

➔ **Technical Report on the Nechí Alluvial  
Gold Mineral Resource and Mineral  
Reserve Estimates, Antioquia  
Department, Colombia  
Report for NI 43-101**

**Mineros S.A.**

SLR Project No: 233.03444.R0000

September 15, 2021

**SLR** 



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# 1.0 SUMMARY

## 1.1 Executive Summary

SLR Consulting (Canada) Ltd (SLR) was retained by Mineros S.A. (Mineros) to prepare an independent technical report (Technical Report) on Mineros' Nechí alluvial gold mining operations (Nechí Alluvial Property) located in Colombia, South America. In 2019, SLR acquired Roscoe Postle Associates Inc. (RPA), which has been involved with the Nechí Alluvial Property since 2008. For the purpose of the Technical Report, references to SLR include RPA.

The purpose of this Technical Report is to support the disclosure of Mineral Resources and Mineral Reserves as of June 30, 2021, and to support a potential going-public transaction in Canada. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) as published by the Canadian Securities Administrators (the umbrella organization of Canada's provincial and territorial securities regulators). The effective date of this Technical Report is June 30, 2021.

SLR visited the Nechí Alluvial Property in Colombia in 2008, 2010, 2017, and most recently on August 17 to 19, 2021. Several discussions were held by teleconference and data was transferred by email and an ftp site.

Mineros is a publicly traded, Colombian-incorporated mining company, with corporate headquarters in Medellín, Antioquia Department. Its Nechí Alluvial Property is based in El Bagre, 190 km north of Medellín.

The Nechí Alluvial Property is in production and operations are centred in the town of El Bagre, located at the confluence of the Tiqüi and Nechí rivers. The Nechí alluvial deposits have been exploited for gold by commercial dredging since 1937. The alluvial and terrace deposits and their source-gold quartz vein deposits hosted in intrusive rocks, flanking and upstream of them, have been worked by local artisanal miners since antiquity. Alluvial and informal mining activities continue in the region to the present and have resulted in impacts to the local and regional environments. Mineros purchased the mining concession titles covering the Nechí alluvial gold deposits from Pato Consolidated Gold Dredging Limited (Pato Consolidated) in 1974. Except for minor labour and social disruptions, the Nechí Alluvial Property has been in continuous operation and production since its acquisition by Mineros.

The Nechí Alluvial Property is approved and operated in accordance with applicable federal and regional requirements, as per the Plan de Manejo Ambiental (Environmental Management Plan, EMP) and applicable permit requirements and corporate social responsibilities and sustainability objectives. Mineros' operations are setting the industry standard for environmental and social management in the region.

There are four main mining methods carried out at the Nechí Alluvial Property. The first, and predominant, method is alluvial plain mining using a combination of suction and bucket line dredges. The second method is suction plain mining using new "Brazilian" suction dredges that have on board processing plants. The third method is by the "Llanuras" production unit, which comprises a suction dredge (No. 20) for overburden removal, a modified suction dredge (No. 21) for mining the gold-bearing gravels, and a new floating plant called the "Llanuras Plant". The fourth method is terrace/old tailings mining using an amphibious excavator.

Mineros gold production from the Nechí Alluvial Property from 1974 to 2021 totals approximately 3.0 million ounces (Moz) Au, averaging approximately 61,600 ounces (oz) Au annually from 1974 to 2009 and 83,500 oz Au annually from 2010 to 2021. Mineros currently operates five dredge production units, each consisting of a wheel cutter suction dredge stripping mud and clay overburden ahead of a bucket

line dredge that mines and processes underlying gold-bearing gravels and sands to a maximum depth of 30 m. Bucket line dredging currently accounts for approximately 81% of production. The Llanuras production unit is used to work smaller blocks of alluvial plains reserves and 12 “Brazilian” rotary-head suction dredges are allocated to mine alluvial plains, terraces and old tailings. A floating excavator and trailing floating plant account for small production from old Pato Consolidated era tailings (“cargeros”) in the southwest area of the Nechí Alluvial Property.

Mineros carries out drilling with Ward placer drills to explore the continuity of alluvial gold deposits along the Nechí River north of its operations to the confluence with the Cauca River, for in-fill drilling of Mineral Resources to upgrade them to Mineral Reserves and for grade control. Recent drilling has also been carried out and is ongoing along the west bank of the Nechí River to explore river terraces and potentially develop additional alluvial gold resources and reserves. In 2021, Mineros purchased a track-mounted sonic drill.

### 1.1.1 Conclusions

Mineros purchased the mining titles that constitute the Nechí Alluvial Property and alluvial mining equipment from Pato Consolidated in 1974. Mineros’ Nechí Alluvial operations have continued virtually uninterrupted since 1974. Additional concession contracts have been continuously acquired since 1974 as part of ongoing exploration to delineate Mineral Resources and Mineral Reserves. Mineros has estimated Mineral Resources and Mineral Reserves and has prepared a Life of Mine (LOM) plan that covers a period of approximately 13 years from 2021 to 2034 based on Proven and Probable Mineral Reserves. This LOM plan demonstrates the economic viability of the Mineral Reserves.

