DA) angles particularly for the OB1 area based on grade trends and structural interpretations and potential further sub-domaining.
8. Continuously improve post-mineralization dike modelling to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are behaving like faults by controlling the mineralization trends.
9. Build a more detailed structural model and structural domains to customize local search anisotropies and directions. It appears that there are at least four main structural trends present (northwest-southeast dipping northeast, northwest-southeast dipping southwest, northeast-southwest dipping northwest, and west-northwest/east-southeast dipping northwest and plunging west-northwest) that should be investigated further. Some mineralization domains

appear to have mineralization trending in various directions due to local faulting and folding and further sub-domaining may be warranted.

10. Using the production data, monitor the chosen drill spacing for SSM and VM to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.
11. Optimize resource shapes to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the resource shape construction methodology used.
12. Generate a no survey solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.
13. Document all the data support to define non-recoverable solids and document any changes.
14. Complete the proposed 2021 exploration program, consisting of a 35,100 m of diamond drilling, and continue with advanced exploration, including geological mapping, and geochemical and geophysical surveys. The 2021 exploration program budget is approximately US$7.1 million.
15. Complete the proposed 2021 mine geology drilling, consisting of 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and for mine planning purpose (infill drilling) and ultimately convert them into Probable or Proven Mineral Reserves. The 2021 mine geology drilling program budget is approximately US$3.1 million.

1.1.2.2 Mining and Mineral Reserves

1. Review the stope designs to address the potential for increased dilution as mining nears the deposit limits. The use of shanty back design could be useful in addressing this issue.
2. Adjust the mining methods to reduce the level of internal dilution. Trade-off studies will be required to assess all aspects of the methods.
3. Complete a trade-off study comparing the use of CRF in areas that are distant from the paste fill source requiring high water content for delivery and lowering the backfill quality.
4. Consider upgrading the mine's underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network.
5. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.
6. With a wireless communications system, consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.

1.1.2.3 Mineral Processing

1. Re-evaluate the potential benefits that may be derived from a geometallurgical model to determine if additional test work and further development of a geometallurgical model will provide more valuable information than what is already available from test work results.
2. Conduct flotation test work on ore samples representing the lower lead and zinc head grades anticipated towards the end of the LOM to provide information on recovery and concentrate quality for planning purposes.
3. Continue investigations into development of processing conditions suitable for campaigning transition/supergene ore through the plant.

1.1.2.4 Environment, Permitting and Social Considerations

1. Continue identifying and comparing solutions for storing tailings for the remainder of the LOM.
2. Evaluate the long term environmental impacts of allowing the tailings valley runoff to pond against and seep through the Pahuaypite waste rock dump.
3. Continue with participatory monitoring of water quality and implement social commitments to help improve access to water and water quality in the area.
4. Sourcing local employment may be difficult with expanded and continued operations as Nexa has already reported that sourcing local employees has, at times, been challenging. Continue with commitments in educating, training, recruitment, and diversity targeted to the local workforce.
5. Improve social and employment policies and procedures by developing mechanisms to communicate the outcomes of the employee and community focused activities with stakeholders and the public, particularly with a focus on access to water and perception about water quality.
6. Confirm the basis for the community of Chavin's categorization as an Indigenous group by the Ministry of Culture in 2020 and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa's Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

1.1.2.5 Costs and Economic Analysis

1. Continuously monitor costs and lock in costs as soon as possible to eliminate economic uncertainty.
2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.

1.2 Economic Analysis

The economic analysis contained in this Technical Report Summary is based on Cerro Lindo's Mineral Reserves reported on a 100% ownership basis (Nexa owns 80.16%), economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

Nexa has a silver streaming agreement with Triple Flag Mining Finance Bermuda Ltd. (Triple Flag) on silver production from the Cerro Lindo Mine. Triple Flag has the rights to 65% of all payable silver, at a cost of

10% of the spot silver price (up to a total of 19.5 million ounces (Moz) Ag). After the total has been reached, currently anticipated to be in 2027, Triple Flag is entitled to 25% of payable silver.

1.2.1 Economic Criteria

1.2.1.1 Physicals

- Mine life: 9 years (between 2021 and 2029):
- Underground ore tonnes mined: 52,101 kt
  - Cu grade: 0.61%
  - Zn grade: 1.44%
  - Pb grade: 0.20%
  - Ag grade: 21.2 g/t
- Processed:
  - Total Ore Feed: 52,101 kt
    - Cu grade: 0.61%
    - Zn grade: 1.44%
    - Pb grade: 0.20%
    - Ag grade: 21.2 g/t
  - Contained Metal:
    - Cu:319 kt
    - Zn:748 kt
    - Pb:106 kt
    - Ag:35,472 koz
  - Metallurgical Recoveries at LOM average grade (recoveries vary as a function of head grade):
    - Cu recovery 86.3%
    - Zn recovery 88.1%
    - Pb recovery 68.6%
    - Ag in Cu recovery 39.9%
    - Ag in Pb recovery 28.9%
  - Recovered Metals:
    - Cu:277 kt
    - Zn:660 kt
    - Pb:74 kt
    - Ag:26,527 koz

- Payable Metals:
  - Cu:266.7 kt
  - Zn:561.2 kt
  - Pb:70.6 kt
  - Ag:22,446 koz

1.2.1.2 Revenue

- Revenue is estimated based on the following LOM weighted average metal prices:
  - Cu price: US$6,458/t
  - Zn price: US$2,487/t
  - Pb price: US$1,987/t
  - Ag price - spot: US$17.01/oz
- Net Revenue includes the benefit of Cerro Lindo's zinc concentrate processed at Nexa's Cajamarquilla (CJM) zinc refinery in Peru (61%) and Três Marias (TM) (35%) and Juiz de Fora (JF) (4%) zinc refineries in Brazil. This integration with Nexa's internal refineries provides the benefit of additional US$150.34/t zinc selling price in average, and zinc smelting at cost (rather than at commercial third-party terms).
- Logistics, Treatment and Refining charges:
  - LOM average Transportation/Logistics charges:
    - Cu concentrate: US$109.26/t concentrate
    - Zn concentrate: US$64.82/t concentrate (weighted average logistic integration cost with CJM, TM, and JF refineries)
    - Pb concentrate: US$108.75/t concentrate
  - Treatment Charges:
    - TC+RC Cu concentrate: US$112.35/t concentrate
    - TC Zn concentrate for export: US$238.91/t concentrate
    - TC Pb concentrate: US$201.16/t concentrate
    - Refined Zn weighted average conversion costs at CJM, TM, and JF refineries: US$443.10/t
  - Refining Charges:
    - Ag in Cu concentrate: US$0.50/oz
    - Ag in Pb concentrate: US$1.00/oz
- NSR Revenue after Logistics, Treatment and Refining charges is US$3,076 million.

1.2.1.3 Capital Costs

- LOM sustaining capital costs of US$154.8 million.
- LOM working capital balance of US$117.7 million.

- Closure costs of US$57.2 million were included at the end of the Mineral Reserves based LOM in year 2030.

1.2.1.4 Operating Costs

- LOM unit operating cost average of:
    - Mine Development: US$4.44/t mined
    - Underground Mining: US$15.18/t mined
    - Processing: US$11.95/t milled
    - G&A: US$3.01/t milled
- Total unit operating costs of US$34.58/t milled.
- LOM operating costs of US$1,801 million.

1.2.1.5 Taxation and Royalties

- Corporate tax rate in Peru is 29.50%.
- Special Mining Tax (IEM/GEM) LOM average rate: 4.3%.
- Mining royalties LOM average rate: 4.3%.
- Employees participation: 8%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

1.2.2 Cash Flow Analysis

SLR developed a LOM after-tax cash flow model for the Cerro Lindo Mine to confirm the economics of the LOM plan. The model is based on Nexa's TR Cerro Lindo 2020 Final2 model. The model does not take into account the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

The economic analysis confirmed that the Cerro Lindo Mineral Reserves are economically viable. The pre-tax NPV at a 9% discount rate is US$639 million and the after-tax NPV at a 9% discount is US$304 million, on a 100% Mine basis (Nexa owns 80.16%).

A discounted cash flow summary is presented in Table 1-1. All costs are in Q4 2020 US dollars with no allowance for inflation.

Table 1-1: Discounted Cash Flow Summary
Nexa Resources S.A. – Cerro Lindo Mine

	Units	Total LOM
Production		
LOM	years	9

	Units	Total LOM
UG Production	'000 tonnes	52,101
Ag Grade	gr/t	21.2
Cu Grade	%	0.61%
Pb Grade	%	0.20%
Zn Grade	%	1.44%
Concentrate Production		
Cu Concentrate	dmt	1,071,157
Pb Concentrate	dmt	116,434
Zn Concentrate	dmt	1,121,767
Recovered		
Ag	oz	26,526,801
Cu	tonnes	277,430
Pb	tonnes	74,308
Zn	tonnes	660,272
Metal Prices		
LOM average - Ag	US$/oz	17.05
LOM average - Cu	US$/tonne	6,458
LOM average - Pb	US$/tonne	1,987
LOM average - Zn	US$/tonne	2,487
Cash Flow		
Gross Revenue	US$ million	3,718
Transport / TC-RC Charges	US$ million	(642)
Royalties	US$ million	(184)
Net Revenue	US$ million	2,892
Operating Costs		
Mining Costs	US$ million	(1,022)
Processing Costs	US$ million	(623)
G&A	US$ million	(157)
Other Costs	US$ million	(25)
Operating Cash Flow	US$ million	1,065
Direct Capital Costs	US$ million	(19)
Sustaining Capital Costs	US$ million	(136)
Reclamation & Closure	US$ million	(57)

	Units	Total LOM
Change Working Capital	US$ million	118
Pre-Tax Net Cash Flow	US$ million	971
Taxes - Income Tax	US$ million	(407)
Taxes - IEM/GEM	US$ million	(73)
After-Tax Cashflow	US$ million	491
Project Economics		
Pre-Tax		
Pre-tax NPV at 8%	US$ million	667
Pre-tax NPV at 9%	US$ million	639
Pre-tax NPV at 10%	US$ million	612
After-Tax		
After-Tax NPV at 8%	US$ million	319
After-Tax NPV at 9%	US$ million	304
After-tax NPV at 10%	US$ million	290

1.2.3 Sensitivity Analysis

SLR conducted cash flow sensitivity analyses on the after-tax NPV at a 9% discount rate, to identify project risks, using metal price, head grade, metallurgical recovery, capital costs and operating costs.

The Project after-tax NPV is most sensitive to metal prices, head grade, followed by operating costs, metallurgical recovery, and capital costs.

1.3 Technical Summary

1.3.1 Property Description and Location

The Mine is located in the Chavín District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima and 60 km from the coast. The approximate coordinates of the Mine are 392,780m E and 8,554,165m N, using the UTM_WGS84 datum.

The current access from Lima is via the Panamericana Sur highway to Chincha (180 km) and then via an unpaved dirt road (60 km) from Huamanpuquio up the river valley. The closest commercial airport is Jorge Chavez, at Callao, approximately 300 km northwest.

1.3.2 Land Tenure

Cerro Lindo consists of 68 mineral concessions covering an area of 43,750.19 ha, and one beneficiation concession covering an area of 518.78 ha. The concessions are located in the districts of Chavin, Lunahuana, San Juan de Yanac, Grocio Prado, Pueblo Nuevo and Pacaran, provinces of Chincha and Cañete, departments of Lima and Ica in Peru.

Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares.

1.3.3 History

Artisanal-style mining of outcropping barite bodies for use by the oil industry began in the early 1960s. The Cerro Lindo deposit was discovered in 1967, during a colour anomaly reconnaissance program. Compañía Minera – Milpo S.A.A. (Milpo), a predecessor company to Nexa Peru, acquired the property in 1984. From 1984 to 2011, Milpo carried out geological mapping, geophysical surveys, geochemical sampling, drilling, and trenching over the property. property. A feasibility study was completed in 2002 and construction started in 2006. The Mine commenced production in 2007.

To June 30, 2020, the Mine had produced a total of approximately 66.4 Mt of ore.

1.3.4 Geology and Mineralization

The Cerro Lindo deposit is located in a 30 km by 10 km northwest trending belt of marine volcano-sedimentary rocks of the Middle Albian to Senonian (mid-Cretaceous) Huaranguillo Formation, belonging to the Casma Group, which is located within Tertiary intrusions of the Coastal Batholith. The Huaranguillo Formation fills the Canete volcano-sedimentary basin, one of the several similar basins that form the Casma Metallotect at the western side of the Andean Cordillera Occidental. In addition to Cerro Lindo, the Casma Metallotect hosts a number of important volcanogenic massive sulphide (VMS) deposits, including Tambogrande, Perubar, Potrobayo, Totoral, Maria Teresa, Aurora Augusta, and Palma

The Cerro Lindo deposit is a Kuroko-type VMS deposit. Mineralization is hosted in a pyroclastic unit composed of ash and lapilli-type polymictic tuffs of the Huaranguillo Formation. The deposit comprises lens-shaped, massive and stringer zones composed of pyrite, sphalerite, galena, chalcopyrite, and barite. The mineralization has characteristic zoning from zinc-rich to pyrite-rich and associated sericitic-pyritic alteration.

The mineralization has been divided into 19 mining production areas, which are termed OB-1, OB-2, OB-2B, OB3-4, OB-5, OB-5B, OB-5C, OB-5D, OB-6, OB-6A, OB-6B, OB-6C, OB-7, OB-8, OB-9, OB-10, OB-11, OB-12, OB-13, and OB-14. The mineralized lenses exhibit an irregular elongated geometry, and their longest axis (nearly 500 m) has a northwest-southeast horizontal trend (azimuth 135°). The mineralized bodies are up to 300 m thick and 100 m wide and generally dip to the southwest at 65° on average.

1.3.5 Exploration Status

A total of 4,808 drill holes totalling 654,129.63 m, as of March 02, 2020, have been completed at Cerro Lindo since 1995. Exploration has been carried out systematically since 2007. The 2020 exploration program, including an additional 52 drill holes totalling 19,541.4 m as of December 31, 2020, confirmed the continuity of the mineralization at the OB-13 and OB-14 zones towards the northwest and also for OB-14 at depth towards the southeast, as well as the upper part of OB-5B between the 1750 and 1950 levels, with an average thickness of 15 m trending northeast. Future exploration priorities include deeper stratigraphic levels of known mineralized zones at Cerro Lindo, as well as Northwest Extension OB3-4 and OB-12, Cerro Lindo Southeast Extension, Pucasalla, Pucasalla East, Festejo, Ventanalloc, Patahuasi Millay, Orcocobre, Toldo Grande, Pucatoro, Toldo Chico, Chavin del Sur, Mesa Rumi, Festejo Norte, Festejo Sur, Puca Punta, Pucasalla Norte, OB-14 Upper and Pucasalla Sur targets. Exploration work planned for 2021 includes 35,100 m of diamond core drilling focused on defining Inferred Mineral Resources at six different targets (Pucasalla, OB-6, OB-5B, OB-12, OB-8, and Patahuasi Millay areas), an airborne geophysical versatile time domain electromagnetic (VTEM) survey for all the exploration targets, 1:2,000 scale geological surface mapping for Pucasalla, Pucatoro and Orcocobre, and a geochemical gas sampling survey. In addition to the exploration program, the mining geology team plans to drill an additional 48,000 m with a goal of upgrading Inferred Mineral Resources and for mine planning purpose.

1.3.6 Mineral Resources

The Mineral Resource estimate for the Cerro Lindo Mine, as of December 31, 2020, using all data available as of March 2, 2020 was completed by Cerro Lindo staff and reviewed by SLR.

The Mineral Resource estimate was completed using Datamine Studio RM and Leapfrog Geo software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, underground mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.5 m lengths. Wireframes were filled with blocks sub-celled at wireframe boundaries. Blocks were interpolated with grade using the ordinary kriging (OK) and inverse distance cubed (ID^3) interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and other criteria. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik Stope Optimizer (DSO) software, satisfying the minimum mining size, continuity criteria, and using a net smelter return (NSR) cut-off value of US$33.56/t for SLS resource shapes and US$49.90/t for C&F resource shapes. NSR cut-off values for the Mineral Resources are based on a zinc price of US$1.30/lb, a lead price of US$1.02/lb, a copper price of US$3.37/lb, and a silver price of US$19.38/oz.

The SLR QP reviewed the Mineral Resource assumptions, input parameters, geological interpretation, and block modelling and reporting procedures, and is of the opinion that the Mineral Resource estimate is appropriate for the style of mineralization and that the block model is reasonable and acceptable to support the December 31, 2020 Mineral Resource estimate.

The Mineral Resource estimate for Cerro Lindo, as of December 31, 2020, is summarized in Table 1-2.

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

Table 1-2: Summary of Mineral Resources – December 31, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.7
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.2
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.9
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.4

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US$33.56/t for sub-level open stoping (SLS) and US$49.90/t for cut and fill (C&F).
4. Mineral Resources are estimated using average long term metal prices of Zn: US$2,869.14/t (US$1.30/lb), Pb: US$2,249.40/t (US$1.02/lb), Cu: 7,426.59/t (US$3.37/lb), and Ag: US$19.38/oz.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserves

The Mineral Reserves for Cerro Lindo were estimated using an NSR cut-off value of US$33.56/t processed for SLS, US$49.90/t processed for C&F stoping, and a minimum mining width of five and four metres respectively. Mineral Reserves to be mined from 2021 to 2029 were estimated at 41.76 million tonnes, grading 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable basis.

The Mineral Reserve estimate, as of December 31, 2020, is summarized in Table 1-3.

Table 1-3: Summary of Mineral Reserves – December 31, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Proven	23.55	1.71	0.23	0.60	20.86	402.0	53.0	142.1	15,793
Probable	18.22	1.08	0.18	0.62	21.58	197.5	32.1	113.7	12,641
Total	41.76	1.44	0.20	0.61	21.17	599.5	85.1	255.8	28,434

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at NSR cut-off values of US$33.56/t processed for SLS and US$49.90/t processed for C&F stoping. A number of incremental stopes (down to US$26.16/t NSR value) are included in the estimate.
4. Mineral Reserves are estimated using average long term metal prices of Zn: US$2,494.90/t (US$1.13/lb); Pb: US$1,956.00/t (US$0.89/lb); Cu: US$6,457.90/t (US$2.93/lb); Ag: US$16.85/oz with all costs in US dollars.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used for SLS stopes and C&F stopes respectively.
7. Bulk density varies depending on mineralization domain.
8. Numbers may not add due to rounding.

The SLR QP is not aware of any risk factors associated with, or changes to, any aspect, of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.3.8 Mining Method

At Cerro Lindo, the main mining method utilized is sub-level longhole stoping with sub-level intervals of up to 30 m in heights. The stoping follows a primary, secondary, and tertiary sequence and paste backfill is used to provide ground support after each sequence. The paste fill is distributed from surface via a pipeline system to the stope locations. C&F stoping is also used to recover sill pillars and areas requiring a conventional mining approach for effective results. The stopes are mucked with load-haul-dump (LHD) units and haul trucks deliver ore to the main underground crusher on the 1820 m level via the grizzlies. The ore is then conveyed to surface stockpiles followed by use of overland conveyors for final delivery to the process plant.

1.3.9 Mineral Processing

The Cerro Lindo processing plant is located on a ridge adjacent to the mine at an altitude of 2,100 MASL to 2,200 MASL. The processing plant commenced operations in 2007 with a capacity of 5,000 tpd, however, it has since been expanded to a name-plate capacity of 21,000 tpd. The current LOM plan continues to 2029. Processing consists of conventional crushing, grinding, and flotation to produce separate copper, lead, and zinc concentrates. Tailings are thickened and filtered for use as backfill or trucked to the dry stack tailings storage facility.

Water is supplied from a reverse osmosis desalination plant located on the coast and is pumped 60 km to the mine site. This is sufficient to supply the requirements for make-up water and potable water (treated at the mine site). Most of the process water requirement is recovered from tailings thickening and filtration and is returned to water storage tanks at the processing plant. Approximately 90% of total tailings water is recovered and recycled to the processing plant as process water.

The Cerro Lindo concentrates contain low concentrations of deleterious elements and higher than average concentrations of the primary metals. Due to the combined lead and zinc content of the copper concentrate (approximately 4.8% to 5.6%), however, the concentrate attracts a small penalty of approximately US$2.00/t.

1.3.10 Project Infrastructure

The in-situ and operating infrastructure at Cerro Lindo includes the following:

- An underground mine accessed by 15 portals.
- An underground crusher and conveyance system to surface.
- Surface ore stockpiles and waste dumps.
- A 21,000 tpd processing plant.
- Two dry-stack TSFs.
- Main site power supply.
- Site access roads.
- Mine shops, offices, warehouse facilities.
- Mine camps facilities.

Power to the mine is supplied via the National Grid. The overall site demand to sustain a production rate of 20,800 tpd is approximately 36.5 MW. The mine has a backup generator to support the main ventilation system.

There is no fresh water withdrawal from natural water bodies at the mine site, and the mine obtains very little water from the underground mine workings. Approximately 40% of total demand is extracted from five local groundwater wells/boreholes. The remaining 60% of industrial fresh water is supplied from a desalination plant located on the coast.

Tailings from the process plant are thickened to two streams. Approximately 50% of the tailings are further thickened and used for paste fill and the other 50% is sent to the Pahuaypite 1 and 2 dry stacks. Pahuaypite 1 has been approved for a 10% expansion and a plan is in place for a similar expansion at Pahuaypite 2.

Waste rock from the underground mining operations is either used as backfill underground or stockpiled on the surface. There are currently six locations on surface for waste rock stockpiling with a combined capacity of 6.7 Mm^{3}.

1.3.11 Market Studies

The principal commodities that are produced at the Cerro Lindo mine – zinc, copper, lead, and silver – are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc and copper represent 91% of Cerro Lindo's gross revenue, while lead and silver contribute 9% of the revenue. Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates, with the main players in the world, between global traders and refineries. Zinc concentrate is consumed by Nexa's Cajamarquilla, Três Marias, and Juiz de Fora smelters according to their internal planning.

Market information is based on the industry scenario analysis prepared by Nexa's Market Intelligence team in July 2020 using information sourced from different banks and independent financial institutions.

1.3.12 Environmental, Permitting, and Social Considerations

The geographical area where the Cerro Lindo facilities are located is arid, characterized by very low precipitation and high evaporation. Water conservation is a primary objective in Cerro Lindo due to the limited water availability in the area. Water is recycled from ore processing and re-used as much as possible. Nexa operates Cerro Lindo with a zero-discharge commitment for industrial and domestic water. Industrial fresh water is supplied from a desalination plant located at the coast to meet water requirements for mine operation activities. There is no fresh water withdrawal from natural water bodies at the mine site. Approximately 60% of the total fresh water supply to the mine site is taken from the ocean with approximately 40% taken from groundwater wells.

Tailings from the process plant are thickened and then further dewatered in either the paste plant to be deposited underground, or to the filter plant to the south of the processing plant to be filtered and subsequently placed in two dry-stack storage facilities, Pahuaypite 1 and Pahuaypite 2. As much as 90% of the process water from dewatered tailings is recycled with industrial fresh water being supplied from a desalination plant at the coast to meet site and process water make-up requirements. The mine site operates with a zero-water discharge commitment.

The most recent modification of the Environmental Impact Assessment (EIA) was approved by the Peruvian authorities in 2018 to grant authorization for a maximum production rate of 22,500 tpd. Cerro

Lindo has an EMP, which addresses mitigation measures and monitoring programs for industrial and domestic effluent discharges, surface water quality and sediment, groundwater quality, surface flow, air quality (particulate matter and gas emissions), non-ionizing radiation, noise, vibrations, soil quality, terrestrial and aquatic flora, terrestrial and aquatic fauna. The most recent update of the environment plan was presented in the 2018 EIA.

Cerro Lindo holds a number of permits in support of the current operations. The permits are Directorial Resolutions issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies. Nexa maintains and up to date record of the legal permits obtained to date.

Nexa adheres to international standards to provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. Corporately, Nexa has made several commitments to improve community health and safety as well as the overall well-being of community members.

A formal Mine Closure Plan was prepared in 2009 for the mine components within the context of the Peruvian legislation and has subsequently been amended or updated four times. The Closure Plan addresses temporary, progressive and final closure actions, and post closure inspection and monitoring. Progressive closure will continue taking place until 2027, final Closure is planned for 2028 and 2029, and post-closure monitoring will take place between 2030 and 2034. A closure cost estimate was developed and included in the Mine Closure Plans. The total financial assurance for progressive closure, final closure and post-closure is calculated by Nexa according to the Peruvian regulations (Supreme Decree D.S. N° 262-2012-MEM/DM).

1.3.13 Capital and Operating Cost Estimates

The capital costs for the Mine are shown in Table 1-4. Cerro Lindo is an operating mine hence all capital costs are considered sustaining cost.

Table 1-4: Sustaining Capital Cost
Nexa Resources S.A. – Cerro Lindo Mine

Description	Total (US$000)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Mine Development	**66,275**	20,326	16,768	15,903	3,722	9,556	-	-	-	-	-
Equipment Replacement	**32,410**	3,744	5,136	5,195	8,860	6,651	2,824	-	-	-	-
Other Sustaining	**37,547**	8,649	6,630	(492)	7,737	3,096	1,910	3,339	3,339	3,339	-
Tailings / Dumps	**9,246**	3,082	664	5,500	-	-	-	-	-	-	-
Modernization	**9,364**	3,760	4,779	525	205	95	-	-	-	-	-
Sub-Total	**154,842**	**39,561**	**33,977**	**26,631**	**20,524**	**19,398**	**4,734**	**3,339**	**3,339**	3,339	-
Closure	**57,157**	-	-	-	-	-	-	-	-	-	57,157
Total	**211,999**	**39,561**	**33,977**	**26,631**	**20,524**	**19,398**	**4,734**	**3,339**	**3,339**	3,339	57,157

The operating costs for Cerro Lindo are shown in Table 1-5.

Table 1-5: Mine Operating Cost Estimate
Nexa Resources S.A. – Cerro Lindo Mine

Description	Total LOM (US$M)	Average (US$M/yr)	LOM Unit Cost (US$/t)
UG Mining	791	88	15.18
Mine Development	231	26	4.44
Processing	623	69	11.95
G&A	157	17	3.01
Total	**1,802**	**200**	**34.58**

2.0 INTRODUCTION

SLR Consulting Ltd (SLR) was retained by Nexa Resources S.A. (Nexa) to prepare an independent Technical Report Summary on the Cerro Lindo Mine (Cerro Lindo or the Mine), located in the Department of Ica, Peru. The purpose of this report is to support the Mineral Resource and Mineral Reserve estimates for the Mine as of December 31, 2020. This Technical Report Summary conforms to United States Securities and Exchange Commission (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the property from June 4 to 7 and June 18 to 20, 2019. SLR has prepared this amended Technical Report Summary to disclose Mineral Resources and Mineral Reserves attributable to Nexa only, provide additional information about metallurgical recoveries and lead and silver markets, and to disclose the accuracy of the cost estimates. SLR notes that the effective date of the technical information contained herein remains December 31, 2021.

Nexa is a publicly traded company on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE). It is a reporting issuer in all provinces and territories of Canada.

Nexa is a large-scale, low-cost, integrated zinc producer with over 60 years of experience developing and operating mining and smelting assets in Latin America. Nexa has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, Nexa owns and operates two underground mines, Vazante and Morro Agudo (Zn and Pb). It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, Nexa operates the El Porvenir (Zn, Pb, Cu, and Ag), Cerro Lindo (Zn, Cu, Pb, and Ag), and Atacocha (Zn, Cu, Pb, Au, and Ag) mines, as well as the Cajamarquilla zinc smelter near Lima. Nexa's development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. In Brazil, Nexa is developing the Aripuanã Zinc Project (Zn, Pb, Cu, Au, and Ag), which is currently under construction.

Cerro Lindo is located in the Chavín District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima. Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares. Cerro Lindo commenced operations in 2007 and comprises an underground zinc-lead-copper-silver mine, a conventional comminution flotation process plant, a coastal desalination plant, and associated infrastructure. The Mine produces separate zinc, lead, and copper concentrates with silver content. In 2020, the Mine produced 105,876 tonnes (t) of zinc, 32,499 t of copper, 15,688 t of lead, and 4,254,239 ounces (oz) of silver. As of December 2020, the Mine is scheduled to produce a total of approximately 52 million tonnes (Mt) over a mine life of nine years.

2.1 Site Visits

SLR visited the Mine from June 4 to 7, 2019. During the site visit, SLR Qualified Persons (QP) reviewed plans and sections, visited the core shack, examined drill holes and mineralized underground exposures, reviewed core logging and quality assurance and quality control procedures and database management system, inspected the underground operations, the processing plant, the chemical laboratory and the surface and underground infrastructure and held discussions with Nexa personnel.

Subsequent to this visit, SLR visited the Mine from June 18 to 20, 2019. The purpose of the second visit was to conduct a site reconnaissance from an environmental perspective focusing on the tailings storage facilities, the water management ponds and environmental features such as the Topará Creek, and hold discussions with the Environment Manager and the Community Relations Manager at Cerro Lindo.

2.2 Sources of Information

During the preparation of this report and the site visit, discussions were held with the following personnel from Nexa:

- Thiago Nantes Teixeira, Mineral Resources and Mineral Reserves Committee
- Priscila Artioli, Mineral Resources and Mineral Reserves Committee
- Jose Antonio Lopes, Corporate Resource Manager
- Jerry Huaman, Resource Manager, Nexa Peru
- Jhonatan Lopez Alvarez, Modeller Geologist at Cerro Lindo
- Thomas Lafayette, Database Administrator Manager
- Charlton Villantoy Fajardo, Database Administrator at Cerro Lindo
- Jean Paul Bueno, Geology Manager at Cerro Lindo
- Edwars Espinoza Jara, Mine Chief Geologist
- Mervin Tapia, Brownfield Exploration Manager at Cerro Lindo
- Fernando Madeira Perisse, Technical Services Manager
- Paulo Henrique Araujo Calazans, Mining Engineer
- Souto Padron Antonio, General Manager at Cerro Lindo
- Rui Carlos Sorrentino Carboni, Short Term Planner at Cerro Lindo
- Hilario Gorvenia, Metallurgical Plant Manager at Cerro Lindo
- Cecilia Pastor, Land and Mineral Rights Manager, Nexa Peru
- Pablo Peña, Land and Mineral Rights GIS, Nexa Peru
- Gladys Ruiz, Environment Manager at Cerro Lindo
- Jose Neira Araoz, Community Relations Chief at Cerro Lindo.
- Renato Piazzon, Corporate Legal Counsel, Nexa Peru

This Technical Report Summary was prepared by SLR QPs. The documentation reviewed, and other sources of information, are listed at the end of this report in Section 24 References.

2.3 List of Abbreviations

Units of measurement used in this report conform to the metric system. All currency in this 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 (31.1035 g)
g	gram	oz/t	ounce per tonne
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

3.0 PROPERTY DESCRIPTION

3.1 Location

The Mine is located in the Chavín District, Chincha Province, Ica Department of Peru, approximately 268 km southeast of Lima and 60 km from the coast (Figure 3-1). The approximate coordinates of the Mine are 392,780m E and 8,554,165m N, using the UTM_WGS84 datum.

3.2 Land Tenure

Mineral rights in Peru include mineral concessions and mineral claims. A mineral claim is an application to obtain a mineral concession.

Cerro Lindo consists of 68 mineral concessions covering an area of 43,750.19 ha, and one beneficiation concession covering an area of 518.78 ha. The concessions are located in the districts of Chavin, Lunahuana, San Juan de Yanac, Grocio Prado, Pueblo Nuevo and Pacaran, provinces of Chincha and Cañete, departments of Lima and Ica in Peru.

The relevant mineral rights information, including the code number and concession name, titleholder, status, registration date and number, and available area for each of the mineral concessions, can be found in Table 3-1 (Nexa, 2020a) and is shown in Figure 3-2, and for the beneficiation concession in Table 3-2. Nos. 65 to 68 mineral concession titles were granted to Nexa in Q4 2020 after the release of legal opinion (Nexa, 2020a).

Nexa owns a total of 80.16% in the Mine that corresponds to the sum of Nexa's direct interest in Nexa Resources Peru S.A.A. (Nexa Peru) (0.17%) and Nexa's indirect interest in Nexa Peru (80.06%) through its controlled company Nexa Resources Cajamarquilla S.A. (99.91%), and the remaining 19.76% are floating shares.

Table 3-1: Cerro Lindo Mineral Rights
Nexa Resources S.A. – Cerro Lindo Mine

No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
1	10009257X02	Febrero 1979	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	13/02/1979	P-02026393	998.77
2	10000049Y01	Cerro Lindo	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	15/06/1967	P-02018851	998.77
3	010210100	Cerro Lindo 12	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-13596017	15.24
4	010210100A	Cerro Lindo 12-B Fraccionado	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-13616219	0.83
5	010210200	Cerro Lindo 13	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	10/11/2000	P-12695744	10.54
6	010377204	Cerro Lindo 14	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/12/2004	P-12528871	999.43
7	010377104	Cerro Lindo 15	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/12/2004	P-12528882	200.00
8	010488308	Cerro Lindo 17	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	19/08/2008	P-12525671	100.00
9	010430411	Cerro Lindo 18	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	11/08/2011	P-13600117	232.39
10	010273015	Cerro Lindo 19	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927075	747.78
11	010273115	Cerro Lindo 20	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14063670	568.37
12	010273215	Cerro Lindo 21	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13925791	493.75
13	010273315	Cerro Lindo 22	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927144	300.00
14	010273415	Cerro Lindo 23	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13611414	602.28
15	010273515	Cerro Lindo 24	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13927140	660.90
16	010273615	Cerro Lindo 25	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-13926206	786.09
17	010273715	Cerro Lindo 26	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14420944	1,000.00
18	010273815	Cerro Lindo 27	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14418565	500.00
19	010273915	Cerro Lindo 28	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	16/07/2015	P-14420320	500.00

No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
20	010021518	Cerro Lindo 29	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		549.36
21	010021818	Cerro Lindo 32	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14410200	669.70
22	010021918	Cerro Lindo 33	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		626.40
23	010022118	Cerro Lindo 35	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018		477.82
24	010022318	Cerro Lindo 37	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14418651	704.14
25	010022518	Cerro Lindo 38	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14418719	825.41
26	010022418	Cerro Lindo 39	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419450	320.12
27	010022618	Cerro Lindo 40	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419449	652.70
28	010022718	Cerro Lindo 41	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417939	836.83
29	010022918	Cerro Lindo 42	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417892	563.17
30	010022818	Cerro Lindo 43	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14419494	416.12
31	010023018	Cerro Lindo 44	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420266	591.77
32	010023118	Cerro Lindo 45	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417945	900.00
33	010023218	Cerro Lindo 46	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420941	1,000.00
34	010023418	Cerro Lindo 47	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14420268	1,000.00
35	010023518	Cerro Lindo 48	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	03/01/2018	P-14417884	670.05
36	010153218	Cerro Lindo 49	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2018		481.64
37	010153118	Cerro Lindo 50	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2018		524.60
38	010209200	Cerro Lindo 5	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	09/11/2000	P-13613580	900.00
39	010209300	Cerro Lindo 6	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	09/11/2000	P-13616230	875.97
40	010051313	Checho 500 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2013	P-13611454	481.15
41	010051213	Checho 700 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2013	P-13613538	700.00

No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
42	010167797	Contopa 44	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	17/04/1997	P-02031014	300.00
43	11025895X01	Festejo 1	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027481	1,000.00
44	10011858X01	Festejo 10	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027470	1,000.00
45	11025896X01	Festejo 2	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027476	1,000.00
46	11025897X01	Festejo 3	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027477	1,000.00
47	010938595	Festejo 30	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	04/12/1995	P-02029871	875.59
48	11025899X01	Festejo 5	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027479	1,000.00
49	10011854X01	Festejo 6	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027468	1,000.00
50	10011855X01	Festejo 7	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/03/1990	P-02027482	1,000.00
51	10011856X01	Festejo 8	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 109	14/02/1990	P-02027469	1,000.26
52	010174812	Festejo 9 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2012	P-13615927	800.00
53	010225414	Julia I M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13595461	400.00
54	010225614	Kala I M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13613582	200.00
55	010225514	Kala M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13613554	100.00
56	010432706	Mariale Segunda	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	13/10/2006	P-12086766	900.00
57	010104614	Nuevo Horizonte 2008 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/01/2014	P-13613581	230.34
58	010225714	Ponciana 1 M	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/05/2014	P-13615933	400.00
59	010140608	VM 142	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/02/2008	P-12956960	1,000.00
60	010140708	VM 143	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	07/02/2008	P-12959327	400.00
61	010354306	VM 21	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	15/08/2006	P-12177428	1,000.00
62	010354406	VM 22	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	15/08/2006	P-12178991	500.00

No.	Concession Code	Concession Name	Titleholder	Status*	Date	Public Registry Record**	Area (ha)
63	010688808	VM 278	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	18/12/2008	P-12955719	799.03
64	010035609	VM 282	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	02/02/2009	P-12956175	100.00
65	010021618	Cerro Lindo 30	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		891.77
66	010021718	Cerro Lindo 31	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		759.31
67	010022018	Cerro Lindo 34	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		626.57
68	010022218	Cerro Lindo 36	Nexa Resources Peru S.A.A.	D.M. Titulado D.L. 708	3/01/2018		655.28

Source: Nexa, 2020a

Notes.

* All concessions are mineral concessions. Nos. 65 to 68 mineral concessions titles were granted in Q4 of 2020 after the release of Nexa, 2020a.
**Some of the records are being updated by the National Office of the Superintendent of Public Registers (SUNARP).

Table 3-2: Cerro Lindo Beneficiation Concession
Nexa Resources S.A. – Cerro Lindo Mine

No.	Project	Code	Concession	Holder	Date	Granted Area (ha)	District	Province	Department
1	Mina Cerro Lindo	P0000506	Cerro Lindo	Nexa Resources Peru S.A.A.	10/10/2006	518.7800	Chavín	Chincha	Ica

Figure 3-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Mine Location

January 2021

Source: CIAmap, 2015.

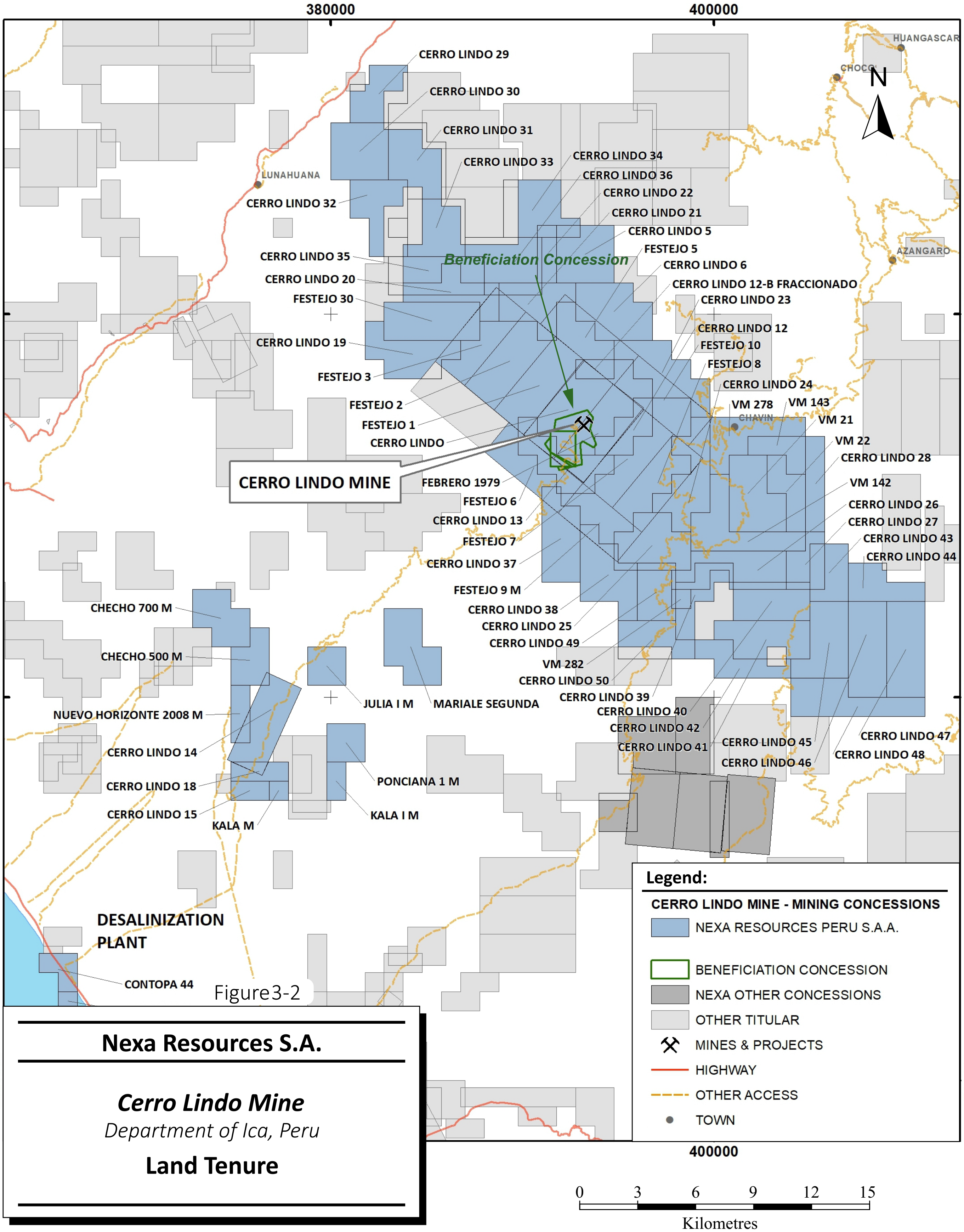


Figure 3-2

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Land Tenure

January 2021

Source: Nexa, 2021.

Pursuant to information provided by the Peruvian Institute of Geology, Mining and Metallurgy (INGEMMET), there are four archaeological sites overlapping with the Cerro Lindo concession (10000049Y01): Frente Pahuaypite (10,480.35 m^2), Pahuaypite Bajo Sector 2 (1,047.42 m^2), Pahuaypite Bajo (12,842.43 m^2) and Patahuasi (Area: 21,573.39 m^2). Exploration and/or mining activities in the area overlapping the archaeological sites are carried out under the Certificate of Non-existence of Archaeological Remains (CIRA) No. 2007-253.

3.2.1 Mineral Rights

The term "mineral rights" refers to mineral concessions and mineral claims. Other rights under the General Mining Law, such as beneficiation concessions, mineral transportation concessions, and general labour concessions are not considered under said term.

According to Peruvian General Mining Law (the Law):

a. Mineral concessions grant their holder the right to explore, develop, and mine metallic or non-metallic minerals located within their internal boundaries.

b. A mineral claim is an application to obtain a mineral concession. Exploration, development, and exploitation rights are obtained once title to concession has been granted, except in those areas that overlap with pre-existing claims or concessions applied for before December 15, 1991. Upon completion of the title procedure, resolutions awarding title must be recorded with the Public Registry to create enforceability against third parties and the State.

c. Mineral rights are separate from surface rights. They are freely transferable.

d. A mineral concession by itself does not authorize to carry out exploration or exploitation activities, but rather the titleholder must first:

    (i) Obtain approval from the Culture Ministry of the applicable archaeological declarations, authorizations, or certificates.

    (ii) Obtain the environmental certification issued by the competent environmental authority, subject to the rules of public participation.

    (iii) Obtain permission for the use of land (i.e., obtain surface rights) by agreement with the owner of the land or the completion of the administrative easement procedure, in accordance with the applicable regulation.

    (iv) Obtain the applicable governmental licences, permits, and authorizations, according to the nature and location of the activities to be undertaken.

    (v) Carry out consultations with Indigenous Peoples under the Culture Ministry, should there be any communities affected by potential exploitation of the mineral concession, as per International Labour Organization (ILO) Convention 169.

e. Mineral rights holders must comply with the payment of an annual fee equal to $ 3.00 per hectare per year, on or before June 30 of each year.

f. Holders of mineral concessions must meet a Minimum Annual Production Target or spend the equivalent amount in exploration or investments before a statutory deadline. When such deadline is not met, a penalty must be paid as described below:

    Mineral concessions must meet a statutory Minimum Annual Production Target of 1 Tax Unit (*Unidad Impositiva Tributaria*, or UIT) per hectare per year for metallic concessions, within a statutory term of ten years since the concession is titled. The applicable penalty is 2% of the Minimum Annual Production Target per hectare per year as of the 11^{th} year until the 15^{th} year. Starting in the 16^{th} year and until the 20^{th} year, the applicable penalty is 5% of the Minimum Annual Production Target per year, and starting in the 21^{st} year and until the 30^{th} year the applicable penalty is 10% of the Minimum Annual Production Target per year. After the 30^{th} year, if the Minimum Annual Production Target is not met, the mining concession will lapse automatically.

g. Mineral concessions may not be revoked as long as the titleholder complies with the Good Standing Obligations according to which mineral concessions will lapse automatically if any of the following events take place:

(i) The annual fee is not paid for two years.

(ii) The applicable penalty is not paid for two consecutive years.

(iii) A concession expires if it does not reach the minimum production in the year 30, and cannot justify the non-compliance up to five additional years due to reasons of force majeure described in the current legislation.

h. Agreements involving mineral rights (such as an option to acquire, a mining lease or the transfer of a mineral concession) must be formalized through a deed issued by a public notary and must be recorded with the Public Registry to create enforceability against third parties and the Peruvian State.

3.2.2 Beneficiation Concession

According to Peruvian General Mining Law (the Law):

a. The beneficiation concession grants the right to use physical, chemical, and physical-chemical processes to concentrate minerals or purify, smelt, or refine metals.

b. As from the year in which the beneficiation concession was requested, the holder shall be obliged to pay the Mining Concession Fee in an annual amount according to its installed capacity, as follows:

(i) 350 tpd or less: 0.0014 of one UIT per tpd.

(ii) from more than 350 tpd to 1,000 tpd: 1.00 UIT

(iii) from 1,000 tpd to 5,000 tpd: 1.5 UIT

(iv) for every 5,000 tpd in excess: 2.00 UIT

(v) “tpd” refers to the installed treatment capacity. In the case of expansions, the payment that accompanies the application is based on the increase in capacity.

3.2.3 Annual Fees and Penalties

Pursuant to Table 3-1 and Table 3-2, all annual fees applicable to the mineral concessions, mineral claims, and beneficiation concession comprising the Mine have been paid in full up to and including year end 2020, as detailed in Table 3-3.

Table 3-3: Annual Fee per Mineral Right and Beneficiation Concession – 2020
Nexa Resources S.A. – Cerro Lindo Mine

Nº	Concession Code	Concession Name	2020 Annual Fee (US$)	2020 Penalty (US$)	2020Total Payment (US$)
1	10009257X02	Febrero 1979	2,996.31	24,388.56*	2,996.31
2	10000049Y01	Cerro Lindo	2,996.31	24,388.55*	2,996.31
3	010210100	Cerro Lindo 12	45.72	372.13*	45.72
4	010210100A	Cerro Lindo 12-B Fraccionado	2.5	20.32*	2.5
5	010210200	Cerro Lindo 13	31.61	257.26*	31.61
6	10011858X01	Festejo 10	2,999.99	24,418.53*	2,999.99
7	10011854X01	Festejo 6	3,000.00	24,418.60*	3,000.00
8	10011855X01	Festejo 7	3,000.00	24,418.60*	3,000.00
9	10011856X01	Festejo 8	3,000.78	24,424.92*	3,000.78
10	010209200	Cerro Lindo 5	2,700.00	21,976.74	24,676.74
11	010209300	Cerro Lindo 6	2,627.93	21,390.09	24,018.02
12	11025895X01	Festejo 1	3,000.00	24,418.60	27,418.60
13	11025896X01	Festejo 2	2,999.99	24,418.53	27,418.52
14	11025897X01	Festejo 3	3,000.00	24,418.63	27,418.63
15	010938595	Festejo 30	2,626.76	21,380.59	24,007.35
16	11025899X01	Festejo 5	3,000.00	24,418.60	27,418.60
17	010377204	Cerro Lindo 14	2,998.30	2,440.47	5,438.77
18	010377104	Cerro Lindo 15	600	488.37	1,088.37
19	010488308	Cerro Lindo 17	300	2,441.86	2,741.86
20	010430411	Cerro Lindo 18	697.18	**	697.18
21	010273015	Cerro Lindo 19	2,243.34	**	2,243.34
22	010273115	Cerro Lindo 20	1,705.10	**	1,705.10
23	010273215	Cerro Lindo 21	1,481.24	**	1,481.24
24	010273315	Cerro Lindo 22	900	**	900
25	010273415	Cerro Lindo 23	1,806.85	**	1,806.85
26	010273515	Cerro Lindo 24	1,982.71	**	1,982.71
27	010273615	Cerro Lindo 25	2,358.28	**	2,358.28
28	010273715	Cerro Lindo 26	3,000.00	**	3,000.00
29	010273815	Cerro Lindo 27	1,500.00	**	1,500.00
30	010273915	Cerro Lindo 28	1,500.00	**	1,500.00

Nº	Concession Code	Concession Name	2020 Annual Fee (US$)	2020 Penalty (US$)	2020Total Payment (US$)
31	010021518	Cerro Lindo 29	1,648.04	**	1,648.04
32	010021618	Cerro Lindo 30	2,700.00	**	2,700.00
33	010021718	Cerro Lindo 31	3,000.00	**	3,000.00
34	010021818	Cerro Lindo 32	2,009.06	**	2,009.06
35	010021918	Cerro Lindo 33	2,700.00	**	2,700.00
36	010022018	Cerro Lindo 34	3,000.00	**	3,000.00
37	010022118	Cerro Lindo 35	1,433.42	**	1,433.42
38	010022218	Cerro Lindo 36	3,000.00	**	3,000.00
39	010022318	Cerro Lindo 37	2,112.41	**	2,112.41
40	010022518	Cerro Lindo 38	2,476.19	**	2,476.19
41	010022418	Cerro Lindo 39	960.36	**	960.36
42	010022618	Cerro Lindo 40	1,958.09	**	1,958.09
43	010022718	Cerro Lindo 41	2,510.45	**	2,510.45
44	010022918	Cerro Lindo 42	1,689.50	**	1,689.50
45	010022818	Cerro Lindo 43	1,248.35	**	1,248.35
46	010023018	Cerro Lindo 44	1,775.28	**	1,775.28
47	010023118	Cerro Lindo 45	2,700.00	**	2,700.00
48	010023218	Cerro Lindo 46	3,000.00	**	3,000.00
49	010023418	Cerro Lindo 47	3,000.00	**	3,000.00
50	010023518	Cerro Lindo 48	3,000.00	**	3,000.00
51	010153218	Cerro Lindo 49	1,800.00	**	1,800.00
52	010153118	Cerro Lindo 50	2,100.00	**	2,100.00
53	010051313	Checho 500 M	1,443.46	**	1,443.46
54	010051213	Checho 700 M	2,100.00	**	2,100.00
55	010167797	Contopa 44	900	7,325.58	8,225.58
56	010174812	Festejo 9 M	2,399.99	**	2,399.99
57	010225414	Julia I M	1,200.00	**	1,200.00
58	010225614	Kala I M	600	**	600
59	010225514	Kala M	300	**	300
60	010432706	Mariale Segunda	2,700.00	21,976.74	24,676.74
61	010104614	Nuevo Horizonte 2008 M	691.02	**	691.02
62	010225714	Ponciana 1 M	1,200.00	**	1,200.00
63	010140608	Vm 142	3,000.00	24,418.60	27,418.60

Nº	Concession Code	Concession Name	2020 Annual Fee (US$)	2020 Penalty (US$)	2020Total Payment (US$)
64	010140708	Vm 143	1,200.00	9,767.44	10,967.44
65	010354306	Vm 21	3,000.00	24,418.60	27,418.60
66	010354406	Vm 22	1,500.00	12,209.30	13,709.30
67	010688808	VM 278	2,397.10	19,511.30	21,908.40
68	010035609	VM 282	300	2,441.86	2,741.86
69	P0000506	Cerro Lindo (Beneficiation Concession)	11,237.50	**	11,237.50

Source: Nexa, 2020a

Notes.

*No penalty, achieved minimum annual production

**Not affected by penalty, within the statutory term of ten years

Exchange rate of 3.44 PEN/ USO based on SUNAT Exchange Rate as of May 29, 2020.

Certain mineral concessions comprising the Mine are subject to a penalty since the minimum required levels of production or exploration expenditures have not been met as stated in the previous subsection (Mineral Rights). The minimum annual production is equal to 1 Tax Unit (UIT) per granted hectare; the minimum annual investment is the penalty to be paid multiplied by 10. All penalties applicable to the mineral concessions comprising the Mine, have been paid as indicated in Table 3-3. The penalties on concessions included in the Administrative Economic Unit (UEA) Cerro Lindo (Nos. 1 through 9 in Table 3-3) are not due because the Minimum Annual Production Target was met for these concessions. The penalty amounts shown for these concessions represent the annual amounts that would be payable if the Minimum Annual Production Target was not met.

3.2.4 Recorded Liens and Encumbrances

Pursuant to the information gathered from the Public Registry, Nexa (2020a) reports that there are no liens and encumbrances.

3.3 Surface Rights and Easements

According to the General Mining Law and related legislation, surface rights are independent of mineral rights.

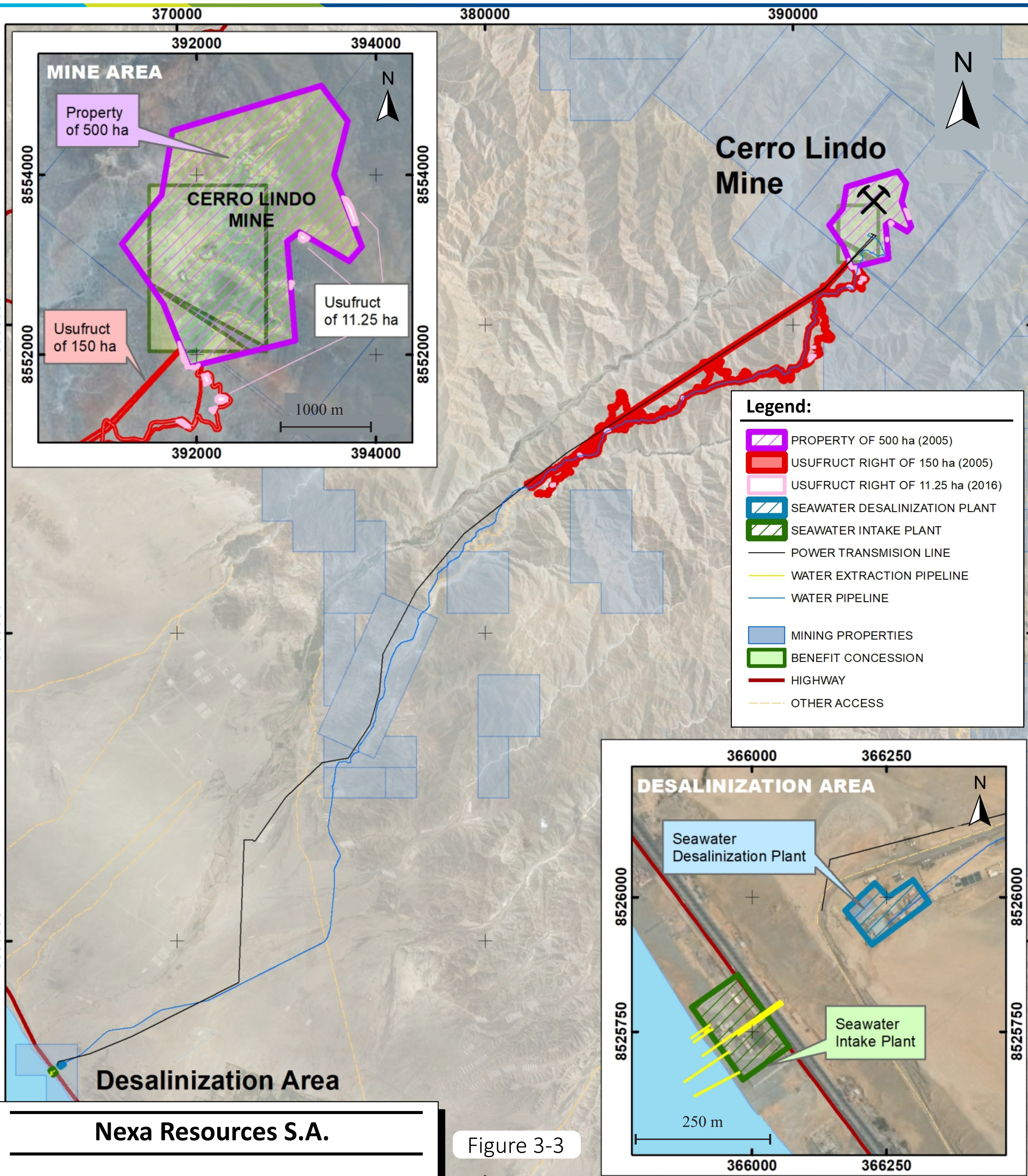
The law requires that the holder of a mineral concession either reach an agreement with the landowner before starting relevant mining activities (i.e., exploration, exploitation, etc.) or complete the administrative easement procedure, in accordance with the applicable regulation.

Surface property is acquired through

(i) The transfer of ownership by agreement of the parties (derivative title), or
(ii) Acquisitive prescription of domain (original title).

Temporary rights to use and/or enjoy derived powers from a surface property right may be obtained through usufruct (a right to temporarily use and derive revenue) and easements.

As indicated by Nexa, the Mine is located within the following surface rights as shown in Figure 3-3:



Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Surface Rights

Figure 3-3

January 2021

Source: Nexa, 2020.

i. Property of 500 ha.

On November 24, 2005, Nexa Peru acquired this surface property right from Comunidad Campesina de Chavín (Public Registry Record Partida 11026701).

ii. Usufruct right of 150 ha.

On November 24, 2005 Nexa Peru obtained this usufruct right from Comunidad Campesina de Chavín, in order to install the access road, water transportation pipeline, and power transmission line for the Mine (Public Registry Record Partida 11025833). According to the Public Registry, the agreement states that the usufruct right shall be in force until the mineral reserves of the Mine are exhausted, however, based on article 1001 of the Civil Code this term would be limited to 30 years (i.e., until 2035).

iii. Old Power Transmission Line

On March 1, 2013, through Ministerial Resolution 082-2013-MEM/DM, Nexa Peru obtained the permanent easement for the New Power Transmission Line of 60 kV S.E. Desert – SE Cerro Lindo (modification) located in the district of Chavin, Grocio Padro and Pueblo Nuevo, province of Chincha, department of Ica.

On August 13, 2014, through Ministerial Resolution 363-2014-MEM/DM, Nexa Peru obtained the permanent easement for the of 60 kV S.E. Desert - Tower 39 and its derivations located in the district of Chavin, Grocio Prado and Pueblo Nuevo, province of Chincha, department of Ica.

iv. Seawater Desalinization Plant

The seawater desalinization plant has been built in an area of 12.9676 ha in the district of Grocio Padro, province of Chincha, department of Ica.

Cerro Lindo carried out an investigation which concluded that the property occupied by the desalinization plant is State property. On May 4, 2017, Nexa Peru applied for an occupation easement before the Superintendency of State Property (SBN) under Law 30327 and Supreme Decree 2-2016-VIVIENDA. A temporary easement was issued in the interim until final approval is made.

v. Seawater Intake Plant

Since April 2007, Nexa Peru has owned aquatic and surface rights to a zone of capture of seawater in Jahuay Beach (1,495 ha).

Nexa Peru has obtained aquatic rights through an authorization to use the aquatic area, which was granted by the Peruvian Navy by Directorate Resolution 466-2008-MGP-DCG, and then modified by Directorate Resolution 706-2012-MGP/DCG issued on July 23, 2012. The latter resolution extended the approved aquatic area up to 1,390.10 m^2, which allowed Nexa Peru to install four pipelines to extract water from the ocean, and one to discharge effluents. Nexa Peru has paid in full for the use of the aquatic area in years 2016 through 2019, with the 2020 payment pending due to lack of notification, regarding the amount of payment, by the authority because of the COVID-19 pandemic.

Nexa Peru is in the process of acquiring surface rights for the remainder of the area through the application for an easement to the SBN under Law 30327 and Supreme Decree 2-2016-VIVIENDA, which is currently ongoing. Application approval is expected to be received by Q3 2021.

vi. Water Pipeline

Since April 2007, Nexa Peru has been in possession of all the land occupied by the water pipeline, from the desalinization plant to the mine. Nexa Peru carried out an investigation which concluded that the water pipeline occupies three lots, located between the desalination plant and the mine, which are State property. Nexa Peru is in the process of acquiring surface rights through the application for an easement to the SBN under Law 30327 and Supreme Decree 2-2016-VIVIENDA, which is currently ongoing. Application approval is expected to be received by Q3 2021.

3.4 Tax Stability Agreement and Mining Special Tax

On March 26, 2002, Nexa Peru entered into an Agreement of Guarantees and Measures for Investment Protection with Ministry of Energy and Mines, which will be in force until December 31, 2021. Under this agreement Nexa Peru will benefit tax stability, free commercialization of the products from Cerro Lindo, free disposition of the currencies generated from the export of the products, etc.

On October 14, 2011, Nexa Peru entered into an Agreement for the Application of the Mining Special Tax with the Peruvian Government, under which Nexa Peru agreed to pay a statutory tax rate on trimestral operative profits, as approved by Law 29790. This agreement will be in force for the same period as the Tax Stability Agreement, i.e., December 31, 2021.

3.5 Material Government Consents

This section details the material Governmental Consents required to carry the operation in compliance with applicable Peruvian laws and regulations (Table 3-4). These material Governmental Consents correspond to those permits, licences, authorizations, etc., issued by the applicable governmental authorities, which entitle Nexa Peru to build the components and/or perform the activities that are critical and typical for a mining operation. These components/activities may include: (i) mining activities and related facilities; (ii) beneficiation plant and related activities; (iii) water supply; (iv) effluent discharge and related facilities; (v) use of explosives; and (vi) power supply. Of note, the Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

Table 3-4: Main Government Consents
Nexa Resources S.A. – Cerro Lindo Mine

#	Government Consent	Resolution	Approval Date
	Environmental Certification		
1	Cerro Lindo Environmental Impact Assessment	RD 325-2004-MEM-AAM	02/07/2004
2	Environmental Impact Assessment for the Jahuay - Cerro Lindo access road	RD 37-2006-MTC/16	30/05/2006
3	Environmental Impact Assessment for water and energy supply, and for the desalination plant.	RD 134-2007-MEM-AAM	02/04/2007
4	First Amendment to Cerro Lindo Environmental Impact Assessment (Components Relocation)	RD 204-2007-MEM-AAM	08/06/2007
5	Second Amendment to Cerro Lindo Environmental Impact Assessment (Expansion of Beneficiation Plant Capacity)	RD 168-2010-MEM-AAM	17/05/2010

#	Government Consent	Resolution	Approval Date
6	Amendment to the EIA for the production expansion to 10,000 MT/day, and for water and energy supply and desalination plant.	RD 239-2011- MEM/AAM	08/08/2011
7	First Supporting Technical Report for modification of components of the concentrator plant according to report 154-2014-MEM-DGAAM/DNAM/DGAM/D (Expansion of processing capacity to 10,000 MT/day)	RD 069-2014-MEM/DGAAM	30/01/2014
8	Second Supporting Technical Report to RD 239-2011-MEM-AAM (Expansion of processing capacity to 17,988 MT/day)	RD 391-2014-MEM-AAM	31/07/2014
9	Third Supporting Technical Report to RD 239-2011-MEM-AAM (Expansion of Pahuaypite 1 storage capacity (10%) and Contingency Pond)	RD 48-2016-SENACE/DCA	14/07/2016
10	Detailed Technical Report	RD 258-2016-MEM-DGAAM	31/08/2016
11	Modification to the Environmental Impact Assessment (MEIA) of Cerro Lindo	RD 039-2018-SENACE-JEF/DEAR	13/03/2018
12	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 001-2019-SENACE-PE/DEAR	3/01/2019
13	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 134-2019-SENACE-PE/DEAR	22/08/2019
14	Supporting Technical Report to the MEIA DR 039-2018-SENACE	RD 00145-2020-SENACE-PE/DEAR	02/12/2020
	Mine Closure Plan		
1	Cerro Lindo Mine Closure Plan	RD 326-2009-MEM-AAM	20/10/2009
2	First Mine Closure Plan Update	RD 84-2013-MEM-AAM	22/03/2013
3	First Amendment to the Mine Closure Plan	RD 432-2012-MEM-AAM	19/12/2012
4	Second Amendment to the Mine Closure Plan	RD 287-2016-MEM-DGAAM	29/09/2016
	Mine and Waste Rock Facilities		
1	Authorization to start the underground mining activities and the approval of the Mining Plan	RD 139-2007-MEM/DGM	17/08/2007
2	Authorization to construct and operate Pahuaypite waste dump	RD 0587-2018-MEM-DGM/V	04/07/2018
	Beneficiation Plant and Tailing Storage Facilities		
1	Beneficiation Concession Title for operation of Concentrator Plant with 5,000 MT/day capacity	RD 119-2007-MEM/DGM	13/07/2007
2	Authorization to operate the beneficiation plant at 7,490 Mt/day	RD 10-2010-MEM-DGM/V	14/01/2010
3	Authorization to operate additional components for the beneficiation plant	RD 77-2011-MEM-DGM/V	01/03/2011

#	Government Consent	Resolution	Approval Date
4	Authorization to operate additional components for the beneficiation plant	RD 182-2011-MEM-DGM/V	07/06/2011
5	Amendment to the Beneficiation Concession for construction of the contingency deposit for temporal storage of filtered tailings	RD 138-2012-MEM-DGM/V	03/05/2012
6	Authorization to operate the Pahuaypite 2 filtered tailings deposit, and the contingency pond	RD 323-2012-MEM-DGM/V	10/10/2012
7	Authorization to operate additional components for beneficiation plant capacity of 14,990 Mt/day	RD 337-2012-MEM-DGM/V	18/10/2012
8	Amendment to the Beneficiation Concession for area expansion and manifold water supply system	RD 002-2013-MEM/DGM	10/01/2013
9	Authorization to operate additional components for the beneficiation plant	RD 117-2014-MEM-DGM/V.	01/04/2014
10	Authorization to operate additional components for the beneficiation plant	RD 412-2014-MEM-DGM/V	04/09/2014
11	Authorization to operate additional components for beneficiation plant capacity of 17,988 MT/day	RD 567-2014-MEM-DGM/V	12/12/2014
12	Authorization to operate additional components for the beneficiation plant	RD 541-2015-MEM-DGM/V	05/11/2015
13	Authorization to operate additional components for the beneficiation plant	RD 72-2016-MEM-DGM/V	08/03/2016
14	Approval of a Technical Mining Report for the project “Extension of Pahuaypite 1 tailings deposit and auxiliary components”	RD 543-2016-MEM-DGM/V	06/09/2016
15	Authorization to operate the beneficiation plant at 20,000 MT/day and nine additional components	RD 0615-2017-MEM-DGM/V	05/07/2017
16	Amendment to the authorization for construction of stage 1 of Pahuaypite 1 tailings deposit	RD 260-2018-MEM-DGM/V	21/03/2018
17	Amendment to the Beneficiation Concession to construct a fourth line of filtered tailings and auxiliary infrastructure	RD 518-2019-MINEM-DGM/V	23/10/2019
18	Approval of a Technical Mining Report for A 10% increase of the Pahuaypite 2 filtered tailings deposit	RD 571-2019-MINEM-DGM/V	19/11/2019
	Water Abstraction and Transportation Facilities		
1	Sea Water licence	RA 33-2012-ANA-ALA	02/03/2012
2	Groundwater licence for IRHS 182 well	RA 57-2009-ANA-ALACH-P	08/04/2009
3	Groundwater licence for IRHS 183 well	RA 58-2009-ANA-ALACH-P	08/04/2009
4	Groundwater licence for IRHS 179 well	RA 26-2011-ANA-ALA S.J.	29/04/2011
5	Groundwater licence for IRHS 180 well	RA 27-2011-ANA-ALA S.J.	29/04/2011

#	Government Consent	Resolution	Approval Date
6	Groundwater licence for IRHS 181 well	RA 28-2011-ANA-ALA S.J.	29/04/2011
7	Authorization to use aquatic area	RD 466-2008/DCG	09/07/2008
8	Modification to the Authorization to use aquatic area for installation of water intake pipelines	RD 706-2012- MGP/DCG	23/07/2012
	Effluent Discharge to the Environment		
1	Effluent Discharge Authorization for Desalination Plant	RD 008-2019-ANA-DGCRH	16/02/2019
	Power Transmission Lines		
1	Power Transmission Concession	RS 004-2008-EM	07/02/2008
2	Modification to the Power Transmission Concession	RS 006-2012-EM	21/01/2012
3	Permanent easement for the New Power Transmission Line of 60 kV S.E. Desert – SE Cerro Lindo	RS 082-2013-MEM/DM	01/03/2013
4	Permanent easement for the of 60 kV S.E. Desert - Tower 39 and its derivations	RS 363-2014-MEM/DM	13/08/2014
	Use of Explosives		
1	Authorization for acquisition and use of Explosives	RD 400-2020-SUCAMEC/GEPP	19/02/2020
2	Authorization to operate an underground explosive magazine located on the Chincha – Cerro Lindo highway	RD 2976-2019-SUCAMEC/GEPP	13/11/2019
3	Authorization to operate an underground explosive magazine located on the Chincha – Cerro Lindo highway	RD 2977-2019-SUCAMEC/GEPP	13/11/2019
4	Authorization to operate an underground explosive magazine located on the Chincha – Cerro Lindo highway	RD 2980-2019-SUCAMEC/GEPP	13/11/2019
5	Authorization to operate an underground explosive magazine located on the Chincha – Cerro Lindo highway (currently in process of renewal)	RD 126-2015-SUCAMEC-GEPP	20/01/2015
6	Authorization to store explosives and related materials	RD 1396-2020-SUCAMEC/GEPP	30/9/2020
7	Authorization to store explosives and related materials	RD 1397-2020-SUCAMEC/GEPP	30/9/2020
8	Authorization to store explosives and related materials	RD 1398-2020-SUCAMEC/GEPP	30/9/2020

Source: Nexa, 2020a. Environmental Certification No. 14 and Authorizations for Use of Explosives Nos. 6 to 8 were granted to Nexa after the release of Nexa, 2020a.

SLR is not aware of any environmental liabilities on the property. Nexa has all required permits to work on the property. SLR is not aware of any significant factors and risks that may affect access, title, or the right or ability to explore and operate on the property.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The current access from Lima is via the Panamericana Sur highway to Chincha (180 km) and then via an unpaved dirt road (60 km) from Huamanpuquio up the river valley. This dirt road forks at 51 km before reaching the mine site, in order to provide access to the district of Chavín (82 km).

The closest commercial airport is Jorge Chavez, at Callao, approximately 300 km northwest. The closest airport to the Project is in Pisco, Ica, however, the Pisco airport is restricted to military and emergency usage.

4.2 Climate

The Mine is situated in an arid, cold-temperate climate. Rainfall in the region of the operation is minimal, varying on an average monthly basis from 24 mm to 36 mm in the dry season and 108 mm to 150 mm in the wet season. The evaporation rate is approximately 1,500 mm per annum. Rains, when they occur, are typically concentrated in the months of December to March, and for the rest of the year precipitation is generally rare and sporadic. The Mine operates year-round.

4.3 Local Resources

Various services, including temporary and permanent accommodations, are available in Chavín and the Topará River valley communities (population 2,003, census 2017) located approximately nine kilometres east of the Mine. The communities provide some of the Mine workers, with 122 people working directly for Nexa, and an additional 110 persons being employed by contractors to the operations.

A greater range of general services are available at the capital city of Lima, located approximately 270 km to the northwest. All goods and services for the operations are brought in by road from major regional centres or Lima.

4.4 Infrastructure

The Cerro Lindo operation is comprised of the following main facilities:

- Approximately 21,000 tonnes per day (tpd) underground mine
- Access roads
- Powerlines, water pipelines
- Desalination plant
- Offices and warehouses
- Accommodations
- Process plant/concentrator
- Conveyor systems
- Waste rock facilities
- Temporary ore stockpiles

- Paste backfill plant
- Dry-stack tailings storage facilities (TSFs)

Additional information on infrastructure is provided in Sections 18 and 20.

4.5 Physiography

Characterized by rugged topography and steep slopes, the Mine area is located in the occidental Andes mountains at an average elevation of 2,000 MASL. The Mine area is dissected by ravines (quebradas) developed as part of the dendritic drainage pattern feeding the Topará River.

Vegetation is limited on hill slopes and is predominantly cacti species. Along river valleys patches of coastal forest may occur. However, these valleys are favoured areas for agricultural activities, so little of the original vegetation remains. During baseline studies conducted in support of environmental permitting, a total of 58 flora species were identified. Following five semi-annual monitoring surveys, the species identified have increased to 85 plant species belonging to 27 families. Two flora species recorded are protected by national legislation.

5.0 HISTORY

5.1 Exploration and Development History

Artisanal-style mining of outcropping barite bodies for use by the oil industry began in the early 1960s. The Cerro Lindo deposit was discovered in 1967, during a colour anomaly reconnaissance program. Colour anomalies result from weathering of pyrite-rich rocks which causes the formation of various reddish iron oxide minerals. Various geochemical sampling and geological studies were subsequently completed. Compañía Minera – Milpo S.A.A. (Milpo), a predecessor company to Nexa Peru, acquired the property in 1984.

After acquisition, Milpo prepared access roads and conducted geological mapping, trenching, approximately 3,000 m of underground development, and 3,500 m of drilling. Phelps Dodge optioned the property in 1996, and completed 6,700 m of widely spaced, mostly vertical core drilling, as well as an electromagnetic (EM) moving-loop geophysical survey, which detected a prominent anomaly over the Cerro Lindo deposit. Phelps Dodge also carried out geochemical sampling in 1996 and 1997, which returned an intense zinc anomaly (Gariépy and Hinostroza, 2004 and Milpo, 2016e). Phelps Dodge returned the property to Milpo in 1997.

Milpo resumed exploration in 1999, conducted a thorough review of previous work, and decided to proceed with an extensive exploration program, consisting of core drilling and underground drift development. This program was completed in three distinct phases from 1999 through 2001.

During the three phases, Milpo completed a total of 28,371 m (129 holes) of core drilling and 1,365 m of underground drifting. Drift development provided access for delineation drilling and exploration of the southeastern portion of OB-1. During this program, Milpo studied the OB-1 and OB-2 zones, confirmed the presence of OB5, and achieved the drill grid density required for a feasibility study.

AMEC Simons/GRD Minproc (2002) and GEMIN (2005) completed feasibility studies. Mine construction started in 2006. At the beginning of operations, the plant had a 5,000 tpd treatment capacity; since then, three expansions have been carried out. The plant capacity was increased to 10,000 tpd in 2011, 15,000 tpd in 2012, and 18,000 tpd in 2014 (Milpo, 2016f). Current capacity is at nameplate 20,800 tpd, with actual production scheduled at 20,600 tpd over the life of mine (LOM) plan. Nexa has been granted approval for the terms of reference for an updated Environmental Impact Assessment (EIA), in which an expansion to 22,500 tpd is contemplated (see Section 17).

Systematic exploration restarted in 2007. This exploration resulted in discovery of new mineralized bodies (OB-6 in 2006; OB-7 in 2009; OB-6A in 2010; OB-6B in 2011; OB2B and OB-8 in 2012; OB-5B in 2013; OB3–4 in 2014; OB-8 in 2015; OB-11 in 2016, OB-9, OB-10 in 2017, OB-12 in 2018, OB-13, OB-14 in 2019 and expanding volume of OB-5B and OB-13 in 2020), as well as increasing, and upgrading the classification of, estimated Mineral Resources and Mineral Reserves in previously known mineralized bodies.

5.2 Past Production

A summary of production to date is included in Table 5-1.

Table 5-1: Production History
Nexa Resources S.A. – Cerro Lindo Mine

	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tonnage	Mt	0.64	1.97	2.41	2.53	3.14	3.79	5.38	5.93	6.76	7.35	7.30	6.91	6.80	5.48
Zn Grade	%	3.19	4.12	3.51	3.14	3.15	3.08	3.12	3.06	2.83	2.56	2.33	2.07	2.05	1.93
Cu Grade	%	0.4	0.59	0.76	0.79	0.81	0.86	0.77	0.79	0.68	0.66	0.69	0.64	0.64	0.59
Pb Grade	%	0.49	0.58	0.43	0.34	0.34	0.29	0.32	0.33	0.30	0.29	0.27	0.25	0.25	0.29
Ag Grade	g/t	34.2	33.6	28.3	29.9	26.1	23.0	23.3	23.3	23.3	22.7	21.6	21.6	21.6	24.14

Production in 2020 was significantly lower than in 2019 due to the effects of the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. In light of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tpd. Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The Cerro Lindo deposit is located in a 30 km by 10 km northwest trending belt of marine volcano-sedimentary rocks of the Middle Albian to Senonian (mid-Cretaceous) Huaranguillo Formation, belonging to the Casma Group (Zalazar and Landa, 1993), which in turn is surrounded by Tertiary intrusions of the Coastal Batholith (Figure 6-1). The Casma Group is dominated by porphyritic andesites, erupted in a failed back-arc basin through an unexposed older basement as a result of extensional tectonics during subduction of oceanic lithosphere. The Casma volcano-sedimentary rocks extend for 1,600 km along the Pacific Ocean, from Ica, Southern Peru, to Piura, Northern Peru.

Upper Cretaceous to Tertiary intrusive rocks of the Coastal Batholith intrude the Casma Group over most of its extent. In the Cerro Lindo region, this intrusive belt is composed of granodiorites, monzogranites, and diorites of calc-alkaline affinity. Emplacement of the batholith occurred episodically over a period of 64 million years between 101 Ma and 37 Ma. The Coastal Batholith is composed of the Catahuasi, Incahuasi, and Tiabaya superunits, which overlie volcanic rocks and are generally of granodioritic to tonalitic composition, with varying granulometry. Andesitic porphyry dikes cross-cut all units in a general north-south orientation. Emplacement of the batholith generated intense contact metamorphism of the adjacent volcano-sedimentary rocks. In the Cerro Lindo area, a medium grade regional andalusite-cordierite metamorphism developed.

The Huaranguillo Formation fills the Canete volcano-sedimentary basin, one of the several similar basins that form the Casma Metallotect at the western side of the Andean Cordillera Occidental. The Huaranguillo Formation is approximately 3,000 m thick; it has intercalated volcanic rocks at its base, intermediate volcanic with some shale intercalations in its upper part, and black calcareous rock in millimetre to centimetre thick layers at the top of the sequence. The Casma Metallotect hosts a number of important volcanogenic massive sulphide (VMS) deposits, including Tambogrande, Perubar, Cerro Lindo, Potrobayo, Totoral, Maria Teresa, Aurora Augusta, and Palma.

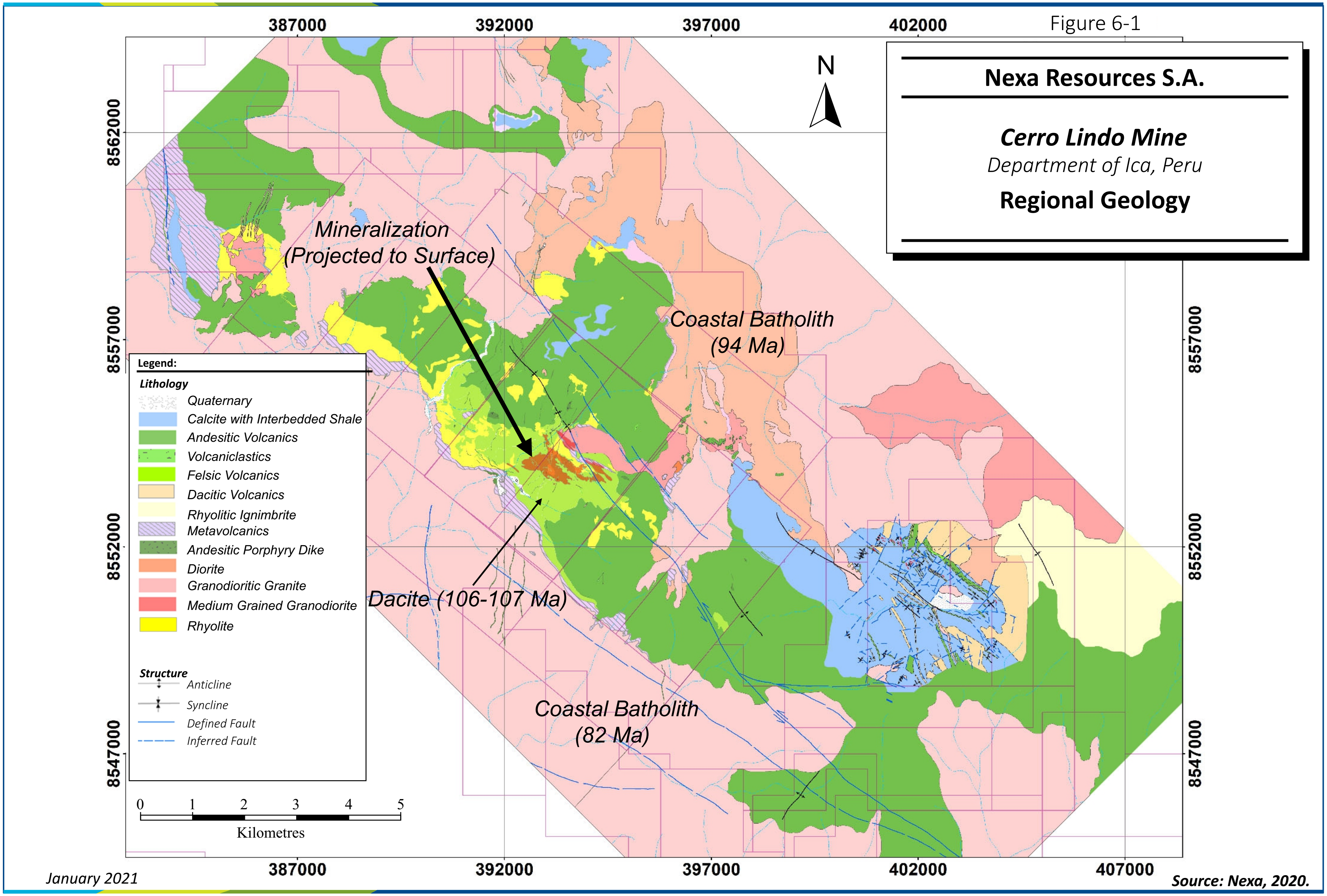


Figure 6-1
Nexa Resources S.A.
Cerro Lindo Mine
Department of Ica, Peru
Regional Geology
N
Mineralization (Projected to Surface)
Coastal Batholith (94 Ma)
Coastal Batholith (82 Ma)
Dacite (106-107 Ma)
Legend:
Lithology
Quaternary
Calcite with Interbedded Shale
Andesitic Volcanics
Volcaniclastics
Felsic Volcanics
Dacitic Volcanics
Rhyolitic Ignimbrite
Metavolcanics
Andesitic Porphyry Dike
Diorite
Granodioritic Granite
Medium Grained Granodiorite
Rhyolite
Structure
Anticline
Syncline
Defined Fault
Inferred Fault
0 1 2 3 4 5
Kilometres
387000 392000 397000 402000 407000
8562000 8557000 8552000 8547000
January 2021
Source: Nexa, 2020.

6.2 Local and Property Geology

Geological mapping at 1:10,000 scale was completed by Hinostroza (2016). Figure 6-2 shows the resulting map. The Huaranguillo Formation, at the property scale, consists of an approximately 2,250 m thick back-arc basin sequence extending northwest-southeast for approximately 10 km x 5 km. Zalazar and Landa (1993) divided the Huaranguillo Formation in the Cerro Lindo area into two members: a lower member, composed of shales, tuffs and andesites, and an upper member, formed of limestones, shales and volcanic rocks. Hinostroza (2016) later divided the Huaranguillo Formation into three units as described below.

The local stratigraphy of the Cerro Lindo deposit is shown in Figure 6-3 and described as follows:

1. Huaranguillo Formation (105 to 106 Ma): This formation is part of the Casma Group, of the lower Cretaceous Albian, and at Cerro Lindo is made up of three members (Hinostroza, 2016):

   (a) Lower Member: made up of four lithological units: rhyolites, dacites, volcanic gap, and volcanoclastic, named by Canales (2016)

   (i) Rhyolite: generally occurs as long bodies with northwest-southeast directions, and is structurally controlled. These rocks are white in colour with a pinkish hue, have aphanitic and/or rarely porphyritic texture, have quartz eyes and in some cases spherulites surrounded by quartz (filled vesicles type), and are mostly silicified, with sulphide dissemination.

   (ii) Dacite: observed encompassing or interspersed with the rhyolites. These rocks are white to brown grey in colour, aphanitic to porphyritic, isotropic to anisotropic, not magnetic. Their texture is variable, the most prominent being the mosaic-like (or toad spine), porphyroblastic texture, due to the presence of cordierites in its composition (product of metamorphism); porphyritic textures are also observed, represented by some phenocrystals of plagioclase wrapped in a matrix. In areas without deformation, the dacite is isotropic, while in areas related to deformations and metamorphism it is anisotropic, showing northwest-southeast foliations and a certain relationship with mineralized bodies.

   (iii) Volcanic gap: discontinuous rock, a product of the volcanism in rhyolites and dacites, consisting of angular to sub-angular fragments of the massive rhyolite, of centimetre size (<20 cm) and with well-defined edges, wrapped in a fine matrix of dacitic composition. These gaps show gradation in the percentage of rhyolitic fragments, from 1% to approximately 25%.

   (iv) Volcanoclastic: located in the upper parts of the lower limb (e.g., Cerro Paltarumi). It is made up of elongated sub-rounded monomictic fragments of rhyolite (up to 60 cm in its major axis) of undefined edges in an aphasic matrix of andesitic composition.

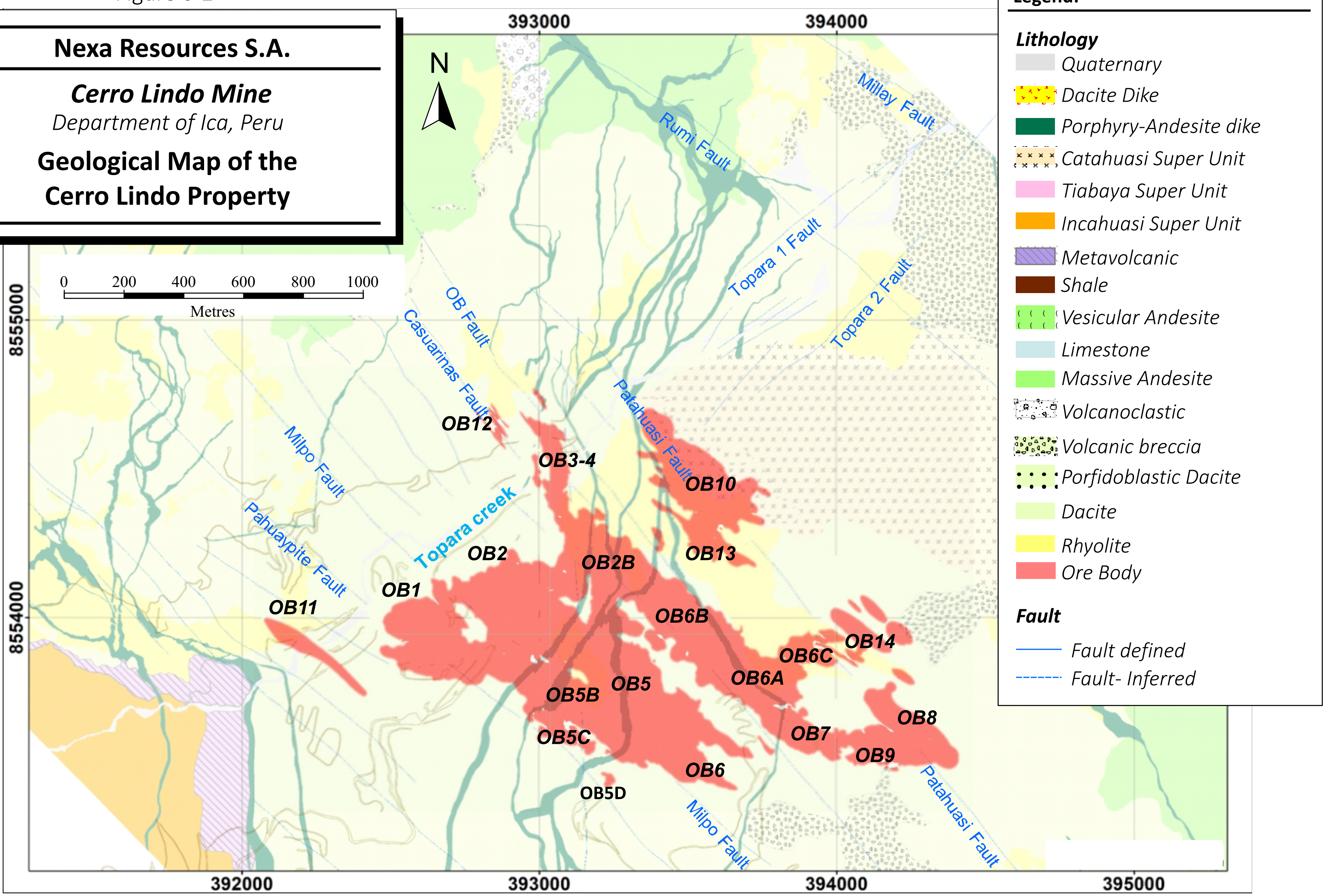
Figure 6-2

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Geological Map of the Cerro Lindo Property



January 2021

Source: Nexa, 2020.

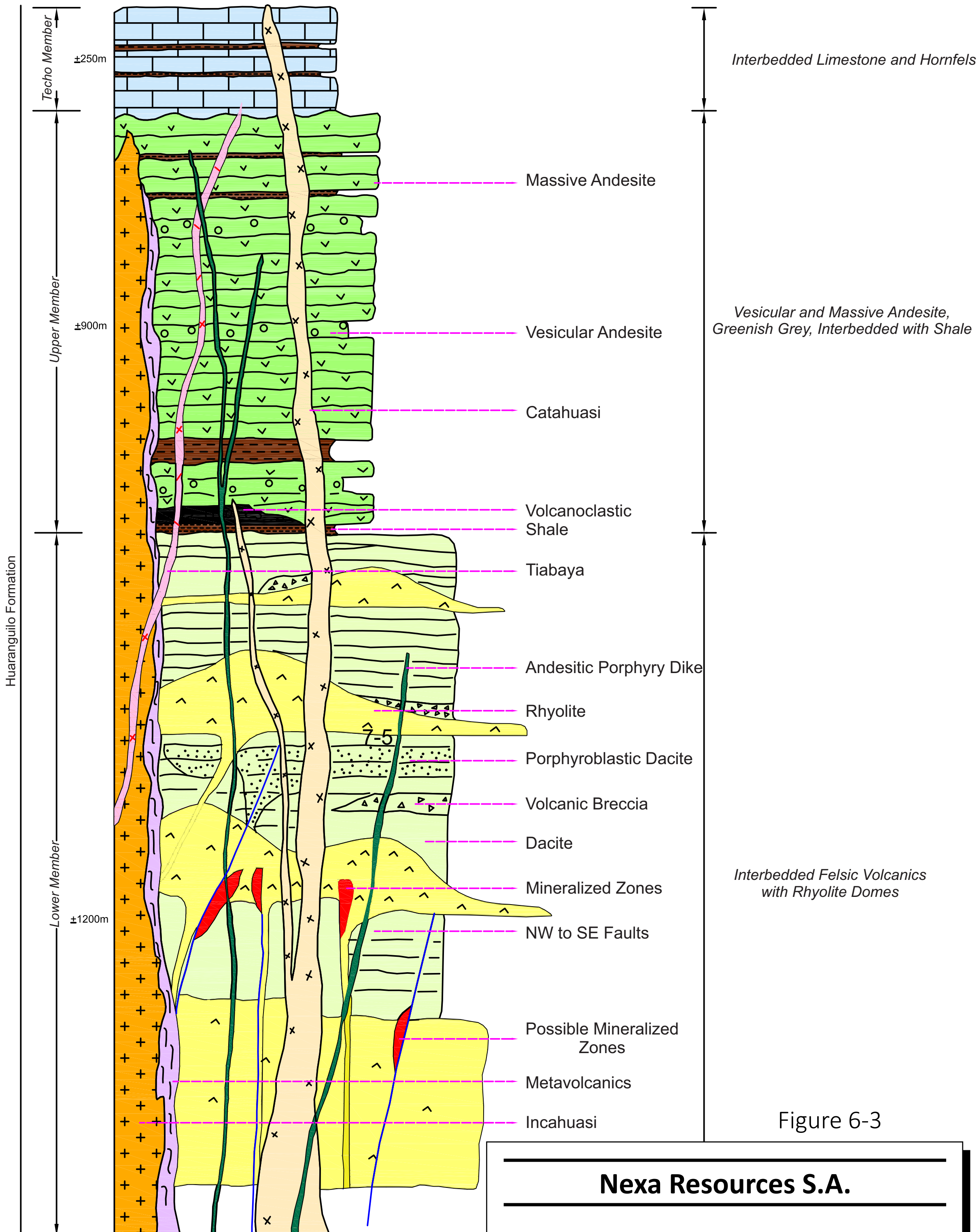


Figure 6-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Local Stratigraphic Column

January 2021

Source: Nexa, 2019.

(b) Upper Limb Member: consists mainly of an intercalation of shales with massive and vesicular andesites that in some cases have porphyritic texture. It is best exposed along the UMCL road towards Chavín and on Cerro Paltarumi, at an altitude greater than 2,400 MASL, showing an anomaly of reddish colour in satellite images.

(i) At the base of the member, layers of shales-siltstones with thicknesses of up to two metres, called "guiding shales", are indicative of the contact between acidic and intermediate sequences.

(ii) Shales: black shales with thicknesses of up to 10 cm that are interspersed with millimetre thick limolite laminae, forming strata of up to two metres. These strata are rich in iron, which gives reddish colour to the areas of weathering.

(iii) Massive andesites: usually grey to greenish grey, with an aphanitic texture, not magnetic. Occasionally they have plagioclase or hornblende crystals smaller than two millimetres.

(iv) Vesicular andesites: very similar to the massive, but with the presence of vesicles of up to 15 cm, however, averaging less than three millimetres in size, and filled mainly by calcite and occasionally biotite, and rarely by quartz or amphibole. Occasional plagioclase phenocrystals are observed near or in contact with intrusive bodies.

(c) Roof Member: characterized by calcareous sedimentary phases, layers of marl-shales interspersed with massive andesites in the lower part, and limestone strata with narrow layers of limolites and hornfels in the upper part.

(i) Marls-shales: observed as “Roof pendant” in the uppermost zones of the intrusive (mainly in the Catahuasi Superunit). These appear to be strongly silicified, in some cases classified as hornfels with random stratification.

(ii) Limestone-hornfels: thicker than one metre, observed at elevations over 2,500 MASL (to the southwest of the town of Chavín), characterized by intercalations of dark, centimetre thick and white, millimetre thick laminae. These laminae are separated by millimetre thick limolite layers and form greater than 400 m thick strata, intensively folded in a northwest-southeast direction and in some sectors cut by rhyolitic dikes.

2. Intrusives: Three main intrusives are identified in the Huaranguillo Formation with ages of Turonian to Campanian: Catahuasi, Incahuasi, and Tiabaya superunits.

(a) Catahuasi Superunit: located on the Campanario Hill, generally striking northwest-southeast, and has an extension striking northwest-southeast over a distance of no greater than three kilometres, structurally controlled (Ahem Patahuasi Fault). This superunit consists mainly of a white to light grey, isotropic, equigranular fine grained, non-magnetic granodiorite-tonalite with 15% of hornblende (main mafic mineral). Its age by the U-Pb method is on average 93.72 Ma (Meffre and Thompson, 2016).

(b) Incahuasi Superunit: located west of the Paltarumi Hill, west of the Pucasalla Creek. It is composed of grey-pink, grey-dark coloured, isotropic to anisotropic, equigranular medium grained granodiorite-granite. The lower limb of the superunit is in contact with the volcanic sequences, where strong deformation and partial fusion produced metavolcanic rocks. Its age by the U-Pb method is on average 82.35 Ma (Meffre and Thompson, 2016).

(c) Tiabaya Superunit: located north of the Mesarumi Hill and is characterized by the presence of enclaves of microdiorites and massive andesites. This unit is composed of grey coloured, isotropic, equigranular coarse grained tonalite with hornblende being the main mafic mineral. According to INGEMMET, it has differentiated into five magmatic pulses, forming a structure centred along the San Juan River valley, where it has an average age of 80 ± 8 Ma (Pitcher et al., 1985).

3. Other dikes: There are three different types of dikes, of which the andesitic porphyry is the most abundant.

   (a) Andesitic porphyry: most predominant among the dikes, is greenish grey in colour, has porphyritic texture, and is isotropic with moderate magnetism. Its porphyritic texture is marked by the presence of euhedral phenocrystals of plagioclase and burners of sizes up to five millimetres encompassed in a green fine grained matrix. Its age by the U-Pb method is on average 73.89 Ma (Meffre and Thompson, 2016).

   (b) Rhyodacitic porphyry: cuts the andesitic porphyry dikes, is greenish grey in colour, has porphyritic texture, and is isotropic, non-magnetic. Its texture is marked by the presence of euhedral feldspar phenocrysts of less than three millimetres, anhedral quartz eyes of up to five millimetres, and subhedral hornblende of up to one millimetre; encompassed in a green fine grained matrix.

   (c) Dacitic porphyry: observed on the Quishpi Pata Hill, has a north-northeast to south-southwest orientation and a thickness of up to 5 m. Cuts the upper member of the Huaranguillo Formation, and is cut by the Catahuasi Superunit. It is white in colour, has an aphanitic texture, and demonstrates occasional euhedral quartz phenocrystals in an aphanitic matrix.

6.2.1 Structural Geology

The regional faults in the Cerro Lindo Mine area trend northwest-southeast, north-south, and northeast-southwest, parallel to the Topará Creek. The north-southeast faults are the main controls on volcanic sequences and mineralized bodies.

A number of fault systems are recognized:

- A system of syn-volcanic faults, related to the formation of the deposit, has a northwest to southeast strike.
- A conjugate fault system, striking northeast-southwest, that controls the Topará Fault; the Topará Fault displays right lateral movement.
- Late north-south fault system that controls the emplacement of barren dikes that cut the main mineralized zones.
- Reverse fault along the contact between rhyolite and the rocks of the Coastal Batholith.

These fault systems have defined structural blocks, and the paleosurface on which the deposit was probably formed (Figure 6-4).

Huaranguillo Formation rocks have been moderately to intensely folded and faulted in the Mine area. The structural pattern corresponds to open folds accompanied by a weak to very weak schistosity, however, certain shear zones locally produce intense schistosity.

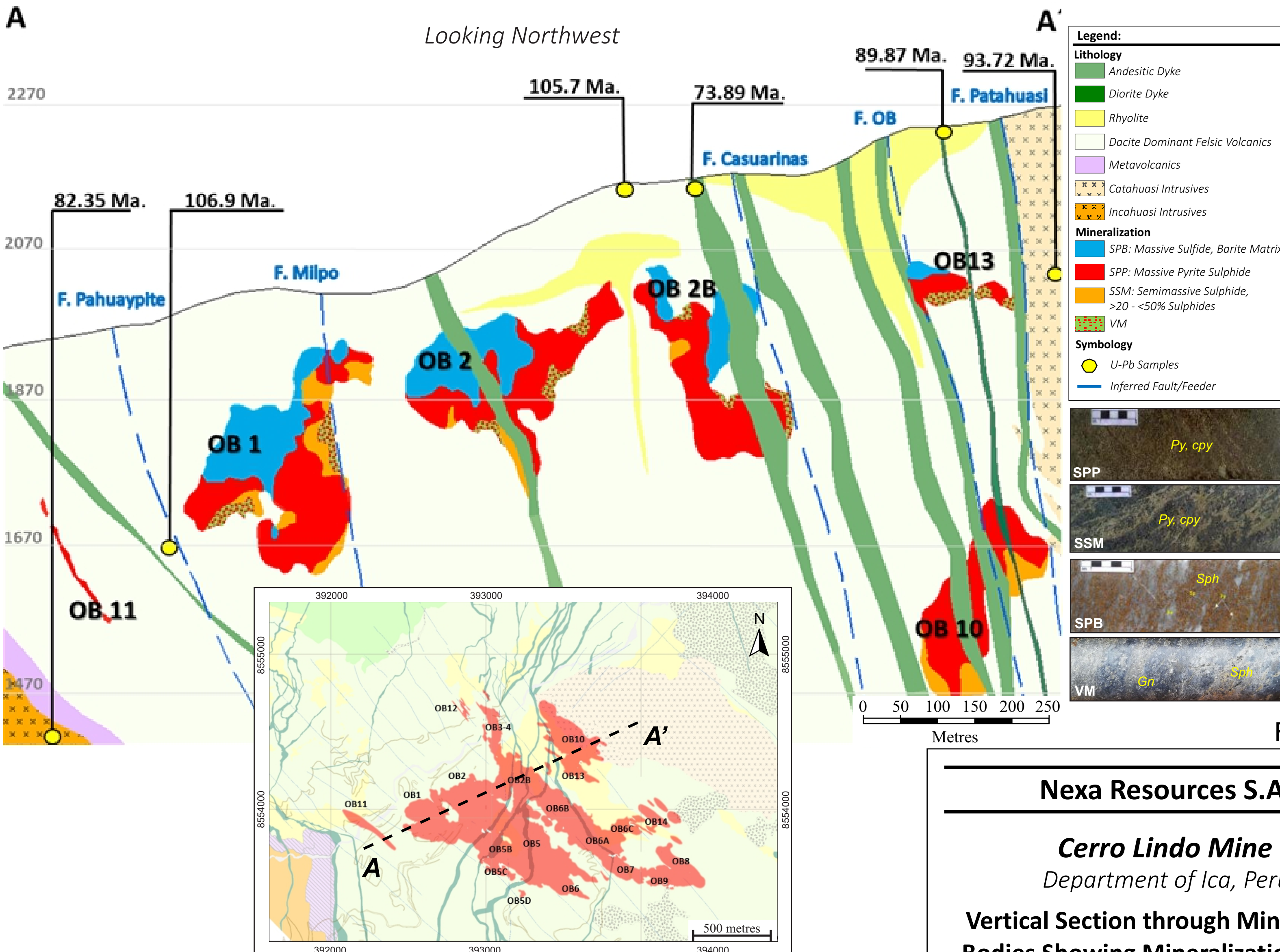


Figure 6-4

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Vertical Section through Mineralized Bodies Showing Mineralization Types

January 2021

Source: Nexa, 2020.

6.2.2 Metamorphism

Intense contact metamorphism of the volcano-sedimentary sequences near the contacts with the Coastal Batholith intrusions reaches the garnet-cordierite-andalusite facies. Most andalusite formed at the footwall, probably as a result of strong sericitization (increased potassium).

Typically, secondary porphyroblastic textures developed in volcanic rocks as a result of contact metamorphism. Granoblastic textures are also common. However, drilling indicates that the intensity of metamorphism is irregular. Nearly 10% of the volcanic rocks still retain the primary flow breccias and banding textures.

Massive sulphides at Cerro Lindo have been recrystallized to grain sizes ranging from two to five millimetres, however, approximately 10% of the sulphides, mainly pyrite-chalcopyrite, show a very weak metamorphism where the grain size rarely exceeds 0.5 mm.

6.3 Deposit Geology

6.3.1 Extrusive Rocks

Rhyolitic to rhyodacitic rocks predominate in the deposit area. Flow, brecciated, and laminated textures exhibiting amygdules are frequent, as are andesitic pillow lavas. Intense thermal metamorphism produced porphyroblastic and granoblastic structures. The main rock-forming minerals are quartz, feldspar, biotite, sericite, andalusite, and pyrite.

Exhalite layers, typical of VMS deposits, are locally observed at the bottom or top of massive sulphide bodies, where they form finely laminated, thin (less than one metre) horizons composed of silica (chert) and various sulphides. These layers are limited to the immediate area of the sulphide deposits.

6.3.2 Intrusive Rocks

Coastal Batholith intrusive rocks, with ages ranging from Upper Cretaceous to Tertiary, were intruded between 101 Ma and 37 Ma. The batholith is primarily composed of granodiorites surrounding roof pendants of the volcano-sedimentary units. Some minor microdiorite, diorite, and gabbro bodies, as well as numerous dikes, cut the volcano-sedimentary sequences. The most common are microdiorite, medium grained diorite, granodiorite, and andesitic porphyry (the latter also cuts the granodioritic intrusion).

Late-stage feldspar porphyritic dikes occur throughout the property, cutting both the Casma Group and Coastal Batholith rocks. At Cerro Lindo, these form a northeast-southwest trending swarm.

6.3.3 Alteration

Along with the formation of massive sulphide bodies, different types of hydrothermal alteration halos developed: silicification at the root, chloritization along the edges of the base, and sericitic alteration, which forms the widest halo (from proximal K-sericite to more distal Mg-sericite). Figure 6-5 shows a cross-section schematic of the massive sulphide at Cerro Lindo with its hydrothermal alteration halos, possible isotherms of hydrothermal fluid at the time of mineralization, and the distribution of chemical elements in the different areas of the deposit.

The metamorphic activity associated with the coastal batholith has overprinted the hydrothermal alteration. Most notable is the development of porphyroblasts of cordierite in the previously altered volcanic rocks.

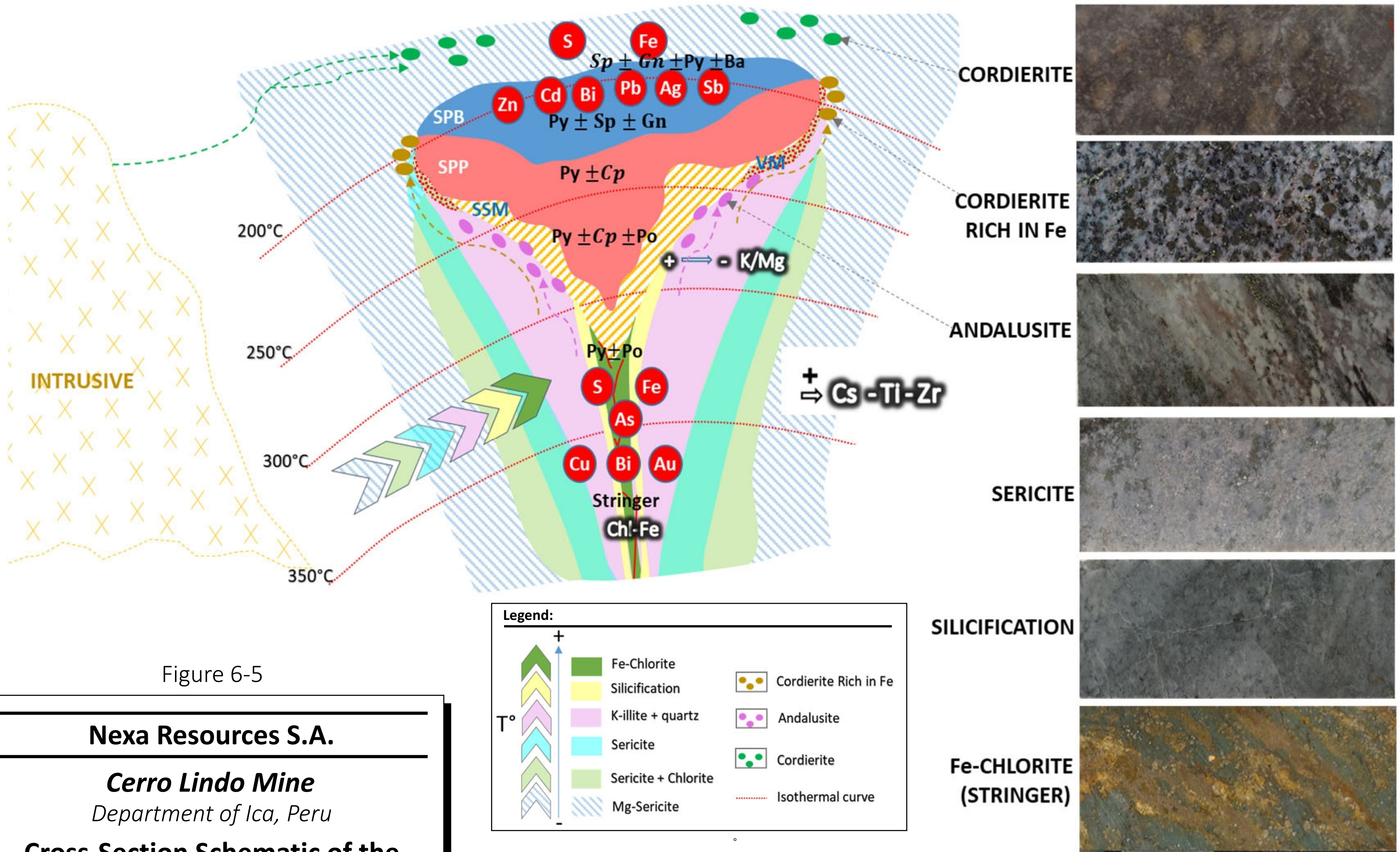


Figure 6-5

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Cross-Section Schematic of the Massive Sulphide at Cerro Lindo

January 2021

Source: Nexa, 2020.

6.4 Mineralization

Mineralization is hosted by a pyroclastic unit composed of ash and lapilli-type polymictic tuffs with subrounded, well classified fragments. Some lapilli have centimetre-scale, pencil-like shapes, due to development of an incipient schistosity.

Eight styles of mineralization were identified at the Cerro Lindo deposit:

1. Pyritic, homogeneous, primary massive sulphide (SPP): This unit includes almost exclusively pyrite, less than 10% barite, and minor interstitial chalcopyrite. Its structure is equigranular, generally coarse grained (3 mm to 6 mm), but with fine-grained areas (0.4 mm to 2 mm)
2. Copper-rich, baritic homogeneous primary sulphides (Cu-SPB): This unit contains more than 50% total sulphides (including barite), and more than 10% barite. Barite is associated with sulphides because it was deposited from the same solution at the same time as the sulphides. Its structure is homogeneous, and it is composed of barite, pyrite, pyrrhotite, chalcopyrite, and brown sphalerite. Sulphides typically occur as intergrowths and patches, and brown sphalerite is included in chalcopyrite grains. There is less pyrite than in the Zn-SPB unit (described below). The Cu-SPB is generally found within or near the contact with Zn-SPB and SPP.
3. Zinc-rich, banded, baritic primary sulphides (Zn-SPB): This unit comprises more than 50% of total sulphides (including barite), and more than 10% barite. The Zn-SPB unit contains variable proportions of pyrite, barite, yellow sphalerite, and galena. It is typically banded and has a coarse grain size (3 mm to 6 mm).
4. Semi-massive sulphides (SSM): This unit contains between 20% and 50% sulphides, which are mostly represented by barren pyrite as disseminations, patches, stringers, and stockworks. This mineralization is generally fine grained as compared to massive sulphides. SSM forms a variable envelope, 20 m to 80 m thick, around the massive sulphide bodies. The sulphide proportion decreases outward. It is better developed in the footwall.
5. Pyritic oxidized sulphides (SOP): This unit comprises bornite and covellite, and is mostly located in the OB2 mining production area.
6. Baritic oxidized sulphides (SOB): This unit comprises bornite, covellite, and oxidized zinc, and it is also located in the OB2 mining production area.
7. Leached massive sulphides (SLB) and leached semi-massive sulphides (SSL): These units are located near surface in the OB2 mining production area.
8. Mineralized volcanic rocks (VM): This unit contains rhyolite and dacite rocks with some chalcopyrite and sphalerite disseminated in veinlets or patches, located on the edge of the mineralized zones.

Cerro Lindo contains 19 mining production areas within the mineralization domains. The mineralized lenses exhibit an irregular elongated geometry. Their longest axis (nearly 500 m) has a northwest-southeast horizontal trend (azimuth 135°). The mineralized bodies are approximately 300 m thick (occurring between 1,600 MASL and 1,980 MASL) and 100 m wide. They are the largest near the edge of the Topará Ravine, beyond which they diminish in size toward the southeast. The mineralized bodies generally dip to the southwest at 65° on average. Locations of the main mineralized bodies within the mining production areas are shown in Figure 6-6. Table 6-1 shows the dimensions of each mineralized body within the mining production areas.

Table 6-1: Dimensions of Main Mineralized Bodies within Mining Production Areas
Nexa Resources S.A. – Cerro Lindo Mine

Description	Unit	OB-1	OB-2	OB-2B	OB-3–4	OB-5	OB-5B	OB-5C	OB-5D	OB-6	OB-6A	OB-6B	OB-6C	OB-7	OB-8	OB-9	OB-10	OB-11	OB-12	OB-13	OB-14
Length	m	350	450	420	150	350	635	200	40	200	460	200	100	170	350	300	400	250	150	500	270
Width	m	200	220	60	20	65	80	15	35	50	70	60	80	50	100	60	70	120	100	100	20
Average thickness	m	100	200	80	40	45	70	35	15	80	80	65	25	60	45	70	85	3	4	50	12
Depth	m	360	330	260	330	400	245	90	110	450	260	245	70	210	70	190	380	25	70	275	275
Top elevation	m	1,850	1,970	1,950	1,950	2,000	1,805	1,780	1,640	2,000	2,020	1,975	1,995	1,940	1,700	1,950	1,670	1,550	1,960	1,970	1,990
Bottom elevation	m	1,490	1,640	1,690	1,620	1,600	1,560	1,690	1,530	1,550	1,760	1,730	1,925	1,730	1,440	1,760	1,290	1,450	1,840	1,780	1,520

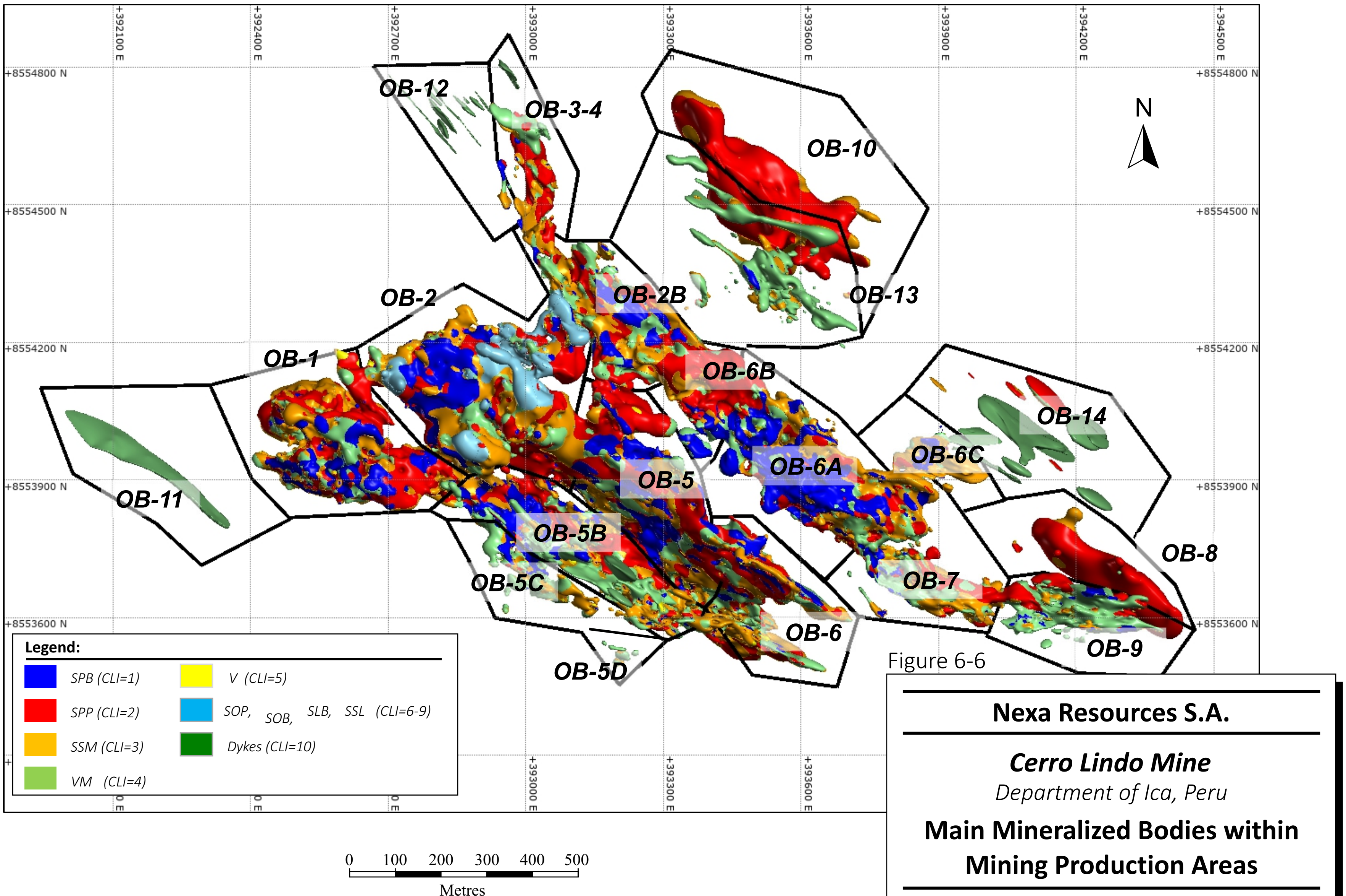


Figure 6-6

January 2021

Source: Nexa, 2020.

The majority of these bodies show three types of mineralization. The upper part features the massive mineralization of barite, sphalerite, galena, and pyrite (SPB). The lower part includes massive pyrite (SPP), with two different general grain sizes, one fine grained with a higher chalcopyrite content and the other coarse grained and largely barren. In the lateral portions, mineralization is semi-massive, contains 20% to 50% sulphides, and occurs as disseminations, patches, and stockworks. The base of the system exhibits a cluster of small veins of pyrite, pyrrhotite, and to a lesser extent, chalcopyrite. The mineralization at Cerro Lindo is generally coarse grained, which may be related to recrystallization due to the contact metamorphism, and this improves metallurgical recovery.

The massive sulphide frequently presents a marked banding, which may be related to tectonic deformation. In the contact with the adjacent batholiths, there is a noticeable predominance of remobilized sulphides elongated in banding that runs parallel to the volcanic contact with the intrusives. The rigidity of the batholiths likely fostered the generation of areas of greater sulphide deformation and mobilization, as illustrated in Figure 6-4.

Recently, a new domain termed mineralized volcanic (VM) has been identified, which differs from the other lithologies because it does not contain massive sulphides. The mineralization is scattered or occurs as patches in the volcanic rock and consists of mainly tetrahedrite, freibergite, sphalerite, and galena. Typical metal concentrations in VM are up to 15% Fe; 1% Zn, and greater than 0.25% Cu, 0.50% Pb, and 30 ppm Ag.

Significant barite is present mainly in the upper portions of the deposit. A secondary enrichment zone, composed of chalcocite and covellite, formed near surface. Silver-rich powdery barite remains at surface as a relic from sulphide oxidation and leaching.

The lead content is usually low and is mainly associated with high grade zinc zones, and locally with late quartz veins or small volcanic enclaves. These enclaves represent approximately 2% to 3% of the deposit volume, and commonly measure 0.5 m to 10 m in diameter. Silver grades correlate well with copper and lead.

As is typical of Kuroko-style VMS deposits, Cerro Lindo is characterized by a distinct mineralization zonation. Figure 6-5 shows the chemical zonation patterns in a cross-section schematic. Amec Foster Wheeler Perú S.A. (Amec, 2017) noted that:

Zinc content is higher in the Zn-SPB units.

Copper content is higher in Cu-SPP units. However, copper is also found in the SPB unit.

Lead grades are higher in SPB units and are significantly reduced in SPP units. Some lead is found in SPP associated with SPB or in enclaves. The silver content is significantly higher in SPB, but it is sometimes also important in SPP units. The presence of silver in SPB is due to its affinity for lead.

Zinc, lead, and silver grades are always higher in SPB than in SPP; copper grades are always higher in SPP.

The copper grades tend to decrease from the northwest to the southeast; whereas zinc, lead, and silver grades tend to increase in the same direction

6.5 Deposit Types

This section is largely based on Amec (2017).

Gariépy and Hinostroza (2014) highlighted the similarities between the Cerro Lindo deposit and the Kuroko deposits in Japan. Kuroko deposits have been described by Ishihara (1974), Franklin et al. (1981), Ohmoto and Skinner (1982), and Urabe et al. (1983). Singer (1986) defined the Kuroko VMS descriptive deposit model as copper- and zinc-bearing massive sulphide deposits in marine volcanic rocks of intermediate to felsic composition.

These deposits are hosted by Archean to Cenozoic marine rhyolite, dacite, and subordinate basalt and associated sediments, principally organic-rich mudstone or pyritic, siliceous shale. Lava flows, tuffs, pyroclastic rocks, and breccias are common volcanic rock types. Felsic (rhyolitic) domes are sometimes associated. The depositional environment consists of hot springs related to marine volcanism, probably with anoxic marine conditions. Lead-rich deposits are associated with abundant fine grained volcanogenic sedimentary rocks. Black smokers are analogous modern deposits associated with back arc basins.

Kuroko deposits comprise an upper stratiform massive (>60% sulphide) zone (black ore) containing pyrite + sphalerite + chalcopyrite ± pyrrhotite ± galena ± barite ± tetrahedrite ± tennantite ± bornite with lower stratiform massive zone (yellow ore) – pyrite + chalcopyrite ± sphalerite ± pyrrhotite ± magnetite and a basal stringer (stockwork) zone–pyrite + chalcopyrite (gold and silver).

Following descriptions by AMEC (2002), Gariépy and Hinostroza (2014), Lavado (2015), and Imaña (2015), the general features of the Cerro Lindo deposit are presented in Table 6-2. These features clearly support the classification of Cerro Lindo as a Kuroko-type VMS deposit.

Table 6-2: General Features of the Cerro Lindo Deposit
Nexa Resources S.A. – Cerro Lindo Mine

Type	General Features
Lithologies	Rhyolite, dacite, rhyodacite, minor andesite, microdiorite
Rock textures	Massive, lava flows, breccias and tuffs
Age	Lower Cretaceous
Mineralogy	Pyrite, sphalerite, galena, barite; chalcopyrite mainly in stringer zones
Mineralization	Massive and coarse grained to banded and fine grained; stockworks in stringer zones
Zoning	Sphalerite-rich to pyrite-chalcopyrite-rich zones
Alteration	Sericitization, pyritization, chloritization, silicification
Ore control	Lens-shaped bodies: stringer zones.
Geochemical signature	Zn, Pb. Ba, Ag, Cu mainly in massive and banded portions; Cu also occurs in stringer zones
Depositional environment	Proximity to volcanic centre, volcanic depression with volcano-clastic contribution
Tectonic setting	Graben-like structure within back-arc basin; roof pendant

The Cerro Lindo deposit is altered by thermal metamorphism caused by the adjacent batholiths and slightly deformed, possibly due to the basin's inversion tectonics. It is a massive sulphide deposit formed by nineteen known mineralized bodies to date, all hosted in dacite and breccia located along the edges of the rhyolite domes. The mineralized bodies have a clear control along the 135° azimuth and are abruptly bounded by a possible structure running parallel to the Topará Ravine, from northeast to southwest.

The mineralized bodies diminish in size with distance from the Topará Ravine, which suggests the hypothesis that the possible structure running parallel to the Topará Ravine is a raised structure and feed zone for the hydrothermal system. The massive sulphide bodies have a well-defined internal architecture (barite and sphalerite at the top and pyrite and chalcopyrite at the base). Around these bodies, well-defined hydrothermal alteration halos are preserved, with silicification and Fe-chlorite at the root, K-sericite to the sides, and Mg-sericite along the outermost edge. Figure 6-7 shows a schematic section transversal to sulphide orebodies and intrusions (Marcelo Imaña, pers. comm.,2019).

Cerro Lindo is a Kuroko-style VMS deposit with economic grades of Zn, Cu, Pb, and Ag.

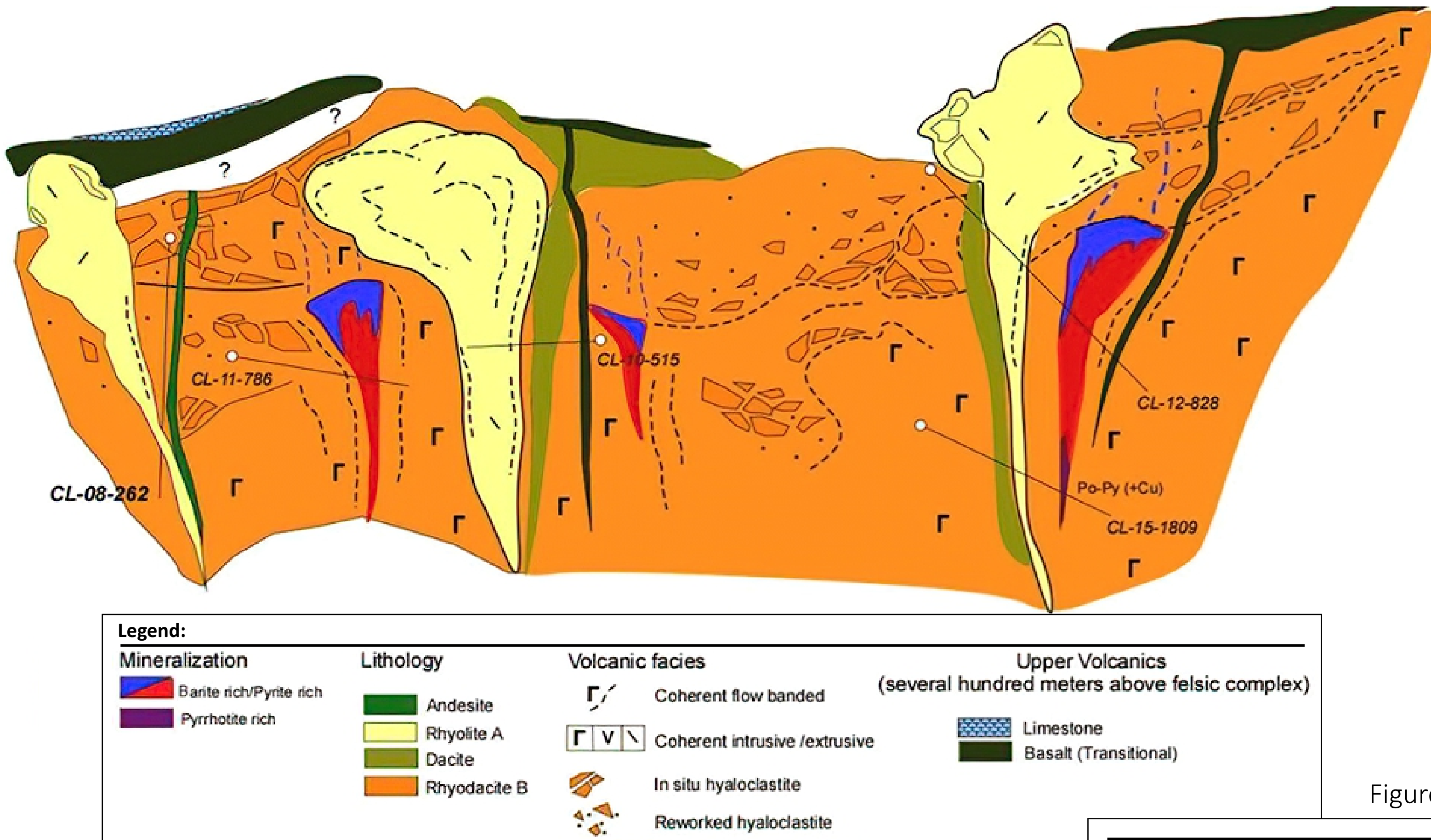


Figure 6-7

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Schematic Section Transversal to Sulphide Orebodies and Intrusions

Source: Nexa, 2019.

7.0 EXPLORATION

Nexa has been conducting exploration and development work at Cerro Lindo since 2006. Most of the exploration is generally conducted simultaneously with underground development. This work has included geological mapping, geophysics, diamond core drilling, and channel sampling.

7.1 Exploration

7.1.1 Geological Mapping

Zalazar and Landa (1991) prepared the first geologic map on the region while working for the state-owned Ingenmet. In addition, various geological mapping campaigns and studies were conducted by Phelps Dodge and Milpo during the late 1990s and early 2000s (Amec, 2017).

More recently, Lavado (2015), Canales (2016), and Anglo Peruana Terra (APT) (2017, 2018) conducted detailed geological mapping campaigns on the area:

Lavado (2015) mapped 1,300 ha in the mine area and its immediate vicinity at 1:4,000 scale. The mine stratigraphy and alteration pattern, as well as factors controlling the mineral deposition, were better outlined.

Canales (2016) conducted a 1:10,000 geological mapping program that extended over 13,700 ha. The program included detailed 1:2,000 mapping over 450 ha in the immediate mine area. This program was accompanied by systematic lithogeochemical sampling, and by 8,112 m drilling in 15 drill holes in the Topará North sector. Six holes intercepted mineralized intervals at different elevations.

APT (2017) conducted a 1:5,000 geological mapping program that covered over 2,900 ha at Cerro Lindo Sur. This program was accompanied by systematic lithogeochemical sampling. In 2018, a geological mapping program was conducted at a scale of 1:2,000 that covered over 450 ha at Pucatoro.

The surface mapping of the Pucasalla, Ventanalloc, and Toldo Chico targets has been continued by Nexa's Brownfield exploration team.

7.1.2 Geochemistry

Geochemical samples were collected at different stages during the project life. Information on sampling methods and results is sparse. Samples were collected from soil (by Phelps Dodge; Milpo, 2016d), core (Imaña, 2015), or from rock outcrops (Canales, 2016). Phelps Dodge carried out geochemical studies in 1996 and 1997 and identified a pronounced zinc anomaly.

Additional details on geochemical sampling and sampling methods were not available.

Imaña (2015) collected 431 rock chip samples from various drill holes located close to OB6 and OB7 as part of a lithogeochemical study oriented at deciphering the chemical and volcanic stratigraphy of the deposit, and chemical modifications that occurred as a result of hydrothermal alteration. Canales (2016) carried out geological mapping and geochemical sampling of rock outcrops in the area of the Mine.

In 2019, Nexa's Brownfield exploration team collected 14 rock chip samples from the Ventanalloc and three rock chip samples from Toldo Chico targets (Nexa, 2020b). The assay results indicate the following:

- Ventanalloc - Copper results confirmed the surface expression of the mineralized rocks as a possible porphyry system (six out of 13 samples returned 0.3% to 2.38% Cu).

- Ventanalloc - Molybdenum is considered one of the most relevant assays for a porphyry hosted Cu-Mo deposit due to its correlation with Cu (two out of 13 samples returned 105 ppm to 120 ppm Mo).
- Toldo Chico - One out of three samples returned values of 4,867 ppm Ba, confirming the presence of barite outcrops at Toldo Chico.

Table 7-1 and Table 7-2 list the results of the 2019 surface sampling.

At Cerro Lindo, surface geochemical sampling has been largely superseded by drilling.

Table 7-1: 2019 Rock Chip Sampling Results At Ventanalloc Target
Nexa Resources S.A. – Cerro Lindo Mine

Target	East	North	Elevation	Sample Type	Sample ID	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Fe (%)	Au (g/t)	Ba (ppm)	Mo (ppm)
Ventanalloc	395,145	8,559,815	3,223	Rock Chip	291867	0.00	0.00	0.00	0.50	0.51	0.02	271	2
Ventanalloc	394,748	8,560,015	3,028	Rock Chip	291868	0.01	0.00	0.01	0.40	5.31	0.01	132	1
Ventanalloc	393,479	8,559,574	2,533	Rock Chip	291869	0.00	0.00	0.02	0.30	1.69	0.01	58	45
Ventanalloc	393,355	8,559,567	2,479	Rock Chip	291870	0.04	0.00	1.31	0.80	2.22	0.01	56	11
Ventanalloc	393,318	8,559,556	2,464	Rock Chip	291871	0.01	0.00	2.38	0.50	2.09	0.01	44	20
Ventanalloc	393,231	8,559,640	2,470	Rock Chip	291872	0.01	0.00	1.16	0.40	2.93	0.01	159	29
Ventanalloc	393,048	8,559,487	2,404	Rock Chip	291873	0.01	0.00	0.40	0.60	2.35	0.01	99	19
Ventanalloc	393,000	8,559,462	2,400	Rock Chip	291874	0.00	0.00	0.12	0.90	2.02	0.01	72	120
Ventanalloc	392,895	8,559,207	2,373	Rock Chip	291875	0.00	0.00	0.71	10.70	5.88	0.08	78	42
Ventanalloc	395,238	8,559,529	3,230	Rock Chip	268605	0.17	0.00	0.00	1.00	2.33	0.02	54	1
Ventanalloc	393,645	8,558,431	2,610	Rock Chip	268601	0.01	0.20	0.31	75.20	5.70	0.07	100	33
Ventanalloc	393,166	8,558,608	2,474	Rock Chip	268602	0.01	0.00	0.16	0.80	3.89	0.01	242	105
Ventanalloc	392,861	8,558,475	2,410	Rock Chip	268603	0.01	0.00	0.20	1.70	2.69	0.01	62	23
Ventanalloc	392,673	8,558,581	2,299	Rock Chip	268604	0.02	0.00	0.11	1.80	2.02	0.01	36	81

Table 7-2: 2019 Rock Chip Sampling Results At Toldo Chico Target
Nexa Resources S.A. – Cerro Lindo Mine

Target	East	North	Elevation	Sample Type	Sample ID	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Fe (%)	Au (g/t)	Ba (ppm)
Toldo Chico	386,656	8,558,262	2,514	Rock Chip	291864	0.01	0.00	0.03	0.10	5.27	0.01	4,867
Toldo Chico	386,425	8,558,030	2,632	Rock Chip	291865	0.03	0.01	0.01	1.20	19.19	0.00	570
Toldo Chico	386,414	8,558,072	2,611	Rock Chip	291866	0.02	0.04	0.01	5.00	1.12	0.01	737

7.1.3 Geophysics

In 2012, Quantec performed a Titan 24 direct current induced polarization and magnetotelluric (DCIP & MT) survey over the area of the Cerro Lindo Mine, with approximately 23 line km of data collected. Arce (2014) re-processed and reinterpreted the data.

Imaña (2015) presented various resistivity cross-sections resulting from a magnetotelluric survey. The sections did not include legends or scales, and no details were available. Imaña (2015) recommended the use of magnetotelluric and electromagnetic methods, both from surface and underground, in future exploration campaigns, given the massive nature of the Cerro Lindo mineralization.

Reinterpretation of the Imaña (2015) data resulted in better definition of OB8, and extensions of other deposits.

In 2017, an extensive Titan 24 DCIP & MT survey was carried out by Quantec in an area of 12 km x 6 km at a 500 m line spacing with an objective to reveal new targets under the cover of barren andesitic rocks that overlies the felsic volcanic package. Orcocobre was the main target found, characterized by a combination of anomalous rock chipping, alteration, and low resistivity. This target, however, was discarded as a false positive that was represented by the roots of an eroded VMS system.

In December 2019, a borehole electromagnetic (BHEM) study was carried out by GRM-services Oy Ltd over a length of 836.70 m in hole PECLD04626 drilled from the 1600 level with an inclination of -75° and azimuth of N102°. The purpose of the study was to explore below already known mineralized bodies, in particular OB1. The survey indicated good response in the upper portion of the hole and no apparent presence of conductors at depth.

A helicopter-borne versatile time domain electromagnetic (VTEM) survey was completed from late 2019 to early 2020 over a number of target areas by Geotech Ltd. (Geotech, 2020). A total of 2,176 line-kilometres of VTEM and caesium magnetometer geophysical data were acquired during the survey.

In 2020, Nexa retained Mira Geoscience Ltd. (Mira) to process and interpret the 2017 Titan 24 direct current/induced polarization (DC/IP) and magnetotelluric (MT) survey results and all the geological data (sectional interpretation, surface maps, and drill hole data). The interpretation resulted in a new regional litho-structural model and a 3D geophysical model, highlighting the Cerro Lindo deposit as a conductivity and chargeability anomaly (Mira, 2020). Nexa geologists used the latest model to review the exploration targets, and as a result, an additional seven targets were defined. Interpretations and analysis of the models are continuously updated as new information is incorporated from new holes, and more discussion forums are held.

Figure 7-1 illustrates the Mira 3D Chargeability Model and some of the new targets (blue boxes) at the Cerro Lindo deposit.

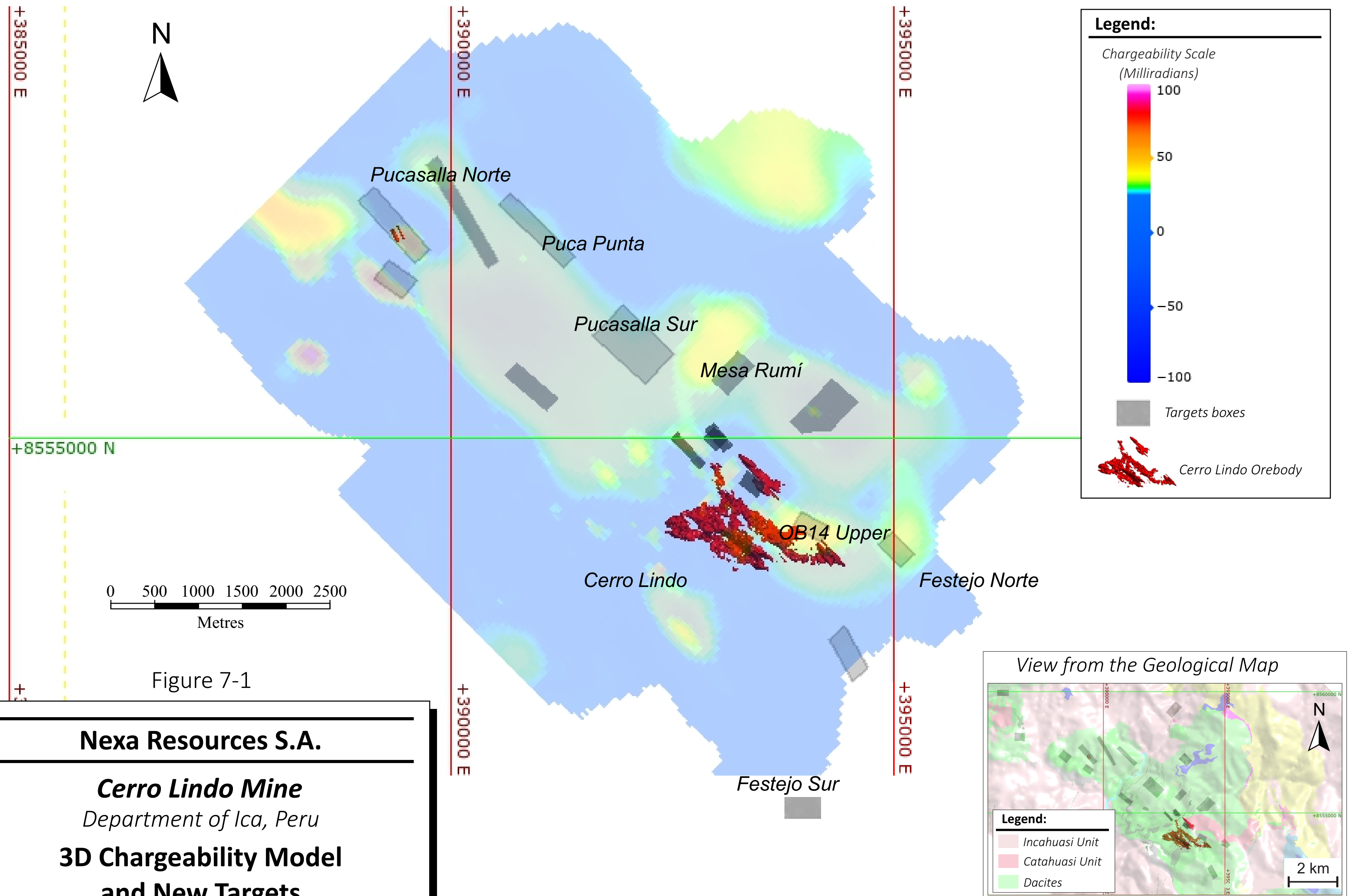


Figure 7-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

3D Chargeability Model and New Targets

January 2021

Source: Nexa, 2020.

7.1.4 Exploration Target

Twenty exploration targets were identified from the integrated assessment of exploration data recorded to date. Targets have been ranked and prioritized using a variety of metrics comprising various geological attributes and modifying factors that have been customized for the mineralization styles most likely to be encountered on the property.

In 2019, the diamond drilling program from surface was completed in the Orcocobre, Toldo Grande, and Pucatoro sectors, determining a positive intercept in the area of Pucasalla approximately 4.5 km northwest of the Mine. In August 2019, a total of 48,448.70 m of drilling was performed, including 83 holes.

In August 2019, a geology workshop was held with the participation of the Nexa exploration team (Brownfield and Greenfield), external consultants such as Thomas Monecke, Marcelo Imaña, and Les Oldham, APT geologists, and corporate Nexa. As a result, 13 exploration targets were defined. A brief description of each target follows.

7.1.4.1 Northwest Extension of OB3-4 and OB12

The Northwest extension of OB3-4 and OB12 represents a northwest continuity of OB2B on the other side of the stream. The lithological control of mineralization in this area is associated with volcanoclastic sequences at the edges of the rhyolitic domes. The zone is structurally controlled by northwest-southeast faults. Further exploration is warranted in this zone north of Cerro Lindo

7.1.4.2 Pucasalla

Pucasalla is located approximately 4.5 km northwest of Cerro Lindo, on the same northwest-southeast trend with the mine. In 2019, drill hole PECLD04226 intersected mineralization with granular barite matrix (SPB) similar to that at Cerro Lindo, which intersected a 6.5 m interval of 3.67% Zn, 0.89% Pb, 0.07% Cu, and 49.47 g/t Ag.

7.1.4.3 Cerro Lindo Southeast Extension

This zone is the southeast extension of OB6 and OB7 mineralization. Given the presence of a probable rhyolitic dome, the edges of volcanoclastic zones make this zone an important target for exploration.

7.1.4.4 Festejo

Festejo is located approximately 0.7 km southeast of Cerro Lindo and is a projection of OB6, OB7, and OB9 that are found on the same northwest-southeast trend with the mine. This target represents a strong geophysical anomaly of low resistivity between the 1800 MASL and 2200 MASL elevations.

7.1.4.5 Cerro Lindo Deeper Stratigraphic Levels

The Cerro Lindo deeper stratigraphic levels are located southwest of OB1. Drill hole PECLDCL-17-2639 intersected a 2.9 m interval of 2.31% Zn and 0.41% Pb at the 1430 m elevation, which indicates that the zone is open to depth. The lithological control is associated with volcanic rocks of dacitic composition.

7.1.4.6 Pucasalla East

Pucasalla East is located approximately one kilometre north of Cerro Lindo, northeast of OB3-4 and OB10, on the same northwest-southeast trend with the mine. The lithological control of the mineralization is associated with volcanoclastic sequences at the edges of the rhyolitic domes.

7.1.4.7 Ventanalloc

Ventanalloc is located approximately 4.5 km north of Cerro Lindo. It has an outcrop of copper oxide (OxCu) and sulphides (pyrite + chalcopyrite). Based on the geological characteristics of the outcrop, Nexa believes Ventanalloc to be porphyry type mineralization. The zone has an area of approximately 1.5 km long by 1.0 km wide and follows the Pucasalla stream to the intersection with the Ventanalloc stream.

7.1.4.8 Patahuasi Millay

Patahuasi Millay is located approximately 1.2 km northeast of Cerro Lindo, upstream the Topará ravine, where colour anomalies mainly correspond to FeOx (jarosite-goethite). The zone is composed of metamorphosed andesitic volcanics in contact with the Catahuasi intrusive. The area shows weak phyllic alteration with intense silicification, sericite-muscovite inclusions, and disseminated pyrite (5%-10%) and micro-veins.

7.1.4.9 Orcocobre

Orcocobre is located approximately two kilometres from Cerro Lindo. The target represents an intense colour anomaly corresponding to OxFe (mainly goethite-hematite (boxwork)) with moderate sericitization.

7.1.4.10 Toldo Grande

Toldo Grande is located approximately four kilometres northwest of Cerro Lindo and is characterized by intense leached silicification and occurrences of barite with a moderate to strong presence of OxFe (goethite-hematite).

7.1.4.11 Pucatoro

Pucatoro is located approximately five kilometres from Cerro Lindo. The zone is characterized by volcanic felsic rocks, with moderate to intense silicification and silicified disseminated pyrite zones (1%-5%) and sericite.

7.1.4.12 Toldo Chico

Toldo Chico is located approximately seven kilometres from Cerro Lindo. It consists of several rhyolitic and volcanoclastic sequences at the base and andesitic volcanic sequences at the top in contact with granite Incahuasi intrusives. The zone is characterized by moderate to strong silicification, sericite-muscovite and local barite occurrences, with OxFe (jarosite-goethite) and traces of OxCu and fine pyrite (1%-5%) disseminations.

7.1.4.13 Chavin del Sur

Chavin del Sul is located approximately seven kilometres southeast of Cerro Lindo. The lithological control of the sphalerite, galena, and chalcopyrite mineralization in this zone is associated with limestone sequences from the upper part of the Huaranguillo Formation. The mineralization is structurally controlled by northeast-southwest and northwest-southeast faults, with the presence of synclines and anticlines. Six historical holes (pre-2009) were completed in this area. Three of them confirmed zinc, lead, and silver mineralization, however, the drill hole database was not available to Nexa.

Exploration work was temporarily suspended from March to June 2020 due to the COVID-19 pandemic. The 2020 exploration diamond drilling confirmed the mineralization continuity of the OB-13 and the OB-14 towards the northwest and also for OB-14 at depth towards the southeast, as well as the upper part of OB-5B between the 1750 and 1950 levels, with an average thickness of 15 m trending northeast. As of December 31, 2020, 62 holes for a total of 23,189 m of diamond drilling were completed during 2020.

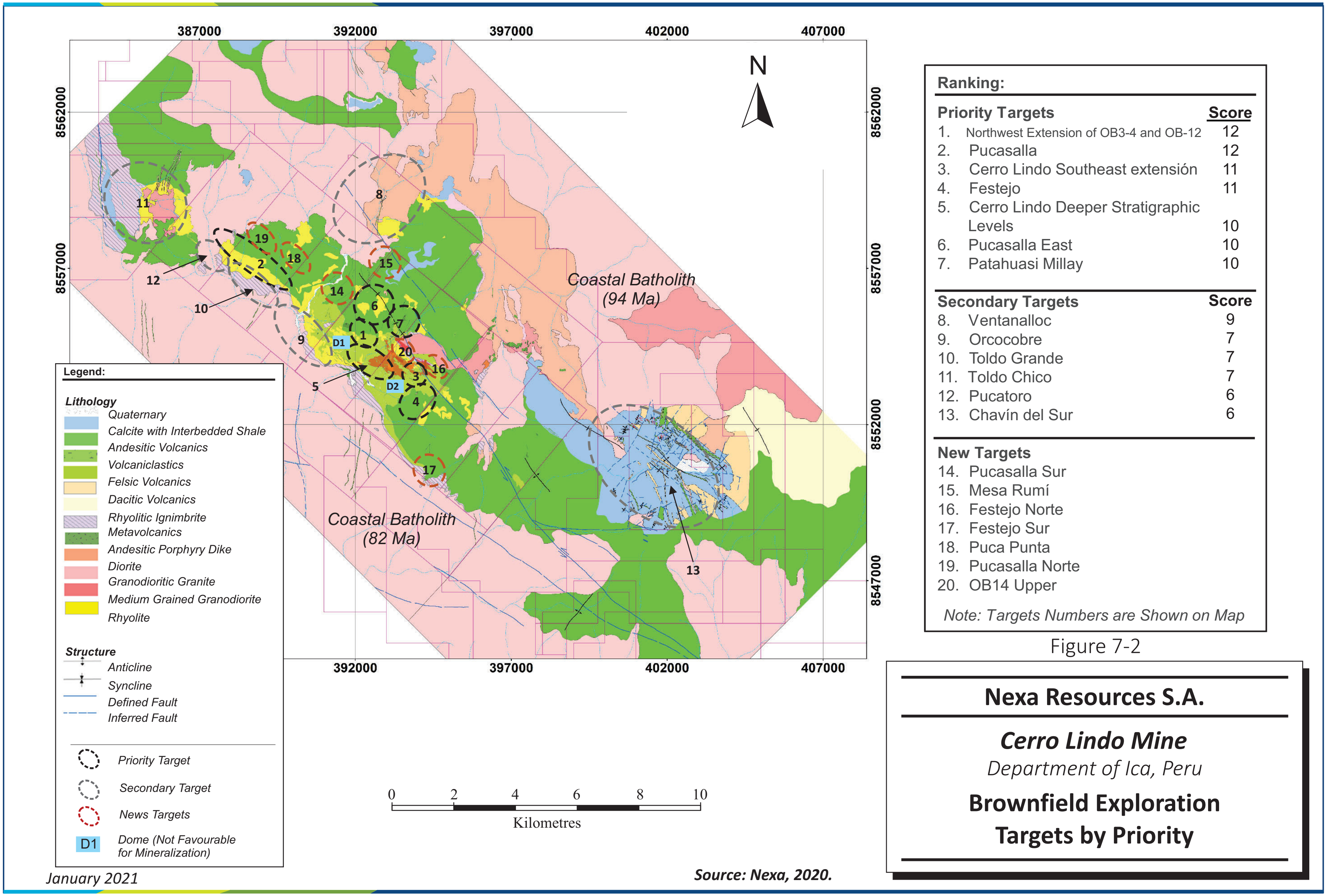
In 2020, as a result of the 3D chargeability model, in addition to the thirteen exploration targets defined in 2019, a total of seven targets (Mesa Rumi, Festejo Norte, Festejo Sur, Puca Punta, Pucasalla Norte, OB-14 Upper and Pucasalla Sur) were defined. Nexa has developed a prioritized exploration target plan to expand on current Mineral Resources.

Figure 7-2 shows the location, the priority and the score-ranking of each of the targets relative to the Mine and Figure 7-3 illustrates a plan view and longitudinal section of some of the exploration targets.

Exploration work planned for 2021 includes 35,100 m of diamond core drilling focused on defining Inferred Mineral Resources at six different targets. The main focus of these targets will be the Pucasalla area with a total of 17,100 m of surface drilling and OB-6, OB-5B, OB-12, OB-8, and Patahuasi Millay areas from underground drilling totalling 18,000 m. Work will also include an airborne geophysical VTEM survey, for all the exploration targets, 1:2,000 scale geological surface mapping for Pucasalla, Pucatoro, and Orcocobre over a total of 900 ha, and a geochemical gas sampling survey with 45 collectors, which aims to identify deeply buried mineral deposits, similar to Cerro Lindo, covered by volcanic rocks up to 300 m in depth.

In addition to the exploration program, the mining geology team plans to drill an additional 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and ultimately convert them into Probable or Proven Mineral Reserves, and for mine planning purposes (infill drilling).

The SLR QP is of the opinion that the geological setting, geophysical studies, surface samples, and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation. The SLR QP recommends completing the proposed 2021 exploration program including diamond drilling to convert the exploration target to Mineral Resources. The SLR QP is also of the view that there is good potential to increase the Mineral Resource at the Cerro Lindo deposit with more drilling.


387000
392000
397000
402000
407000
8562000
8557000
8552000
8547000
N
Coastal Batholith
(94 Ma)
Coastal Batholith
(82 Ma)
D1
D2
Legend:
Lithology
Quaternary
Calcite with Interbedded Shale
Andesitic Volcanics
Volcaniclastics
Felsic Volcanics
Dacitic Volcanics
Rhyolitic Ignimbrite
Metavolcanics
Andesitic Porphyry Dike
Diorite
Granodioritic Granite
Medium Grained Granodiorite
Rhyolite
Structure
Anticline
Syncline
Defined Fault
Inferred Fault
Priority Target
Secondary Target
News Targets
D1 Dome (Not Favourable for Mineralization)
0 2 4 6 8 10
Kilometres
January 2021
Source: Nexa, 2020.
Ranking:
Priority Targets Score
1. Northwest Extension of OB3-4 and OB-12 12
2. Pucasalla 12
3. Cerro Lindo Southeast extensión 11
4. Festejo 11
5. Cerro Lindo Deeper Stratigraphic Levels 10
6. Pucasalla East 10
7. Patahuasi Millay 10
Secondary Targets Score
8. Ventanalloc 9
9. Orcocobre 7
10. Toldo Grande 7
11. Toldo Chico 7
12. Pucatoro 6
13. Chavín del Sur 6
New Targets
14. Pucasalla Sur
15. Mesa Rumí
16. Festejo Norte
17. Festejo Sur
18. Puca Punta
19. Pucasalla Norte
20. OB14 Upper
Note: Targets Numbers are Shown on Map
Nexa Resources S.A.
Cerro Lindo Mine
Department of Ica, Peru
Brownfield Exploration
Targets by Priority
Figure 7-2

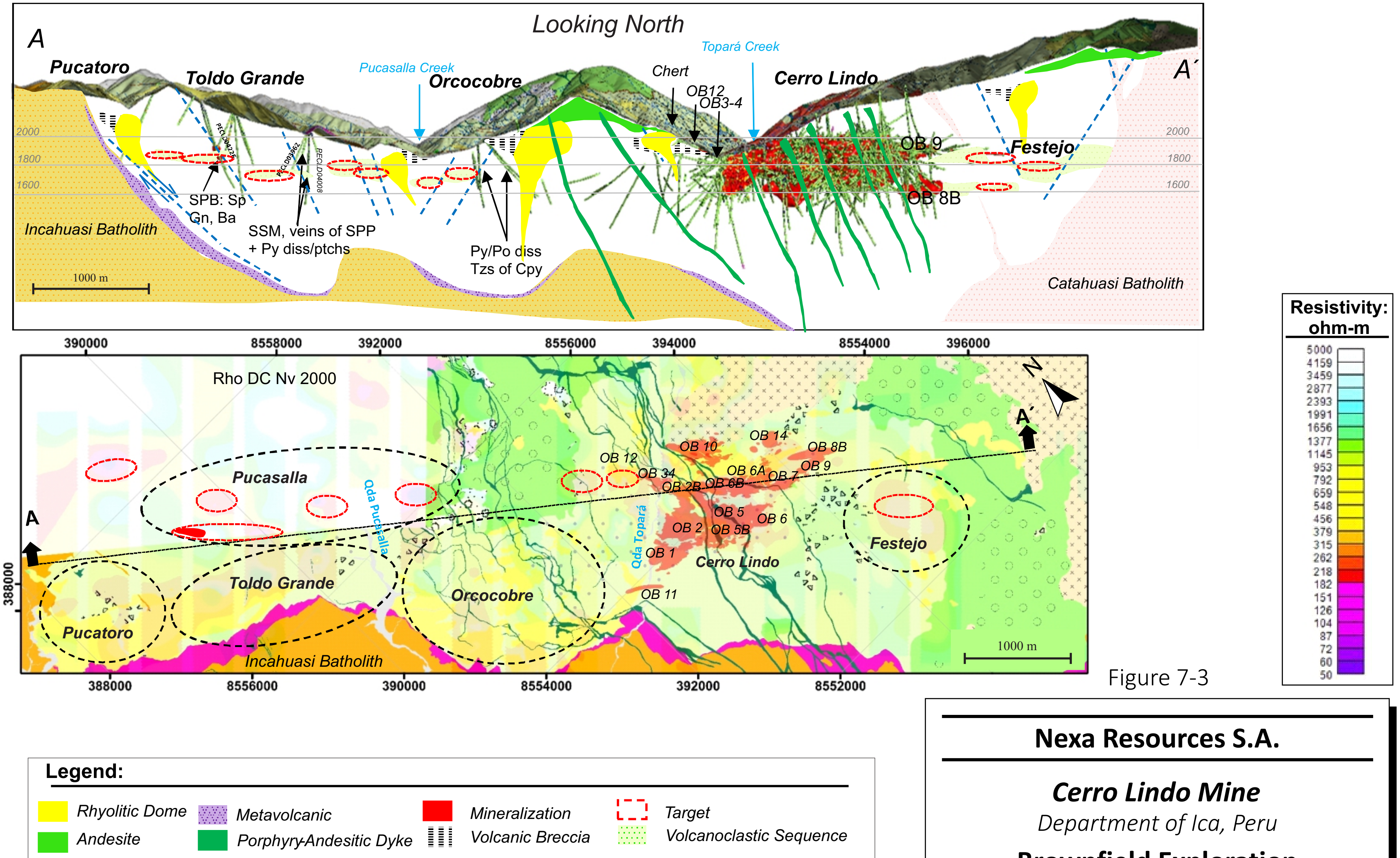


Figure 7-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Brownfield Exploration Targets - Section and Plan View

January 2021

Source: Nexa, 2020.

7.2 Drilling

7.2.1 Drilling Summary

As of March 2, 2020, the Cerro Lindo drill hole database consists of 4,808 drill holes totalling 654,129.63 m (Table 7-3). All drilling was diamond drilling (DDH), with the majority of the holes (4,609) completed underground, from within the mine, and 199 holes completed from surface. Drilling has been done by various contractors

Geotechnical holes totalling 3,812.55 m, service holes totalling 944.11 m, geometallurgical holes totalling 100 m, and re-drilled holes totalling 448.20 m have been excluded from the Mineral Resource estimate. SLR concurs with Nexa's list of holes excluded from the Mineral Resource estimate. Table 7-4 lists the drilling excluded from the Mineral Resource estimate, and Table 7-5 lists the drilling included in the Mineral Resource estimate.

In addition to drilling, a total of 1,040 channel samples were completed for a total of 20,682 m between 2000 and 2016 (Table 7-6).

Figure 7-4 illustrates the locations of the drill holes at Cerro Lindo. Figure 7-5 is a cross section illustrating the selected drill holes and related geological interpretation and Figure 7-6 shows channel sampling locations at the Mine (2007-2016).

From March 3, 2020 to December 31, 2020, an additional 52 exploration drill holes for a total of 19,541.4 m of diamond drilling were completed.

Table 7-3: Cerro Lindo Drilling Summary as of March 2, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
1995*	29	3,550.00	DTH						
1996	6	2,207.30	DDH	5	2,077.05	DDH	11	4,284.35	DDH
1999	7	2,722.40	DDH	11	2,156.70	DDH	18	4,879.10	DDH
2000	15	5,054.35	DDH	32	6,503.90	DDH	47	11,558.25	DDH
2001	3	705.5	DDH	60	10,663.03	DDH	63	11,368.53	DDH
2007	2	201.35	DDH	42	3,308.60	DDH	44	3,509.95	DDH
2008	25	6,170.24	DDH	61	9,290.60	DDH	86	15,460.84	DDH
2009	17	3,076.40	DDH	173	15,692.30	DDH	190	18,768.70	DDH
2010				183	21,432.61	DDH	183	21,432.61	DDH
2011	5	2,949.20	DDH	177	20,579.10	DDH	182	23,528.30	DDH
2012	8	5,120.40	DDH	82	17,655.90	DDH	90	22,776.30	DDH
2013	2	1,041.10	DDH	306	36,359.00	DDH	308	37,400.10	DDH
2014				253	39,277.80	DDH	253	39,277.80	DDH
2015	15	8,112.40	DDH	368	40,203.00	DDH	383	48,315.40	DDH

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
2016	18	12,270.10	DDH	706	73,233.50	DDH	724	85,503.60	DDH
2017	8	6,050.00	DDH	645	88,140.20	DDH	653	94,190.20	DDH
2018	32	14,956.70	DDH	674	83,170.30	DDH	706	98,127.00	DDH
2019	36	22,463.20	DDH	761	84,227.10	DDH	797	106,690.30	DDH
2020				70	7,058.30	DDH	70	7,058.30	DDH
Total	**199**	**93,100.64**		**4,609**	**561,028.99**		**4,808**	**654,129.63**	

Notes:

1. The down the hole (DTH) drilling carried out in the year 1995 (29 DTH) is not included in the database or estimate because the data is not found.
2. 52 exploration drill holes totalling 19,541.4 m completed after March 2, 2020 were not included in the table.

Table 7-4: Summary of Drilling Excluded from Mineral Resource Estimate as of March 2, 2020 Nexa Resources S.A. – Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
2007				3	254.85	DDH	3	254.85	DDH
2008				3	296.6	DDH	3	296.6	DDH
2009	2	185.10	DDH	16	750.7	DDH	18	935.80	DDH
2010				24	1,019.41	DDH	24	1,019.41	DDH
2011	1	87.4	DDH	15	917.20	DDH	16	1,004.60	DDH
2012	2	190.70	DDH	6	1,032.30	DDH	8	1,223.00	DDH
2013	1	41.10	DDH			DDH	1	41.10	DDH
2014				2	214	DDH	2	214	DDH
2015				2	100	DDH	2	100	DDH
2016				2	130.5	DDH	2	130.5	DDH
2018				2	85	DDH	2	85	DDH
Total	6	504.30		75	4,800.56		81	5,304.86	

Note:

1. The drilling was excluded due to the absence of assay results, either because this was twin hole drilling, or drilling for geomechanical, geometallurgical, and service (installation of pipes, etc.) purposes.

Table 7-5: Summary of Drilling Included in Mineral Resource Estimate as of March 2, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Year	Surface			Mine			Total		
	No.	Metres	Type	No.	Metres	Type	No.	Metres	Type
1996	6	2,207.30	DDH	5	2,077.05	DDH	11	4,284.35	DDH
1999	7	2,722.40	DDH	11	2,156.70	DDH	18	4,879.10	DDH
2000	15	5,054.35	DDH	32	6,503.90	DDH	47	11,558.25	DDH
2001	3	705.5	DDH	60	10,663.03	DDH	63	11,368.53	DDH
2007	2	201.35	DDH	39	3,053.75	DDH	41	3,255.10	DDH
2008	25	6,170.24	DDH	58	8,994.00	DDH	83	15,164.24	DDH
2009	15	2,891.30	DDH	157	14,941.60	DDH	172	17,832.90	DDH
2010				159	20,413.20	DDH	159	20,413.20	DDH
2011	4	2,861.80	DDH	162	19,661.90	DDH	166	22,523.70	DDH
2012	6	4,929.70	DDH	76	16,623.60	DDH	82	21,553.30	DDH
2013	1	1,000.00	DDH	306	36,359.00	DDH	307	37,359.00	DDH
2014				251	39,063.80	DDH	251	39,063.80	DDH
2015	15	8,112.40	DDH	366	40,103.00	DDH	381	48,215.40	DDH
2016	18	12,270.10	DDH	704	73,103.00	DDH	722	85,373.10	DDH
2017	8	6,050.00	DDH	645	88,140.20	DDH	653	94,190.20	DDH
2018	32	14,956.70	DDH	672	83,085.30	DDH	704	98,042.00	DDH
2019	36	22,463.20	DDH	761	84,227.10		797	106,690.30	
2020				70	7,058.30	DDH	70	7,058.30	DDH
Totals	193	92,596.34		4,534	556,228.43		4,727	648,824.77	

Note:

1. For the Leapfrog model all validated drill holes were used.

Table 7-6: Channel Sampling Summary at Cerro Lindo
Nexa Resources S.A. – Cerro Lindo Mine

Year	No. Channels	Metres
<2008	506	10,278.50
2008	13	168.30
2010	108	2,698.30
2011	93	1,301.30
2012	113	2,031.10

Year	No. Channels	Metres
2013	58	1,162.50
2014	71	1,487.90
2015	57	1,086.70
2016	21	468.00
Total	1,040	20,682.60

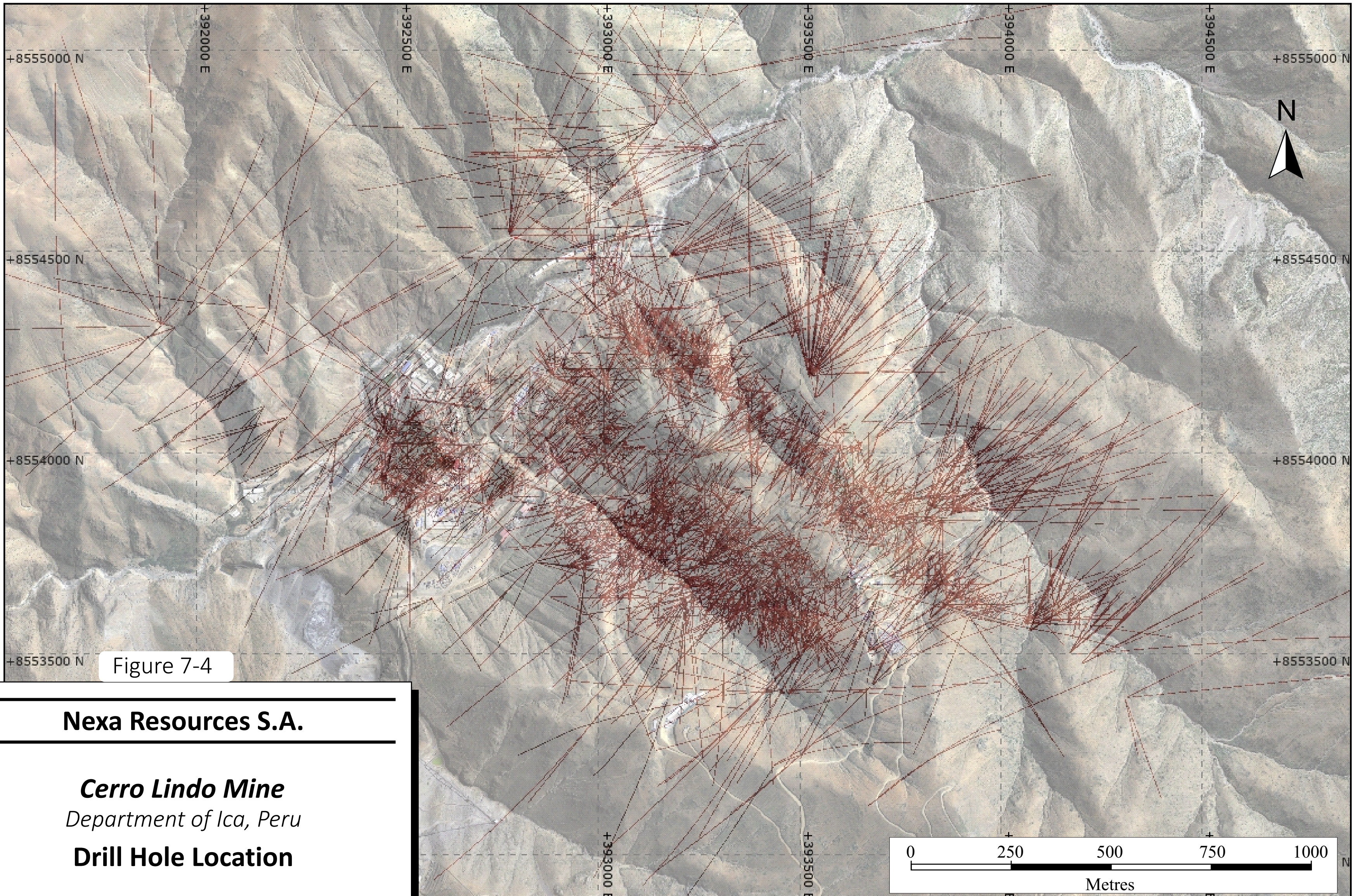


Figure 7-4

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Drill Hole Location

January 2021

Source: Nexa, 2020.

![SLR logo]

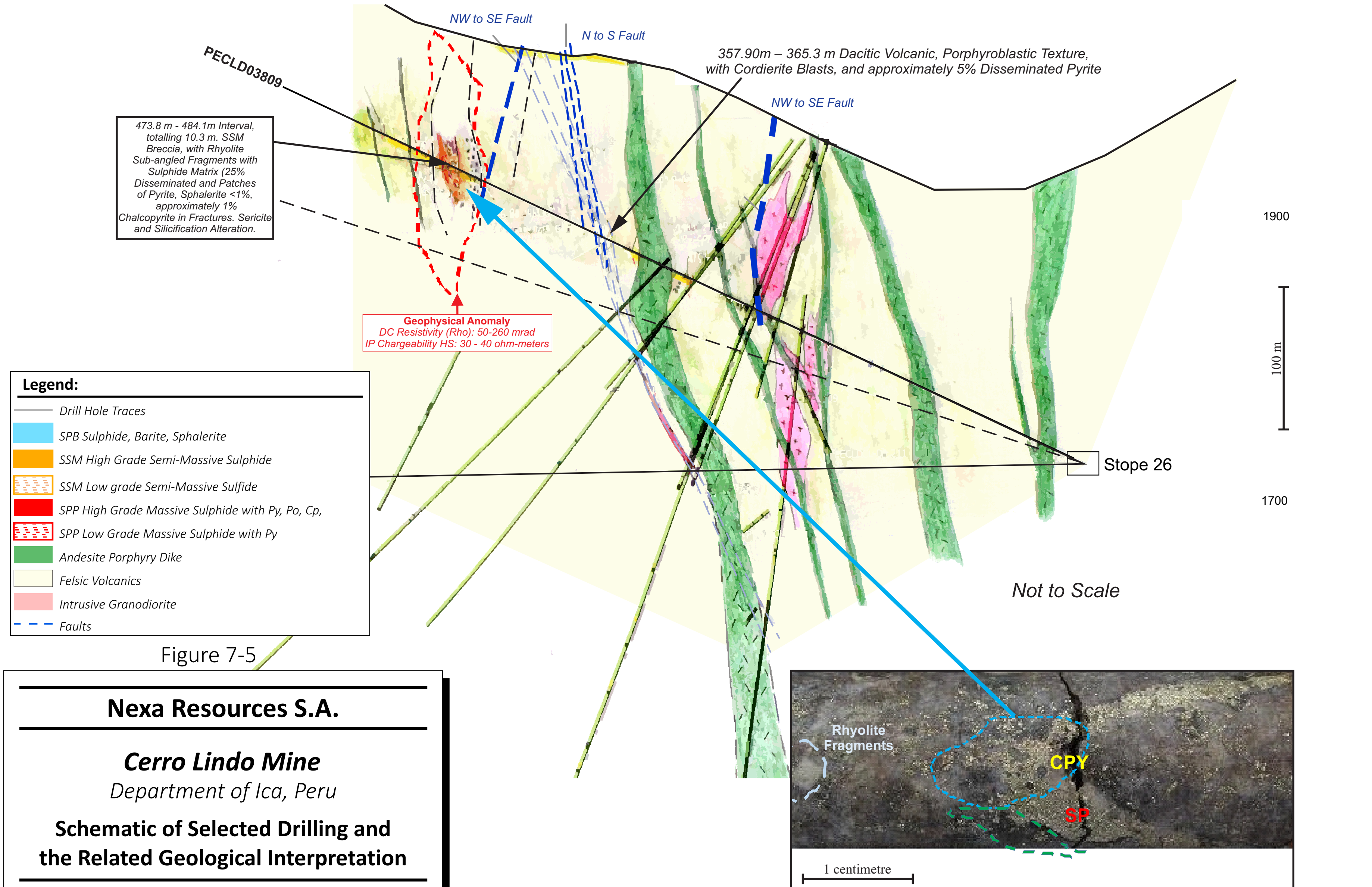


Figure 7-5

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Schematic of Selected Drilling and the Related Geological Interpretation

January 2021

Source: Nexa, 2019.

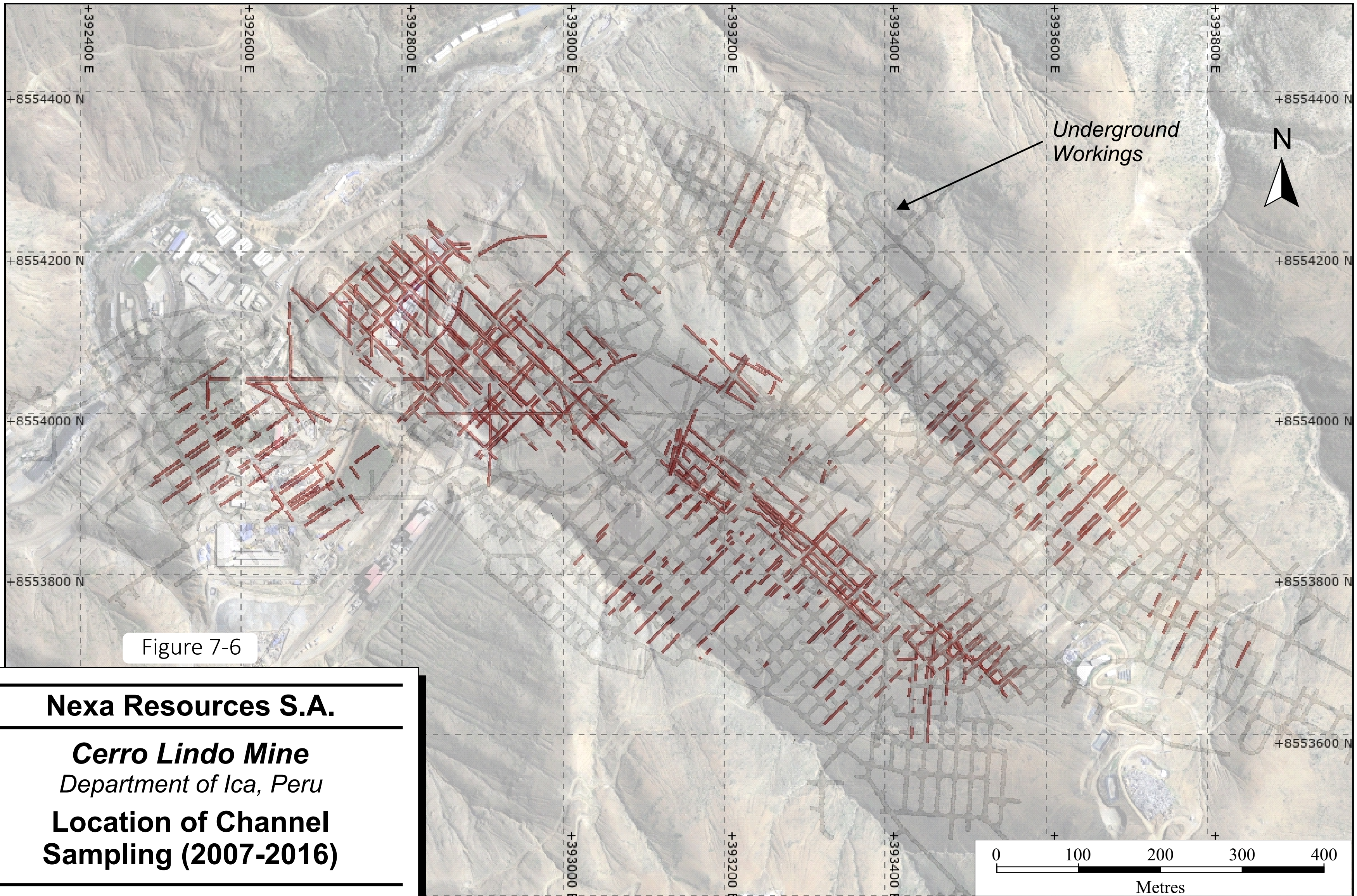


Figure 7-6

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Location of Channel Sampling (2007-2016)

January 2021

Source: Nexa, 2020.

7.2.2 Drilling Procedures

Drilling procedures are coordinated and supervised by company geologists, and approved by the Geology and Exploration Manager. The drilling procedures are as follows:

- Diamond drilling projects are prepared by geologists. Drill hole collar coordinates and orientation are communicated to a mine surveyor to accurately position the drill hole and are then certified by the surveyor and validated by the responsible geologist. Hole (and channel sample) IDs are generated using a specific format, which includes the following reference codes: country, mining unit, year, and sequential number. All related drill data generated is referenced similarly to the corresponding drill collar. Basic drill hole information must be entered into the database and archived within four days of completing the drill hole.
- Drill hole survey data is collected by the drilling contractor. The survey is generally carried out after the completion of the drill hole. Various survey equipment (i.e., Gyro, Reflex, Flexit, etc.) may be used depending on the drilling contractor and equipment availability.
- Survey data are collected between approximately 5 m and 10 m down hole, depending on the drilling objective (infill or recategorization). Original survey data is delivered to the supervising geologist, signed by the driller in charge. Survey data is validated by the responsible geologist and entered into a master CSV file, subsequently imported into the database and the geological modelling software program.
- Following the completion of a drill hole, logging and core sampling procedures are carried out by a team of geologists. Core logging is carried out using a set of geological, lithological, mineralogical, and alteration terms. Core logs are entered into logging software (Fusion). Core photographs are taken for each drill hole and stored in jpeg. Core sampling for geochemical analysis is generally completed at the same time as core logging. Logging is completed within 48 hours after a drill hole is completed.
- Datamine's Fusion software (Fusion) managing the database automatically incorporates the core logging and sampling information and continually updates this information with new results. The database administrator is responsible for validating the data and combining it into a master CSV file, for later imports into geological modelling software programs.
- Drilling information is stored in a structured directory and backed up on a central server in Brazil. Data available in the drill hole database includes: hole location (Collar), hole deviation survey (Survey), geochemical sampling and analysis (Assay), and geological characteristics (Lithology, Alteration, Mineralization).

7.2.3 Drill Rigs

At Cerro Lindo, there are two main categories of drilling: exploration and resource definition diamond drilling. Drilling is performed by Explomin contractor.

7.2.3.1 Exploration Diamond Drilling

Exploration drilling is planned by the exploration team and its main objective is to discover new resources. It consists of underground (mine) drilling and surface drilling using Sandvik DE140 and Boart Longyear LF 90 drilling machines respectively. Exploration drilling is carried out with large drill rigs with a depth range of up to 1,000 m and HQ (63.5 mm) and NQ (47.6 mm) core sizes, and as required BQ (36.6 mm), are used.

7.2.3.2 Resource Definition Diamond Drilling

Resource definition drilling is the responsibility of the geological team and has the objective to upgrade known Inferred Mineral Resources to Measured or Indicated and thus increase the Mineral Reserves at Cerro Lindo. This drilling consists of:

- Recategorization, focused on the recategorization and definition of bodies where there is little drilling information.
- Infill, focused on providing additional information for short to long term planning to ensure the reliability of production programs.

Small drill rigs called drillcats are used with depth ranges of up to 400 m. Infill drilling generally uses BQ core size (to a depth of 240 m) and recategorization drilling uses NQ or BQ core size (to a depth of 400 m).

7.2.4 Core Recovery

Core recovery and rock quality designation (RQD) are measured and recorded for each hole. Core runs are 3.0 m for HQ and NQ and 1.5 m for BQ core size. Measurements are reviewed by geologists and the database administrator and then imported to the Fusion database.

Table 7-7 summarizes core recovery by domain in 2019 and 2020.

Table 7-7: Core Recovery by Domain - 2019-2020
Nexa Resources S.A. – Cerro Lindo Mine

Domain	No. Samples	Minimum (%)	Maximum (%)	Mean (%)	Variance	Std. Deviation	CV
SPB	5,053	0.00	100.00	96.795	146.007	12.083	0.125
SPP	11,664	0.00	100.00	96.475	100.099	10.005	0.104
SSM	5,675	10.00	100.00	98.795	20.097	4.483	0.045
VM	3,612	0.00	100.00	98.273	36.446	6.037	0.061
V	1,570	10.00	100.00	97.177	95.379	9.766	0.100
SOP	68	90.00	100.00	97.964	5.469	2.338	0.024
SOB	31	45.00	100.00	95.215	194.915	13.961	0.147
SLB	19	72.22	100.00	95.744	70.013	8.367	0.087
OB11VM	5	96.88	100.00	99.501	1.308	1.144	0.011
OB12VM	74	60.00	100.00	99.523	4.928	2.220	0.022
OB14VM	118	85.00	100.00	98.996	3.131	1.769	0.018
OB5BVM	56	70.56	100.00	99.121	16.561	4.070	0.041
PUCVM	11	98.39	100.00	99.698	0.265	0.515	0.005
DIQUE	8,945	5.33	100.00	98.920	22.964	4.792	0.048

Notes:

1. Data encoded within the model.
2. For this analysis, 1,825 of 4,808 drill holes (38%) were used.

Based on core recovery statistics reviewed, and from the inspection of a number of drill holes, the SLR QP is of the opinion that the core recovery at Cerro Lindo is excellent, generally greater than 95%, and provides a reliable reflection of the mineralization in the mining operation.

7.2.5 Drill Hole Spacing

Exploration drilling is generally completed over an 80 m by 80 m grid, whereas infill drilling is designed to cover a 20 m by 20 m grid.

7.2.6 Drill Core Sampling

7.2.6.1 Phelps Dodge

Core was sampled every two metres over the length of the hole and split using a diamond saw. Half of the core was submitted for assaying and the other half was stored at the site.

7.2.6.2 Nexa

The sample interval was initially 1.5 m to 2.0 m, except when encountering lithological, structural, or mineralogical breaks. All sulphide material was sampled, and additional "bracket" samples were taken on either side in the surrounding volcanic rocks, which ensured that the entire mineralized zone was sampled and provided data for dilution analysis (AMEC, 2002).

Drill core sampling is carried out under the supervision of the Sampling Geologist Supervisor and completed after the geotechnical and geological logging, and photographing the whole core. Once the sample length and cut-line have been defined by the supervising geologist, the core is cut longitudinally into two equal parts using an electric diamond drill core saw. If the core is fractured, the sampler separates and removes 50% of the fragmented material for the sample. The fragments are deposited in a pre-coded polyethylene bag and transported to the laboratory.

Current exploration core sampling follows written protocols and consists of half-core sampling of NQ-sized core on (usually systematic) 1.5 m intervals. The remaining half-core is kept as backup. Major mineralized body contacts are respected.

Infill drilling is typically B-sized core and is sampled in its entirety on 1.6 m intervals.

7.2.7 Underground Channel Sampling

Channel sampling was carried out from 2000 to 2016. The channel sampling procedure remained the same over these years, and the procedure is described in formal protocols. Samples were collected from cross-cuts, perpendicular to strike, and from both mineralized and barren zones (footwall and hanging wall).

Sample locations were marked with a paint line on the rib approximately one metre off the drift floor. Channel borders were then cut using an electric diamond saw, after which the samples were collected using a pneumatic or electric hammer or, rarely, a chisel and hammer between the cut borders. Samples were collected in a bucket with minimal loss of sample. Channel samples were 1.5 m long, 6 cm wide and 3 cm deep, with sample weight ranging from 4 kg to 8 kg (in barren zones, less than 4 kg). All cross-cuts were channel sampled, with the exception of those portions covered by shotcrete for safety purposes. In those cases, short infill holes were drilled instead.

AMEC observed channel sampling in early 2016. The channel sampling was discontinued and replaced by additional drilling later in 2016.

7.2.8 Underground Longhole Sampling

Upward oriented blast holes were sampled until late 2016. The drill cuttings produced from every 1.5 m long advance were collected in buckets and submitted to the laboratory for assaying.

Blast hole fans, consisting of 17 holes, were drilled every 2.2 m of drift advance. One in three face advances (every 6.6 m) was fully sampled, and the samples were submitted to the Mine laboratory for preparation and analysis. Underground longhole sampling, together with channel sampling, was used for ore control but was discontinued in 2016.

7.2.9 Drilling and Channel Sampling Results

The results of analysis and interpretation of drilling data, and prior to 2016 channel sampling data, have been continually incorporated into the Cerro Lindo 3D geological model.

The database is used by modelling geologists who work together with the mine/production and exploration geologists to continually construct and update the 3D geological model. The 3D geological models are built in Leapfrog, primarily using geochemical assay results, particularly for Zn, Pb, Cu, and Ag, as well as underground geological level plan maps and interpreted cross-sections and transverse sections.

In the SLR QP's opinion, the drilling, logging, and drill core and channel sampling procedures meet industry standards. The SLR QP is not aware of any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

7.3 Hydrogeology

The Cerro Lindo is a relatively dry mine and does not produce significant quantities of water. Exploration drilling to date has not intersected any water bearing structures that could introduce major inflows in the mine workings.

7.4 Geotechnical Data, Testing, and Analysis

Geotechnical studies have been conducted at the Cerro Lindo Mine to prepare a geotechnical model of ground conditions and to characterize the quality of the rock mass to predict the stope and mine workings stability. Underground geotechnical mapping, geotechnical core logging and laboratory tests are part of Nexa geotechnical procedures. Since 2007, Nexa has performed laboratory testing in combination with geotechnical mapping and since 2015 geotechnical logging to monitor the ground stability and to define parameters for ground support design of the underground workings. Independent geotechnical assessments were performed by AMEC in 2013 and SRK in 2016 and 2017. In 2017, SRK completed a 3D numerical model using the FLAC3D™ 5.01 software (Itasca Consulting Group) as it is described in Section 13.4. The geotechnical logging, mapping, testing and data analysis protocols include industry-standard practices.

7.4.1 Geotechnical Data

As of December 31, 2020, Nexa performed a total of 492 geotechnical drill holes totaling 23,473.20 m (Table 7-8). In addition, geotechnical logging and mapping of the underground workings are also conducted in a routine basis.

The geotechnical logging includes the rock mass rating classification systems developed by Bieniawski (1976 and 1989). These classification systems are widely used empirical methods for classifying the rock mass quality and internationally accepted practice. Data collection of detailed rock mass characteristics (lithology, faulting and shearing, intact rock strength, Rock Quality Designation (RQD), discontinuity characteristics such as openness/aperture, planarity, roughness, infilling/coating and evidence of groundwater staining). During 2020, Nexa transferred the geotechnical database from Excel files to Fusion software.

Table 7-8: Geotechnical Drilling - 2015-2020
Nexa Resources S.A. – Cerro Lindo Mine

Year	Mine		
	No.	Metres	Type
2015	13	808.20	DDH
2016	6	271.60	DDH
2017	48	1765.30	DDH
2018	65	4465.50	DDH
2019	119	6503.60	DDH
2020	241	9659.00	DDH
Total	**492**	**23,473.20**	

For the 2017 geotechnical study, SRK re-logged 35 drill holes totaling 2,402 m. Selected drill holes were located on the mining production areas (OB-1, OB-4 and OB-6) and were used to obtain geomechanical characterization, using the RMR'_{89} and the Modified Rock Quality Index (Q') systems, for the modelled lithology units in the mine. In addition, geological mapping was performed to define the main fault systems. Point load testing was also conducted with a portable device during the geotechnical logging and mapping. As the selected holes were drilled for resource estimation purpose, only half of the core was available, so core photographs and software (PhotoLogger and StereoCore PhotoLog) were used to measure fracture frequency and intensity. Figure 7-7 illustrates the RQD and RMR collected from the study.

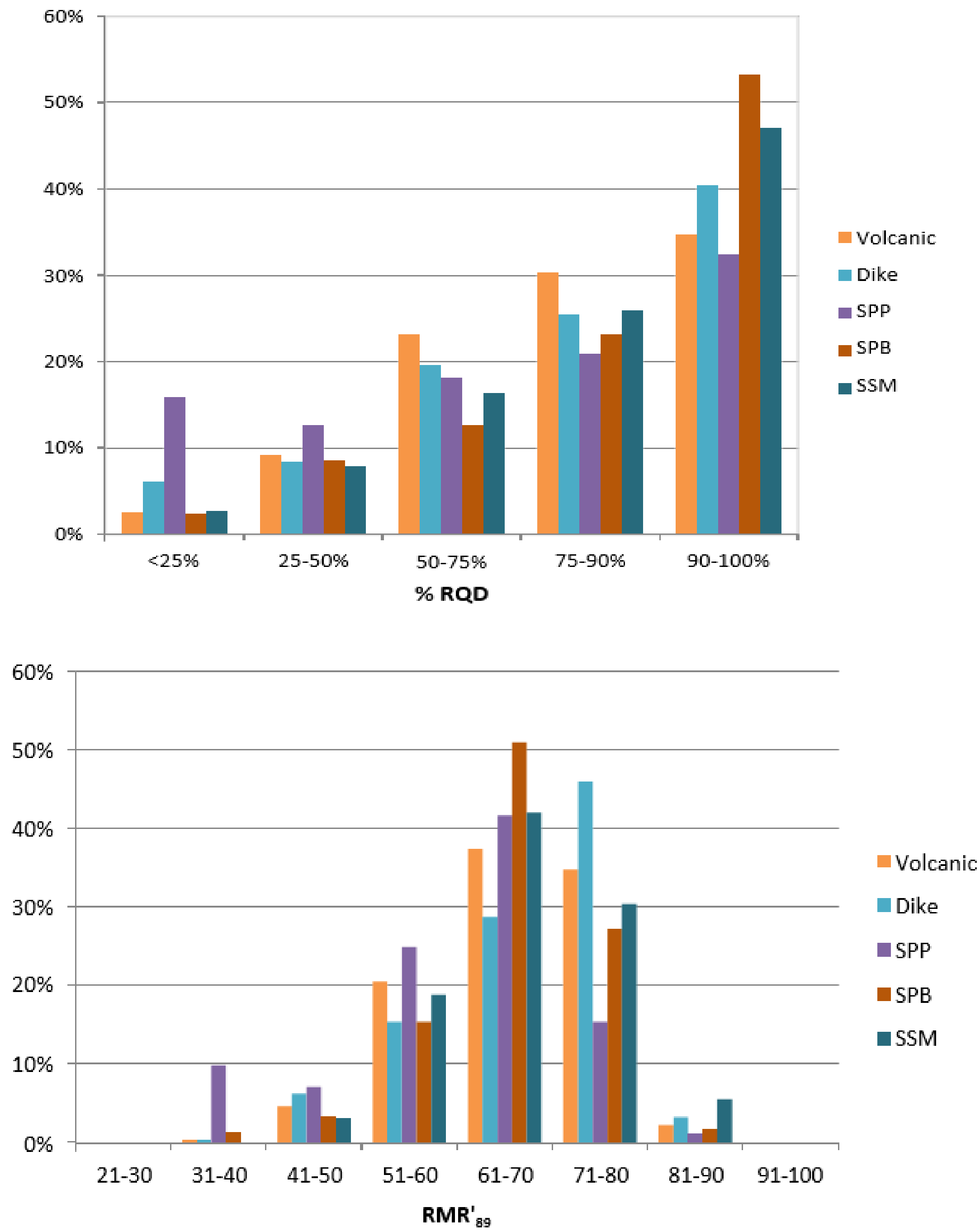


Figure 7-7: Histograms of RDQ and RMR

7.4.2 Testing and Analysis

In 2017, SRK collected core and rock samples for laboratory strength testing. Testing was performed at the SRK laboratory and comprised: 216 Uniaxial Compressive Strength (UCS) tests, and six physical properties tests including density, granulometry and soil tests. Table 7-9 and Table 7-10 list the results of the physical property and load tests respectively.

Table 7-9: Physical Property Test
Nexa Resources S.A. – Cerro Lindo Mine

No	Lithology	Sample	Dry Density (gr/cm^3)	Saturated Density (gr/cm^3)	Apparent Porosity (%)	Absorption (%)
1	SSM	1	2.64	2.67	2.96	1.12
2	SSM	2	2.64	2.67	2.75	1.04
3	Enclave	1	2.63	2.66	3.6	1.37
4	Enclave	2	2.63	2.66	2.66	1.19
5	SLB	1	2.65	2.69	3.53	1.33
6	SLB	2	2.64	2.68	3.77	1.43

Source: SRK 2017

Table 7-10: Load Testing
Nexa Resources S.A. – Cerro Lindo Mine

Lithology	Is (50)	Conversion Factor	UCS (MPa)
SPP	1.77	19	34
SPB	2.41	35	84
SSM	5.05	24	121
Volcanic Rocks	8.24	21	173
Dike	10.21	15	153
Enclave	2.8	24	67
SLB, SOB, SOP	1.9	24	46

Source: SRK 2017

In 2019 and 2020 Nexa carried out laboratory testing to determine the mechanical properties such as uniaxial compressive strength, triaxial compressive strength, indirect tensile strength, elastic moduli of intact rock, and pulse velocities and ultrasonic elastic constants, to monitor the ground stability and to define parameters for ground support design of the underground workings and main infrastructure. All testing was completed using norms such as the ASTM (American Society of Testing and Materials), IRMS (International Rock Mechanics Society), and AAMR (American Association of Rock Mechanics) in accordance with best practices. The most recent laboratory testing was carried out in 2019 by Geomecánica Latina S.A., with offices in Peru, Bolivia, and Chile.

In the SLR QP's opinion, the geotechnical drilling, logging, mapping and testing procedures meet industry standards. The SLR QP is not aware of any geotechnical drilling, logging, mapping, and testing that could materially impact the accuracy and reliability of the results.

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Density Determinations

Density and/or specific gravity (SG) data have been collected by Nexa and predecessors throughout the history of the project. It is not clear from the record which data type was actually collected. Density is a measure of the mass per unit volume of a material. In the case of geological materials, SG is the unitless ratio of the density of the sample to the density of water. At a water temperature of 4°C, the numerical value of density and SG for a given sample is exactly equal. At any other temperature, the values are different, however, for temperatures of less than 40°C, the discrepancy is in the third or fourth decimal place and is thus well within anticipated errors of the methodology. For that reason, density in g/cm^3 and SG are typically used interchangeably and not reported separately. In the case of Cerro Lindo, both density and SG data have been collected and used as "density" results. The errors introduced are very small and will not affect Mineral Resource estimation. For simplicity, SLR accepts the use of the term "density" for both density and SG data in this discussion.

AMEC (2002) reported that intervals of diamond drill core were used to obtain density information by rock type for approximately 3,000 samples prior to 2002. Bondar Clegg in Lima produced the initial bulk density determinations using the standard water-displacement method on wax-coated core.

Additional sampling and measurements were completed at site by Milpo, using the water-displacement method, but without wax coating. The suitability of these measurements was verified by testing 135 samples previously submitted to Bondar Clegg. Those data were excluded from the current Mineral Resource estimate, as they were later determined by Milpo to be suspect.

Beginning in 2013, a new sampling campaign was initiated to update, and improve, the density database. Milpo and Nexa collected 8,524 samples from underground drill holes and drift walls and submitted them to an external laboratory (Certimin or Inspectorate) for SG determinations using the water-displacement method with wax-coated core. Of these, 4,410 samples were located in the mineralization domains (Figure 8-1) and 4,114 samples were located in the wallrock. A buffer of 20 m was used to select and review the density data in the wallrock totalling 1,215 density measurements.

Table 8-1 summarizes the density measurements by sample type and year. The 2020 mean and median density data by domain are summarized in Section 11, Mineral Resource Estimate (Bulk Density).