SLR offers the following conclusions and opinions:

- As of June 30, 2021, the Proven Mineral Reserves total 317 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 989,950 oz Au and Probable Mineral Reserves total 58 Mm<sup>3</sup> averaging 108 mg/m<sup>3</sup> (combined gold plus some silver) and contain 181,270 oz Au for total Mineral Reserves of 376 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 1,171,220 oz Au.
- As of June 30, 2021, the Nechí alluvial Measured Mineral Resources total 510 Mm<sup>3</sup> averaging 81 mg/m<sup>3</sup> and contain 1,175,043 oz Au. Indicated Mineral Resources total 18 Mm<sup>3</sup> averaging 67 mg/m<sup>3</sup> and contain 35,614 oz Au. Total Mineral Resources are 528 Mm<sup>3</sup> averaging 80 mg/m<sup>3</sup> and contain 1,210,657 oz Au. All alluvial Inferred Mineral Resources have been upgraded to Indicated or Measured Mineral Resources. Mineral Resources are exclusive of Mineral Reserves.
- SLR notes that there has only been a minor decrease in Mineral Reserves for mid year (MY) 2021 compared to year end (YE) 2020 that is the result of Mineral Reserves depletion from 2021 mining. Mineral Resources have remained largely unchanged from YE 2020, apart from the minor decrease in volume and grade of one Measured Resource block for which mining was initiated in 2021 due to a permitting delay for a nearby reserve block.
- SLR is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource and Mineral Reserve estimates.
- Mineros’ Nechí alluvial mining operations are efficiently run and employ state-of-the-art to industry-standard technical procedures.

- Mineros' drilling, sampling, sample preparation, gold analysis, and security procedures are consistent with industry standards for large scale alluvial gold deposits and adequate for the estimation of alluvial gold Mineral Resources and Mineral Reserves.
- The Mineral Resources and Mineral Reserves estimates prepared by Mineros are reasonable and adequate for alluvial mine planning.
- In 2021, Mineros began the transition from the two dimensional (2D) polygonal approach to a three dimensional (3D) resource block modelling approach using Seequent's Leapfrog software and both methods are currently being used for short term mine planning.
- There is good exploration potential to discover new terrace resources on the western bank of the Nechí River, which will be the focus of Mineros' 2022 exploration drilling program.
- Mineros has begun using drones for surveying and mine planning and received a new Light Detection and Ranging (LiDAR) equipped drone during SLR's site visit.
- Planned external dilution is estimated based on the mine plan and design, and equipment used. This planned external dilution is estimated based on historical reconciliation data, including excavation surveys, and includes slough and suction waste that remained on top of the excavated pay gravel. Average gravel dilution is estimated to be 13.8% at zero grade.
- Mine extraction for bucket line dredge alluvial, suction plain alluvial, and terrace alluvial mining is estimated to be 100% and is considered to be reasonable.
- The LOM plan appears to be reasonable and SLR's independent cash flow analysis, based on the LOM plan and corporate information, confirms that the Mineral Reserves are economic and the Proven and Probable Mineral Reserve classification for the Nechí Alluvial Property is acceptable under Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).
- Mineros' El Bagre complex infrastructure and facilities, including maintenance shops, warehouses, water supply system, power supply, and other related units, are functional and in good repair. Although major equipment components such as electric power units and some maintenance equipment are quite old, they are well serviced and in excellent operating condition. Schedules for regular maintenance are in place and followed.
- SLR visited Production Unit 4, consisting of bucket line dredge No. 14 and suction dredge No. 15, in 2010 and Production Unit 1 bucket line dredge No. 3 in 2017. All sections pertaining to bucket line dredge production were visited and time was spent on the bridge observing the positioning systems and navigation controls. The complete flow of gravel, from the bucket line until final disposal as backfill, was followed and gravity recovery by on board jigs, tables, spirals, and sluices was observed. SLR is of the opinion that Mineros personnel exercise good care and control during the mining and final gold recovery operations. The set of operating procedures and planning methods are adequate for this type of dredging operation and ensure that mining is always kept under control.
- Prior to 2012, mercury was used in the quaternary concentration stage of gold recovery on the dredges. The use of mercury was carefully managed and controlled in accordance with government regulatory requirements. Commencing in 2012, Mineros eliminated the use of mercury for gold recovery from some of its operations. By 2014, all use of mercury had been eliminated from its barge and plant facilities. This was a significant achievement from a technical, environmental, and social perspective, and sets a performance standard for other alluvial mining and surface mining operations in the region.