Table 8-1: Number of Density Measurements by Sample Type and Year
Nexa Resources S.A. – Cerro Lindo Mine

Phase	Sample Type	No. Samples	No. Samples within Mineralization Zones
CL2013	Drift Walls	84	59
	Drill Holes	53	20
CL2014	Drill Holes	197	133
CL2015	Drill Holes	451	353
CL2016	Drill Holes	546	445
CL2017	Drill Holes	1,127	927

Phase	Sample Type	No. Samples	No. Samples within Mineralization Zones
CL2018	Drill Holes	3,349	1,286
CL2019	Drill Holes	2,191	882
CL2020	Drill Holes	526	305
Total	Drill Holes	8,524	4,410

Note. In addition, there are 1,215 density measurements in wallrock (20 m buffer zone) used in the resource estimate.

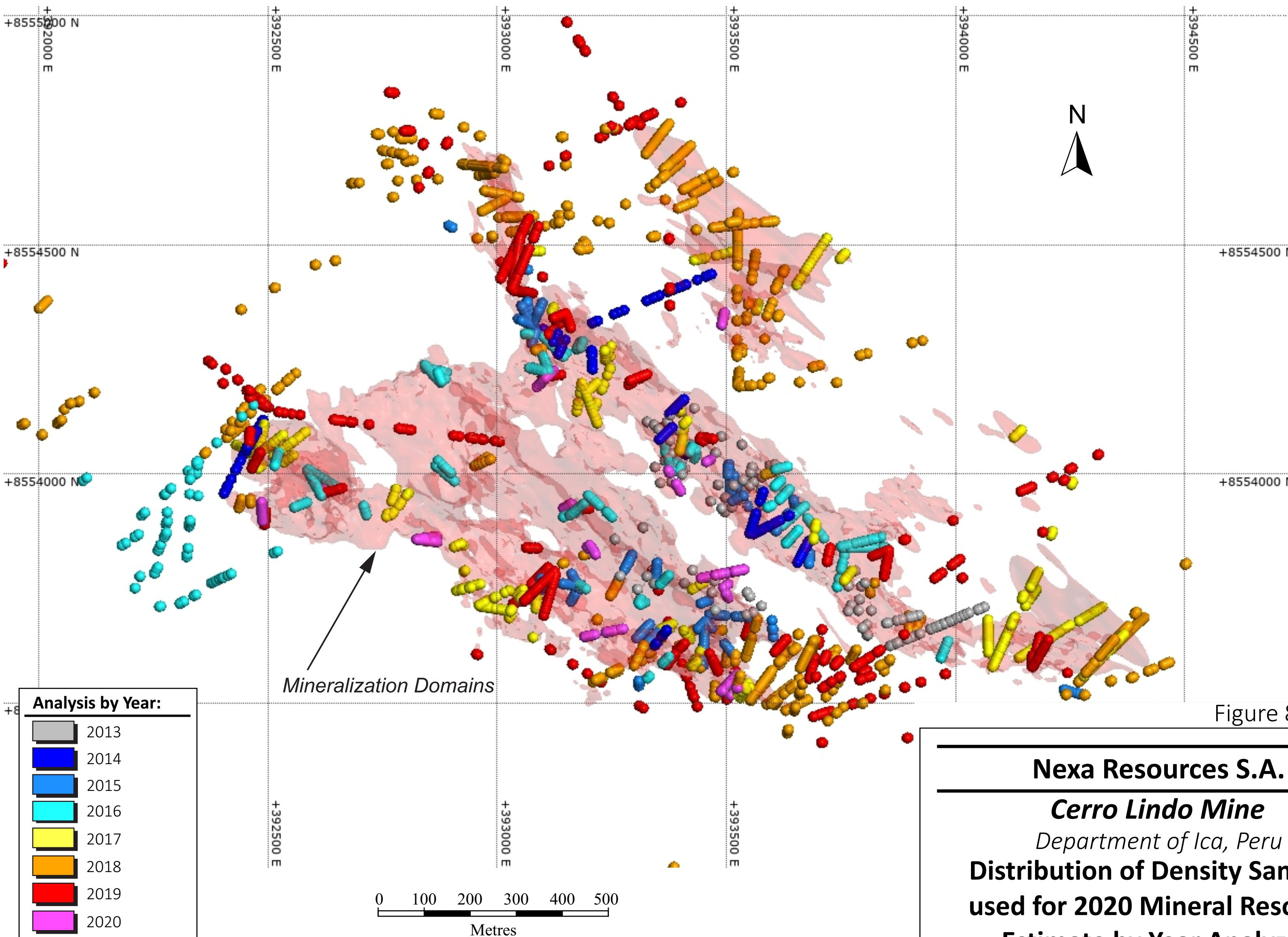


Figure 8-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Distribution of Density Samples used for 2020 Mineral Resource Estimate by Year Analyzed

January 2021

Source: Nexa, 2020.

8.2 Analytical and Test Laboratories

No details were available regarding laboratory procedures prior to the Milpo 1999 drilling campaign, including the Phelps Dodge drill program.

Samples from drilling and underground sampling programs completed by Milpo from 1999 to 2001 were prepared at the Bondar Clegg facility in Lima and analyzed at the Bondar Clegg laboratory in Bolivia (AMEC, 2002). Bondar Clegg's laboratories in Lima and Bolivia were not certified; however, both followed protocols set out by Bondar Clegg's Vancouver laboratory, which had ISO 9001 certification.

The check or umpire laboratory used was SGS Lima (SGS), which was an ISO 9001 certified laboratory.

Starting in 2007 until the beginning of October 2019, all mine samples were processed at the Cerro Lindo Mine laboratory (Mine Laboratory), which was managed by SGS between 2007 and 2011 and since 2011, by Inspectorate. The Mine Laboratory shut down due to lack of capacity at the beginning of October, and since that time, mine samples have been sent to Inspectorate Lima. From 2014 to 2016, exploration samples were processed at Inspectorate Lima, however, that laboratory was replaced in early 2016 by Certimin Lima. In late 2019, ALS Lima was also retained by Nexa to process exploration samples.

During the 2018 to 2019 drilling campaign, ALS Lima was used as a secondary laboratory for external check for mine and exploration samples.

Inspectorate Lima has ISO 9001, ISO 14001, and ISO 19007 certification. Certimin Lima holds ISO 9001 and NTP-ISO/IEC 17025 and 17021 certifications and is accredited by the Organismo Peruano de Acreditación (INACAL). ALS geochemical laboratories are accredited to ISO/IEC 17025:2005 for specific analytical procedures. Both Certimin and ALS laboratories are independent of Nexa.

The Mine Laboratory was neither certified nor accredited.

Table 8-2 summarizes the laboratories used for preparation and analysis of exploration and mine samples at Cerro Lindo since 1999.

Table 8-2: Analytical and Test Laboratories
Nexa Resources S.A. – Cerro Lindo Mine

Laboratory Name	Location	Period of Use	Comments	Certified/Accredited	Independent
Bondar Clegg	Lima	1999–2001	Preparation of drilling and underground samples. Protocols set out by Bondar Clegg Vancouver, which is ISO 9001 accredited.	Not accredited	Yes
Bondar Clegg	Bolivia	1999–2001	Drilling and underground sample analyzed. Protocols set out by Bondar Clegg Vancouver which is ISO 9001 accredited	Not accredited	Yes
SGS	Lima	1999–2001	Check laboratory	ISO 9001	Yes
Mine Laboratory	Cerro Lindo site	2007–2011	Processing of all mine samples. Managed by SGS.	No	No

Laboratory Name	Location	Period of Use	Comments	Certified/Accredited	Independent
Mine Laboratory	Cerro Lindo site	2011–2020	Processing of all mine and process samples. Managed by Inspectorate Lima.	No	No
Inspectorate	Lima	2014–2016	Processing of exploration samples	ISO 9001 ISO 14001 ISO 19007	Yes
Certimin	Lima	2016–2019	Processing of exploration samples	ISO 9001 NTP-ISO/IEC 17025 and 17021 Accredited by Organismo Peruano de Acreditación INACAL	Yes
Inspectorate	Lima	2019– 2020	Primary laboratory for mine samples	ISO 9001 ISO 14001 ISO 19007	Yes
ALS	Lima	2019-2020	Processing of exploration samples	ISO 9001	Yes

8.3 Sample Preparation and Analysis

8.3.1 Geochemical Samples

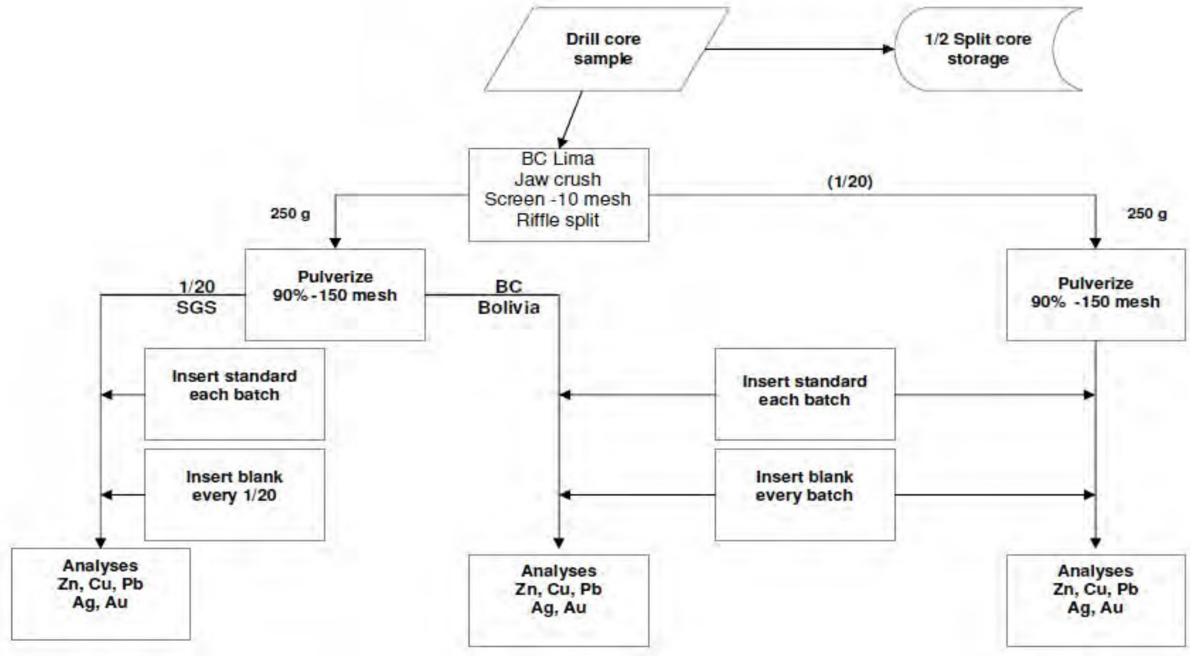
Lithogeochemical samples collected by Imaña (2015) were analyzed at ACME Laboratories Vancouver using lithium metaborate fusion and inductively coupled plasma mass spectrometry (ICP-MS) for major oxides and for refractory and rare-earth elements. An ICP-MS package with multi-acid digestion was used to analyze other elements. Additional details regarding geochemical sample preparation and assaying during this study were not available.

8.3.2 Exploration Samples

The sample preparation procedure at Bondar Clegg Lima involved the following steps (Figure 8-2; AMEC, 2002):

- Jaw-crushing to 2 mm (10 mesh ASTM)
- Homogenization and splitting to obtain a 250 g sub-sample using a Jones splitter
- Pulverizing the sub-sample to 90% minus 0.106 mm (150 mesh Tyler).

Samples were assayed at Bondar Clegg Bolivia for silver, copper, lead, zinc, and gold. No details were available regarding the assay methods.



Note: Figure prepared by AMEC, 2002.

Figure 8-2: Sample Preparation and Quality Control Flowsheet (Milpo 2000–2001 Program)

Since 2007, exploration samples sent to Certimin, Inspectorate, and ALS Lima have been prepared using the same procedure used by the Mine Laboratory discussed in the following section. Analyses of silver, zinc, copper, and lead are performed by four-acid digestion followed by atomic absorption spectroscopy (AAS). A four-acid digestion followed by ICP optical emission spectrometry (ICP-OES) analysis is used for multielement analyses on all samples.

8.3.3 Mine Samples

Since 2007, sample preparation of geological samples at the Mine Laboratory and currently Inspectorate Lima has followed the procedure:

- Drying at 105°C ± 5°C in stainless steel trays.
- Primary crushing to 3/4" using a Rhino jaw crusher.
- Secondary crushing to better than 85% minus 2 mm (10 mesh ASTM) using a RockLabs jaw crusher. A Boyd crusher with a dedicated rotary splitter was acquired in 2016 and is now in service.
- Homogenization and splitting to obtain a 200 g to 250 g sub-sample using a Jones splitter with 28 one-centimetre wide chutes. The dedicated rotary splitter attached to the Boyd crusher is now used.
- Pulverizing the collected sub-sample to 95% minus 0.105 mm (140 mesh ASTM) in a TM Andina™ ring pulverizer.

Geological samples average 3 kg to 5 kg. All preparation workstations are provided with compressed air hoses for cleaning and dust extraction. Sieve checks are conducted on 3% of randomly chosen crushed and pulverized samples, however, only one set of checks (the first one) is formally recorded every day. Results are posted in the laboratory for all personnel to review.

Geological samples are assayed for silver, copper, lead, zinc, and iron using 0.25 g aliquots, aqua regia digestion, and AAS determination. Detection limits for the Mine Laboratory, Inspectorate Lima, Certimin Lima, and ALS Lima are summarized in Table 8-3.

Table 8-3: Detection Limits at Mine Laboratory, Inspectorate Lima and Certimin Lima
Nexa Resources S.A. – Cerro Lindo Mine

Laboratory	Detection Limit				
	Ag (ppm)	Cu (%)	Pb (%)	Zn (%)	Fe (%)
Mine Laboratory	0.4	0.01	0.01	0.01	0.01
Inspectorate Lima	1.0	0.01	0.01	0.01	0.01
Certimin Lima	0.2	0.00005	0.0002	0.00005	0.01
ALS Lima	0.01	0.00002	0.001	0.0002	0.01

Laboratory personnel collect samples manually from various positions in the process flow to determine the head, concentrate, and tailing grades in 12-hour composites. The high grade concentrate samples are prepared at separate facilities from the exploration samples to avoid possible contamination of lower grade samples. Tailings are assayed using procedures similar to those for geological samples with concentrates requiring the use of volumetric methods for copper, lead, and zinc due to the higher grades.

The Mine Laboratory used a proprietary Global Laboratory Information Management System (GLOBAL LIMS) for digitally registering all measurements (including scale weights), without any human intervention in the data flow. The LIMS determines the position where control samples must be inserted, and assesses the results of the QC, indicating if those results are acceptable or not. Acceptable results are then directly transferred into the mine database.

8.4 Sample Security

Core boxes are transported every day to the core shed by personnel from the drilling company. Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

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

8.5 Quality Assurance and Quality Control

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used in order to have confidence in the resource estimation. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of sampling, preparing, and assaying the drill core samples. In general, QA/QC programs are designed to prevent or detect contamination and allow analytical precision and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling – assaying variability of the sampling method itself.

At Cerro Lindo, QC samples have been inserted into the sample stream since 1996 and channel samples since 2012. The Mine routinely sends in-house certified reference materials (CRMs), blanks, field (twin), coarse reject, and pulp duplicates, and external checks for analysis. Prior to Nexa's drilling campaigns, standard reference materials (SRM) were used, however, during 2017, Nexa replaced SRMs with CRMs. No SRMs or blanks were submitted during the 1999-2001 Phase 1 drilling campaign. In 2018, Nexa incorporated systematic external checks into the QA/QC program, and pulps have since been sent to external laboratories for analysis. Currently, Inspectorate Lima analyzes samples from infill drilling and Certimin and ALS Lima analyze samples from brownfield exploration drilling.

8.5.1 Phelps Dodge, 1996-1997

This section has mostly been taken from AMEC (2017).

The Phelps Dodge drilling campaign included a thorough QC program, including the use of blanks, standards, and duplicates. AMEC (2002) reviewed the results for all zinc values greater than 1% and concluded that this work was completed to an acceptable industry standard.

8.5.2 Milpo, 1999–2016

This section has mostly been taken from AMEC (2017).

From 1999 to 2001, a QC program was put in place during the feasibility study (AMEC, 2002). During Phase 1, the program did not include SRMs or blanks, however, samples were submitted for external control to SGS. Zinc data showed acceptable analytical performance.

During Phases 2 and 3, the program included the insertion of SRMs and coarse blanks as well as coarse reject and pulp duplicates. AMEC (2002) summarized the results as follows:

- Copper and zinc SRMs were submitted with every batch and results were within control limits. The copper accuracy was adequately controlled.
- Check assays of copper and zinc show satisfactory agreement and no apparent bias.
- No significant copper and/or zinc contamination during sample preparation and assaying was identified.
- Coarse duplicate samples met acceptable criteria. The sample preparation protocol appeared to be adequate.

From 2007 to 2012, AMEC (2010, 2012, and 2013) and Snowden (2008 and 2011) reviewed the QC protocol implemented at the time. The protocol included the insertion of quarter-core twin samples, twin channel samples, coarse and pulp duplicates, two SRMs for core samples and one SRM for channel samples, and coarse blanks. The insertion rates were not specified. AMEC (2013) concluded that:

- Sampling precision for zinc, copper, lead, and silver was within or close to acceptable limits, however, AMEC (2013) recommended that twin samples be collected from the remaining half-core rather than quarter-core.
- Sub-sampling precision for zinc, lead, and silver was within acceptable limits, while the copper error rate exceeded the limits.
- Analytical precision was poor for zinc, copper, and silver, and acceptable for lead.
- Accuracy was monitored using SRMs documented on a limited inter-laboratory test. Although biases appeared to be reasonable for the two SRMs used on core sample submissions, AMEC

(2013) recommended that SRMs be better documented by analysis at additional laboratories. Data from the SRM used for channel sample submissions were not presented.

- Blank samples did not indicate the presence of significant contamination during preparation and/or assaying.

During the 2014 and 2015 drilling campaigns, Milpo (2016a, 2016b) implemented a QC program for channel and core samples, which was similar to the program implemented in 2012 and 2013 (AMEC, 2013). During 2015, 975 channel samples (including 183 control samples) were submitted to the laboratory. The overall insertion rate for QC samples was 19.2%. Conclusions included:

- Sampling and sub-sampling precision for lead and silver were within acceptable limits (10%), however, failure rates for copper for all duplicates and for zinc for twin samples and coarse duplicates considerably exceeded the acceptable limits. This may be the result of poor sampling practices, although Milpo (2016a) suggested that the practical lower detection limit was actually higher than believed by the laboratory. If so, the actual failure rates could be lower.
- Most SRMs exhibit bias values within or relatively close to the acceptable limits (±5%). Only MCL-03 Certimin for copper produced a very high positive bias, however, due to the very low copper grade of the MCL-03 SRM for copper (0.04%), AMEC recommended not using it as an SRM for copper. Low coefficients of variation (not exceeding 2.3%) suggest good analytical precision at those grade levels for all elements.
- Based on the results of the coarse blank data, no significant contamination during preparation or assaying occurred.

The 2016 QA/QC protocol included inserting one coarse blank, one SRM, one twin sample, one coarse duplicate, and one pulp duplicate in every 25-sample batch. The coarse blank material is obtained from a nearby granodiorite pit. A total of 4,934 QA/QC samples were inserted into the sample stream at an overall insertion rate of 17.50%. AMEC reviewed the monthly reports and QC data and concluded the following:

- Duplicate failure rates were usually below or very close to the industry accepted limits. Therefore, sampling, sub-sampling, and analytical precisions were generally within acceptable limits.
- Most bias values lay within the acceptable ±5% range, however, high grade zinc values were, on average, underestimated by approximately 8% from January to March 2017. The underestimation returned to an acceptable level in April 2017.
- Most coefficients of variations were below 5% suggesting good analytical precision. This was in agreement with pulp duplicate data.
- No significant contamination during preparation or assaying was identified for any of the studied elements.

QA/QC sample insertion rates from 2014 to 2016 are listed in Table 8-4. The 2014 to 2016 QA/QC program details, for the Mine, Inspectorate Lima, and Certimin laboratories, are summarized in Table 8-5. The method of analysis used was aqua regia with an AAS finish (Ag, Cu, Pb, and Zn).

Table 8-4: QA/QC Sample Insertion Rates, 2014-2016
Nexa Resources S.A. – Cerro Lindo Mine

Control Sample Type		No. Samples	Insertion Rate (%)
Blanks	Coarse	1,765	3.69%
	Low grade (STD1-STD4)	471	0.99%
Standards	Medium grade (STD2)	409	0.86%
	High grade (STD3-STD5)	837	1.75%
	Field Duplicate	1,749	3.66%
Duplicates	Coarse Duplicate	1,792	3.75%
	Fine Duplicate	1748	3.66%
Total		**8,771**	**18.35%**

Table 8-5: 2014-2016 QA/QC Program Summary
Nexa Resources S.A. – Cerro Lindo Mine

Laboratory	QA/QC Sample	Type	No. Samples	Failure Límit (%)	Bias (%)			
					Ag	Cu	Pb	Zn
Mine Laboratory	Blanks	Coarse	1751	<5%	0.04%	0.18%	0.22%	0.22%
	Standards	STD1,2,3	1626	<5%	0.43%	0.81%	-3.61%	-4.51%
		Field Dups	1706	<10%	2.10%	6.34%	3.40%	5.39%
	Duplicates	Coarse Dupl	1749	<10%	3.71%	6.15%	3.60%	7.69%
		Fine Dupl	1706	<10%	1.85%	2.76%	1.54%	4.35%
Inspectorate (Lima)	Blanks	Coarse	41	<5%	0.00%	0.00%	0.00%	0.00%
	Standards	STD4,5	66	<5%	7.90%	2.00%	2.20%	-2.40%
		Field Dupl	43	<10%	0.00%	0.00%	0.00%	0.00%
	Duplicates	Coarse Dupl	43	<10%	0.00%	0.00%	0.00%	0.00%
		Fine Dupl	42	<10%	0.00%	0.00%	0.00%	0.00%
Certimin	Standards	STD4,5	43	<5%	3.90%	2.80%	-6.40%	0.70%
	Total		**8,771**					

8.5.3 Nexa, 2017-2020

The following QA/QC protocols are in place at the Mine. Currently, the primary laboratory for preparation and analysis of the infill drilling (mine) samples is Inspectorate Lima. Prior to October 2019, the mine samples were prepared and analyzed at the Mine Laboratory (Inspectorate Mine). For brownfield exploration drilling (exploration) samples, the primary laboratories have been Certimin and ALS Lima. The secondary laboratories, used for external check for mine and exploration samples during the 2018 to 2019 drilling campaign, was ALS. During the 2019 to 2020 drilling campaign (Nexa, 2020c), Nexa collected part of the check samples, however, these were not sent to the secondary laboratory as mining activities were interrupted due to COVID-19 restrictions.

8.5.3.1 QA/QC Protocols

Nexa has the following QA/QC protocols in place.

For infill drilling, each batch of 50 samples submitted for sample preparation and analysis includes 42 regular samples, two CRM samples, two coarse blank samples, two coarse duplicates, and two pulp duplicates. For exploration drilling, each batch of 35 samples submitted for sample preparation and analysis includes 30 regular samples, one CRM sample, one coarse blank sample, one field duplicate sample (second half of a split core sample for HQ or NQ core size), one coarse duplicate, and one pulp duplicates. Field duplicates are inserted directly following the original sample, coarse blank material samples are inserted following a mineralized zone, and CRM samples are inserted randomly.

All QA/QC sample insertions maintain consecutive numerical order. Pulp reject duplicates, an additional split of material taken after the pulverizing stage, are saved and then resubmitted to the secondary laboratory at a later date at a rate of approximately 2% of the total samples submitted.

Each batch of check samples (pulp rejects) submitted to the secondary laboratory includes one CRM sample.

QA/QC samples represent approximately 20% of the total samples. A QA/QC report is prepared monthly, by the onsite Database Administrator, and reviewed by the Resource Geologist and the Nexa corporate QA/QC coordinator in San Paulo. Batches of samples identified by a QA/QC review as an anomalous result are repeated by the laboratory at the request of the Geology team. Table 8-6 shows the control sample insertion rate and the acceptance criteria followed during Nexa's QA/QC program for Cerro Lindo.

Table 8-6: Control Sample Insertion Rate and Failure Criteria
Nexa Resources S.A. – Cerro Lindo Mine

Control Sample	Type	Insertion Rate	Failure Criteria	Expected/allowed % Failures
Blanks		1 in 20 (5%)	5 x DL	<5%
CRMs		1 in 20 (5%)	Outside 3 STD	<10%
Duplicates	Twin	1 in 100 (1%)	<±30% relative error	<10%
	Coarse	1 in 100 (1%)	<±20% relative error	<10%
	Pulp	1 in 20 (5%)	<±10% relative error	<10%
External checks	Pulp	1 in 20 (5%)	<5% bias	<10%

A QA/QC relational database is maintained in Fusion. A summary of QA/QC submittals from 2017 to 2020 is presented in Table 8-7.

Table 8-7: Summary of QA/QC Submittals from 2017 to 2020
Nexa Resources S.A. – Cerro Lindo Mine

Sample Type		2017-Aug.18		Set.18 - Abr.19		May.19 - Mar.20	
		Count	Insertion Rate	Count	Insertion Rate	Count	Insertion Rate
Regular Samples		34,963		46,420		71,546	
Blanks	Coarse	1,214	3.5%	1,794	3.9%	2,624	3.7%
	Low grade	621	1.8%	761	1.6%	859	1.2%
CRMs	Medium grade	-	-	306	0.7%	832	1.2%
	High grade	598	1.7%	656	1.4%	823	1.2%
	Twin Samples	1,221	3.5%	1,234	2.7%	1,695	2.4%
Field Duplicates	Coarse	1,212	3.5%	2,069	4.5%	3,017	4.2%
	Pulp	1,208	3.5%	1,843	4.0%	2,684	3.8%
External Check		569	1.5%	572	1.2%	-	-
			19.0%		**19.9%**		**17.5%**

The SLR QP has reviewed the raw data provided by Nexa, as well as annual QA/QC reports prepared by Nexa for 2017 through February 2020, and is of the opinion that the procedures meet industry standards and the conclusions of the analysis support the Mineral Resource database at the Mine.

8.5.3.2 Certified Reference Material

The regular submission of CRMs, prepared in-house and certified by accredited laboratories, for analysis help identify issues with specific sample batches and long term biases associated with the assay laboratories. CRMs were inserted into the sample stream by technicians trained in quality control procedures. Four CRMs using in-house material (MCL 04, MCL 05, MCL 06, and MCL 07) were prepared by Target Rocks Peru S.A.C. and certified by Smee & Associates Consulting Ltd. and three CRMs (PECLSTD001, PECLSTD002, PECLSTD003) were prepared and certified by Target Rocks Peru S.A.C.

Table 8-8 lists the certified values of the CRMs for Zn, Cu, Pb, and Ag and Table 8-9 summarizes Nexa's in-house CRM performance.

The conventional approach to setting reference standard acceptance limits is to use the mean assay ±2 standard deviations as a warning limit and ±3 standard deviations as a failure limit. Figure 8-3 and Figure 8-4 show examples of zinc and copper CRM results from the Mine and Certimin laboratories for 2017-2018. Figure 8-5 illustrates the zinc and copper CRM results from the Mine for the 2018-2020 period.

SLR reviewed the results returned from the CRMs and offers the following comments:

- Results for the CRMs are generally within acceptable limits with a small percentage of failures.
- Some biases are observed in some CRMs as described below.
  - Zinc: The control charts show a small negative zinc bias (-3% to -4%) for MCL-06, MCL-07, and PECLSTD003 for the Mine Laboratory (Figure 8-6), and a small positive bias (+3%) for PECLSTD002 and PECLSTD003 for Certimin for 2018-2019 period.

- Copper: A small positive copper bias (5%) for MCL-04 and a small negative bias (-3% to -4%) for PECLSTD003 for the Mine Laboratory.
- Silver: A small positive silver bias (3% to 5%) for MCL-06 for the 2017-2018 period and MCL-04 for the 2018-2019 period, and a small negative bias (-4% to -5%) for PECLSTD003 for the Mine Laboratory. A small positive bias (4%) for MCL-04 for Certimin during the 2018-2019 period.
- Lead: A systematic relatively small negative lead bias (-3% to -8%) for MCL-04, MCL-06, MCL-07, PECLSTD002, and PECLSTD003 for the Inspectorate Mine and Inspectorate Lima laboratories A small positive bias (3%) for MCL-07 for Certimin. During December 2019 to January 2020, the lead failure rate for the PECLSTD001, PECLSTD002, and PECLSTD003 in the ALS laboratory was high due to the four acid digestion method used in samples with high iron content, however, sample batches related to this issue are mostly outside the Cerro Lindo mineralization domains and are not material for resource estimates purpose. ALS has changed from the four acid digestion to aqua regia digestion method resulting in failure rate within acceptable limits.
- Overall, there is a small percentage of failures, however, the percentage of failure for lead for PECLSTD002 and PECLSTD003 exceeded the tolerance limit (20% to 36%) for the Mine Laboratory during the 2018-2019 period. For silver, the failure percent for PECLSTD002 was exactly equal to the tolerance limit for this same period.
- Nexa should investigate the systematic relatively small negative bias observed for the lead at Inspectorate Mine and Inspectorate Lima, and should incorporate controls to reduce failure rates observed for some lead and silver CRMs.
- All biases observed should continue to be monitored on an on-going basis.

Table 8-8: 2017-2020 Cerro Lindo In-House CRM Values
Nexa Resources S.A. – Cerro Lindo Mine

Certification Laboratory	Analytical Method	Type Standard	Element	Best Value	SD
Smee & Associates Consulting Ltd.	Aqua Regia Digestion + AAS or ICP finish	Low grade (MCL-04)	Ag Oz/t	0.46	
			Cu %	0.36	
			Pb %	0.157	
			Zn %	1.691	
		High grade (MCL-05)	Ag Oz/t	1.74	
			Cu %	0.791	
			Pb %	1.07	
			Zn %	4.92	
	Aqua Regia Digestion + ICP-OES or AAS finish	Low grade (MCL-06)	Ag g/t	30.6	
			Cu %	0.387	
			Pb %	0.416	
			Zn %	2.18	
		High grade (MCL-07)	Ag g/t	56.4	
			Cu %	0.641	
			Pb %	1.145	
			Zn %	5.4	
			Cu %	0.429	0.01
			Pb %	0.53	0.021
			Zn %	1.04	0.017
		Medium grade (PECLSTD002)	Ag g/t	51.1	1.839
			Cu %	0.738	0.019
			Pb %	0.65	0.014
			Zn %	2.35	0.05
		High grade (PECLSTD003)	Ag g/t	109	2.637
			Cu %	1.454	0.035
			Pb %	1.6	0.029
			Zn %	5.19	0.151

Table 8-9: 2017-2020 Cerro Lindo In-House CRM Performance
Nexa Resources S.A. – Cerro Lindo Mine

Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
Oct. 2017-Aug 2018	Inspectorate Mine	AAS	Low grade (MCL-04)	Ag Oz/t	20	0.46	0.47	1%	0	0%
				Cu %	20	0.36	0.38	5%	0	0%
				Pb %	20	0.16	0.14	-8%	0	0%
				Zn %	20	1.69	1.70	0%	0	0%
			High grade (MCL-05)	Ag Oz/t	19	1.74	1.74	0%	0	0%
				Cu %	19	0.79	0.80	1%	1	5%
				Pb %	19	1.07	1.06	-1%	0	0%
				Zn %	19	4.92	4.91	0%	0	0%
			Low grade (MCL-06)	Ag g/t	457	30.60	31.73	5%	0	0%
				Cu %	457	0.39	0.40	2%	0	0%
				Pb %	457	0.42	0.39	-5%	2	0%
				Zn %	457	2.18	2.11	-3%	8	2%
			High grade (MCL-07)	Ag g/t	444	56.40	57.54	2%	11	2%
				Cu %	444	0.64	0.64	0%	5	1%
				Pb %	444	1.15	1.11	-3%	12	3%
				Zn %	444	5.40	5.21	-3%	8	2%
	Certimin	ICP-OES + AAS finish	Low grade (MCL-06)	Ag g/t	312	30.60	0.99	0%	1	0%
				Cu %	312	0.39	0.39	2%	21	7%
				Pb %	312	0.42	0.41	-1%	14	4%
				Zn %	312	2.18	2.18	0%	2	1%
			High grade (MCL-07)	Ag g/t	270	56.40	1.85	2%	7	3%
				Cu %	270	0.64	0.65	1%	2	1%
				Pb %	270	1.15	1.17	3%	0	0%
				Zn %	270	5.40	5.43	1%	3	1%

Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
Sep. 2018 - Apr.2019	Inspectorate Mine	AAS	Low grade (MCL-04)	Ag Oz/t	319	0.46	0.47	3%	0	0%
				Cu %	319	0.36	0.37	2%	0	0%
				Pb %	319	0.16	0.14	-8%	0	0%
				Zn %	319	1.69	1.70	0%	0	0%
			High grade (MCL-05)	Ag Oz/t	254	1.74	1.75	1%	0	0%
				Cu %	254	0.79	0.79	0%	0	0%
				Pb %	254	1.07	1.05	-2%	0	0%
				Zn %	254	4.92	4.92	0%	0	0%
			Low grade (PECLSTD001)	Ag g/t	224	42.50	42.70	0%	0	0%
				Cu %	224	0.43	0.43	0%	5	2%
				Pb %	224	0.53	0.51	-2%	2	1%
				Zn %	224	1.04	1.06	1%	9	4%
			Medium grade (PECLSTD002)	Ag g/t	223	51.10	51.71	1%	0	0%
				Cu %	223	0.74	0.74	0%	0	0%
				Pb %	223	0.65	0.62	-5%	45	20%
				Zn %	223	2.35	2.38	1%	2	1%
			High grade (PECLSTD003)	Ag g/t	200	109.00	103.57	-5%	20	10%
				Cu %	200	1.45	1.40	-4%	2	1%
				Pb %	200	1.60	1.49	-7%	71	36%
				Zn %	200	5.19	5.02	-4%	0	0%
	Certimin	ICP-OES + AAS finish	Low grade (MCL-04)	Ag Oz/t	132	0.46	0.48	4%	0	0%
				Cu %	132	0.36	0.36	-1%	0	0%
				Pb %	132	0.16	0.15	-2%	0	0%
				Zn %	132	1.69	1.66	-2%	0	0%
			High grade (MCL-05)	Ag Oz/t	127	1.74	1.75	1%	0	0%
				Cu %	127	0.79	0.81	2%	0	0%
				Pb %	127	1.07	1.09	2%	0	0%
				Zn %	127	4.92	4.93	0%	0	0%
			Low grade (PECLSTD001)	Ag g/t	86	42.50	42.69	0%	0	0%
				Cu %	86	0.43	0.44	2%	0	0%
				Pb %	86	0.53	0.53	0%	0	0%
				Zn %	86	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	83	51.10	51.31	0%	0	0%
				Cu %	83	0.74	0.75	2%	0	0%
				Pb %	83	0.65	0.66	0%	0	0%
				Zn %	83	2.35	2.43	3%	0	0%
			High grade (PECLSTD003)	Ag g/t	75	109.00	108.76	0%	0	0%
				Cu %	75	1.45	1.48	2%	0	0%
				Pb %	75	1.60	1.61	1%	0	0%
				Zn %	75	5.19	5.33	3%	0	0%

Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
May 2019 - Feb.2020	Inspectorate Mine	AAS	Low grade (PECLSTD001)	Ag g/t	299	42.50	42.42	0%	0	0%
				Cu %	299	0.43	0.43	0%	0	0%
				Pb %	299	0.53	0.52	-2%	7	2%
				Zn %	299	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	271	51.10	51.33	0%	4	1%
				Cu %	271	0.74	0.75	1%	7	3%
				Pb %	271	0.65	0.63	-3%	5	2%
				Zn %	271	2.35	2.38	1%	3	1%
			High grade (PECLSTD003)	Ag g/t	268	109.00	103.9	-5%	0	0%
				Cu %	268	1.45	1.41	-3%	0	0%
				Pb %	268	1.60	1.50	-7%	2	1%
				Zn %	268	5.19	5.04	-3%	3	1%
	Certimin	ICP-OES + AAS finish	Low grade (PECLSTD001)	Ag g/t	182	42.50	42.42	0%	0	0%
				Cu %	182	0.43	0.43	1%	0	0%
				Pb %	182	0.53	0.53	1%	0	0%
				Zn %	182	1.04	1.05	1%	0	0%
			Medium grade (PECLSTD002)	Ag g/t	200	51.10	51.52	1%	0	0%
				Cu %	200	0.74	0.75	2%	0	0%
				Pb %	200	0.65	0.66	1%	0	0%
				Zn %	200	2.35	2.43	3%	1	1%
			High grade (PECLSTD003)	Ag g/t	187	109.00	108.91	0%	0	0%
				Cu %	187	1.45	1.50	3%	5	3%
				Pb %	187	1.60	1.61	1%	0	0%
				Zn %	187	5.19	5.33	3%	0	0%
	ALS		Low grade (PECLSTD001)	Ag g/t	88	42.50	42.84	1%	1	1%
				Cu %	88	0.43	0.43	1%	3	3%
				Pb %	32	0.53	0.52	0%	0	0%
				Zn %	88	1.04	1.05	0%	4	5%
			Medium grade (PECLSTD002)	Ag g/t	79	51.10	51.20	0%	1	1%
				Cu %	79	0.74	0.74	0%	1	1%
				Pb %	27	0.65	0.64	-1%	1	4%
				Zn %	79	2.35	2.39	2%	2	3%
			High grade (PECLSTD003)	Ag g/t	73	109.00	108.39	-1%	4	5%
				Cu %	73	1.45	1.47	1%	1	1%
				Pb %	26	1.60	1.55	-3%	0	0%
				Zn %	73	5.19	5.26	1%	0	0%

Period	Laboratory	Analytical Method	Type Standard	Element	No. Samples	Best Value	Mean	Bias	No. Samples outside 3SD	Failure Rate
	Inspectorate Lima		Low grade (PECLSTD001)	Ag g/t	289	42.50	42.27	-1%	1	0%
				Cu %	289	0.43	0.424	-1%	0	0%
				Pb %	289	0.53	0.51	-4%	0	0%
				Zn %	289	1.04	1.05	1%	2	0%
			Medium grade (PECLSTD002)	Ag g/t	282	51.10	51.32	0%	1	0%
				Cu %	282	0.74	0.75	1%	4	1%
				Pb %	282	0.65	0.61	-7%	3	0%
				Zn %	282	2.35	2.40	2%	5	1%
			High grade (PECLSTD003)	Ag g/t	295	109.00	105.4	-3%	2	1%
				Cu %	295	1.45	1.42	-2%	9	3%
				Pb %	295	1.60	1.51	-6%	1	0%
				Zn %	295	5.19	5.18	0%	3	1%

0 - 5% bias	Excellent	
5 - 10% bias	Attention	
>10% bias	Reject	STD Bias % = (mean average/ certified value) - 1

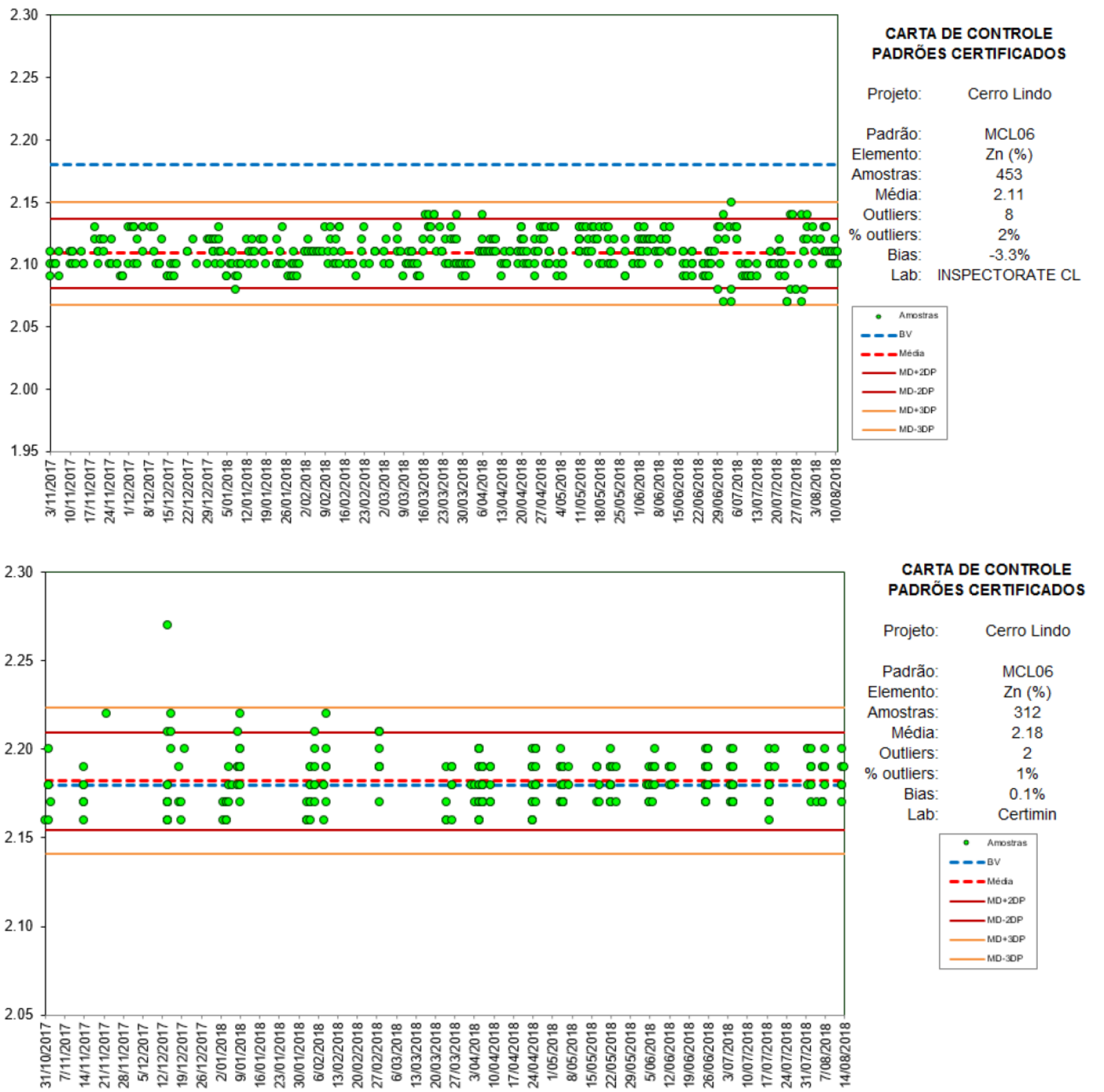
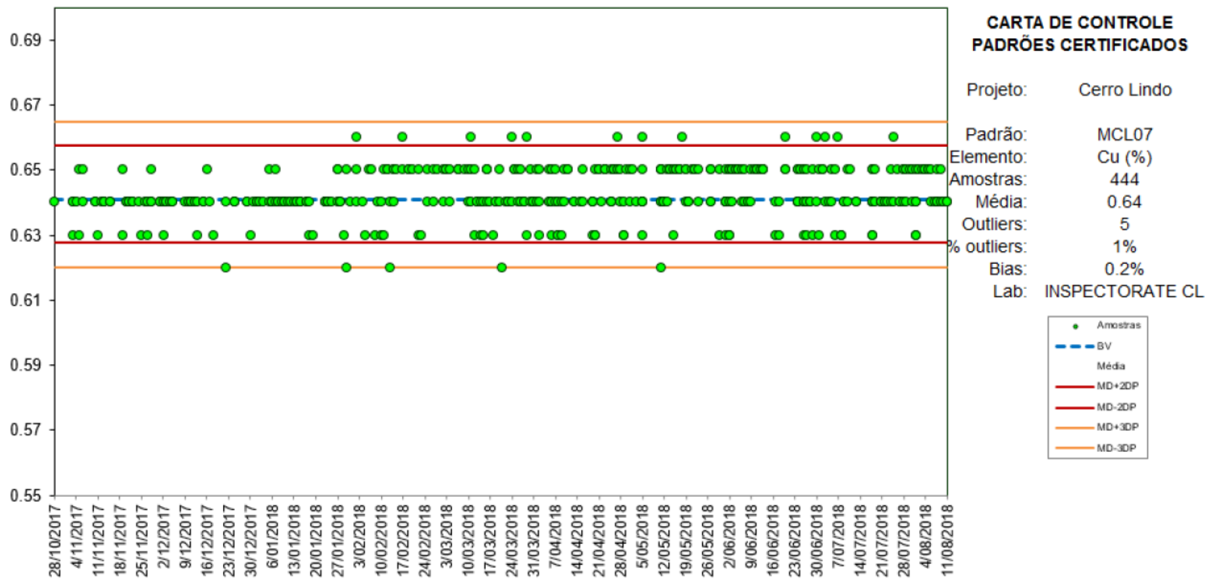


Figure 8-3: CRM "MCL06" Results for Zinc – Mine and Certimin Laboratories – (2017-2018)



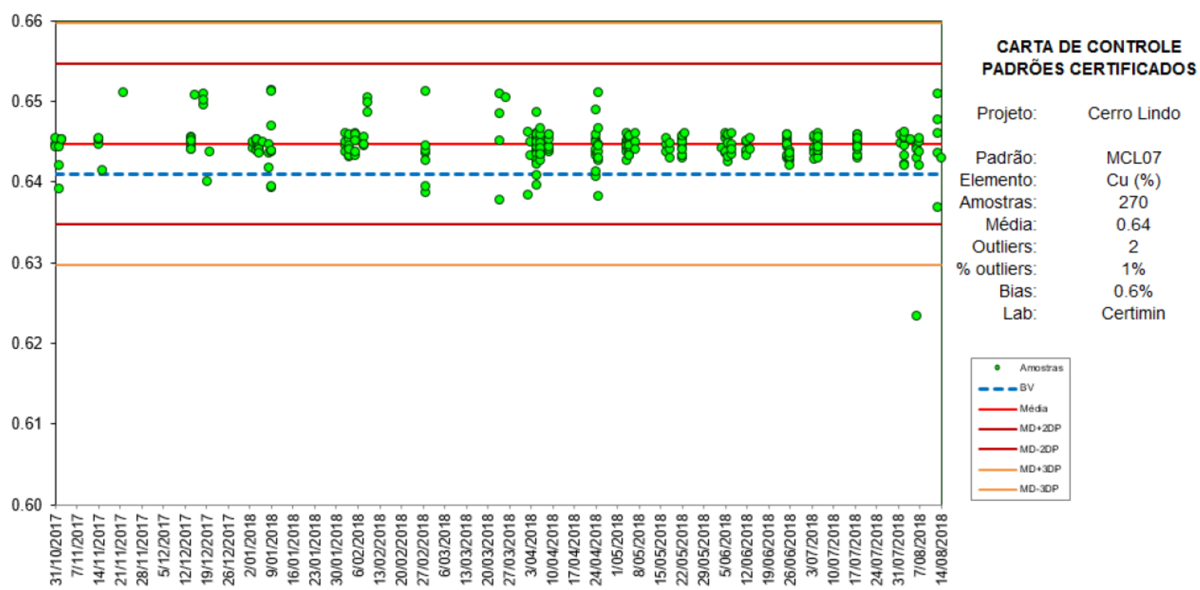
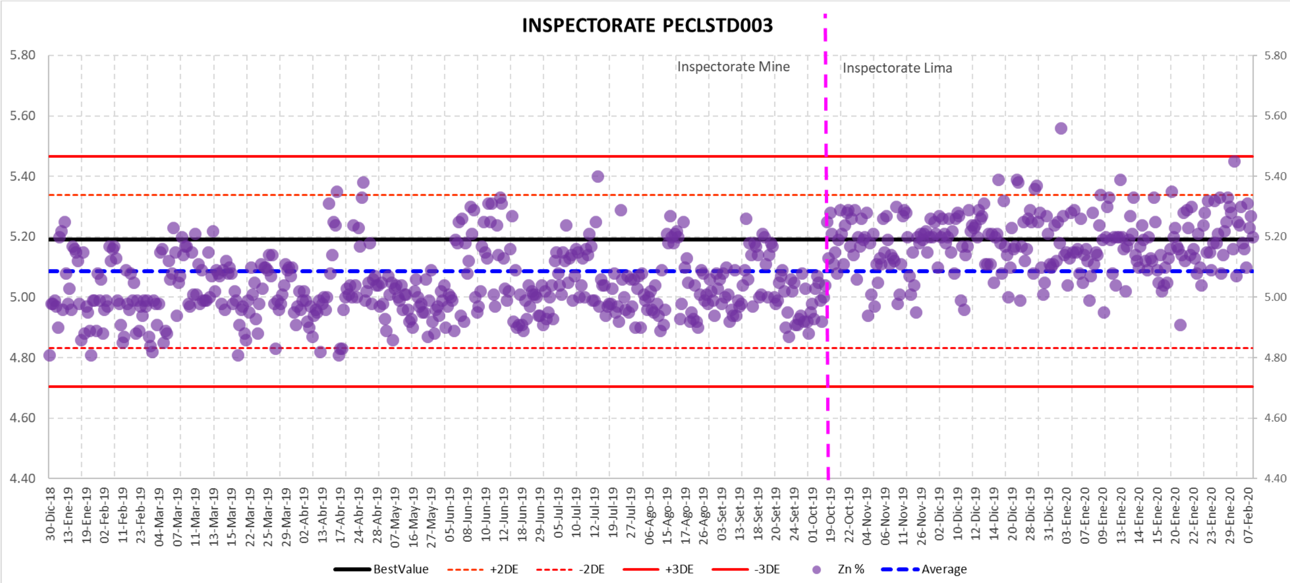
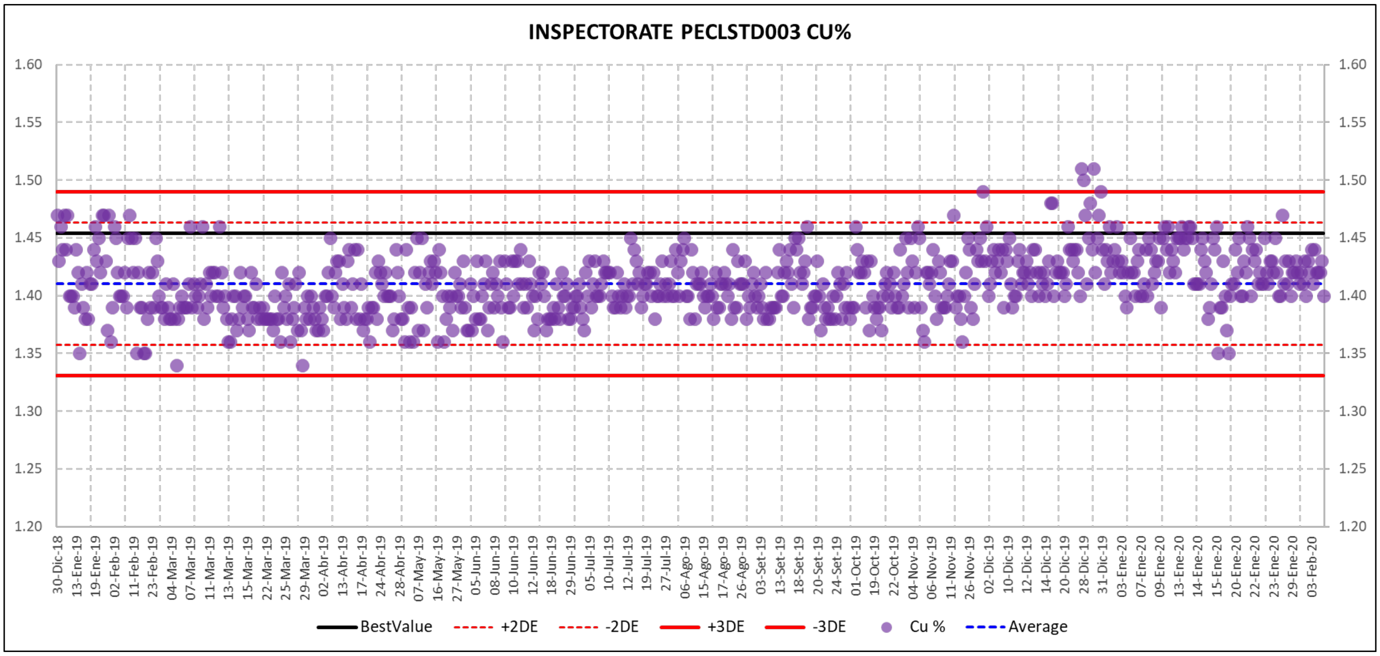


Figure 8-4: CRM "MCL07" Results for Copper – Mine and Certimin Laboratories – (2017-2018)



Period.	Mean	Best Value	Bias
Dec.18 a Sep.19	5.03	5.19	**-3.18%**
Oct.19 a Mar.20	5.18	5.19	**-0.19%**

Figure 8-5: Cerro Lindo CRM Zn Performance for PECLSDT003 (2018-2020)



Period	Mean	Best Value	Bias
Dec.18 a Sep.19	1.40	1.45	**-3.64%**
Oct.19 a Mar.20	1.42	1.45	**-2.39%**

Figure 8-6: Cerro Lindo CRM "PECLSDT003 (2018-2020)" Results for Copper – Inspectorate Mine Laboratory

In the SLR QP's opinion, the CRMs cover a reasonable range of grades with respect to the overall grade population of the deposit and the bias observed in the CRMs is not material.

8.5.3.3 Blanks

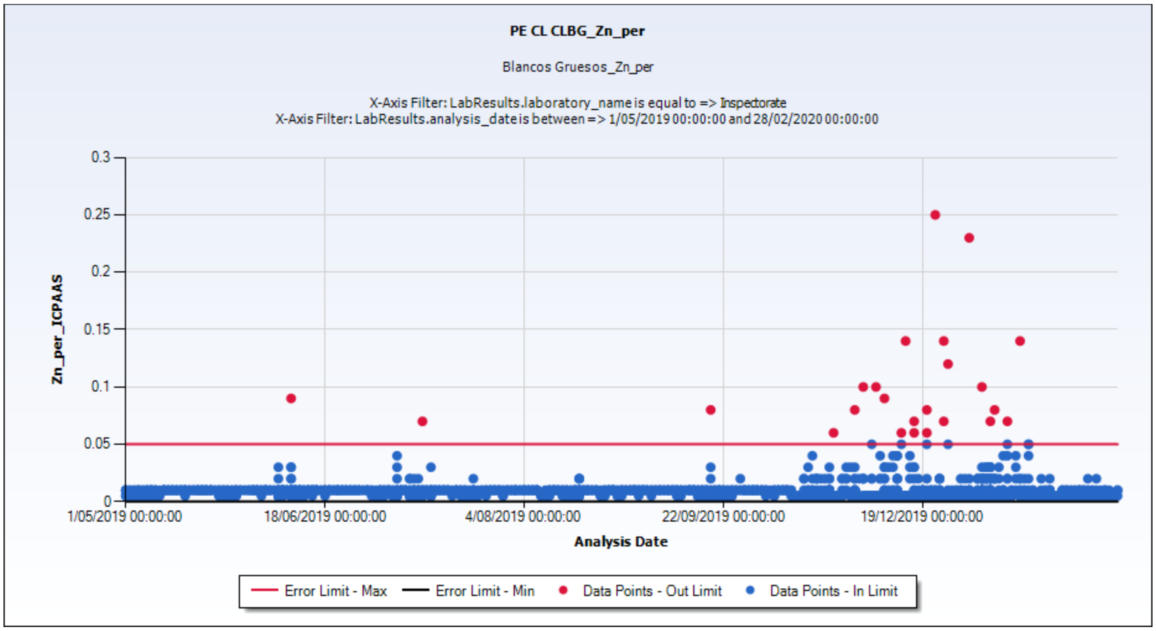
The regular submission of blank material is used to assess contamination during sample preparation and to identify sample numbering errors. The coarse blank material is obtained from a nearby granodiorite pit that have grades that are less than the detection limits.

From December 2019 to January 2020, there was some evidence of contamination for the Mine Laboratory due to non-compliance with cleaning procedure during sample preparation at the crusher machine. Sample batches were not re-analyzed as there were no core samples remaining (BQ infill core drilling is completely sampled). The laboratory prepared a report and took corrective action to comply with the cleaning preparation procedure. After this incident, no contamination was observed. Results of the blanks are illustrated in Figure 8-7 with Nexa's tolerance limit set at approximately five times the detection limits.

SLR reviewed charts prepared by Nexa plotting annual assay results of sterile (granodiorite) zinc, copper, silver, and lead grades against an error limit of five times the lower detection limit of the assay technique. Results indicate a negligible amount of sample contamination associated with samples from the Mine. SLR recommends monitoring more actively the blanks results to correct any contamination issues immediately, especially for the mine samples that do not have any core samples remaining to prepare more samples and be re-analyzed. Table 8-10 summarizes blank performance in 2017 to 2020.

Table 8-10: 2017-2020 Cerro Lindo Blanks Performance
Nexa Resources S.A. – Cerro Lindo Mine

Period	Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Bias (%) / Failure rate (%)			
						Ag	Cu	Pb	Zn
Oct. 2017-Aug 2018	Mine Laboratory	Blanks	Coarse	583	<5%	0.0%	0.0%	0.0%	0.0%
	Certimin	Blanks	Coarse- ICP	452	<5%	0.0%	1.8%	0.0%	0.2%
Sep. 2018 - Apr.2019	Mine Laboratory	Blanks	Coarse	1293	<5%	0.0%	0.0%	0.0%	0.0%
	Certimin	Blanks	Coarse	501	<5%	0.0%	0.0%	0.0%	0.1%
May 2019 - Feb.2020	Mine Laboratory	Blanks	Coarse	1805	<5%	0.1%	0.2%	0.0%	1.3%
	Certimin	Blanks	Coarse	581	<5%	0.0%	0.0%	0.0%	0.0%
	ALS	Blanks	Coarse	238	<5%	0.0%	0.0%	0.0%	0.0%



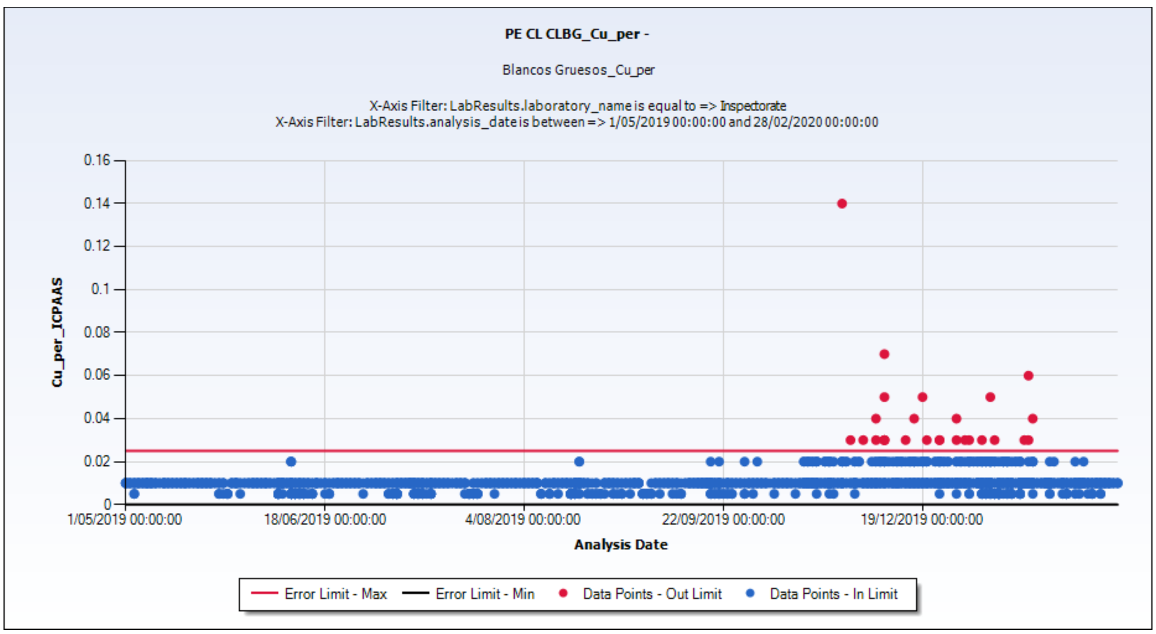


Figure 8-7: 2019-2020 Cerro Lindo Blank Zn and Cu Assays – Inspectorate Mine Laboratory

8.5.3.4 Field, Coarse Reject, and Pulp Duplicates

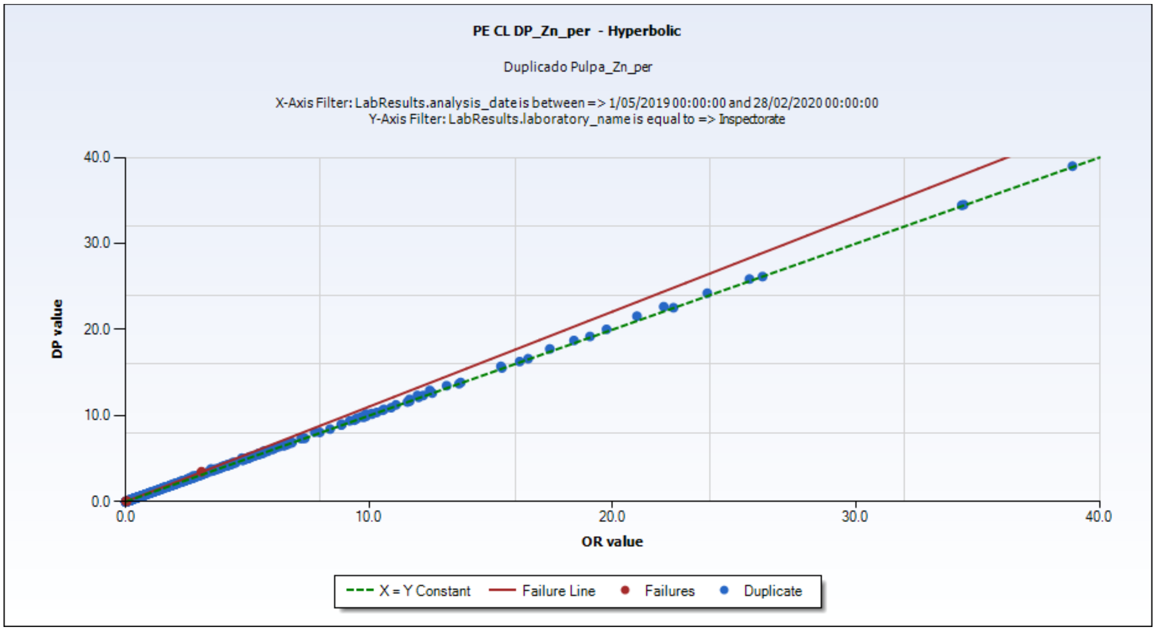
Duplicate samples help monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. The field duplicate includes the natural variability of the original core sample, as well all levels of error including core splitting, sample size reduction in the preparation laboratory, sub-sampling of the pulverized sample, and the analytical error. Coarse reject and pulp duplicates provide a measure of the sample homogeneity at different stages of the preparation process (crushing and pulverizing).

SLR found that the duplicate results for zinc, copper, silver, and lead compare very well. The duplicates at Cerro Lindo for zinc, copper, silver, and lead fall inside the 10% relative hard value threshold. Pulp duplicate performance is summarized in Table 8-11 and shown in Figure 8-8.

SLR agrees with Nexa's conclusion that data sets show a high level of precision at the Mine primary laboratory.

Table 8-11: 2017-2020 Cerro Lindo Duplicate Performance
Nexa Resources S.A. – Cerro Lindo Mine

Period	Laboratory	QA/QC Sample	Type	No. Samples	Failure Limit (%)	Failure rate (%)			
						Ag	Cu	Pb	Zn
Oct. 2017 - Aug 2018	Mine Laboratory	Duplicates	Twin sample	586	<30%	3.9%	5.5%	5.1%	6.7%
			Coarse	589	<20%	0.2%	0.5%	0.0%	0.2%
			Pulps	588	<10%	0.3%	0.2%	0.3%	0.5%
	Certimin	Duplicates	Twin sample	635	<30%	6.9%	7.6%	6.1%	7.2%
			Coarse	623	<20%	0.3%	0.0%	0.0%	0.0%
			Pulps	620	<10%	3.4%	0.2%	0.3%	0.3%
Sep. 2018 - Apr.2019	Mine Laboratory	Duplicates	Twin sample	920	<30%	0.0%	0.2%	0.2%	1.7%
			Coarse	2,069	<20%	0.1%	0.1%	0.2%	0.2%
			Pulps	1,843	<10%	0.0%	0.2%	0.1%	0.1%
	Certimin	Duplicates	Twin sample	1,234	<30%	0.1%	0.7%	0.7%	2.2%
			Coarse	2,067	<20%	0.3%	0.4%	0.3%	0.3%
			Pulps	1,843	<10%	1.0%	0.2%	0.2%	0.2%
May 2019 - Feb.2020	Mine Laboratory	Duplicates	Twin sample	899	<30%	4.4%	5.7%	4.6%	6.0%
			Coarse	2,178	<20%	0.2%	0.2%	0.0%	0.3%
			Pulps	1,861	<10%	3.7%	2.6%	0.1%	0.2%
	Certimin	Duplicates	Twin sample	559	<30%	0.5%	0.2%	0.5%	1.1%
			Coarse	590	<20%	0.0%	0.0%	0.0%	0.0%
			Pulps	583	<10%	0.0%	0.3%	0.0%	0.0%
	ALS	Duplicates	Twin sample	237	<30%	0.4%	0.4%	0.8%	0.4%
			Coarse	249	<20%	0.0%	0.0%	0.0%	0.0%
			Pulps	240	<10%	0.0%	0.0%	0.0%	0.0%



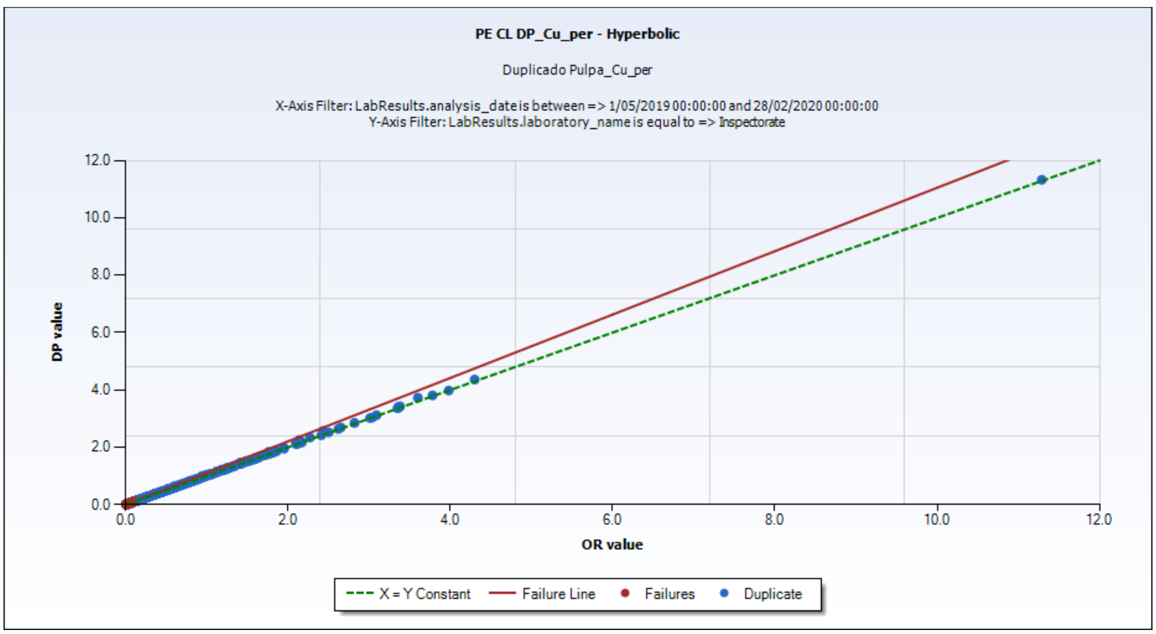


Figure 8-8: 2019-2020 Cerro Lindo Pulp Duplicates Zn and Cu Assays – Inspectorate Mine Laboratory

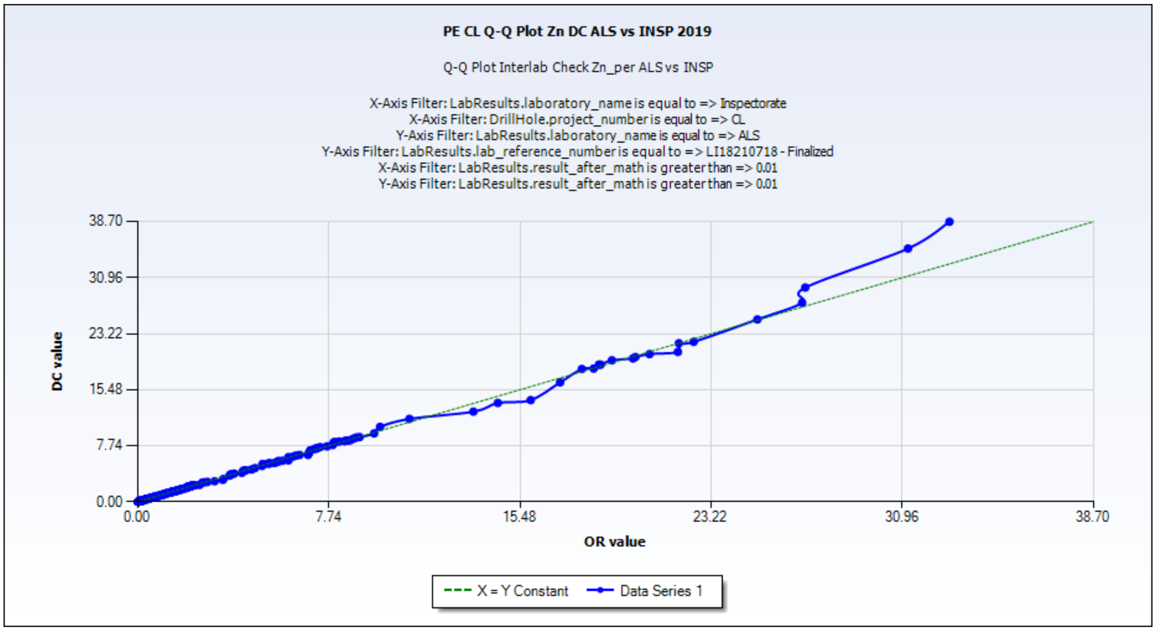
8.5.3.5 Check Assays

Submitting assays to a secondary laboratory helps monitor bias at the principal laboratory. Reference materials and blanks were inserted in the check assay batches.

Overall, the check assay results are reasonable. The results for zinc, copper, lead, and copper showed a good correlation with the secondary laboratory (Table 8-12). The check assays indicated that the primary laboratory had a low bias for copper (-4%). An example of zinc and copper assay performance for the check assays is shown in Figure 8-9.

Table 8-12: ALS Lima Versus Primary Laboratory Check Results - October, 2017 to April, 2019
Nexa Resources S.A. – Cerro Lindo Mine

Period	Secondary Laboratory	Primary Laboratory	Element	No.	Bias%
Oct. 2017 - Aug.2018	ALS Lima	Mine Laboratory	Ag ppm	400	2.1%
			Cu %	400	-3.9%
			Pb %	400	2.5%
			Zn %	400	-3.8%
		Certimin	Ag ppm	498	3.0%
			Cu %	498	0.3%
			Pb %	498	-1.7%
			Zn %	498	-2.5%
Sep. 2018 - Apr.2019		Mine Laboratory	Ag ppm	273	-4.9%
			Cu %	352	-3.9%
			Pb %	255	-4.4%
			Zn %	350	0.8%
		Certimin	Ag ppm	41	-4.0%
			Cu %	208	0.0%
			Pb %	71	0.0%
			Zn %	222	4.6%



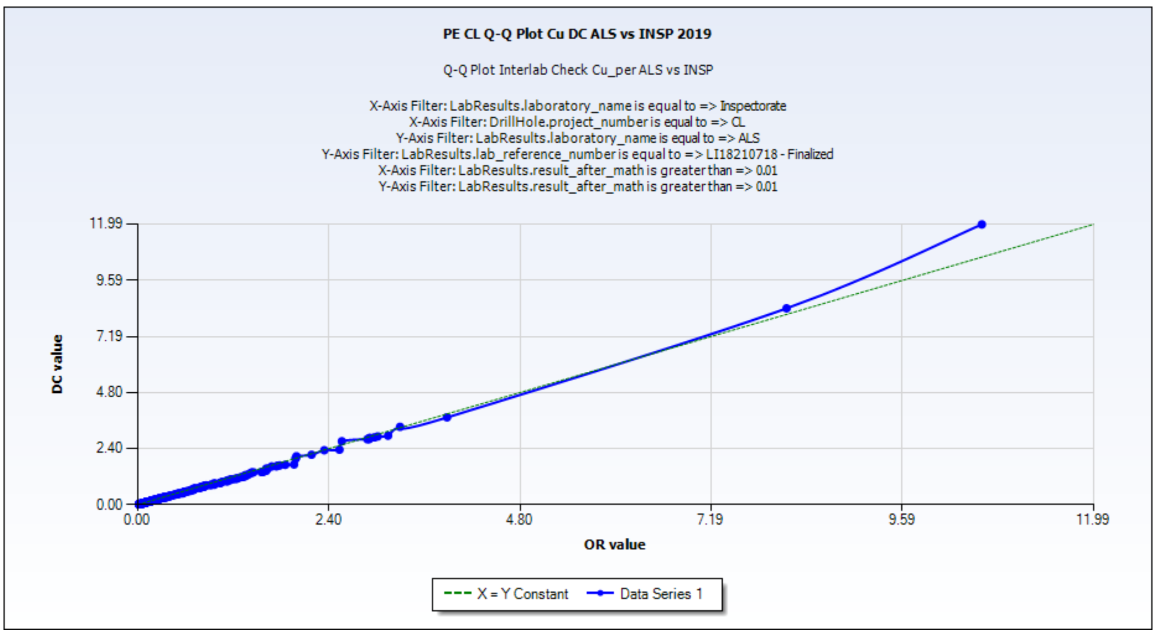


Figure 8-9: 2018-2019 2020 Cerro Lindo Zn and Cu External Check Assays – Inspectorate Mine Laboratory

8.6 QA/QC Recommendations

SLR's QA/QC recommendations are as follows:

- Investigate the potential 5% negative bias for lead at Inspectorate Lima observed on the CRM results.
- Incorporate controls to reduce failure rates observed for some lead and silver CRMs.

- Monitor more actively blank results to correct immediately any contamination issues, especially for the mine samples that do not have any core samples remaining to prepare more samples and be re-analyzed.

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

9.0 DATA VERIFICATION

During the last quarter of 2017, Nexa transferred the drill database from Excel files to Fusion. Nexa performed an exhaustive number of checks to confirm the accuracy of the data migration. The SLR QP reviewed the resultant Excel summary and is of the opinion that Nexa performed the data migration with sufficient checks and documentation. Nexa has also implemented regular data verification workflows to ensure the collection of reliable data. Coordinates, core logging, surveying, and sampling are monitored by exploration, mine geologists, and verified routinely for consistency.

9.1 Databases

Mine data are stored in the Fusion database, which is located in the Mine server at Cerro Lindo. Nexa performs regular backups to a remote server in Lima and central server in Brazil. Access to the database is strictly controlled.

Logging and sampling data are digitally entered into the database by downloading the information from the logging tablets.

Collar coordinates are digitally entered by the surveyors in Excel files to a server managed by the Survey group. Every Friday, the database administrator e-mails the Survey group a special empty form, which is completed by the surveyors and then stored in the Survey group server. The completed form is returned to the database administrator in PDF format. Using internal routines, the database administrator later captures this information from the Survey group server and saves it in the mine server.

Assay data are captured from the Global LIMS server using custom routines, and this information is then entered into the Fusion database. The laboratory also issues *.csv and pdf-format certificates, however, only the information that is digitally captured from the server is considered to be the true record.

Personnel from the Geology department conduct daily quality control checks on the data entry. A first check consists of identifying duplicate sample numbers or lack of information for certain intervals. Every month, all the assay data entered in the server are compared with a compilation of individual *.csv files issued by the laboratory. Paper records are stored at a safe location at the mine.

The SLR QP is of the opinion that the data collection, import, and validation workflows are consistent with industry standards, and are of sufficient quality to support Mineral Reserve and Mineral Resource estimation.

9.2 Internal Verification

The updated database includes all historic data (drill holes and channels) and new drill holes completed to March 2, 2020. Prior to using this database for Mineral Resource estimation, the data was reviewed for geologic consistency and checked against the original information. The Cerro Lindo resource database is regularly maintained and validated by the database administrator using Fusion validation routines and by regularly checking the drill hole data on-screen.

The updated and validated database was exported from Fusion and sent to Lima, for an additional internal validation which involved cross-checks and consistency checks on approximately 5% of the data. The database was then transferred to a central master server (backup for all Nexa projects). Nexa prepared "The Informe de Validación de Base de Datos Cerro Lindo" report containing additional detail regarding data validation.

9.3 External Verification 2003-2017

AMEC conducted five separate verification exercises from 2003 to 2017. These exercises included:

- site visits to review and confirm findings by site geologists (2003)
- drill core data, logging, and sampling reviews with site geologists (2003, 2013, 2016)
- review of density measurement equipment and procedures (2003)
- checks on 10% of the assay and geological data from drilling campaigns (2003)
- high-level review of Milpo's operational procedures and QC program (2013)
- signed assay certificate spot checks (2016)
- reviews of geological interpretation using wireframes, drilling, selected plans, and sections (2016, 2017)
- spot collar and downhole survey record checks (2016)
- a thorough audit of the 2010–2017 portion of the Cerro Lindo database (2017)
- review of the integrity of downhole surveys (2017)

Amec (2017) generally concluded that the above aspects of the project were reasonable, acceptable, and adequate to support Mineral Resource estimation and mine planning. A few errors identified by Amec during data validation were immediately corrected by Cerro Lindo staff.

9.4 SLR Verification

During SLR's site visit from June 4 to 7, 2019, SLR reviewed plans and sections, visited the core shack, examined drill core and mineralized exposures at the underground mine, reviewed core logging and QA/QC procedures and database management system and held discussions with Nexa personnel.

As part of the data verification process, SLR inspected the drill holes in section and plan view to review geological interpretation related to the drill hole and channel database and found good correlation. SLR queried the database for unique headers, unique samples, duplicate holes, overlapping intervals, blank and zero grade assays, and long sample intervals. SLR also reviewed QA/QC data collected by Nexa. SLR did not identify any significant discrepancies.

9.4.1 Assay Certificate Verification

SLR performed checks on the Cerro Lindo Mineral Resource database by converting approximately 164,000 assay certificate results spanning August 2017 to February 2020 from original PDF and Excel formats to reformatted comma delimited text (CSV) files, compiled and imported them to a database, and then compared the compiled certificate assays to the assay table in the Mineral Resource drill and sample database. The work matched approximately 135,000 sample IDs to the assay database for Zn, Cu (112k), Pb, Ag, and Fe. Results of the exercise are shown in Table 9-1. No significant errors were found. There were 260 samples for Ag where the values in the database ranged from 25 g/t Ag to 285 g/t Ag lower than the certificate assays. This is likely a result of choosing the lower value of multiple re-assays, and shows a conservative approach since all mis-matched values were lower in the Mineral Resource database. Assay certificates pre-2001 were not available, however, Nexa and RPA reviewed this data in sections and plan views. Overall, the data compared well with recent drilling. Based on SLR's review, there is no reason to believe there is any significant issue related to this data, furthermore, Nexa is planning to drill during 2021 and 2022 in these areas to confirm assay values.

Table 9-1: SLR Assay Certificate Verification Results
Nexa Resources S.A. – Cerro Lindo Mine

Element	Count Assays	Count Certificate IDs	Certificates Start	Certificates End	% of Assays in DB	SampleID Matches	Abs. Diff. Threshold	Num Outside of Threshold	Notes
ZN (%)	299,888	163,839	2017-08-12	2020-02-28	55%	134,832	1	6	All overlimit samples.
CU (%)	299,888	135,864	2017-08-12	2020-02-18	45%	112,391	0.001	0	Exercise captured less Cu samples than other elements
PB (%)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	1	1	Overlimit sample
AG (PPM)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	25	260	DH assays 25-285 g/t lower than certificates
FE (%)	299,888	163,786	2017-08-12	2020-02-28	55%	134,811	1	4	Diff 3-4% higher in drill hole

SLR found that the assay database is well maintained, and generally exceeds industry standards. The SLR QP is of the opinion that the assay database and database verification procedures for Cerro Lindo comply with industry standards, and are adequate for the estimation of Mineral Resources and Mineral Reserves.

9.4.2 Density Verification

SLR converted 3,553 density measurement certificates spanning 2013 to 2020 from original PDF and Excel formats to reformatted CSV text files, compiled and imported them to a database, and compared them to the density table in the Mineral Resource drill and sample database. There were 1,575 certificate ID matches out of 4,410 in the Mineral Resource database, resulting in a comparison rate of 36% spanning all years. SLR notes that there were no discrepancies between the certificate data and the Mineral Resource database. SLR considers this to be an excellent result. Spatial coverage of the density samples relative to Mineral Resources (blue) and Mineral Reserves (orange) are shown in Figure 9-1.

SLR found that the density database is well maintained, and generally exceeds industry standards. The SLR QP is of the opinion that the density database and verification procedures for Cerro Lindo comply with industry standards, and are adequate for the estimation of Mineral Resources and Mineral Reserves.

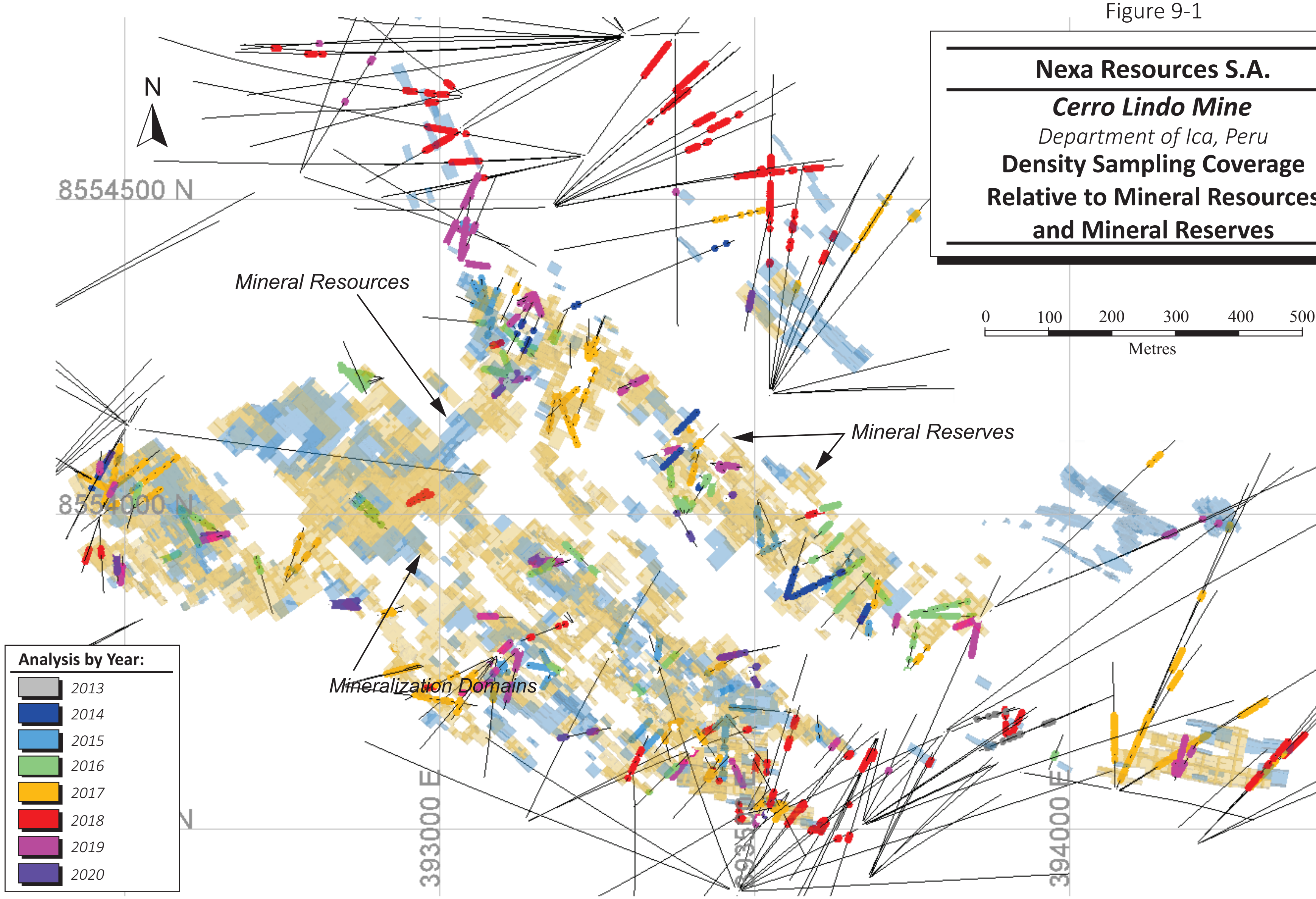
Figure 9-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Density Sampling Coverage Relative to Mineral Resources and Mineral Reserves



January 2021

Source: SLR, 2020.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The Cerro Lindo processing plant has been in operation since 2007 and uses a conventional polymetallic flotation scheme to produce zinc, lead, and copper concentrates with silver content. The processing plant has a capacity of approximately 20,000 tpd. The concentrates are relatively clean and high grade, and in general do not contain penalizable concentrations of deleterious elements. A small penalty does result from the lead and zinc in the copper concentrate, which since 2016 has contained lead and zinc in the approximate range of 4.8% to 5.6%. Silver in the feed is mostly recovered to the copper and lead concentrates, resulting in silver credits for these two concentrates.

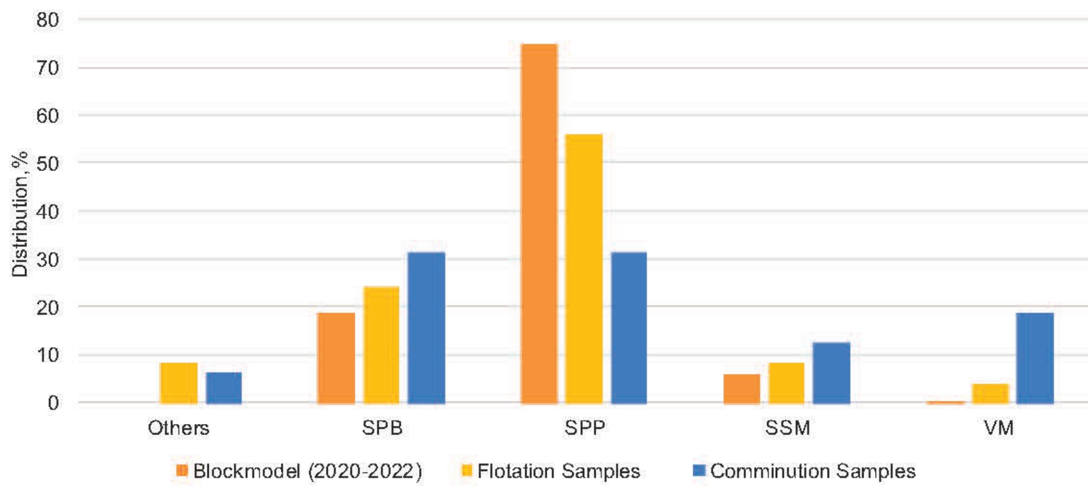
10.1 Recent Test Work

In 2018, Nexa began a program of test work to be used in the development of a geometallurgical model that would provide information that could be used to predict metallurgical response during future processing at Cerro Lindo. The work was conducted under the supervision of Transmin Metallurgical Consultants (Transmin) at the Certimin Laboratory (an independent laboratory with ISO 9001 certification and NTP-ISO/IEC 17025 Accreditation) in Lima, Peru. Test work included comminution (abrasion index (Ai) and Bond work index (BWi) determinations) and flotation tests. Results and interpretation of the third and final phase of the test work were reported in the report Estudio Geometalurgico Fase 3 para Unidad Minera Cerro Lindo (Transmin, 2020).

Individual samples were selected to represent the major lithologies identified in the block model, as well as specific areas as shown in Figure 10-1 and Figure 10-2. Forty-two samples were selected for comminution test work and 35 samples for flotation test work. The lithologies comprising the deposit are:

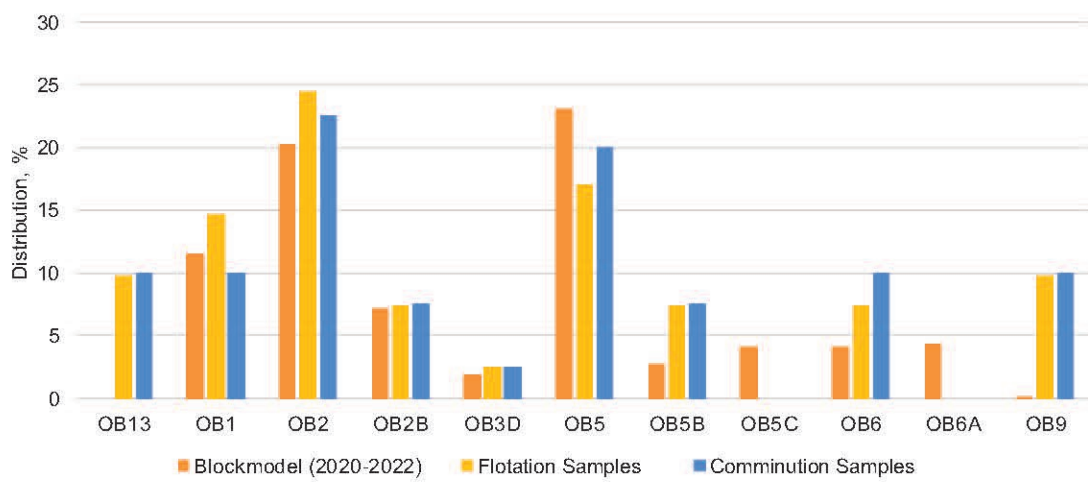
- SPP - Pyritic, homogeneous, primary massive sulphide
- SPB - Baritic homogeneous primary sulphides
- SSM - Semi-massive sulphides
- VM - Mineralized volcanic rock

Results of the comminution test work are summarized in Table 10-1. The BWi design value used in the 2017 design criteria for the expansion to 21,000 tpd (Cesel, 2017) was 12.4 kWh/t, and therefore, there should be no grinding capacity limitations when processing ore represented by these samples.



Source: Transmin, 2020

Figure 10-1: Sample Representation of Major Lithologies



Source: Transmin, 2020

Figure 10-2: Sample Representation of Orebodies

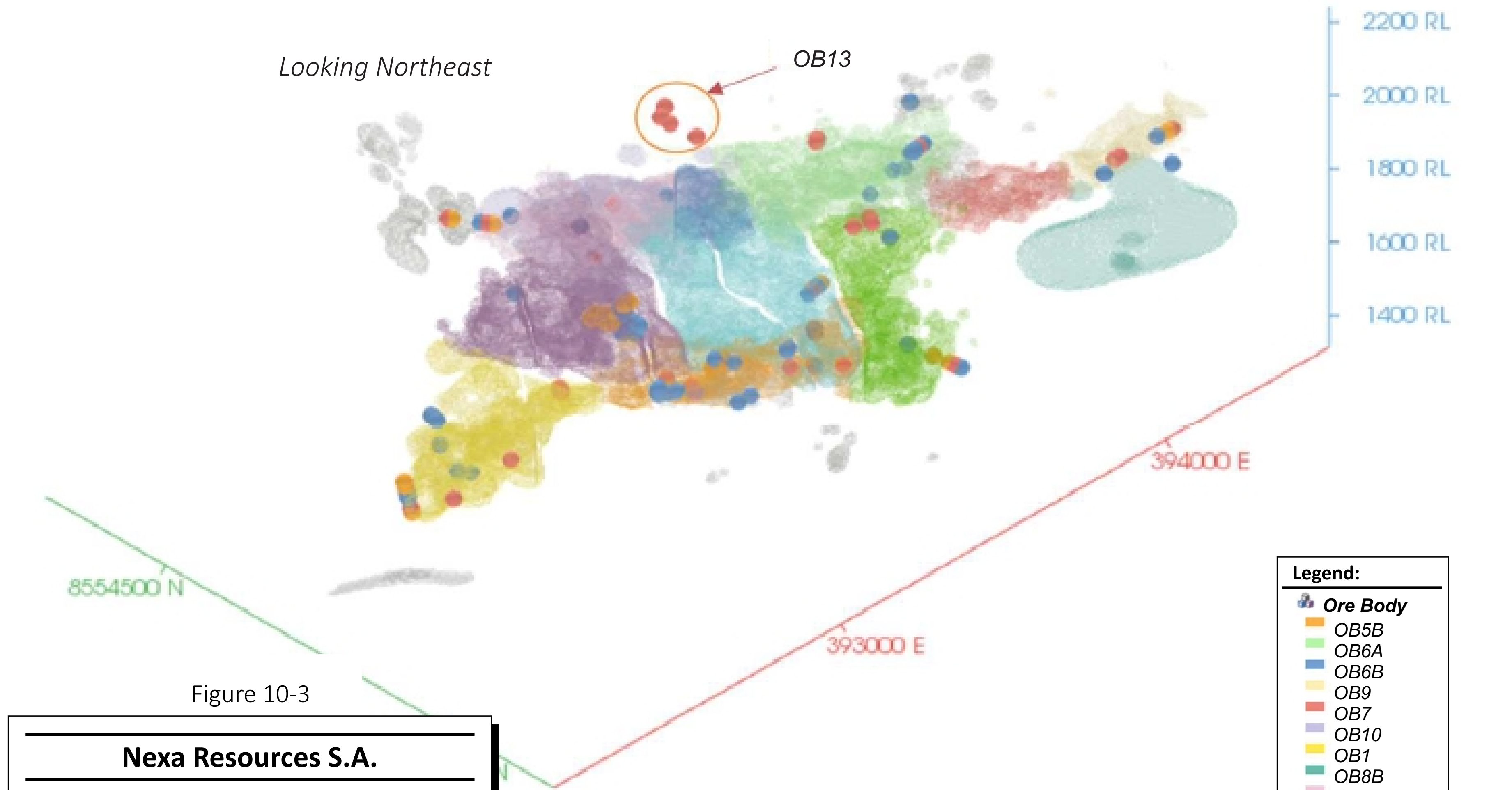


Figure 10-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Location of Individual Samples in the Block Model

January 2021

Source: Nexa, 2020.

Table 10-1: Comminution Test Work Results for 2019 Geometallurgical Samples
Nexa Resources S.A. – Cerro Lindo Mine

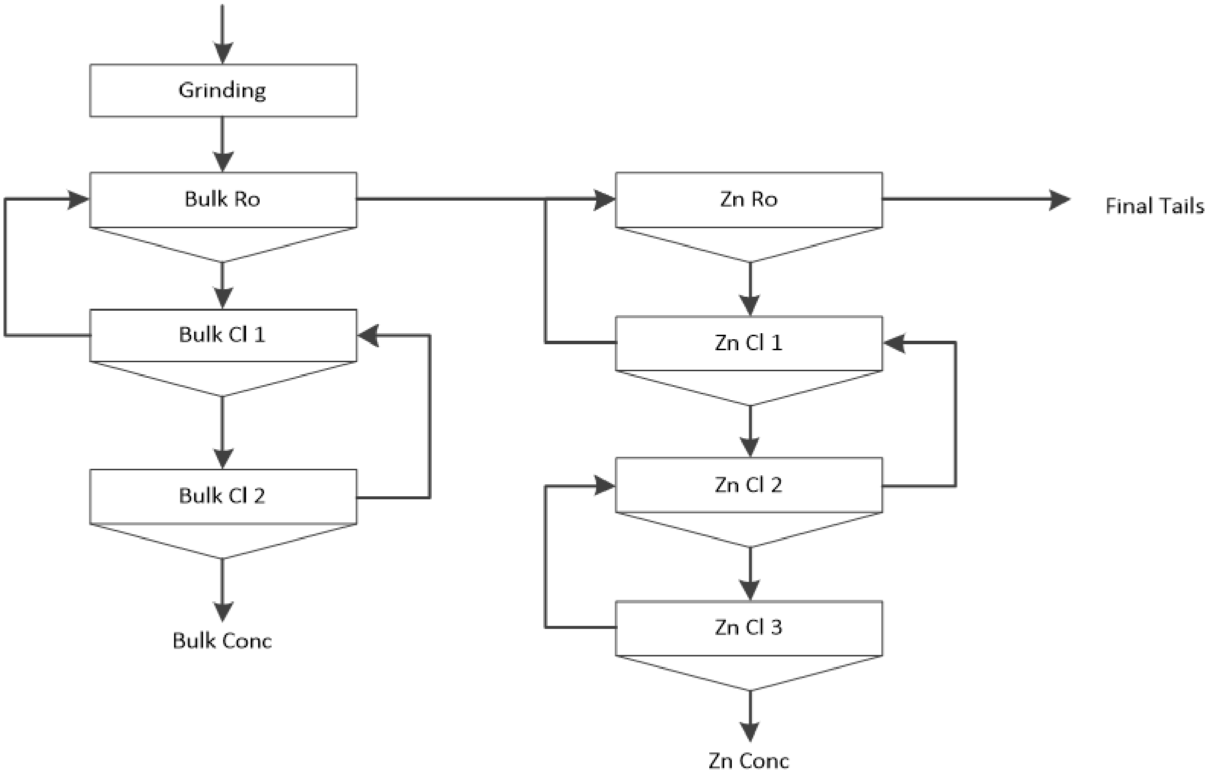
	Ai (g)	BWi (kWh/t)
Minimum	0.036	5.07
Maximum	0.63	18.0
Average	0.237	11.6
75th Percentile	0.374	12.1

Locked cycle flotation tests were conducted on three composites made up of the individual samples representing groups of orebodies; the composite make-up is summarized in Table 10-2. The flowsheet for the locked cycle tests is shown in Figure 10-4.

Table 10-2: Flotation Composite Constituents
Nexa Resources S.A. – Cerro Lindo Mine

Composite ID	Orebodies	Lithology
LDFC-01	OB2, OB2B	SPP
LDFC-02	OB5, OB5B, OB6	SPP, SSM, SPB
LDFC-03	OB9, OB13	SPB, VM, SSM

Source: Transmin, 2020



Source: Transmin, 2020

Figure 10-4: Locked Cycle Flotation Test Flowsheet

Results from the locked cycle tests are summarized in Table 10-3, showing the average bulk and zinc concentrate grades achieved in the last two cycles of the tests.

Table 10-3: Average of Locked Cycle Test Concentrate Analyses for the Last Two Cycles
Nexa Resources S.A. – Cerro Lindo Mine

Sample ID	Stream	Analyses							
		Ag g/t	Cu %	Pb %	Zn %	Fe %	S %	Hg ppm	As %
LDFC-01	Bulk Conc	470	32.8	0.76	0.74	28.0	34.4	14	0.71
	Zinc Conc	135	6.4	0.1	46.4	10.7	34.8	182	0
LDFC-02	Bulk Conc	768	19.1	12.2	2.6	28.7	32.8	10	0
	Zinc Conc	35	0.5	0.1	56.8	6.4	34.0	131	0

Variability flotation test work was conducted by completing open cycle rougher tests to produce bulk rougher and zinc concentrates. Results are presented in Table 10-4 and Table 10-5.

Table 10-4: Bulk Rougher Concentrates from Variability Tests
Nexa Resources S.A. – Cerro Lindo Mine

Sample ID	Bulk Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-01	2,369	4.19	41.5	10.7	93.9	86.2	98.2	16.0
LDS-02	1,074	4.61	35.5	13.2	86.0	82.2	96.1	23.7
LDS-03	267	1.74	7.97	5.58	71.7	79.7	84.2	17.6
LDS-04	505	1.64	5.38	3.74	80.0	68.8	86.3	6.80
LDS-05	108	10.0	0.061	0.31	31.8	65.3	17.1	14.5
LDS-06	70.5	4.87	0.033	0.26	25.4	35.4	2.91	9.04
LDS-07	212	15.3	0.020	0.68	53.8	79.8	8.42	13.4
LDS-08	206	15.4	0.041	0.56	51.3	77.1	39.6	11.9
LDS-09	252	16.8	0.015	0.45	46.2	72.0	20.7	15.5
LDS-10	47.2	5.21	0.0065	0.77	56.2	84.1	32.1	10.4
LDS-11	64.8	6.28	0.038	0.26	40.8	78.1	18.7	17.0
LDS-12	75.9	6.70	0.033	0.18	35.2	64.2	18.3	20.4
LDS-13	886	9.05	3.07	1.38	89.8	92.3	75.5	55.8
LDS-14	205	13.2	0.021	0.60	47.2	68.7	21.0	9.94
LDS-17	100	9.64	0.047	0.54	42.7	65.0	15.3	8.73
LDS-18	97.4	4.08	0.44	0.54	48.1	48.9	37.4	5.52
LDS-19	115	7.08	0.080	0.92	43.6	55.9	19.6	10.6
LDS-20	34.5	3.37	0.056	0.69	34.0	60.0	39.1	2.22
LDS-21	137	3.96	2.18	2.01	46.2	57.0	51.7	2.43
LDS-22	112	0.31	0.74	0.19	70.4	76.4	63.3	23.6
LDS-24	114	3.43	0.79	3.43	49.2	22.3	62.5	2.13
LDS-26	39.2	0.60	0.16	2.34	59.1	73.9	41.3	7.08
LDS-27	859	0.63	28.0	8.61	72.8	29.4	98.5	3.70
LDS-28	2,307	1.11	31.6	11.7	69.9	30.3	96.5	4.65
LDS-29	577	12.7	18.6	7.89	88.2	78.4	98.5	3.39
LDS-31	230	13.3	0.016	0.27	44.7	68.4	18.4	9.61
LDS-37	260	4.89	0.58	0.27	81.4	87.9	67.0	26.2
LDS-38	397	16.1	0.30	0.56	60.1	85.7	59.5	11.7
LDS-39	399	11.7	0.31	1.07	85.4	93.0	66.7	10.4

Sample ID	Bulk Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-40	338	0.49	20.5	5.97	76.4	17.7	95.7	3.02
LDS-41	358	8.82	9.65	4.49	61.0	47.3	92.8	2.71
LDS-42	204	4.84	1.26	0.18	81.3	91.3	89.3	17.5
LDS-43	593	19.6	3.34	0.89	66.2	86.4	90.1	8.25
LDS-44	301	1.48	5.23	2.42	62.9	27.3	84.5	2.19
LDS-45	400	0.23	12.8	1.99	85.1	19.5	94.9	2.09

Source: Transmin, 2020

Table 10-5: Zinc Rougher Concentrates from Variability Tests
Nexa Resources S.A. – Cerro Lindo Mine

Sample ID	Zinc Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-01	46.6	0.23	0.23	27.4	3.78	9.52	1.12	83.2
LDS-02	42.0	0.51	0.36	41.4	3.43	9.21	1.00	75.6
LDS-03	30.4	0.20	0.36	29.4	7.02	8.07	3.28	79.7
LDS-04	28.9	0.17	0.11	35.3	6.18	9.90	2.43	86.7
LDS-05	218	8.34	0.11	4.33	16.1	13.7	7.77	50.0
LDS-06	84.9	8.54	0.037	2.63	21.3	43.2	2.25	62.7
LDS-07	128	3.86	0.014	8.97	13.3	8.31	2.44	72.5
LDS-08	123	3.59	0.031	9.62	10.3	6.04	10.0	68.8
LDS-09	152	5.14	0.018	4.83	9.61	7.63	8.66	57.2
LDS-10	62.7	2.60	0.0090	30.3	15.7	8.82	9.39	85.6
LDS-11	103	4.09	0.065	4.26	13.1	10.2	6.52	55.3
LDS-12	75.1	4.72	0.045	0.90	15.8	20.4	11.4	44.7
LDS-13	58.1	0.45	0.31	0.56	3.84	3.03	5.01	14.9
LDS-14	106	4.31	0.019	7.46	13.9	12.7	10.8	69.4
LDS-17	70.4	4.11	0.045	9.97	14.9	13.7	7.26	79.1
LDS-18	51.8	3.74	0.17	13.4	15.9	27.9	8.73	86.0
LDS-19	54.1	3.74	0.051	7.77	18.0	25.9	10.9	78.3
LDS-20	31.4	1.38	0.032	35.3	19.4	15.4	13.9	71.2
LDS-21	25.9	0.68	0.30	40.4	11.9	13.3	9.63	66.4

Sample ID	Zinc Concentrate Grade				Recovery			
	Ag g/t	Cu %	Pb %	Zn %	Ag %	Cu %	Pb %	Zn %
LDS-22	31.7	0.075	0.20	1.42	7.42	6.98	6.37	67.5
LDS-24	21.4	2.70	0.021	38.3	37.7	71.6	6.74	96.9
LDS-26	12.6	0.13	0.033	38.0	15.1	12.3	6.79	91.1
LDS-27	76.7	0.29	0.080	56.0	25.9	54.0	1.12	95.9
LDS-28	198	0.49	0.16	53.2	26.8	60.0	2.16	94.9
LDS-29	16.2	0.78	0.050	54.5	10.2	19.8	1.08	96.1
LDS-31	260	7.70	0.032	5.88	17.0	13.3	12.6	69.9
LDS-37	45.8	0.78	0.10	1.23	7.56	7.36	6.12	62.9
LDS-38	276	4.41	0.12	13.6	11.3	6.35	6.32	77.1
LDS-39	19.7	0.24	0.016	4.62	8.11	3.65	6.47	86.0
LDS-40	19.4	0.45	0.16	50.3	16.5	61.3	2.80	95.9
LDS-41	33.4	1.88	0.11	45.3	20.0	35.4	3.79	95.8
LDS-42	132	1.73	0.28	6.48	6.20	3.85	2.37	75.7
LDS-43	182	2.89	0.18	21.2	9.07	5.68	2.21	87.8
LDS-44	38.1	1.27	0.088	44.8	18.6	54.5	3.35	94.8
LDS-45	20.9	0.32	0.20	49.5	8.30	50.8	2.74	96.5

Source: Transmin, 2020

Transmin used the test work results to derive relationships for throughput, grinding media consumption, recovery, and concentrate grade that could be used in a geometallurgical model.

Key conclusions derived from the test work included the following:

- Abrasiveness and hardness are related to lithology with the VM material being the hardest and most abrasive.
- Additional comminution test work should be carried out to characterize VM material.
- Zinc recovery depends on zinc head grade and the presence of soluble copper.
- Higher levels of soluble copper in the feed may negatively affect the recovery of zinc and copper.
- Arsenic concentration in the bulk concentrate from OB2 and OB2B material was affected by the presence of tennantite and was 0.7%.
- Zinc concentrates contained mercury between 100 ppm and 300 ppm.

10.2 LOM Plan

The current LOM plan continues to 2029, with a peak processing rate of approximately 21,000 tpd. Table 10-6 presents historical and forecast processing rates, head grades, and recoveries for the LOM. Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades. Average LOM planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily after 2020. Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then are predicted to fall as head grades decrease. Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the SLR QP's opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecasted due to the lack of data on processing material with these low head grades.

Production in 2020 was significantly lower than in 2019 due to the effects of the COVID-19 pandemic and associated production interruptions. On March 15, 2020, the Peruvian Government declared a national emergency and imposed operating business restrictions including on the mining sector. The quarantine period was initially expected to last until the end of March but was subsequently extended up to May 10, 2020. In light of the government restrictions, Nexa suspended production at Cerro Lindo. During this period, mining activities were limited to critical operations with a minimum workforce to ensure appropriate maintenance, safety, and security. On May 6, the Peruvian Government announced the conditions for the resumption of operations for different sectors, including mining operations above 5,000 tpd. Cerro Lindo operations, which were suspended on March 18, restarted production on May 11, 2020, following the end of the quarantine period. After the resumption of operations, Cerro Lindo ramped up production to pre-pandemic levels by June 2020.

A small amount of transition or supergene ore has been identified in two stopes. Large quantities of this ore fed to the concentrator could negatively affect recoveries and concentrate quality. Currently, this supergene material does not form part of the feed blend, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

Process control and metallurgical accounting samples are collected automatically by cross stream (grinding mill feed) and in-line pipe samplers (slurry samples), and the samples are analyzed on site by a third-party laboratory operator, Bureau Veritas. Filtered concentrate is also sampled during truck loading by taking samples from the front-end loader bucket using a pipe sampler according to a pre-determined pattern. Duplicate samples are regularly sent to the laboratory operator's Lima laboratory for analysis and comparison with the Cerro Lindo laboratory. Concentrator feed mass is measured by belt weigh scales on the two mill feed belts, and concentrates are weighed by truck scale on despatch from site. Tails mass is calculated as the difference.

Nexa used historical performance to estimate future recoveries and concentrate grades. In the SLR QP's opinion, this is a common and reasonable approach, and is an adequate method of predicting future performance.

In the SLR QP's opinion the metallurgical testwork is adequate for the estimation of Mineral Resources and Mineral Reserves.

Table 10-6: Summary of Historical Performance and LOM Plan
Nexa Resources S.A. – Cerro Lindo Mine

		Units	Actual					LOM Plan								
			2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Plant Throughput		t	7,345,202	7,297,624	6,914,653	6,799,747	5,482,211	7,000,001	7,000,000	6,500,000	6,500,000	5,000,000	5,000,001	5,000,000	5,000,000	5,101,213
		tpd	20,069	19,993	18,944	18,629	17,628	19,800	19,800	18,400	18,400	14,100	14,100	14,100	14,400	
Head Grades	**Ag**	oz/t	0.73	0.69	0.69	0.69	0.78	0.61	0.71	0.78	0.74	0.90	0.61	0.56	0.63	0.57
	Pb	%	0.29	0.27	0.25	0.25	0.29	0.23	0.25	0.26	0.22	0.28	0.18	0.13	0.13	0.10
	Cu	%	0.66	0.69	0.64	0.64	0.59	0.44	0.48	0.52	0.59	0.75	0.68	0.73	0.73	0.75
	Zn	%	2.57	2.33	2.07	2.05	1.93	1.77	1.56	1.50	1.38	1.70	1.51	1.34	1.12	0.87
Cu Concentrate		t	154,362	166,595	145,685	144,568	107,283	142,861	156,213	146,070	145,387	73,479	82,194	86,950	95,163	
Pb Concentrate		t	24,526	22,792	19,929	19,147	17,880	22,481	19,871	15,699	11,978	5,450	7,208	7,543	4,492	
Zn Concentrate		t	295,082	264,377	221,001	216,823	165,179	175,498	146,757	144,886	146,757	70,332	71,274	72,330	72,795	
Cu Concentrate	**Recovery**															
	Cu	%	84.1	86.1	86.7	86.8	85.7	85.9	86.8	86.1	86.1	84.7	85.9	86.5	87.6	
	Ag	%	37.4	41.6	42.6	40.4	39.1	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	
	Grade															
	Cu	%	26.3	26.2	26.3	26.1	26.0	25.9	25.9	25.9	25.9	25.9	25.9%	25.9	25.9	
	Ag	oz/t	12.6	12.5	13.7	13.0	13.77	14.65	14.36	14.23	12.13	12.26	12.38	12.29	10.38	
	Zn	%	4.3	4.1	3.6	3.7										
	Pb	%	1.3	1.1	1.2	1.3										

		Units	Actual					LOM Plan								
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Pb Concentrate	**Recovery**															
	Pb	%	74.3	76.0	73.8	73.3	74.1	73.8	72.0	68.6	64.9	61.9	65.5	66.1	59.9	
	Ag	%	31.6	30.1	28.8	29.4	32.1	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	
	Grade															
	Pb	%	64.6	65.1	64.0	64.0	65.0	63.8	63.8	63.8	63.8	63.8	63.8	63.8	63.8	
	Ag	oz/t	67.1	64.5	67.6	71.5	66.79	67.53	81.85	95.98	106.74	119.84	102.41	102.69	159.42	
Zn Concentrate	**Recovery**															
	Zn	%	92.2	91.5	90.9	90.5	90.2	88.9	87.7	87.6	87.7	86.5	86.5	86.6	86.8	
	Grade															
	Zn	%	58.9	59.0	59.0	58.3	57.8	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	

Source: Nexa, 2021

11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

The Mineral Resource estimate for the Cerro Lindo Mine, as of December 31, 2020, using all data available as of March 2, 2020 was completed by Cerro Lindo staff (Nexa, 2020d) and reviewed by SLR.

The Mineral Resource estimate was completed using Datamine Studio RM and Leapfrog Geo software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, underground mapping, and structural data. Assays were capped to various levels based on exploratory data analysis and then composited to 2.5 m lengths. Wireframes were filled with blocks and sub-celling at wireframe boundaries. Blocks were interpolated with grade using ordinary kriging (OK) and inverse distance cubed (ID^3) interpolation algorithms. Block estimates were validated using industry standard validation techniques. Classification of blocks used distance-based and other criteria. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik Stope Optimizer (DSO) software, satisfying minimum mining size, continuity criteria, and using a net smelter return (NSR) cut-off value of US$33.56/t for sub-level stoping (SLS) resource shapes and US$49.90/t for cut and fill (C&F) resource shapes.

A summary of the Cerro Lindo underground Mineral Resources, exclusive of Mineral Reserves, for the Cerro Lindo deposit, is shown in Table 11-1. Table 11-2 shows the Mineral Resources sub-divided into mineralization domains. NSR cut-off values for the Mineral Resources were established using a zinc price of US$1.30/lb, a lead price of US$1.02/lb, a copper price of US$3.37/lb, and a silver price of US$19.38/oz.

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions).

Table 11-1: Summary of Mineral Resources – December 31, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.7
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.2
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.9
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.4

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US$33.56/t for sub-level open stoping (SLS) and US$49.90/t for cut and fill (C&F).
4. Mineral Resources are estimated using average long term metal prices of Zn: US$2,869.14/t (US$1.30/lb), Pb: US$2,249.40/t (US$1.02/lb), Cu: 7,426.59/t (US$3.37/lb), and Ag: US$19.38/oz.

5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

Table 11-2: Mineral Resource Estimate by Mineralization Domains – December 31, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Category	Domain	Tonnage (Mt)	Grade				Contained Metal			
			(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	SPB	1.37	4.01	0.39	0.56	21.33	55.02	5.33	7.66	940.32
	SPP	2.13	0.71	0.08	0.75	18.45	15.10	1.70	15.85	1,261.00
	SSM	0.02	0.63	0.19	0.17	18.37	0.12	0.04	0.03	11.32
	VM	0.01	1.30	0.25	0.17	31.04	0.14	0.03	0.02	11.08
Indicated	SPB	0.66	2.94	0.40	0.47	26.14	19.26	2.65	3.06	551.20
	SPP	1.17	0.69	0.08	0.59	15.58	8.04	0.90	6.94	586.66
	SSM	0.64	1.13	0.34	0.30	29.66	7.21	2.18	1.88	606.66
	VM	0.31	1.10	0.42	0.19	48.32	3.42	1.31	0.58	480.63
Total M&I	SPB	2.03	3.66	0.39	0.53	22.89	74.28	7.99	10.71	1,491.52
	SPP	3.30	0.70	0.08	0.69	17.43	23.14	2.60	22.78	1,847.66
	SSM	0.66	1.12	0.34	0.29	29.33	7.33	2.22	1.91	617.99
	VM	0.32	1.11	0.42	0.19	47.72	3.56	1.34	0.60	491.72
Inferred	SLB	0.11	0.05	0.28	0.06	24.75	0.05	0.32	0.07	90.08
	SOB	0.53	0.70	0.14	0.99	18.18	3.68	0.72	5.23	307.86
	SOP	0.12	0.22	0.03	0.52	11.77	0.26	0.04	0.63	45.50
	SPB	0.21	3.54	0.55	0.35	30.62	7.31	1.14	0.73	203.32
	SPP	0.59	0.62	0.04	0.62	11.79	3.61	0.24	3.64	222.61
	SSM	2.21	1.38	0.33	0.34	31.19	30.47	7.38	7.50	2,220.79
	V	0.10	0.51	0.24	0.22	26.28	0.49	0.23	0.21	81.51
	VM	3.12	1.38	0.46	0.17	38.31	43.19	14.44	5.34	3,840.73

Notes:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources which are consistent with CIM (2014) definitions.
2. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Resources are estimated at a net smelter return (NSR) cut-off value of US$33.56/t for SLS and US$49.90/t for C&F.
4. Mineral Resources are estimated using average long term metal prices of Zn: US$2,869.14/t (US$1.30/lb), Pb: US$2,249.40/t (US$1.02/lb), Cu: 7,426.59/t (US$3.37/lb), and Ag: US$19.38/oz.

5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used to create SLS and C&F resource shapes respectively.
7. Bulk density varies depending on mineralization domain.
8. Mineral Resources are exclusive of Mineral Reserves.
9. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
10. Numbers may not add due to rounding.

The SLR QP reviewed the Mineral Resource assumptions, input parameters, geological interpretation, and block modelling and reporting procedures, and is of the opinion that the Mineral Resource estimate is appropriate for the style of mineralization and that the block model is reasonable and acceptable to support the December 31, 2020 Mineral Resource estimate.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

11.2 Resource Database

Nexa maintains the entire database in Studio RM-Fusion. The resource database contains drilling information and analytical results up to March 2, 2020. Information received after this date was not used in the Mineral Resource estimate. The database comprises 4,808 drill holes for a total of 654,130 m and 1,040 underground channels for a total of 20,682 m.

The Mineral Resource estimate is based on the WGS-84 coordinate system, and two B-Level National Grid points are used as a reference for all topographical measurements.

SLR received data from Nexa in Microsoft Excel format. A Datamine database was also provided and extracted in CSV format. Data were amalgamated, parsed as required, and imported by SLR into Maptek's Vulcan Version 10.1.5 (Vulcan) software and Sequent Limited's Leapfrog software version 5.0 (Leapfrog) for review.

The drill hole and channel database comprise coordinate, length, azimuth, dip, lithology, density, and assay data. For grade estimation, unsampled intervals within mineralization wireframes were replaced with zero grades. Detection limit text values (e.g., "<0.05") were replaced with numerical values that were half of the analytical detection limit. The channel sample data was converted into drill hole data for use in interpretation and Mineral Resource estimation.

For the purpose of the Mineral Resource estimate, the drill hole data were limited to those assays located inside the mineralization wireframes. This includes 4,124 drill holes containing 146,470 samples totalling 192,894 m, and 1,026 underground channels containing 12,994 samples totalling 20,110 m. A total of 81 drill holes were excluded from the Mineral Resource database (Table 11-3) as they either were drilled for geotechnical or geometallurgical purposes, or had missing assay values outside the mineralization zones; however, all drill holes were used for geological modelling purposes. The 29 DTH holes completed during 1995 were also excluded from the modelling and estimation processes as the historical information was not available to Nexa.

Figure 11-1 illustrates the drill hole location in relation with the mineralization solid.

The SLR QP conducted a number of checks on the Mineral Resource database as discussed in Section 9, Data Verification. The SLR QP is of the opinion that the database is of high quality and generally exceeds industry standards and is appropriate to support Mineral Resource estimation.

Table 11-3: Excluded Holes
Nexa Resources S.A. – Cerro Lindo Mine

Comments	Total Metres	Hole ID
Parallel re-drilled holes	448.20	PECLD03447,PECLD03452,PECLDCL-09-406, PECLDCL-09-431, PECLDCL-10-563, PECLDCL-13-968, PECLDCL-14-1453, PECLDCL-16-1930, PECLDCL-16-2533
Geometallurgical drill holes	100.00	PECLDCL-15-1702, PECLDCL-15-1703
Services drill holes	944.11	PECLDCL-10-486, PECLDCL-10-487, PECLDCL-10-488, PECLDCL-10-489, PECLDCL-10-490, PECLDCL-10-494, PECLDCL-10-495, PECLDCL-10-549, PECLDCL-10-551, PECLDCL-10-552, PECLDCL-10-553, PECLDCL-10-555, PECLDCL-10-557, PECLDCL-10-558, PECLDCL-10-561, PECLDCL-10-562, PECLDCL-10-586, PECLDCL-10-588, PECLDCL-10-590, PECLDCL-10-599, PECLDCL-10-601, PECLDCL-10-602
Drill holes for geomechanical purpose	3,812.55	PECLDCL-07-165, PECLDCL-07-172, PECLDCL-07-194, PECLDCL-08-199, PECLDCL-08-200, PECLDCL-08-230, PECLDCL-09-297, PECLDCL-09-301, PECLDCL-09-303, PECLDCL-09-320, PECLDCL-09-323, PECLDCL-09-326, PECLDCL-09-328, PECLDCL-09-333, PECLDCL-09-334, PECLDCL-09-355, PECLDCL-09-359, PECLDCL-09-449, PECLDCL-09-453, PECLDCL-09-454, PECLDCL-09-457, PECLDCL-09-470, PECLDCL-10-528, PECLDCL-11-668, PECLDCL-11-671, PECLDCL-11-672, PECLDCL-11-674, PECLDCL-11-678, PECLDCL-11-722, PECLDCL-11-723, PECLDCL-11-727, PECLDCL-11-728, PECLDCL-11-772, PECLDCL-11-774, PECLDCL-11-776, PECLDCL-11-778, PECLDCL-11-779, PECLDCL-11-782, PECLDCL-11-787, PECLDCL-12-882, PECLDCL-14-1477, PECLDCL-12-842, PECLDCL-12-843, PECLDCL-12-884, PECLDCL-12-903, PECLDCL-12-906, PECLDCL-12-931, PECLDCL-12-932
Total	**5,304.86**	

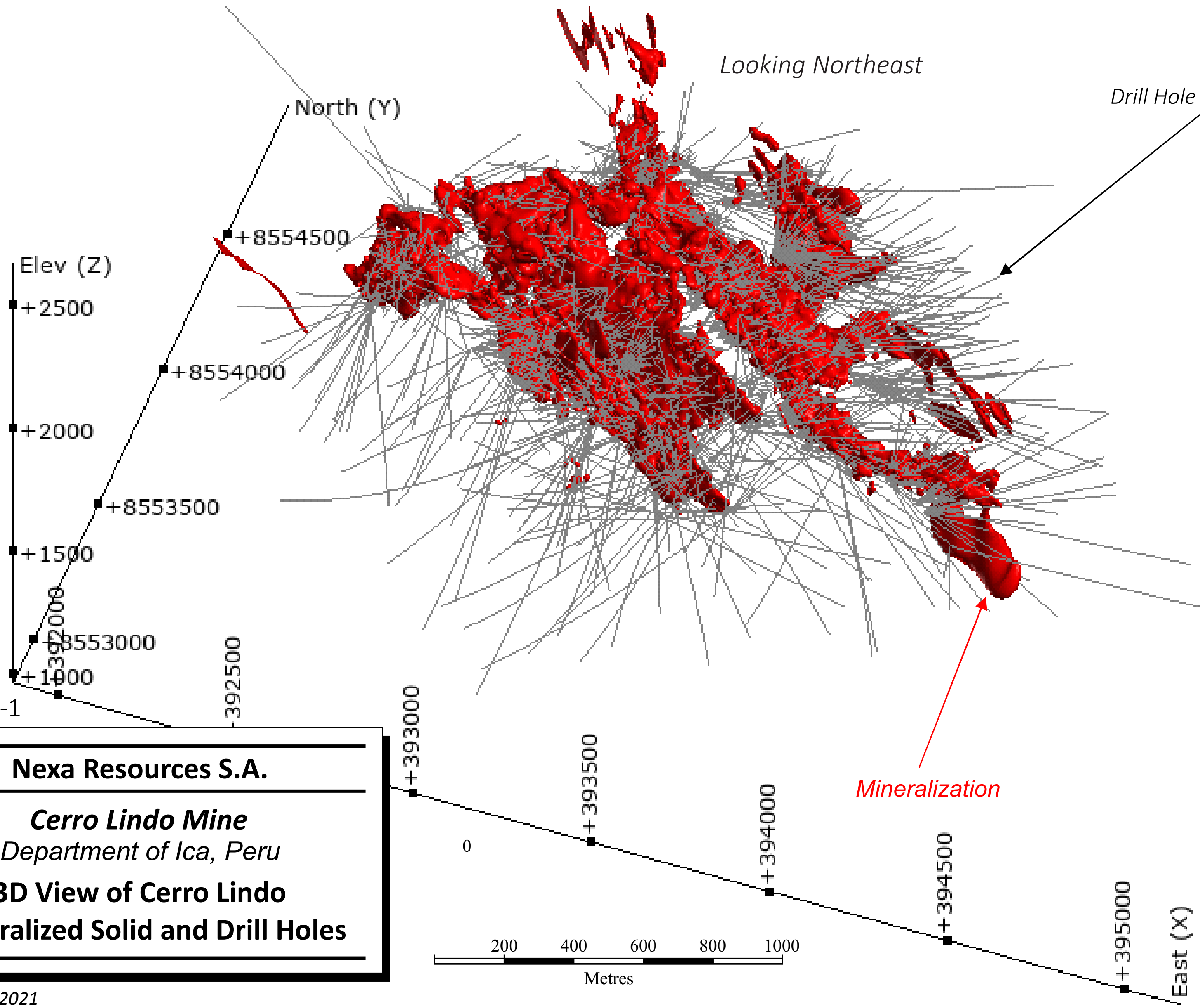


Figure 11-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

3D View of Cerro Lindo Mineralized Solid and Drill Holes

January 2021

Source: Nexa, 2020.

11.3 Geological Interpretation

Nexa changed its modelling approach based on geological continuity review since 2019. Previous models were prepared by separating geological solids into individual mining operation areas (called "OB"), creating artificial mineralization islands. The updated geological wireframes are based on the geological interpretation of lithological description, mineralization type (massive sulphide, semi-massive sulphide, sulphide, oxidized, leached, and mineralized volcanic units), and a reference assay threshold for the semi-massive and mineralized volcanic units. Some drill hole intercepts below cut-off grade were included to maintain geological continuity.

Structural data was used to help define the orientation of the mineralization. Structural trends were interpreted in low and high temperature areas based on Knuckey ratios model. Ratios were defined as: (cu/(cu+zn))*100.

The overall mineralization strikes at approximately 310° azimuth, closely follows the main fault (NW), and extends over a 1,850 m strike length. It is hosted mostly in volcanic rocks and consists of 14 interpreted geological domains, with twelve mineralization domains and two barren domains (Table 11-4).

Table 11-4: Geological Domains
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	CLI Code	CGEOCD Code	Assay Threshold Criteria					Lithology Logging	Description
			Fe (%)	Zn (%)	Cu (%)	Ag (g/t)	Pb (%)		
SPB	1	9	-	-	-			SPB	Mineralized baritic massive sulphides (Zn rich unit)
SPP	2	6	-	-	-			SPP	Mineralized pyritic massive sulphides (barren and Cu rich units)
SSM	3	5	>15	and>1	or >0.25			SSM	Mineralized semi-massive sulphides
VM	4	28	-	>=1	or >=0.25	>=30	or >=0.5	Volc. rock	Mineralized felsic volcanic rocks
Enclave	5	29	-	-	-			Volc. rock	Barren felsic volcanic - internal waste
SOP	6	7	-	-	-			SOP	Mineralized oxidized massive sulphides
SOB	7	10	-	-	-			SOB	Mineralized oxidized massive sulphides baritic zone
SLB	8	11	-	-	-			SLB	Mineralized leached massive sulphide baritic zone
Dike	10	3	-	-	-			Dike	Barren porphyry andesite dike
OB11VM	11	28	-	-	-			Volc. rock	Mineralized felsic volcanic rocks (in OB11)
OB12VM	12	28	-	-	-			Volc. rock	Mineralized felsic volcanic rocks (in OB12)
OB5BVM	13	28	-	-	-			Volc. rock	Mineralized felsic volcanic rocks (in OB5B)
OB14VM	14	28	-	-	-			Volc. rock	Mineralized felsic volcanic rocks (in OB14)
PUCVM	15	28	-	-	-			Volc. rock	Mineralized felsic volcanic rocks (in Pucasalla area)

11.4 Geological Modelling

Nexa performed geological modelling of the Cerro Lindo deposit using Leapfrog. All contact surfaces were modelled based on the drilling and channel sampling assay results, as well as the structural and lithological controls observed in underground workings and drill core logging data. Nexa adjusted the chronology sequence interaction to mimic sectional and plan interpretation. The interaction from oldest to youngest was performed as follows: VM>>SSM>>SPP>>SPB>>V(enclave), where the wall rock was the VM and the inner domain was the enclave. The model is divided into two structural areas, West (Block 1) and East (Block 2). Both areas are modelled based on mineralization and geological trends. A total of 33 trends were interpreted and modelled (Figure 11-2). Each area then was sub-divided by geological domains, using the SSM domain as the background host rock. A total of 40 interpreted sections and 17 levels with underground mapping were used to guide the modelling, and polylines were used to better control contacts where data was sparse.

The dikes were modelled as vein objects and grouped using the vein system tool, with no consideration of external lithologies. Extra boundary control was imposed using polylines if necessary. The modelled mineralized zones were then clipped by the dike solids and exported to Datamine software to encode the block model.

Figure 11-3 shows the geological model in plan view with and without dikes.

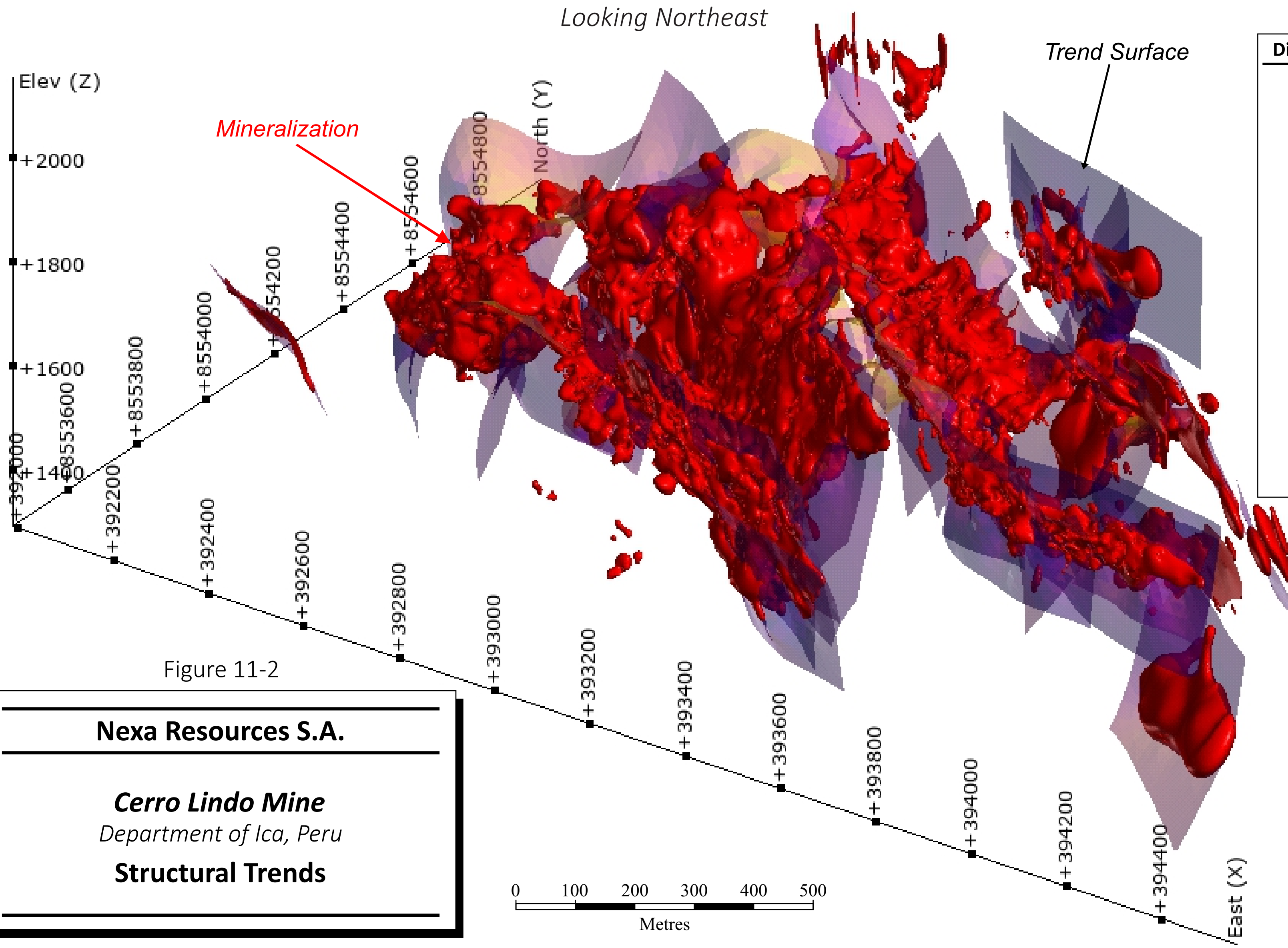


Figure 11-2

Nexa Resources S.A.

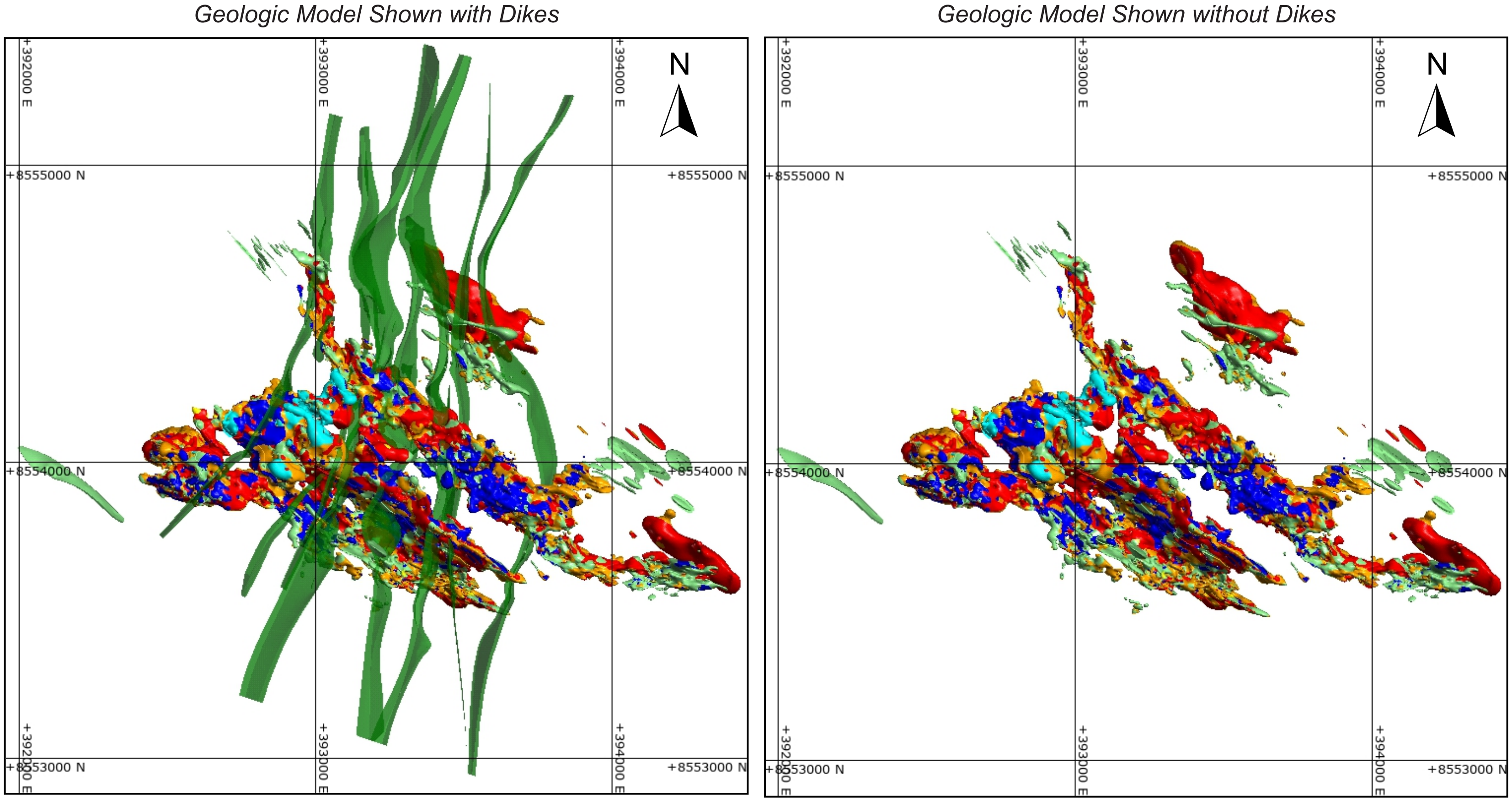
Cerro Lindo Mine

Department of Ica, Peru

Structural Trends

January 2021

Source: Nexa, 2020.



Legend:

- SPB (CLI=1)
- SPP (CLI=2)
- SSM (CLI=3)
- VM (CLI=4, 11, 12, 13, 14, 15)
- V (CLI=5)
- SOP, SOB, SLB (CLI=6,7,8)
- Dikes (CLI=10)

0 250 500 750 1000
Metres

Figure 11-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Geological Model Shown with and without Dikes

January 2021

Source: Nexa, 2020.

11.5 Domain Modelling

11.5.1 Grade Domains

Nexa prepared grade domain models for the SPP, SPB, SSM, and VM geological domains by creating grade shell indicator wireframes based on grade assays and structural trend surfaces. Grade threshold limits used to outline grade shells, and to define high and low grade domains, were determined by assessing probability plots and histograms to identify different populations, and by also considering spatial grade continuity. Examples of grade distributions in SPP, SPB, SSM, and VM are shown in Figure 11-4, Figure 11-5, and Figure 11-6.

Indicator solids were built for each element within the geological domains, based on the radial basis function (RBF) interpolants, which interpolate all samples above a defined cut-off grade. As a result, high and low grade domains were created for each element. Silver and lead used the same grade domains as they were found statistically and spatially correlated.

The purpose of building high grade and low grade domains was to control the internal dilution and limit the smearing of high grade values into low grade values and vice versa, during the grade estimation. Table 11-5 lists the zinc, copper, silver, and lead grade domains and Figure 11-7, Figure 11-8, Figure 11-9, Figure 11-10, Figure 11-11, and Figure 11-12 illustrate plan views of the grade domains in SPP, SPB, SSM, and VM.

For the SOP, SOB, SLB, OB11VM, OB12VM, OB5BVM, OB14VM, and PUCVM domains, grade domains were not built due to their small volume and poor grade continuity. Geological models in combination with grade domains were used to prepare the estimation domains

Table 11-5: Zn, Cu, Ag and Pb Grade Domains
Nexa Resources S.A. – Cerro Lindo Mine

	Grade Shell Code	Grade Domain	Grade Shell Indicator	Geological Domain
Zinc Grade Domains	SPBHZN	High Grade	Inside 2.5% Zn Grade Shell	SPB
	SPBLZN	Low Grade	Outside 2.5 % Zn Grade Shell	
	SPPHZN	High Grade	Inside 0.3% Zn Grade Shell	SPP
	SPPLZN	Low Grade	Outside 0.3 % Zn Grade Shell	
	SSMHZN	High Grade	Inside 0.5% Zn Grade Shell	SSM
	SSMLZN	Low Grade	Outside 0.5 % Zn Grade Shell	
	VMHZN	High Grade	Inside 0.4% Zn Grade Shell	VM
	VMLZN	Low Grade	Outside 0.4 % Zn Grade Shell	
Copper Grade Domains	SPBHCU	High Grade	Inside 0.2% Cu Grade Shell	SPB
	SPBLCU	Low Grade	Outside 0.2% Cu Grade Shell	
	SPPHCU	High Grade	Inside 0.25% Cu Grade Shell	SPP
	SPPLCU	Low Grade	Outside 0.25% Cu Grade Shell	
	SSMHCU	High Grade	Inside 0.25% Cu Grade Shell	SSM
	SSMLCU	Low Grade	Outside 0.25% Cu Grade Shell	
	VMHCU	High Grade	Inside 0.15% Cu Grade Shell	VM

	Grade Shell Code	Grade Domain	Grade Shell Indicator	Geological Domain
Silver and Lead Grade Domains	VMLCU	Low Grade	Outside 0.15% Cu Grade Shell	
	SPBHAG	High Grade	Inside 30 g/t Ag Grade Shell	SPB
	SPBLAG	Low Grade	Outside 30 g/t Ag Grade Shell	
	SPPHAG	High Grade	Inside 9 g/t Ag Grade Shell	SPP
	SPPLAG	Low Grade	Outside 9 g/t Ag Grade Shell	
	SSMHAG	High Grade	Inside 20 g/t Ag Grade Shell	SSM
	SSMLAG	Low Grade	Outside 20 g/t Ag Grade Shell	
	VMHAG	High Grade	Inside 35 g/t Ag Grade Shell	VM
	VMLAG	Low Grade	Outside 35 g/t Ag Grade Shell	

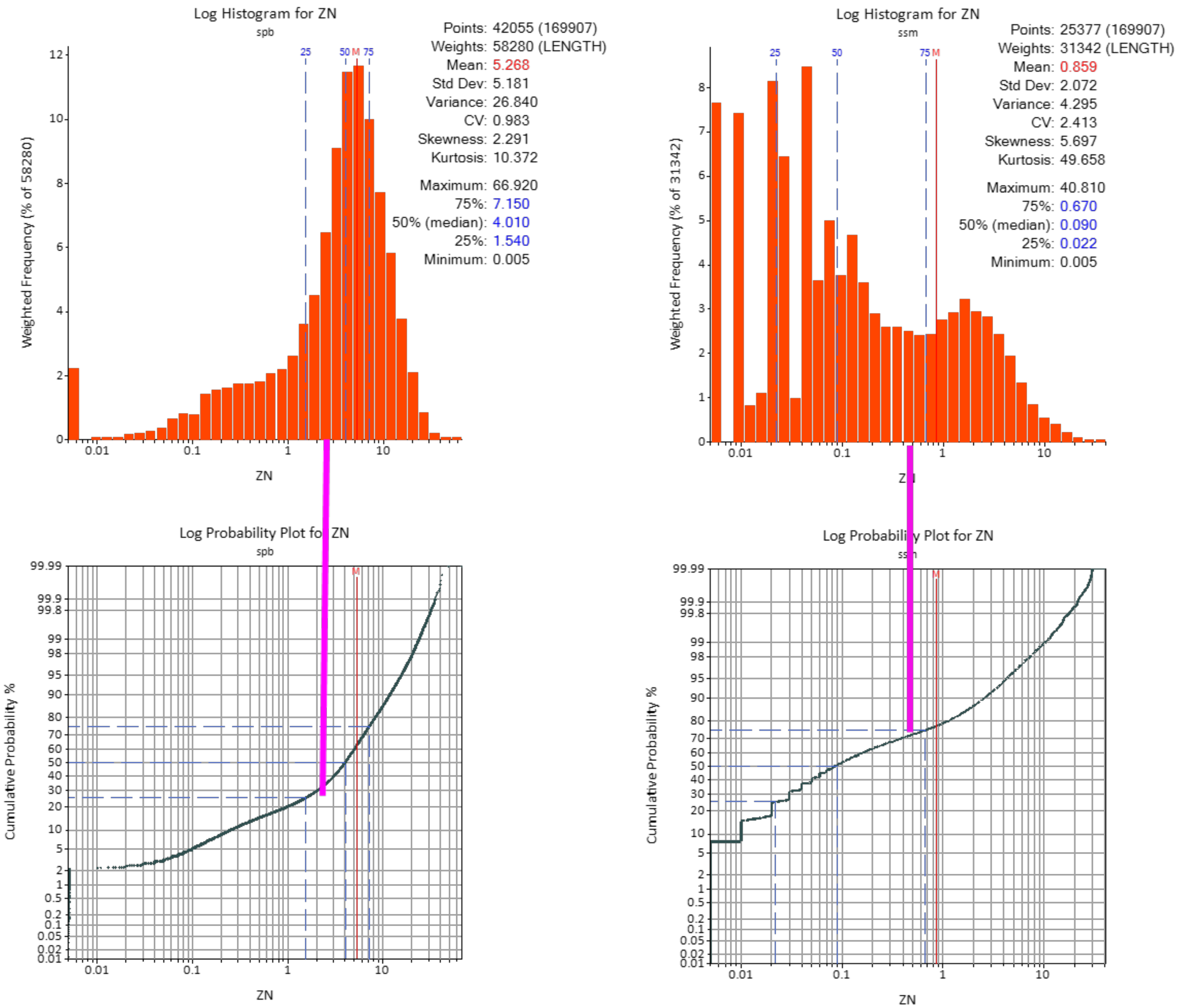


Figure 11-4: Zn Distribution in SPB and SSM Domains

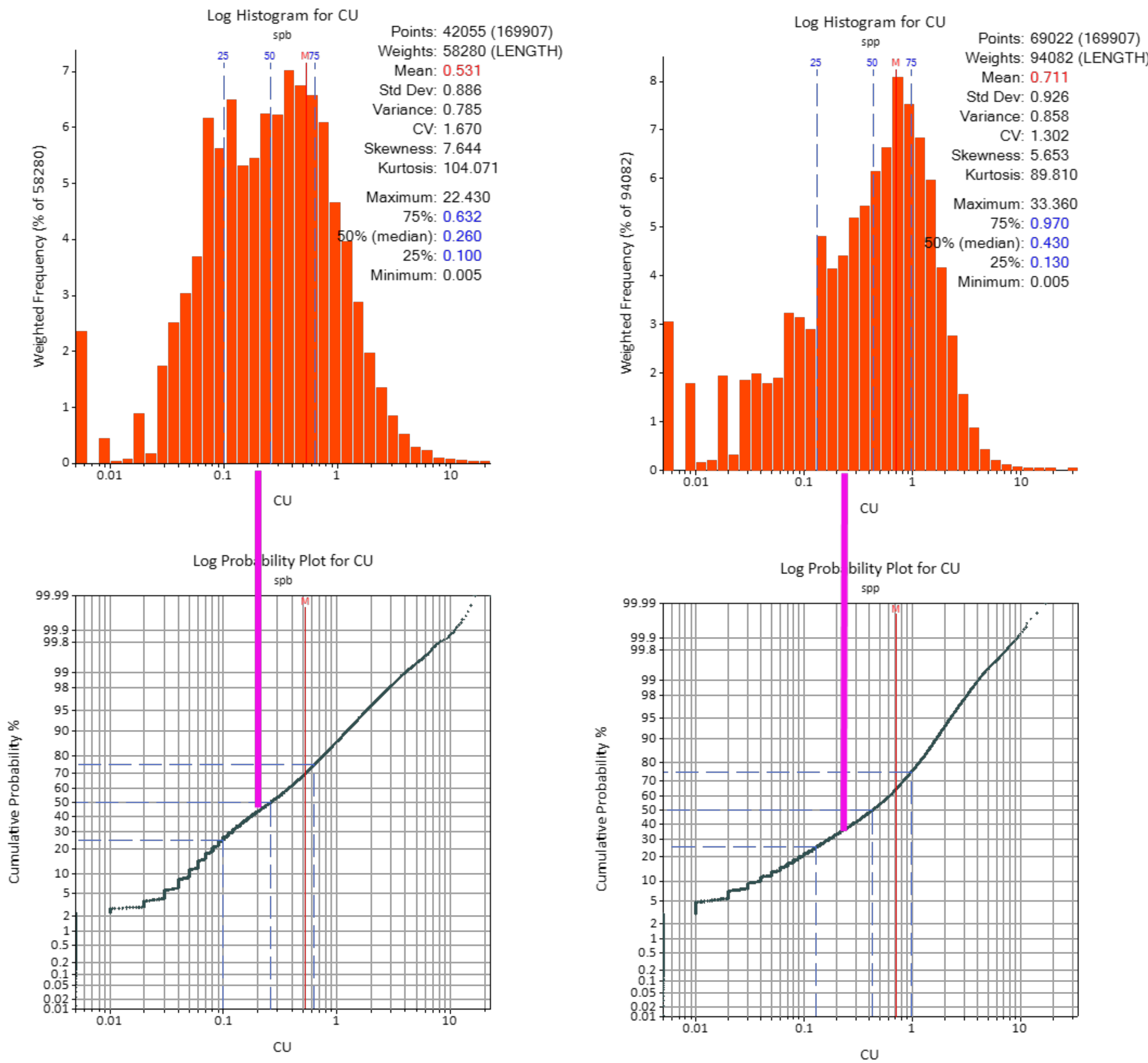


Figure 11-5: Cu Distribution in SPB and SPP Domains

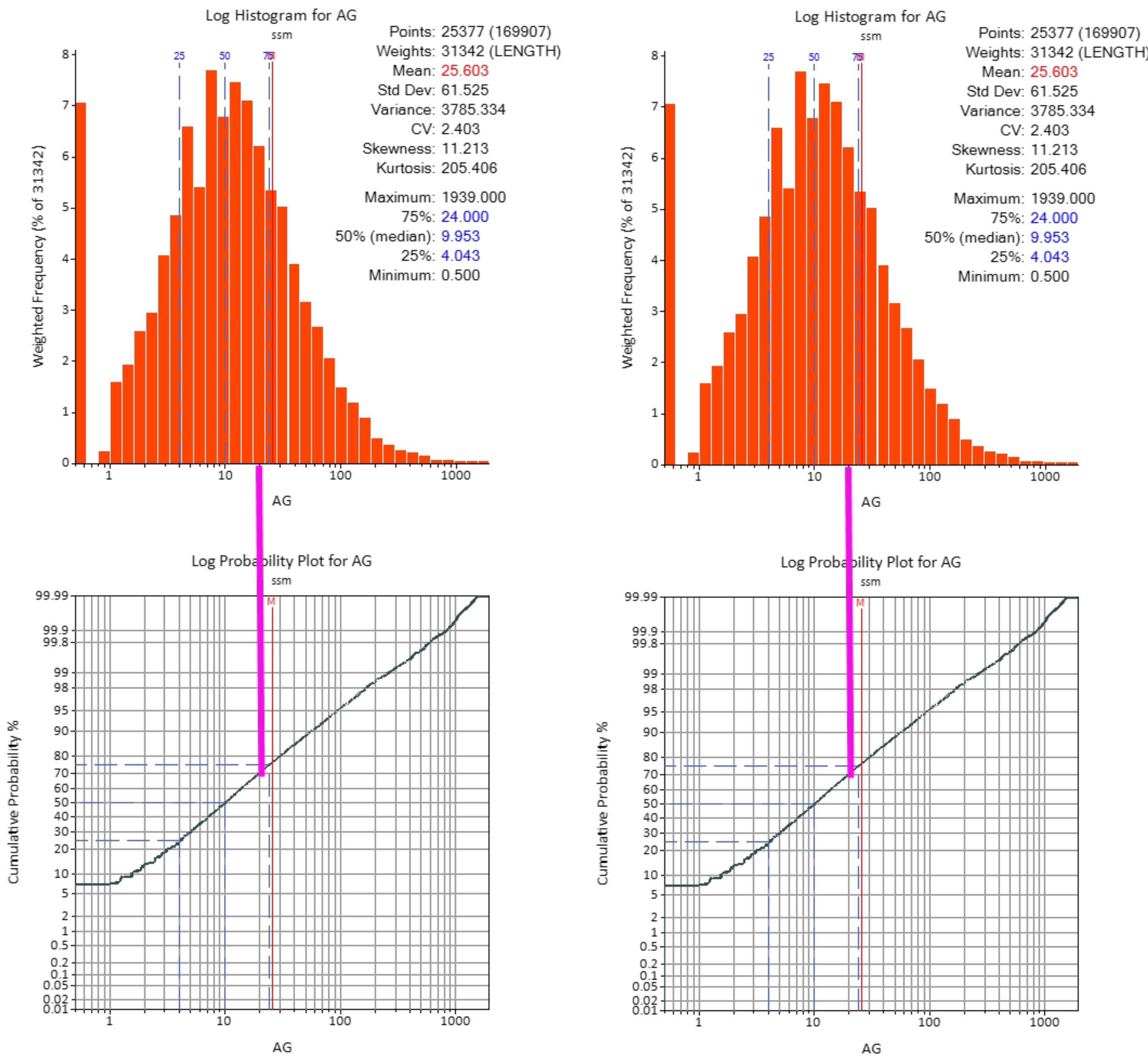


Figure 11-6: Ag Distribution in SSM and VM Domains

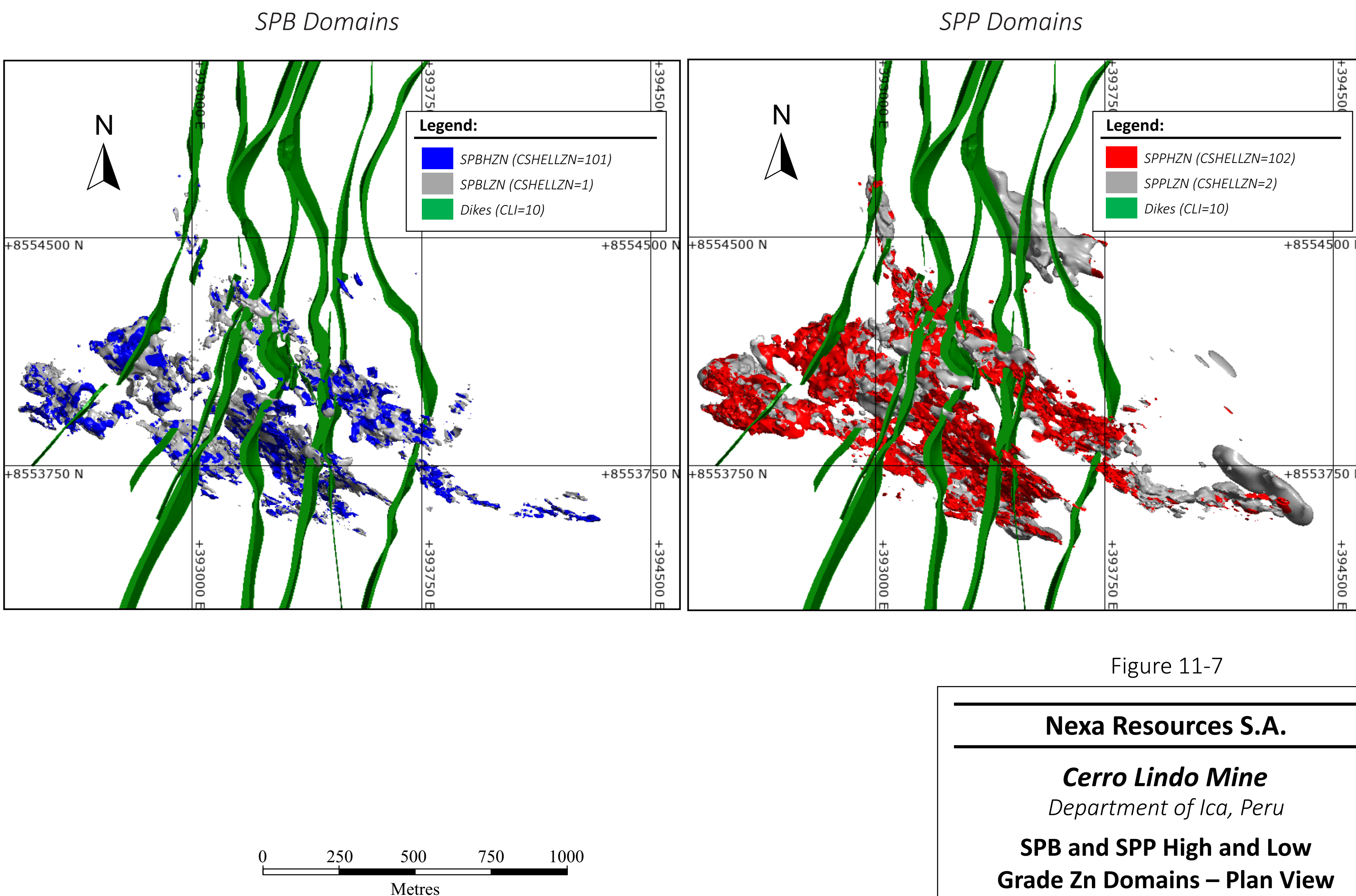


Figure 11-7

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SPB and SPP High and Low Grade Zn Domains – Plan View

January 2021

Source: Nexa, 2020.

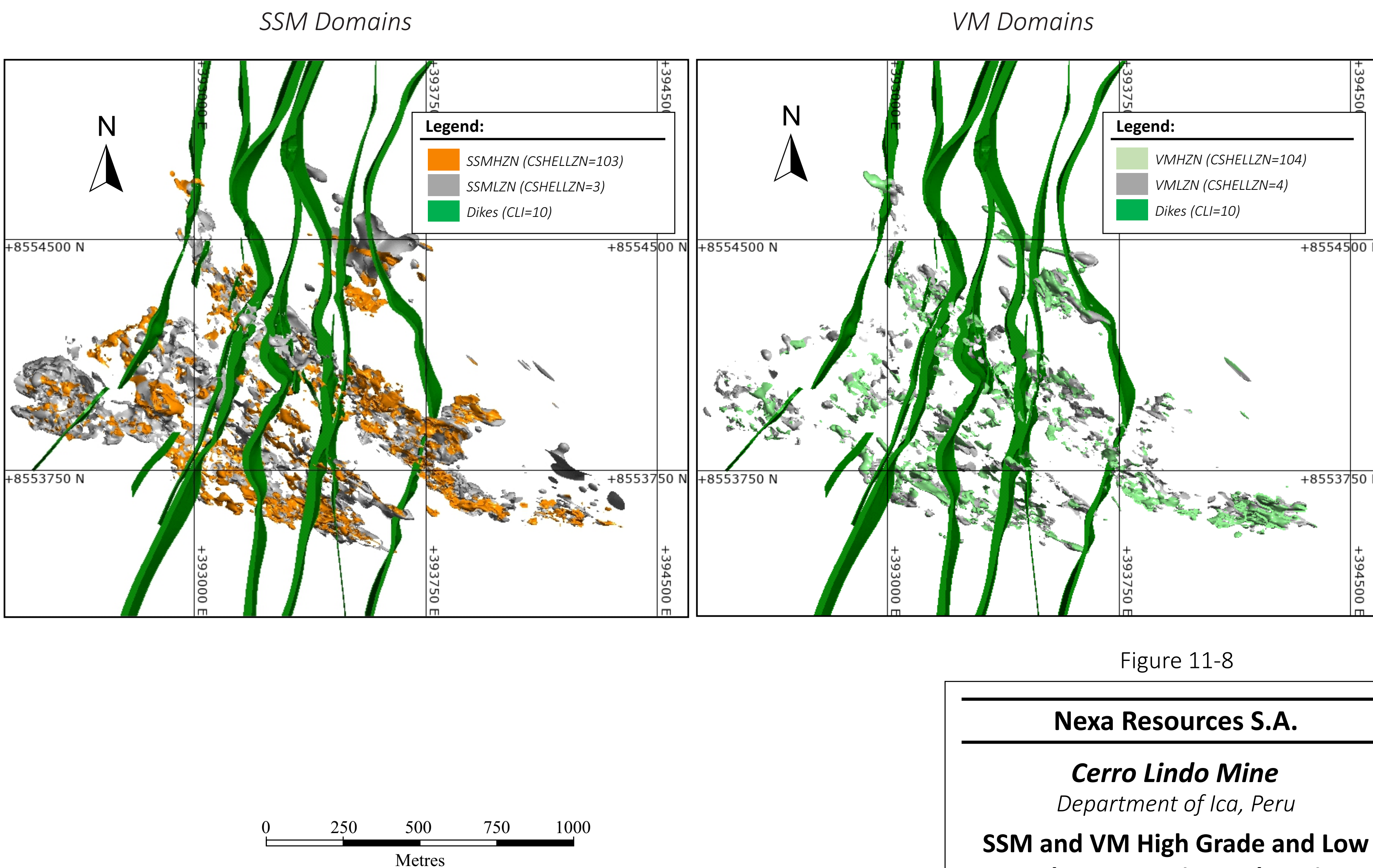


Figure 11-8

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SSM and VM High Grade and Low Grade Zn Domains – Plan View

January 2021

Source: Nexa, 2020.

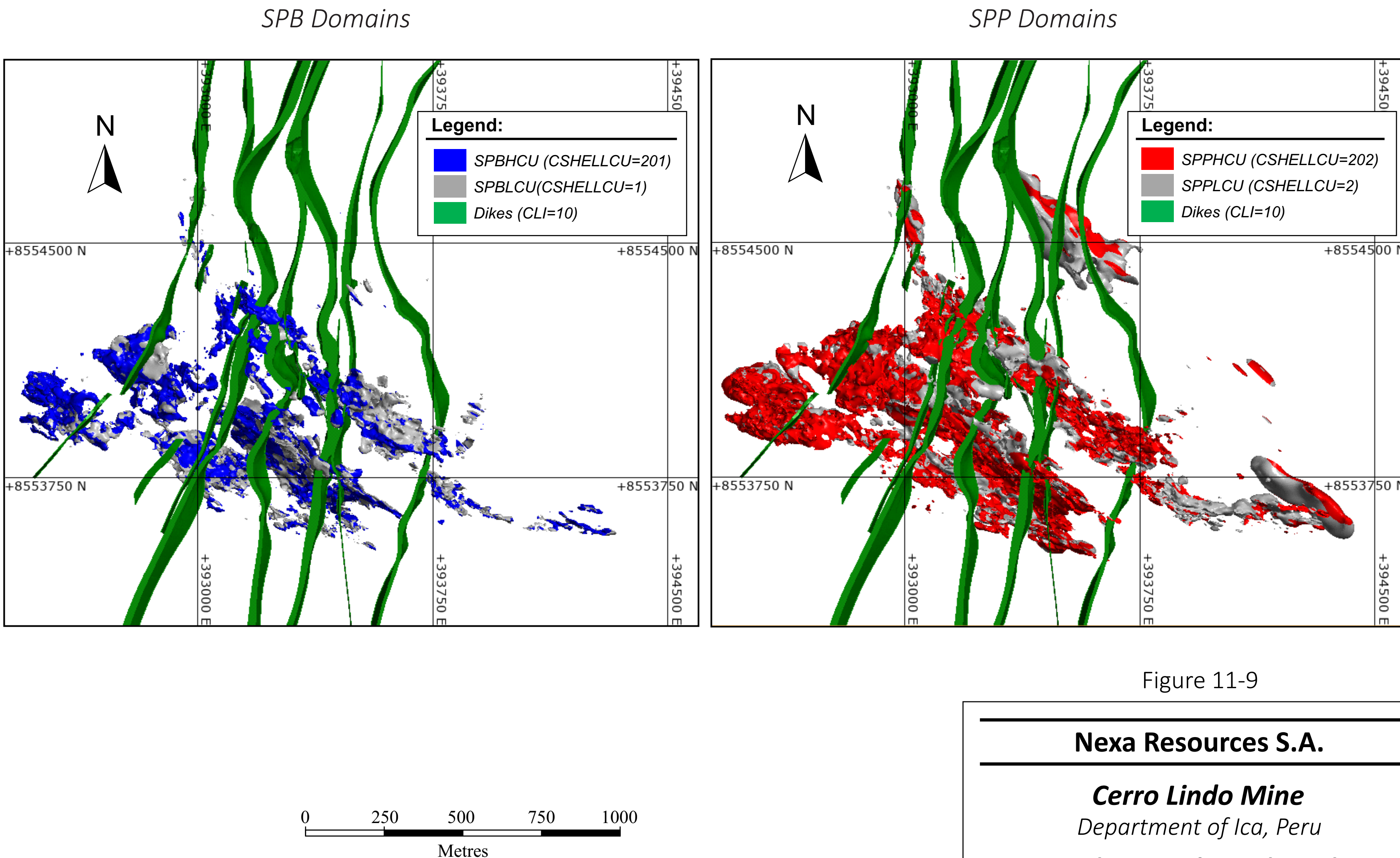


Figure 11-9

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SPB And SPP High Grade and Low Grade Cu Domains – Plan View

January 2021

Source: Nexa, 2020.

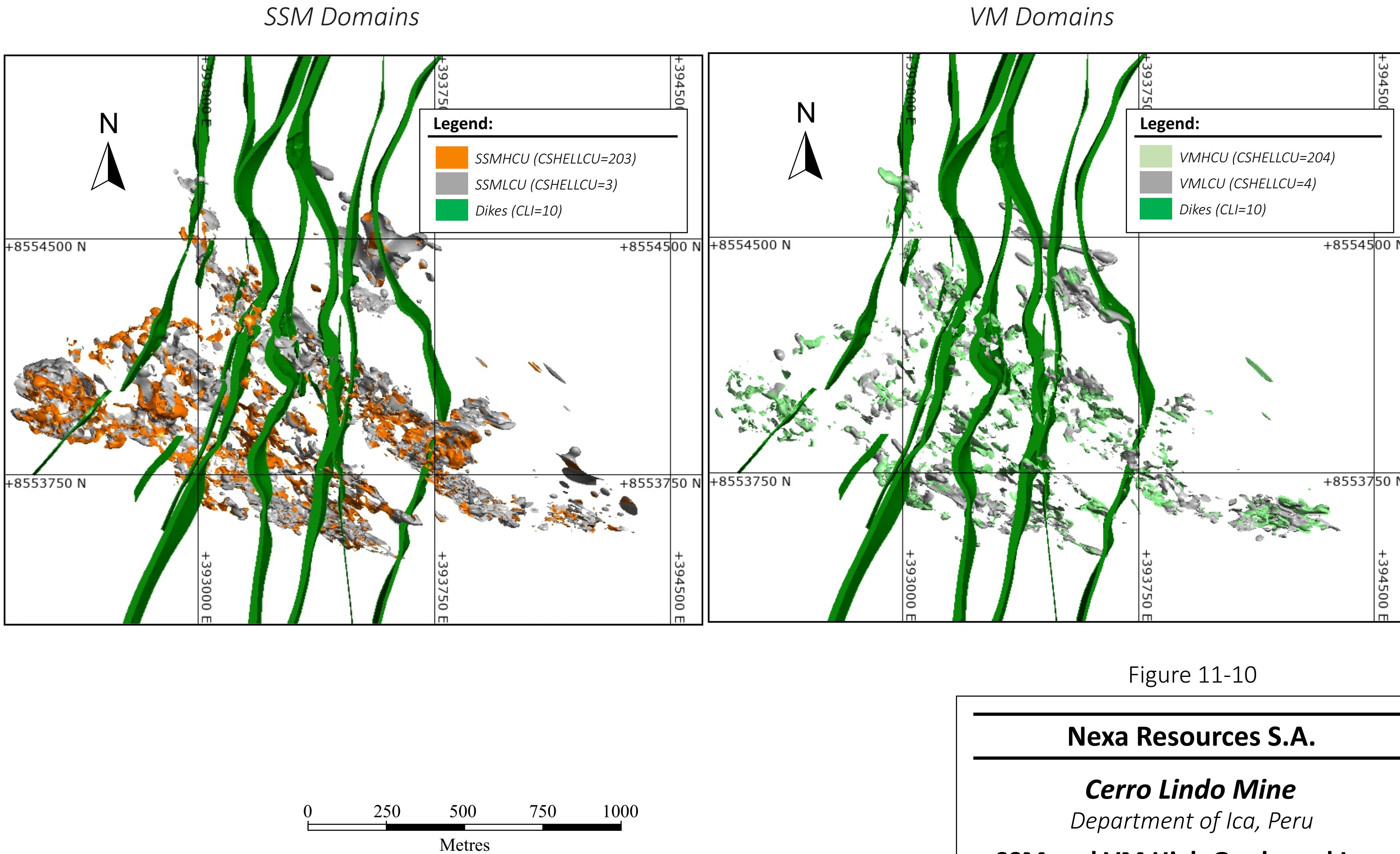


Figure 11-10

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SSM and VM High Grade and Low Grade Cu Domains – Plan View

January 2021

Source: Nexa, 2020.

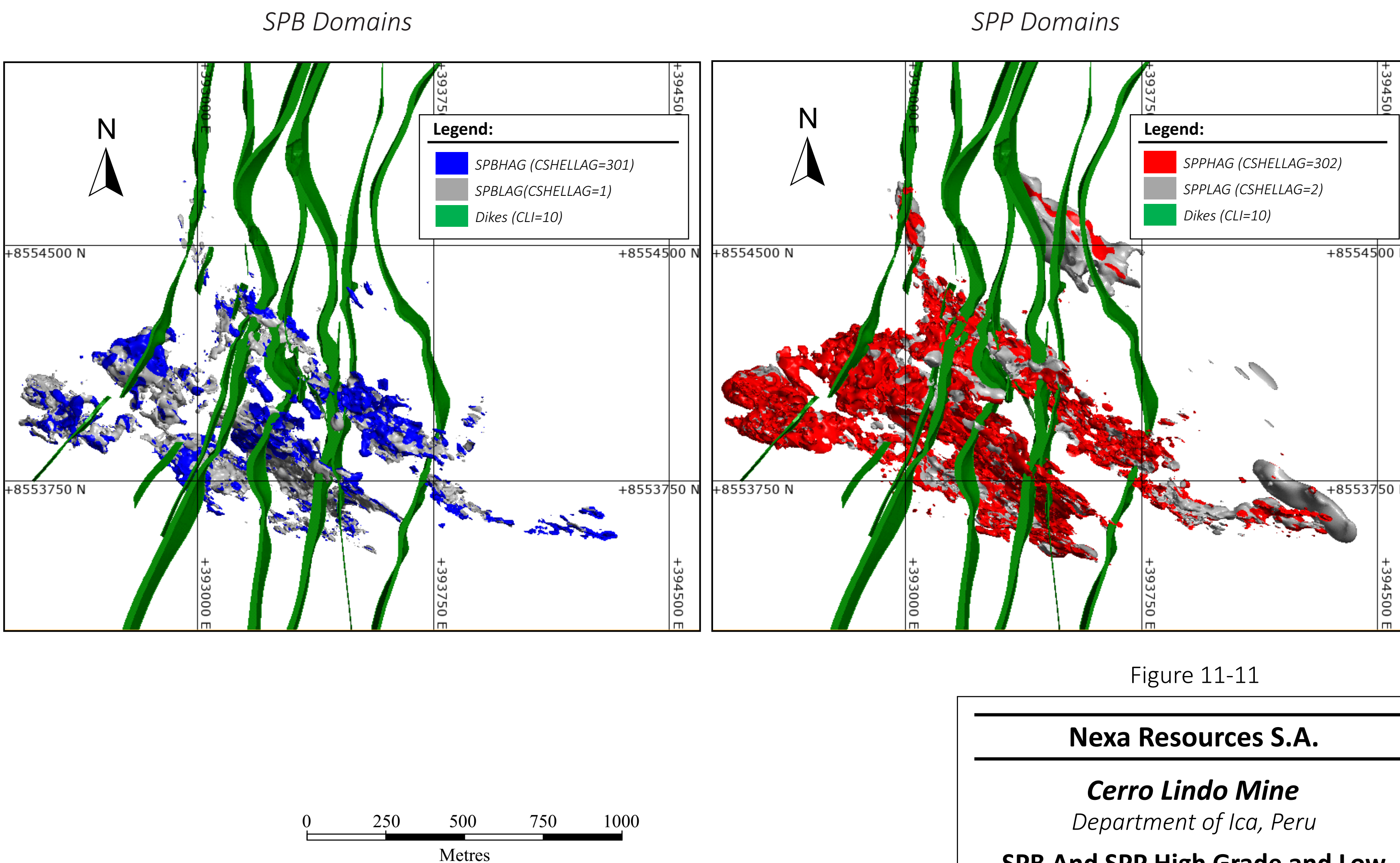


Figure 11-11

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SPB And SPP High Grade and Low Grade Ag-Pb Domains – Plan View

January 2021

Source: Nexa, 2020.

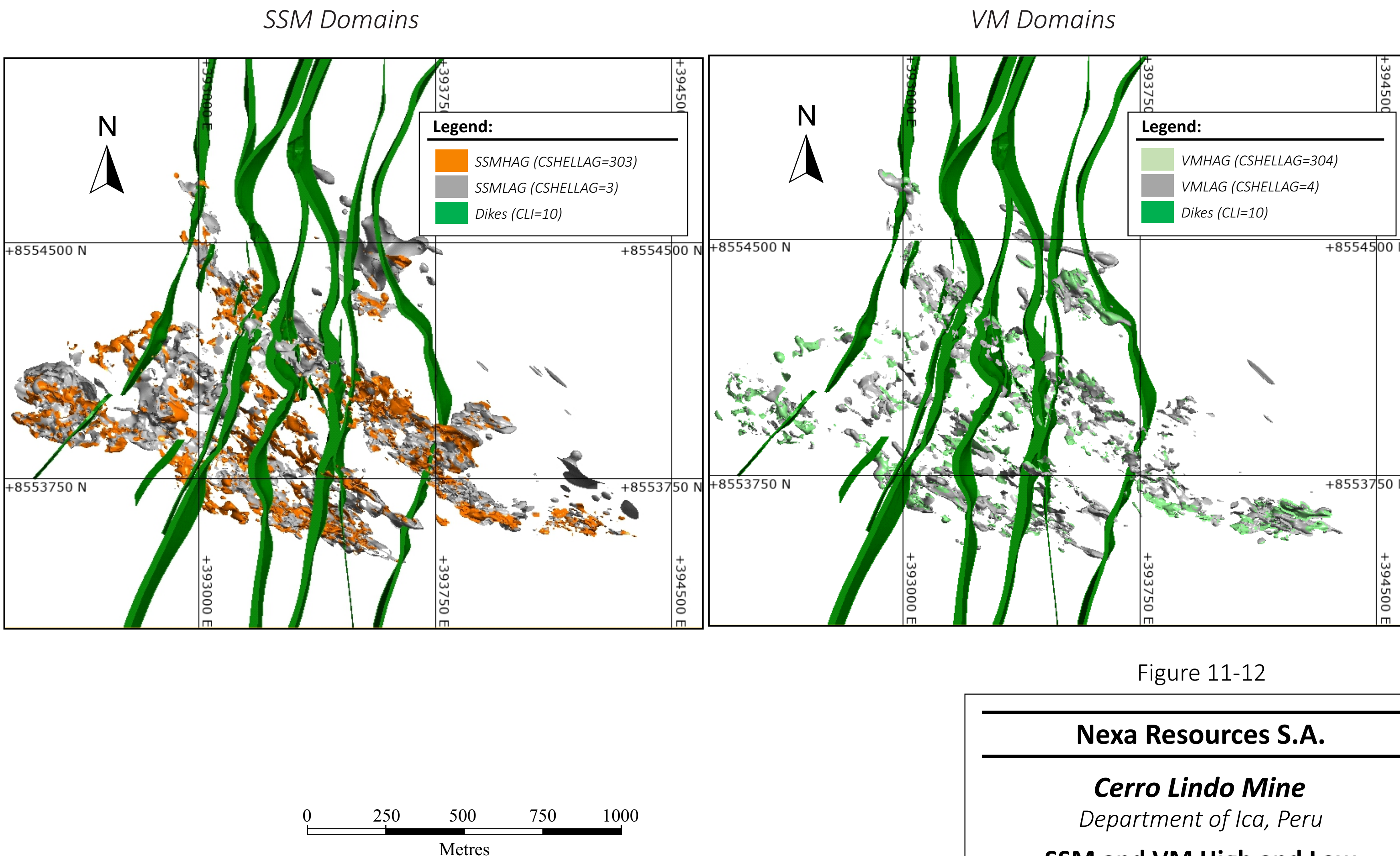


Figure 11-12

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

SSM and VM High and Low Grade Ag-Pb Domains – Plan View

January 2021

Source: Nexa, 2020.

11.5.2 Estimation Domains

Based on observations of the drill core and underground mineralization exposures, discussions with the geologists on site, a review of the data in 3D, and statistical analysis, the mineralization at Cerro Lindo is considered to be lithologically and structurally controlled. The bulk of the mineralization is located in the SPP and SPB domains, with some mineralization in the SSM domain, and lesser mineralization in the VM, SOB, SOP, SLB, OB11VM, OB12VM, OB5BVM, OB14VM, and PUCVM domains. High grade zones usually present more massive mineralization, with higher grade Zn and Cu zones.

Nexa created 33 estimation domains using a number of geological parameters, which include: geological domains (lithological control and mineralization type), grade domains (high grade and low grade domains), and the anisotropy and orientation of the estimation domains. Table 11-6 summarizes the estimation domains.

Table 11-6: Estimation Domains
Nexa Resources S.A. – Cerro Lindo Mine

Estimation Domain	Geological Domain	CLI	GEOCD	Grade Shell Code	C_Shell
Mineralized baritic massive sulphides High Grade Domain Zn	SPB	1	9	SPBHZN	101
Mineralized baritic massive sulphides Low Grade Domain Zn	SPB	1	9	SPBLZN	1
Mineralized baritic massive sulphides High Grade Domain Cu	SPB	1	9	SPBLCU	201
Mineralized baritic massive sulphides Low Grade Domain Cu	SPB	1	9	SPBLCU	1
Mineralized baritic massive sulphides High Grade Domain Ag	SPB	1	9	SPBLAG	301
Mineralized baritic massive sulphides Low Grade Domain Ag	SPB	1	9	SPBLAG	1
Mineralized pyritic massive sulphides High Grade Domain Zn	SPP	2	6	SPPHZN	102
Mineralized pyritic massive sulphides Low Grade Domain Zn	SPP	2	6	SPPLZN	2
Mineralized pyritic massive sulphides High Grade Domain Cu	SPP	2	6	SPPLCU	202
Mineralized pyritic massive sulphides Low Grade Domain Cu	SPP	2	6	SPPLCU	2
Mineralized pyritic massive sulphides High Grade Domain Ag	SPP	2	6	SPPLAG	302
Mineralized pyritic massive sulphides Low Grade Domain Ag	SPP	2	6	SPPLAG	2
Mineralized semi-massive sulphides High Grade Domain Zn	SSM	3	5	SSMHZN	103

Estimation Domain	Geological Domain	CLI	GEOCD	Grade Shell Code	C_Shell
Mineralized semi-massive sulphides Low Grade Domain Zn	SSM	3	5	SSMLZN	3
Mineralized semi-massive sulphides High Grade Domain Cu	SSM	3	5	SSMLCU	203
Mineralized semi-massive sulphides Low Grade Domain Cu	SSM	3	5	SSMLCU	3
Mineralized semi-massive sulphides High Grade Domain Ag	SSM	3	5	SSMLAG	303
Mineralized semi-massive sulphides Low Grade Domain Ag	SSM	3	5	SSMLAG	3
Mineralized volcanic rocks High Grade Domain Zn	VM	4	28	VMHZN	104
Mineralized volcanic rocks Low Grade Domain Zn	VM	4	28	VMLZN	4
Mineralized volcanic rocks High Grade Domain Cu	VM	4	28	VMLCU	204
Mineralized volcanic rocks Low Grade Domain Cu	VM	4	28	VMLCU	4
Mineralized volcanic rocks High Grade Domain Ag	VM	4	28	VMLAG	304
Mineralized volcanic rocks Low Grade Domain Ag	VM	4	28	VMLAG	4
Mineralized oxidized sulphides zone	SOP	6	7	-	-
Mineralized oxidized baritic sulphides zone	SOB	7	10	-	-
Mineralized leached zone	SLB	8	11	-	-
Mineralized volcanic rocks inside OB11	OB11VM	11	28	-	-
Mineralized volcanic rocks inside OB12	OB12VM	12	28	-	-
Mineralized volcanic rocks inside OB5B	OB5BVM	13	28	-	-
Mineralized volcanic rocks inside OB14	OB14VM	14	28	-	-
Mineralized volcanic rocks inside PUC	PUCVM	15	28	-	-

With respect to the geological and domain modelling used to support the Mineral Resource estimate, SLR offers the following conclusions and recommendations:

- Overall, the mineralization wireframes are adequate for the style of mineralization.
- The wireframes and estimation domains are suitable to support Mineral Resource and Mineral Reserve estimation.
- Nexa significantly improved the Cerro Lindo geological model which is good representation of the geology of the deposit.

- Continue improving the geological model and estimation domains.
- Model the volcanic rocks (wall rock) and use this domain as a background lithology to enhance the contact of the wall rock with the mineralized domains, and incorporate VM intervals that were not modelled. This will help generate more realistic estimation domains, and grade and density estimates.
- Build a more detailed litho-structural model with the main lithologies/stratigraphy, dikes, faults, and folds, to better define the geometry and boundaries of the mineralization and customize local search anisotropies and directions. In cross section looking northwest, folding is observed, and in longitudinal section looking northeast, some dikes appear to behave like faults. Some mineralization domains appear to have mineralization trending in various directions due to local faulting and folding so further sub-domaining may be warranted.
- Nexa incorporated high and low grade domains to control the mix of populations and smearing of grades across domains. SLR concurs with this approach, however, based on visual validation, the high grade continuity appears to be affected as a result of modelling the high grade domains individually for each domain. SLR recommends that Nexa not separate the grade domains by geological domains to maintain grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains.
- Nexa created mineralization trend surfaces based on a ratio of Cu / (Cu+Zn). These surfaces were used to create the geological domains, grade envelopes, and dynamic anisotropy (DA) angles. Overall, the surfaces follow the mineralization trends, however, the DA angle results for some areas (OB1) do not follow grade trends. This does not have a significant impact on Mineral Resource estimation as composite grades have been estimated within their respective grade domain and there is sufficient drilling to control grade interpolation. SLR recommends reviewing the DA angle results using grade trends and structural interpretations.
- Post-mineralization dike modelling should continuous be improved to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are controlling the mineralization trends behaving like faults.
- Model east and west blocks as a continuous mineralization solid. This is a minor issue and was addressed in some domains.

11.6 Resource Assays

Nexa performed exploratory data analysis (EDA) for each estimation domain, including univariate statistics, histograms, cumulative probability plots; box plots to compare geology domain statistics, and contact plots to investigate grade profiles between estimation domains and determine the extent of sample sharing across the geology contacts within the rock type domains. Hard boundaries were determined for each of the estimation variables (zinc, copper, lead, and silver).

Table 11-7 lists composited univariate statistics for zinc, copper, lead, and silver by estimation domain. The majority of the zinc is contained in four estimation domains: SPBHZN, SPBLZN, SPPHZN, and SSMHZN. The majority of the copper is contained in three estimation domains: SPPHCU, SPBHCU, and SSMHCU.

Table 11-7: Estimation Domain Raw Assay Statistics
Nexa Resources S.A. – Cerro Lindo Mine

Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values				Std. Dev.	CV
					Minimum	Maximum	Mean	Variance		
SPBHAG	SPB	HG	Ag (g/t)	14,451	0.50	1,892.02	68.56	6,443.05	80.27	1.17
SPBLAG		LG	Ag (g/t)	27,605	0.50	1,911.00	13.78	351.37	18.74	1.36
SPBHCU		HG	Cu (%)	24,819	0.01	22.43	0.80	1.11	1.05	1.31
SPBLCU		LG	Cu (%)	17,237	0.01	11.65	0.14	0.07	0.26	1.81
SPBHFE		HG	Fe (%)	24,819	0.05	52.79	20.27	178.17	13.35	0.66
SPBLFE		LG	Fe (%)	17,237	0.05	60.00	18.25	119.07	10.91	0.60
SPBHPB		HG	Pb (%)	14,451	0.01	42.59	1.28	2.92	1.71	1.34
SPBLPB		LG	Pb (%)	27,605	0.01	23.92	0.30	0.43	0.66	2.17
SPBHZN		HG	Zn (%)	29,516	0.01	66.92	6.82	27.94	5.29	0.77
SPBLZN		LG	Zn (%)	12,540	0.01	33.97	1.52	4.29	2.07	1.36
SPPHAG	SPP	HG	Ag (g/t)	46,691	0.50	10,398.51	24.71	3,617.39	60.14	2.43
SPPLAG		LG	Ag (g/t)	22,328	0.50	528.76	4.69	42.42	6.51	1.39
SPPHCU		HG	Cu (%)	48,190	0.01	33.36	0.97	0.99	1.00	1.03
SPPLCU		LG	Cu (%)	20,829	0.01	12.14	0.11	0.02	0.14	1.33
SPPHFE		HG	Fe (%)	48,190	0.05	62.68	32.92	192.48	13.87	0.42
SPPLFE		LG	Fe (%)	20,829	0.05	54.74	32.76	177.06	13.31	0.41
SPPHPB		HG	Pb (%)	46,691	0.01	63.70	0.11	0.38	0.62	5.89
SPPLPB		LG	Pb (%)	22,328	0.01	4.95	0.02	0.01	0.10	4.59
SPPHZN		HG	Zn (%)	28,169	0.01	40.70	1.41	6.17	2.48	1.76
SPPLZN		LG	Zn (%)	40,850	0.01	29.79	0.13	0.15	0.38	2.93
SSMHAG	SSM	HG	Ag (g/t)	8,513	0.50	1,939.00	59.97	9,226.04	96.05	1.60
SSMLAG		LG	Ag (g/t)	16,865	0.50	1,042.99	8.81	267.24	16.35	1.86
SSMHCU		HG	Cu (%)	9,296	0.01	12.39	0.66	0.61	0.78	1.19
SSMLCU		LG	Cu (%)	16,082	0.01	4.42	0.10	0.02	0.13	1.37
SSMHFE		HG	Fe (%)	9,296	0.05	52.53	19.70	117.73	10.85	0.55
SSMLFE		LG	Fe (%)	16,082	0.05	49.83	19.16	107.89	10.39	0.54
SSMHPB		HG	Pb (%)	8,513	0.01	30.52	0.57	1.40	1.18	2.07
SSMLPB		LG	Pb (%)	16,865	0.01	13.84	0.07	0.05	0.23	3.35
SSMHZN		HG	Zn (%)	8,001	0.01	40.81	2.54	9.56	3.09	1.22
SSMLZN		LG	Zn (%)	17,377	0.01	30.22	0.12	0.21	0.46	3.73

Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values					Std. Dev.	CV
					Minimum	Maximum	Mean	Variance			
VMHAG	VM	HG	Ag (g/t)	4,318	0.50	2,792.16	98.23	23,169.54		152.22	1.55
VMLAG		LG	Ag (g/t)	6,553	0.50	538.71	19.23	638.27		25.26	1.31
VMHCU		HG	Cu (%)	5,895	0.01	14.87	0.54	0.54		0.74	1.37
VMLCU		LG	Cu (%)	4,976	0.01	3.07	0.07	0.01		0.11	1.48
VMHFE		HG	Fe (%)	5,895	0.05	50.61	11.62	83.50		9.14	0.79
VMLFE		LG	Fe (%)	4,976	0.05	49.41	7.81	49.02		7.00	0.90
VMHPB		HG	Pb (%)	4,318	0.01	36.60	0.88	2.54		1.59	1.81
VMLPB		LG	Pb (%)	6,553	0.01	11.46	0.18	0.16		0.39	2.15
VMHZN		HG	Zn (%)	5,982	0.01	36.14	1.98	7.38		2.72	1.37
VMLZN		LG	Zn (%)	4,889	0.01	36.86	0.22	0.72		0.85	3.94
V	V	-	Ag (g/t)	9,453	0.50	2,810.51	37.00	8,665.31		93.09	2.52
			Cu (%)	9,453	0.01	15.08	0.40	0.69		0.83	2.05
			Fe (%)	9,453	0.05	49.40	9.16	95.47		9.77	1.07
			Pb (%)	9,453	0.01	45.00	0.36	1.43		1.19	3.29
			Zn (%)	9,453	0.01	26.65	0.66	3.18		1.78	2.71
SOP	SOP	-	Ag (g/t)	807	0.50	816.00	12.86	1,044.52		32.32	2.51
			Cu (%)	807	0.01	14.65	0.74	1.15		1.07	1.45
			Fe (%)	807	0.05	50.42	27.21	315.96		17.78	0.65
			Pb (%)	807	0.01	7.10	0.06	0.07		0.27	4.82
			Zn (%)	807	0.01	18.03	0.26	0.34		0.59	2.24
SOB	SOB	-	Ag (g/t)	540	0.50	335.00	25.12	799.35		28.27	1.13
			Cu (%)	540	0.01	10.32	1.37	2.08		1.44	1.05
			Fe (%)	540	0.05	50.60	22.07	163.77		12.80	0.58
			Pb (%)	540	0.01	2.48	0.20	0.14		0.37	1.89
			Zn (%)	540	0.01	14.38	1.20	2.95		1.72	1.44
SLB	SLB	-	Ag (g/t)	227	0.50	240.43	29.47	2,437.84		49.37	1.68
			Cu (%)	227	0.01	6.71	0.19	0.56		0.75	3.88
			Fe (%)	227	0.05	40.00	3.77	94.81		9.74	2.59
			Pb (%)	227	0.01	5.02	0.46	0.91		0.96	2.07
			Zn (%)	227	0.01	5.26	0.16	0.37		0.61	3.88

Estimation Domain	Geological Domain	Grade Domain	Grade	No. Samples	Uncapped values				Std. Dev.	CV
					Minimum	Maximum	Mean	Variance		
OB11VM	OB11VM	-	Ag (g/t)	37	2.00	76.00	12.25	174.35	13.20	1.08
			Cu (%)	37	0.01	0.52	0.12	0.01	0.12	0.97
			Fe (%)	37	3.88	20.01	8.87	10.00	3.16	0.36
			Pb (%)	37	0.01	2.66	0.17	0.11	0.33	1.91
			Zn (%)	37	0.03	41.86	4.51	97.17	9.86	2.19
OB12VM	OB12VM	-	Ag (g/t)	293	0.50	436.00	32.54	2,848.00	53.37	1.64
			Cu (%)	293	0.01	3.38	0.15	0.07	0.27	1.82
			Fe (%)	293	1.30	31.70	10.66	38.19	6.18	0.58
			Pb (%)	293	0.01	2.55	0.21	0.14	0.37	1.81
			Zn (%)	293	0.01	6.42	0.68	0.81	0.90	1.32
OB5BVM	OB5BVM	-	Ag (g/t)	133	0.50	115.00	15.18	406.68	20.17	1.33
			Cu (%)	133	0.01	0.89	0.02	0.00	0.07	2.74
			Fe (%)	133	0.05	18.15	3.32	6.63	2.58	0.78
			Pb (%)	133	0.01	2.29	0.30	0.16	0.40	1.32
			Zn (%)	133	0.01	14.88	2.48	10.05	3.17	1.28
OB14VM	OB14VM	-	Ag (g/t)	562	0.50	1,705.99	50.87	17,545.37	132.46	2.60
			Cu (%)	562	0.01	1.72	0.10	0.03	0.18	1.79
			Fe (%)	562	0.05	40.00	7.90	54.04	7.35	0.93
			Pb (%)	562	0.01	8.92	0.68	1.17	1.08	1.59
			Zn (%)	562	0.01	18.20	1.73	5.26	2.29	1.32
PUCVM	PUCVM	-	Ag (g/t)	38	0.50	153.00	40.10	1,573.72	39.67	0.99
			Cu (%)	38	0.01	1.78	0.23	0.11	0.33	1.44
			Fe (%)	38	2.89	20.70	8.14	17.60	4.20	0.52
			Pb (%)	38	0.01	6.57	0.68	1.19	1.09	1.60
			Zn (%)	38	0.03	10.94	1.11	5.52	2.35	2.12

11.7 Treatment of High Grade Assays

Where the assay distribution is skewed positively or approaches log-normal, erratic high grade values can have a disproportionate effect on the average grade of a deposit. One method of treating these outliers in order to reduce their influence on the average grade is to cut or cap them at a specific grade level.

Nexa applied high grade capping to Zn, Pb, Cu, Ag, and Fe assays in order to limit the influence of a small amount of outlier values located in the upper tail of the metal distributions (Figure 11-13, Figure 11-14, and Figure 11-15). Raw assays were capped prior to compositing. A summary of final capping levels is shown in Table 11-8. A summary of capped grade statistics is provided in Table 11-9.

Grade plots commonly show outliers at the 98th to 99th percentile. The final outlier threshold was selected at lower percentiles to adjust the capping levels with grade reconciliation with the mine and process, and to reduce global bias.

Table 11-8: Grade Capping Levels
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	CLI	Grade Domain	Zn(%)	Pb(%)	Cu(%)	Ag(g/t	Fe(%)
SPB	1	HG	25.00	7.00	4.00	300.00	45.00
		LG	8.00	4.50	1.00	100.00	45.00
SPP	2	HG	10.00	2.00	5.00	200.00	45.00
		LG	1.70	0.20	1.20	30.00	45.00
SSM	3	HG	15.00	5.00	3.50	300.00	45.00
		LG	1.50	1.50	1.10	90.00	45.00
VM	4	HG	8.00	5.00	3.00	400.00	40.00
		LG	2.00	2.00	0.50	100.00	40.00
V	5	-	2.00	1.00	1.00	100.00	40.00
SOP	6	-	1.70	0.35	2.50	80.00	40.00
SOB	7	-	5.30	0.90	4.20	78.00	45.00
SLB	8	-	0.70	2.50	0.90	130.00	40.00
OB11VM	11	-	4.50	0.50	0.35	45.00	12.00
OB12VM	12	-	1.20	0.60	0.60	150.00	25.00
OB5BVM	13	-	5.80	1.10	0.11	60.00	8.00
OB14VM	14	-	7.50	3.20	0.50	200.00	25.00
PUCVM	15	-	4.00	2.50	0.50	120.00	15.00

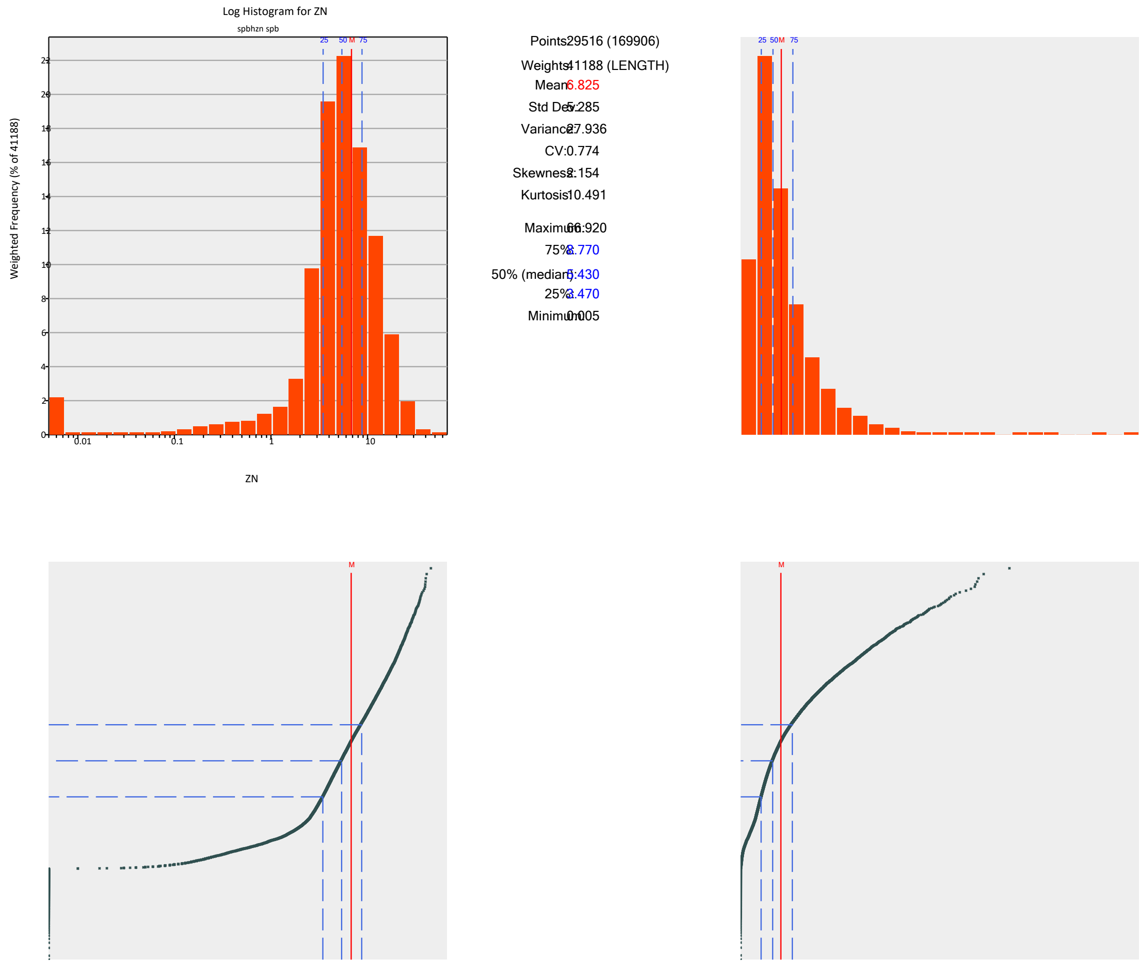


Figure 11-13: Capping Analysis for SPB Zn High Grade Mineralization

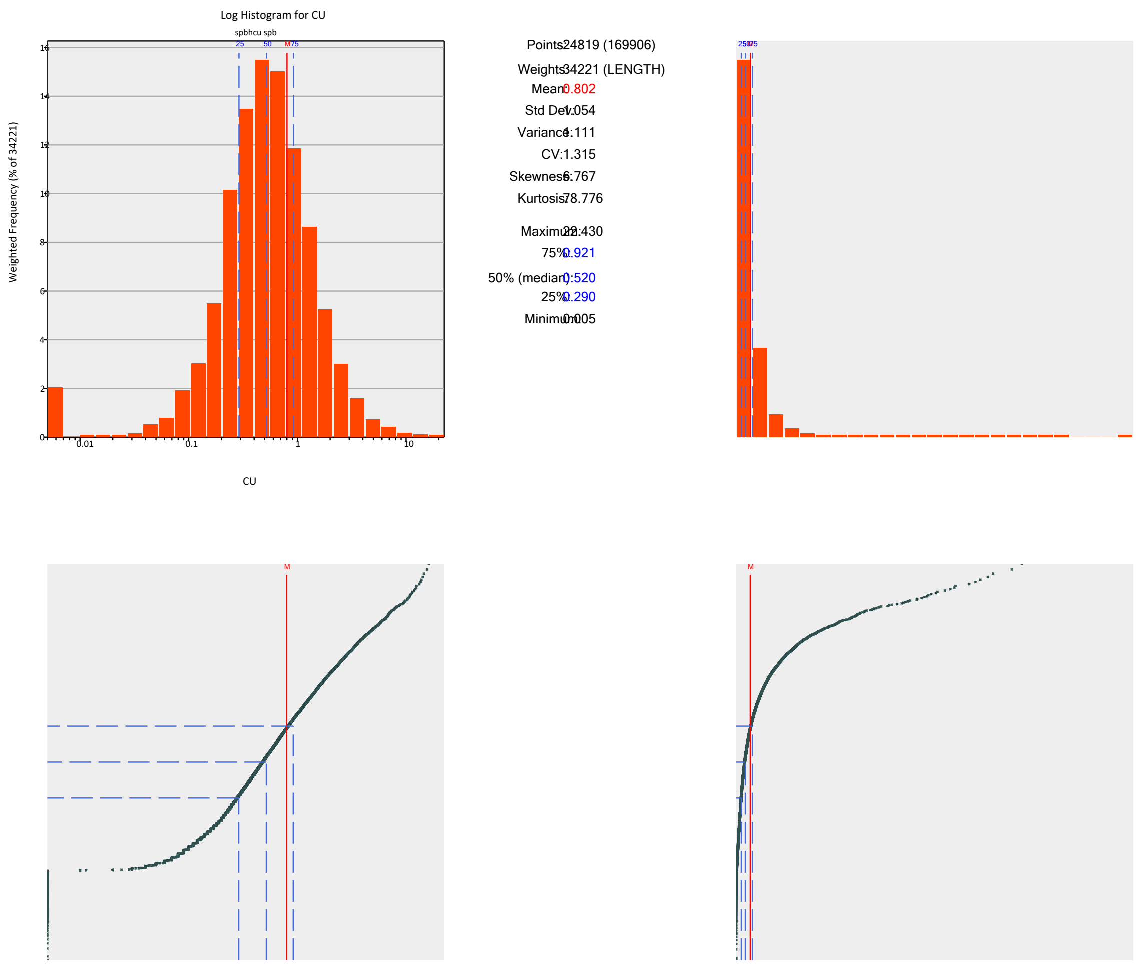


Figure 11-14: Capping Analysis for SPB Cu High Grade Mineralization

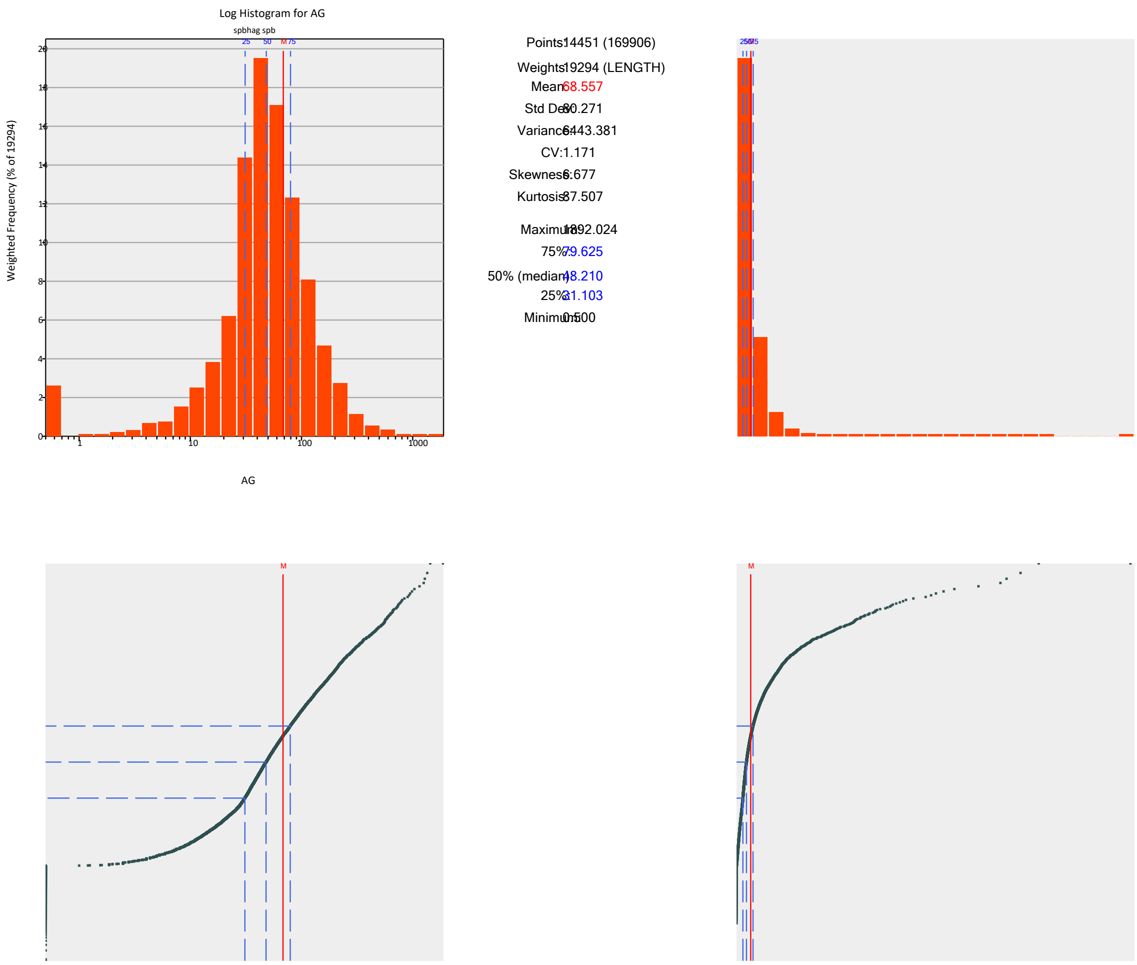


Figure 11-15: Capping Analysis for SPB Ag High Grade Mineralization

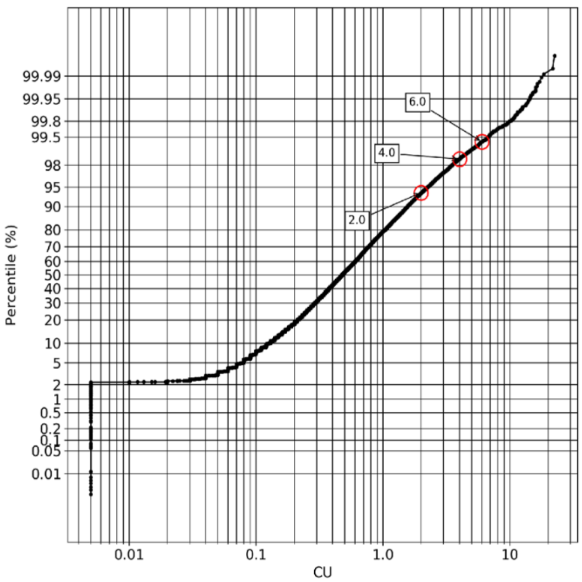
Table 11-9: Capped Assay Statistics
Nexa Resources S.A. – Cerro Lindo Mine

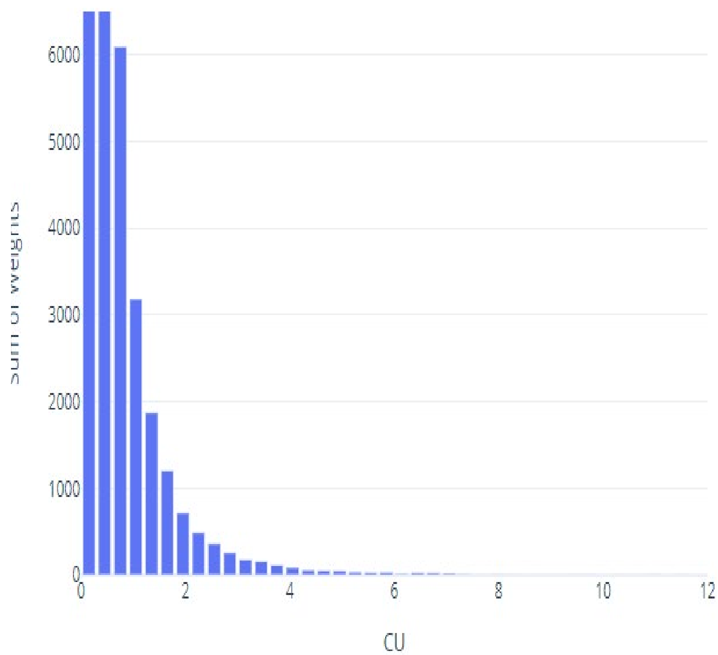
Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBHAG	SPB	HG	Ag (g/t)	14,451	0.50	300.00	65.20	3,322.56	57.64	0.88
SPBLAG		LG	Ag (g/t)	27,605	0.50	100.00	13.44	168.57	12.98	0.97
SPBHCU		HG	Cu (%)	24,819	0.01	4.00	0.76	0.57	0.76	1.00
SPBLCU		LG	Cu (%)	17,237	0.01	1.00	0.13	0.02	0.15	1.15
SPBHFE		HG	Fe (%)	24,819	0.05	45.00	20.26	177.83	13.34	0.66
SPBLFE		LG	Fe (%)	17,237	0.05	45.00	18.25	118.89	10.90	0.60
SPBHPB		HG	Pb (%)	14,451	0.01	7.00	1.23	2.02	1.42	1.15
SPBLPB		LG	Pb (%)	27,605	0.01	4.50	0.30	0.35	0.60	2.00
SPBHZN		HG	Zn (%)	29,516	0.01	25.00	6.77	25.23	5.02	0.74
SPBLZN		LG	Zn (%)	12,540	0.01	8.00	1.44	2.71	1.65	1.14
SPPHAG	SPP	HG	Ag (g/t)	46,691	0.50	200.00	23.57	645.28	25.40	1.08
SPPLAG		LG	Ag (g/t)	22,328	0.50	30.00	4.54	12.49	3.53	0.78
SPPHCU		HG	Cu (%)	48,190	0.01	5.00	0.95	0.71	0.84	0.89
SPPLCU		LG	Cu (%)	20,829	0.01	1.20	0.11	0.01	0.11	1.04
SPPHFE		HG	Fe (%)	48,190	0.05	45.00	32.78	188.51	13.73	0.42
SPPLFE		LG	Fe (%)	20,829	0.05	45.00	32.62	172.92	13.15	0.40
SPPHPB		HG	Pb (%)	46,691	0.01	2.00	0.09	0.07	0.27	3.11
SPPLPB		LG	Pb (%)	22,328	0.01	0.20	0.02	0.00	0.03	1.49
SPPHZN		HG	Zn (%)	28,169	0.01	10.00	1.32	3.66	1.91	1.45
SPPLZN		LG	Zn (%)	40,850	0.01	1.70	0.12	0.02	0.14	1.15
SSMHAG	SSM	HG	Ag (g/t)	8,513	0.50	300.00	54.54	3,560.40	59.67	1.09
SSMLAG		LG	Ag (g/t)	16,865	0.50	90.00	8.51	84.91	9.21	1.08
SSMHCU		HG	Cu (%)	9,296	0.01	3.50	0.63	0.39	0.62	0.98
SSMLCU		LG	Cu (%)	16,082	0.01	1.10	0.10	0.01	0.12	1.21
SSMHFE		HG	Fe (%)	9,296	0.05	45.00	19.70	117.53	10.84	0.55
SSMLFE		LG	Fe (%)	16,082	0.05	45.00	19.16	107.81	10.38	0.54
SSMHPB		HG	Pb (%)	8,513	0.01	5.00	0.53	0.77	0.88	1.64
SSMLPB		LG	Pb (%)	16,865	0.01	1.50	0.06	0.01	0.12	1.84
SSMHZN		HG	Zn (%)	8,001	0.01	15.00	2.49	7.66	2.77	1.11
SSMLZN		LG	Zn (%)	17,377	0.01	1.50	0.11	0.04	0.19	1.83

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
VMHAG	VM	HG	Ag (g/t)	4,318	0.50	400.00	88.62	8,337.99	91.31	1.03
VMLAG		LG	Ag (g/t)	6,553	0.50	100.00	18.34	292.57	17.10	0.93
VMHCU		HG	Cu (%)	5,895	0.01	3.00	0.51	0.31	0.56	1.09
VMLCU		LG	Cu (%)	4,976	0.01	0.50	0.07	0.01	0.08	1.10
VMHFE		HG	Fe (%)	5,895	0.05	40.00	11.60	82.39	9.08	0.78
VMLFE		LG	Fe (%)	4,976	0.05	40.00	7.79	48.02	6.93	0.89
VMHPB		HG	Pb (%)	4,318	0.01	5.00	0.80	1.14	1.07	1.34
VMLPB		LG	Pb (%)	6,553	0.01	2.00	0.17	0.07	0.27	1.55
VMHZN		HG	Zn (%)	5,982	0.01	8.00	1.80	3.29	1.81	1.00
VMLZN		LG	Zn (%)	4,889	0.01	2.00	0.17	0.10	0.31	1.79
V	V	-	Ag (g/t)	9,453	0.50	100.00	25.09	949.86	30.82	1.23
			Cu (%)	9,453	0.01	1.00	0.28	0.11	0.33	1.17
			Fe (%)	9,453	0.05	40.00	9.12	93.32	9.66	1.06
			Pb (%)	9,453	0.01	1.00	0.21	0.09	0.30	1.42
			Zn (%)	9,453	0.01	2.00	0.40	0.39	0.62	1.57
SOP	SOP	-	Ag (g/t)	807	0.50	80.00	11.62	261.35	16.17	1.39
			Cu (%)	807	0.01	2.50	0.66	0.45	0.67	1.02
			Fe (%)	807	0.05	40.00	27.02	309.86	17.60	0.65
			Pb (%)	807	0.01	0.35	0.04	0.01	0.08	2.02
			Zn (%)	807	0.01	1.70	0.24	0.14	0.38	1.58
SOB	SOB	-	Ag (g/t)	540	0.50	78.00	23.51	388.91	19.72	0.84
			Cu (%)	540	0.01	4.20	1.29	1.42	1.19	0.92
			Fe (%)	540	0.05	45.00	21.99	160.02	12.65	0.58
			Pb (%)	540	0.01	0.90	0.17	0.07	0.26	1.55
			Zn (%)	540	0.01	5.30	1.12	2.01	1.42	1.26
SLB	SLB	-	Ag (g/t)	227	0.50	130.00	26.46	1,600.15	40.00	1.51
			Cu (%)	227	0.01	0.90	0.10	0.06	0.24	2.49
			Fe (%)	227	0.05	40.00	3.77	94.81	9.74	2.59
			Pb (%)	227	0.01	2.50	0.40	0.52	0.72	1.82
			Zn (%)	227	0.01	0.70	0.07	0.03	0.17	2.55
OB11VM	OB11VM	-	Ag (g/t)	37	2.00	45.00	11.69	123.39	11.11	0.95
			Cu (%)	37	0.01	0.35	0.11	0.01	0.10	0.88
			Fe (%)	37	3.88	12.00	8.47	4.41	2.10	0.25
			Pb (%)	37	0.01	0.50	0.14	0.02	0.15	1.07
			Zn (%)	37	0.03	4.50	1.81	2.03	1.42	0.79

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Capped Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
OB12VM	OB12VM	-	Ag (g/t)	293	0.50	150.00	29.20	1,384.82	37.21	1.27
			Cu (%)	293	0.01	0.60	0.13	0.02	0.13	1.04
			Fe (%)	293	1.30	25.00	10.54	34.05	5.84	0.55
			Pb (%)	293	0.01	0.60	0.15	0.02	0.15	0.99
			Zn (%)	293	0.01	1.20	0.52	0.11	0.33	0.64
OB5BVM	OB5BVM	-	Ag (g/t)	133	0.50	60.00	14.28	289.30	17.01	1.19
			Cu (%)	133	0.01	0.11	0.02	0.00	0.03	1.39
			Fe (%)	133	0.05	8.00	3.18	4.60	2.15	0.67
			Pb (%)	133	0.01	1.10	0.28	0.11	0.33	1.18
			Zn (%)	133	0.01	5.80	1.98	3.21	1.79	0.91
OB14VM	OB14VM	-	Ag (g/t)	562	0.50	200.00	35.17	2,706.18	52.02	1.48
			Cu (%)	562	0.01	0.50	0.09	0.01	0.12	1.37
			Fe (%)	562	0.05	25.00	7.52	36.92	6.08	0.81
			Pb (%)	562	0.01	3.20	0.62	0.64	0.80	1.30
			Zn (%)	562	0.01	7.50	1.64	3.72	1.93	1.18
PUCVM	PUCVM	-	Ag (g/t)	38	0.50	120.00	38.75	1,321.00	36.35	0.94
			Cu (%)	38	0.01	0.50	0.17	0.03	0.17	0.99
			Fe (%)	38	2.89	15.00	7.96	14.27	3.78	0.47
			Pb (%)	38	0.01	2.50	0.61	0.63	0.80	1.31
			Zn (%)	38	0.03	4.00	0.79	1.63	1.28	1.61

SLR performed an independent capping analysis on some elements for four of the largest domains (SPB, SPP, SSM, and VM), as well as a visual validation of the block model in section and plan view. Log probability plots were inspected for each of these domains and SLR applied a capping grade using a combination of histograms, probability plots, and decile analyses. SLR found that most of the coefficients of variation (CV) after applying capping were low, with the exception of the CV values of more than 1.8 for lead in the SPB low grade, SPP high grade, SSM low grade, and SOP domains, for zinc in the SSM LG, VM LG, and SLB domains, and for copper in the SLB domain. Most of these domains are low grade domains with many very low grade values, and as a result, the CV is high. For the SLB, SLR recommends using an additional yield restriction during estimation to limit the spatial influence of the small population of high grade samples. In the SLR QP's opinion, this is a minor issue that will not have a significant impact on the resource estimate as these domains represent less than one percent of the Mineral Resources. The SLR QP also noticed that Cu capping values for the SPB and SPP high grade domains could be slightly conservative and is of the opinion that there is an opportunity to increase the contained Cu by 2% to 4%. Figure 11-16 shows a probability plot, decile analysis, histogram, and disintegration analysis for Cu grades in the SPB high grade domain.





Decile Analysis

	2.0 Cap	4.0 Cap	6.0 Cap	Uncapped
Percent Metal Loss	13.50	5.24	2.64	0.00
Min	0.00	0.00	0.00	0.00
Max	2.00	4.00	6.00	22.43
Average Grade	0.65	0.71	0.73	0.75
CV	0.84	1.05	1.16	1.36
Capping Percentile	0.94	0.98	0.99	1.00
Number of Caps	1,818.00	462.00	199.00	0.00
90%	2.45	2.24	2.18	2.12
91%	2.62	2.39	2.33	2.26
92%	2.79	2.54	2.48	2.41
93%	2.99	2.73	2.66	2.59
94%	3.08	3.00	2.92	2.85
95%	3.08	3.33	3.24	3.16
96%	3.08	3.76	3.66	3.56
97%	3.07	4.44	4.32	4.21
98%	3.08	5.42	5.52	5.38
99%	3.07	5.61	7.89	10.32
90%-100%	29.31	35.46	37.20	38.86

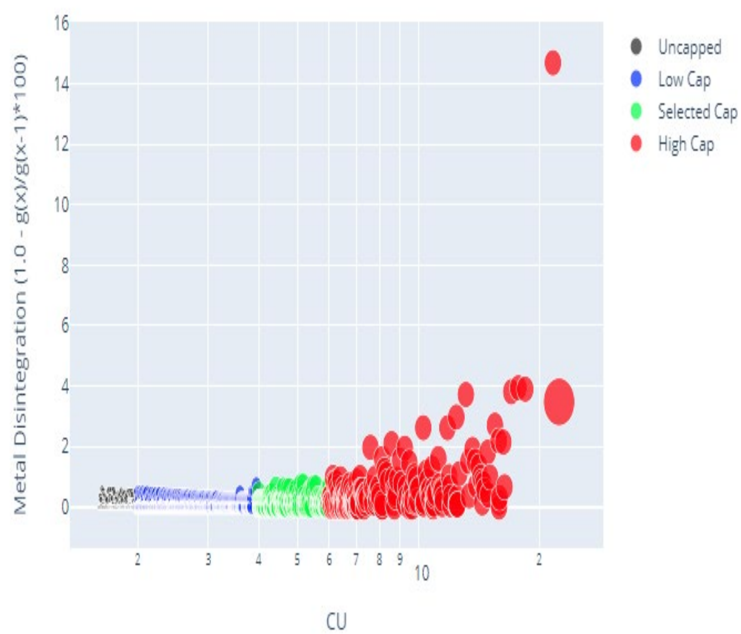


Figure 11-16: Copper Decile Analysis, Probability Plot, Histogram and Desintegration Analysis for Domain SPB HG

SLR considers that the capping levels selected are appropriate. SLR offers the following conclusions and recommendations:

- In general, the capping levels are reasonable, and suitable for the estimation of Mineral Resources.
- Revisit copper capping levels for the SPB and SPP high grade domains with reconciliation data. There could be an opportunity to increase the contained Cu by 2% to 4%.
- Report the metal loss as a result of capping high grades and assess the amount of metal in the upper decile and percentiles of the distribution to gain a better understanding of the amount of risk associated with the extreme values in each capping domain.
- Investigate incorporating an additional yield restriction for SLB during estimation to limit the spatial influence of the small population of high grade samples.
- Adjust capping values with production data when an accurate reconciliation process is established.

11.8 Compositing

Nexa composited the capped assays to 2.5 m with a 1.25 m tolerance, beginning at the collars. Small intervals were merged with the previous interval. Sample lengths range from 1.25 m to 3.75 m. Composites were tagged with rock type codes from the drill hole geology data. The majority of samples (93%) had a length from 90 cm to 1.5 m. Unsampled core intervals were set to zero for all elements. The composite length corresponds to half of the parent block size height for the deposit. Figure 11-17 illustrates a comparison of the mean relative error between length-weighted composites at different composite lengths versus assay means by mineralization domain. Based on this analysis, the two and half metre composites result in the best correlation between assay data and composites. Nexa generated statistics of the composites (Table 11-10).

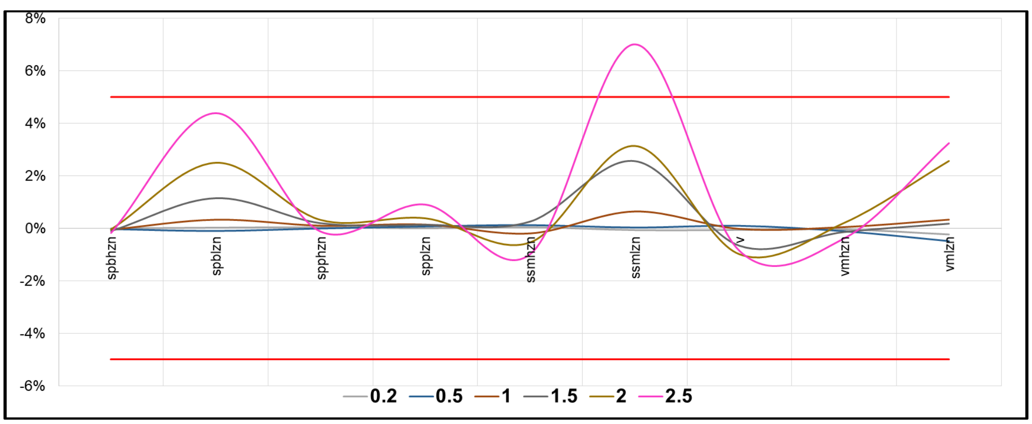


Figure 11-17: Composite Length Comparisons

Table 11-10: Estimation Domain Composite Statistics
Nexa Resources S.A. – Cerro Lindo Mine

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Composited Values					
					Minimum	Maximum	Mean	Variance	Std. Dev.	CV
SPBHAG	SPB	HG	Ag (g/t)	7,955	0.50	300.00	65.00	2,121.44	46.06	0.71
SPBLAG		LG	Ag (g/t)	15,868	0.50	100.00	13.51	108.06	10.39	0.77
SPBHCU		HG	Cu (%)	14,077	0.01	4.00	0.76	0.40	0.63	0.83
SPBLCU		LG	Cu (%)	9,823	0.01	1.00	0.13	0.01	0.12	0.90
SPBHFE		HG	Fe (%)	14,077	0.05	45.00	20.26	159.37	12.62	0.62
SPBLFE		LG	Fe (%)	9,823	0.05	45.00	18.26	104.76	10.24	0.56
SPBHPB		HG	Pb (%)	7,955	0.01	7.00	1.23	1.44	1.20	0.98
SPBLPB		LG	Pb (%)	15,868	0.01	4.50	0.30	0.26	0.51	1.71
SPBHZN		HG	Zn (%)	16,656	0.01	25.00	6.76	19.58	4.42	0.65
SPBLZN		LG	Zn (%)	7,352	0.01	8.00	1.50	2.24	1.50	1.00
SPPHAG	SPP	HG	Ag (g/t)	25,845	0.50	200.00	23.60	425.03	20.62	0.87
SPPLAG		LG	Ag (g/t)	12,474	0.50	30.00	4.57	8.04	2.83	0.62
SPPHCU		HG	Cu (%)	26,801	0.01	5.00	0.94	0.53	0.73	0.77
SPPLCU		LG	Cu (%)	11,499	0.01	1.07	0.11	0.01	0.09	0.82
SPPHFE		HG	Fe (%)	26,801	0.05	45.00	32.70	164.38	12.82	0.39
SPPLFE		LG	Fe (%)	11,499	0.05	45.00	32.50	148.90	12.20	0.38
SPPHPB		HG	Pb (%)	25,845	0.01	2.00	0.09	0.05	0.22	2.55
SPPLPB		LG	Pb (%)	12,474	0.01	0.20	0.02	0.00	0.02	1.24
SPPHZN		HG	Zn (%)	15,646	0.01	10.00	1.31	2.51	1.58	1.20
SPPLZN		LG	Zn (%)	22,743	0.01	1.70	0.12	0.01	0.11	0.92
SSMHAG	SSM	HG	Ag (g/t)	4,426	0.50	300.00	54.17	2,170.47	46.59	0.86
SSMLAG		LG	Ag (g/t)	8,744	0.50	90.00	8.62	54.02	7.35	0.85
SSMHCU		HG	Cu (%)	4,918	0.01	3.50	0.63	0.26	0.51	0.80
SSMLCU		LG	Cu (%)	8,272	0.01	1.10	0.10	0.01	0.09	0.95
SSMHFE		HG	Fe (%)	4,918	0.05	45.00	19.70	94.47	9.72	0.49
SSMLFE		LG	Fe (%)	8,272	0.05	45.00	19.15	88.92	9.43	0.49
SSMHPB		HG	Pb (%)	4,426	0.01	5.00	0.53	0.48	0.69	1.31
SSMLPB		LG	Pb (%)	8,744	0.01	1.50	0.06	0.01	0.09	1.47
SSMHZN		HG	Zn (%)	4,103	0.01	15.00	2.47	5.19	2.28	0.92
SSMLZN		LG	Zn (%)	8,983	0.01	1.50	0.11	0.03	0.16	1.49

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Minimum	Composited Values Maximum	Mean	Variance	Std. Dev.	CV
VMHAG	VM	HG	Ag (g/t)	2,244	0.50	400.00	87.27	4,779.79	69.14	0.79
VMLAG		LG	Ag (g/t)	3,420	0.50	100.00	18.38	175.45	13.25	0.72
VMHCU		HG	Cu (%)	3,027	0.01	3.00	0.51	0.19	0.44	0.87
VMLCU		LG	Cu (%)	2,560	0.01	0.50	0.07	0.00	0.06	0.86
VMHFE		HG	Fe (%)	3,027	0.05	40.00	11.70	62.60	7.91	0.68
VMLFE		LG	Fe (%)	2,560	0.05	40.00	7.99	40.98	6.40	0.80
VMHPB		HG	Pb (%)	2,244	0.01	5.00	0.79	0.68	0.82	1.05
VMLPB		LG	Pb (%)	3,420	0.01	2.00	0.17	0.05	0.22	1.28
VMHZN		HG	Zn (%)	3,021	0.01	8.00	1.81	2.09	1.44	0.80
VMLZN		LG	Zn (%)	2,571	0.01	2.00	0.18	0.06	0.25	1.41
V	V	-	Ag (g/t)	5,181	0.50	100.00	25.06	693.60	26.34	1.05
			Cu (%)	5,181	0.01	1.00	0.28	0.08	0.29	1.01
			Fe (%)	5,181	0.05	40.00	9.20	71.83	8.48	0.92
			Pb (%)	5,181	0.01	1.00	0.21	0.07	0.26	1.22
			Zn (%)	5,181	0.01	2.00	0.40	0.31	0.56	1.40
SOP	SOP	-	Ag (g/t)	472	0.50	80.00	11.64	220.10	14.84	1.27
			Cu (%)	472	0.01	2.50	0.66	0.40	0.63	0.96
			Fe (%)	472	0.05	40.00	26.85	294.28	17.15	0.64
			Pb (%)	472	0.01	0.35	0.04	0.01	0.07	1.82
			Zn (%)	472	0.01	1.70	0.24	0.11	0.34	1.41
SOB	SOB	-	Ag (g/t)	305	0.50	78.00	23.55	301.14	17.35	0.74
			Cu (%)	305	0.01	4.20	1.29	1.13	1.07	0.83
			Fe (%)	305	0.05	45.00	21.86	144.54	12.02	0.55
			Pb (%)	305	0.01	0.90	0.17	0.05	0.23	1.37
			Zn (%)	305	0.01	5.30	1.12	1.71	1.31	1.17
SLB	SLB	-	Ag (g/t)	199	0.50	130.00	26.59	1,415.80	37.63	1.42
			Cu (%)	199	0.01	0.90	0.10	0.05	0.23	2.29
			Fe (%)	199	0.05	40.00	3.92	95.68	9.78	2.49
			Pb (%)	199	0.01	2.50	0.39	0.46	0.68	1.72
			Zn (%)	199	0.01	0.70	0.07	0.02	0.16	2.34
OB11VM	OB11VM	-	Ag (g/t)	17	2.00	27.31	11.66	53.06	7.28	0.62
			Cu (%)	17	0.03	0.33	0.11	0.01	0.09	0.84
			Fe (%)	17	6.67	12.00	8.75	2.78	1.67	0.19
			Pb (%)	17	0.01	0.47	0.16	0.02	0.13	0.82
			Zn (%)	17	0.46	3.89	1.72	1.21	1.10	0.64

Estimation Domain	Geological Domain	Grade Domain	Grade (units)	No. Samples	Minimum	Composited Values				
						Maximum	Mean	Variance	Std. Dev.	CV
OB12VM	OB12VM	-	Ag (g/t)	77	2.69	149.89	28.88	1,024.43	32.01	1.11
			Cu (%)	77	0.01	0.51	0.13	0.01	0.11	0.84
			Fe (%)	77	2.09	24.38	10.38	25.46	5.05	0.49
			Pb (%)	77	0.02	0.60	0.15	0.01	0.11	0.71
			Zn (%)	77	0.03	1.20	0.52	0.06	0.24	0.47
OB5BVM	OB5BVM	-	Ag (g/t)	46	0.50	55.62	14.16	202.80	14.24	1.01
			Cu (%)	46	0.01	0.10	0.02	0.00	0.02	1.19
			Fe (%)	46	0.05	8.00	3.21	3.70	1.92	0.60
			Pb (%)	46	0.01	0.99	0.28	0.08	0.28	1.01
			Zn (%)	46	0.01	5.80	1.96	2.35	1.53	0.78
OB14VM	OB14VM	-	Ag (g/t)	224	0.50	200.00	35.81	2,111.82	45.95	1.28
			Cu (%)	224	0.01	0.49	0.09	0.01	0.10	1.14
			Fe (%)	224	0.05	25.00	7.51	31.09	5.58	0.74
			Pb (%)	224	0.01	2.87	0.62	0.42	0.65	1.05
			Zn (%)	224	0.01	6.67	1.65	2.35	1.53	0.93
PUCVM	PUCVM	-	Ag (g/t)	13	4.72	87.89	40.00	745.71	27.31	0.68
			Cu (%)	13	0.01	0.49	0.17	0.03	0.16	0.97
			Fe (%)	13	3.31	14.05	7.82	10.44	3.23	0.41
			Pb (%)	13	0.01	2.06	0.62	0.42	0.65	1.05
			Zn (%)	13	0.05	3.50	0.80	1.00	1.00	1.25

SLR reviewed the composites and offers the following conclusions and recommendations:

- The composite length is appropriate given the dominant sampling length and the 5 m block height, and is suitable to support Mineral Resource and Mineral Reserve estimation.
- SLR recommends investigating density-weighted compositing.

11.9 Trend Analysis

11.9.1 Variography

Two-structure and three-structure spherical models in three directions were developed with experimental variograms for Zn, Pb, Cu, Ag, and Fe in Supervisor software. The variograms were calculated using the composites for the SPB, SPP, SSM, and VM domains. Figure 11-18 and Figure 11-19 show examples of variograms for Zn in SPB and Cu in SPP, respectively.

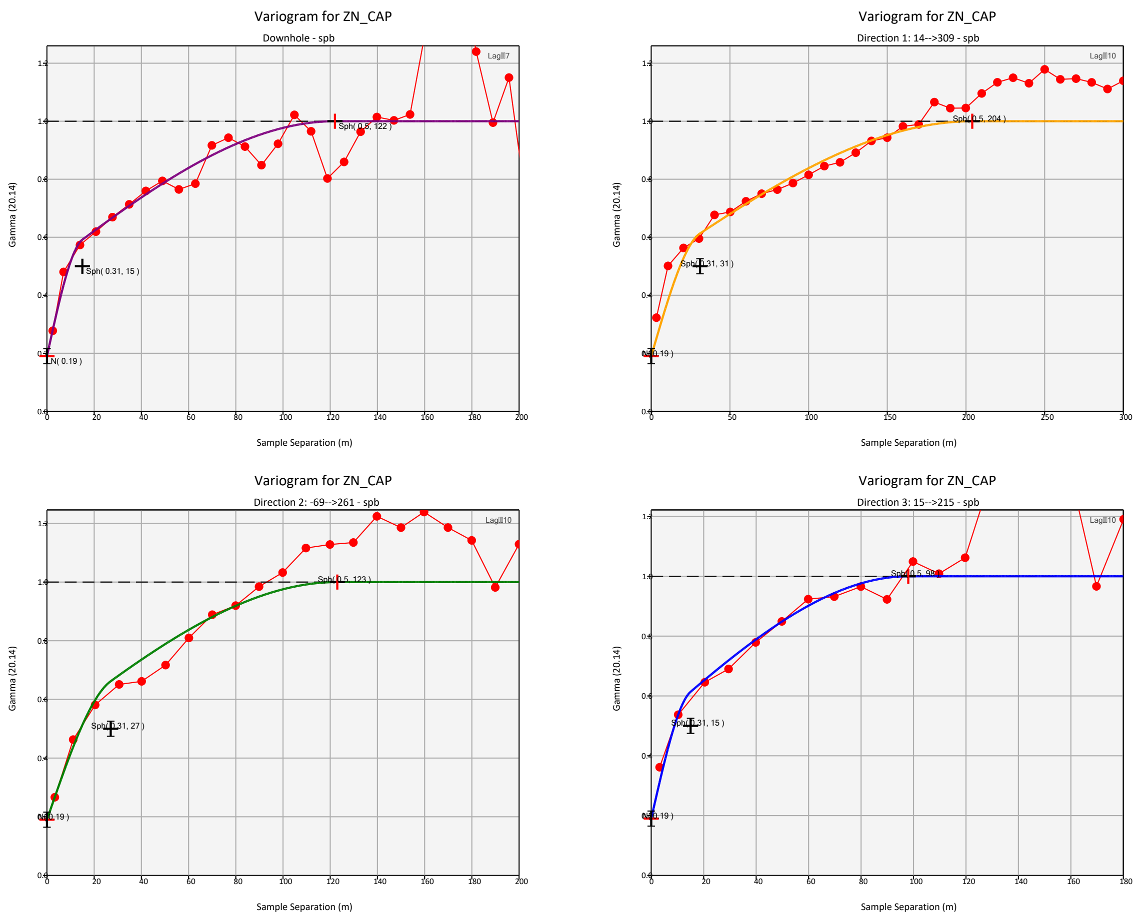


Figure 11-18: Zn Variogram for Mineralization SPB Domain

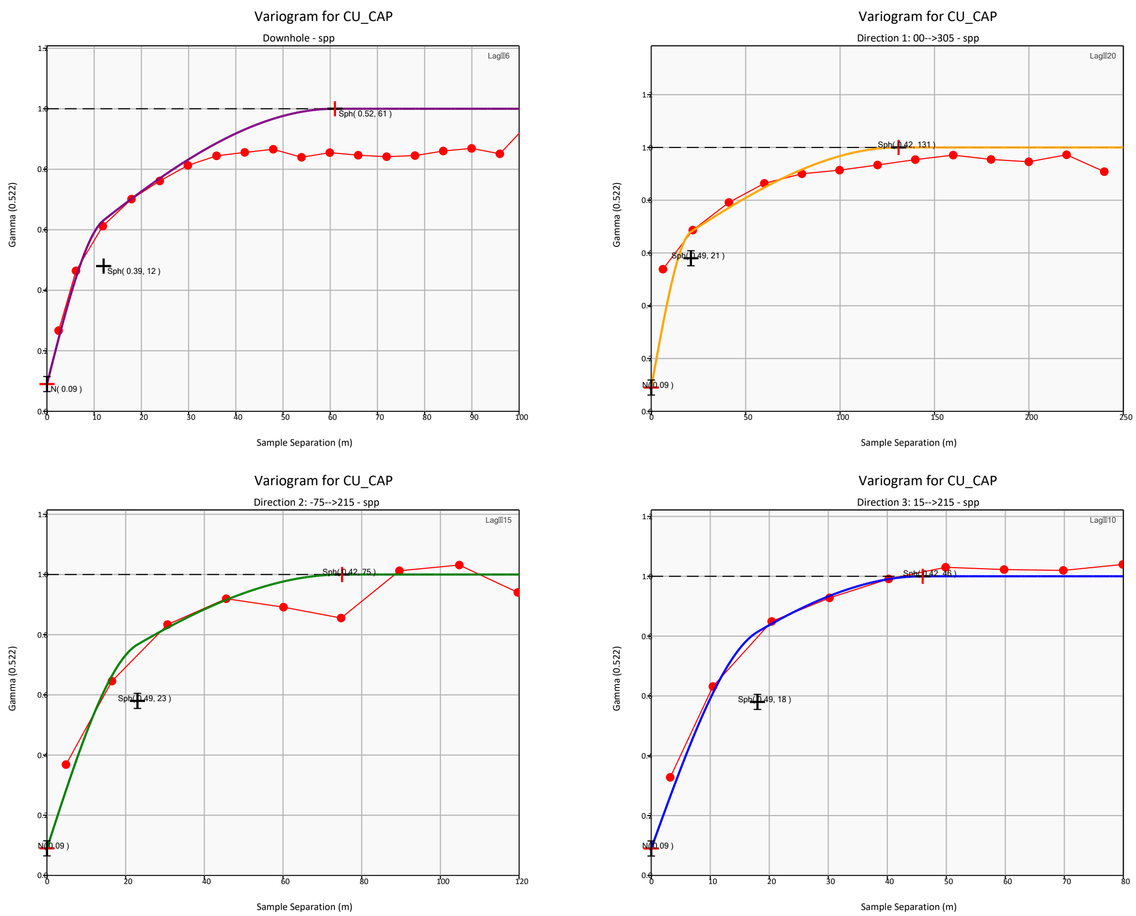


Figure 11-19: Cu Variogram for Mineralization SPP Domain

Table 14-11 shows variogram parameters for the SPB and SPP domains

Table 11-11: Variogram Parameters
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	Element	Datamine Angles			Datamine Axes			NUGGET	Structure 1			C1	Structure 2			C2
		VANGLE1	VANGLE2	VANGLE3	VAXIS1	VAXIS2	VAXIS3		ST1PAR1	ST1PAR2	ST1PAR3		ST2PAR1	ST2PAR2	ST2PAR3	
SPB	Zn	-141.03	14.48	74.496	3	2	1	0.19	31	27	15	0.31	204	123	98	0.5
	Cu, Fe	-145.00	0.00	75	3	2	1	0.199	14	12	13	0.496	61	54	49	0.305
	Ag, Pb	-141.03	14.48	74.496	3	2	1	0.244	26	23	15	0.447	135	92	74	0.309
SPP	Zn	-141.03	14.48	74.496	3	2	1	0.19	11	16	15	0.37	117	91	68	0.44
	Cu, Fe	-145.00	0.00	75	3	2	1	0.09	21	23	18	0.49	131	75	46	0.42
	Ag, Pb	-141.03	14.48	74.496	3	2	1	0.249	42	23	18	0.442	161	137	77	0.309

11.10 Search Strategy and Grade Interpolation Parameters

Grades were interpolated into blocks on a parent cell basis using OK for the SPB and SPP domains. For all the other domains, ID³ interpolation method was used. All the variables, Zn, Cu, Pb, Ag and Fe, were interpolated, and estimates were not density weighted. All directions were based on Datamine's dynamic anisotropy, which varies search ellipsoid orientations according to the trend of the mineralization domain.

The grade estimation was completed in three passes. Pass 1 uses a search radius equal to the variogram range; Pass 2 uses a search radius equal to 1.5 times the range of Pass 1; and Pass 3 uses a search radius of 10 times the range of Pass 1.

The search criteria are listed in Table 11-12 for zinc estimates and in Table 11-13 for copper estimates.

Table 11-12: Zinc Estimation Parameters
Nexa Resources S.A. – Cerro Lindo Mine

Estimation Domain	Method	Rotation System AXIS			Search Ellipse DIST			Pass 1	# Comp		Pass 2	# Comp		Pass 3	# Comp	
		1	2	3	1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
spbhzn	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spblzn	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spphzn	OK	3	2	1	35	25	15	1	8	12	1.5	5	10	10	1	4
spplzn	OK	3	2	1	35	25	15	1	8	12	1.5	5	10	10	1	5
ssmhzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ssmlzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmhzn	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmlzn	IDW3	3	2	1	35	25	15	1	8	10	1.5	5	10	10	1	4
v	IDW3	3	2	1	25	10	10	1	8	12	1.5	5	10	10	1	4
sop	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sob	IDW3	3	2	1	30	15	10	1	6	10	1.5	4	7	10	1	4
slb	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	5	10	1	3
ob11vm	IDW3	3	2	1	35	20	10	1	6	8	1.5	4	6	10	1	3
ob12vm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob5bvm	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
ob14vm	IDW3	3	2	1	25	15	10	1	10	14	2	5	8	10	1	4
pucvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6

Table 11-13: Copper Estimation Parameters
Nexa Resources S.A. – Cerro Lindo Mine

Estimation Domain	Method	Rotation System AXIS			Search Ellipse DIST			Pass 1	# Comp		Pass 2	# Comp		Pass 3	# Comp	
		1	2	3	1	2	3	S-Vol	Min	Max	S-Vol	Min	Max	S-Vol	Min	Max
spbhcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spblcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spphcu	OK	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
spplcu	OK	3	2	1	35	25	15	1	9	12	1.5	5	10	10	1	4
ssmhcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ssmlcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmhcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
vmlcu	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	15	1	6
v	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sop	IDW3	3	2	1	25	20	10	1	8	12	1.5	5	10	10	1	4
sob	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	6	10	1	4
slb	IDW3	3	2	1	30	15	10	1	6	8	1.5	4	5	10	1	3
ob11vm	IDW3	3	2	1	35	20	15	1	6	10	1.5	4	8	10	1	3
ob12vm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob5bvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6
ob14vm	IDW3	3	2	1	35	15	10	1	10	14	2	5	8	10	1	4
pucvm	IDW3	3	2	1	35	25	15	1	10	14	1.5	6	12	10	1	6

11.11 Bulk Density

The Cerro Lindo deposit has 4,410 density determinations in the mineralization domains and 4,114 samples in the wallrock that were used for resource estimates. A summary of the density measurements taken by geological domains is presented in Table 11-14 and the density sample location is shown in Figure 11-20. A buffer of 20 m was used to select and review the density data, totalling 1,215 density measurements, in the wallrock. Nexa interpolated the density values for the SPP, SPB, SSM, VM, and V domains and assigned an average density value for SOP, SOB, SLB, and wallrock as shown in Table 11-15.

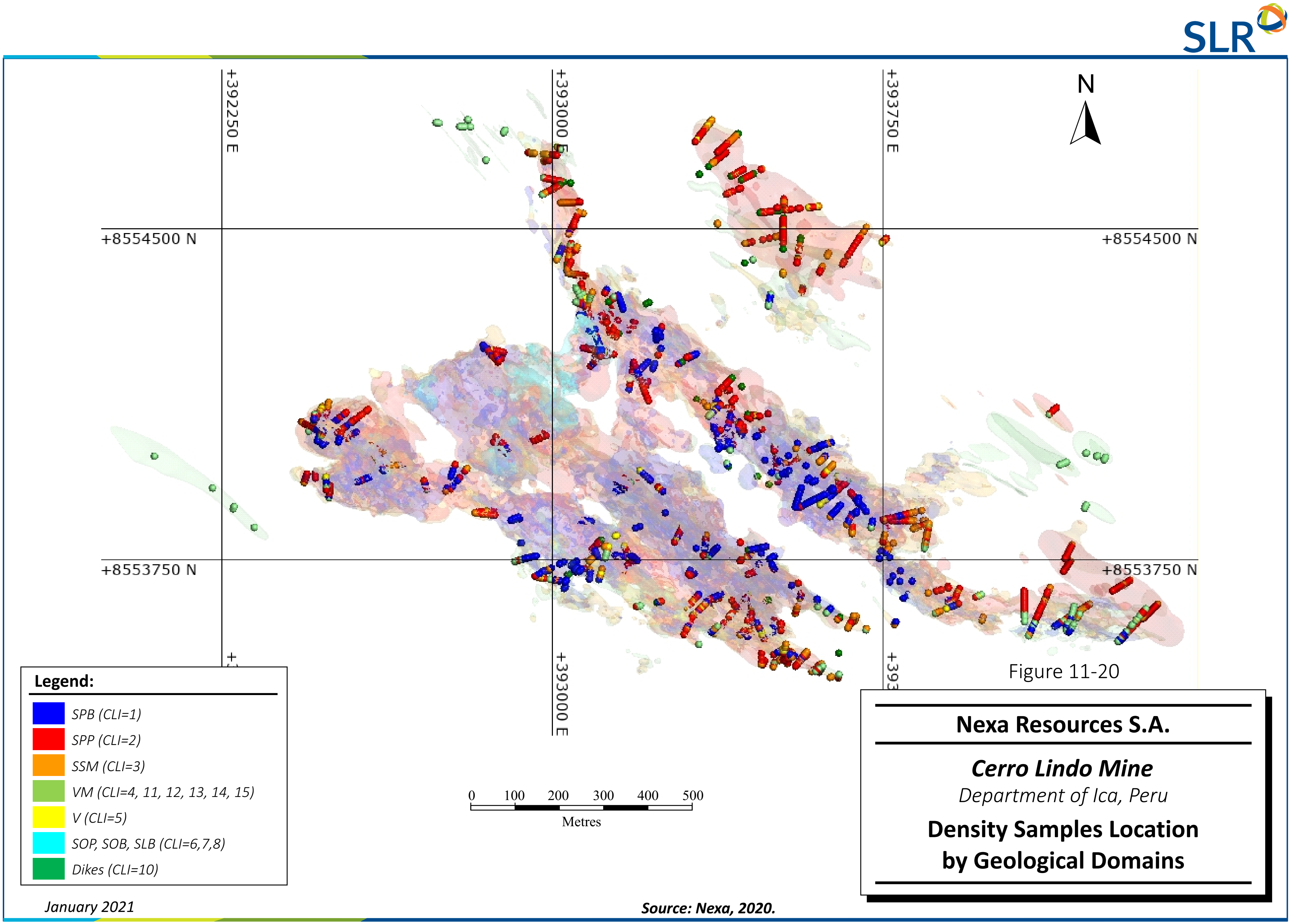
Density measurements were not available for the SOP, SOB, and SLB domains. Nexa applied the lower quartile of the SPP and SPB density measurements assuming a lower density as a result of the oxidization and leaching processes. SLR recommends generating density data for the SOP, SOB, and SLB domains that currently do not have density tests available. In the SLR QP's opinion, this will not have a significant impact on the resource estimate as these domains represent less than one percent of the Mineral Resources.

Table 11-14: Density Data
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	No. Samples	Uncapped values					
		Minimum	Maximum	Density (t/m³)	Variance	Std. Dev.	CV
SPB	915	1.78	6.74	4.23	0.32	0.56	0.13
SPP	2,031	1.90	5.21	4.36	0.29	0.54	0.12
SSM	883	2.34	4.93	3.39	0.20	0.45	0.13
VM	382	2.14	4.87	3.11	0.18	0.42	0.14
V	118	1.89	4.90	3.02	0.23	0.48	0.16
DIKE	81	2.35	4.87	3.32	0.61	0.78	0.24
Total	**4,410**						

Table 11-15: Assigned Density Values
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	Density (t/m³)
SOP	3.50
SOB	3.50
SLB	3.00
Wallrock	2.89



+392250 E
+393000 E
+393750 E
N
+8554500 N
+8554500 N
+8553750 N
+8553750 N
+393000 E
Legend:
SPB (CLI=1)
SPP (CLI=2)
SSM (CLI=3)
VM (CLI=4, 11, 12, 13, 14, 15)
V (CLI=5)
SOP, SOB, SLB (CLI=6,7,8)
Dikes (CLI=10)
0 100 200 300 400 500
Metres
January 2021
Source: Nexa, 2020.
Figure 11-20
Nexa Resources S.A.
Cerro Lindo Mine
Department of Ica, Peru
Density Samples Location
by Geological Domains

11.11.1 Treatment of High Density Values

Nexa applied low and high capping values to density measurements in the SPB, SPP, SSM, VM, V, and Dike geological domains in order to limit the influence of a small amount of outlier values located in the lower and upper tail of the density distributions (Figure 11-21). A summary of the capping levels is shown in Table 11-16.

Table 11-16: Density Capping Values
Nexa Resources S.A. – Cerro Lindo Mine

Geological Domain	CLI	Lower Capping Value Density (t/m³)	Upper Capping Value Density (t/m³)
SPB	1	2.70	4.90
SPP	2	2.70	5.00
SSM	3	2.70	4.00
VM	4	2.70	3.60
V	5	2.70	3.50
DIKE	10	2.50	2.85

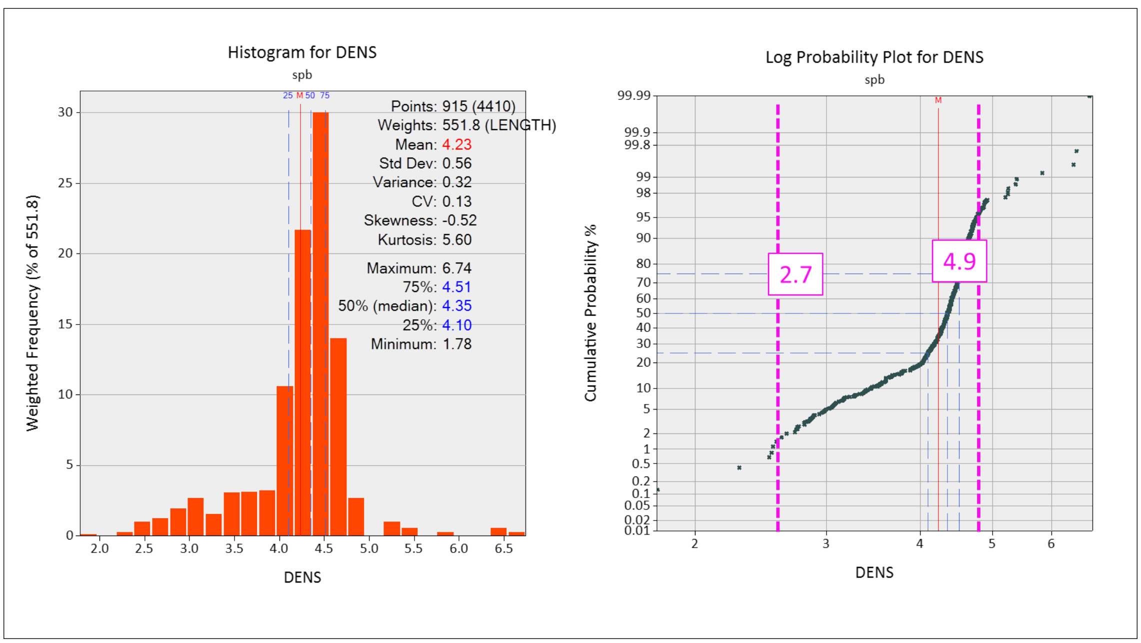


Figure 11-21: Density Capping Analysis for SPB Domain

For the SPP, SPB, SSM, VM, and V geological domains, Nexa interpolated the density values using an ID^3 method. The search ellipsoids for density generally have a sub-vertical pancake shape with the same orientation as the mineralization and the grade estimate. The average density value is 4.42 t/m³ for the SPB blocks and 4.49 t/m³ for the SPP blocks.

Block estimation parameters for bulk density are shown in Table 11-17.

Table 11-17: Block Estimation Parameters for Bulk Density
Nexa Resources S.A. – Cerro Lindo Mine

Pass Name	Domain	Type	Search X (m)	Search Y (m)	Search Z (m)	Min Samples	Max Samples	Max Samples Per Hole	Lower Sample Cap (t/m^3)	Upper Sample Cap (t/m^3)
1	SPB	ID^3	50	50	25	3	14	2	2.70	4.90
2	SPB	ID^3	50	50	25	3	14	2	2.70	4.90
3	SPB	ID^3	50	50	25	1	14	2	2.70	4.90
1	SPP	ID^3	50	50	25	3	14	2	2.70	5.00
2	SPP	ID^3	50	50	25	3	14	2	2.70	5.00
3	SPP	ID^3	50	50	25	1	14	2	2.70	5.00
1	SSM	ID^3	50	50	25	3	14	2	2.70	4.00
2	SSM	ID^3	50	50	25	3	14	2	2.70	4.00
3	SSM	ID^3	50	50	25	1	14	2	2.70	4.00
1	VM	ID^3	50	50	25	3	14	2	2.70	3.60
2	VM	ID^3	50	50	25	3	14	2	2.70	3.60
3	VM	ID^3	50	50	25	1	14	2	2.70	3.60
1	V	ID^3	50	50	25	3	14	2	2.70	3.50
2	V	ID^3	50	50	25	3	14	2	2.70	3.50
3	V	ID^3	50	50	25	1	14	2	2.70	3.50

Nexa validated the density estimate by examining the block density distribution against the samples, stepping across the model in vertical section and plan view and preparing swath plots. A statistical comparison of density sample populations to block populations is shown in Table 11-18. A plan view comparing density sample values to block values is shown in Figure 11-22. Swath plots of ID^3 density estimates versus nearest neighbour (NN) density estimates, as well as sample density values, are shown in Figure 11-23, Figure 11-24, Figure 11-25, and Figure 11-26.

Table 11-18: Statistical Comparison of Blocks versus Composites: Density Nexa Resources S.A. – Cerro Lindo Mine

Dominio	Pass	Número de Bloques	DENS_NN Media	DENS_NN Cv	DENS_IDW3 Media	DENS_IDW3 Cv	Dif. Rel. de medias NN_IDW3(%)
SPB	1	1355059	4.391	0.106	4.390	0.071	0.02%
	2	2293725	4.402	0.107	4.406	0.062	-0.10%
	3	1514578	4.508	0.085	4.466	0.054	0.93%
	Total	5163362	4.432	0.101	4.421	0.063	0.26%
	Pass	**Número de Bloques**	**Media**	**Cv**	**Media**	**Cv**	**Dif. Rel. de medias NN_IDW3(%)**
SPP	1	2034721	4.497	0.118	4.497	0.082	0.01%
	2	4489737	4.466	0.128	4.482	0.082	-0.36%
	3	2946554	4.531	0.110	4.503	0.063	0.63%
	Total	9471012	4.494	0.121	4.492	0.077	0.04%
	Pass	**Número de Bloques**	**Media**	**Cv**	**Media**	**Cv**	**Dif. Rel. de medias NN_IDW3(%)**
SSM	1	488673	3.470	0.111	3.439	0.077	0.90%
	2	1489523	3.498	0.114	3.485	0.072	0.36%
	3	1997431	3.625	0.102	3.514	0.052	3.11%
	Total	3975627	3.562	0.109	3.495	0.063	1.90%
	Pass	**Número de Bloques**	**Media**	**Cv**	**Media**	**Cv**	**Dif. Rel. de medias NN_IDW3(%)**
VM	1	206192	3.056	0.099	3.049	0.067	0.20%
	2	334679	3.094	0.096	3.081	0.062	0.41%
	3	1506194	3.183	0.095	3.118	0.059	2.05%
	Total	2047065	3.156	0.097	3.106	0.061	1.61%
	Pass	**Número de Bloques**	**Media**	**Cv**	**Media**	**Cv**	**Dif. Rel. de medias NN_IDW3(%)**
V(ENCL)	1	8348	3.201	0.104	3.193	0.077	0.24%
	2	48792	3.063	0.103	3.052	0.073	0.36%
	3	268839	3.111	0.102	2.984	0.049	4.19%
	Total	325979	3.107	0.103	2.999	0.056	3.54%

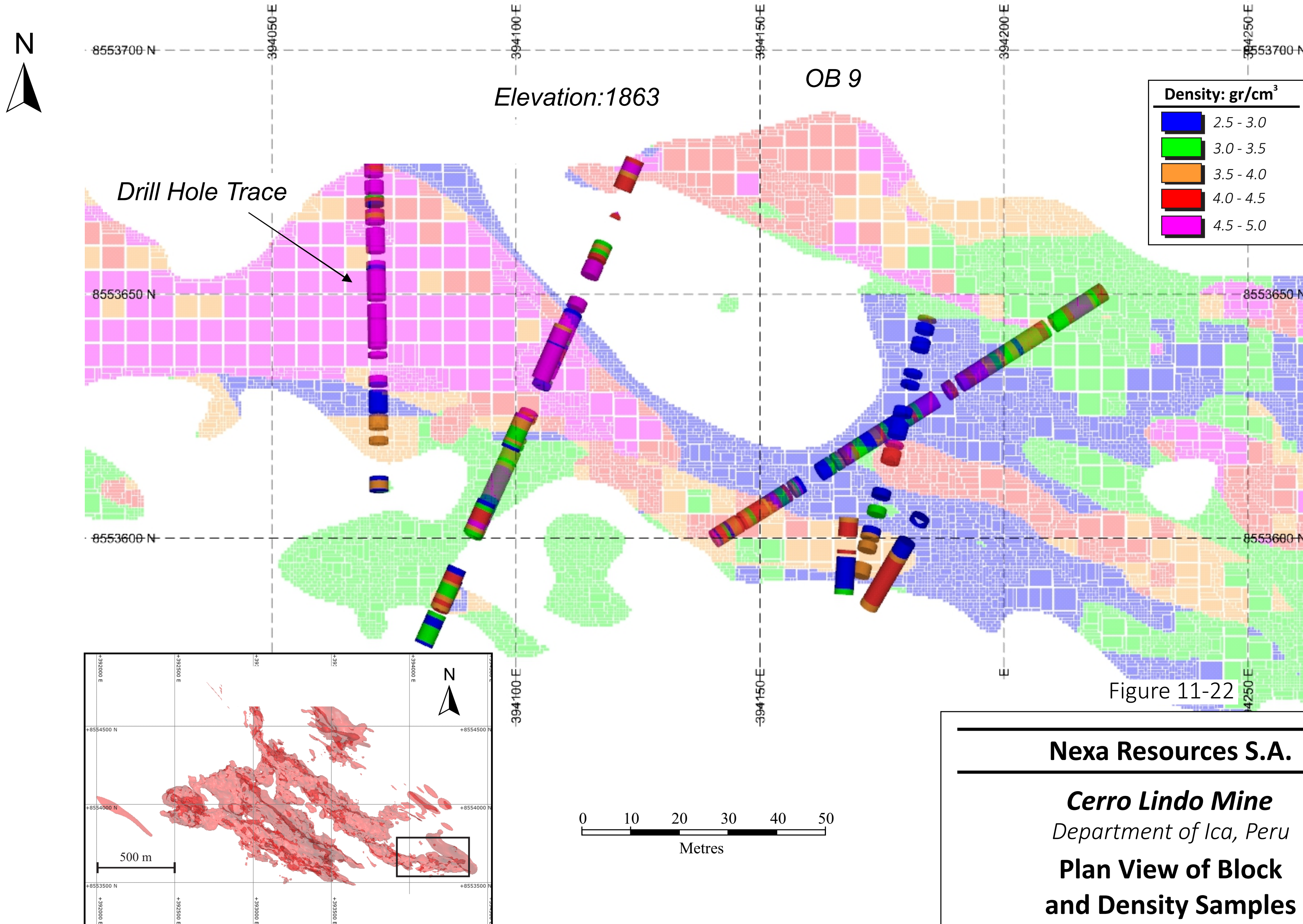


Figure 11-22

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Plan View of Block and Density Samples

January 2021

Source: Nexa, 2020.

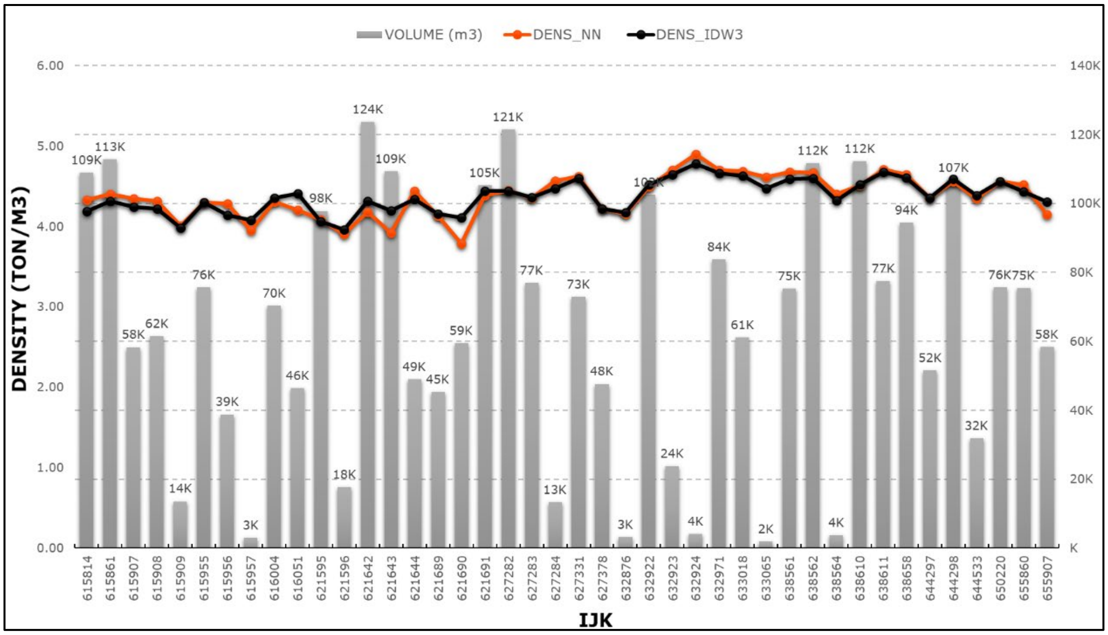


Figure 11-23: SPB Swath Plots – Density Values

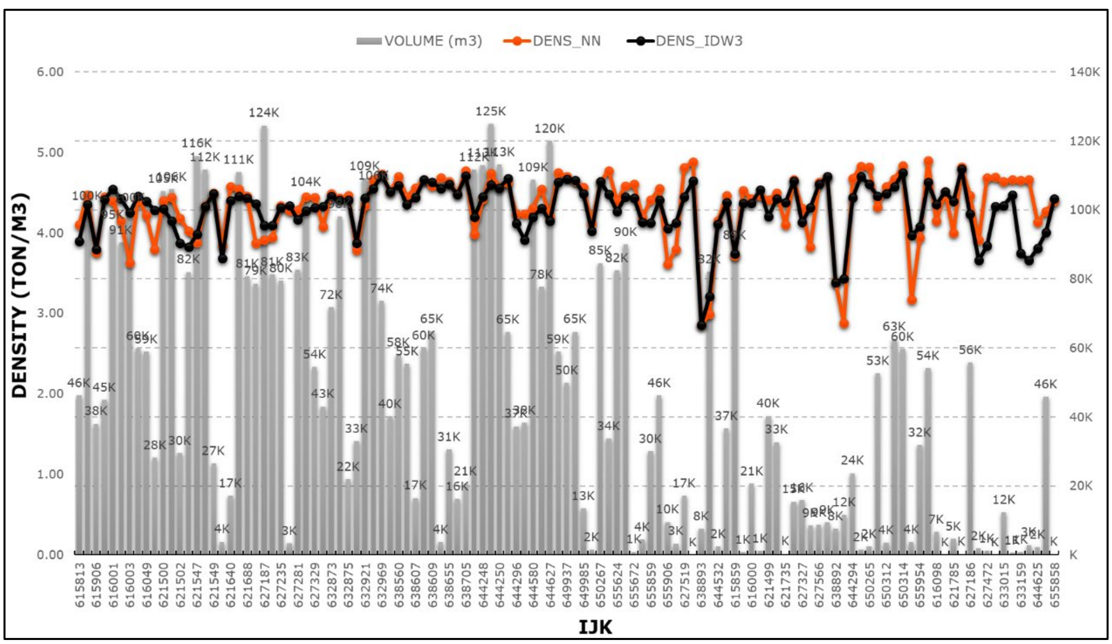


Figure 11-24: SPP Swath Plots – Density Values

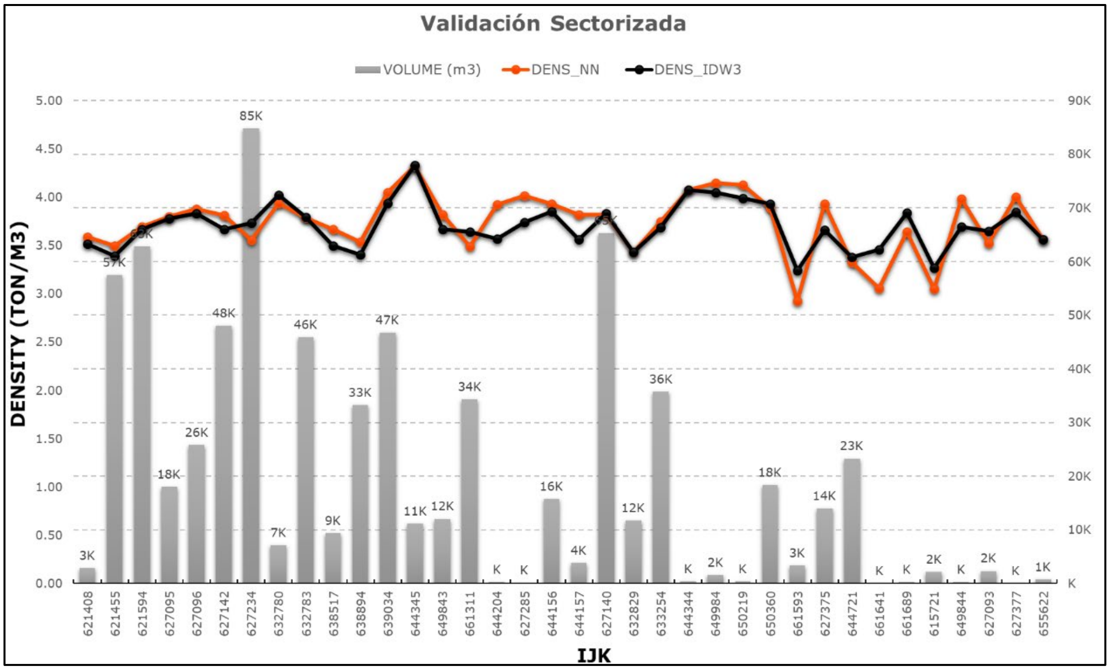


Figure 11-25: SSM Swath Plots – Density Values

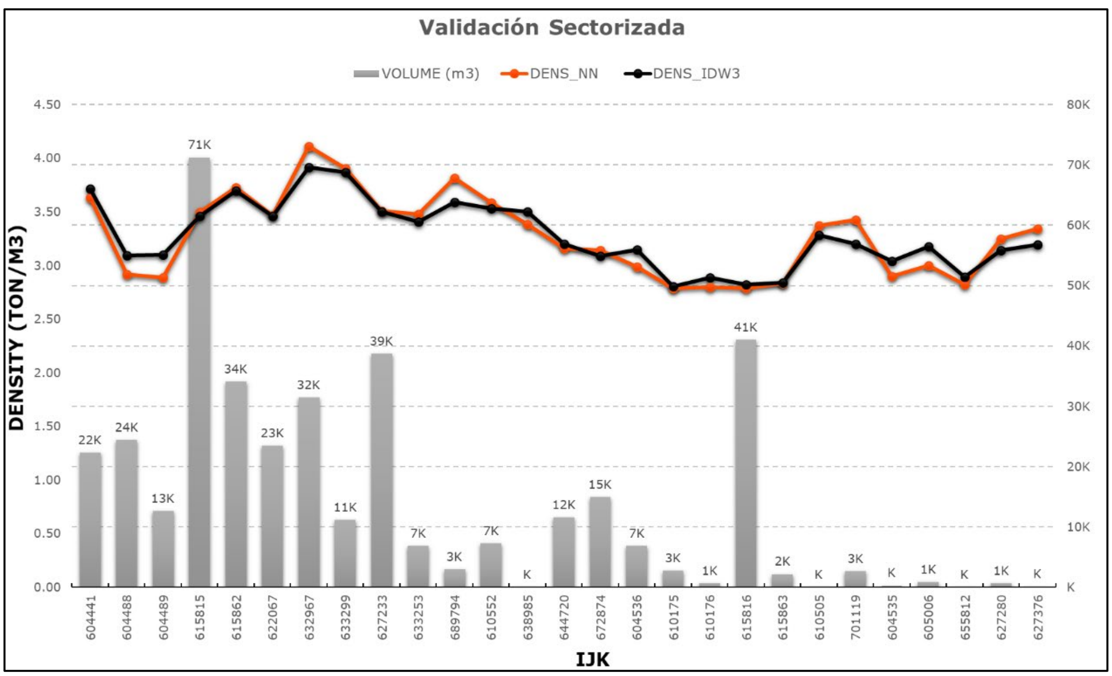


Figure 11-26: VM Swath Plots – Density Values

The SLR QP reviewed the density data distribution and location and is of the opinion that the density values are reasonable for the style of mineralization and the density samples are well distributed in the largest domains (SPP and SPB) throughout the deposit.

As reserves and resources are extended towards extremities of the mineralization, SLR recommends collecting more density samples in these areas, especially in areas with no density samples. Additional density sampling will allow a more accurate definition of tonnes in these areas, as mined-out zones in the centre of the deposit have higher density values. SLR recommends reviewing all the reserves stopes and collect density samples on these zones or in the proximities.

11.12 Block Models

Cerro Lindo wireframes were filled with blocks in Datamine Studio RM. The block model was sub-celled at wireframes boundaries with parent cells measuring 5 m by 5 m by 5 m and minimum sub-cell sizes of 0.5 m by 0.5 m by 0.5 m. The block model setup is shown in Table 11-19 and a description of the block model attributes is provided in Table 11-20.

Table 11-19: Block Model Setup
Nexa Resources S.A. – Cerro Lindo Mine

Parameter	X	Y	Z
Origin (m)	387,700	8,552,000	700
Block Size (m)	5	5	5
Min. Sub Block size (m)	0.5	0.5	0.5
Number of Blocks	538	420	322

Table 11-20: Block Model Attribute Descriptions
Nexa Resources S.A. – Cerro Lindo Mine

Field	Description		Field	Description		Field		Description
IJK	ID Block		SHELLZN	SPBHZN	Inside High Grade Zn	SHELLAG	SPBHAG	Inside High Grade Ag
XC	East Block Centroid			SPBLZN	Inside Low Grade Zn		SPBLAG	Inside Low Grade Ag
YC	North Block Centroid			SPPHZN	Inside High Grade Zn		SPPHAG	Inside High Grade Ag
ZC	Elevation Block Centroid			SPPLZN	Inside Low Grade Zn		SPPLAG	Inside Low Grade Ag
XINC	Block Size on East Axis			SSMHZN	Inside High Grade Zn		SSMHAG	Inside High Grade Ag
YINC	Block Size on North Axis			SSMLZN	Inside Low Grade Zn		SSMLAG	Inside Low Grade Ag
ZINC	Block Size on Elevation Axis			VMHZN	Inside High Grade Zn		VMHAG	Inside High Grade Ag
CLI/OB	1	SPB		VMLZN	Inside Low Grade Zn		VMLAG	Inside Low Grade Ag
	2	SPP		V	-		V	-
	3	SSM		SOP	-		SOP	-
	4	VM		SOB	-		SOB	-
	5	V (enclave)		SLB	-		SLB	-
	6	SOP		OB11VM	-		OB11VM	-
	7	SOB		OB12VM	-		OB12VM	-
	8	SLB		OB5BVM	-		OB5BVM	-
	11	OB11VM		OB14VM	-		OB14VM	-
	12	OB12VM		PUCVM	-		PUCVM	-
	13	OB5BVM	SHELLCU	SPBHCU	Inside High Grade Cu	DENSITY	Estimated density for SPB, SPP, SSM and VM and mean values for all other domains	
	14	OB14VM		SPBLCU	Inside Low Grade Cu			
	15	PUCVM		SPPHCU	Inside High Grade Cu			
CGEOCD	9	SPB		SPPLCU	Inside Low Grade Cu	ZN	Estimated Zn(%)	
	6	SPP		SSMHCU	Inside High Grade Cu	PB	Estimated Pb(%)	
	5	SSM		SSMLCU	Inside Low Grade Cu	CU	Estimated Cu(%)	
	28	VM		VMHCU	Inside High Grade Cu	AG	Estimated Ag(g/t)	
	29	V (enclave)		VMLCU	Inside Low Grade Cu	FE	Estimated Fe(%)	
	7	SOP		V	-	CLASS	1	Measured
	10	SOB		SOP	-		2	Indicated
	11	SLB		SOB	-		3	Inferred
	28	OB11VM		SLB	-		4	Not Classified
	28	OB12VM		OB11VM	-			
	28	OB5BVM		OB12VM	-			
	28	OB14VM		OB5BVM	-			
	28	PUCVM		OB14VM	-			
				PUCVM	-			

The SLR QP is of the opinion that the block size is appropriate, based on the drill spacing and proposed mining method, and is suitable to support the estimation of Mineral Resources and Mineral Reserves.

11.13 Net Smelter Return and Cut-off Value

An NSR cut-off value was determined using the Mineral Resource metal prices, metal recoveries, transport, treatment, and refining costs, as well as mine operating cost. Metal prices used for Mineral

Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources.

The cut-off value used for the Resource estimate is based on an NSR value, in units of US$/t, which can be directly compared to operating unit costs. The NSR formula is:

$$NSR = \frac{Gross\ Revenue - Offsite\ Charges}{Tonnes\ Processed}$$

Cut-off costs and NSR parameters are summarized in Table 11-21. The break even NSR cut-off value for SLS and C&F mining methods are $33.56/t processed and $49.90/t processed respectively.

Table 11-21: Resource NSR Data
Nexa Resources S.A. – Cerro Lindo Mine

Item	Units	SLS	C&F
Net Metallurgical Recovery *			
Zn	%	88.13	88.13
Pb	%	68.58	68.58
Cu	%	86.30	86.30
Ag	%	68.78	68.78
Cu Concentrate Payable %			
Cu	%	96.7	96.7
Ag	%	90.0	90.0
Pb Concentrate Payable %			
Pb	%	95.0	95.0
Ag	%	95.0	95.0
Zn Concentrate Payable %			
Zn	%	95.8	95.8
Ag	%	70.0	70.0
Metal Prices			
Zn	US$/lb	1.30	1.30
Pb	US$/lb	1.02	1.02
Cu	US$/lb	3.37	3.37
Ag	US$/oz	19.38	19.38
Charges			
Logistics and TC			
Zn Concentrate	US$/t conc	321.0	321.0
Pb Concentrate	US$/t conc	251.0	251.0
Cu Concentrate	US$/t conc	245.0	245.0
Integrated Zn			
Conversion Cost	US$/t Zn prod	447.0	447.0
Premium	US$/t Zn Prod	217.0	217.0

Item	Units	SLS	C&F
Refining Cost			
Ag in Pb conc	US$/oz	1.00	1.01
Ag in Cu conc	US$/oz	0.50	0.51
Operating Costs			
Mining	US$/t proc.	21.00	37.34
Processing + Maintenance	US$/t proc.	10.42	10.42
G&A	US$/t proc.	2.14	2.14
Total	**US$/t proc.**	**33.56**	**49.90**

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long term (ten year) metal price forecasts. SLR verified that Nexa's selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders. Prices selected for Mineral Resource estimation are 15% higher, which is in line with typical industry practice.

The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the Mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship. NSR factors are therefore variable by head grade, with average NSR factors summarized in Table 11-22. The head grade and recovery curves are presented in Figure 11-27, Figure 11-28, and Figure 11-29.

Table 11-22: Average NSR Factors
Nexa Resources S.A. – Cerro Lindo Mine

Item	Units	Value
Zn	US$/%	20.56
Pb	US$/%	14.12
Cu	US$/%	55.91
Ag	US$/oz	12.59

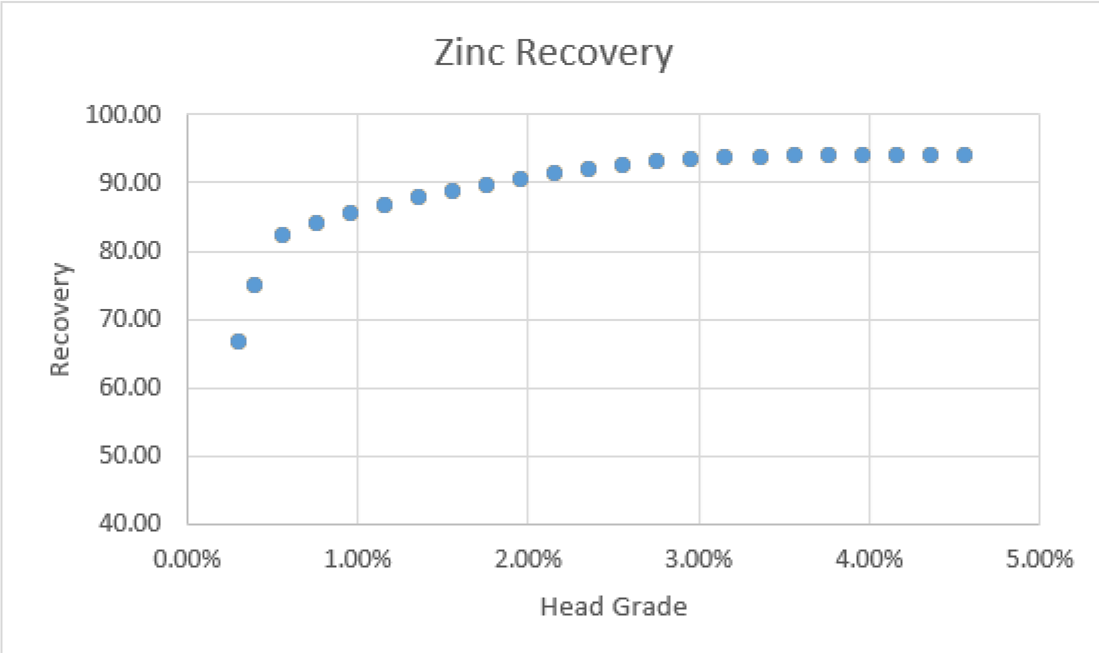


Figure 11-27: Zinc Recovery

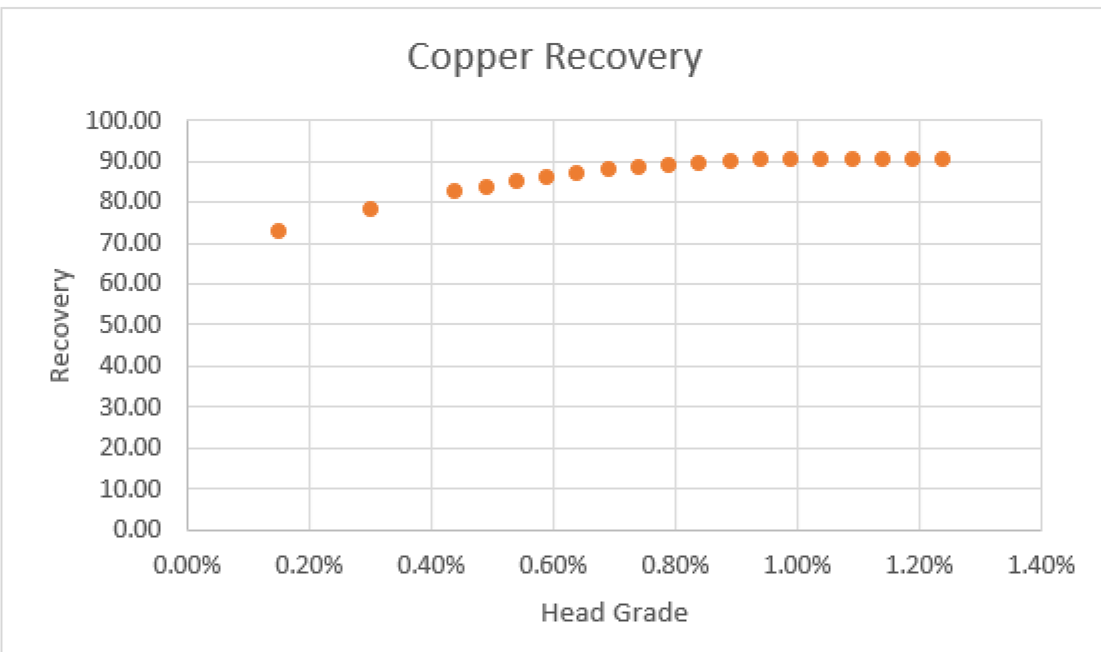


Figure 11-28: Copper Recovery

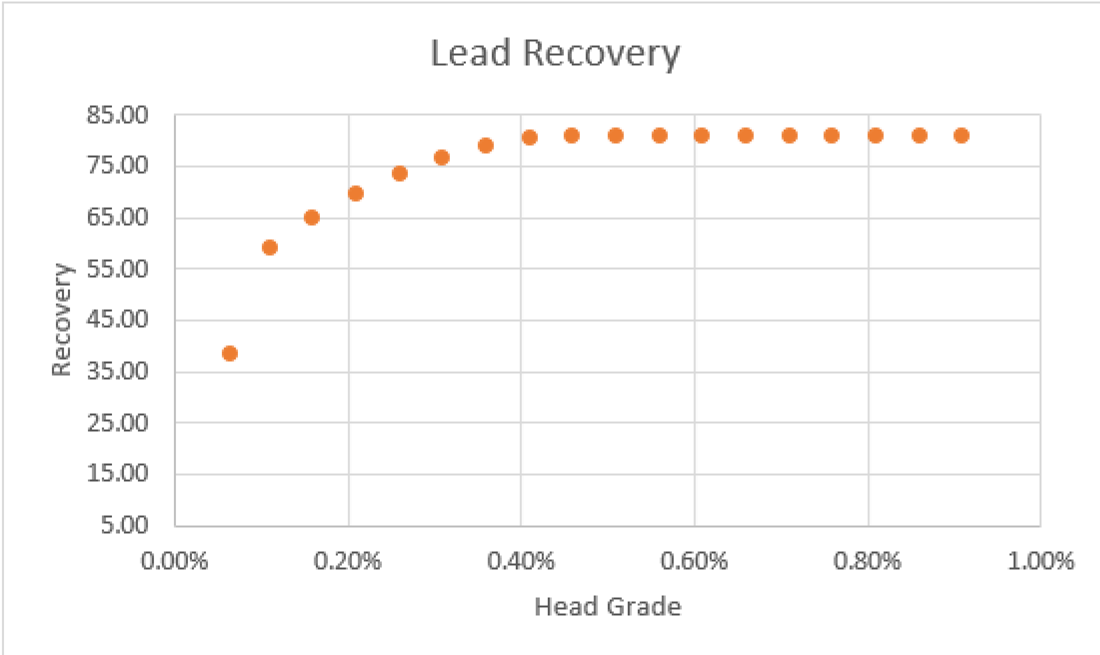


Figure 11-29: Lead Recovery

11.14 Classification

Definitions for resource categories used in this report are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Mineral Resource classification for the SPP and SPB domains is based on the number of drill holes and distances determined by variogram ranges, geological and grade continuity, and well production experience. The SSM and VM domain blocks were classified based on the continuity of the orebodies and recent production experience. The SSM and VM mineralization is more discontinuous than the SPB and SPP domains, as it occurs more as patches or stringers. The Measured and Indicated classification was more restrictive.

Flagging of the blocks by drill hole distances was performed by using a search pass with dimensions and parameters for each category. The first pass involved a numerical block classification based on the number of drill holes and search radii followed by a post processing of the classification to remove isolated small patches and irregular shapes, yielding more realistic shapes from a mining perspective.

The classification of the Mineral Resource estimate was applied as follows:

- **Measured Mineral Resources:** Measured blocks were defined, for SPP and SPB domains, the largest contributors of the Measured Resources, using a search radius of 26 m by 26 m by 12 m, and for SSM and VM domains, minor contributors of the Measured Resources (<1%), using a search radius of 13 m by 13 m by 7 m, with at least three holes within each estimation domains, and supported with data of a low level of uncertainty as follows:
    - **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.

- **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
- **Confidence in interpretation and modelling of geological and estimation domains:** SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show good agreement with the drill holes and underground mapping.
- **Geology and grade continuity**: Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity.
- **Confidence in estimation of block grades for the main metals:** Block grades correlate well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
- **Acceptable bulk density representativity:** Sufficient density measurements for most of the SPP and SPB domains.
- **Well supported drilling spacing criteria:** Based on three drill holes and 50% to 70% of the range of the variograms.
- **Production experience in the deposit:** More than a decade of production experience mining the SPP and SPB domains.
- **Good reconciliation performance:** Block grades reconcile well with plant data, overall, within 10%.

- **Indicated Mineral Resources:** Indicated blocks were defined, for SPP and SPB domains, the largest contributors of the Indicated Resources, using a search radius of 50 m by 50 m by 13 m, and for SSM and VM domains, minor contributors of the Indicated Resources (<35%), using a search radius of 25 m by 25 m by 13 m, with at least three holes within each estimation domains, and supported with data of a low and/or medium level of uncertainty as follows:
  - **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.
  - **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results.
  - **Confidence in interpretation and modelling of geological and estimation domains**: SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show relatively acceptable agreement with the drill holes and underground mapping where the density of drill holes is less, particularly at the mineralization edges.
  - **Geology and Grade Continuity:** Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity. SSM and VM domains geometries are less well defined and geological and grade continuity is less because mineralization is presented in patches.
  - **Confidence in estimation of block grades for the main metals:** Block grades correlate well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.

- **Reasonable bulk density representativity:** Sufficient density measurements were taken for most of the SPP and SPB domains. Reasonable density measurements for some of the SSM and VM areas, with limited density measurements available at the mineralization edges.
- **Well supported drilling spacing criteria:** Based on three drill holes and 60% to 80% of the range of the variograms.
- **Production experience in the deposit:** More than a decade of production experience mining the SPP and SPB domains. Moderate experience with SSM and VM, increasing in the last five years as these domains are located at the mineralization edges.
- **Good reconciliation performance:** Block grades reconcile well with plant data, overall, within 10%.

- **Inferred Mineral Resources:** Inferred blocks were defined, for SPP and SPB domains, using a search radius of 79 m by 79 m by 40 m, for SSM and VM domains, the largest contributors (>76%) of the Inferred Resources, using a search radius of 50 m by 50 m by 25 m, with at least two holes within each estimation domains, for all the other domains (SBO, SOP, SLB, V) representing less than 13% of the Inferred Resources, using a search radius of 50 m by 50 m by 25 m, with at least three holes within each estimation domains and supported with data of a low and/or medium and/or high level of uncertainty as follows:
  - **Drilling, sampling, and sample preparation and assay procedures:** follow industry standards and best practices.
  - **Reliability of sampling data:** Excellent database integrity and representativity based on SLR's independent data verification and validation, as well as no significant bias observed in QA/QC analysis results for SPP, SPB, SSM, and VM. Less data is available for the SOB, SOP, SBL, and V domains.
  - **Confidence in interpretation and modelling of geological and estimation domains**: SPB and SPP (the major contributors to the Mineral Resources) show good agreement and some SSM and VM domain solids show relatively acceptable agreement with the drill holes and underground mapping where the density of drill holes is less, particularly at the mineralization edges.
  - **Geology and grade continuity:** Based on drilling and underground mapping, trend analysis and variography, SPB and SPP domains show good geology and grade continuity. SSM, VM, SOB, SOP, SBL, and V domains geometries are less well defined, and geological and grade continuity for these domains is less continuous and more variable.
  - **Confidence in estimation of block grades for the main metals:** Block grades correlate reasonably well with composite data, statistically and spatially, locally and globally, as well as with production reconciliation.
  - **Bulk density representativity is reasonable for most of the domains:** Density measurements for SOB, SOP, and SLB domains are required.
  - **Infill drilling**: More drilling is required to determine continuity of mineralization in areas of wide drill spacing in order to upgrade Inferred Resources to Indicated. Inferred drilling spacing was defined based on 80% to 90% of the variogram range.
  - **Production experience in the deposit**: More than a decade of production experience mining the SPP and SPB domains. Moderate experience with SSM and VM, increasing in the last five

years as these domains are located at the mineralization edges. Limited experience with SOB, SOP, and SLB domains with challenging metallurgical recovery, however, these domains are localized and should be blended before the material is sent to the plant.

Figure 11-30 and Figure 11-31 show histogram validations of the classification based on the distance of each block to its closest sample for the SPB/SPP and SSM/VM domains, respectively. Figure 11-32 shows a plan view of the final model classification.

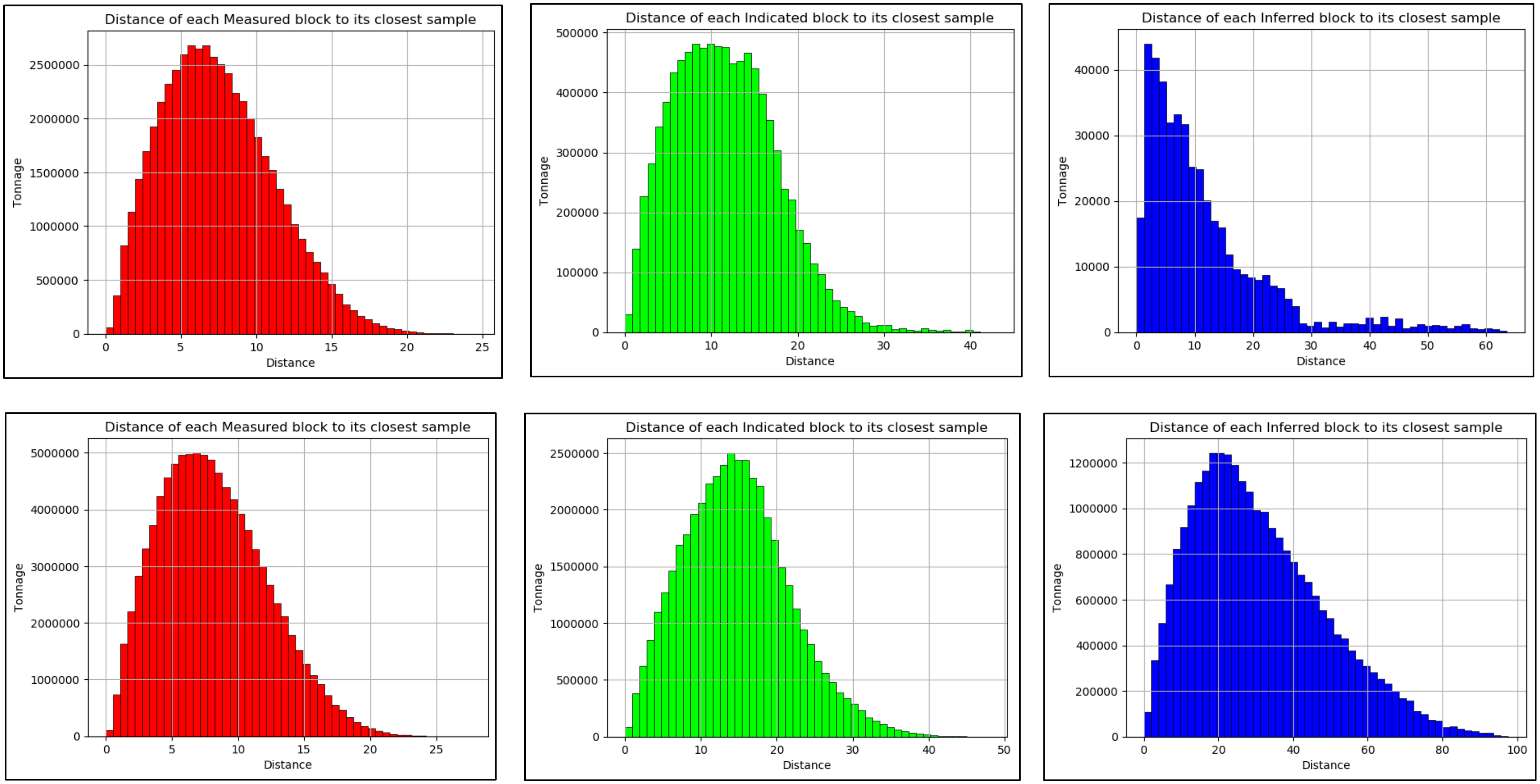


Figure 11-30: Validation of Classification (SPB and SPP)

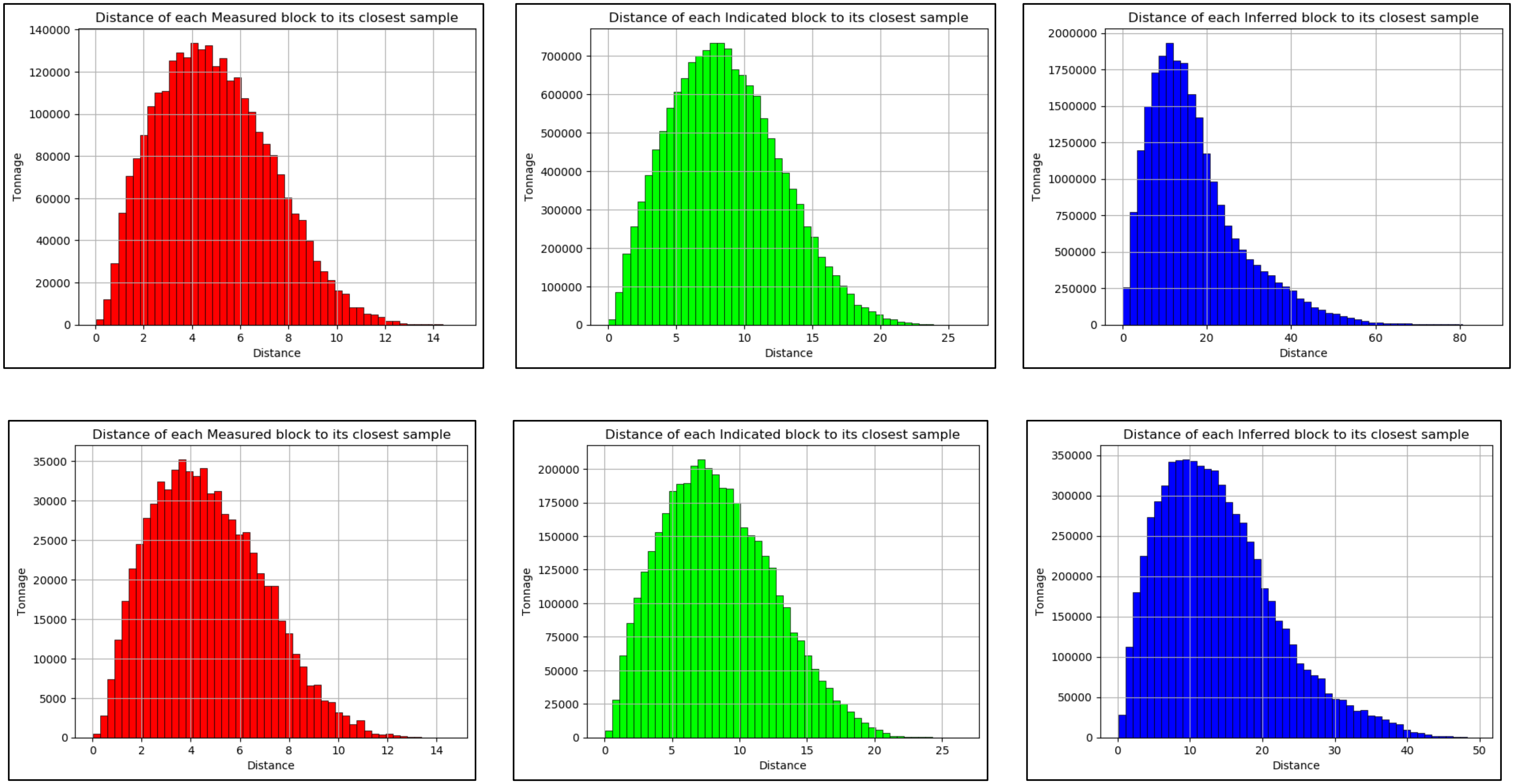


Figure 11-31: Validation of Classification (SSM and VM)

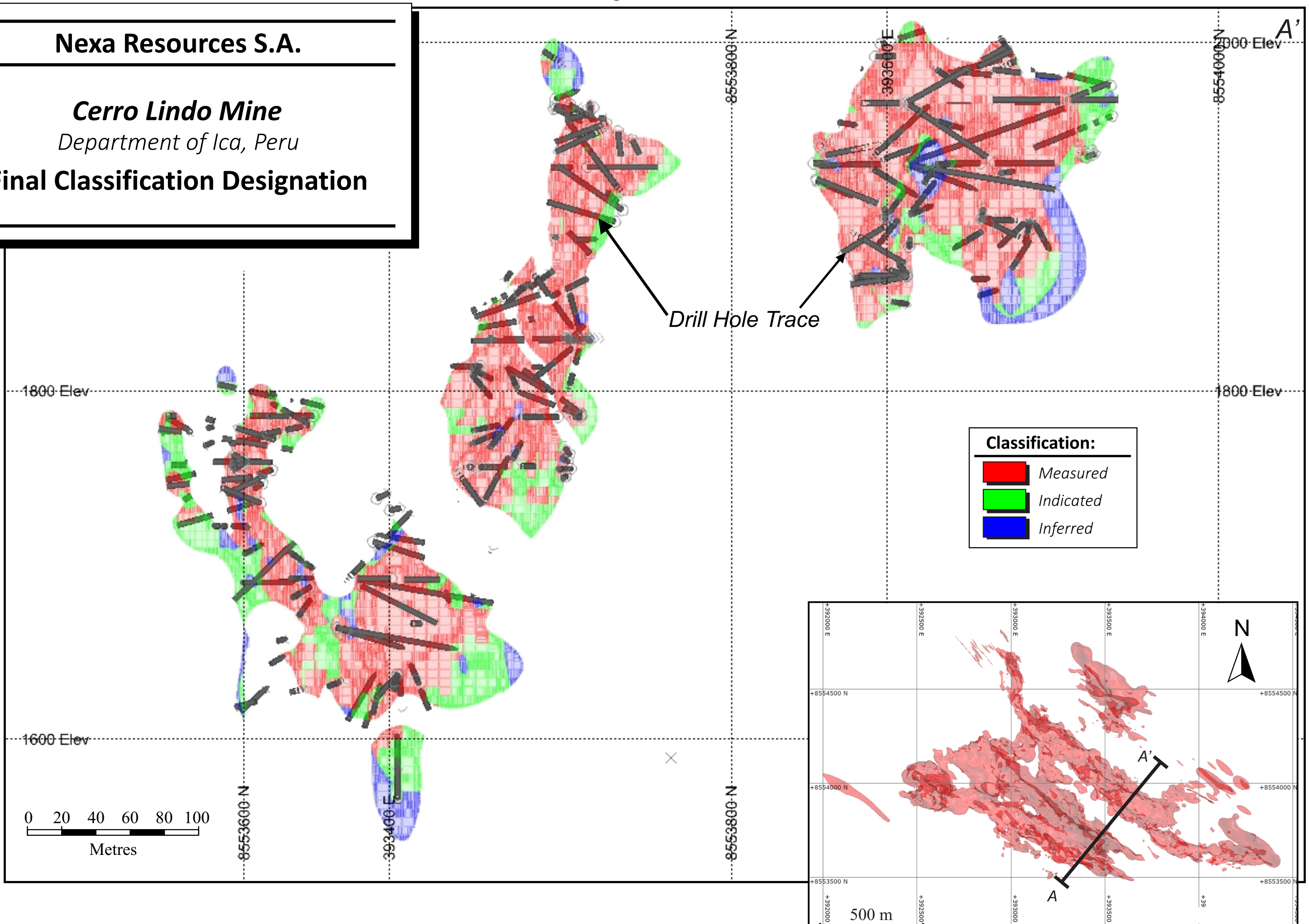
Figure 11-32

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Final Classification Designation



January 2021

Source: Nexa, 2020.

The SLR QP has reviewed the classification and considers it to be reasonable, however, the SLR QP recommends monitoring the production data to ensure that the selected drill spacing for SSM and VM is appropriate to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.

The SLR QP is of the opinion that the definitions for Mineral Resources used in this report have been classified in accordance with the definitions for Mineral Resources in S-K 1300, which are consistent with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

11.15 Block Model Validation

Nexa and SLR carried out a number of block model validation procedures including:

- Comparison between OK, NN, and composite mean grades (Table 11-23).
- Swath plots (Figure 11-33 and Figure 11-34).
- Visual inspection of composite versus block grades (Figure 11-35 and Figure 11-36).
- Reconciliation with the plant (Figure 11-37).

Nexa compared the OK grade estimates with NN and composite mean grades. Overall, the differences were below 5% for the comparison between the OK and NN grades. Swath plots showed good correlation of the grades locally, without significant bias.

The visual inspection of composite and block grades revealed that the spatial grade correlation is good for zinc and copper and reasonable for lead and silver.

Swath plots (Figure 11-33 and Figure 11-34) show acceptable agreement between composite, NN, and OK estimates for zinc and copper block grades.

The resource model reconciles well with the plant. In 2018, the plant processed 91% of the total resource model tonnage, 100% of the zinc grade, and 112% of the copper grade. For 2019, the plant processed 93% of the total resource model tonnage, 101% of the zinc grade, and 105% of the copper grade.

SLR's validation results suggest that the grade estimates for zinc, copper, lead, and silver are reasonable, and that the block model is suitable to support Mineral Resource and Mineral Reserve estimation.

Table 11-23: Comparison Between Estimates (OK/ID^3), NN and Composite Means
Nexa Resources S.A. – Cerro Lindo Mine

Domain	Grade	No. Blocks	NN		OK		Dif. Rel. NN_OK(%)	IDW^3		Dif. Rel. NN_ID^3(%)
			Mean	CV	Mean	CV		Mean	CV	
	Zn (%)	2,986,839	6.70	0.64	6.68	0.45	0%	6.71	0.48	0%
	Pb (%)	1,818,994	1.22	0.96	1.22	0.59	0%	1.23	0.67	0%
SPBH	Cu (%)	3,078,056	0.79	0.81	0.77	0.41	2%	0.78	0.51	2%
	Ag (g/t)	1,818,994	65.37	0.69	64.73	0.38	1%	64.81	0.45	1%
	Fe (%)	3,078,056	19.03	0.70	19.18	0.48	-1%	19.06	0.55	0%

Domain	Grade	No. Blocks	NN		OK		Dif. Rel. NN_OK(%)	IDW³		Dif. Rel. NN_ID³(%)
			Mean	CV	Mean	CV		Mean	CV	
SPBL	Zn (%)	2,176,523	1.49	0.97	1.53	0.52	-3%	1.49	0.61	0%
	Pb (%)	3,344,368	0.30	1.69	0.30	0.98	0%	0.31	1.11	-1%
	Cu (%)	2,085,306	0.13	0.85	0.13	0.36	-2%	0.13	0.46	-2%
	Ag (g/t)	3,344,368	13.23	0.74	13.36	0.40	-1%	13.26	0.46	0%
	Fe (%)	2,085,306	17.80	0.60	17.84	0.40	0%	17.83	0.46	0%
SPPH	Zn (%)	3,642,789	1.34	1.20	1.30	0.65	3%	1.33	0.79	1%
	Pb (%)	5,714,720	0.08	2.60	0.08	1.45	-1%	0.08	1.68	2%
	Cu (%)	6,024,909	0.90	0.81	0.89	0.53	1%	0.90	0.57	0%
	Ag (g/t)	5,714,720	22.99	0.87	23.01	0.47	0%	23.04	0.53	0%
	Fe (%)	6,024,909	31.26	0.44	31.39	0.27	0%	31.54	0.30	-1%
SPPL	Zn (%)	5,828,223	0.10	0.96	0.10	0.56	-3%	0.10	0.66	-1%
	Pb (%)	3,756,292	0.01	1.31	0.01	0.80	-1%	0.01	0.93	0%
	Cu (%)	3,446,103	0.10	0.75	0.11	0.44	-2%	0.10	0.50	0%
	Ag (g/t)	3,756,292	4.12	0.62	4.17	0.36	-1%	4.13	0.43	0%
	Fe (%)	3,446,103	31.78	0.39	31.84	0.26	0%	31.95	0.29	-1%
SSMH	Zn (%)	1,208,290	2.41	0.91	2.48	0.52	-3%	2.46	0.63	-2%
	Pb (%)	1,332,857	0.55	1.33	0.55	0.67	-1%	0.55	0.88	-1%
	Cu (%)	1,598,363	0.64	0.77	0.63	0.43	2%	0.63	0.53	2%
	Ag (g/t)	1,332,857	55.86	0.87	55.94	0.44	0%	56.08	0.58	0%
	Fe (%)	1,598,363	19.09	0.53	19.21	0.34	-1%	19.14	0.41	0%
SSML	Zn (%)	2,767,337	0.09	1.54	0.09	0.95	-4%	0.09	1.10	0%
	Pb (%)	2,642,770	0.05	1.56	0.05	0.89	-5%	0.05	1.09	-2%
	Cu (%)	2,377,264	0.09	0.99	0.09	0.57	-3%	0.09	0.68	1%
	Ag (g/t)	2,642,770	7.02	0.92	7.31	0.58	-4%	7.11	0.68	-1%
	Fe (%)	2,377,264	18.81	0.53	19.11	0.36	-2%	18.86	0.42	0%
VMH	Zn (%)	915,742	1.70	0.81	1.70	0.43	0%	1.72	0.55	-1%
	Pb (%)	614,140	0.78	1.02	0.78	0.55	1%	0.79	0.72	0%
	Cu (%)	948,663	0.52	0.85	0.51	0.44	3%	0.52	0.61	0%
	Ag (g/t)	614,140	93.52	0.78	91.28	0.44	2%	93.16	0.57	0%
	Fe (%)	948,663	11.75	0.68	11.85	0.40	-1%	11.78	0.52	0%

Domain	Grade	No. Blocks	NN		OK		Dif. Rel. NN_OK(%)	IDW³		Dif. Rel. NN_ID³(%)
			Mean	CV	Mean	CV		Mean	CV	
VML	Zn (%)	852,757	0.18	1.30	0.19	0.76	-3%	0.18	0.90	-3%
	Pb (%)	1,154,359	0.18	1.37	0.18	0.82	2%	0.19	1.03	-4%
	Cu (%)	819,836	0.07	0.81	0.07	0.39	-5%	0.07	0.55	-3%
	Ag (g/t)	1,154,359	17.13	0.78	17.39	0.42	-2%	17.49	0.52	-2%
	Fe (%)	819,836	7.33	0.84	7.45	0.55	-2%	7.25	0.68	1%
V	Zn (%)	325,979	0.39	1.43	0.39	1.02	-1%	0.38	1.16	0%
	Pb (%)	325,979	0.19	1.30	0.20	0.74	-3%	0.19	0.98	0%
	Cu (%)	325,979	0.26	1.04	0.27	0.63	-3%	0.26	0.78	0%
	Ag (g/t)	325,979	22.96	1.11	23.87	0.60	-4%	22.92	0.81	0%
	Fe (%)	325,979	9.28	0.95	9.33	0.58	-1%	9.26	0.73	0%
SOP	Zn (%)	45,313	0.22	1.49	0.22	0.95	-1%	0.22	1.12	-1%
	Pb (%)	45,313	0.04	1.79	0.04	1.10	1%	0.04	1.30	5%
	Cu (%)	45,313	0.54	1.10	0.54	0.84	-1%	0.55	0.87	-2%
	Ag (g/t)	45,313	11.50	1.25	11.28	0.85	2%	11.15	0.95	3%
	Fe (%)	45,313	26.99	0.61	27.91	0.44	-3%	27.80	0.49	-3%
SOB	Zn (%)	51,570	0.91	1.39	0.92	0.99	0%	0.91	1.11	1%
	Pb (%)	51,570	0.17	1.27	0.18	0.87	-3%	0.17	0.98	-1%
	Cu (%)	51,570	1.07	0.97	1.12	0.60	-5%	1.09	0.70	-1%
	Ag (g/t)	51,570	21.32	0.79	21.76	0.48	-2%	21.45	0.55	-1%
	Fe (%)	51,570	18.96	0.66	19.14	0.51	-1%	19.07	0.55	-1%
SLB	Zn (%)	46,333	0.07	2.58	0.08	1.79	-12%	0.06	2.04	6%
	Pb (%)	46,333	0.37	1.78	0.44	1.17	-17%	0.39	1.52	-3%
	Cu (%)	46,333	0.03	3.72	0.04	2.46	-20%	0.03	3.14	4%
	Ag (g/t)	46,333	22.59	1.46	25.36	0.97	-12%	22.48	1.30	0%
	Fe (%)	46,333	1.93	3.25	2.37	2.09	-20%	1.85	2.59	4%
OB11VM	Zn (%)	57,986	2.02	0.54	1.91	0.47	5%	2.05	0.48	-2%
	Pb (%)	57,986	0.13	0.92	0.13	0.28	-1%	0.12	0.58	6%
	Cu (%)	57,986	0.11	0.78	0.12	0.53	-3%	0.12	0.71	-6%
	Ag (g/t)	57,986	10.68	0.67	10.68	0.20	0%	11.06	0.51	-3%
	Fe (%)	57,986	8.06	0.15	8.37	0.12	-4%	8.27	0.11	-3%

Domain	Grade	No. Blocks	NN		OK		Dif. Rel. NN_OK(%)	IDW³		Dif. Rel. NN_ID³(%)
			Mean	CV	Mean	CV		Mean	CV	
OB12VM	Zn (%)	34,995	0.52	0.46	0.51	0.22	3%	0.51	0.27	2%
	Pb (%)	34,995	0.15	0.70	0.14	0.33	5%	0.15	0.43	2%
	Cu (%)	34,995	0.11	0.82	0.11	0.48	5%	0.11	0.63	-2%
	Ag (g/t)	34,995	29.35	1.17	27.51	0.67	6%	28.69	0.95	2%
	Fe (%)	34,995	9.63	0.52	9.37	0.34	3%	9.98	0.44	-4%
OB14VM	Zn (%)	152,621	1.60	0.92	1.51	0.49	6%	1.56	0.68	2%
	Pb (%)	152,621	0.61	1.09	0.63	0.68	-3%	0.64	0.81	-5%
	Cu (%)	152,621	0.10	1.24	0.09	0.91	8%	0.10	1.03	4%
	Ag (g/t)	152,621	25.50	1.50	25.43	1.10	0%	26.33	1.25	-3%
	Fe (%)	152,621	6.88	0.85	6.81	0.70	1%	6.88	0.79	0%
OB5BVM	Zn (%)	20,936	1.84	0.77	1.87	0.54	-2%	1.86	0.62	-1%
	Pb (%)	20,936	0.25	1.04	0.27	0.52	-9%	0.27	0.65	-9%
	Cu (%)	20,936	0.01	1.25	0.01	0.66	13%	0.01	1.09	2%
	Ag (g/t)	20,936	11.14	1.08	11.53	0.57	-3%	11.94	0.70	-7%
	Fe (%)	20,936	3.20	0.61	3.14	0.44	2%	3.21	0.48	0%
PUCVM	Zn (%)	12,028	0.75	1.18	0.70	1.00	7%	0.70	1.01	7%
	Pb (%)	12,028	0.66	1.03	0.61	0.78	8%	0.61	0.79	7%
	Cu (%)	12,028	0.15	1.07	0.14	0.97	1%	0.14	0.97	1%
	Ag (g/t)	12,028	44.02	0.65	41.50	0.61	6%	41.71	0.61	5%
	Fe (%)	12,028	7.33	0.47	7.23	0.44	1%	7.23	0.44	1%

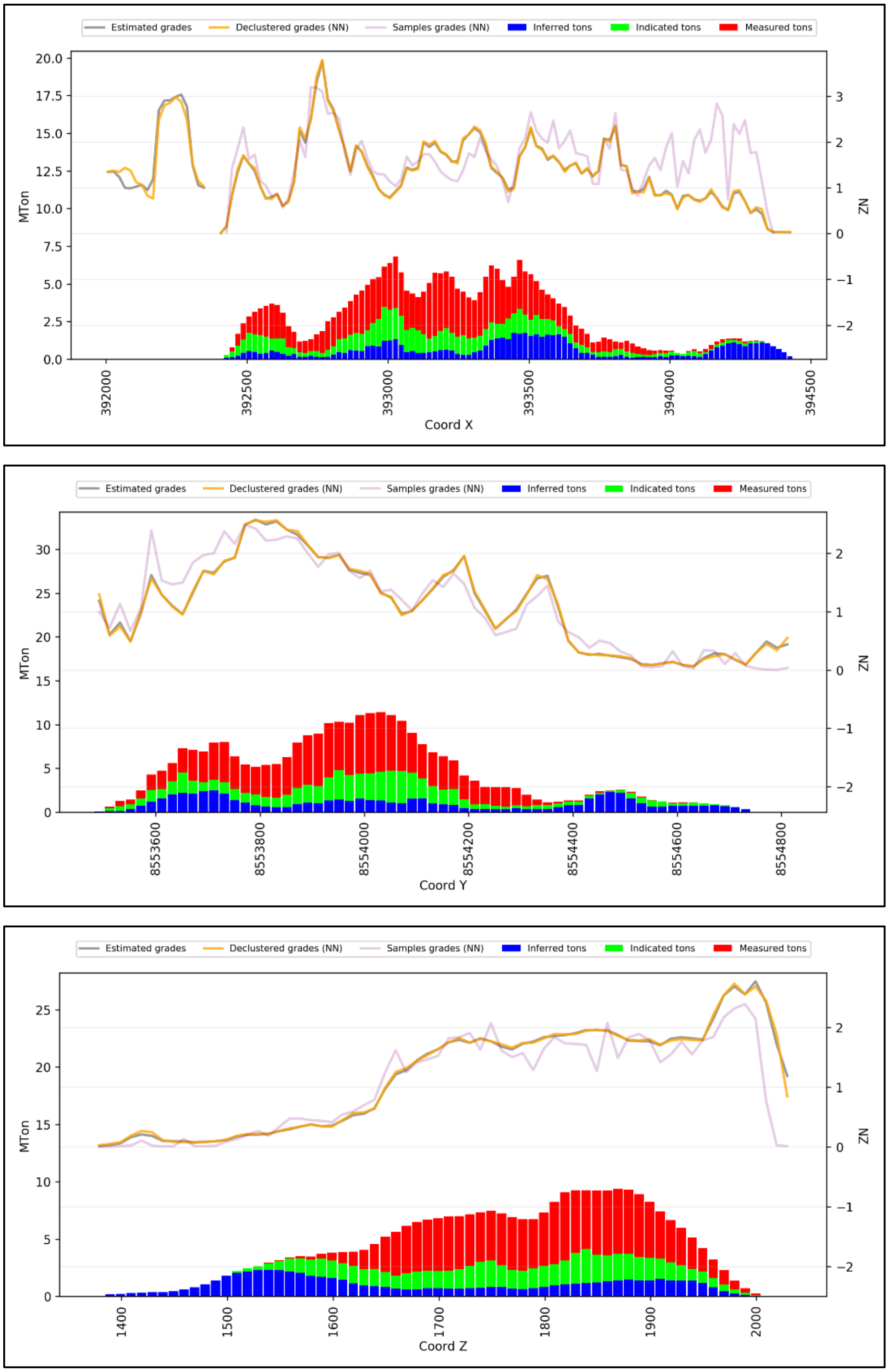


Figure 11-33: Swath Plot: Zn Grade Variation along X, Y, and Z

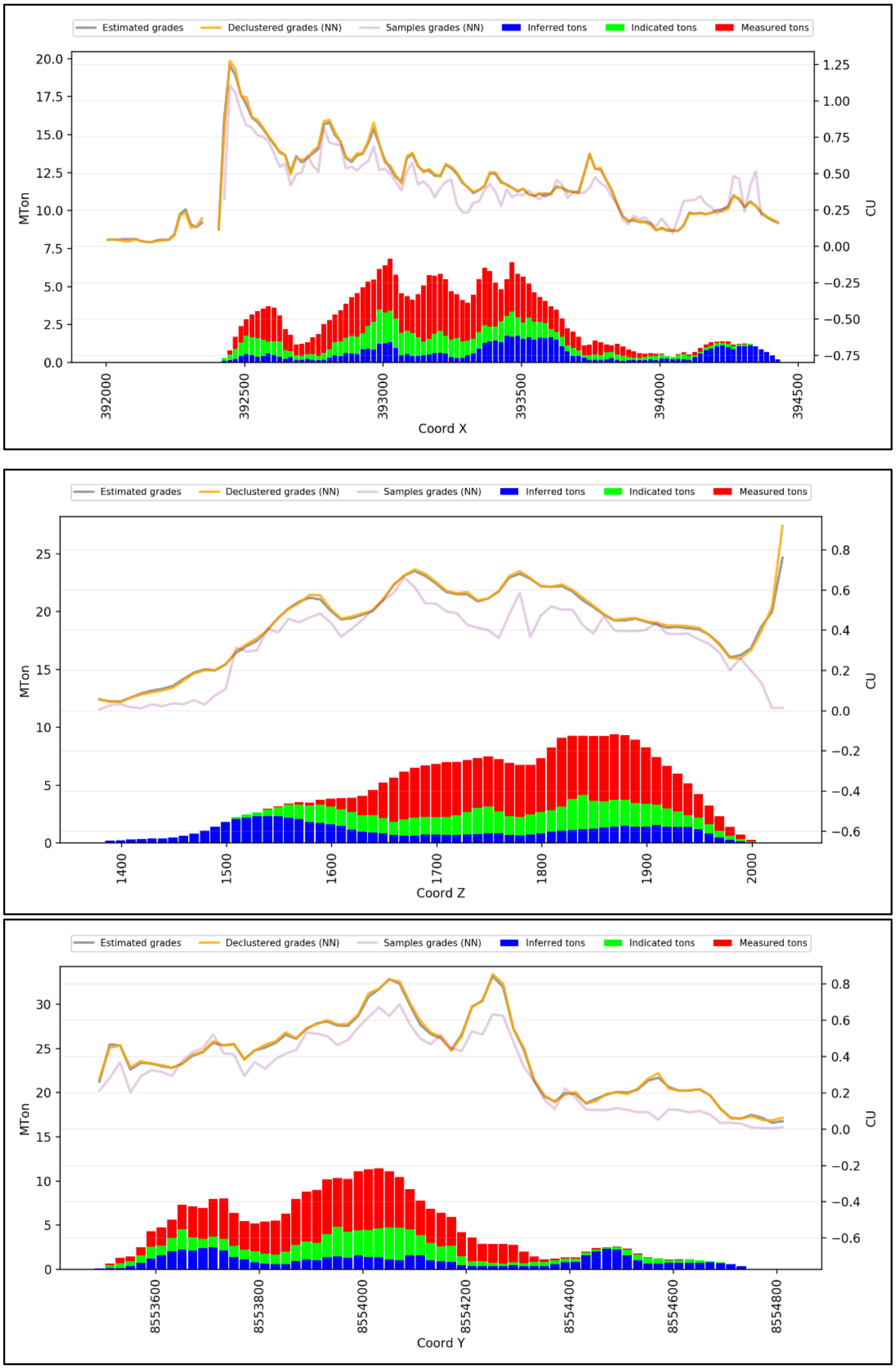


Figure 11-34: Swath Plot: Cu Grade Variation along X, Y, and Z

Figure 11-35

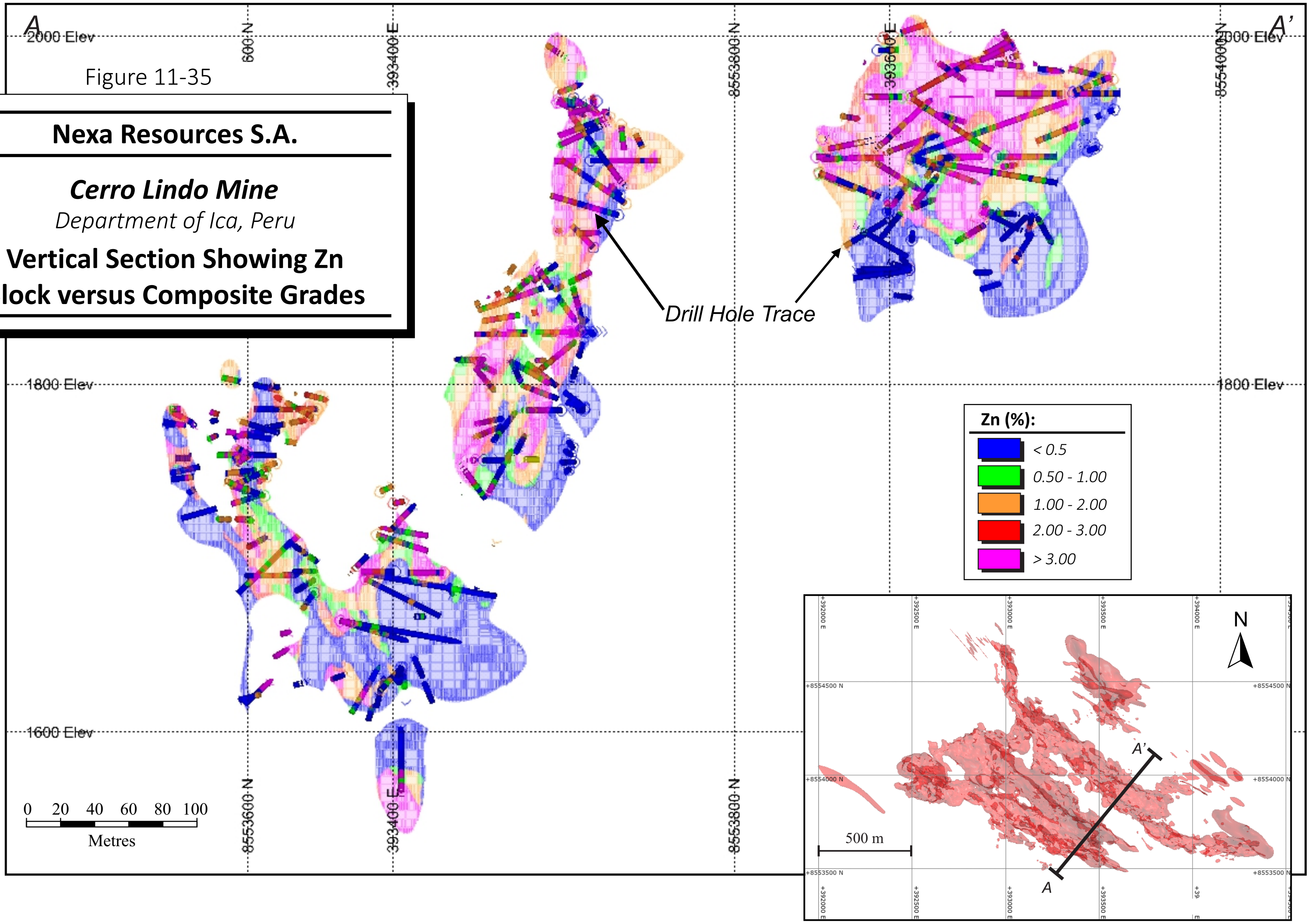
Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Vertical Section Showing Zn Block versus Composite Grades

Looking Northwest



January 2021

Source: Nexa, 2020.

Looking Northwest

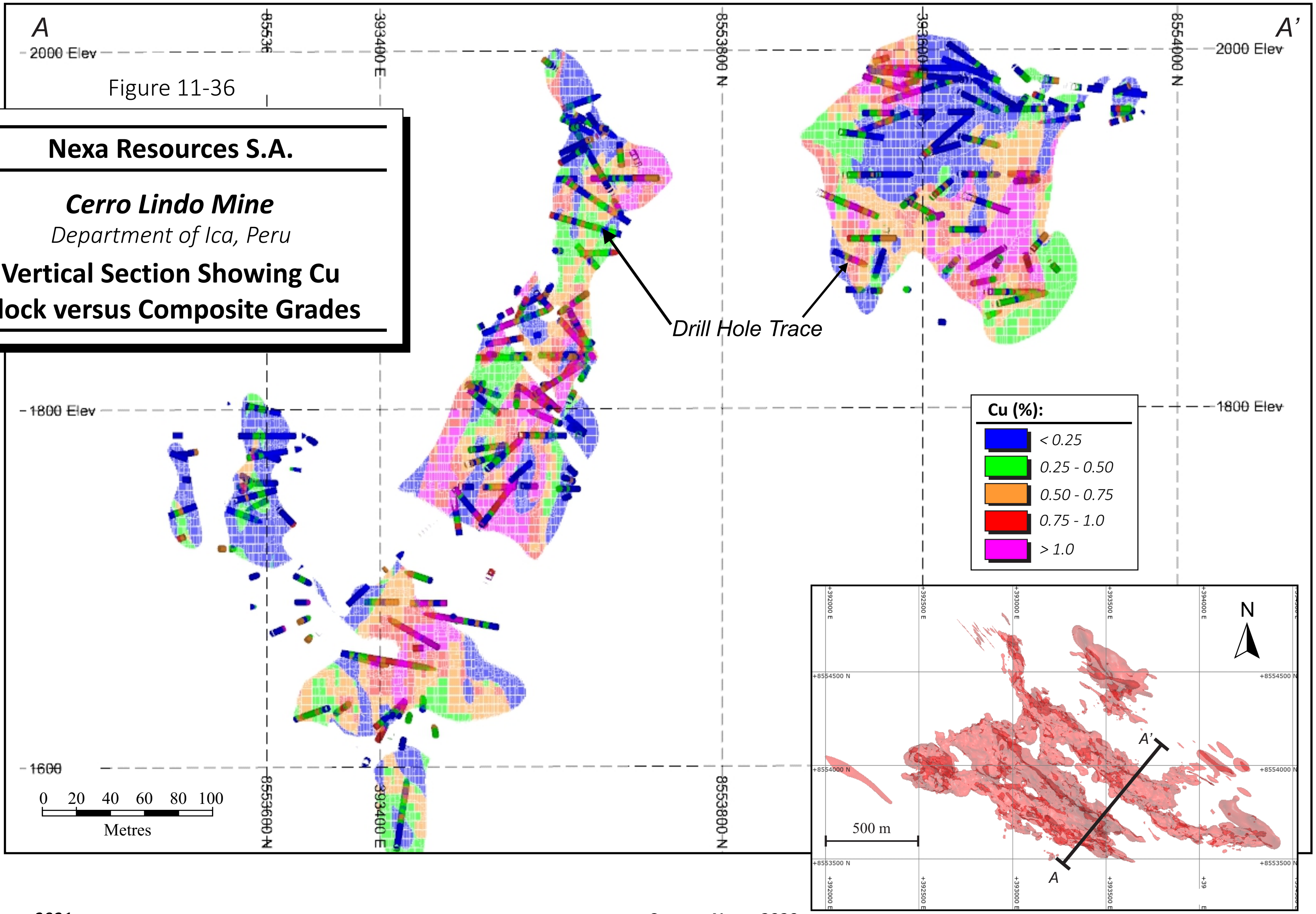


Figure 11-36

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Vertical Section Showing Cu Block versus Composite Grades

January 2021

Source: Nexa, 2020.

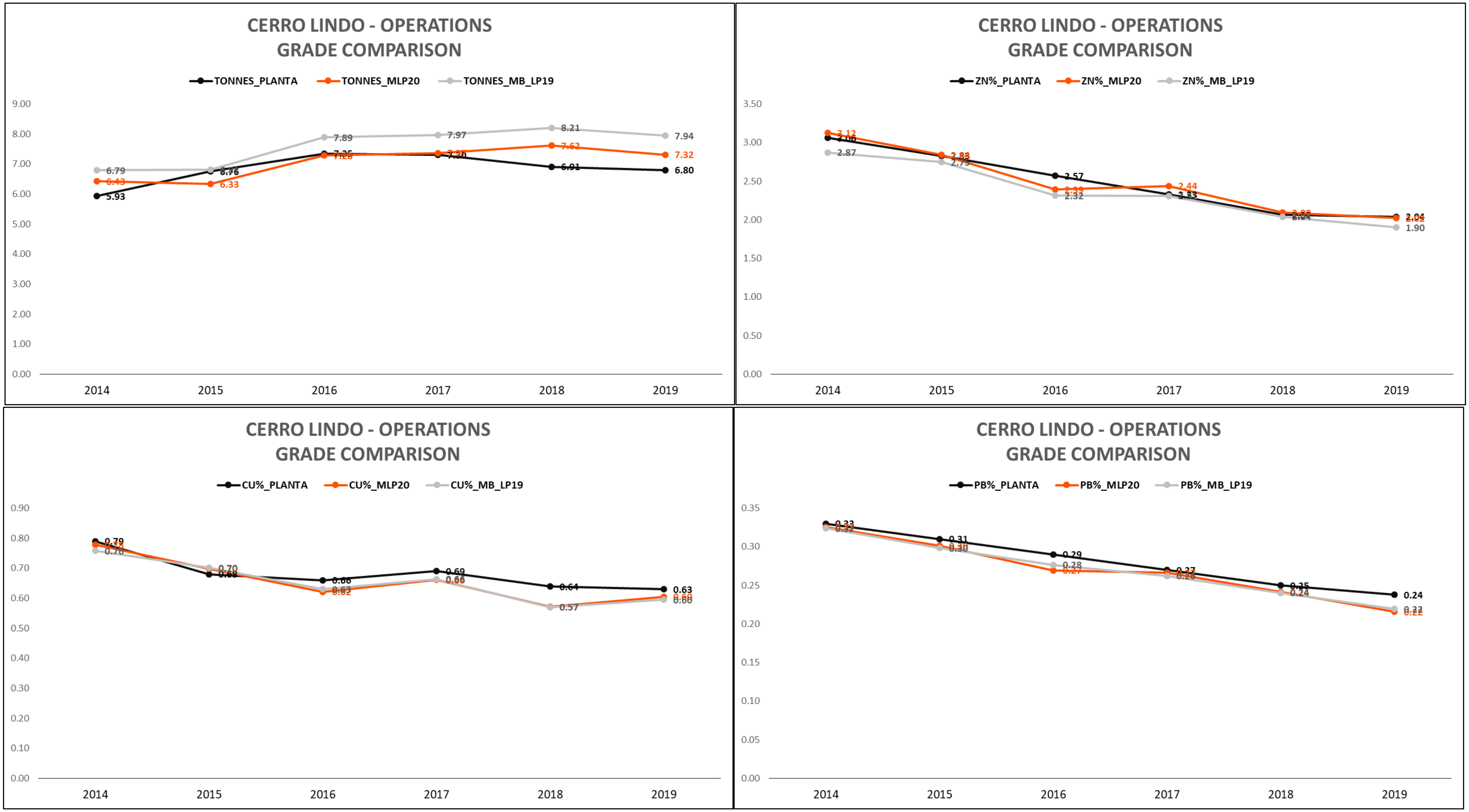


Figure 11-37: Plant Versus Resource Model Reconciliation

11.16 Mineral Resource Reporting

The Mineral Resources for the Cerro Lindo underground operation as of December 31, 2020, are summarized in Table 11-1. The Mineral Resource estimate was reported using all the material within resource shapes generated in Deswik software, satisfying minimum mining size, continuity criteria, and using an NSR cut-off value of US$33.56/t for SLS resource shapes and US$49.90/t for C&F resource shapes (Figure 11-38 and Figure 11-39). Cerro Lindo Mineral Resources are in compliance with the S-K 1300 resource definition requirement of "reasonable prospects for economic extraction".

Wireframe models for the underground excavations completed at Cerro Lindo as of May 31, 2020 were prepared to remove the portions of the mineralized zones that had been mined out before the resource and reserve stopes were generated. Mineral Resource and Mineral Reserves estimates were depleted for forecast production from June 1, 2020 to December 31, 2020. After year-end, SLR verified the estimate by reviewing actual mining results for this period of projected mining. Deviations from plan, amounting to approximately 11% less of the 2020 forecast production, were caused by lower production in Q2 2020 due to the COVID-19 pandemic. Production ramped up to pre-pandemic levels in June 2020. The SLR QP is of the opinion that this has had an insignificant impact on the year-end resource and reserve estimates. The sub-blocking functions of the Deswik software package were employed to maximize the accuracy of the mined-out contacts. For the underground excavations, solid models of the stopes, mine development, and drifts were constructed digitally from data collected using an Optech cavity monitoring system and a total station surveying units.

Nexa also generated solids for non-recoverable areas ("no possible" solids) due to poor ground conditions and inaccessibility, to remove these zones from the Mineral Resources and Mineral Reserves. SLR considers generating operational and safety constraints to identify, quantify, and remove the tonnes and grades from Mineral Resources and Mineral Reserves to be a good practice. SLR recommends documenting all the data support to define non-recoverable solids and document any changes to these solids.

The SLR QP reviewed the resource shapes and is of the opinion that they could be improved. Currently, resource shapes have on average 20% internal dilution, however, there are some areas with resource shapes with more than 30% of internal dilution due to the large dimension of the shape. Internal dilution is particularly high in the shapes at the edges of the orebodies. SLR recommends reviewing the resource shape construction methodology to optimize resource shapes in order to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the methodology used.

SLR also noticed that there is a significant amount of tonnes within blocks above the NSR cut-value that were not included in the Mineral Resources or Mineral Reserves, and are not part of the "no possible" solids. Nexa and SLR reviewed these areas and note that they are mostly skin remnants, however, SLR recommends re-evaluating these zones on an ongoing basis to potentially include part of these tonnes with continuous blocks that have the potential to be recoverable, to generate resource shapes and possibly reserve stopes.

SLR also observed a minor overlapping of the resource shapes with areas that were depleted but not surveyed ("no-survey" solids) from the previous model, however, a "no survey" solid was not generated for the updated model and no documentation was provided to support the changes. The overlapping volume is not material as it is less than 1%. Nevertheless, SLR recommends generating a "no survey" solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.

In the SLR QP's opinion, the assumptions, parameters, and methodology used for the Cerro Lindo underground Mineral Resource estimates are appropriate for the style of mineralization and mining methods.

The SLR QP is of the opinion that, with consideration of the recommendations summarized in Section 1 and Section 23, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

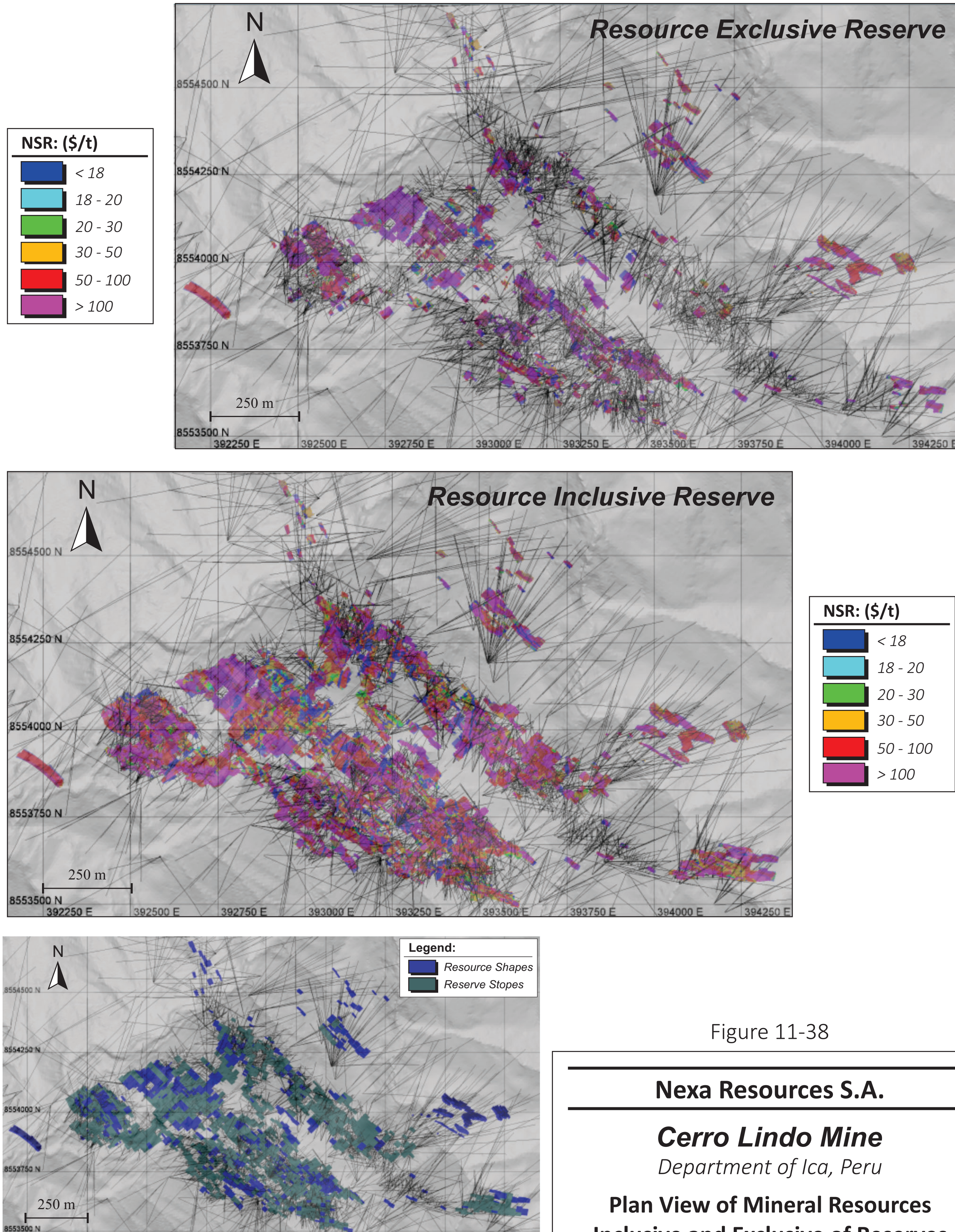


Figure 11-38

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Plan View of Mineral Resources Inclusive and Exclusive of Reserves

January 2021

Source: SLR, 2020.

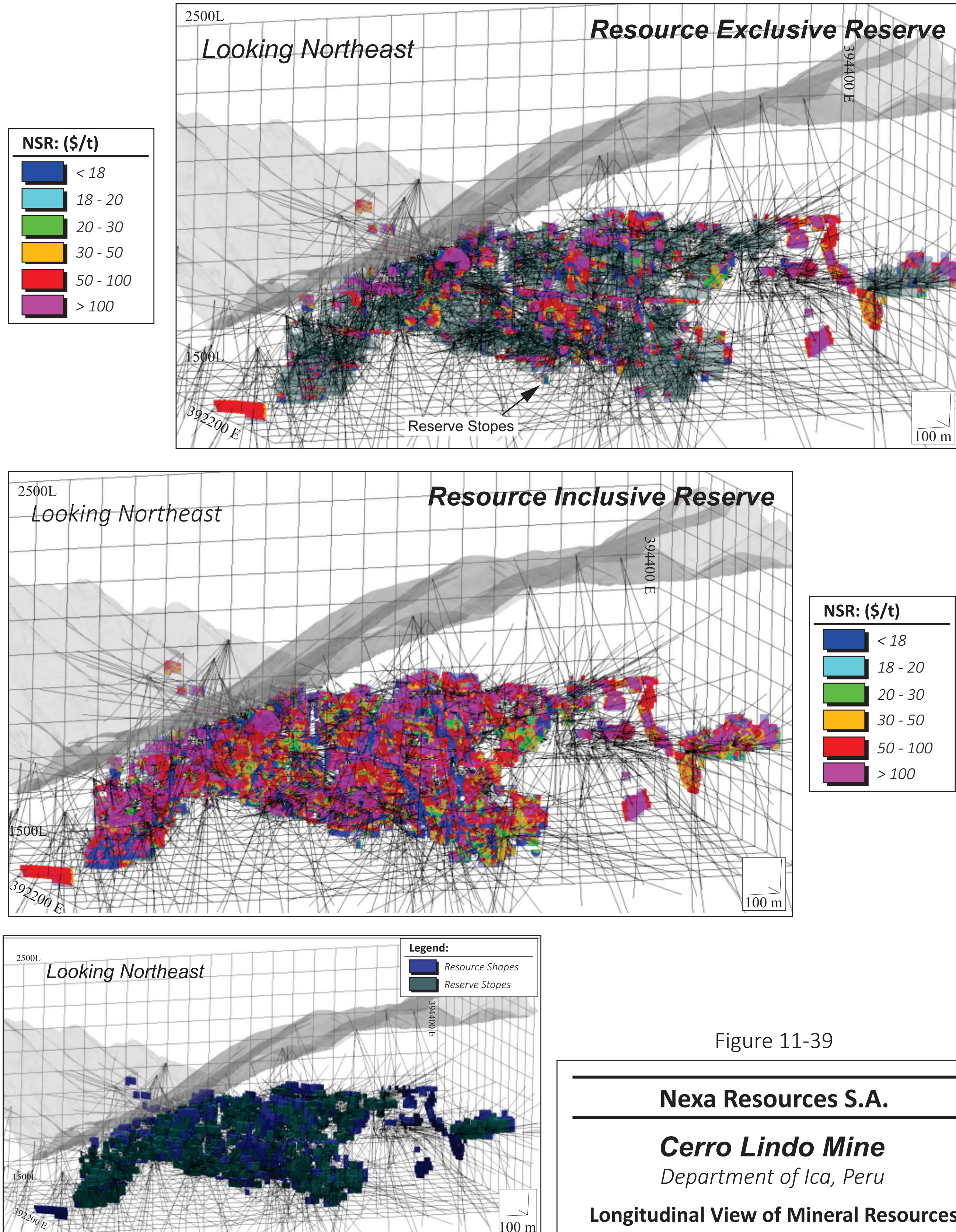


Figure 11-39

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Longitudinal View of Mineral Resources Inclusive and Exclusive of Reserves

January 2021

Source: SLR, 2020.

11.17 Comparison to Previous Mineral Resource Estimates

A comparison of the current Nexa Mineral Resource estimate, exclusive of Mineral Reserves, to the previous 2019 Mineral Resource estimate is presented in Table 11-24. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis. Overall, the resources have increased significantly. The differences are primarily due to the following changes:

- New resource shape reporting methodology that includes all the material in each resource shape.
- Updated "no possible" areas that are excluded from the Mineral Reserves and Mineral Resources, due to poor ground conditions and inaccessibility.
- Improvement of grade continuity in the model.
- Extension of the mineralization domains (SPP, SPB, SSM, and VM) based on infill and exploration diamond drilling; particularly, VM as part of the background rock.
- The addition of new mineralization domains (OB11VM, OB12VM, OB5BVM, OB14VM y PUCVM) as a result of exploration diamond drilling.
- New classification criteria for SSM and VM.
- Slightly higher NSR cut-off values.
- Depletion of material through mining.
- Slightly lower density values due to the addition of 1,181 density determinations from the 2019-2020 drilling campaign located mostly at the extremity of the mineralization domains.

Table 11-24: Cerro Lindo Comparison of 2020 Versus 2019 Mineral Resources
Nexa Resources S.A. – Cerro Lindo Mine

Category	Cerro Lindo Mineral Resources - December 31, 2020									Cerro Lindo Mineral Resources - December 31, 2019								
	Tonnage	Grade				Contained Metal				Tonnage	Grade				Contained Metal			
	(Mt)	(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)	(Mt)	(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Measured	3.53	2.00	0.20	0.67	19.61	70.38	7.10	23.55	2,223.73	2.48	2.58	0.33	0.69	27.87	63.97	8.18	17.15	2,225.24
Indicated	2.77	1.37	0.25	0.45	24.96	37.93	7.05	12.46	2,225.16	1.82	1.64	0.28	0.68	29.66	29.98	5.05	12.34	1,737.07
Total M+I	6.30	1.72	0.22	0.57	21.96	108.31	14.15	36.01	4,448.89	4.30	2.18	0.31	0.68	28.63	93.95	13.23	29.50	3,962.31
Inferred	6.98	1.28	0.35	0.33	31.23	89.07	24.52	23.33	7,012.39	4.12	2.43	0.53	0.53	43.12	100.28	21.72	21.72	5,709.80

12.0 MINERAL RESERVE ESTIMATES

12.1 Summary

Table 12-1 summarizes the Mineral Reserve estimate effective as of December 31, 2020.

Table 12-1: Summary of Mineral Reserves – December 31, 2020
Nexa Resources S.A. – Cerro Lindo Mine

Category	Tonnage (Mt)	Grade				Contained Metal			
		(% Zn)	(% Pb)	(% Cu)	(g/t Ag)	(000 t Zn)	(000 t Pb)	(000 t Cu)	(000 oz Ag)
Proven	23.55	1.71	0.23	0.60	20.86	402.0	53.0	142.1	15,793
Probable	18.22	1.08	0.18	0.62	21.58	197.5	32.1	113.7	12,641
Total	41.76	1.44	0.20	0.61	21.17	599.5	85.1	255.8	28,434

Notes:

1. The definitions for Mineral Reserves in S-K 1300 were followed for Mineral Reserves which are consistent with CIM (2014) definitions.
2. The Mineral Reserve estimate is reported on an 80.16% Nexa attributable ownership basis.
3. Mineral Reserves are estimated at NSR cut-off values of US$33.56/t processed for SLS and US$49.90/t processed for C&F stoping. A number of incremental stopes (down to US$26.16/t NSR value) are included in the estimate.
4. Mineral Reserves are estimated using average long term metal prices of Zn: US$2,494.90/t (US$1.13/lb); Pb: US$1,956.00/t (US$0.89/lb); Cu: US$6,457.90/t (US$2.93/lb); Ag: US$16.85/oz with all costs in US dollars.
5. Metallurgical recoveries are accounted for in the NSR calculations based on historical processing data and are variable as a function of head grade. Recoveries at LOM average head grades are 86.3% for Cu, 88.1% for Zn, 68.6% for Pb, and 68.8% for Ag.
6. A minimum mining width of 5.0 m and 4.0 m was used for SLS stopes and C&F stopes respectively.
7. Bulk density varies depending on mineralization domain.
8. Numbers may not add due to rounding.

The Mineral Reserves were estimated by Nexa and reviewed by SLR. Measured and Indicated Mineral Resources were used as inputs for conversion into Proven and Probable Mineral Reserves respectively. Mineral Reserves also include unclassified and Inferred blocks in the form of internal dilution and planned dilution.

Reserve NSR factors were first added to the resource model. Deswik Stope Optimiser (DSO) was used to generate mining shapes at an NSR cut-off value of US$25/t. A low NSR cut-off value was used to generate the shapes to enable the capture of as much of the mineralization as possible. No planned dilution parameters were considered at this stage. DSO was run separately for each orebody to account for its respective strike and dip direction.

The generated shapes were then cut against a grid that represents the general stope size and mining pattern. The cut stopes were then depleted against as-built wireframes. The resulting shapes were interrogated against the block model and the average grades and NSR value were calculated. The shapes were then reviewed and excluded from Mineral Reserve estimates where appropriate.

The retained stopes are used to guide the development designs. The development and stope designs are then added to Deswik Scheduler to generate a production schedule. The dilution and extraction factors are applied in the scheduler. Mineral Reserves are reported as diluted and extracted stope and ore development tonnes and grades. These were fully scheduled in an appropriate LOM plan and applied to a discounted cash flow model. The Mineral Reserve estimate has demonstrated viable economic extraction.

Mineral Reserves were estimated by flagging mined-out stope surveys through May 31, 2020 as zero values in the block model. Planned mining to December 31, 2020 was identified and excluded from Mineral Reserve estimates and production schedule. After year-end, SLR verified the estimate by reviewing actual mining results for this period of projected mining. Deviations from plan, amounting to approximately 1% of total Mineral Reserve tonnage, were caused by lower production in Q2 2020 due to the COVID-19 pandemic. Production ramped up to pre-pandemic levels in June 2020. SLR considers that these deviations are not significant to the estimate of Mineral Reserves.

The SLR QP is not aware of any risk factors associated with or changes to any aspect of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.2 Dilution

The dilution factors utilized for the mine design at Cerro Lindo are listed in Table 12-2.

Table 12-2: Mine Dilution Factors
Nexa Resources S.A. – Cerro Lindo Mine

Description	Method	Long Term	Former	Source	Short Term
Operational Dilution	Primary [1]	1.0%	5.7%	Historical	5.90%
	Secondary	6.5%	8.10%	Historical	6.10%
	Tertiary	6.5%	8.10%	Historical	3.80%
	C&F	5.0%	5.0%	Historical	
	Pillar- C&F	11.3%	11.3%	Historical	
	Open Stoping	15%	15%	Historical	
Planned Dilution		12%	12%	Historical	15% to 20%

The primary stopes have typically lower dilution being within the central portion of the mineralized zone and bounded by the secondary stopes. The current or long term factors are based on new layouts which have proven to be successful. The lower dilution is applied to high grade stopes. Secondary stopes have seen an improvement in the level of dilution as well, and the overall dilution figures are supported by the reconciled production numbers reviewed by SLR. The short term dilution factors are typically higher, as indicated in Table 12-2. While the current dilution numbers are supported by the tonnage and grade reconciliation, an increased level of mining on the fringes of the deposit will, in the SLR QP's opinion, require some re-design or revised stoping method to maintain acceptable dilution levels. The dilution is assumed to be at zero grade.

SLR has reviewed the impacts of changes to the dilution estimate. While increasing dilution could render some reserves below cut-off grade the proportion is relatively low and overall the Mineral Reserves are relatively insensitive to dilution fluctuations.

12.3 Extraction

The extraction (recovery) factors for the stopes are shown in Table 12-3. The new layouts have increased the extraction by one percent in the primary stopes and by five percent in the secondary and tertiary stopes. The increases are justified based on the reconciliation of the planned versus actual stope tonnages.

Table 12-3: Mine Stope Extraction Factors
Nexa Resources S.A. – Cerro Lindo Mine

Method	Long Term		Source	Short Term
	Current	Former		
Primary	85%	86%	Historical	84.40%
Secondary	81%	76%	Historical	84.70%
Tertiary	81%	76%	Historical	76.50%
C&F	90%	90%	Historical	
Pillar- C&F	88%	88%	Historical	

While the extraction values appear to be low, they include, in addition to accounting for underbreak and mucking losses (inaccessible due to rough corners and muck hung-up), short term design changes. Stope shapes used in the Mineral Reserve estimation are completed on a regular grid, so that the extraction factor also accounts for skin pillars that are left in place to maintain the integrity of the adjacent backfill. Mineral Reserve tonnage and metal content are affected in direct proportion to variations in extraction.

12.4 Net Smelter Return and Cut-off Value

An NSR cut-off value is determined using the Mineral Reserve metal prices, metal recoveries, concentrate transport, treatment and refining costs, as well as mine operating costs. The metal prices used for the Mineral Reserves are based on consensus, long term forecasts from banks, financial and other sources.

The cut-off value used for the reserves is based on an NSR value (US$/t processed), which can be directly compared to the mine operating costs. The NSR formula is:

$$\textbf{NSR} = \frac{\textbf{GROSS REVENUE – OFFSITE CHARGES}}{\text{Tonnes Processed}}$$

Costs and other parameters used to calculate the NSR cut-off value are shown in Table 12-4. The breakeven NSR cut-off value was estimated to be $33.56/t processed. An incremental cut-off value of $26.16/t is used for certain stopes, for example in the middle of the extraction sequence, where the cost of the development to access the ore has been paid for by adjacent reserves mined. For the sill pillar recovery where a C&F conventional method is used, a higher NSR cut-off value of $49.90/t is used.

Table 12-4: NSR Data
Nexa Resources S.A. – Cerro Lindo Mine

Item	Units	SLS	C&F
Net Metallurgical Recovery *			
Zn	%	88.13	88.13
Pb	%	68.58	68.58
Cu	%	86.30	86.30
Ag	%	68.78	68.78
Cu Concentrate Payable %			
Cu	%	96.7	96.7
Ag	%	90.0	90.0
Pb Concentrate Payable %			
Pb	%	95.0	95.0
Ag	%	95.0	95.0
Zn Concentrate Payable %			
Zn	%	95.8	95.8
Ag	%	70.0	70.0
Metal Prices			
Zn	US$/lb	1.13	1.13
Pb	US$/lb	0.89	0.89
Cu	US$/lb	2.93	2.93
Ag	US$/oz	16.85	16.85
Charges			
Logistics and TC			
Zn Concentrate	US$/t conc	321.0	321.0
Pb Concentrate	US$/t conc	251.0	251.0
Cu Concentrate	US$/t conc	245.0	245.0
Integrated Zn			
Conversion Cost	US$/t Zn prod	447.0	447.0
Premium	US$/t Zn Prod	217.0	217.0
Refining Cost			
Ag in Pb conc	US$/oz	1.00	1.01
Ag in Cu conc	US$/oz	0.50	0.51
Operating Costs			
Mining	US$/t proc.	21.00	37.34
Processing + Maintenance	US$/t proc.	10.42	10.42
G&A	US$/t proc.	2.14	2.14
Total	**US$/t proc.**	**33.56**	**49.90**

* Based on LOM average metal grades

Nexa reviewed supply and demand projections for zinc, lead, and copper, as well as consensus long term (ten year) metal price forecasts. SLR verified that Nexa's selected metal prices for estimating Mineral Reserves are in line with independent forecasts from banks and other lenders.

The average NSR factors are calculated using the LOM revenue contribution from each metal net of off-site costs and factors, divided by the reserve grade for that metal, and are indicative of the relative contribution of each metal unit to the economics of the Mine. For most metals, a variable recovery (as a function of head grade) was used, and therefore the average NSR factors should not be applied to head grades without considering the head grade versus recovery relationship. Therefore, the NSR factors are variable by head grade, with NSR factors summarized in Table 12-5. The grade-recovery relationship for each metal based on recent operating performance are presented in Figure 12-1, Figure 12-2, and Figure 12-3.

Table 12-5: Average NSR Factors
Nexa Resources S.A. – Cerro Lindo Mine

Metal	Unit	Value
Zn	US$/%	17.49
Pb	US$/%	11.86
Cu	US$/%	47.50
Ag	US$/oz	10.89

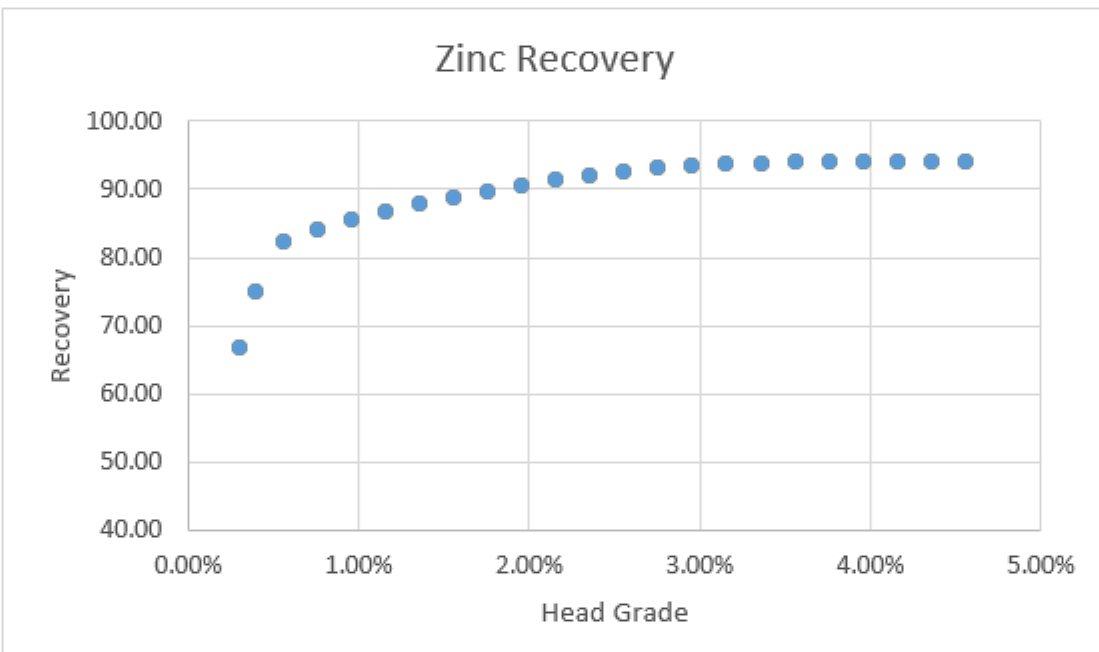


Figure 12-1: Zinc Recovery

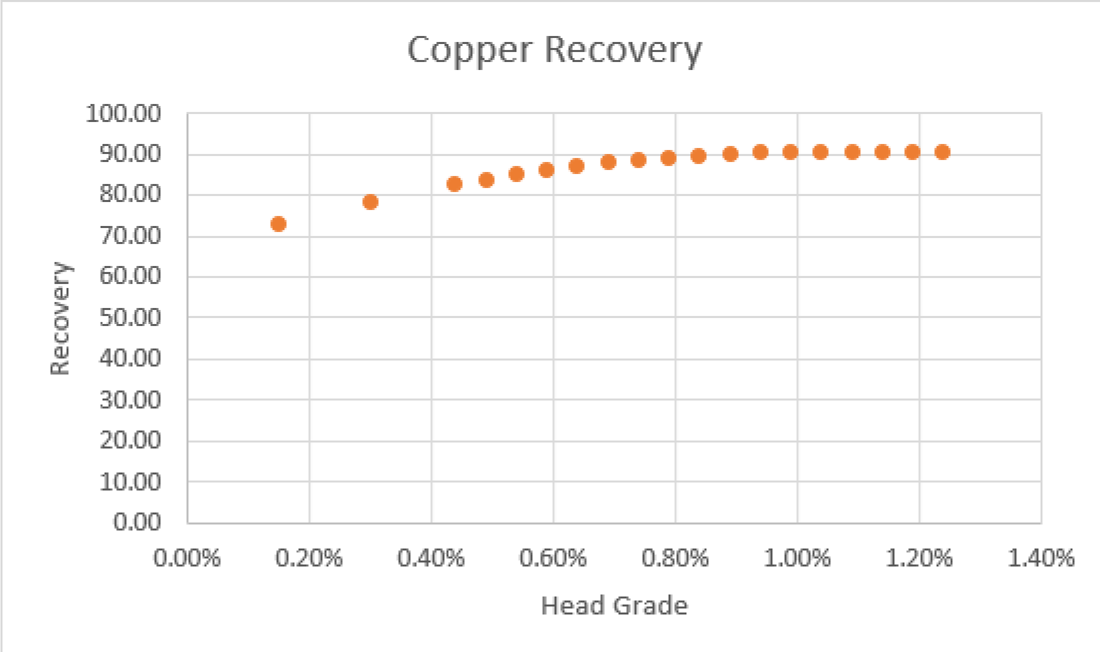


Figure 12-2: Lead Recovery

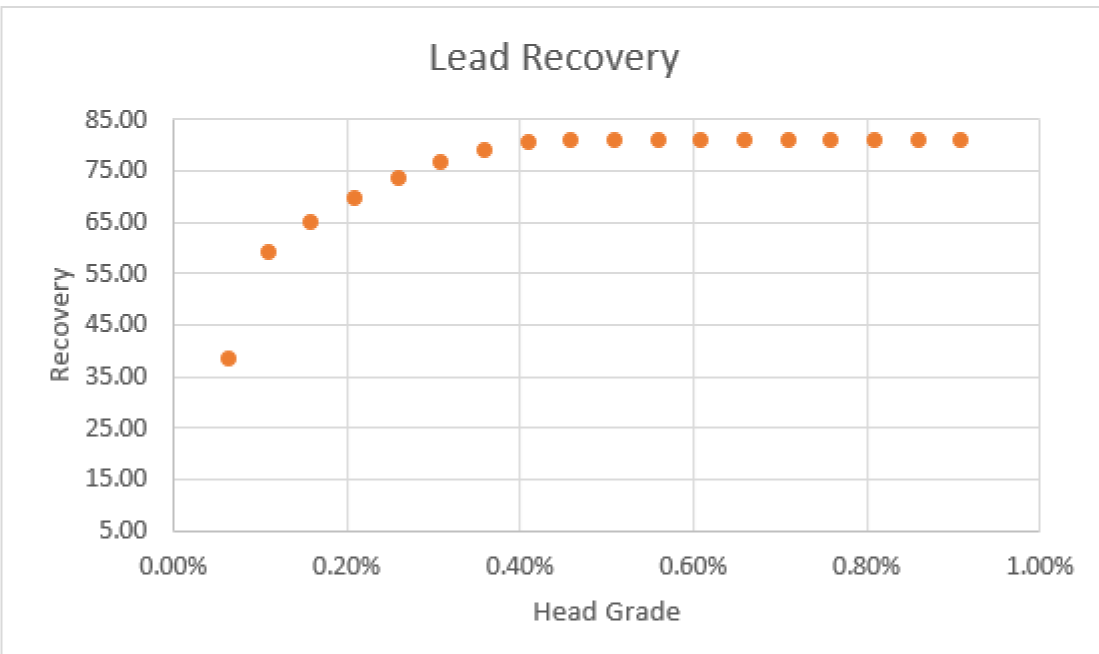


Figure 12-3: Copper Recovery

13.0 MINING METHODS

13.1 Background

Cerro Lindo has been operating since 2007, with production rates of approximately 7 Mtpa in the recent years. The mine is mechanized, using rubber-tired equipment for all development and production operations. Mining is carried out in ten separate orebodies, using bulk longhole stoping methods, with up to 30 m high stopes, in a primary, secondary, and tertiary sequence. Stopes are backfilled with a low-cement content paste fill made from flotation tailings in the surface paste plant and distributed to the underground via two vacuum filter trains.

The highest operating level is the 1970 m level, the lowest operating level is the 1550 m level, and the ultimate bottom level is planned to be the 1490 m level.

A longitudinal section through the mine is presented as Figure 13-1.

The mine is accessed through fifteen portals that service adits, drifts, and declines. The main ore flow is directed via the grizzly installations on the 1830 m level that feed the jaw crusher located on the 1820 m level. From the crusher discharge, the ore flows up to the surface stockpile areas via an inclined conveyor and out at the 1940 m level from where it continues to flow to the plant via inclined surface conveyors.

A simplified plan view of the 1820 m level is shown in Figure 13-2. It shows existing and planned development in ore, mined out and planned stoping blocks, portals, and the conveyor incline.

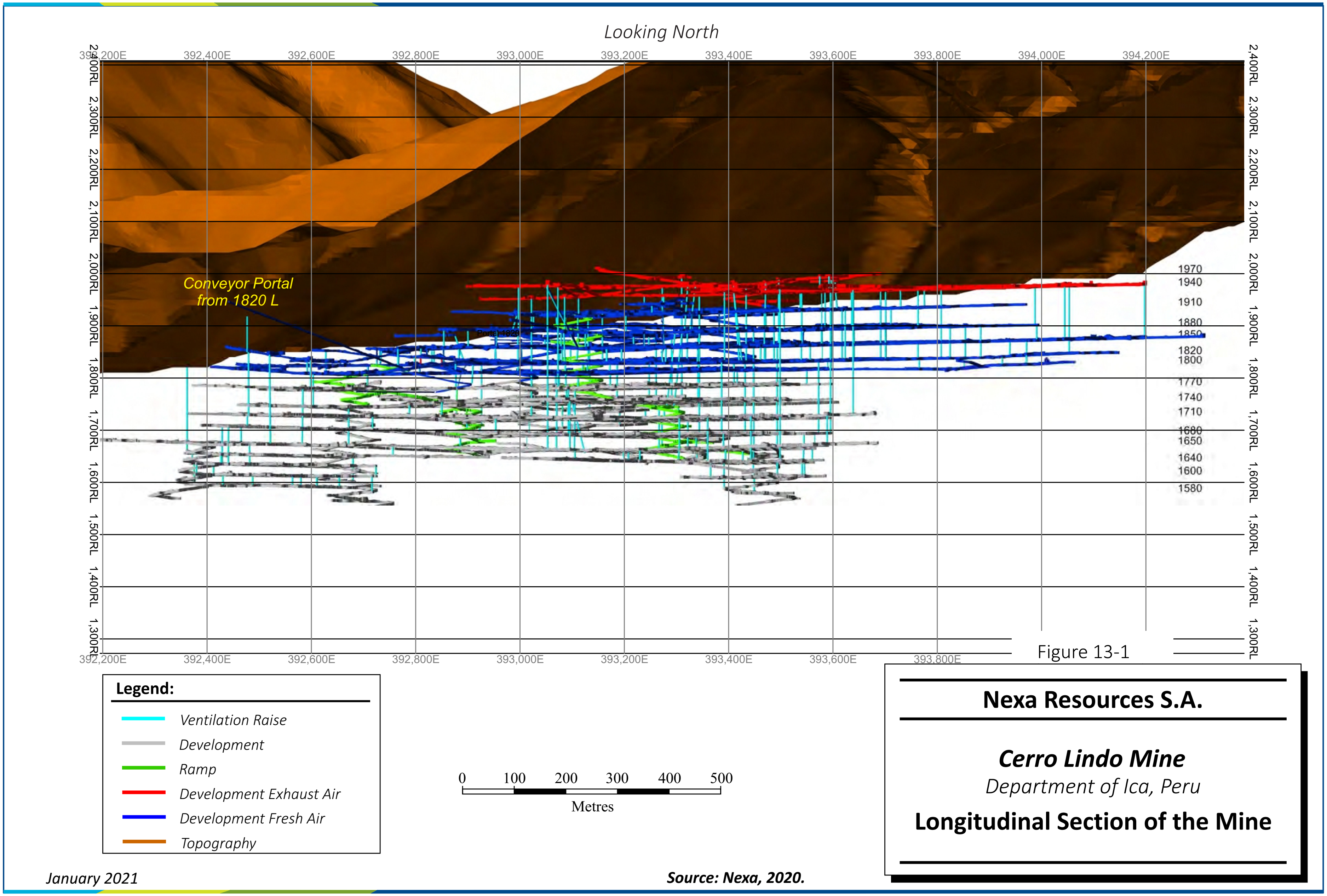


Figure 13-1

January 2021

Source: Nexa, 2020.

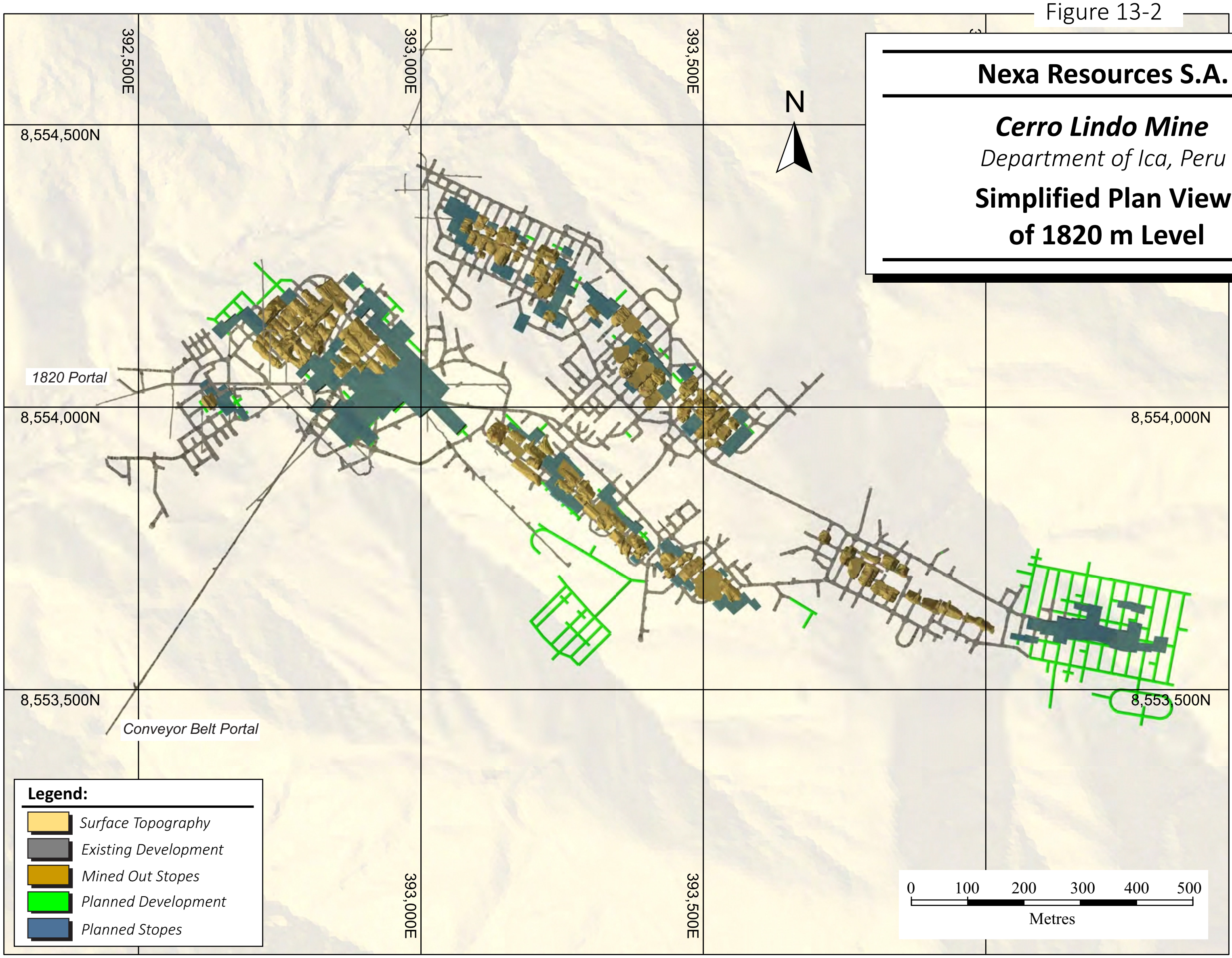
Figure 13-2

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Simplified Plan View of 1820 m Level



January 2021

Source: Nexa, 2020.

13.2 Mine Design

The mine design includes access via 5.0 m by 4.5 m ramps driven at various gradients to access the stope areas and other infrastructure (sumps, electrical substations, refuge stations, storage areas, etc.). A fleet of 35 t and 52 t haul trucks operated by contractors move the muck to the grizzlies located on the 1830 m level. The ore is crushed at this level and conveyed to the surface stockpiles. The underground mine design is presented in Figure 13-3.

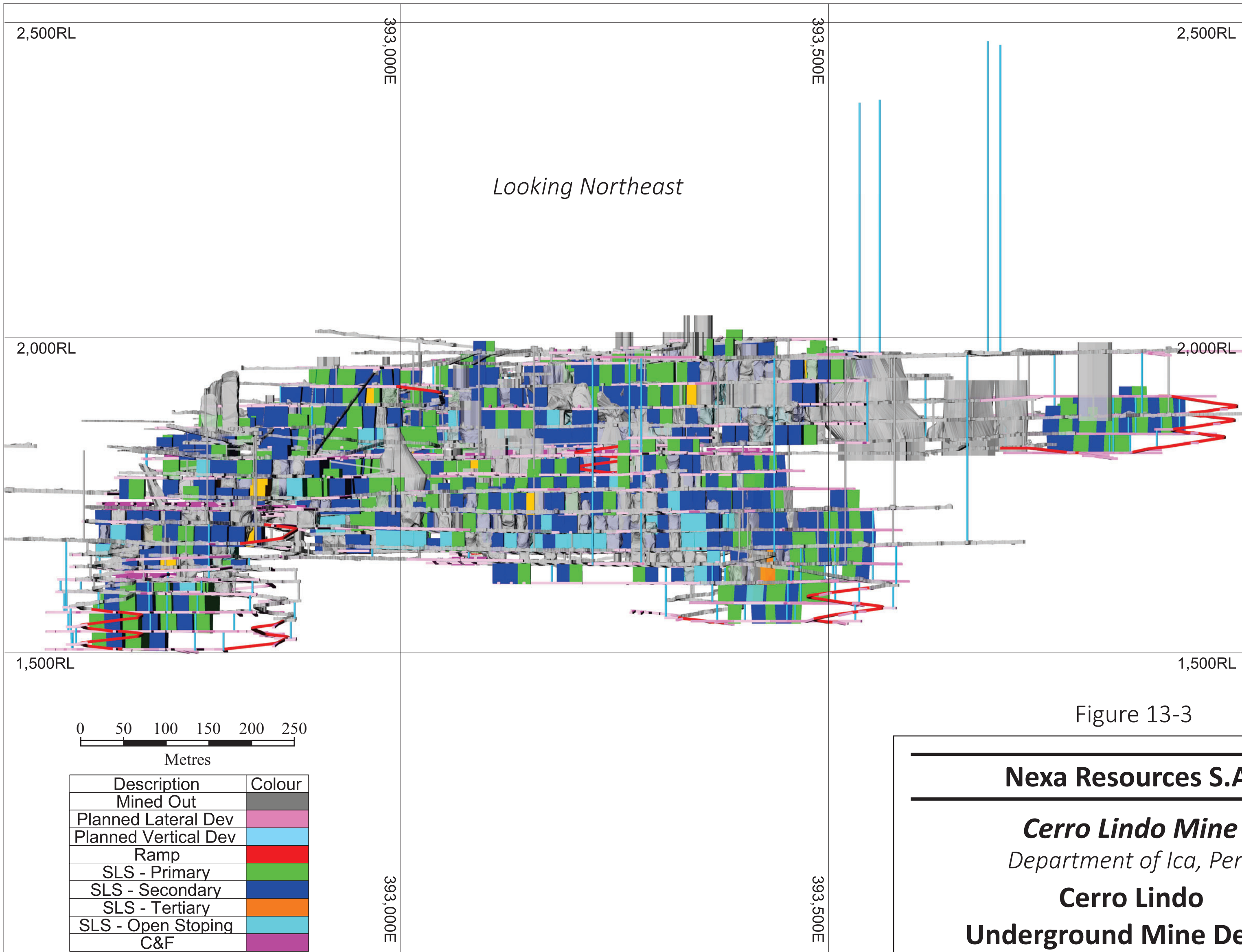


Figure 13-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Cerro Lindo
Underground Mine Design

January 2021

Source: SLR, 2020.

13.3 Mine Method

The stoping methods employed at Cerro Lindo include the bulk Sublevel Longhole Stoping (SLS) method, which accounts for the majority of the production, and the Cut and Fill (C&F) method, utilized where necessary such as for the mining of sill pillars which require a more conventional method for economic extraction. The SLS stope dimensions are typically 20 m to 30 m in height by 25 m long and vary in width. Dimensions can vary given the orebody geometry or local geotechnical conditions which necessitate extra care in keeping stopes of a size to permit effective ground control and stoping productivities.

SLR considers the mining methods and stope dimensions appropriate for the style of mineralization at Cerro Lindo. SLS has been extensively used at the mine and the current mine designs follow a similar approach. SLR also notes that there is on-going investigations into using C&F mining methods to extract pillars where possible.

The SLS method can vary with production drilling being completed in a fan pattern using downward drilling or uppers drilling as illustrated in Figure 13-4. The production drill holes vary in size from 102 mm in diameter for the downward drilling to 76 mm in diameter for uppers drilling to optimize stoping results in terms of size of fragmentation and overall stoping productivity. The stope design includes detailed support plans, production drill plans with optimized burden and spacing, and detailed loading and blasting plans to provide for the best stoping results. Where effective, for example, electronic delays are used in the blast timing which provides for very precise timing leading to less swell space requirement and improved fragmentation. This enables a reduction in secondary breaking resulting in improved operating costs.

The stope designs are carried out and are detailed in a document titled "*Autorización de Trabajo*" (Work Authorization). This document outlines all aspects of the stope designs including access ways, refuge areas, loading areas to be used, and geomechanical risks (high, medium, or low), drilling and blasting layouts, specific geology of the area, ground support design, based on geotechnical assessment (using finite element models), ventilation requirements (air quantities), backfill requirements (cement content, backfill lines, backfill rates), and a stope risk analysis table outlining the risks identified and the mitigation measures to be taken to address and eliminate these risks. In the SLR QP's opinion, these documents form the basis of a robust approach to the mine operations and meet or exceed industry best practices.

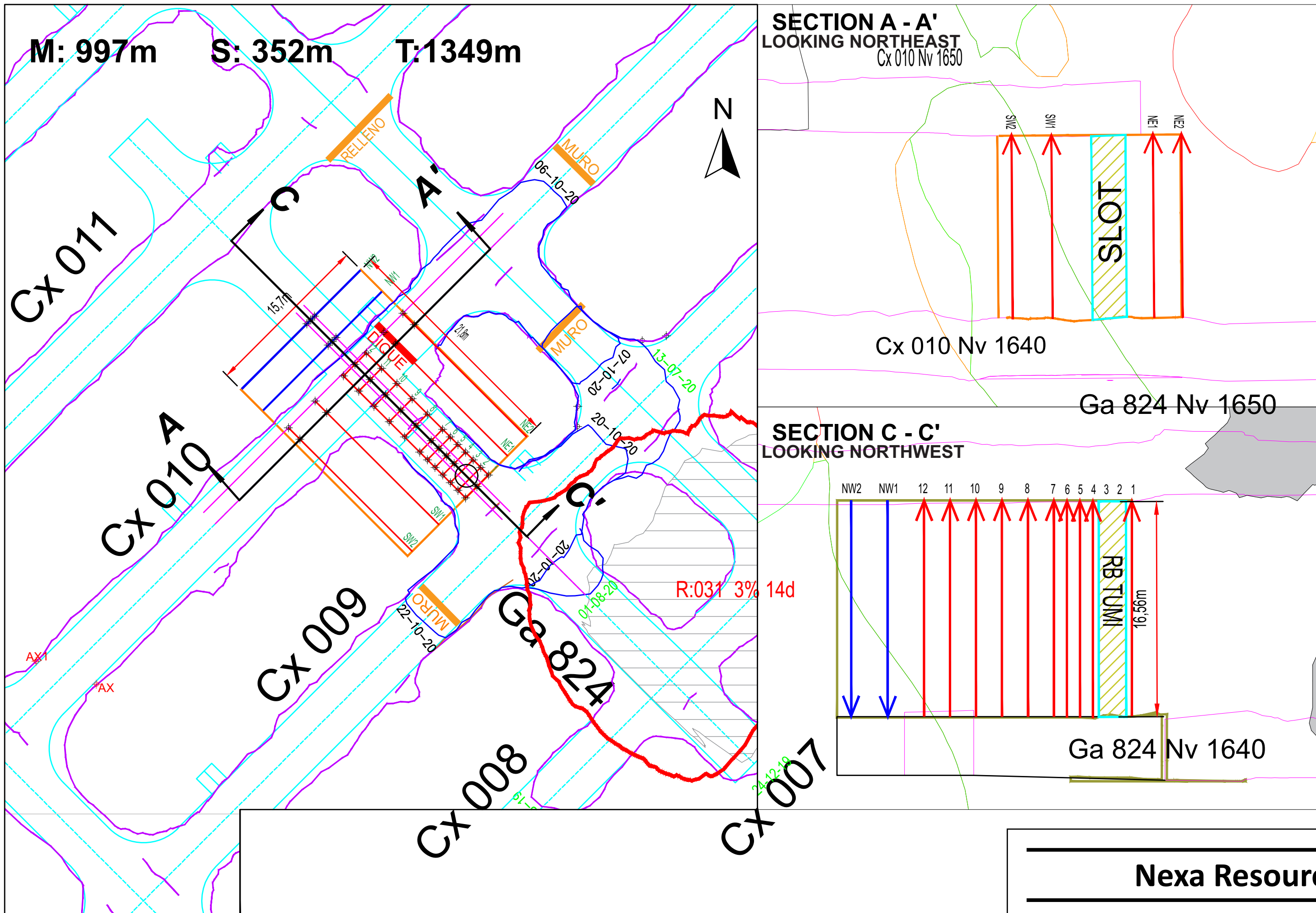


Figure 13-4

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Production Drilling Pattern

January 2021

Source: Nexa, 2020.

13.4 Geotechnical Considerations

Independent geotechnical assessments were commissioned for the Cerro Lindo deposit, including by AMEC in 2013 and SRK in 2016 and 2018.

SRK completed a geomechanical 3D modelling exercise and evaluation of the overall stability conditions within the mine. These assessments provide recommended design standards for development and production stope openings, backfill strength requirements, maximum stope dimensions, and guidance for stope sequencing.

13.4.1 Geotechnical Overview

The main lithological units have been described and modelled with acceptable detail to support geotechnical characterization and hazard evaluation related to mining activities. As related to the mining method (SLS) employed at the time of the assessment, rock mass conditions are well understood and appropriate for the current mining depths, the rock reinforcement types, and geotechnical input into the mine production and development.

The geotechnical mapping and data analysis protocols include industry-standard practices such as detailed descriptions of the various structural domains and their characteristics. This work is based on field mapping, geological modelling, and limited geotechnical core drilling.

Geotechnical characterization is a continuous proactive process as new mining areas are accessed.

SRK completed a 3D numerical model in 2017 using the FLAC3D™ 5.01 software (Itasca Consulting Group), with the main objective of evaluating the global stability of the mine and the actual and the long term conditions. This model permits evaluation of the rock mass response in terms of stope and mine workings stability. Nexa carried out in-situ stress testing in 2013 and 2014 to aid in the design of the mining sequence.

The main objectives of the numerical modelling include the following:

- Evaluate the global stability of the mine, the actual conditions, and a long term mine plan.
- Determine the effects of mine induced stresses on the mine infrastructure in future.
- Evaluate the stability of the stopes and assess potential problem areas in the mine.
- Evaluate the areas of potential subsidence on surface and potential impact on surface infrastructure.

To obtain design data, geotechnical work included logging of drill holes (35) to assess RQD values, establishing geomechanical stations at underground locations (37 stations) in various lithological units, and determining the Rock Mass Rating (RMR), the Modified Rock Quality Index (Q'), and physical properties of the lithological units including, density, porosity and absorption. Measurements of the number of joints, the joint roughness number, and joint alternation number are used to determine the stability number N'. The stability number can be plotted on a stability chart against the stope hydraulic radius to assess if the surface considered is in a stable, transition, or caving zone of the rock mass. This in turn enables assessing the required level of support to provide the required stability.

In 2019 Nexa carried out laboratory testing to determine the mechanical properties such as uniaxial compressive strength, triaxial compressive strength, indirect tensile strength, elastic moduli of intact rock, and pulse velocities and ultrasonic elastic constants. All testing was completed using norms such as the ASTM (American Society of Testing and Materials), IRMS (International Rock Mechanics Society), and

AAMR (American Association of Rock Mechanics) in accordance with best practices. The most recent laboratory testing was carried out in 2019 by Geomecánica Latina S.A., with offices in Peru, Bolivia, and Chile.

The various factors for the lithologies are shown inTable 13-1.

Table 13-1: Design Factors for Lithologies
Nexa Resources S.A. – Cerro Lindo Mine

Type	Acronym	RQD	Jn	Jr	Ja	Q'(mean)	RMR_{89}
Primary Pyritic Sulphides	SPP	66	7.84	1.62	2.11	6.46	60
Primary Baritic Sulphides	SPB	80	5.41	1.84	1.92	14.17	66
Semi Massive Sulphides	SSM	80	6.07	1.82	2.72	8.82	67
Andesitic Volcanics	DIQUE	71	6.92	1.64	3.23	5.21	67
Felsic Volcanics	VOLCANIC	75	6.72	1.58	3.23	5.46	67
Volcanics waste	ENCLAVE	74	6.9	1.59	3.28	5.20	66
Leached/Oxidized Sulphides	SLB/SOB/SOP	49	10.82	1.74	3.98	1.98	46
Faults	Faults	27	14.05	1.24	4.76	0.50	37

The stability and rock quality factors for the Cerro Lindo lithologies are shown in Figure 13-5. Note that the stability number N' is based on the standard stope dimensions of 30 m high by 19 m long by 13.5 m wide.

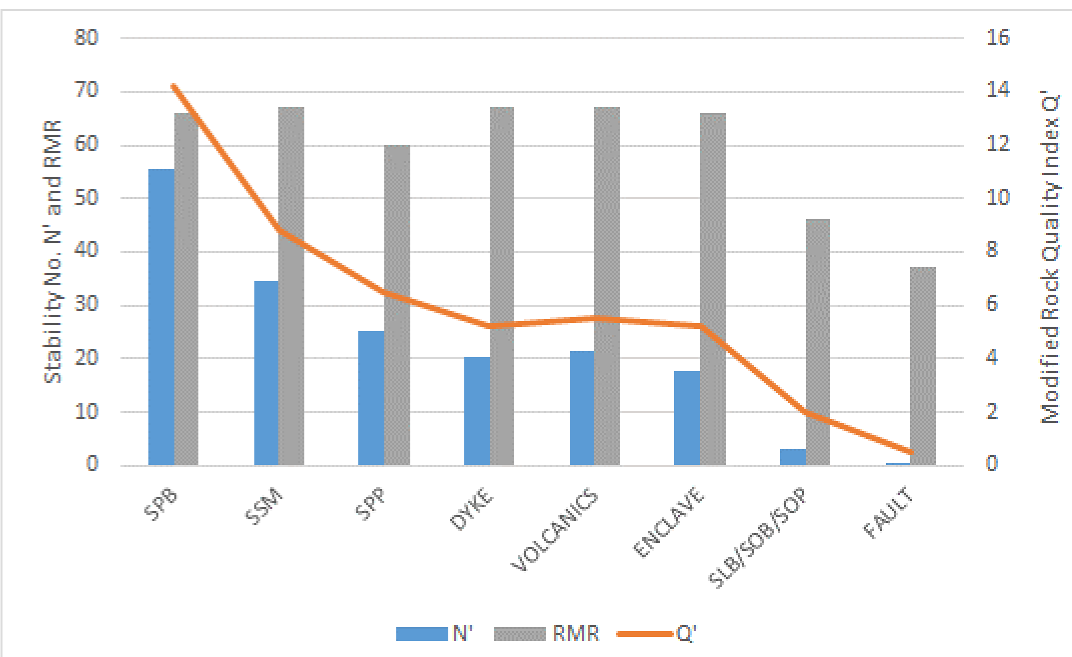


Figure 13-5: Stability and Rock Quality Indices

13.4.2 Geomechanics, Ground Support

The geomechanical classification and ground support standards were developed by Nexa staff and the geomechanical classifications are shown inTable 13-2.

Table 13-2: Geomechanical Classification
Nexa Resources S.A. – Cerro Lindo Mine

Classification	RMR	TYPE
Good	61-80	II
Regular A	51-60	III A
Regular B	41-50	III B
Poor A	31-40	IV A
Poor B	21-30	IV B
Very Poor	<20	V

The ground support standards developed by Nexa staff are shown in Figure 13-6 which cover the various conditions encountered throughout the underground mine. The bolting pattern is shown for various conditions and the type and length of bolt or rebar to be used. Shotcrete is also used as required with a typical sprayed thickness of five centimetres. Where necessary, cable bolts, typically six to seven metres in length, are also used. In the long life areas, such as the main crusher room, heavier support is provided with input from specialized people.

Figure 13-7 shows an example of a finite element modelling longitudinal section used to assess the safety factors for the back and walls of the T320B-1880 stope. From this analysis and use of plans and sections of the structural geology, a stability chart can be developed providing an assessment of the equivalent length of slough (ELOS) from the stope walls for dilution estimation, the ground support methods (bolts, mesh, cable bolts, shotcrete) required to provide the support based on the RMR values, and the backfill strength required (cement content) to provide the design stability.

For this case, the stability chart has indicated that the stope, with dimensions of 18 m high by 18 m long by 12 m wide, is located in the transition zone, between the stability zones that indicate ground support is required and not required. The anticipated ELOS is between one to two metres. The paste fill adjacent to the stope has a strength of 0.46 MPa (cement content of 3%), while for a safety factor of 1.3 on the stability modelling, the required strength is 0.35 MPa. For the stope back (roof), the model predicts a safety factor of 0.95 due to rock class IVA at the contact zone of volcanic rock. Cable bolting is recommended at the intersection of the drift and crosscut. The ten metre sill pillar should be monitored by scanning to verify the stability of the pillar.

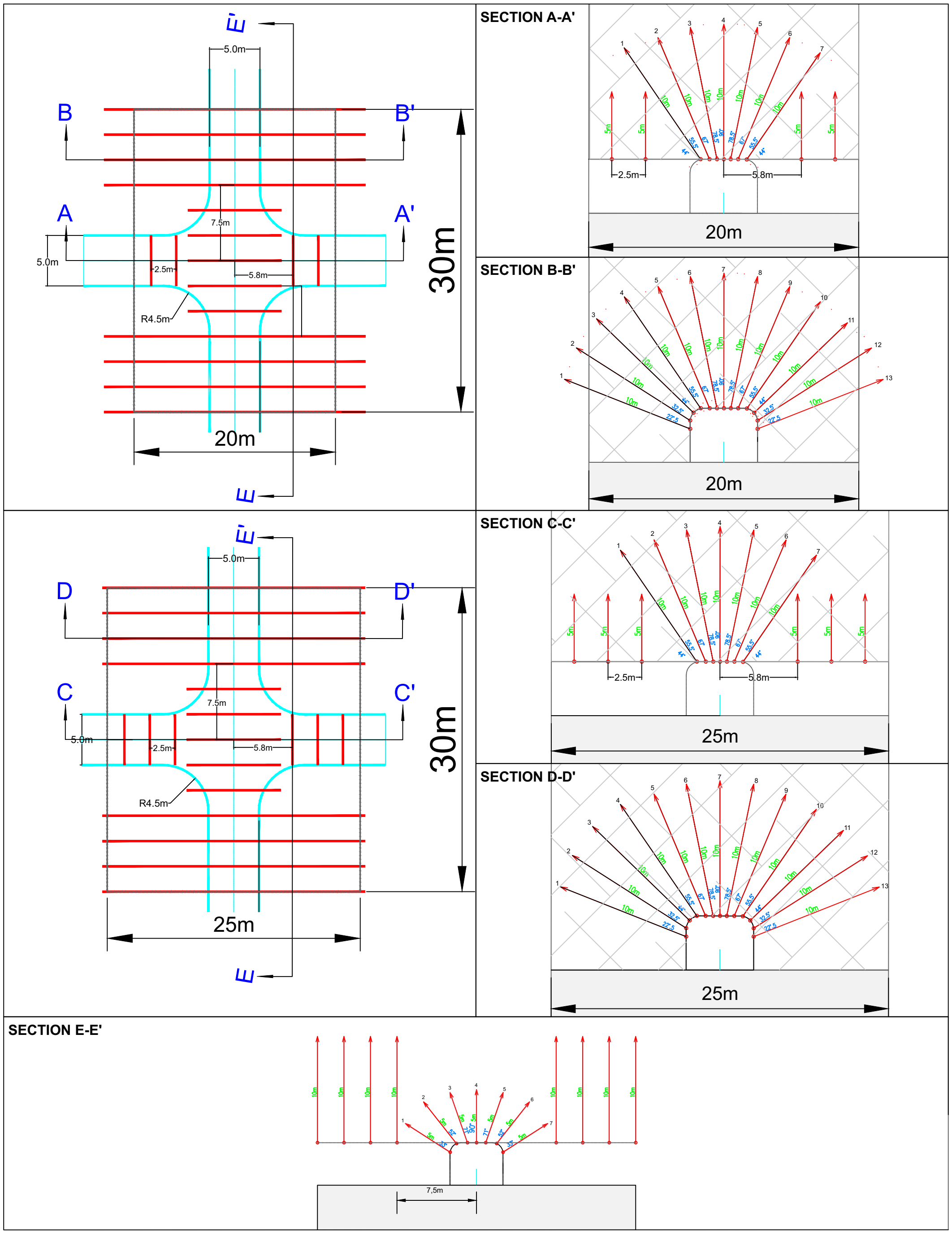


Figure 13-6

Nexa Resources S.A.

Cerro Lindo Mine

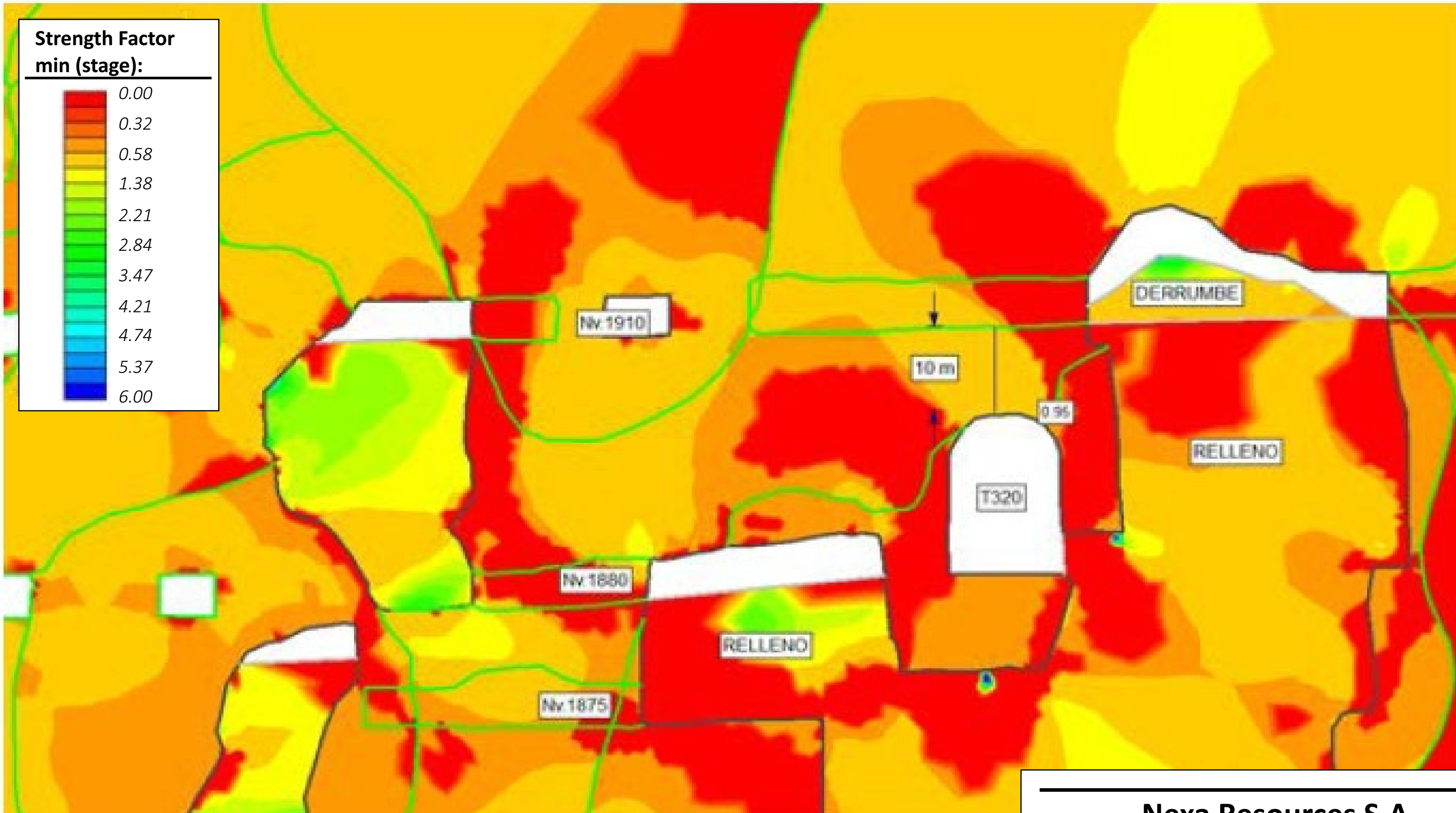
Department of Ica, Peru

Ground Support Standards

January 2021

Source: Nexa, 2020.

Longitudinal Section Looking Northeast



Not to Scale

Figure 13-7

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Finite Element Model for T320-1880 Stope Safety Factor Assessment

January 2021

Source: Nexa, 2020.

13.5 Hydrogeological Considerations

The Cerro Lindo is a relatively dry mine and does not produce significant quantities of water. Exploration drilling to date has not intersected any water bearing structures that could introduce major inflows in the mine workings. The only pumping requirement is to remove drilling water from the active workings. The water is collected, treated, and recycled for use in the operation.

13.6 Life of Mine Plan

The life of mine (LOM) plan is shown in Table 13-3. Mine production from 2021 through 2029 will include approximately 52.1 Mt with average grades of 21 g/t Ag, 0.61% Cu, 0.20% Pb, and 1.44% Zn over the LOM period. This will result in the production of recovered metal including 35.5 Moz of silver, 319.1 kt of copper, 106.1 kt of lead, and 747.9 kt of zinc.

The LOM production profile is shown in Figure 13-8. The figure indicates a significant decrease in production starting in 2025 due to increased mining on the fringes of the deposit requiring a higher level of preparation and consequently impacting the mine throughput capability. More importantly, the current LOM plan includes mining stopes in proximity to the underground main crushing station which will effectively negate use of the crusher and, as a result, require haulage of ore to surface and additional truck haulage fleet.

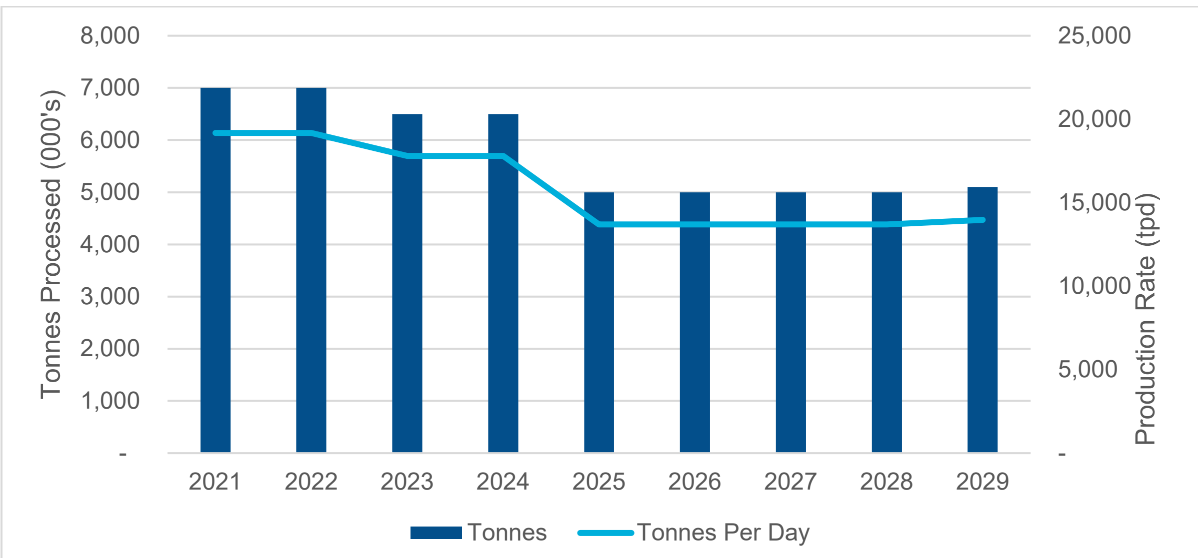


Figure 13-8: LOM Production Profile

Table 13-3: Life of Mine Plan
Nexa Resources S.A. – Cerro Lindo Mine

Description	Units	Total	2021	2022	2023	2024	2025	2026	2027	2028	2029
Production	t (000)	52,101	7,000	7,000	6,500	6,500	5,000	5,000	5,000	5,000	5,101
Production Rate	tpd	17,843	19,178	19,178	17,808	17,808	13,699	13,699	13,699	13,699	13,976
Ag Grade	g/t	21.15	18.97	22.08	24.26	23.02	27.99	18.97	17.42	19.60	17.73
Cu Grade	%	0.61%	0.44%	0.48%	0.52%	0.59%	0.75%	0.68%	0.73%	0.73%	0.75%
Pb Grade	%	0.20%	0.23%	0.25%	0.26%	0.22%	0.28%	0.18%	0.13%	0.13%	0.10%
Zn Grade	%	1.44%	1.77%	1.56%	1.50%	1.38%	1.70%	1.51%	1.34%	1.12%	0.87%
Contained Ag	oz (000)	35,472	4,273	4,974	5,042	4,807	4,487	3,025	2,804	3,134	2,926
Contained Cu	tonnes	319,137	31,023	33,609	33,643	38,349	37,479	34,000	36,261	36,661	38,113
Contained Pb	tonnes	106,140	15,924	17,704	17,218	14,514	14,026	8,898	6,322	6,455	5,079
Contained Zn	tonnes	747,899	123,900	109,030	97,500	89,600	85,000	75,461	67,224	55,967	44,217

13.7 Infrastructure

This section covers the underground infrastructure, with the main surface infrastructure described in Section 15 Project Infrastructure.

13.7.1 Mine Access

Cerro Lindo is accessed by means of multiple ramps due to the high number of deposits that make up the mine operations. The ramps are driven at various gradients to attain the required operating level throughout the various deposits. Ramp dimensions are typically five metres by five metres, which corresponds to the dimensions necessary to meet regulations for equipment clearances, ventilation requirements, and adequate space for installation of services carried via the ramp accesses. There are three main ramps that provide access to the lower levels of the mine and these are being deepened to continue accessing lower levels. There are also local ramps that provide access to the operating stopes and stopes being developed and prepared for production.

13.7.2 Ventilation

The mine ventilation circuit at Cerro Lindo is extensive, consisting of portals, main fans, and interconnecting ramps and raises.

The ventilation circuits are typically separated by orebody. A total of 2.37 million cfm enters the mine through 12 portals and raises and exhaust though six raises. The ventilation system is powered by 19 main fans which are installed on the exhaust circuits and several booster fans. The main fans draw exhaust air from the various mining areas and direct it to dedicated exhaust levels or raises.

Figure 13-9 illustrates the ventilation circuit for OB1.

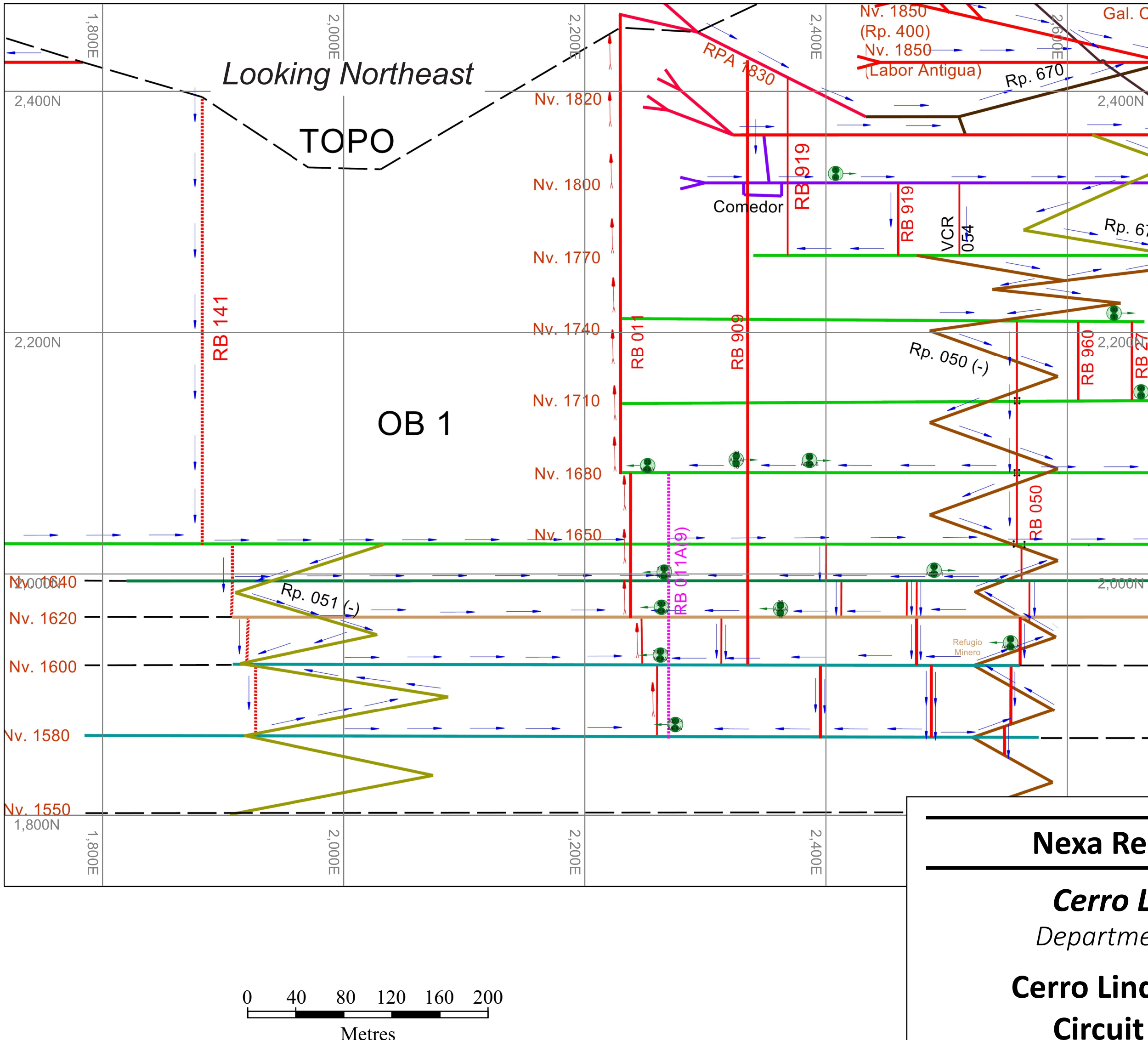


Figure 13-9

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Cerro Lindo Ventilation Circuit Schematic

January 2021

Source: Nexa, 2020.

13.7.3 Material Handling

Production muck is hauled from the stope areas to a grizzly located on the 1830 m level, with the grizzly product feeding a jaw crusher located on the 1820 m level. A feeder then delivers the crusher ore to a main conveyor used to convey ore from the 1820 level loading chute up to surface via the 1940 m level portal to the stockpiles. The ore is comingled and not segregated in separate stockpiles.

Waste material from the mine development is dumped into available stopes or, if required, hauled to surface.

13.7.4 Power

The underground mine is serviced by a power reticulation system that provides approximately 7 MW. The main feed to the underground is at 10 kV and feed to substations and reduced to 480 V on the secondary to feed the mining equipment, mine pumps, mine ventilation fans, and auxiliary fans. The mine has backup generator to support the main ventilation system.

13.7.5 Service Water

Service water is very important at Cerro Lindo, which requires recycling and reuse at the maximum possible rate. Service water is used mainly for drilling purposes, cooling, dust control, and shotcrete/concrete requirements. The water is provided from a central plant-wide source and distributed to the underground via a system of pipelines to the working areas. The water is sourced from a desalination plant at the ocean and pumped approximately 180 km via three pump stations to a final elevation of 2,100 MASL at the mine site.

13.7.6 Dewatering

The mine generates very little water from geological sources. The sumps located on the lower levels in active mine areas feed the two pumping stations located on the 1680 m level via 100 mm diameter pipelines. From the two pump stations water is pumped up to the 1820 m level pumping station via 100 mm and 150 mm diameter lines and further on to the reservoir located on the 1970 m level and out to the surface storage area. The mine utilizes an effluent treatment plant that consists of a basic system of water clarification using three contingency ponds.

13.7.7 Backfill

Paste backfill is used at Cerro Lindo and is prepared in the paste plant located on surface near the exhaust portals. The plant is supplied with mill tailings by pipeline from the plant. The plant operates two vacuum filter trains capable of supplying 300 t/h of filter cake to the paste mixers. The nominal binder is 3% but can vary as required to achieve the desired strength. The paste is pumped to the underground via the 1970 m level exhaust portals with pipes laid on the floor of the drifts for most of the distance. The total paste delivery is designed at 5,000 m^3/d, with the plant operating at 95% availability and capable of meeting the demand. When the stopes are distant from the paste fill source, additional water is used to enable transport via the pipeline, however, this can result in paste fill of lower quality. SLR recommends that for such conditions a trade-off study be carried out to assess the use of cemented rock fill (CRF) which may be more effective in providing the required strength.

13.7.8 Compressed Air

Almost all drilling equipment in the mine is electric over hydraulic and equipped with on-board air compressors. A compressed air reticulation system delivers compressed air from surface for uses such as construction, ground support, etc.

13.7.9 Maintenance Facilities

There are two service level shops underground operated by contractors Caterpillar and Atlas Copco. These shops are equipped for light maintenance and preventive maintenance services, while equipment requiring major repairs and services is taken to the surface shop facilities. Contractors providing support for the mine maintain their own service on surface and do not use the underground facilities.

13.7.10 Communications

The underground mine is equipped with a leaky-feeder radio system providing for effective communications to all areas of the mine and hard-wired telephones to select locations. The mine is serviced by an underground communications centre, which is operating 24 hours per day. Mine rescue teams are available in case of emergency situations.

Nexa should consider upgrading the mine’s underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.

With a wireless communications system, Nexa should consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.

13.8 Mine Equipment

The list of mining equipment is provided in Table 13-4. There are multiple contractors operating in various capacities at Cerro Lindo and the equipment list shown can vary as contractor work programs vary over time.

Table 13-4: Mine Equipment List
Nexa Resources S.A. – Cerro Lindo Mine

Description	Nexa	Tumi	Incimmet	Aesa	American	Dinet	Total
Jumbos	2		2	7			11
Production Drills	6		2				8
Bolters	3		2	5			10
Scalers/Breakers	6		2	4			12

Description	Nexa	Tumi	Incimmet	Aesa	American	Dinet	Total
Scissor Lifts	0			5			5
Scoops 9Yd	14			2			16
Scoops 6Yd			3	5			8
Conventional Trucks 35t					16	26	42
Conventional Trucks 52t						26	26
Boom Truck	3			5			8
Excavator	6				4		10
Raisebore		6					6
Forklift			4				4
Transmixer			1				1
ANFO Truck				6			6
Fuel Truck				1			1
Dozers					3		3
Front End Loaders					2		2
Grader					1		1
Compactor					2		2
Total	**40**	**6**	**16**	**40**	**28**	**52**	**182**

The mine equipment performance criteria and productivities are shown in Table 13-5. The required number of crews is also shown and estimated from the productivity levels and production requirements.

Table 13-5: Equipment Performance Criteria and Productivities
Nexa Resources S.A. – Cerro Lindo Mine

Equipment	No. Units	Distribution (Contract/Nexa)	Availability %	Utilization %	Productivity (avg.)	Units	Crews (avg.)
Bolters	8	2/2	83	46	39	m/h	6.6
Scalers	11	7/4	71	46	31	m^2/h	7.8
Trucks 35t	42	42/0	73	78	34	t/h	10.7
Trucks 52t	26	26/0	65	71	41	t/h	16.9
Jumbo Drills	9	7/2	83	56	111	m/h	7.5
LHDs	22	11/11	83	66	120	t/h	12.8
Simba DTH/ITH	6	0/6	75	54	24	m/h	4.5
Raptor LH	4	0/4	79	44	21	m/h	3.2

13.9 Manpower

The workforce of Cerro Lindo consists of company personnel and contractors. The Nexa personnel and contractor lists for mining operations are presented in Table 13-6 and Table 13-7 respectively. The number of Nexa employees required for mining operations are not expected to change significantly for the foreseeable future. The number of contractors varies month to month depending on labour requirements at the mine site.

The production is carried out by the company mine personnel, while contractors carry out the development advances and haulage. Operators and technical staff work a 14 x 7 shift cycle consisting of seven days of dayshift, seven days of nightshift, and seven days off. General staff work on a 5 x 2 shift cycle.

Table 13-6: Nexa Mine Personnel
Nexa Resources S.A. – Cerro Lindo Mine

Area	Managers	General Staff	Operators & Technical Staff	Total
Geology and Exploration	1	9	15	25
Mine	1	29	206	236
Projects	1	7		8
Technical Services	1	24	32	57
Total	**5**	**85**	**344**	**434**

Table 13-7: Mine Contractor List
Nexa Resources S.A. – Cerro Lindo Mine

Contractor	Area	Shift	Number
Explosupport S.A.C.	Exploration	14 x 7	1
Certimin S.A.	Geology	14 x 7	17
Explomin Del Peru S.A.	Geology	14 x 7	139
Transportes San Alejandro S.A.C.	Logistics	14 x 7 6 x 1	36
Administracion De Empresas S.A.C.	Mine	14 x 7	390
American Renta Car S.A.C.	Mine	14 x 7	53
Dinet S.A.	Mine	14 x 7	267
Exsa S.A.	Mine	14 x 7	57
Incimmet S.A.	Mine	14 x 7	298
Tumi Contratistas Mineros S.A.C.	Mine	14 x 7	66
Union De Concreteras S.A.	Mine	14 x 7	126
Total			**1,450**

14.0 PROCESSING AND RECOVERY METHODS

The Cerro Lindo processing plant is located on a ridge adjacent to the Mine, situated at an altitude of 2,100 MASL to 2,200 MASL. The processing plant commenced operations in 2007 with a processing capacity of 5,000 tpd, however, it has since been expanded to a name-plate capacity of 21,000 tpd. Processing consists of conventional crushing, grinding, and flotation to produce separate copper, lead, and zinc concentrates. Tailings are thickened and filtered for use as backfill or trucked to the dry stack tailings storage facility.

14.1 Process Description

The Cerro Lindo processing plant layout is shown in Figure 14-1 and a simplified process flowsheet is shown in Figure 14-2.

14.1.1 Crushing

Crushing is carried out in three stages with the first stage occurring underground, where a primary jaw crusher, fed via a stationary grizzly, crushes ore to less than 100 mm. Crushed ore is conveyed to the coarse ore stockpiles located at the processing plant. When the primary crusher requires maintenance, ore is trucked directly to surface where it is stockpiled prior to being crushed in a mobile primary crusher, which discharges onto the coarse ore stockpile feed conveyor.

Coarse ore is reclaimed from the stockpile and fed to two parallel crushing circuits, each consisting of secondary and tertiary crushing. Reclaimed ore is screened, with the oversize reporting to the secondary crushers, while the undersize is directed to the fine ore bins. Secondary crusher product is screened, with the screen oversize reporting to the tertiary crushers and the undersize being directed to the fine ore bins. The tertiary crushers are in closed circuit with the tertiary screens, with the screen undersize directed to the fine ore bins. Ore is crushed to 80% passing (P_{80}) 4 mm, and the two fine ore bins provide approximately 16 hours of storage capacity.

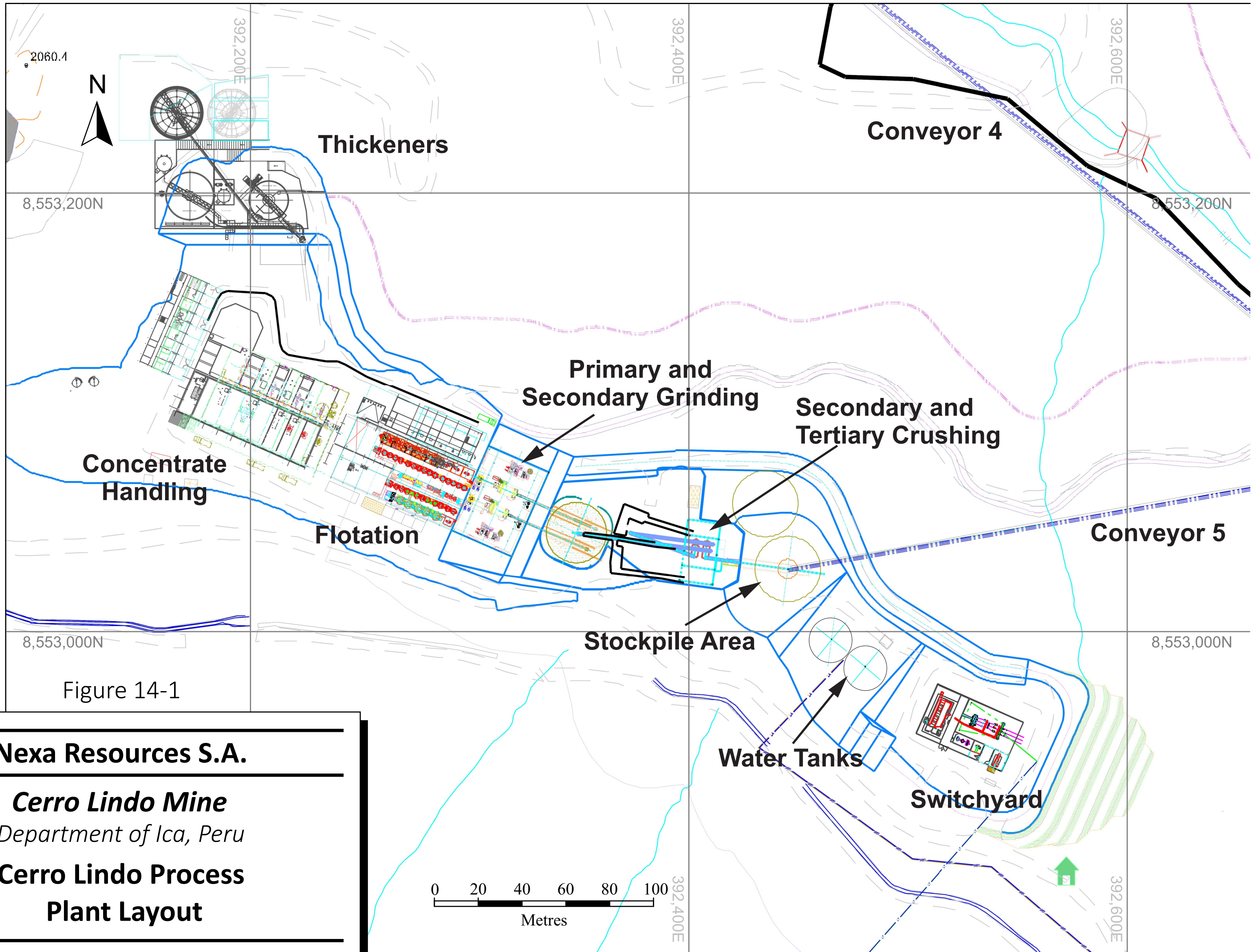


Figure 14-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Cerro Lindo Process Plant Layout

January 2021

Source: Nexa, 2020.

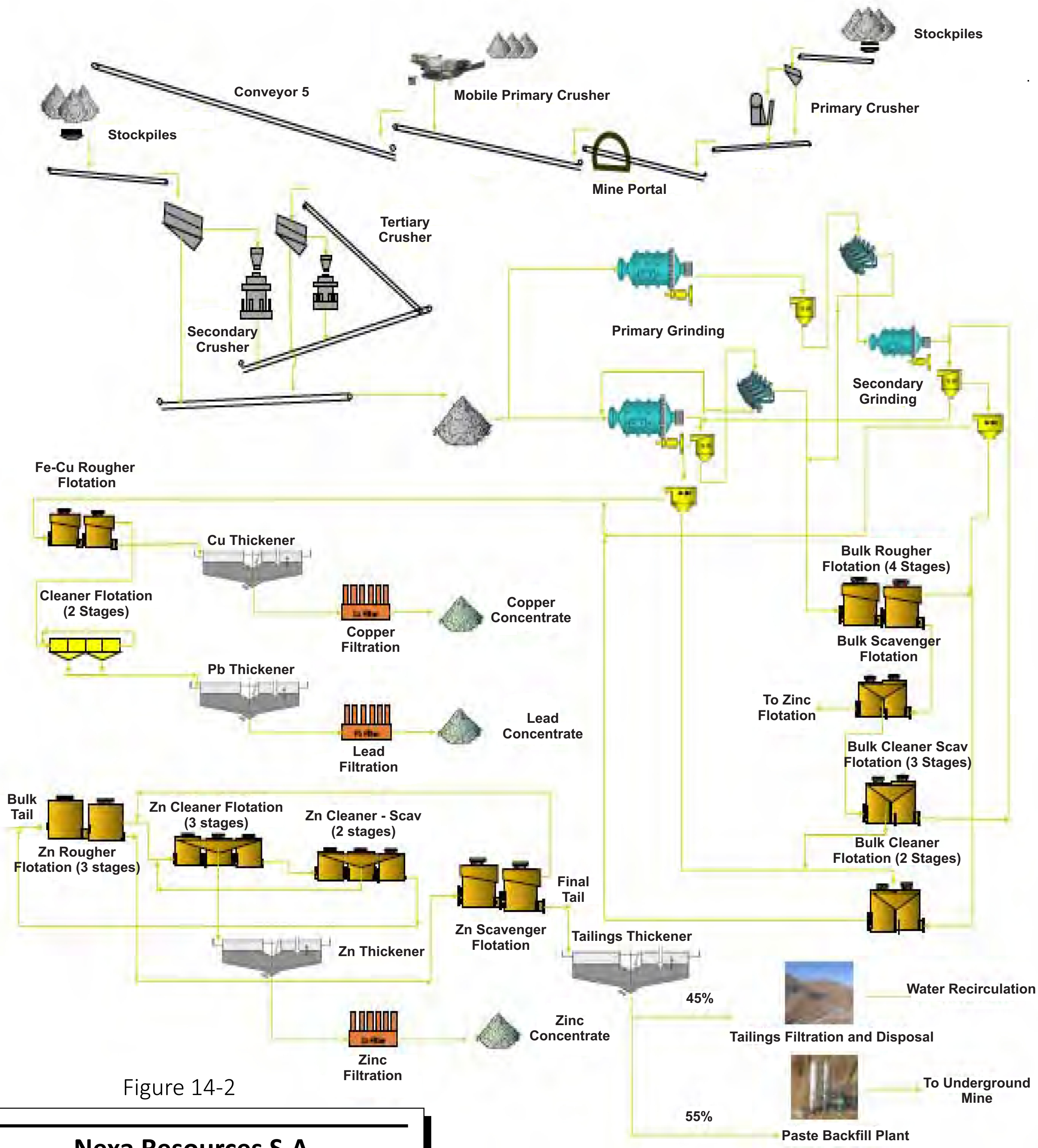


Figure 14-2

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Simplified Process Flowsheet

January 2021

Source: Votorantim, 2017.

14.1.2 Grinding

Fine ore is fed from the fine ore bins to two parallel ball mill circuits, each in closed circuit with high frequency classifying screens, at a rate of approximately 900 tph. Each grinding circuit also includes flash flotation, producing bulk (copper and lead) concentrate. The first grinding circuit is the original single-stage ball mill circuit installed in 2007 and capable of processing 5,000 tpd, while the second circuit, consisting of two identically sized ball mills in series, can process approximately 15,000 tpd. Grind size for the circuits is P_{80} 150 µm to 170 µm.

14.1.3 Flotation

Flotation consists of bulk rougher and scavenger flotation to produce a copper-lead concentrate, which is then cleaned and combined with the flash flotation bulk concentrate prior to being separated into copper and lead concentrates. The bulk flotation tails form the feed to zinc rougher and scavenger flotation to produce a zinc concentrate, which is then cleaned. The three concentrates are thickened and filtered, and then deposited into dedicated concrete storage bunkers.

Concentrate is reclaimed by front-end loader and each bucket is sampled before being loaded into trucks. The trucks are weighed on a weigh bridge adjacent to the concentrate handling area before being despatched to the Port of Callao (copper and lead concentrates) or Nexa's Cajamarquilla refinery (zinc concentrate) near Lima, Peru. Concentrate is despatched during the night shift with an average of 32 trucks per night, each carrying approximately 35 wet tonnes of concentrate.

14.1.4 Tailings

Final tailings consist of zinc scavenger tails. Tailings are directed to the tailings thickener, and the thickened underflow is divided, with a portion going to the two paste backfill plants, and the remainder going to the dry stack tailings filtration plant. The ratio between tailings to paste backfill and dry stack tailings is approximately 50:50.

The tailings filtration plant and paste backfill plants are located between the dry stack TSFs to the south of the concentrator. Horizontal belt filters are used to reduce the moisture of the tailings to approximately 12%. Dry stack tailings are discharged onto a stockpile, which is reclaimed by front-end loader and trucks for subsequent placement, grading, and compaction on one of the two dry stack TSFs. Cement and fly-ash are added to the paste backfill tailings filter cake producing a paste of approximately 79% solids. This is pumped underground by high-pressure positive displacement pumps.

A concrete spillage containment pond with a capacity of 10,000 m^3 is located below the plant platform and tailings thickeners, providing emergency containment if needed.

As mining has progressed, the pumping distance of the paste has increased, leading to limitations in the amount of paste that can be pumped to the furthest points in the Mine, in addition to placing strain on the pumping and piping system. This in turn means that dry stack tailings filtration is fully utilized. Any breakdowns in the paste backfill system therefore result in throughput reductions in the processing plant, as there is no tailings surge capacity other than limited space in the tailings thickener. Mitigating steps will be necessary to ensure that paste backfill system limitations do not become significant processing rate constraints in the future. Nexa plans to install an additional belt filter for dry stack tailings filtration, which will help to minimize the effect on processing plant throughput in the case where the paste backfill system is down.

14.1.5 Concentrate Quality

The Cerro Lindo concentrates contain low concentrations of deleterious elements and higher than average concentrations of the primary metals. The lead and zinc concentrates are clean and do not currently incur penalty charges. Due to the combined lead and zinc content of the copper concentrate (approximately 4.8% to 5.6%), however, the copper concentrate attracts a small penalty of approximately US$2.00/t.

14.1.6 Process Water

Water is supplied from a reverse osmosis desalination plant located on the coast capable of producing 60 L/s and is pumped 60 km to the Mine site. This is sufficient to supply the requirements for make-up water and potable water (treated at the Mine site). Most of the process water requirement is recovered from tailings thickening and filtration and is returned to the three 3,600 m^3 water storage tanks. Approximately 90% of total tailings water is recovered and recycled to the Cerro Lindo processing plant as process water.

14.1.7 Process Consumables and Power

The main process consumables include steel grinding balls, sodium cyanide, lime, and various flotation reagents. No significant changes to the feed ore, process, or capacity of the processing plant are anticipated, and therefore unit consumption of these materials is expected to remain similar to historical consumption rates. The process plant electrical energy requirement is approximately 25 MW, which is supplied from the national grid.

14.1.8 Manpower

The processing plant personnel comprises management and supervisory staff, including metallurgical personnel, and operators, totalling 108 as well as contractors amounting to 42. The processing plant personnel and contractors are presented in Table 18-3 and Table 18-4. These numbers are not anticipated to change significantly in the foreseeable future. Maintenance personnel and contractors, numbering 101 and 399 respectively, have been included in Table 18-3 and Table 18-4.

15.0 INFRASTRUCTURE

A surface plan showing the mine site infrastructure is provided in Figure 15-1. The in-situ and operating infrastructure at Cerro Lindo includes the following:

- An underground mine accessed by 15 portals.
- An underground crusher and conveyance system to surface.
- Surface ore stockpiles and waste rock dumps.
- A 21,000 tpd processing plant.
- Two dry-stack TSFs.
- Main site power supply.
- Site access roads.
- Mine shops, offices, warehouse facilities.
- Mine camps facilities.

15.1 Site Access

Access to the mine site is via paved highway to Chincha (180 km from Lima), followed by a 60 km unpaved road. The unpaved road covers a significant gain in elevation with several narrow sections that restrict speeds for heavy haulage. Nexa maintains rest stops at wide areas and enforces safe speed limits on employees and contractors.

Despite the low speed achievable on the road to the mine, the relatively short distance to Chincha represents a logistical advantage for the Cerro Lindo Mine, in comparison with many Peruvian operations.

15.2 Power Supply

Power to the mine is supplied via the National Grid by two independent tied-in systems for redundancy at 220kV, namely the Chilca Independence 220kV, through a branch to the Desert substation. The substation has a twin transformer capacity of 6.66-8.33 MVA (ONAN-ONAF), 220/60/22.9 kV, and two transmission lines provide power to the mine site substation and desalination plant and pumping station plant located at Jahuay. Secondary substations on site serve to transform the distribution voltage 10kV to the 480V to 120V for mine equipment.

- The site power breakdown by area is:
- Mine 7 MW
- Desalination and pumping 4 MW
- Plant 25MW (28kWh/t)
- Camp 0.50 MW

The overall site demand to sustain a production rate of 20,800 tpd is approximately 36.5 MW which is just adequate, however, the system can be increased to 50 MW at an estimated cost of approximately $15 million.

15.3 Water Supply

There is no fresh water withdrawal from natural water bodies at the mine site, and the mine obtains very little water from the underground mine workings. Approximately 40% of total demand is extracted from five local groundwater wells/boreholes. The remaining 60% of industrial fresh water is supplied from a desalination plant located on the coast.

The pumping system from the desalination plant is divided into three stages to transport the water approximately 45 km to an elevation of 2,200 m. Three pump stations are located along the six-inch pipeline route from the desalination plant to the mine site.

Service water is primarily used underground for drilling water, cooling, dust control, and concrete/shotcrete service. Service water is provided from a central plant-wide source and distributed underground via a system of pipelines to all working areas. Service water is collected and pumped to the surface where it is treated for re-use.

15.4 Site Buildings

Site facilities are distributed along the valley below the concentrator, where terrain permits. Facilities include offices, separate camps for contractors, hourly employees, and staff, warehousing and storage areas, maintenance shops, and the paste fill plant. Fuel storage is located on surface, with underground equipment fueled by service trucks.

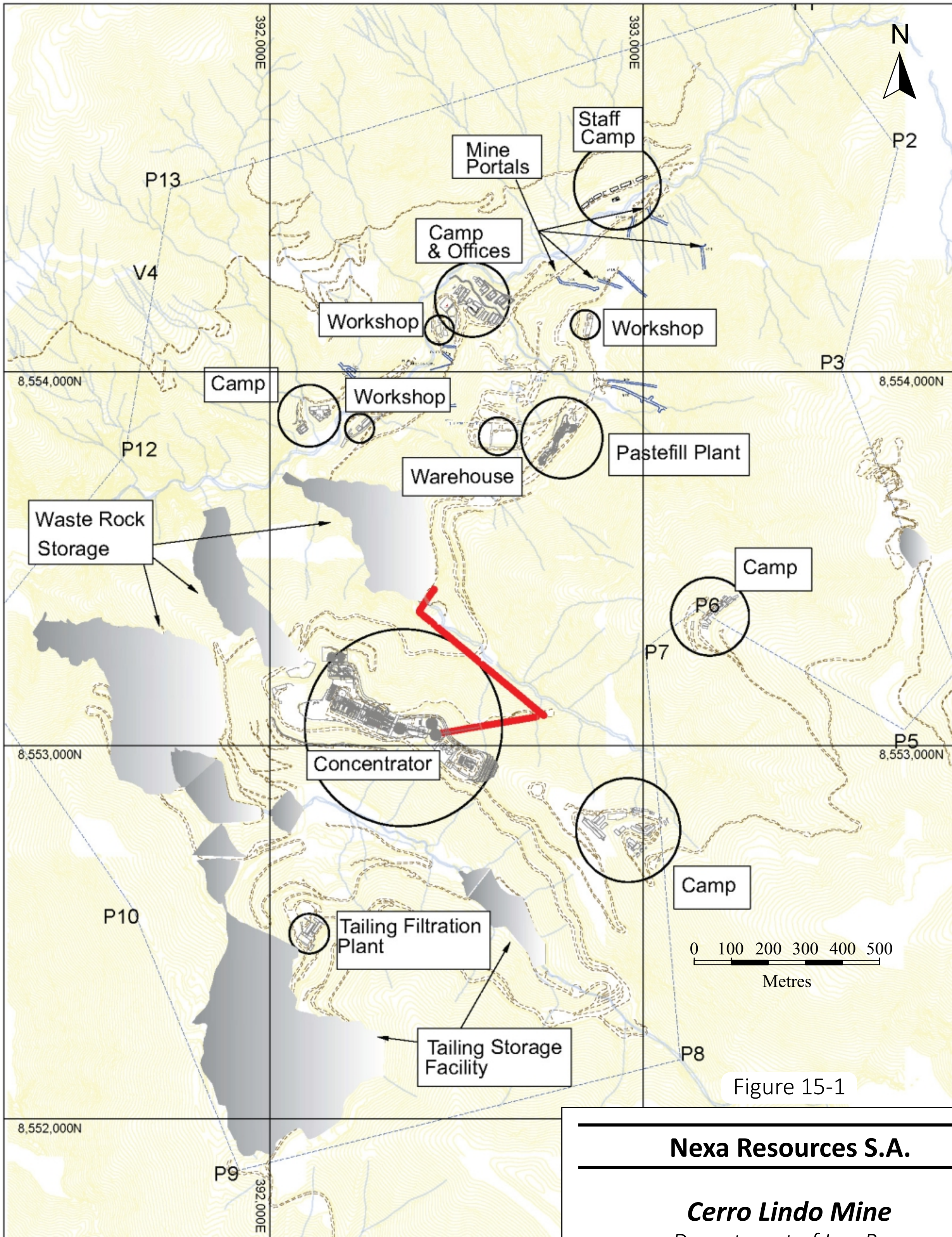


Figure 15-1

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Surface Plan of Infrastructure

January 2021

Source: Nexa, 2020.

15.5 Mine Waste Management

15.5.1 Tailings Management

Tailings produced in the process plant are thickened and piped to two possible streams. Approximately 50% of the tailings are further dewatered to 84% solids, mixed with cement and used as paste backfill in the underground workings. The remaining 50% of tailings are thickened separately to a solids content of 88%, loaded onto trucks, and dumped on top of the tailings dry stacks Pahuaypite 1 and 2. Once on the stacks the tailings are allowed to dry for three to four days to reduce their moisture content to 6% to 7%; the tailings are then spread in lifts of 300 mm and compacted to 95% standard proctor maximum dry density. The locations of the dry stacks are illustrated in Figure 15-2.

As of May 2020, Pahuaypite 1 has accumulated 6.2 Mm^3 of tailings of the total design capacity of 6.3 Mm^3, with less than 0.1 Mm^3 capacity remaining. Pahuaypite 2 has accumulated 5.6 Mm^3 of tailings of 11.0 Mm^3, with 5.4 Mm^3 capacity remaining. A total of 5.5 Mm^3 of tailings capacity remains within the existing design of the surface tailings dry stack, which provides an estimated 4.9 years of tailings storage.

It is noted that approval for 10% expansion of the Pahuaypite 1 tailings dry-stack storage capacity has been granted by the authorities. A similar plan is in place for 10% expansion of the Pahuaypite 2 tailings dry-stack storage capacity. The design studies to support the expansion of Pahuaypite 2 are underway. This 10% expansion is included in the capacities given in the previous paragraph. Further plans for expanded tailings storage should be explored to support any future mine plan changes.

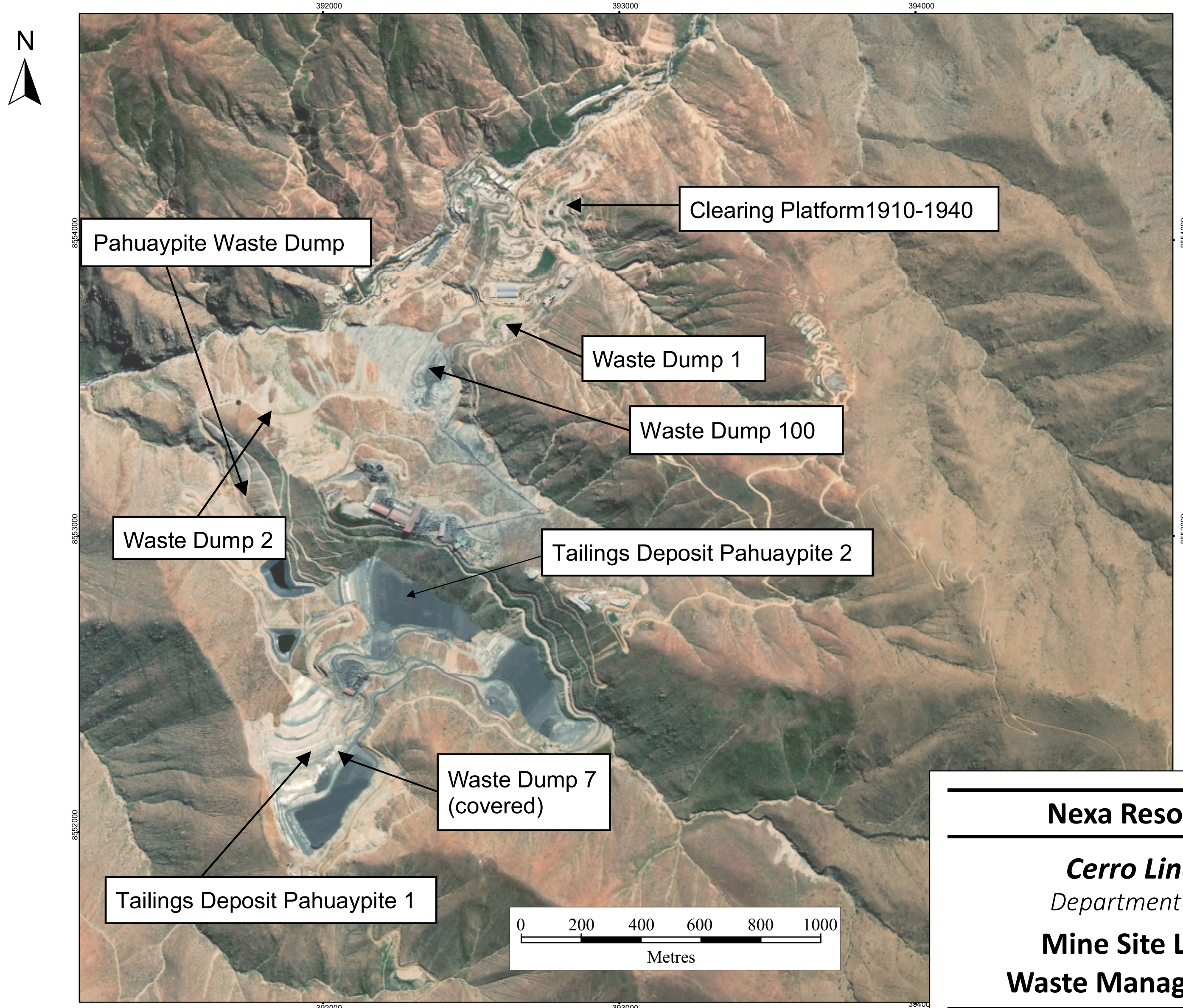


Figure 15-2

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Mine Site Layout and Waste Management Areas

January 2021

Source: Golder, 2019.

15.5.2 Tailings Storage Facility

Tailings from the mine are stored in two dry-stack deposits, Pahuaypite 1 and 2. These dry stacks are each equipped with a starter dam at the toe of the facility, a foundation drain that runs through the base of the valley(s) under the facility, an intermediate dike or platform to increase the initial working area, and a geomembrane lined water management pond downstream. The foundation drains from the dry stacks continue under the starter dams and report to their respective water management ponds at the base of the facility. The water management ponds downstream of Pahuaypite 1 and 2 were both designed with emergency spillways to safely convey the probable maximum precipitation. However, the emergency spillway for the Pahuaypite 2 water management pond, which is downstream of both tailings dry stacks and the Pahuaypite 1 pond, has been removed to allow for the construction of a new waste rock dump downstream of the pond. According to Ausenco (2017), the tailings dry stacks are classified as “significant” hazard classification according to the Canadian Dam Association (CDA) (2013).

The tailings dry stacks are mostly comprised of filtered tailings which are air dried on the working surface of the stack, spread in lifts of approximately 300 mm thickness, and compacted to 95% standard proctor dry density. Quality control data for the compaction and moisture content of the tailings is regularly taken and satisfies the design.

Pahuaypite 1 is planned up to elevation 2,190 m for a total height of approximately 180 m (before the 10% capacity expansion). This deposit has a relatively small upstream catchment area and therefore does not have diversion channels. Surface runoff from the facility is graded to one side of the facility where it can flow down to the water management pond via a pair of pipes 4” and 6” in diameter.

Pahuaypite 2 is planned up to elevation 2,130 m for a total height of approximately 130 m (before the 10% capacity expansion). This deposit has two upstream diversion channels and an upstream check dam that is intended to help separate non-contact water from tailings. The upstream check dam is a water retaining dam with an upstream concrete face connected to a concrete plinth with curtain grouting. Tailings dry stack Pahuaypite 2 and supporting infrastructure are illustrated in Figure 15-3.

Monthly and annual dam safety inspections are currently being conducted by Geoconsultoria Ltda, an external consultant, for the Pahuaypite 1 and 2 dry-stack deposits. SLR relies on the conclusions of Geoconsultoria [two reports titled *Evaluación Annual de Seguridad – 2018* for Pahuaypite 1 and Pahuaypite 2, dated March 15, 2019] and provides no conclusions or opinions regarding the stability of the listed tailings storage facilities.

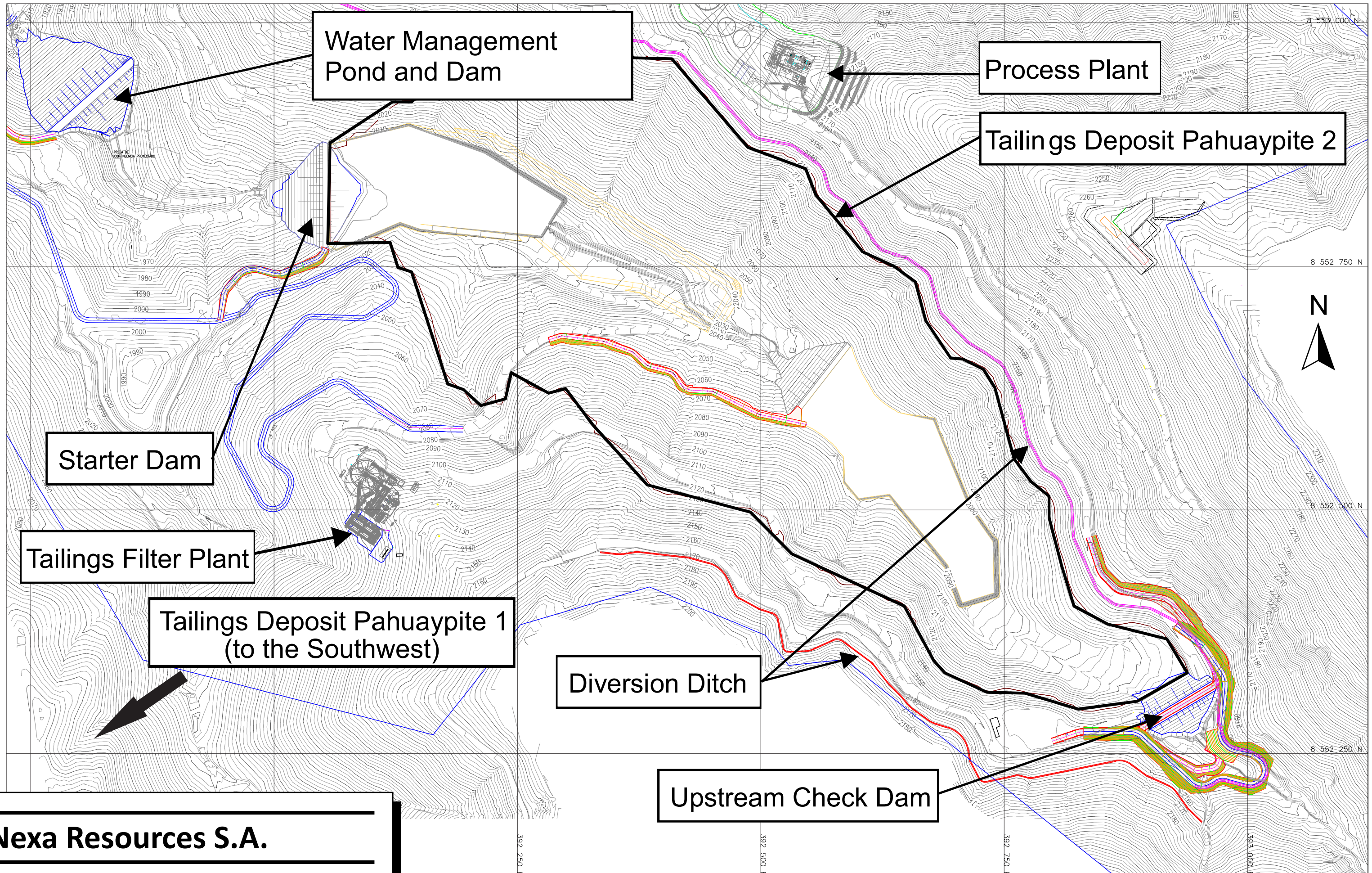


Figure 15-3

Nexa Resources S.A.

Cerro Lindo Mine

Department of Ica, Peru

Tailings Dry Stack Pahuaypite 2 and Supporting Infrastructure

January 2021

Source: SVS, 2010.

15.5.3 Waste Rock Dumps

Waste rock from the underground mining operations is either used as backfill underground or stockpiled on the surface. Waste rock is stockpiled in six locations on the mine site, illustrated in Figure 15-2:

- Clearing Platform 1910-1940,
- Waste dump No. 1,
- Waste dump No. 2,
- Waste dump No. 7,
- Waste dump No. 100, and
- Pahuaypite waste dump.

The capacity of the clearing platform 1910-1940 is unknown, however, waste rock dumps Nos. 1, 2, 7, and 100 have a cumulative capacity of approximately 2.3 Mm^3, although waste dump No. 100 is by far the largest at 1.8 Mm^3. Pahuaypite waste dump is the newest and only operating waste rock dump for the mine operation; it has a waste rock storage capacity of 4.4 Mm^3 (less than 1.2 Mm^3 remaining) and is located immediately downstream of the Pahuaypite 2 water management dam. This water management pond will not have an emergency spillway while the Pahuaypite waste dump is in operation. At the closure of the Pahuaypite dump, a new spillway will be established to convey water in the valley around the waste rock dump.

16.0 MARKET STUDIES

16.1 Markets

The principal commodities that are produced at the Cerro Lindo Mine – zinc, copper, lead, and silver – are freely traded at prices and terms that are widely known so that prospects for sale of any production are virtually assured. Zinc and copper represent 91% of Cerro Lindo's gross revenue, while lead and silver contribute 9% of the revenue. All of Cerro Lindo's zinc concentrate will be processed at Nexa's Cajamarquilla zinc refinery in Peru (61%) and Três Marias (35%) and Juiz de Fora (4%) zinc refineries in Brazil. Lead and copper concentrates will also be sold on the open market. Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates. SLR has reviewed the concentrate terms provided by Nexa and found them to be consistent with current industry norms.

Market information for this section comes from the industry scenario analysis prepared by Nexa's Market Intelligence team in July 2020 based on information sourced from different banks and independent financial institutions, economy and politics research groups, and metals consultants.

Nexa's Market Intelligence team notes that the industry has progressed from volatile markets in 2019 due to US/China trade wars, Brexit, and development economies slowing down, to more uncertainty in 2020 due to the COVID-19 pandemic, a plunging global economy, the oil crisis, and the US elections. All these factors have affected the market fundamentals.

The SLR QP has reviewed the market studies and analyses and the results support the assumptions in the Technical Report Summary.

16.1.1 Zinc

16.1.1.1 Demand

The major market drivers for zinc demand are construction and infrastructure, transportation and vehicles production, industrial machinery production, batteries, and renewable energy. All these industries have been affected by the COVID-19 pandemic which has caused the global economy to slow down. As a result, zinc metal demand has also decreased in 2020, by approximately 10% year over year.

Nexa's Market Intelligence team examined several scenarios for demand recovery and future growth, and settled on a base case that forecasts pre-COVID-19 levels of demand in the second half of 2022, with a demand compound annual growth rate (CAGR) of approximately 1.3% from 2023 to 2025. In 2019, they had forecasted a CAGR of approximately 1.7% between 2019 and 2024.

16.1.1.2 Supply

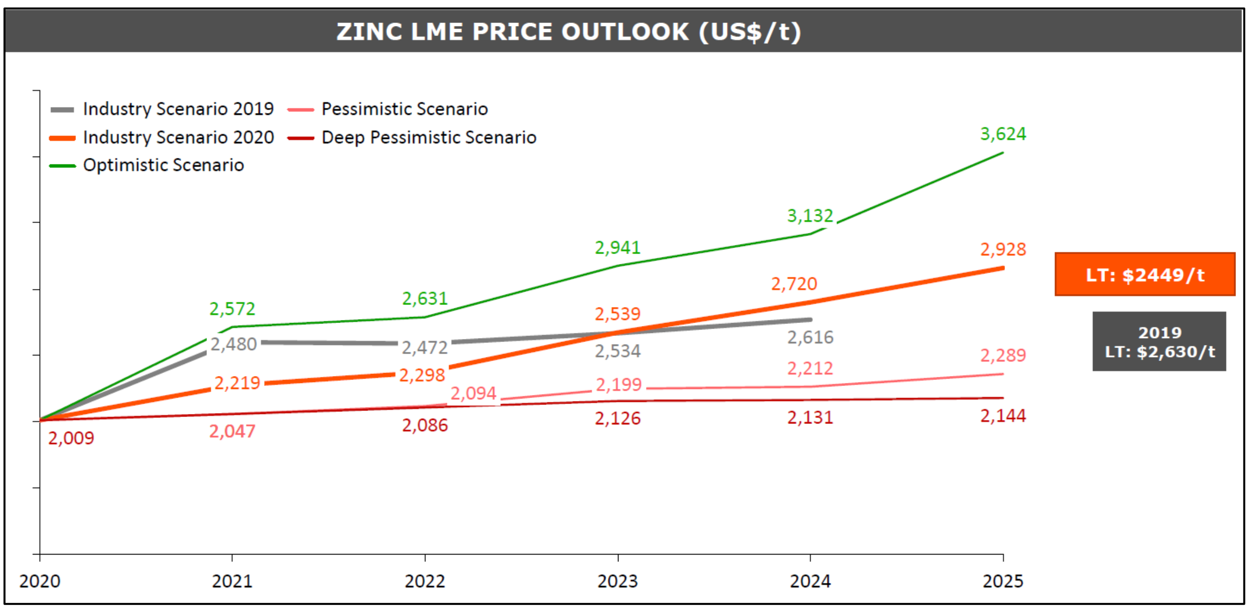
Nexa's Market Intelligence team's supply forecast analysis was based on the following industry information: zinc mine start-up and closure, mine production guidance, disruption allowance evaluation, project pipeline, and cost evaluation for 2020 onwards. Nexa's forecast analysis results are summarized as follows:

- Mine disruption factor: Based on independent data, Nexa has forecast a mine disruption factor of 4% for China and 4% until 2023 and 2% to 3% for 2024 and 2025 for the rest of the world (ROW).
- Project Pipeline: The analysis considered greenfield projects forecast to begin production between 2020 and 2025.

- Zinc concentrate production evolution - Global: Recent market conditions due to the COVID-19 pandemic have affected mines worldwide, reducing investments and causing mine closures. As a result, zinc supply might be limited in the long term.
- China concentrate evolution: China concentrate supply is expected to increase by 3% through the 2020 to 2025 cycle, but significantly depends on the ability of China's small mines to survive amid lower price levels and volatile market conditions.
- Zinc Global Market Balance: Based on the above considerations, Nexa's forecast is for a significant zinc supply surplus in 2020 and 2021, with an increase in demand starting in the second half of 2022. From 2024 onwards, the global demand will exceed zinc supply.

16.1.1.3 Zinc Price Outlook

Zinc prices depend on variations in supply, demand, and the perceived supply/demand balance. The most commonly referenced currency for zinc transactions is US dollars. Nexa's Market Intelligence team based on its analysis of zinc supply, demand, global balance, and zinc prices, forecasts stressed zinc prices in 2021 and 2022 (between $2,000/t and $2,300/t), with a potential price increase to greater than $2,700/t starting in 2024-2025, and a long term price of $2,449/t. Figure 16-1 shows the results of Nexa's analysis.



Source: Nexa, 2020e

Figure 16-1: Zinc Price Outlook (2020-2025)

16.1.2 Copper

16.1.2.1 Demand

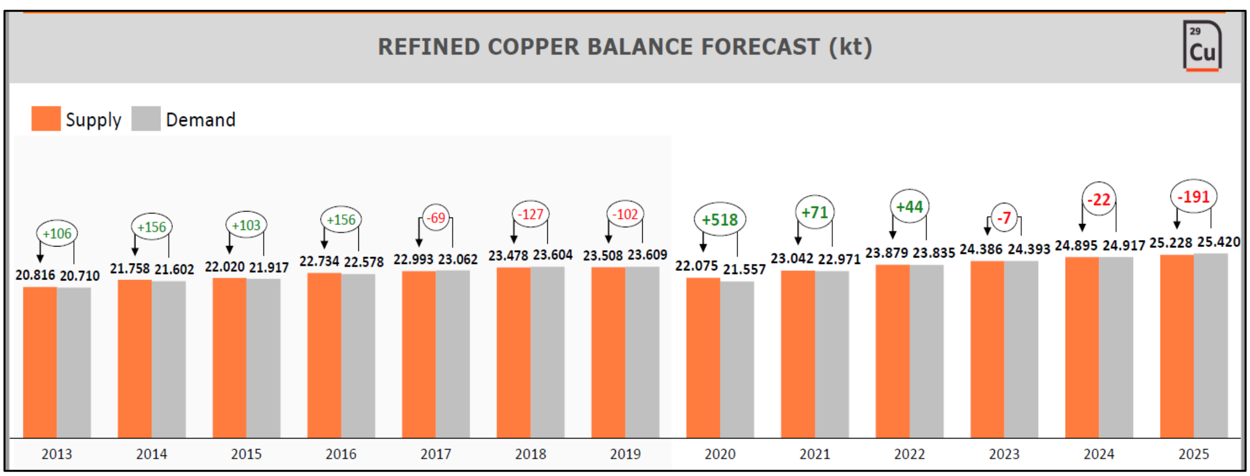
The major market drivers for copper demand are power generation and transmission, construction, factory equipment, and the electronics industry. The COVID-19 pandemic affected copper demand in 2020 and, in the opinion of Nexa's Market Intelligence team, will also impact it in the years ahead (2021 and 2022). In the long term, the team predicts a lower demand growth, mainly reflecting China's economic transition, despite the positive contribution of global trends such as electric vehicles, renewable energy, and urbanization.

Nexa analyzed multiple demand scenarios, with a Base Case forecasting a reduction in copper demand by 9.0% between 2019 and 2020, and starting in the second half of 2020, a slower-paced recovery with a demand CAGR of 3.2% between 2020 and 2025. Copper demand is predicted to grow from 26.9 Mt in 2020 to 31.5 Mt by 2025.

16.1.2.2 Supply

Nexa's Market Intelligence team's supply forecast analysis was based on the following industry information: copper mine start-up and closure, mine production guidance, project pipeline, and cost evaluation for 2020 onwards. Nexa's forecast analysis results are summarized as follows:

- Project Pipeline: The pipeline is short, mainly because there are fewer opportunities in mining-friendly jurisdictions.
- Copper concentrate (sulphide) production evolution: Nexa considers that the majority of the production will come from sulphide mines. Nexa forecasts a concentrate production CAGR increase of 4.2% between 2020 and 2025. The increase in supply results from the ramp-up of brownfield projects.
- Copper SXEW (oxide) production evolution: Nexa forecasts a downward trend for SXEW production. Based on Nexa's analysis, a concentrate production CAGR will decrease by 2.7% between 2020 and 2025, as a result of by mine closures and reductions in production.
- Refined Copper Market Balance: the copper market has been in deficit for the last three years, leading to lower stocks, despite lower prices since mid-2018 mainly due to the trade war between the USA and China, and the COVID-19 pandemic outbreak in 2020. Based on the above production assumptions, Nexa provided a forecast for Copper Market Balance between 2020 and 2025, showing a significant copper supply surplus in year 2020 and a slightly positive surplus in 2021 and 2022. From 2023 onwards, the global copper demand will create a deficit in copper supply (Figure 16-2).

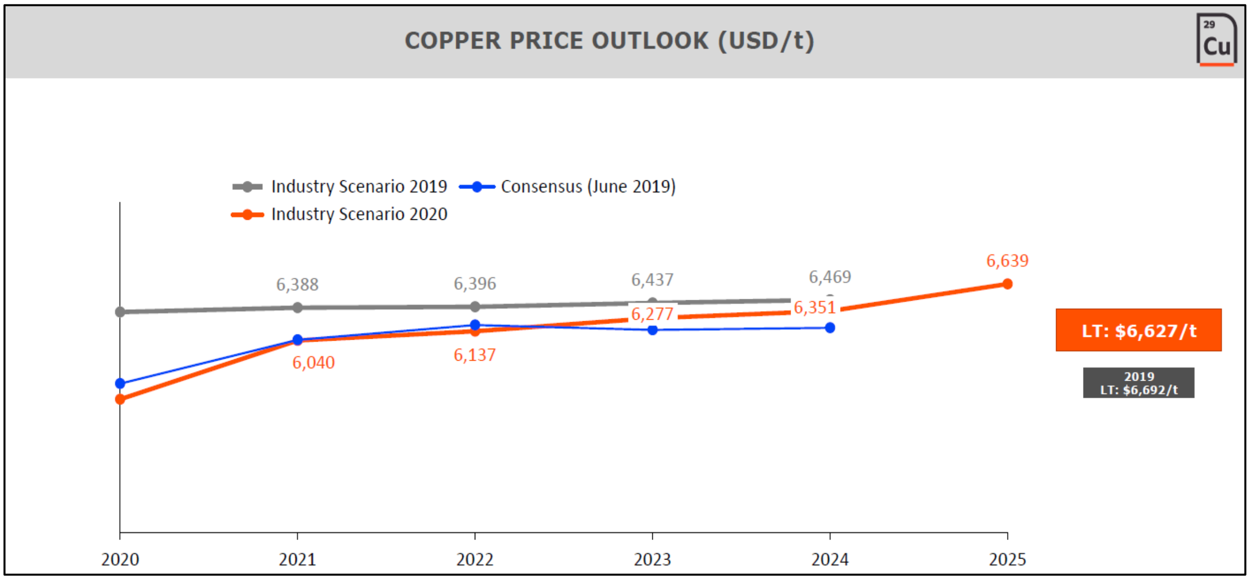


Source: Nexa, 2020e

Figure 16-2: Refined Copper Market Balance (2020-2025)

16.1.2.3 Copper Price Outlook

Copper prices depend on variations in supply, demand, and the perceived supply/demand balance. Based on Nexa's Market Intelligence team's analysis of copper supply, demand, global balance, and copper prices, Nexa forecasts stressed copper prices between 2021 and 2024 (between $6,040/t and $6,351/t), with a potential price increase to higher than $6,500/t after 2024, and a long term price of $6,627/t. Figure 16-3 show the results of Nexa's analysis.



Source: Nexa, 2020e

Figure 16-3: Copper Price Outlook (2020-2025)

16.1.3 Lead and Silver

Lead and silver in conjunction represent 9% of Cerro Lindo's gross revenue. Given their low impact on the Cerro Lindo revenue mix, Nexa has based its lead and silver price forecast solely on consensus prices and correlation analysis published by metal market analysts and financial institutions.

16.1.3.1 Lead Price Outlook

Lead represents 4% of Cerro Lindo's gross revenue. Nexa's lead prices were chosen considering a spread applied on the zinc prices curve. These spreads are commonly used and monitored by the market, based on a strong correlation between the two metals. For the cycle 2021 to 2025 a growing spread between US$ 350/t Pb to US$ 700/t Pb was considered. Nexa forecasts increasing lead prices between 2021 and 2025 (between US$ 1,869/t Pb and US$ 2,247/t Pb), and a lower long term price of US$ 1,910/t Pb. Figure 16-4 presents the results of Nexa's lead analysis.

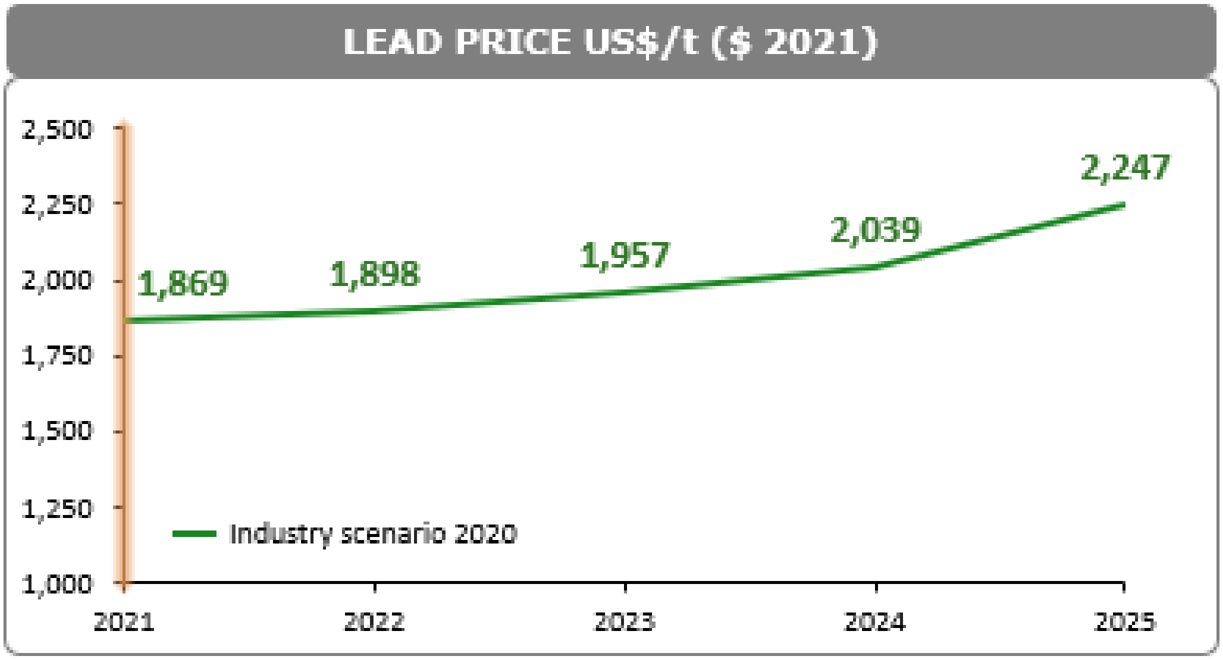


Figure 16-4: Lead Price Outlook (2020-2025)

16.1.3.2 Silver Price Outlook

Silver represents 5% of Cerro Lindo's gross revenue. Nexa's silver prices were chosen based on the median of consensus quotes/prices published by banks and institutions on a monthly basis. The silver forecast curve in Figure 16-5 presents the median silver price considering 23 different institutional sources. Nexa forecasts declining silver prices between 2021 and 2025 (between US$ 17.30/oz Ag and US$ 16.40/oz Ag), with a potential long term price increase to US$ 16.87/oz Ag.

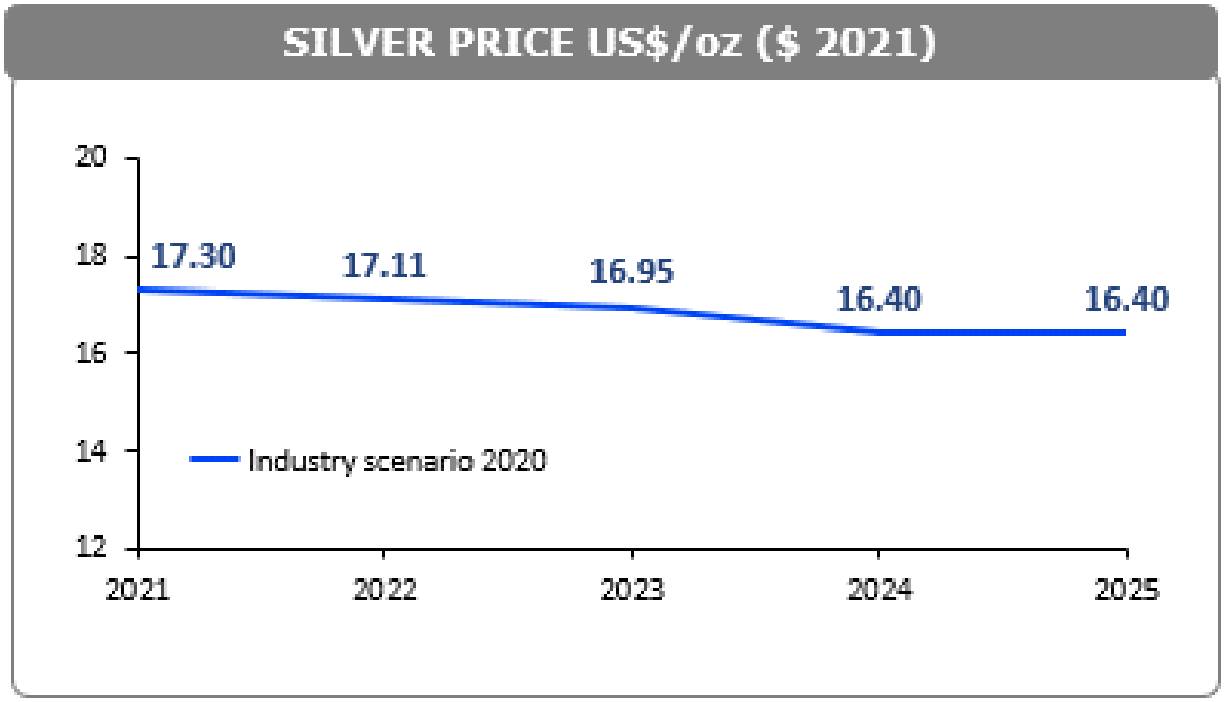


Figure 16-5: Silver Price Outlook (2020-2025)

16.2 Contracts

16.2.1 Silver Streaming Agreement

Nexa has a silver streaming agreement with Triple Flag Mining Finance Bermuda Ltd. (Triple Flag) on silver production from the Mine. In exchange for an initial payment of US$250 million, Triple Flag has the rights to 65% of all payable silver, at a cost of 10% of the spot silver price (up to a total of 19.5 Moz Ag). After the total has been reached, currently anticipated to be 2027, Triple Flag is entitled to 25% of payable silver. The SLR QP has reviewed the silver streaming contract terms and is of the opinion that they are within industry norms.

16.2.2 Concentrate Sales Contracts

Cerro Lindo is an operating mine with concentrate sales contracts in place for copper and lead concentrates, with the main players in the world, between global traders and refineries. Zinc concentrate is consumed by Nexa's Cajamarquilla zinc refinery in Peru (61%) and Três Marias (35%) and Juiz de For a (4%) zinc refineries in Brazil, according to their internal planning. Additional concentrate sales can be made at Nexa's discretion. SLR has reviewed the concentrate terms provided by Nexa and found them to be consistent with current industry norms.

Currently, the lead concentrate produced at Cerro Lindo averages 63.8% Pb including 75 oz/t Ag, while the copper concentrate averages 25.9% Cu including 14 oz/t Ag. In addition, there are no penalty contaminant elements in the zinc or lead concentrate. A small penalty of approximately $2/dmt applies to the copper concentrate due to the lead and zinc levels. The penalties could vary every year and according to each private negotiation.

16.2.3 Service Contracts

Various operational support services are provided by contractors, including underground mining, surface tailings haulage and placement, concentrate haulage, catering, security, and the mine site laboratory.

There are current 39 contractors providing the services as listed in Table 19-1.

Table 16-1: Third Party Contractors
Nexa Resources S.A. – Cerro Lindo Mine

Description	Number
Mine	7
Plant	1
Logistics	1
Security	1
Admin & Community Relations	1
Exploration	1
Maintenance	10
Environment/ Infrastructure	4
Geology	2
Human Resources	1
Infrastructure	3
Total	**32**

SLR has not reviewed the different support service contract details and terms, however, Nexa has used these contractors in the past and continue to do so.

17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

The information presented in this section is based on documentation provided by Nexa and meetings with mine site personnel. A site visit was conducted in support of the preparation of Section 17 of this Technical Report Summary from June 17 to June 20, 2019.

17.1 Environmental Studies

17.1.1 Mine Operation Overview

The Cerro Lindo Mine facilities and infrastructure are located in the districts of Chavín, Pueblo Nuevo, and Grocio Prado, in the province of Chincha (department of Ica), Perú. The Mine facilities and camps are located along the left bank of the Topará Creek in the occidental Andes Mountains, approximately 40 km northeast of the town of Chincha at elevations ranging from 1,820 MASL to 2,200 MASL. The desalination plant is located at sea level approximately 15 km northwest of the town of Chincha.

The mine operation started in July 2007. The community relations team was created in 2003, in parallel with the preparation and approval of the Environmental Impact Assessment (EIA), although it started to work actively in the mine area in 2005, one year before construction start-up. The mine life declared in 2011 was 12 years (up to year 2022). The current mine life is approximately nine years (until 2029) based on the most recent estimate of Mineral Reserves. The mining operation is comprised of the following main facilities:

- Underground zinc-lead-copper-silver mine
- Active waste rock dump (Pahuaypite) and inactive waste rock dumps (No. 1, No. 2, No. 7, and No. 100)
- TSF Pahuaypite 1 and Pahuaypite 2
- Tailings filter plant
- Paste backfill plant
- Water management ponds (contingency ponds downstream of the TSFs)
- Temporary ore stockpile
- Process plant
- Landfill
- Ancillary buildings (administration, storage, vehicle maintenance, medical center, solid residue disposal facilities, laboratories, gas station, magazine, etc.)
- Permanent camps (five)
- Transmission lines and electrical substations
- Desalination plant

The Cerro Lindo process plant is a polymetallic flotation-based concentrator with a production rate of 20,600 tpd according to the current mine plan. The approved EIA grants authorization for a maximum production rate of 22,500 tpd. Processing is based on conventional crushing, grinding, sequential lead and copper bulk flotation followed by zinc rougher flotation, subsequent copper and lead separation and cleaner flotation, zinc cleaner flotation, and concentrate thickening and filtration to produce separate concentrates of zinc, lead, and copper with silver content.

Tailings from the process plant are thickened and then further dewatered in either the paste plant to be deposited underground, or to the filter plant to the south of the process plant to be filtered and subsequently placed in two dry-stack storage facilities, Pahuaypite 1 and Pahuaypite 2. As much as 90% of the process water from dewatered tailings is recycled with industrial fresh water being supplied from a desalination plant at the coast to meet site and process water make-up requirements. At the Mine site, there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment.

17.1.2 Environmental Baseline

The summary of the baseline characterization presented below is based on the baseline analyses included in the 2018 EIA for the mine site and the desalination plant area near Chincha.

Climate. The Cerro Lindo Mine is located at the Topará valley, which has an arid, mesothermal climate with absent or very low excess water according to the Thornthwaite climate classification. Average annual temperatures at the mine site fluctuate from approximately 12.5ºC to 18.3ºC based on data from four meteorological stations. The average annual precipitation is 69.1 mm and the average annual potential evaporation is 1,500 mm. Relative humidity varies from 37% in July to 92% in March. The predominant wind direction is from the southwest.

Higher rainfall occurs between December and March and lower rainfall is typically from May to September. April, October, and November are transition months. The seasonality of precipitation is less pronounced in the area where the desalination plant is located relative to the mine site.

Air Quality. Concentrations of the air quality parameters (particulate matter, gases, and metals [As, Pb]) that were evaluated through 2010 to 2016 were found to be below the Peruvian environmental quality standards (ECA for its acronym in Spanish). The same conclusion applies to non-ionizing radiation for the monitoring period 2010 to 2016.

Ambient Noise. Noise levels evaluated through 2009 to 2016 were found to be below the Peruvian environmental quality standards for industrial areas in both day and night monitoring periods.

Surface Water Quality. The mining operation is located at the upper Topará Creek basin. The Topará Creek flows seasonally, with higher flow during the period from January to March. Since there is not much flow available, farming activities in the valley typically rely on groundwater. Flow monitoring is conducted in six stations located along the creek bed, upstream and downstream of the mine facilities.

Concentrations of the water quality parameters (pH, dissolved oxygen, conductivity, Weak Acid Dissociable [WAD] cyanide, and metals [As, Cd, Cu, Fe, Mn, Pb, Zn]) that were evaluated through 2010 to 2016 were found for the most part to be below the values stated in the Peruvian environmental quality standards (ECA Category 3 according to water use). The water quality analysis included in the 2018 EIA presented an individual discussion for each parameter explaining how the isolated exceedances in the data record are associated with transport of materials of the natural bed, and geological and mineralogical conditions inherent to the mine location. Parameter concentrations that exceeded the standards were also detected at monitoring stations outside the area of influence of the mine.

Sediment loads monitored at the same water quality stations were compared against the Canadian Interim Sediment Quality Guidelines (ISQG) and Probable Effect Level (PEL) standards in absence of

Peruvian standards. Data show that arsenic, cadmium, mercury, lead, and zinc were consistently above the ISQG limits. The concentrations of these parameters in the sediments are associated with two factors: i) mineralization and hydrothermal alteration, and ii) external geodynamic processes mainly related to sediment transport (e.g., natural slides). A study by Amphos 21 Consulting Peru S.A.C. (Amphos 21, 2016) confirmed that the elements noted were the result of natural erosive and weathering processes from the surrounding lithologies and were not sourced from the mine.

Surface water quality is also monitored at 15 stations in Jahuay beach where the desalination plant is located. Concentrations of the water quality parameters (pH, dissolved oxygen, biochemical oxygen demand, conductivity, salinity, total suspended solids (TSS), total dissolved solids (TDS), chlorides, oil and grease, nitrites, nitrates, and phosphates) that were evaluated through 2013 to 2016 were found for the most part to be below the values stated in the Peruvian environmental quality standards (ECA Categories 1 and 2 according to water use). The water quality analysis included in the 2018 EIA presented an individual discussion for each parameter explaining how the isolated exceedances in the data record are associated with factors not related to the operation of the desalination plant.

Groundwater Quality. Monitoring of groundwater quality was conducted by Vector in 2011 at five locations, and by Nexa Peru (formerly Milpo) from 2013 through 2015 at four locations. Results were referentially compared against the Peruvian environmental quality standards (ECA Category 3 according to water use) given that Peru does not currently have standards for groundwater quality. Registered exceedances are the result of the mineralogic characteristics of the deposit.

Flora and Fauna. The results of the biological monitoring campaigns include the identification of endemic, migratory, native, naturalized, exotic and/or threatened (according to national and international criteria), economic, ecological and/or socio-culturally important species, as well as the respective characterization indices. Periodic monitoring of terrestrial fauna and flora has been carried out since 2010. Monitoring of aquatic fauna and flora has been carried out since 2013. There are no natural protected areas within the mine's area of influence.

A total of 20 species of terrestrial flora were identified in the mine area as having conservation status: 10 are endemic, nine species are included in Appendix II of CITES (2017), nine species are included in the 2017 International Union for Conservation of Nature (IUCN) annual report (IUCN, 2017), and thirteen species are registered in the Peruvian Ministry of Environment's Supreme Decree (D.S.) No. 043-2006-AG.

A total of 20 species of terrestrial flora were identified in the desalination plant area as having conservation status: eleven are endemic, eight species are included in Appendix II of CITES (2017), seven species are included in IUCN (2017), and 10 species are registered in D.S. No. 043-2006-AG.

A total of 10 species of fauna were identified in the mine area as having conservation status: two are mammals, four belong to birdlife, and four belong to herpetofauna. A total of 17 species of fauna were identified in the desalination plant area as having conservation status: five are mammals, six belong to birdlife, and six belong to herpetofauna.

Social and Heritage Considerations. As reported in Amec Foster Wheeler plc's NI 43-101 report (Amec, 2017), approximately 1,096 people, based on 2007 census figures, live in the Chavín district, and 98% of the population is classified as rural. Due to the elevation and rugged topography, much of the land is classified as unsuitable for agriculture. The primary land use is nomadic cattle grazing, with herds being constantly moved to locations where there is sufficient grass for food.

Chavín village is not regularly used, with most villagers residing in Chincha. The indirect mine influence area is considered to be the entire province of Chincha and the general Ica region, as these areas benefit from mine royalty and taxation payments.

Archaeological surveys were conducted as part of the EIA process, and Nexa Peru holds the following Non-existence of Archaeological Remains certificates (CIRA):

- CIRA No. 2006-0110, for the Jahuay–Cerro Lindo road, which confirms that there are no archaeological remains in the 60 km long road easement.
- CIRA No. 2007-253 (July 2007), for the mining operations, desalination plant area, and the powerline, which confirms that there are no archaeological remains in the 443.92 ha mine direct influence area (area also includes a buffer zone around the operations). One small (2.16 ha) archaeological site, Patahuasi, was identified within the area reviewed for the CIRA permit.
- CIRA No. 2010-381 (September 2010), for the power transmission line easement.

17.1.3 Environmental Studies and Key Environmental Issues

SLR has been provided with and reviewed the following documents and reports:

- Modification of the Cerro Lindo Environmental Impact Assessment for Expansion of the Process Plant to 22,500 Metric Tonnes per Day prepared by SRK Consulting dated January/February 2018
    - Physical Baseline
    - Biological Baseline
    - Social Baseline
    - Characterization of Environmental Impacts
    - Environmental Management Plan
- Study of Contaminated Areas – Geochemical Characterization in Support of the Confirmatory Environmental Investigation. Technical memorandum prepared by Golder Associates dated May 17, 2019
- Description of the Recirculation System of Domestic and Industrial Water – Zero-Discharge. Memorandum prepared by Nexa dated March 26, 2019
- Quarterly reports for monitoring of surface water and groundwater quality in 2018 and 2019 prepared by SGS del Perú
- Quarterly reports for monitoring of sediments in 2019 prepared by SGS del Perú
- Quarterly reports for participatory monitoring of air quality in 2018 and 2019 prepared by SGS del Perú
- Quarterly reports for monitoring of ambient noise in 2018 and 2019 prepared by SGS del Perú
- Bi-annual reports for monitoring of air quality, ambient noise and electromagnetic fields for the power transmission line and sub-stations in 2019 prepared by SGS del Perú
- Diagnostic of Compliance with ECAs in the Topará Creek – Study of Hydrogeochemistry and Water Quality prepared by Amphos 21 dated June 2016
- Cerro Lindo Management Plan for Water and Liquid Effluents developed by Nexa (PGU-CL-SSMA-MA-E)
- Cerro Lindo Preparedness and Emergency Response Plan developed by Nexa (CL-SSO-PL-01)

- Second amendment to the Cerro Lindo Mine Closure Plan prepared by Geoservice Ingeniería dated March 2016
- Independent Technical Report pursuant to National Instrument 43-101 of the Canadian Securities Administrators for Cerro Lindo Mine, Perú. Report prepared by AMEC Foster Wheeler dated September 2017

Various EIA, modifications and Supporting Technical Reports (ITS for its acronym in Spanish) have been submitted and approved between 2004 and 2019. The most recent modification of the EIA approved in 2018 corresponds to the expansion of the process plant production rate to 22,500 tpd.

The key project effects and associated management strategies, as described in the 2018 EIA, are shown in Table 17-1. The Environmental Management Plan, which addresses mitigation measures and monitoring programs, was prepared as part of EIA development with the most recent update presented in the 2018 EIA. The Environmental Management Plan includes industrial and domestic effluent discharges, surface water quality and sediment, groundwater quality, surface flow, air quality (particulate matter and gas emissions), non-ionizing radiation, noise, vibrations, soil quality, terrestrial and aquatic flora, terrestrial and aquatic fauna. In the SLR QP's opinion, the Environmental Management Plan is adequate to address potential issues related to environmental compliance.

The Environmental Management Plan states that no environmental compensation plan is required because the proposed mitigation measures ensure the preservation of the ecosystem and biodiversity of the mine site area, and all the potential environmental effects were characterized as no significant in the EIA (SRK, 2018).

No environmental issues were identified by SLR from the documentation available for review that could materially impact the ability to extract the mineral resources and mineral reserves.

Table 17-1: Summary of Key Environmental Effects and Management Strategies
Nexa Resources S.A. – Cerro Lindo Mine

Environmental Component	Potential Impact	Management Strategies
Soils	Changes to soil uses Changes to soil quality	Implementation of spills management plan for hazardous materials. Implementation of spill containment at potential accidental spill sources, as applicable. Relocation of soils contaminated as a result of hazardous materials spills in appropriate facilities. Provision of oil and grease traps at vehicle maintenance facilities. Tire washing of hauling trucks following concentrate loading. Adequate management of industrial and domestic waste. Development of appropriate topsoil deposits equipped with erosion controls. Timely rehabilitation of disturbed areas. Annual monitoring at five locations following R.M. No. 085-2014-MINAM (national guideline for soils monitoring) and the national environmental quality standards applicable to soils (D.S. No. 002-2013-MINAM and D.S. No. 002-2014-MINAM) for industrial zones.

Environmental Component	Potential Impact	Management Strategies
Geochemistry	Changes to surface water quality and/or groundwater quality	Geochemistry sampling evaluation program for tailings and waste rock.
Surface water	Changes to surface water flows Changes to surface water quality	Maximize water recirculation and re-use at the mine. Zero water discharge to the environment at the mine site. No fresh water withdrawal from natural water bodies at the mine site. Treatment of domestic sewage water prior to reusing it in the process plant. Desalination plant equipped with reverse osmosis water treatment plant. Regular inspections and maintenance program for water management infrastructure. Implementation of oil and grease traps. Inherent design measures such as design of discharge pipes from the desalination plant to promote brine dilution in a short distance. Protection of river and creek beds (e.g. controlled traffic of vehicles, no earth movements near stream beds, no washing of vehicles or machinery in stream beads, etc.). Quarterly water quality monitoring at one effluent discharge location at Jahuay beach for parameters listed in D.S. No. 010-2010-MINAM (national maximum permissible limits for liquid effluents from mining and metallurgic activities). Monthly water quality monitoring of natural streams at six stations located at the mine site area following the national protocol for surface water quality monitoring (R.J. No. 010--2016-ANA) for water bodies classified as Category 3. Monthly monitoring of maritime surface water quality at nine stations located in Jahuay beach following the national protocol for surface water quality monitoring (R.J. No. 010-2016-ANA), and using D.S. No. 004-2017-MINAM (national environmental water quality standards) for categories 1 and 2 as the reference to determine compliance. In absence of national sediment quality standards, the Canadian Environmental Quality Guidelines (2003) are used as the reference to evaluate the environmental performance for both continental and maritime surface water.
Groundwater	Changes to phreatic level Changes to groundwater quality	Implementation of seepage collection systems for waste management facilities for water re-use (and treatment if necessary). Identification of natural recharge zones due to fractures or faults. Monthly groundwater quality monitoring in eight piezometers located upstream of the mine site and downstream of waste rock dumps, TSFs and landfill. In the absence of national groundwater

Environmental Component	Potential Impact	Management Strategies
		quality standards, the Canadian Water Quality Guidelines for the Protection of Aquatic Life issued by the Canadian Council of Ministers of the Environment (2003) are used as the reference to evaluate the environmental performance.
Air quality	Changes from particulate and gas emissions	Regular preventive maintenance of vehicles and motorized equipment. Regular irrigation of access roads with tanker trucks and sprinkler systems. Irrigation of areas where mobile grinders are operated. Speed limit of 30 km/hr for vehicles circulating within the mine site according to the internal traffic regulations of Cerro Lindo. Transportation of materials in covered hoppers. Monitoring of particulate matter (PM_{10} and $PM_{2.5}$), metals (arsenic and lead), and gases (SO_2, NO_2, CO). Quarterly monitoring at nine stations at the mine site, and biannual monitoring at five stations at the desalination plant area. Compliance is determined according to applicable national air quality standards from D.S. No. 003-2017-MINAM. The selected parameters are consistent with R.D. No. 239-2011-MEM/AAM (08/08/11). Biannual monitoring of non-ionizing radiation at three stations located at the mine site and 13 stations located along the service corridors following the national environmental quality standards for non-ionizing radiation (D.S. No. 010-2005-PCM).
Noise and vibration	Disturbances resulting from changes to ambient noise levels and generation of vibrations	Use of hearing protection devices. Appropriate planning and optimization of machinery and equipment usage. Avoid simultaneous usage of transportation, demolition, and excavation vehicles. Avoid honking vehicle horns except for safety practices to prevent accidents. Regular vehicle maintenance. Implementation of blasting controls. Quaternary noise monitoring at three stations located at the mine site and biannual noise monitoring at 17 stations located along the service corridors (seven along the transmission line, nine along the water supply pipeline, and one at the road near Jahuay beach). Compliance is determined according to the maximum permissible limits from the national environmental quality standards for noise (D.S. No. 085-2003-PCM) for industrial zones. There are no inhabitants living close enough to the mine site to be potentially affected by vibrations. Hence, vibrations monitoring was not included in the monitoring program.

Environmental Component	Potential Impact	Management Strategies
Aquatic flora and fauna	Changes in abundance and diversity of aquatic species	Environmental controls for protection of local flora and fauna (several measures are outlined in the 2018 EIA). Respecting the ecosystem when carrying out any activities associated with the mine operation and closure. Zero discharge of industrial or sewage water to the environment at the mine site. Meeting water quality standards at points of effluent discharge to the environment (i.e., brine concentration from desalination plant discharge in Jahuay beach). Prohibition to dispose of solid or liquid waste in natural water bodies. Prohibition to capture fish in the mine concession areas and surroundings. Prohibition to introduce non-native species. Personnel training. Biannual monitoring (dry and wet seasons).
Terrestrial flora and fauna	Changes to vegetation cover and diversity of terrestrial flora Changes to sensitive species of wild flora	Environmental controls for protection of local flora and fauna (several measures are outlined in the 2018 EIA). Respecting the ecosystem when carrying out any activities associated with the mine operation and closure. Prohibition to collect flora. Prohibition to introduce non-native species. Prohibition of hunting, fishing, and capture of fauna within the mine concession areas and surroundings. Personnel training. Rescue or relocation of species, if required, in agreement with methods outlined in the 2018 EIA. Consideration of location of endemic species tagged for conservation when deciding on location of mine facilities. Prohibition to dispose of solid or liquid waste in the mine site area outside of the spots designated for this purpose. Biannual monitoring (dry and wet seasons).
Landscape	Changes in landscape's visual quality	Mine planning to minimize and control relief alterations. Slope physical stability. Smoothing of ground surface where applicable with implementation of banks to facilitate re-vegetation and prevent erosion. Re-vegetation.

17.1.4 Environmental Management System

Nexa uses an ISO 14001 compliant environmental management system at Cerro Lindo to support environmental management, monitoring and compliance with applicable regulatory requirements during operation.

Nexa does not have an Environmental Policy for Cerro Lindo. According to Nexa's website and the 2019 Nexa annual report, the company identifies and manages the main risks from both an operational and a strategic point of view, reducing and mitigating impacts to maintain business sustainability. The company has an integrated management system that establishes the guidelines that govern the conduct of the businesses, with a focus on quality management of environmental, health, and workplace safety and social responsibility issues. In addition, the company follows applicable environmental laws and regulations pertaining to its business in each country where it operates (Nexa, 2019).

Nexa has stated the following environmental goals in its 2020 annual report:

- 75% of recirculation and lower specific use of water.
- Reduce the specific emission of greenhouse gases by 5%.
- Decrease the disposal of tailings in dams and reduction by 50% in the specific generation of mining and smelting waste.
- Ensure that 100% of the units have a pre-prepared future-use alternative study and an updated decommissioning plan, in line with the sector's benchmark standards.

17.2 Mine Waste and Water Management

17.2.1 Environmental Geochemistry

The tailings have been identified as having a high acid generating potential, and metal leaching is anticipated. Acid generation in the tailings is a result of the presence of sulphides in the tailings, mainly in the form of pyrite. Laboratory testing identified high concentrations of the following metals from leach tests: aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, and zinc (Golder, 2019). Water quality concerns are mitigated by the relative lack of precipitation at the mine site, and managed by the infrastructure in place for seepage collection.

Geochemical testing completed by Golder (2019) identified most of the waste rock to be potentially acid generating (PAG) with exception of some neutral to uncertain results from waste dump No. 2. Acid generation in the waste rock is a result of the presence of sulphides in the rock, mainly in the form of pyrite. Metal leaching laboratory testing identified high concentrations of cadmium, copper, and zinc. Water quality concerns are mitigated by the relative lack of precipitation at the mine site and managed by the seepage collection infrastructure in place for the larger waste rock dumps.

17.2.2 Mine Waste Management

The tailings dry stacks were designed for a 1:500-year return period earthquake, however, Ausenco (2017) identified a need to evaluate the facility design for the maximum credible earthquake. Given the relatively high seismic activity of the region, and the presence of these structures for perpetuity, Ausenco's recommendation appears to be warranted.

Pahuaypite 1 and 2 are monitored using Casagrande type piezometers, inclinometers, and survey monuments. Inclinometers in Pahuaypite 1 have indicated a deformation between the natural ground and the dry stack of approximately 35 mm, or 10 mm per year. This deformation should continue to be monitored. Piezometers indicate that the stack is unsaturated. A cross-check of the tailings deposits conducted by Ausenco in 2017, and more recent annual inspection reports by Geoconsultoria (2018), indicate that there are no unusual trends in the tailings movement and that the phreatic surface of the dry stacks is near or below the interface between natural ground and tailings. No significant issues noted in monthly inspections up to April 2020.

17.2.3 Tailings Storage Facilities and Waste Rock Dumps Closure

At closure the geometry of the tailings dry stacks will be checked to conform with the design of 2H:1V bench slopes with 20 m tall benches. The dry stacks will be covered with geomembrane placed between resistant non-woven geotextile to promote geochemical stability of the acid generating tailings. The geosynthetics will be covered by 0.3 m of sand and gravel to protect the geomembrane and promote drainage. Upstream hydraulic structures such as the diversion channels and check dam will be maintained. The water management (contingency) pond will be partially backfilled with inert materials to achieve a surface with stable slopes.

The closure concept for the Pahuaypite waste rock dump and waste dump No. 100 is similar to the tailings dry stacks. The dumps will be covered with a geosynthetic clay liner protected on both sides by a layer of geotextile. The geosynthetic materials will be covered with sand and gravel 0.35 m thick on the slopes and 0.55 m thick on the dump crest. Closure concept details for the other waste rock dumps were not available for review.

Post-closure monitoring of the rehabilitated areas will continue for at least five years to confirm physical and geochemical stability. Seepage collection and treatment at the waste rock dumps might need to continue post-closure depending on water quality conditions (geochemistry analysis of waste rock samples showed high acidity generation potential).

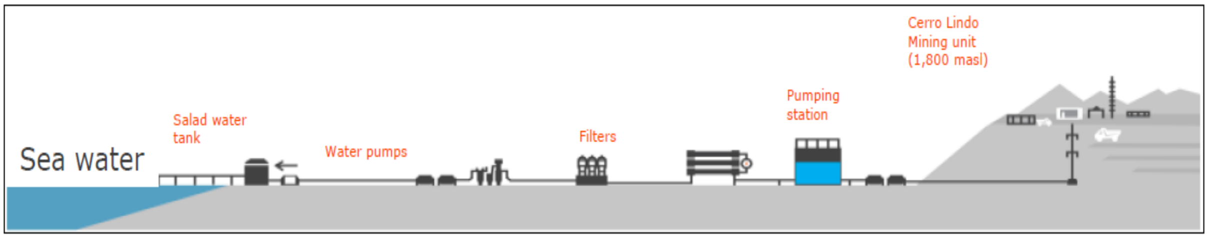
17.2.4 Water Management

The primary objective for water management is to provide enough availability of water to meet the mine operation water demands, and to ensure that the water quality and quantity of water bodies on the environmental influence area of the Cerro Lindo Mine site are not impacted by the operation.

Water conservation is a primary objective in Cerro Lindo due to the limited water availability in the area. Water is recycled and re-used as much as possible. Recycled water is obtained from the thickening process, tailings thickening process, and the filtration process. A permit to recycle a total annual volume of 3,689,712 m^3 of industrial wastewater has been granted (Directorate Resolution (D.R.) No. 1382/2007/DIGESA/SA dated May 2007). This permit remains in effect as long as Nexa does not amend or change any of the activities that were allowed under the permit, which also makes reference to the zero-discharge commitment. If an unscheduled discharge was required, Cerro Lindo must obtain authorization from Dirección General de Salud Ambiental (DIGESA) for such discharge. Quarterly monitoring reports to the national authorities in compliance with Article 9 of R.M. No. 011-96-EM/VMM are not applicable to the Cerro Lindo operations due to the zero-discharge commitment for industrial and domestic water.

Service water is primarily used underground for drilling water, cooling, dust control, and concrete/shotcrete service. Service water is provided from a central plant-wide source and distributed underground via a system of pipelines to all working areas. The mine makes very little water from geological sources. Service water is collected and pumped to the surface where it is treated for re-use.

Industrial fresh water is supplied from a desalination plant located at the coast to meet site (e.g., dust suppression) and process water make-up requirements (Figure 17-1). In addition, groundwater extraction from five groundwater wells/boreholes for a combined maximum annual flow of 48 L/s is authorized by various permits. There is no fresh water withdrawal from natural water bodies at the mine site. Approximately 60% of the total fresh water supply to the mine site is taken from the ocean with approximately 40% taken from groundwater wells.



(Source: Nexa Resources S.A.)

Figure 17-1: Water Supply System for Cerro Lindo Mine

The pumping system from the desalination plant is divided into three stages to transport the water approximately 45 km to an elevation of 2,200 m. Three pump stations are located along the six-inch pipeline route from the desalination plant to the mine site. The desalination plant takes water from the ocean with an approved maximum rate of 100 L/s (3,153,600 m^3/yr) according to D.R. No. 033-2012-ANA-ALA/MOC (SRK, 2018). The desalination plant discharges residual water from the treatment process to Jahuay Beach, which was approved by D.R. No. 002-2015-ANA-DGCRH for an annual flow of 72 L/s (SRK 2018). D.R. No. 008-2019-ANA-DCERH grants renewed authorization for effluent discharge from the desalination process. D.R. No. 0706-2012-MGP/DCG grants authorization of aquatic area usage for the submarine pipelines required for water intake and effluent discharge from the desalination process.

The mine has implemented three water treatment plants for industrial water, potable water, and domestic water (sewage). The industrial effluent treatment plant consists of a basic system of mine water clarification using three ponds. The first pond promotes settling sediments by their own weight; the second pond is used to control pH (target between 7 and 8) through lime addition and control conductivity to regulate initial metal elements present in the water; the third pond assists with precipitation of fines and water clarification prior to the water being recirculated to the process plant. There is no discharge of industrial or treated sewage water to the environment (zero-discharge commitment).

Clean water is diverted around the mine infrastructure, TSFs, and waste rock dumps where possible. Contact water resulting from surface runoff within the mine complex footprint is managed through channels and a check dam located at the head of the valley of the Pahuaypite 2 TSF. The flows are directed to lined contingency ponds at the base of the deposits. Water collected in the contingency ponds is pumped to the industrial treatment plant.

An underdrain system was constructed at the foundation/base of the TSFs (basal drainage) to conduct surface flows from the foundation toward the contingency ponds. The waste rock dumps are also equipped with an underdrain system to capture infiltration.

The most recent geochemical evaluation was conducted in 2019 on five tailings samples collected from the TSFs (Pahuaypite 1, Pahuaypite 2), and nine rock samples collected from waste rock dumps Nos. 1, 2, 7, and 100. Static geochemical testing included acid base accounting (ABA), elemental rock analysis, net acid generation (NAG) and metal leaching tests, and shake flask extraction (SFE) test. According to the results, in general, the tailings and waste rock samples showed high acidity generation potential. Tailings and waste rock at Cerro Lindo come from volcanic rocks, rich in massive sulphides mainly comprised of pyrite (50% to 95%). Pyrite oxidation generates acidity and could promote contact water with high concentrations of aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, and zinc. Water quality concerns are mitigated by the relative lack of precipitation at the mine site and managed by the infrastructure in place for seepage collection.

It is noted that a water management protocol developed by Nexa for the Cerro Lindo Mine documents a glossary of terms and definitions associated with water management, and outlines procedures and responsibilities addressing risk evaluation, legal commitments, objectives and target, operational controls, monitoring, and performance indicators.

17.3 Project Permitting

The Cerro Lindo mine operation is managed according to the environmental and closure considerations presented in three type of documents, which must be approved by directorial resolutions from the Peruvian government:

- EIA and subsequent amendments and modifications
- Supporting Technical Reports (ITS for its acronym in Spanish)
- Mine Closure Plan

Cerro Lindo complies with applicable Peruvian permitting requirements. The permits are Directorial Resolutions (RD for its acronym in Spanish) issued by the Peruvian authorities upon approval of mining environmental management instruments filed by the mining companies such as EIAs, ITS and Mine Closure Plans. The approved permits for Cerro Lindo address the authority's requirements for operation of the underground mine, TSFs, waste rock dumps, process plant, water usage and effluents discharge.

Nexa maintains and up to date record of the legal permits obtained to date, documenting the approving authority, validity period and expiry dates, status (current, canceled or superseded), and indicating if renewal is needed or not. The list of approved legal permits for Cerro Lindo provided by Nexa for review addresses the following aspects:

- Environmental impact assessment
- Domestic water treatment
- Industrial water treatment (Process Plant)
- Groundwater wells for exploration drilling
- Use of aquatic area
- Air and water quality monitoring locations
- Mine closure planning
- Beneficiation concessions
- Mine operation certificates
- Mine plans for mineral extraction
- Infrastructure
- Regulated chemical product supplies
- Use of fuel
- Licences for use of explosives

- Absence of archaeological remains

The Directorial Resolutions on environmental certifications, effluent discharge, water use, mine closure and tailings management are listed in Table 17-2. According to the record of the legal permits provided by Nexa in October 2020, the licences granted for use of water, the approved environmental certifications (i.e., EIAs and ITS), the approved mine closure plans and the licences granted for tailings disposal do not have lapsing dates and therefore renewal dates are not applicable. The Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

Table 17-2: Environmental, Mine Closure and Tailings Disposal Licences
Nexa Resources S.A. – Cerro Lindo Mine

Authority	Obligation/Licence	Date of Issue
Environmental Certifications		
DGAAM	EIA Cerro Lindo Mine - RD N° 325-2004-MEM-AAM	2/7/2004
DGASA	Approval of EIA for the Jahuay Road Project, Cerro Lindo Mine - RD N° 037-2006-MTC-16	30/5/2006
DGAAM	EIA for Water Supply, Power, and Desalination Plant - RD N° 134-2007-MEM-AAM	2/4/2007
DGAAM	First Amendment to the EIA, Cerro Lindo Mine - RD N° 204-2007-MEM-AAM	8/6/2007
DGAAM	Second Amendment to the EIA, Cerro Lindo Mine – 10,000 MT/day - RD N° 168-2010-MEM-AAM	17/5/2010
DGAAM-MINEM	Amendment to the EIA for “Production Expansion to 10,000 MT/day and Water Supply, Power, and Desalination Plant” - RD N° 239-2011-MEM/AAM	8/8/2011
DGAAM	ITS for Installation of By-Pass and Third Mill, Cerro Lindo Mine - RD N° 069-2014-MEM-AAM	30/1/2014
DGAAM	ITS for Production Expansion to 17,988 MT/day, Cerro Lindo Mine - RD N° 391-2014-MEM-AAM	31/7/2014
SENACE	ITS for Pahuaypite 1 Raising and Expansion of the Contingency Pond - RD N° 048-2016-SENACE/DCA	14/7/2016
DGAAM	Approval of Detailed Technical Memorandum (MTD) - Cerro Lindo Mine - RD N° 258-2016-MEM-DGAAM	31/8/2016
SENACE	Modification of the EIA for the Cerro Lindo Mine - RD N° 39-2018-SENACE	13/3/2018
SENACE	ITS for Auxiliary Facilities - RD N° 001-2019-SENACE-PE/DEAR	3/1/2019
SENACE	ITS for Expansion of the Concentrator Plant to 22,500 MT/day and Additional Facilities - RD N° 134-2019-SENACE-PE/DEAR	22/8/2019
SENACE	ITS for Expansion of the Concentrator Plant to 22,500 MT/day and Additional Facilities - RD N° 00145-2020-SENACE-PE/DEAR	2/12/2020
Effluent Discharge Authorization		
ANA	Effluent Discharge Authorization for Desalination Plant (Brine) - RD N° 008-2019-ANA-DGCRH	16/2/2019

Authority	Obligation/Licence	Date of Issue
	Expires on February 16, 2023	
Water Use Licences		
ALA Chincha - Pisco	Groundwater Use Licence (Well No. IRHS 182) - RA N° 057-2009-ANAALACH-P	8/4/2009
ALA Chincha - Pisco	Groundwater Use Licence (Well No. IRHS 183) - RA N° 058-2009-ANAALACH-P	8/4/2009
ALA San Juan	Groundwater Use Licence (Well No. IRHS 179) - RA N° 026/2011-ANA-ALA S.J	29/4/2011
ALA San Juan	Groundwater Use Licence (Well No. IRHS 180) - RA N° 027/2011-ANA-ALA S.J.	29/4/2011
ALA San Juan	Groundwater Use Licence (Well No. IRHS 181) - RA N° 028/2011-ANA-ALA S.J.	29/4/2011
ALA Mala - Omas - Cañete	Sea Water Use Licence, Cerro Lindo Mine - RA N° 033-2012-ANA-ALA-MOC	2/3/2012
Sanitary Wastewater Treatment Authorization		
DIGESA	Sanitary Authorization for Water Treatment System for the Cerro Lindo Concentrator Plant (Zero Effluent Discharge) - RD Nº 1382/2007/DIGESA/SA	17/5/2007
DIGESA	Sanitary Authorization for Water Treatment System for Human Consumption at the Cerro Lindo Mine - RD Nº 0231/2021/DIGESA/SA *Expires on January 14, 2025*	14/1/2021
Mine Closure Plan		
DGAAM	Mine Closure Plan, Cerro Lindo Mine - RD N° 326-2009-MEM.AAM	20/10/2009
DGAAM	First Amendment to the Mine Closure Plan, Cerro Lindo Mine - RD N° 432-2012-MEM-AAM	19/12/2012
DGAAM	First Update of the Mine Closure Plan, Cerro Lindo Mine - RD N° 084-2013-MEM-AAM	22/3/2013
DGAAM	Second Amendment to the Mine Closure Plan, Cerro Lindo Mine - RD N° 287-2016-MEM-DGAAM	29/9/2016
Tailings Disposal		
DGM - MINEM	Construction Authorization for the Pahuaypite 2 Tailings Storage Facility and Contingency Facility - RD N° 284 - 2011 -MEM-DGM/V	10/8/2011
DGM - MINEM	Construction Authorization for Temporary Tailings Storage Facility - RD N° 032-2012-MEM-DGM/V	18/1/2012
DGM - MINEM	Authorization for Operation of the Temporary Tailings Storage Facility and Contingency Pond - RD N° 138-2012-MEM-DGM/V	3/5/2012
DGM - MINEM	Authorization for Operation of the Pahuaypite 2 Filtered Tailings Storage Facility - RD N° 323-2013-MEM-DGM/V	10/10/2012
DGM - MINEM	Consent for the Pahuaypite 1 Tailings Storage Facility Raising and Authorization for Construction and Operation - RD N° 0543-2016-MEM-DGM/V	6/9/2016

Authority	Obligation/Licence	Date of Issue
DGM - MINEM	Modification of Construction Authorization for the Pahuaypite 1 Tailings Storage Facility - RD N° 0260-2018-MEM-DGM/V	21/3/2018
DGM - MINEM	Consent for the Pahuaypite 2 Tailings Storage Facility 10% Raising and Authorization for Construction and Operation - RD N° 0571-2019-MINEM-DGM/V	19/11/2019

17.4 Social or Community Requirements

17.4.1 General Context

The Cerro Lindo Mine is located in the District of Chincha in the Department of Ica, Peru. The underground mine is located approximately 240 km southeast of Lima, the capital city of Peru and 75 km northeast of Chincha, the closest major urban settlement area. The Cerro Lindo Mine is located inland and upland from both Lima and Chincha and is accessible by road.

This section presents the results of the social review based on a review of Nexa's policies, programs, social risk management systems, and/or social performance against relevant International Finance Corporation (IFC) Performance Standards (PS). The IFC PSs have been used as a framework but this social review does not represent a detailed audit of Nexa's compliance with IFC PSs or specific guidelines. Nexa's social performance is benchmarked against the following IFC 2012 PSs:

- **PS1: Social and Environmental Assessment and Management Systems** requires that companies identify, assess, and mitigate the social and environmental impacts and risks they generate throughout the lifecycle of their projects and operations. From a social perspective, the requirement includes: a comprehensive social assessment; identification of critical social impacts and risks; community consultation and engagement; information disclosure; mitigation plans to address impacts and risks; and development of an organizational structure with qualified staff and budgets to manage the overall social management system.
- **PS2: Labour and Working Conditions** incorporates the International Labour Organization conventions that seek to protect basic worker rights and promote effective worker/management relations.
- **PS4: Community Health and Safety** declares the project's duty to avoid or minimize risks and impacts to community health and safety and addresses priorities and measures to avoid and mitigate project related impacts and risks that might generate community exposure to risks of accidents and diseases.
- **PS5: Land Acquisition and Involuntary Resettlement** considers the need for land acquisition or involuntary resettlement of any individual, family or group; including the potential for economic displacement.
- **PS7: Indigenous Peoples** considers the presence of Indigenous groups, communities, or lands in the area that may be directly or indirectly affected by projects or operations.
- **PS8: Cultural Heritage**. This standard is based on the Convention on the Protection of the World Cultural and Natural Heritage. The objectives are to preserve and protect irreplaceable cultural heritage during a project's operations, whether or not it is legally protected or previously

disturbed and promote the equitable sharing of benefits from the use of cultural heritage in business activities.

It is noted that PS3 Resource Efficiency and Pollution Prevention and PS6 Biodiversity Conservation correspond to environmental performance standards. Environmental management and performance are discussed at the beginning of Section 17.

17.4.2 Social and Environmental Assessment and Management Systems

At a corporate level, Nexa has adopted the guidelines of the International Integrated Reporting Council (IIRC) and the standards for the Global Reporting Index (GRI). The IIRC guidelines promote a cohesive and integrated approach to reporting on organizational activities. The GRI standards provide best practices for public reporting on economic, environmental, and social impacts in order to help Nexa and its shareholders and stakeholders understand their corporate contribution to sustainable development. These standards were reported on in the most recent Nexa Annual Performance Report for 2019 (Nexa, 2020f). With respect to social issues, the 2019 Annual Report provided details of corporate activities aligning with the following GRI Standards:

1. Employment
2. Occupational health and safety (OHS)
3. Non-discrimination
4. Training and education
5. Diversity and equal opportunities
6. Freedom of association and collective bargaining
7. Child labour
8. Forced or compulsory labour
9. Human rights assessment
10. Local communities
11. Social assessment of suppliers
12. Socio-economic compliance

Nexa's 2019 Annual Report also includes reporting on corporate progress towards several sustainable development goals. With respect to social environment issues, these include:

1. Gender equality
2. Decent work and economic growth
3. Good health and well-being
4. Peace, justice, and strong institutions
5. Quality education
6. Reduced inequalities
7. Sustainable cities and communities
8. Responsible consumption and production
9. Life below water

Nexa has a corporate compliance policy (PC-RCC-CCI-005-EN) meant to guide Nexa representatives and third parties. The compliance policy includes the following policies and procedures:

1. Code of Conduct
2. Anti-Corruption Policy
3. Money Laundering and Financing Terrorism Prevention Policy
4. Antitrust/Competition Policy
5. Insider Trading Policy
6. Disclosure Policy
7. Compliance Program Manual
8. Money Laundering and Financing Terrorism Prevention Manual
9. Gifts and Hospitality Procedure
10. Relationships with Government Representatives Procedure
11. Travel and Entertainment Procedure
12. Integrity Due Diligence Procedure
13. Conflict of Interests Procedure

With respect to Cerro Lindo operations, Nexa has developed and utilizes a number of social management programs and tools to help the company work with the nearby communities. These include:

1. Fulfilling Commitments and Obligations
    - Compliance matrix of commitments and obligations
    - Execution matrix
2. Impact and Expectation Matrix
    - Local employability program
    - Local supply program
    - Local development program
    - Volunteering program
3. Community Relationship and Social Responsibility
    - Stakeholder matrix
    - Interactions matrix
    - Reporting tools
4. Social Conflict Management
    - Social conflict management and reporting program
    - Complaint resolution and care system

In order to better understand community-specific issues and address concerns that arise at Cerro Lindo, Nexa implements a complaint register guided by Nexa's Order and Complaint Procedure, which details roles, responsibilities, and commitments to gather and respond to complaints from the public in a fair and equitable way. All communications and complaints are recorded, investigated, evaluated, and resolved according to the Order and Complaint Procedure. The process is meant to provide Nexa with a better understanding of the local population and related issues. Nexa also maintains a compliance matrix, which is a database of relevant stakeholders and a matrix/listing of interactions with each stakeholder.

Nexa is currently seeking to extend and complete additional installations at Cerro Lindo. In order to understand the potential effects of the Cerro Lindo Mine, Nexa is relying on impact assessment studies completed in 2018 by a third-party consultant. This assessment includes a social environment impact assessment, comprised of a Social Baseline, an Environmental Impact Characterization, and an Environmental Management Strategy, which are all generally consistent with Social Impact Assessment Practices.

The Social Baseline includes a description of:

- The social areas of influence;
- The social, economic, and cultural characteristics of the population of the areas of influence of the project;
- Social-economic variables that might be affected by the project;
- Potential indicators to assess impacts of the project;
- Identification of the main social and environmental issues of relevance to the population;
- Perceptions and expectations of members of the public and other stakeholders regarding Cerro Lindo mining activities and socio-economic development; and
- The foundation for a social impact management plan to mitigate potential negative impacts and maximize potential positive benefits.

The preceding was accomplished through a variety of methods including both primary and secondary data collection. Primary data collection included field investigations such as surveys and interviews. Secondary data collection included reviews of legal documentation, information related to the areas of influence and inhabited areas, and other permits and approved studies relevant to the Cerro Lindo Mine.

The Environmental Impact Characterization assesses the potential impacts of the Cerro Lindo Mine at the various stages and includes an assessment of potential negative and positive impacts of the Mine on the social environment. These variables include:

1. Health
2. Education
3. Local Economy and Trade
4. Demographics
5. Cultural
6. Quality of Life and Human Development

The Environmental Management Strategy includes an Environmental Management Plan and Social Management Plan to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. The Social Management Plan includes a description of community needs and expectations, social projects and community benefits, and recommendations to improve the social and economic environments in the areas of influence. The Social Management Plan includes the following sub-plans:

1. Communications Plan
2. Community Relations Plan
3. Community Development Plan

Each plan is based on the empirical research and document review from the Social Baseline and Environmental Impact Characterization reports, and includes detailed descriptions of activities, budgets, timeframes, as well as measures and indicators. In the SLR QP's opinion, the Social Management Plan is adequate to address potential issues related to local communities.

The studies employed targeted surveys, interviews, and outreach with members of the public, government officials, and other stakeholders to inform the social impact assessment. The information was reviewed to understand trends and commonalities in the main social and environmental issues perceived by the public and other stakeholders. The data and reports provide a thorough account of Nexa's approach to identify, assess, and mitigate social risks related to the Cerro Lindo Mine.

17.4.3 Labour and Working Conditions

Corporately, Nexa reports that 100% of its workers in Brazil are covered by collective bargaining units but does not report on the status in Peru. Nexa also reports corporately on the freedom of association and collective bargaining. Some of the Sustainable Development Targets identified by Nexa include (but are not limited to):

- By 2030 achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value; and
- Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular migrant women, and persons in precarious employment.

As of August 2020, 358 of 595 workers at Cerro Lindo were unionized. At the time of this writing, two workers' organizations were in place at Cerro Lindo.

Nexa has adopted OHS policies to ensure the protection and promotion of the safety, human health, and welfare of employees. Corporately, Nexa reports on its health and safety performance and highlights safety as its "greatest asset". Several corporate initiatives are aimed at promoting safety, ensuring workers and contractors are trained, and that processes are in place to address any incidents that arise. In Peru, Nexa has advanced its Peru Safety Plan, which was reported to be 80% complete in the 2018. The Peru Safety Plan includes eight pillars:

1. Leadership training and awareness
2. Strengthening the OHS team
3. Implementation of the Outsourcing Management Program
4. Improvement of wellness and work regime conditions in the units
5. Standardization of processes and procedures, and improvements in Peru's mining units contingency plans
6. Team training and awareness
7. Synergy with Digital Mining actions measures
8. Industrial Automation Master Plan

At the time of this writing, site-specific information for OHS plans and operations at Cerro Lindo were unavailable for review. Recently, the total recordable injury frequency rate has varied between 2.05 (2015) and 4.85 (2014). In 2018, the rate was 3.59 and in 2019, the rates have varied between 2.06 and 2.61. Initiatives promoted at Cerro Lindo by Nexa since 2018 include the implementation of the Prevention of Fatalities and Critical Controls program for high risk management, leadership training in the roles of Risk Management and Influence Safety, and the first safety meeting with strategic suppliers with the aim of strengthening long term relationships and effective communication.

Corporately, Nexa has stated its commitment to internationally recognized human rights and prohibits any violation of human rights in its operations and suppliers. Suppliers are asked to provide information regarding both social responsibility and human rights preservation. Nexa reported that in 2018 and 2019, there were no complaints of non-compliance with any requirements related to human rights impacts, across all of its operations.

There are procedures in place for employees and contractors to report grievances and ethical violations, including directly to management, via telephone and online. At the time of this writing, there were no specific reports on the number of grievances or ethical violations relevant to Cerro Lindo.

There are two scheduled shifts (day and night) and three rotations (five shifts on, two shifts off; nine shifts on, five shifts off; and 14 shifts on, seven shifts off). This provides staff with sufficient opportunities to rest between scheduled work activities. Nexa has tried to hire from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs. Nexa has established a commitment with the Chavín and Valle de Topará communities to hire up to 25% of qualified personnel and up to 75% of labourers and sub-contractors as long as the mine operation conditions and the availability of local workforce make it possible. Hiring of local workforce is dependent on skills required by the mine operation, some of which are addressed through training programs.

Employees have access to a number of benefits including paid vacations and holidays, financial bonuses, health, education, overtime, living allowance, and other employment bonuses.

17.4.4 Community Health and Safety

Corporately, Nexa has made several commitments to improve community health and safety, as well as the overall well-being of community members. The general area already experiences poor water quality, which can affect human health through the transmission of disease. In the EIA for the expansion and additional installations at Cerro Lindo, it was concluded that the project's air, noise, and vibration effects were insignificant and would not cause any increased public health effects in nearby communities. Despite this, the impact assessment raised the potential for negative perceptions of health effects at various stages of the project, including perceived impacts to water quality and respiratory illnesses. To mitigate this, the assessment recommends ongoing communication to raise awareness and inform the public of project impacts. It is anticipated that any negative perception will decrease over time.

The impact assessment also describes health promotion activities to improve community health and safety, outside of direct project effects. This includes a program to improve dental care in the areas of direct social influence.

Nexa has also committed resources to improving overall community health, safety, and well-being for the communities in the areas of influence of the Cerro Lindo Mine. These ongoing activities include:

1. Organic Agriculture and Irrigation Project
2. Safe Water Project
3. Local Supply Project
4. Women Leaders Network Project
5. Local Training and Employability Project
6. Local Scholarship Project

Nexa has also undertaken several municipal improvements in the nearby communities including drinking water infrastructure, waste water infrastructure, and roads and transportation improvements. Nexa also encourages its employees and community members to participate in volunteer initiatives such as Christmas shows, gender equity, and equal opportunity workshops, recycling programs, and various educational programs.

The 2016 annual report from Milpo describes community participation in ongoing environmental and water quality monitoring. These programs allow for community members to learn about the Cerro Lindo Mine environmental performance as well as receive training. Nexa has continued with this participatory monitoring for water quality.

Collectively, these programs seek to improve local socio-economic conditions and support a more diverse and educated workforce.

In December of 2019, community members of Chavin and Valle de Topará interrupted the mine access road for two days alleging non-compliance with the agreement and addenda related to environmental contamination. In response to the road blockage, a roundtable discussion took place with participation of the General Social Management office of the Ministry of Energy and Mines. Cerro Lindo provided information during the discussions to demonstrate compliance with agreements and absence of signs of contamination. A coordination effort was initiated to strengthen community training on environmental matters and organize information meetings to make more transparent and facilitate the communication between the community and the mining company.

The EIA concluded that there would be one negative environmental effect on the social environment. During the construction and operation and maintenance stages of the project, job expectations from the local community may exceed the number and type of new jobs available. This impact was found to be moderately significant for both stages of the Project. In order to mitigate these impacts, the assessment recommends ongoing communication with the community and sharing of information on project phases, impacts, and economic opportunities as detailed in the Environmental Management Strategy.

The EIA also identifies positive benefits for the nearby communities. Continuation with the social programs and activities was determined to be a moderately significant contributor to positive impacts.

17.4.5 Land Acquisition and Involuntary Resettlement

The proposed expansion and additional installations at Cerro Lindo will not require any resettlement of the population as all work will be completed in the existing industrial area of the Mine. Therefore, PS5 is not applicable.

17.4.6 Indigenous Peoples

Prior to 2020 Nexa informed SLR that the Cerro Lindo operations are not located on Indigenous or immediately adjacent lands. Accordingly, PS7 was not considered applicable before. In 2020 the Peruvian Ministry of Culture stipulated the incorporation of some rural communities (Comunidades Campesinas) to the official national database of Indigenous Peoples according to the results of the national census completed in 2017. The categorization was conducted based on specific criteria set out in the current legislation to identify Indigenous Peoples (i.e., historic continuity, connection with the land, distinctive institutions, and Indigenous identity). Hence, there are rural communities that could also be identified as Indigenous groups according to the identification criteria. The community of Chavin is included in the list of rural communities added to the Indigenous Peoples database in June 2020 (belongs to the Quechuas Indigenous group).

No Indigenous studies have been carried out by Nexa related to the Cerro Lindo operations. SLR recommends that Nexa confirm the basis for the community of Chavin's categorization by the Ministry of Culture and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa's Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

17.4.7 Cultural Heritage

The EIA for the proposed expansion and additional installations at Cerro Lindo concluded that there was no presence of archaeological remains or evidence in the mine operation related areas. At the time of this writing, no information was available on Chance Find Procedures, which might be applicable as the proposed expansion undergoes construction and expanded operations commence.

17.5 Mine Closure Requirements

17.5.1 Mine Closure Plan and Regulatory Requirements

A formal Mine Closure Plan was prepared in 2009 for the mine components within the context of the Peruvian legislation and has subsequently been amended or updated four times. The Closure Plan addresses temporary, progressive and final closure actions, and post-closure inspection and monitoring. Under Article 20 of the Peruvian mine closure regulations, the first update of the Closure Plan must be submitted to the Peruvian Ministry of Energy and Mines (the Ministry) three years after approval of the initial Closure Plan, and every five years thereafter. Two years before final closure, a detailed version of the Mine Closure Plan will have to be prepared and submitted to the Ministry for review and approval. The following is a summary of the Cerro Lindo Mine Closure Plan updates to date:

- Initial Closure Plan from 2009 approved by R.D. No. 326-2009-MEM/AAM, which incorporated closure measures for the components approved in the 2004 EIA under R.D. No. 325-2004/MEM/AAM.
- First amendment of the Closure Plan from 2012 approved by R.D. No. 432-2012-MEM-AAM, which addressed operational changes approved in the 2010 EIA under R.D. No. 168-2010-MEM/AAM for the production expansion to 10,000 tpd, and the subsequent EIA modification approved in 2011 under R.D. No. 239-2011-MEM/AAM.
- Update to the Closure Plan from 2012 approved by R.D. No. 084-2013-MEM/AAM in compliance with D.S. No. 033-2005-EM, which addressed a modification of the beneficiation concession for the production expansion to 14,990 tpd (R.D. No. 298-2011-MEM-DGM/V).
- Second Closure Plan amendment from 2016 approved by R.D. No. 287-2016-MEM-DGAAM, which addressed the operational changes included in the supporting technical assessment reports approved under R.D. No. 069-2014-MEM-DGAAM (expansion to 10,000 tpd) and R.D. No. 391-2014-MEM-AAM (expansion to 17,988 tpd). Under article 2 of R.D. 287-2016-MEM-DGAAM, an annual financial assurance must be provided to the Ministry, using estimation factors set out by the Ministry.
- Third Closure Plan amendment from 2019 prepared to address mine facilities and operational changes associated with the production expansion to 22,500 tpd as approved in the modification

of the EIA completed in 2018. The Third Amendment to the Mine Closure Plan is under review and approval process by the Peruvian Authorities.

The 2008 Mine Closure Plan (Knight Piésold, 2008), the 2016 Mine Closure Plan (Geoservice Ingeniería, 2016), the conceptual closure plan included in the 2018 EIA (SRK, 2018) and the 2019 Mine Closure Plan (KCB, 2019) were available for review.

The approved period for implementing closure and post-closure in the initial Mine Closure Plan was 18 years. Post-closure monitoring, assumed to extend for five years after closure, will include monitoring of physical, geochemical, hydrological, biological, and social stability.

The specific objectives of the Cerro Lindo Mine Closure Plan are as follows:

- Health and safety – The closure activities should substantially eliminate or reduce the risks associated with public health and safety within the mine site area. In the event of residual risks, appropriate controls must be implemented to minimize the exposure. The closure activities should guarantee the health and safety of the workers.
- Physical stability – Identify and evaluate technical and environmental measures to maintain the physical stability of mine components in the short and long term (for example, resilience against seismic events and extreme hydrologic events).
- Geochemical stability – Long term closure design and measures to prevent acid rock drainage and/or metal leaching that could impact natural water bodies in compliance with requirements of the Peruvian environmental legislation related to effluents from mine facilities. The closure measures must protect human health and prevent migration of mine effluents that are not in compliance with the national legislation requirements.
- Land use – Consider possible uses of the mine site area during post-closure for agricultural, recreational, and touristic activities given the availability of water supply and distribution system and re-vegetated areas following mine closure.
- Water body use – Prevent degradation of water quality and reduction of water quantity of water bodies taking into consideration the existing conditions of receiving water bodies as the referential baseline.
- Social objectives – Develop social programs for post-closure that mitigate social effects resulting from cessation of mine operations. Measures to mitigate socio-economic effects should be addressed during the mine life. The program for community development should reinforce skills development and sustainable projects without mine support to the extent feasible. The closure plan should be aligned with local land uses and development objectives.
- Other – Implement closure activities aimed to passive care where active treatment, maintenance, and monitoring are not required in the long term.

In general, closure activities include mobilization of equipment, machinery and personnel; physical, geochemical and hydrological stabilization; dismantling of surface components; demolition, removal and disposal; and levelling and contouring of ground surface. Waste materials will be decontaminated (if required), recycled when cost effective, and disposed of at a licensed facility. Facilities containing petroleum products, chemicals, solid waste, hazardous waste, and/or contaminated soil or materials will be dismantled and managed according to regulatory requirements. All hazardous waste will need to be managed according to existing laws and regulations and will be transported off site.

The geographical area where the Cerro Lindo facilities are located is arid, characterized by very low precipitation and high evaporation. Development of vegetation is difficult in these conditions.

Accordingly, no re-vegetation of the disturbed areas is proposed although a topsoil layer will be placed at closure. Rehabilitation of the aquatic habitat is not proposed either since no detrimental effects on the aquatic environment are anticipated as a result of mine operations and closure.

A summary of the main proposed closure activities is presented in Table 17-3.

Table 17-3: Summary of Main Closure Activities
Nexa Resources S.A. – Cerro Lindo Mine

Mine Component		Closure Activities
Mine	Underground mine (portals, shafts and drilling platforms)	Dismantling and removal of equipment Installation of concrete plugs (stability of crown pillars must be assured) and backfilling with waste rock between the plugs and the exit points Recontouring of terrain at ground surface level to match original surface and promote adequate natural drainage Placing of topsoil
Waste disposal facilities	Waste dumps (Pahuaypite, No. 1, No. 2, No. 7, and No. 100) Temporary ore stockpile Landfills	Contouring of slope (physical stability) Installation of low permeability cover on waste rock dumps to limit infiltration Preservation of existing perimeter channels for management of surface runoff Construction of drainage channels Compaction and neutralization of landfill with lime
	TSFs (Pahuaypite 1 and 2)	Levelling and recontouring Installation of low permeability cover to limit infiltration Construction of drainage channels Removal of geosynthetic materials and demolition of concrete structures from water management (contingency) ponds Partial backfilling of water management (contingency) ponds with inert materials to achieve surface with stable slopes
Other infrastructure	Process plant Conveyors Tailings filter plant Paste backfill plant Water management infrastructure Shops Transmission lines and electrical substations Warehouse and auxiliary buildings Laydown areas	De-energization and cleaning Removal of equipment Dismantling, demolition, salvaging, and disposal of structures Demolition of concrete structures Transportation to authorized disposal or collection areas Recontouring of terrain and placement of ground cover layer typical of the mine site area Implementation of natural drainage and/or construction of drainage channels as applicable Removal of contaminated soils Cleaning and purification of tanks and deposits

Mine Component		Closure Activities
	Access roads Desalination plant	
Staff facilities	Mine camp Administrative buildings Potable water and sewage systems	Dismantling and removal of structures and equipment to authorized disposal areas Removal of prefabricated elements Demolition of concrete slabs Recontouring of terrain and placement of ground cover layer typical of the mine site area Implementation of natural drainage

Physical, chemical, biological, and social stability conditions following closure will be verified through implementation of the post-closure maintenance and monitoring program. Monitoring will also support the evaluation and verification of compliance with closure activities, and the identification of deviations leading to the adoption of corrective measures. The monitoring activities will be carried out considering the Peruvian Environmental Quality Standards and Maximum Permissible Limits, as well as criteria set in the Mine Closure Plan for physical, chemical, biological, and social stability.

- Post-closure maintenance activities mainly involve the development and implementation of inspection programs, and the execution of physical repair activities of mine closure infrastructure as required (for example, repairs to low permeability covers and drainage system).
- Post-closure monitoring activities involve the following:
- Physical – Inspection of mine facilities, mainly the waste rock dumps to identify cracking, displacements, and settlements on slopes; the monitoring frequency will be biannually for five years.
- Geochemical – Surface water quality monitoring in natural water bodies and receiving water bodies in order to evaluate the effectiveness of the measures established; inspection of low permeability covers; the monitoring frequency will be biannually for five years.
- Hydrological – Technical inspections of the drainage systems to identify possible erosion, settlement, collapses and obstructions; the monitoring frequency will be biannually for five years.
- Biological – Monitoring of terrestrial and aquatic biota in the surrounding areas of locations of mine components as a reference to verify biological conditions in non-disturbed areas, which are considered areas of control; the monitoring frequency will be biannually for five years (dry and wet season).
- Social – Development of a set of actions that will allow to verify the efficiency and effectiveness of the social programs at mine closure in accordance with established objectives, and adoption of corrective measures as required.

17.5.2 Closure Cost Estimate and Financial Assurance for Closure

A closure cost estimate was developed and included in the Mine Closure Plans. The total value estimated in 2019 for the remaining life of mine presented in the third modification of the Mine Closure Plan is as follows (excluding local taxes):

- Progressive Closure (2021 to 2027) US$16,722,702
- Final Closure (2028 and 2029) US$39,504,100

- Post-Closure (2030 to 2034)   US$ 930,170

According to Supreme Decree D.S. N° 262-2012-MEM/DM, the financial assurance is calculated based on inflation and discount rates in order to estimate the net present value for the mine closure cost. The total financial assurance (progressive closure, final closure and post-closure) has been calculated in 2019 considering an inflation rate of 2.37% and a discount rate of 2.14% resulting in a total of US$57,128,936 (including local taxes).

18.0 CAPITAL AND OPERATING COSTS

SLR reviewed capital and operating costs required for mining and processing of Mineral Reserves at Cerro Lindo. Costs were supplied to SLR by Nexa. Cerro Lindo is an operating mine, therefore, capital and operating cost estimates were prepared based on recent operating performance and the current operating budget for 2020. The cost estimates are accurate to within +/-10%. SLR considers these cost estimates to be reasonable, provided the production targets are realized. All costs in this section are expressed in Q4 2020 US dollars.

In both cases, capital and operating cost estimates are based on recent estimates and actual costs and considered by SLR to be reasonable.

18.1 Capital Costs

The capital costs for the Cerro Lindo LOM period are shown in Table 18-1. The Mine is a current producer, therefore there are no pre-production capital costs. The other sustaining capital costs shown are for ventilation and cooling, electrical substations, and accessories. The heavy equipment replacement costs carry on until 2027.

Table 18-1: Sustaining Capital Cost
Nexa Resources S.A. – Cerro Lindo Mine

Description	Total (US$000)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Mine Development	**66,275**	20,326	16,768	15,903	3,722	9,556	-	-	-	-	-
Equipment Replacement	**32,410**	3,744	5,136	5,195	8,860	6,651	2,824	-	-	-	-
Other Sustaining	**37,547**	8,649	6,630	(492)	7,737	3,096	1,910	3,339	3,339	3,339	-
Tailings / Dumps	**9,246**	3,082	664	5,500	-	-	-	-	-	-	-
Modernization	**9,364**	3,760	4,779	525	205	95	-	-	-	-	-
Sub-Total	**154,842**	**39,561**	**33,977**	**26,631**	**20,524**	**19,398**	**4,734**	**3,339**	**3,339**	3,339	-
Closure	**57,157**	-	-	-	-	-	-	-	-	**-**	**57,157**
Total	**211,999**	**39,561**	**33,977**	**26,631**	**20,524**	**19,398**	**4,734**	**3,339**	**3,339**	3,339	57,157

The mine closure plan engineering design was prepared to meet the Peruvian national requirements with the closure and reclamation cost assessed at $57.2 million with the distribution as indicated. The closure cost should be updated regularly to address changes and updates in the national requirements.

18.2 Operating Costs

A summary of the LOM operating costs is shown in Table 18-2.

Table 18-2: Mine Operating Cost Estimate
Nexa Resources S.A. – Cerro Lindo Mine

Description	Total LOM (US$M)	Average (US$M/yr)	LOM Unit Cost (US$/t)
UG Mining	791	88	15.18
Mine Development	231	26	4.44
Processing	623	69	11.95
G&A	157	17	3.01
Total	**1,802**	**200**	**34.58**

The average operating cost is based on a LOM period of nine years from 2021 through 2029. The operating cost inputs including labour, consumables, and supplies were based on data supplied by Nexa.

The operating cost profile, showing actuals for 2017 to 2019 and the LOM period, is shown in Figure 18-1.

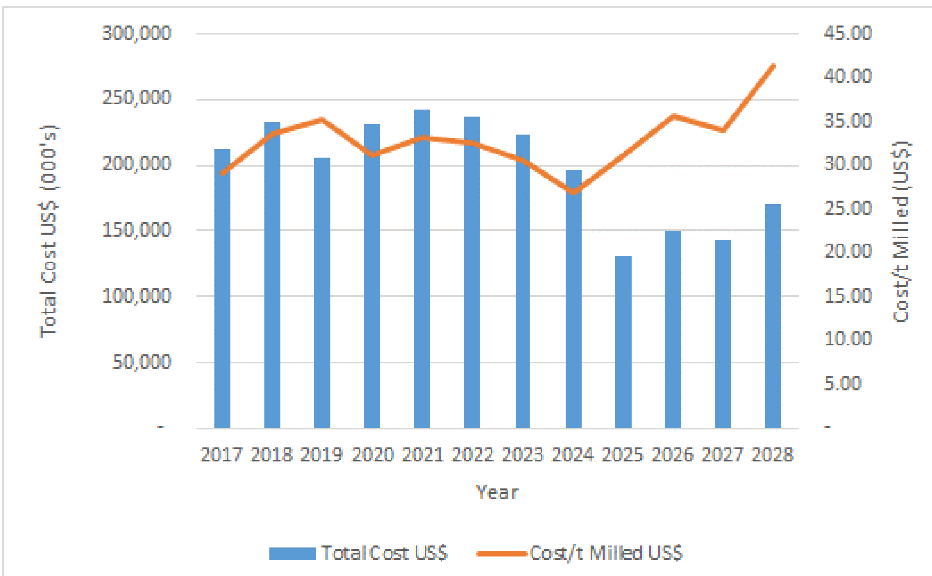


Figure 18-1: Operating Cost Profile

From 2025 onwards, the mine production falls to approximately 60% of the previous years as mining will take place close to the primary underground crusher location thereby negating use of the crusher. Transportation costs will consequently increase. The lower productivity is reflected in higher mining unit costs as indicated.

18.2.1 Manpower

The manpower breakdown and contractors list for the entire operation at Cerro Lindo are shown in Table 18-3 and Table 18-4, respectively. Cerro Lindo has historically used a significant amount of contract services. The number of contractors on site varies depending on the requirements of the mine. Table 18-4 shows the number of contractors employed for December 2020.

Table 18-3: Manpower Distribution
Nexa Resources S.A. – Cerro Lindo Mine

Area	Managers	General Staff	Operators & Technical Staff	Total
Human Resources		10	4	14
Geology and Exploration	1	9	15	25
Unit Management	1	8		9
Management	1			1
Infrastructure	1	3	3	7
Maintenance	1	23	77	101
Environment		3	6	9
Mine	1	29	206	236
Plant	1	16	91	108
Projects	1	7		8
Community Relations		4		4
Security	1	11	2	14
Technical Services	1	24	32	57
Support Staff		6	9	15
Total	**10**	**153**	**445**	**608**

Table 18-4: Contractors List - December 2020
Nexa Resources S.A. – Cerro Lindo Mine

Contractor	Area	Shift	Number
Manpower Peru	Admin & Community Relations	14 x 7	5
Explosupport S.A.C.	Exploration	14 x 7	1
Certimin S.A.	Geology	14 x 7	17
Explomin Del Peru S.A.	Geology	14 x 7	139
Newrest Peru S.A.C.	Human Resources	14 x 7	231
Movil Bus S.A.	Infrastructure	14 x 7	16
Proseguridad S.A.	Infrastructure	14 x 7	45
Sodexo Peru S.A.C.	Infrastructure	28 x 14	32
Transportes San Alejandro S.A.C.	Logistics	14 x 7 6 x 1	36
Atlas Copco Peruana S.A.	Maintenance	14 x 7	3
Cana Dyne Equipment and Services S.A.	Maintenance	14 x 7	13

Contractor	Area	Shift	Number
Confipetrol Andina S.A.	Maintenance	14 x 7	284
Distribuidora De Mangueras Hidraulicas S.A.C.	Maintenance	14 x 7	6
Epiroc Peru S.A.	Maintenance	14 x 7	31
Ferreyros S.A.	Maintenance	14 x 7	16
Industrias Islas	Maintenance	5 x 2 8 x6	17
Mb Renting	Maintenance	14 x 7	10
Sandvik Del Peru S.A.	Maintenance	14 x 7	17
Grupo Alvarado S.A.C.	Maintenance	14 x 7	2
Administracion De Empresas S.A.C.	Mine	14 x 7	390
American Renta Car S.A.C.	Mine	14 x 7	53
Dinet S.A.	Mine	14 x 7	267
Exsa S.A.	Mine	14 x 7	57
Incimmet S.A.	Mine	14 x 7	298
Tumi Contratistas Mineros S.A.C.	Mine	14 x 7	66
Union De Concreteras S.A.	Mine	14 x 7	126
Etranserge S.R.L.	Plant	14 x 7	42
Ecoserm - Chavin	Security/ Environment/ Infrastructure	14 x 7	113
Salus Laboris S.A.C.	Security	14 x 14	10
Sgs Del Peru Sac	Security/ Environment/ Infrastructure	10 x 4	3
Transporte Minero Za E.I.R.L.	Security/ Environment/ Infrastructure	14 x 7	20
Ulloa S.A.	Security/ Environment/ Infrastructure	14 x 7	22
Total			**2,388**

19.0 ECONOMIC ANALYSIS

The economic analysis contained in this Technical Report Summary is based on Cerro Lindo's Mineral Reserves reported on a 100% ownership basis (Nexa owns 80.16%), economic assumptions provided by Nexa, and the capital and operating costs as presented in Section 18 of this Technical Report Summary.

Nexa has a silver streaming agreement with Triple Flag on silver production from the Cerro Lindo Mine. Triple Flag has the rights to 65% of all payable silver, at a cost of 10% of the spot silver price (up to a total of 19.5 Moz Ag). After the total has been reached, currently anticipated to be 2027, Triple Flag is entitled to 25% of payable silver.

19.1 Economic Criteria

19.1.1 Physicals

- Mine life: 9 years (between 2021 and 2029):
- Underground Ore tonnes mined: 52,101 kt
  - Cu grade: 0.61%
  - Zn grade: 1.44%
  - Pb grade: 0.20%
  - Ag grade: 21.2 g/t
- Processed:
  - Total Ore Feed: 52,101 kt
    - Cu grade: 0.61%
    - Zn grade: 1.44%
    - Pb grade: 0.20%
    - Ag grade: 21.2 g/t
  - Contained Metal:
    - Cu:319 kt
    - Zn:748 kt
    - Pb:106 kt
    - Ag:35,472 koz
  - Metallurgical Recoveries at LOM average grade (recoveries vary as a function of head grade):
    - Cu recovery 86.3%
    - Zn recovery 88.1%
    - Pb recovery 68.6%
    - Ag in Cu recovery 39.9%
    - Ag in Pb recovery 28.9%

- Recovered Metals:
  - Cu:277 kt
  - Zn:660 kt
  - Pb:74 kt
  - Ag:26,527 koz
- Payable Metals:
  - Cu:266.7 kt
  - Zn:561.2 kt
  - Pb:70.6 kt
  - Ag:22,446 koz

19.1.2 Revenue

- Revenue is estimated based on the following LOM weighted average metal prices:
  - Cu price: US$6,458/t
  - Zn price: US$2,487/t
  - Pb price: US$1,987/t
  - Ag price - spot: US$17.01/oz
- Net Revenue includes the benefit of Cerro Lindo's zinc concentrate processed at Nexa's Cajamarquilla (CJM) zinc refinery in Peru (61%) and Três Marias (TM) (35%) and Juiz de Fora (JF) (4%) zinc refineries in Brazil. This integration with Nexa's internal refineries provides the benefit of additional US$150.34/t zinc selling price in average, and zinc smelting at cost (rather than at commercial third-party terms).
- Logistics, Treatment and Refining charges:
  - LOM average Transportation/Logistics charges:
    - Cu concentrate: US$109.26/t concentrate
    - Zn concentrate: US$64.82/t concentrate (weighted average logistic integration cost with CJM, TM, and JF refineries)
    - Pb concentrate: US$108.75/t concentrate
  - Treatment Charges:
    - TC+RC Cu concentrate: US$112.35/t concentrate
    - TC Zn concentrate for export: US$238.91/t concentrate
    - TC Pb concentrate: US$201.16/t concentrate
    - Refined Zn weighted average conversion costs at CJM, TM, and JF refineries: US$443.10/t
  - Refining Charges:
    - Ag in Cu concentrate: US$0.50/oz

- Ag in Pb concentrate: US$1.00/oz

- NSR Revenue after Logistics, Treatment and Refining charges is US$3,076 million.

19.1.3 Capital Costs

- LOM sustaining capital costs of US$154.8 million.
- LOM working capital balance of US$117.7 million.
- Closure costs of US$57.2 million were included at the end of the Mineral Reserves based LOM in year 2030.

19.1.4 Operating Costs

- LOM unit operating cost average of:
  - Mine Development: US$4.44/t mined
  - Underground Mining: US$15.18/t mined
  - Processing: US$11.95/t milled
  - G&A: US$3.01/t milled
- Total unit operating costs of US$34.58/t milled.
- LOM operating costs of US$1,801 million.

19.1.5 Taxation and Royalties

- Corporate income tax rate in Peru is 29.50%.
- Special Mining Tax (IEM/GEM) LOM average rate: 4.3%.
- Mining royalties LOM average rate: 4.3%.
- Employees participation: 8%.
- SLR has relied on a Nexa taxation model for calculation of income taxes applicable to the cash flow.

19.2 Cash Flow

SLR developed a LOM after-tax cash flow model for the Cerro Lindo Mine to confirm the economics of the LOM plan. The model is based on Nexa's TR Cerro Lindo 2020 Final2 model. The model does not take into account the following components:

- Financing costs
- Insurance
- Overhead cost for a corporate office

A cash flow summary is presented in Table 19-1. Production is reported on a 100% ownership basis (Nexa owns 80.16%). All costs are in Q4 2020 US dollars with no allowance for inflation.

Table 19-1: After-Tax Cash Flow Summary
Nexa Resources S.A. - Cerro Lindo Mine

	INPUTS	UNITS	TOTAL	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10
MINING													
Underground													
Operating Days	365	days	3,285	365	365	365	365	365	365	365	365	365	
Tonnes milled per day		tonnes / day	15,860	19,178	19,178	17,808	17,808	13,699	13,699	13,699	13,699	13,976	
Production		'000 tonnes	52,101	7,000	7,000	6,500	6,500	5,000	5,000	5,000	5,000	5,101	
Ag Grade		oz/t	0.68	0.61	0.71	0.78	0.74	0.90	0.61	0.56	0.63	0.57	
Cu Grade		%	0.61%	0.44%	0.48%	0.52%	0.59%	0.75%	0.68%	0.73%	0.73%	0.75%	
Pb Grade		%	0.20%	0.23%	0.25%	0.26%	0.22%	0.28%	0.18%	0.13%	0.13%	0.10%	
Zn Grade		%	1.44%	1.77%	1.56%	1.50%	1.38%	1.70%	1.51%	1.34%	1.12%	0.87%	
Waste		'000 tonnes	-	-	-	-	-	-	-	-	-	-	
Total Moved		'000 tonnes	52,101	7,000	7,000	6,500	6,500	5,000	5,000	5,000	5,000	5,101	
PROCESSING													
Mill Feed		'000 tonnes	52,101	7,000	7,000	6,500	6,500	5,000	5,000	5,000	5,000	5,101	
Au Grade		oz/t	-	-	-	-	-	-	-	-	-	-	
Ag Grade		oz/t	0.68	0.61	0.71	0.78	0.74	0.90	0.61	0.56	0.63	0.57	
Cu Grade		%	0.61%	0.44%	0.48%	0.52%	0.59%	0.75%	0.68%	0.73%	0.73%	0.75%	
Pb Grade		%	0.20%	0.23%	0.25%	0.26%	0.22%	0.28%	0.18%	0.13%	0.13%	0.10%	
Zn Grade		%	1.44%	1.77%	1.56%	1.50%	1.38%	1.70%	1.51%	1.34%	1.12%	0.87%	
Contained Au		oz	-	-	-	-	-	-	-	-	-	-	
Contained Ag		oz	35,471,739	4,273,185	4,974,134	5,042,177	4,806,717	4,486,838	3,025,077	2,804,072	3,133,926	2,925,613	
Contained Cu		tonnes	319,137	31,023	33,609	33,643	38,349	37,479	34,000	36,261	36,661	38,113	
Contained Pb		tonnes	106,140	15,924	17,704	17,218	14,514	14,026	8,898	6,322	6,455	5,079	
Contained Zn		tonnes	747,899	123,900	109,030	97,500	89,600	85,000	75,461	67,224	55,967	44,217	
Recovery Grade													
Cu Concentrate	Recovery #1	%											
Au			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ag			39.87%	40%	40%	40%	40%	40%	40%	40%	40%	40%	
Cu			86.9%	82%	83%	84%	90%	89%	88%	88%	88%	88%	
Pb			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Zn			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pb Concentrate	Recovery #2	%											
Au			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ag			28.9%	29%	29%	29%	29%	29%	29%	29%	29%	29%	
Cu			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pb			70.0%	71%	73%	74%	71%	75%	67%	61%	61%	58%	
Zn	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Zn Concentrate	Recovery #3	%											
Au			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ag	9%		6.00%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Cu			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pb			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Zn			88.3%	90%	89%	88%	88%	89%	88%	88%	86%	85%	
Net Recovery		%											
Au			0.0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ag			74.8%	75%	75%	75%	75%	75%	75%	75%	75%	75%	
Cu			86.9%	82%	83%	84%	90%	89%	88%	88%	88%	88%	
Pb			70.0%	71%	73%	74%	71%	75%	67%	61%	61%	58%	
Zn			88.3%	90%	89%	88%	88%	89%	88%	88%	86%	85%	
Total Average Recovery			75.2%	75%	75%	75%	75%	75%	75%	75%	75%	75%	
Recovered Amount													
Cu Concentrate	**Recovery #1**												
Au		**oz**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Ag		**oz**	**14,143,620**	**1,703,844**	**1,983,333**	**2,010,463**	**1,916,579**	**1,789,034**	**1,206,187**	**1,118,065**	**1,249,588**	**1,166,527**	
Cu		**tonnes**	**1,071,157**	**98,158**	**108,141**	**109,583**	**133,689**	**128,073**	**114,886**	**123,458**	**124,976**	**130,192**	
Pb		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Zn		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Pb Concentrate	**Recovery #2**												
Au		**oz**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Ag		**oz**	**10,254,876**	**1,235,377**	**1,438,022**	**1,457,693**	**1,389,621**	**1,297,145**	**874,549**	**810,657**	**906,018**	**845,794**	
Cu		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Pb		**tonnes**	**116,434**	**17,698**	**20,219**	**19,893**	**16,053**	**16,433**	**9,274**	**6,049**	**6,208**	**4,607**	
Zn		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Zn Concentrate	**Recovery #3**												
Au		**oz**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Ag		**oz**	**2,128,304**	**256,391**	**298,448**	**302,531**	**288,403**	**269,210**	**181,505**	**168,244**	**188,036**	**175,537**	
Cu		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Pb		**tonnes**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
Zn		**tonnes**	**1,121,767**	**188,863**	**164,355**	**146,497**	**133,662**	**129,111**	**113,442**	**100,074**	**82,094**	**63,669**	
Grades in Concentrate													
Cu Concentrate		dmt	1,071,157	98,158	108,141	109,583	133,689	128,073	114,886	123,458	124,976	130,192	
Au grade in concentrate		oz/t	-	-	-	-	-	-	-	-	-	-	
Ag grade in concentrate		oz/t	13.20	17.36	18.34	18.35	14.34	13.97	10.50	9.06	10.00	8.96	
Cu grade in concentrate	25.9%	%	25.90%	26%	26%	26%	26%	26%	26%	26%	26%	26%	
Pb grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Zn grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Concentrate Moisture	0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Cu Concentrate		wmt	1,071,157	98,158	108,141	109,583	133,689	128,073	114,886	123,458	124,976	130,192	

	INPUTS	UNITS	TOTAL	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10
Pb Concentrate		dmt	116,434	17,698	20,219	19,893	16,053	16,433	9,274	6,049	6,208	4,607	
Au grade in concentrate		oz/t	-	-	-	-	-	-	-	-	-	-	
Ag grade in concentrate		oz/t	88.07	69.80	71	73	87	79	94	134	146	184	
Cu grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Pb grade in concentrate	63.82%	%	63.82%	63.82%	63.82%	63.82%	63.82%	63.82%	63.82%	63.82%	63.82%	63.8%	
Zn grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Concentrate Moisture	0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Pb Concentrate		wmt	116,434	17,698	20,219	19,893	16,053	16,433	9,274	6,049	6,208	4,607	
Zn Concentrate		dmt	1,121,767	188,863	164,355	146,497	133,662	129,111	113,442	100,074	82,094	63,669	
Au grade in concentrate		oz/t	-	-	-	-	-	-	-	-	-	-	
Ag grade in concentrate		oz/t	1.90	1.36	1.82	2.07	2.16	2.09	1.60	1.68	2.29	2.76	
Cu grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Pb grade in concentrate		%	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Zn grade in concentrate	58.86%	%	58.86%	59%	59%	59%	59%	59%	59%	59%	59%	59%	
Concentrate Moisture	0%			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Zn Concentrate		wmt	1,121,767	188,863	164,355	146,497	133,662	129,111	113,442	100,074	82,094	63,669	
Total Tonnes Concentrate		wmt	2,309,357	304,719	292,715	275,973	283,404	273,617	237,602	229,582	213,278	198,468	
Total Recovered													
Au		**oz**	-	-	-	-	-	-	-	-	-	-	
Ag		**oz**	**26,526,801**	**3,195,612**	**3,719,802**	**3,770,687**	**3,594,603**	**3,355,389**	**2,262,241**	**2,096,967**	**2,343,642**	**2,187,859**	
Cu		**tonnes**	**277,430**	**25,423**	**28,009**	**28,382**	**34,625**	**33,171**	**29,755**	**31,976**	**32,369**	**33,720**	
Pb		**tonnes**	**74,308**	**11,295**	**12,904**	**12,696**	**10,245**	**10,488**	**5,919**	**3,861**	**3,962**	**2,940**	
Zn		**tonnes**	**660,272**	**111,165**	**96,739**	**86,228**	**78,673**	**75,995**	**66,772**	**58,903**	**48,321**	**37,476**	
REVENUE													
Metal Prices													
LOM Au		US$/oz	$1,568.10	1,901	1,613	1,553	1,466	1,466	1,500	1,500	1,500	1,500	
LOM Ag		US$/oz	$17.05	19.05	17.11	16.95	16.40	16.40	16.87	16.87	16.87	16.87	
LOM Cu		US$/tonne	$6,457.72	6,071	6,137	6,277	6,351	6,639	6,627	6,627	6,627	6,627	
LOM Pb		US$/tonne	$1,987.41	1,950	1,898	1,957	2,039	2,247	1,910	1,910	1,910	1,910	
LOM Zn		US$/tonne	$2,487.33	2,219	2,298	2,539	2,720	2,928	2,449	2,449	2,449	2,449	
Au		US$/oz Au	$1,568.10	$1,901	$1,613	$1,553	$1,466	$1,466	$1,500	$1,500	$1,500	$1,500	
Ag		US$/oz Ag	$17.05	$19.05	$17.11	$16.95	$16.40	$16.40	$16.87	$16.87	$16.87	$16.87	
Cu		US$/lb Cu	$2.93	$2.75	$2.78	$2.85	$2.88	$3.01	$3.01	$3.01	$3.01	$3.01	
Pb		US$/lb Pb	$0.90	$0.88	$0.86	$0.89	$0.92	$1.02	$0.87	$0.87	$0.87	$0.87	
Zn		US$/lb Zn	$1.13	$1.01	$1.04	$1.15	$1.23	$1.33	$1.11	$1.11	$1.11	$1.11	
Exchange Rate	1.00 US$ = 1.00 C$	US$ 1.00 = X C$	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	
Concentrate Payable %													
Cu Concentrate Payable %													
Payable Au		%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Payable Ag Grade		oz/t	11.86	15.62	16.51	16.51	12.90	12.57	9.45	8.06	9.00	7.96	
Payable Cu	24.90%	%		24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	
Pb Concentrate Payable %													
Payable Au		%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Payable Ag Grade		oz/t	83.67	66.31	67.57	69.61	82.24	74.99	89.59	127.31	138.65	174.42	
Payable Pb	60.63%	%		60.63%	60.63%	60.63%	60.63%	60.63%	60.63%	60.63%	60.63%	60.63%	
Zn Concentrate Payable %													
Payable Au		%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Payable Ag Grade		oz/t	-	-	-	-	-	-	-	-	-	-	
Payable Zn		%		50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Concentrate Payable													
Cu Concentrate Payables													
Payable Au		oz	-	-	-	-	-	-	-	-	-	-	
Payable Ag		oz	12,704,049	1,533,459	1,784,999	1,809,417	1,724,921	1,610,130	1,085,568	994,607	1,124,612	1,036,335	
Payable Cu		tonnes	266,718	24,441	26,927	27,286	33,288	31,890	28,607	30,741	31,119	32,418	
Payable Ag		US$/t conc	185.95	297.6	282.4	279.9	211.6	206.2	159.4	135.9	151.8	134.3	
Payable Cu		US$/t conc	1,407	1,512	1,528	1,563	1,581	1,653	1,650	1,650	1,650	1,650	
Pb Concentrate Payables													
Payable Au		oz	-	-	-	-	-	-	-	-	-	-	
Payable Ag		oz	9,742,133	1,173,608	1,366,121	1,384,808	1,320,140	1,232,287	830,822	770,124	860,717	803,505	
Payable Pb		tonnes	70,594	10,730	12,259	12,061	9,733	9,963	5,623	3,668	3,764	2,793	
Payable Ag		US$/t conc.	1,311	1,263	1,156	1,180	1,349	1,230	1,511	2,148	2,339	2,942	
Payable Pb		US$/t conc.	1,159	1,182	1,151	1,187	1,236	1,362	1,158	1,158	1,158	1,158	
Zn Concentrate Payables													
Payable Au		oz	-	-	-	-	-	-	-	-	-	-	
Payable Ag		oz	-	-	-	-	-	-	-	-	-	-	
Payable Zn		tonnes	561,231	94,490	82,228	73,294	66,872	64,595	56,756	50,068	41,072	31,854	
Payable Ag		US$/t conc.	-	-	-	-	-	-	-	-	-	-	
Payable Zn		US$/t conc.	1,175	1,110	1,150	1,270	1,361	1,465	1,225	1,225	1,225	1,225	
Gross Revenue													
Ag Stream Revenue		US$ '000	$196,913	$21,401	$22,375	$22,469	$20,725	$19,345	$17,514	$23,073	$25,957	$24,055	
Cu Gross Revenue		US$ '000	$1,722,389	$148,372	$165,252	$171,276	$211,415	$211,718	$189,576	$203,722	$206,226	$214,833	
Pb Gross Revenue		US$ '000	$140,299	$20,926	$23,267	$23,604	$19,845	$22,388	$10,740	$7,005	$7,189	$5,335	
Zn Gross Revenue		US$ '000	$1,395,966	$209,673	$188,961	$186,093	$181,893	$189,135	$138,996	$122,616	$100,586	$78,011	
Add Zn Gross Revenue - Intgr CJM		US$ '000	$262,660	$38,754	$36,156	$34,784	$33,507	$34,335	$26,929	$23,739	$19,403	$15,053	
Total Gross Revenue		**US$ '000**	**$3,718,228**	**$439,127**	**$436,010**	**$438,225**	**$467,386**	**$476,922**	**$383,754**	**$380,155**	**$359,362**	**$337,287**	
Total Charges													
Transport													
Cu Concentrate	C$109.26 / wmt conc	US$ '000	$117,038	$10,725	$11,816	$11,973	$14,607	$13,994	$12,553	$13,490	$13,655	$14,225	
Pb Concentrate	C$108.75 / wmt conc	US$ '000	$12,662	$1,925	$2,199	$2,163	$1,746	$1,787	$1,009	$658	$675	$501	
Zn Concentrate	C$64.82 / wmt conc	US$ '000	$72,713	$12,242	$10,654	$9,496	$8,664	$8,369	$7,353	$6,487	$5,321	$4,127	

	INPUTS	UNITS	TOTAL	2021 Year 1	2022 Year 2	2023 Year 3	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8	2029 Year 9	2030 Year 10
Treatment													
Cu Concentrate	US$112.35 / dmt conc	US$ '000	$121,181	$9,121	$11,049	$11,686	$16,152	$15,077	$13,524	$14,534	$14,712	$15,326	
Pb Concentrate	US$201.16 / dmt conc	US$ '000	$23,630	$3,777	$4,206	$4,018	$3,243	$3,237	$1,827	$1,192	$1,223	$908	
Zn Concentrate	US$238.91 / dmt conc	US$ '000	$278,595	$46,108	$40,839	$36,559	$33,400	$32,352	$28,178	$24,880	$20,398	$15,880	
Refining cost													
Ag in Pb	US$1.00 / oz	US$ '000	$9,710	$1,170	$1,362	$1,380	$1,316	$1,228	$828	$768	$858	$801	
Ag in Cu	US$0.50 / oz	US$ '000	$6,352	$767	$892	$905	$862	$805	$543	$497	$562	$518	
Cu	US$0.00 / lb	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Pb	US$0.00 / lb	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Market Participation													
Cu	NA	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Pb	NA	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Zn	NA	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Total Charges		US$ '000	$641,882	$85,834	$83,016	$78,181	$79,990	$76,849	$65,815	$62,504	$57,405	$52,287	
Net Smelter Return		US$ '000	**$3,076,346**	**$353,293**	**$352,994**	**$360,044**	**$387,396**	**$400,073**	**$317,939**	**$317,650**	**$301,956**	**$285,000**	
Royalty NSR	Input Rate Into Proforma	US$ '000	$184,414	$11,410	$16,097	$19,062	$23,851	$33,573	$21,222	$22,699	$19,893	$16,607	
Net Revenue		US$ '000	**$2,891,932**	**$341,882**	**$336,898**	**$340,982**	**$363,545**	**$366,500**	**$296,717**	**$294,951**	**$282,063**	**$268,394**	
Unit NSR		**US$/t milled**	**$55.51**	**$49**	**$48**	**$52**	**$56**	**$73**	**$59**	**$59**	**$56**	**$53**	
CUT-OFF GRADE													
OPERATING COST													
Mining (Underground)		US$/t milled	$15.18	$15	$15	$15	$15	$15	$15	$15	$15	$15	
Mine Development		US$/t milled	$4.44	$5.7	$5.7	$6.3	$5.3	$5.6	$3.8	$1.3	$1.8	$2.4	
Processing		US$/t milled	$11.95	$12	$12	$12	$12	$12	$12	$12	$12	$12	
G&A		US$/t milled	$3.01	$3	$3	$3	$3	$3	$3	$3	$3	$3	
Total Operating Cost		**US$/t milled**	**$34.57**	**$36**	**$36**	**$36**	**$35**	**$36**	**$34**	**$31**	**$32**	**$33**	
Mining (Underground)		US$ '000	$790,733	$106,238	$106,238	$98,650	$98,650	$75,884	$75,884	$75,884	$75,884	$77,420	
Mine Deveopment		US$ '000	$231,451	$40,209	$40,165	$41,158	$34,692	$27,890	$19,160	$6,631	$9,064	$12,482	
Processing		US$ '000	$622,554	$83,642	$83,642	$77,668	$77,668	$59,745	$59,745	$59,745	$59,745	$60,954	
G&A		US$ '000	$156,595	$21,039	$21,039	$19,536	$19,536	$15,028	$15,028	$15,028	$15,028	$15,332	
Total Operating Cost		**US$ '000**	**$1,801,332**	**$251,129**	**$251,085**	**$237,012**	**$230,546**	**$178,546**	**$169,816**	**$157,288**	**$159,721**	**$166,189**	
Unit Operating Cost		US$/t milled	$46.89	$48	$48	$48	$48	$51	$47	$44	$43	$43	
Other Costs		US$ '000	$25,170	$5,861	$5,896	$3,773	$3,335	$3,190	$3,115	$0	$0	$0	
Operating Cashflow		US$ '000	$1,065,430	$84,892	$79,917	$100,196	$129,664	$184,764	$123,786	$137,663	$122,342	$102,205	
			20.45	12.13	11.42	15.41	19.95	36.95	24.76	27.53	24.47	20.04	
CAPITAL COST													
Direct Cost													
Mining		US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Processing		US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Infrastructure		US$ '000	$9,364	$3,760	$4,779	$525	$205	$95	$0	$0	$0	$0	$0
Tailings		US$ '000	$9,246	$3,082	$664	$5,500	$0	$0	$0	$0	$0	$0	$0
Total Direct Cost		**US$ '000**	**$18,610**	**$6,842**	**$5,443**	**$6,025**	**$205**	**$95**	**$0**	**$0**	**$0**	**$0**	**$0**
Other Costs													
EPCM / Owners / Indirect Cost	0%	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Costs		US$ '000	**$18,610**	**$6,842**	**$5,443**	**$6,025**	**$205**	**$95**	**$0**	**$0**	**$0**	**$0**	**$0**
Contingency	0%	US$ '000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Initial Capital Cost		**US$ '000**	**$18,610**	**$6,842**	**$5,443**	**$6,025**	**$205**	**$95**	**$0**	**$0**	**$0**	**$0**	**$0**
Sustaining Mine Development		US$ '000	$66,275	$20,326	$16,768	$15,903	$3,722	$9,556	$0	$0	$0	$0	$0
Mine Equipment		US$ '000	$32,410	$3,744	$5,136	$5,195	$8,860	$6,651	$2,824	$0	$0	$0	$0
Other Sustaining		US$ '000	$37,547	$8,649	$6,630	-$492	$7,737	$3,096	$1,910	$3,339	$3,339	$3,339	$0
Working Capital		US$ '000	-$117,694	-$24,316	$2,198	$3,676	$8,524	$5,953	-$21,177	-$329	-$4,327	-$4,759	-$83,138
Reclamation and closure		US$ '000	$57,157	$0	$0	$0	$0	$0	$0	$0	$0	$0	$57,157
Total Capital Cost		**US$ '000**	**$94,306**	**$15,245**	**$36,176**	**$30,308**	**$29,047**	**$25,351**	**-$16,443**	**$3,011**	**-$988**	**-$1,419**	**-$25,981**
PRE-TAX CASH FLOW													
Net Pre-Tax Cashflow		US$ '000	$971,124	$69,648	$43,741	$69,889	$100,617	$159,413	$140,230	$134,652	$123,330	$103,624	$25,981
Cumulative Pre-Tax Cashflow		US$ '000		$69,648	$113,388	$183,277	$283,894	$443,308	$583,537	$718,189	$841,519	$945,143	$971,124
Taxes - Income Tax		US$ '000	-$407,234	-$38,710	-$37,566	-$42,758	-$52,018	-$66,308	-$45,015	-$46,442	-$42,197	-$36,219	$0
Taxes - IEM/GEM		US$ '000	-$73,291	-$8,734	-$8,783	-$10,561	-$7,562	-$11,411	-$6,922	-$7,564	-$6,489	-$5,265	$0
After-Tax Cashflow		US$ '000	$490,600	$22,204	-$2,608	$16,570	$41,037	$81,695	$88,292	$80,646	$74,644	$62,140	$25,981
Cumulative After-Tax Cashflow		US$ '000		$22,204	$19,596	$36,166	$77,203	$158,897	$247,189	$327,835	$402,479	$464,618	$490,600
PROJECT ECONOMICS			mid-year period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
Pre-Tax IRR		%	N/A										
Pre-tax NPV at 8% discounting	8%	US$ '000	$666,534										
Pre-tax NPV at 9% discounting	**9%**	**US$ '000**	**$638,581**										
Pre-tax NPV at 10% discounting	10%	US$ '000	$612,341										
After-Tax IRR		%	N/A										
After-Tax NPV at 8% discounting	8%	US$ '000	$319,406										
After-Tax NPV at 9% discounting	**9%**	**US$ '000**	**$304,001**										
After-tax NPV at 10% discounting	10%	US$ '000	$289,527										

19.2.1 Cash Flow Analysis

Mine economics have been evaluated using the discounted cash flow method, using mid-year discounting convention, and taking into account annual processed tonnages and copper, zinc, lead, and silver grades. The associated process recovery, copper, zinc, and lead concentrate grades, metal prices, operating costs, refining and transportation charges, royalties, and capital expenditures were also considered.

The economic analysis confirmed that the Cerro Lindo Mineral Reserves are economically viable. The pre-tax net present value (NPV) at an 9% base discount rate is US$639 million and the after-tax NPV at an 9% base discount is US$304 million, on a 100% Mine basis (Nexa owns 80.16%).

The summary of the results of the cash flow analysis is presented in Table 19-2.

Table 19-2: Cash Flow Analysis
Nexa Resources S.A. – Cerro Lindo Mine

Item	Discount Rate	Units	Value
Pre-tax NPV at 8% discount	8%	US$ million	667
Pre-tax NPV at 9% discount	**9%**	**US$ million**	**639**
Pre-tax NPV at 10% discount	10%	US$ million	612
After-Tax NPV at 8% discount	8%	US$ million	319
After-Tax NPV at 9% discount	**9%**	**US$ million**	**304**
After-tax NPV at 10% discount	10%	US$ million	290

The undiscounted pre-tax cash flow is US$971 million, and the undiscounted after-tax cash flow is US$491 million. For this cash flow analysis, the internal rate of return (IRR) and payback are not applicable as there is no negative initial cash flow (no initial investment to be recovered).

19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at an 9% discount rate. The following items were examined:

- Metal prices
- Head grade
- Metallurgical recovery
- Operating costs, and
- Capital costs

After-tax sensitivity over the base case has been calculated for -20% to +20% (for head grade), -10% to +5% (for recoveries), -20% to +20% (for metal prices), and -5% to +15% (operating costs and capital costs) variations to determine the most sensitive parameter of this project. The sensitivities are shown in Table 19-3 and Figure 19-1.

Table 19-3: After-Tax Sensitivity Analysis
Nexa Resources S.A. – Cerro Lindo Mine

	Head Grade	NPV at 9% (US$ million)
80%	Cu:0.49% Zn:1.15% Pb:0.16% Ag:16.9 g/t	71
90%	Cu:0.55% Zn:1.29% Pb:0.18% Ag:19.1 g/t	188
100%	**Cu:0.61% Zn:1.44% Pb:0.20% Ag:21.2** g/t	**304**
110%	Cu:0.67% Zn:1.58% Pb:0.22% Ag:23.3 g/t	416
120%	Cu:0.74% Zn:1.72% Pb:0.24% Ag:25.4 g/t	530
	Net average Recovery (all metals)	**NPV at 9% (US$ million)**
90%	79%	188
98%	84%	245
100%	**88%**	**304**
103%	90%	332
105%	92%	361
	Metal Prices	**NPV at 9% (US$ million)**
80%	Cu:$2.33/lb Zn:$0.90/lb Pb:$0.71/lb Ag:$13.68/oz	23
90%	Cu:$2.62/lb Zn:$1.02/lb Pb:$0.80/lb Ag:$15.39/oz	164
100%	**Cu:$2.91/lb Zn:$1.13/lb Pb:$0.89/lb Ag:$17.10/oz**	**304**
110%	Cu:$3.20/lb Zn:$1.24/lb Pb:$0.98/lb Ag:$18.81/oz	440
120%	Cu:$3.49/lb Zn:$1.35/lb Pb:$1.07/lb Ag:$20.52/oz	577
	Operating Costs (US$ million)	**NPV at 9% (US$ million)**
95.0%	1,711	370
97.5%	1,756	337
100.0%	**1,801**	**304**
107.5%	1,936	205
115.0%	2,072	107
	Capital Costs – Sustaining & Closure (US$ million)	**NPV at 9% (US$ million)**
95.0%	201	308
97.5%	207	306
100.0%	**212**	**304**
107.5%	228	297
115.0%	244	291

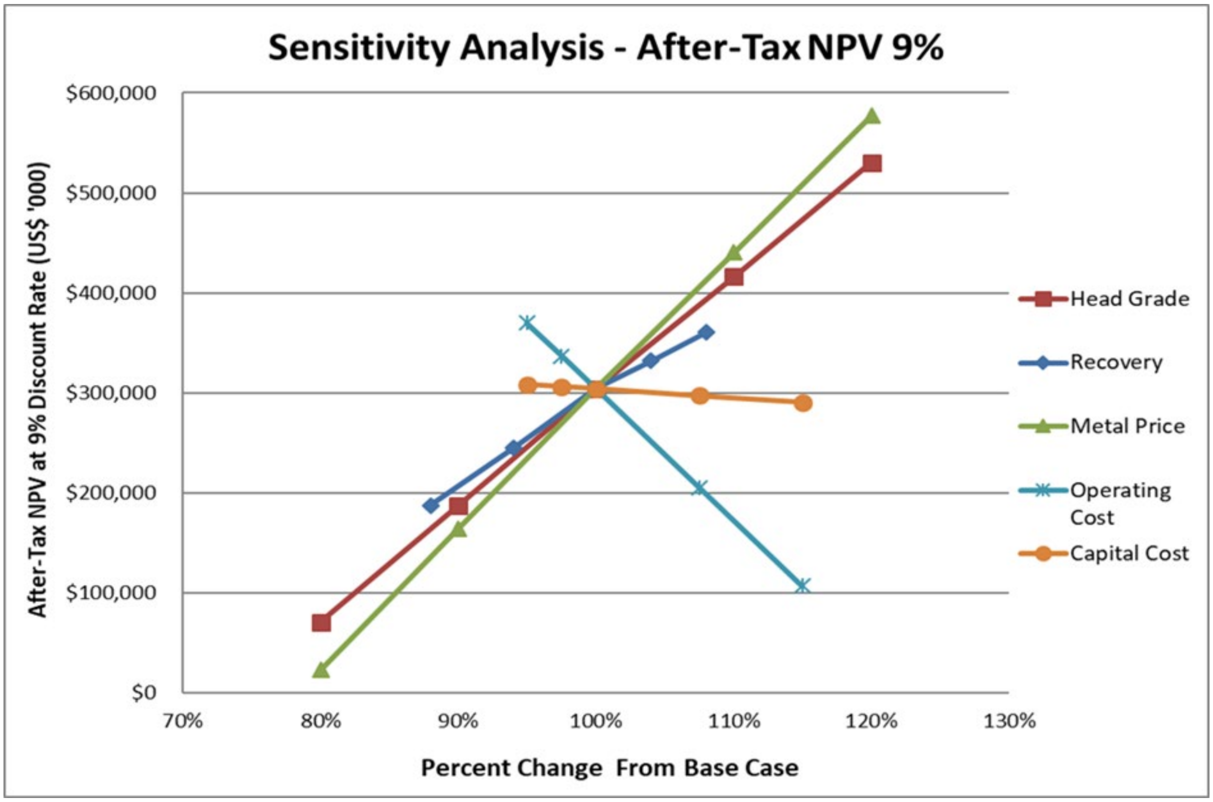


Figure 19-1: After-Tax NPV Sensitivity Graph

The after-tax NPV is most sensitive to metal prices, then to head grade, followed by operating costs, metallurgical recoveries, and capital costs.

20.0 ADJACENT PROPERTIES

There are no adjacent properties to report in this section.

21.0 OTHER RELEVANT DATA AND INFORMATION

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

22.0 INTERPRETATION AND CONCLUSIONS

SLR has the following conclusions by area.

22.1 Geology and Mineral Resources

- As of December 31, 2020, exclusive of Mineral Reserves, Measured Mineral Resources are estimated to total 3.53 Mt at 2.00% Zn, 0.20% Pb, 0.67% Cu, and 19.61 g/t Ag and Indicated Mineral Resources are estimated to total 2.77 Mt at 1.37% Zn, 0.25% Pb, 0.45% Cu, and 24.96 g/t Ag. In addition, Inferred Mineral Resources are estimated to total 6.30 Mt at 1.28% Zn, 0.35% Pb, 0.33% Cu, and 31.23 g/t Ag. Mineral Resources are reported on an 80.16% Nexa attributable ownership basis.
- Cerro Lindo is a Kuroko-style VMS deposit that comprises a number of lens-shaped massive and semi-massive sulphide bodies.
- Three massive sulphide units, one semi-massive sulphide unit, and one mineralized volcanic rock unit have been recognized.
- The control of mineralization is lithological, mineralogical, and structural. Most copper mineralization is located in a pyritic massive sulphide unit and most zinc mineralization is located in baritic massive sulphide units, with lesser disseminated mineralization as patches or stringers in the semi-massive sulphide and mineralized volcanic units.
- The geological setting, geophysical studies, surface samples and geological mapping of the Cerro Lindo area present good exploration potential, as a number of targets have already been identified within a ten kilometre radius of the mining operation.
- Protocols for drilling, sampling preparation and analysis, verification, and security meet industry standard practices and are appropriate for the purposes of a Mineral Resource estimate.
- The QA/QC program as designed and implemented by Nexa is adequate, with no significant bias, to support the resource database. The resource database was verified by SLR and is suitable for Mineral Resource estimation.
- The geological models are reasonably constructed using available geological information and are appropriate for Mineral Resource estimation.
- The assumptions, parameters, and methodology used for the Cerro Lindo Mineral Resource estimate are appropriate for the style of mineralization and proposed mining methods.

22.2 Mining and Mineral Reserves

- As of December 31. 2020, Proven and Probable Mineral Reserves are estimated to total 41.76 Mt at 1.44% Zn, 0.20% Pb, 0.61% Cu, and 21.17 g/t Ag. Mineral Reserves are reported on an 80.16% Nexa attributable ownership basis.
- Dilution and extraction factors follow the historical trend and are considered appropriate for the type of stoping methods employed at Cerro Lindo.
- The level of dilution will likely increase in the latter years of production as the stopes on the fringes of the deposit will increase exposing the stopes to more external dilution.
- The level of extraction will likely decrease under similar circumstances as more care will be required to avoid excess dilution in the ore.

- Modifications to the mining approach for the areas requiring a more conventional method such as C&F will be required in the latter years when mining the fringes of the deposit. Paste backfill delivery is an issue when stopes are distant from the paste fill source requiring dilution with water which in turn can result in lower strength backfill. This does not represent a significant risk to the Mineral Reserve estimate, as C&F represents a small amount of the total Mineral Reserves. Pastefill can also be substituted with CRF. CRF can be mixed underground closer to the C&F stopes.

22.3 Mineral Processing

- The development of a geometallurgical model to predict metallurgical response during future processing at Cerro Lindo remains a work in progress. Additional work and metallurgical testing are necessary to confirm the validity of the relationships derived to date for throughput, grinding media consumption, recovery, and concentrate quality.
- Analysis of historical production demonstrates that recoveries of copper, lead, and zinc are related to their head grades, while silver recoveries to the copper and lead concentrates tend to follow the copper and lead head grades.
- Average LOM planned head grades of copper, lead, and silver for the next three years are similar to those experienced from 2016 to 2020 at 0.48%, 0.25%, and 0.70 oz/t, respectively, while the planned head grades of zinc decrease steadily from 1.8% after 2020.
- Head grades towards the end of the LOM are anticipated to decrease, particularly those of zinc. Forecast recoveries and concentrate grades are initially in line with those of recent years, and then predicted to fall as head grades decrease.
- Apart from decreasing head grades, no fundamental changes to the concentrator feed are anticipated, and in the QP's opinion, based on recent processing plant performance, the forecast recoveries and concentrate qualities for the near future are reasonable. With end of LOM zinc and lead head grades being well below the historical ranges, however, there is a risk that actual recoveries may be lower than forecast due to the lack of data on processing material with these low head grades.
- A small amount of transition or supergene ore has been identified in two stopes, and test work is underway to determine economical alternatives for processing the ore, e.g., by campaigning the supergene material through the processing plant using conditions and reagents optimized specifically for this material.

22.4 Environment, Permitting and Social Considerations

- No known environmental issues were identified during the site visit and documentation review. The Cerro Lindo Mine operation complies with applicable Peruvian permitting requirements and Nexa maintains a list of permits for the Project, which was provided to SLR. The approved permits address the authority's requirements for operation of the underground mine, TSF, waste rock dumps, process plant, water usage, and effluents discharge. There is no discharge of industrial or domestic water to the environment at the mine site.
- There is a comprehensive EMP in place, which includes a complete monitoring program for effluent discharges, gas emissions, air quality, non-ionizing radiation, noise, surface water quality, groundwater quality, soil quality, terrestrial biology (vegetation and wildlife), and aquatic biology. Cerro Lindo reports the results of the monitoring program to the authorities according to the

frequency stated in the approved resolutions and no compliance issues have been raised by the authorities. In the SLR QP's opinion the proposed environmental plans are adequate to address potential issues related to environmental compliance.

- Regarding the tailings dry-stack storage facilities, some movement of the tailings relative to the foundation has been noted from the tailings monitoring data, however, phreatic levels in the tailings are very low and the range of movement is considered to be within normal parameters. It is noted that the likelihood of the mine site experiencing a severe seismic event is relatively high given the mine site proximity to a major tectonic plate subduction zone.
- Water management involves complete recirculation of water at the mine site where there is no fresh water withdrawal from natural water bodies and there is no discharge of industrial or treated sewage water to the environment. Fresh water is being supplied from a desalination plant located at the coast to meet site and process water make-up requirements. Water quality monitoring is carried out monthly at stations located along the Topará Creek at the mine site and in Jahuay beach at the discharge location from the desalination plant.
- A Mine Closure Plan has been developed for all the Mine components within the context of Peruvian legislation and is periodically updated.
- A social baseline description, assessment of socio-economic impacts, and a social management plan have been carried out to mitigate negative impacts and maximize positive benefits of the Cerro Lindo Mine. These components are generally consistent with social impact assessment practices. The Social Management Plan is comprised of three plans (Communications Plan, Community Relations Plan, and Community Development Plan) and includes measures and indicators to track social management performance. Nexa implements a complaint register to gather and respond to complaints from the public. In the SLR QP's opinion the Social Management Plan and the grievance mechanism in place are adequate to address potential issues related to local communities.
- Nexa hires from the local workforce when possible, both for skilled and unskilled workers. Outreach is conducted to the local community through social and employment programs.
- The review of social aspects indicates that, at present, Nexa's operations at the Cerro Lindo site in Peru are a positive contribution to sustainability and community well-being. Nexa has established and continues to implement its various Corporate policies, procedures, and practices in a manner consistent with relevant IFC Performance Standards. Nexa has, and continues to make, a positive contribution to the communities most affected by the Mine and has done a thorough job in collecting information to support its environmental effects assessment. Information regarding the outcomes of the complaints and grievances reports and site-specific health and safety practices was not provided at the time of this review, however, the corporate policies that guide these activities are clear and aligned with IFC Performance Standards.
- The water quality concerns outside of the mine site that communities express from time to time remain a risk for the operations at Cerro Lindo.

22.5 Costs and Economic Analysis

- SLR reviewed the sustaining capital costs and considers them to be appropriate for the remaining mine life. The sustaining capital costs are spread over the LOM period from 2021 to 2029, with mine closure in 2030. The bulk of the sustaining capital is mine development required to both access and develop the stoping blocks for mining. Equipment replacement is comprised of new equipment and equipment overhauls.

- The LOM operating cost forecast reflects the existing operating status of the mine. The SLR QP has reviewed recent operating costs and is of the opinion that the forecast is appropriate for the Cerro Lindo mine operation. Cerro Lindo staff also continue to assess operating efficiencies and approaches in efforts to improve operating costs in the different cost centres.
- The economics of the Cerro Lindo mine operation are robust over the LOM, confirming that the Cerro Lindo Mineral Reserves are economically viable. The economic analysis shows an after-tax NPV, at an 9% base discount rate, of $304 million, on a 100% Mine basis (Nexa owns 80.16%).

23.0 RECOMMENDATIONS

SLR has the following recommendations by area.

23.1 Geology and Mineral Resources

1. Improve reconciliation processes by implementing a formal procedure and by forming a multi-disciplinary team to organize and analyze reconciliation results so that production data can be used to calibrate future resource and reserve models.
2. Investigate the potential 5% negative bias for lead at Inspectorate Lima.
3. Incorporate controls to reduce failure rates observed for some lead and silver CRMs.
4. Actively monitor blank results so any contamination issues can be corrected immediately, particularly the mine samples where there is no remaining core for re-analysis.
5. Take density measurements for SOP, SOB, and SLB domains, and collect more density samples at the extremities of the mineralization where resource and reserve shapes were generated.
6. Investigate building grade domains without separating them by geological domain to preserve grade continuity, evaluate incorporating mineralogy data, and review the geometry and trends of the grade domains
7. Improve DA angles particularly for the OB1 area based on grade trends and structural interpretations and potential further sub-domaining.
8. Continuously improve post-mineralization dike modelling to capture more of the logged intercepts and core angles, as well as contacts based on the underground mapping. Dikes are important to delimit internal waste and to guide the local interpolation strategy as some of them are behaving like faults by controlling the mineralization trends.
9. Build a more detailed structural model and structural domains to customize local search anisotropies and directions. It appears that there are at least four main structural trends present (northwest-southeast dipping northeast, northwest-southeast dipping southwest, northeast-southwest dipping northwest, and west-northwest/east-southeast dipping northwest and plunging west-northwest) that should be investigated further. Some mineralization domains appear to have mineralization trending in various directions due to local faulting and folding and further sub-domaining may be warranted.
10. Using the production data, monitor the chosen drill spacing for SSM and VM to determine if sufficient confidence is provided to support detailed mine planning, as these domains show less grade continuity and more grade variability than the massive sulphide domains.
11. Optimize resource shapes to reduce unnecessary internal dilution and improve grades, and possibly generate more shapes that were not built due to the resource shape construction methodology used.
12. Generate a no survey solid to account for the mined-out areas that were not surveyed, and document work to support the resultant solid.
13. Document all the data support to define non-recoverable solids and document any changes.
14. Complete the proposed 2021 exploration program, consisting of a 35,100 m of diamond drilling, and continue with advanced exploration, including geological mapping, and geochemical and geophysical surveys. The 2021 exploration program budget is approximately US$7.1 million.

15. Complete the proposed 2021 mine geology drilling, consisting of 48,000 m with a goal of upgrading Inferred Mineral Resources to Indicated or Measured Resources (recategorization drilling) and for mine planning purpose (infill drilling) and ultimately convert them into Probable or Proven Mineral Reserves. The 2021 mine geology drilling program budget is approximately US$3.1 million.

23.2 Mining and Mineral Reserves

1. Review the stope designs to address the potential for increased dilution as mining nears the deposit limits. The use of shanty back design could be useful in addressing this issue.
2. Adjust the mining methods to reduce the level of internal dilution. Trade-off studies will be required to assess all aspects of the methods.
3. Complete a trade-off study comparing the use of CRF in areas that are distant from the paste fill source requiring high water content for delivery and lowering the backfill quality.
4. Consider upgrading the mine's underground data-communications capabilities by replacing the present leaky-feeder system with a Wi-Fi fibre-optic network or a 4G-LTE cellular network.
5. An upgraded communications system will permit implementing centralized control and monitoring of underground operations from a control room on surface. These centralized functions can include real-time tracking of personnel and equipment, telemetry, ventilation-on-demand, and closed-circuit television, among other applications.
6. With a wireless communications system, consider implementing automated and/or tele-remote technology to operate equipment from control stations on surface. The technology can be used for mucking stopes, mucking development headings, production drilling, crushing, and operating rockbreakers, among other applications. A significant benefit is that it allows many mining operations to continue during otherwise non-productive periods, including lunch breaks, shift changes, blasting times, and ventilating smoke.

23.3 Mineral Processing

1. Re-evaluate the potential benefits that may be derived from a geometallurgical model to determine if additional test work and further development of a geometallurgical model will provide more valuable information than what is already available from test work results.
2. Conduct flotation test work on ore samples representing the lower lead and zinc head grades anticipated towards the end of the LOM to provide information on recovery and concentrate quality for planning purposes.
3. Continue investigations into development of processing conditions suitable for campaigning transition/supergene ore through the plant.

23.4 Environment, Permitting and Social Considerations

1. Continue identifying and comparing solutions for storing tailings for the remainder of the LOM.
2. Evaluate the long term environmental impacts of allowing the tailings valley runoff to pond against and seep through the Pahuaypite waste rock dump.
3. Continue with participatory monitoring of water quality and implement social commitments to help improve access to water and water quality in the area.

4. Sourcing local employment may be difficult with expanded and continued operations as Nexa has already reported that sourcing local employees has, at times, been challenging. Continue with commitments in educating, training, recruitment, and diversity targeted to the local workforce.
5. Improve social and employment policies and procedures by developing mechanisms to communicate the outcomes of the employee and community focused activities with stakeholders and the public, particularly with a focus on access to water and perception about water quality.
6. Confirm the basis for the community of Chavin's categorization as an Indigenous group by the Ministry of Culture in 2020 and conduct a gap analysis with respect to its 2018 impact assessment studies to determine the need for additional socio-cultural studies focused on Indigenous Peoples. The categorization of the community of Chavin by the Ministry of Culture should be explicitly acknowledged in Nexa's Social Management Plan and its sub-plans (Communications Plan, Social Concertation Plan, and Community Development Plan) modified accordingly.

23.5 Costs and Economic Analysis

1. Continuously monitor costs and lock in costs as soon as possible to eliminate economic uncertainty.
2. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.

24.0 REFERENCES

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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

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

- Information available to SLR at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Nexa.

For the purpose of the Summary and Section 3 of this report, SLR has relied on ownership information provided in an internal legal opinion by Magaly Bardales, Legal Corporate Manager and Institutional Affairs dated August 16, 2020 (Nexa, 2020a) and a supporting email from Nexa dated January 18, 2021. SLR has not researched property title or mineral rights for the Cerro Lindo Mine as we consider it reasonable to rely on Nexa's legal counsel who is responsible for maintaining this information.

SLR has relied on Nexa for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Mine in the Summary and Section 19. As the Mine has been in operation for over ten years, Nexa has considerable experience in this area.

The Qualified Persons have taken all appropriate steps, in their professional opinion, to ensure that the above information from Nexa is sound.

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

26.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report Summary on the Cerro Lindo Mine, Department of Ica, Peru” with an effective date of December 31, 2020 was prepared and signed by:

SLR Consulting (Canada) Ltd. **(Signed)** ***SLR Consulting (Canada) Ltd.***

Dated at Toronto, ON
January 29, 2021

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