- The dredge processing is operating well, with the change from mercury amalgamation to gravity recovery contributing to a safer environment.
- The general organization of the Nechí Alluvial Property operations, including union relations, hiring procedures, job evaluation, salary reviews, etc., is subject to internal systematic review and is upgraded to reflect any change in the operating procedures. The safety measures, controls, manuals of procedures, and other documents are of excellent quality and serve to minimize work accidents.
- Mineros' approved EMP provides the framework for meeting environmental regulations and corporate social obligations. The EMP provides overall strategic and technical guidance to operations ensuring conformance with environmental and social requirements. It is leading edge industry best practice.
- In 2018, Mineros initiated a request that the National Authority of Environmental Licences (ANLA), in addition to approving EMPs, take on responsibility for future mining and hydroelectric permits for Mineros operations. The process required for this request was completed in early 2020. This harmonization improves the effectiveness of the permitting process.
- Permits are in place for the Nechí Alluvial Property and Mineros' operations are in material compliance. The most recent ANLA permit application of August 2021 for mining of the CA5 and RMCA5 blocks in the Sampumoso sector is a re-submission of an earlier application which was granted for all blocks apart from those blocks which ANLA requested additional baseline and assessment data for. Based on Mineros' meetings and discussions with ANLA, the August 2021 submission provides the requested information and Mineros is confident ANLA will approve the application. From SLR's discussions with Mineros and review of information provided, it appears that the requested information has been provided and supports Mineros' optimism for approval.
- In early 2020, the Nechí Alluvial Property was designated one of five Projects of National and Strategic Interest (PINE) in Colombia by the Ministry of Energy and Mines (MEM). This designation confirms Mineros' sustainable contribution to the country, region, and society and ensures that Mineros will receive priority considerations during procedures with any level of government.
- El Bagre facilities are well maintained, and material recycling, re-use, and waste management systems are effective and well managed.
- Mineros' environmental management system is continuously evolving and improving. Environmental performance monitoring and control systems are refined to reflect changes to operations and areas of activities. Environmental tracking of key performance indicators allows for operational monitoring of achievements against planned targets and commitments.
- In 2019, Mineros provided a Regional Integrated Management District (DRMI) Environmental Compensation Plan as required under its EMP and in compliance with Resolution 1612 of August 15, 2019. This plan addresses the rationale for selection of two potential compensation areas (El Sapo and Hoyo Grande) and the framework for moving forward on compensation actions.
- Mineros has developed a new approach for alluvial mining of large blocks that reduces impacts on the environment during active mining and enhances restoration and return of mined lands to pre-mining landforms and environments. This approach reduces impacts on the main river channels, including limiting water used in mining, reduction of sediment load to the river, and reduction of the release of chemicals, wastes, and other substances into the river system. Using this new approach, restoration efforts are carried out in a manner that strives to achieve a final landform that is similar to the pre-mining setting of the area.

- In addition to terrace mining, Mineros has developed and is implementing plans to support informal alluvial mining which include formalized mining at EMIJOM project, pilot work at Block El Bagre and Block Amacerí, land transfer to Empresa Minera Nuevo Cuturú SAS (EMINCUT), and contracts with Suministros Agromineros S.A.S. These initiatives are providing significant job opportunities to local peoples and generate real wealth and social contributions while mitigating environmental impacts and avoiding the use of mercury.
- Mineros has excellent closure practices. Alluvial mine blocks are reclaimed on a progressive basis with the objective of re-establishing pre-mining geomorphic conditions and agreed future land use objectives consistent with local landforms. In addition, Mineros compensates landowners/farmers for the use of the land, damage caused by the mining operation, lost crops, lost time, etc., depending on the type of crops, size of farmland, etc., and, after completion of reclamation, carries out residential building construction and re-vegetation with plants and crops at agreed locations. When the farmers are returned to site after mining, Mineros assists them in obtaining proper titles with the Agencia Nacional de Tierras (ANT). Recent incursions by illegal mining on reclaimed lands is a cause for concern and needs to be addressed as expeditiously as possible.
- As the Nechí Alluvial Property is an active operation, capital, and operating cost estimates were prepared based on recent operating performance and the current 2021 operating budget. SLR reviewed the sustaining capital and operating costs required for the mine operations and considers these estimates to be reasonable, provided the production targets are realized.
- The economic analysis of the Nechí Alluvial Property operations yields a positive result, confirming that the Nechí Alluvial Property Mineral Reserves are economically viable. The economic analysis indicates an after-tax net present value (NPV), at a 10% base discount rate, of \$223 million.
- Forward sales contracts for part of the production between 2021 and 2023 mitigate the risk of low spot prices, and during this period, ensure revenue at prices above the Mineral Reserve price of US\$1,500/oz Au. The contracts, however, limit the upside in the current market of high spot prices.

### 1.1.2 Recommendations

SLR offers the following recommendations:

1. SLR notes that the Mineral Resources and Mineral Reserves contain a layer of overburden with an average thickness of 12 m. As this material does not contain gold above cut-off grade, it could be excluded from the Mineral Resources and Mineral Reserves after moving from the current 2D polygonal methodology to 3D block modelling approaches. SLR recommends that only the pay gravels be included in future Mineral Resource and Mineral Reserve estimates. This does not impact the overall quantity of contained gold since the gold grade is averaged over the bulk of the material, however, it will result in a lower volume of material at a higher grade.
2. Continue to evaluate the potential for reprocessing old tailings in previously mined higher grade areas.
3. Continue to carry out exploration and in-fill drilling with the Ward and sonic drills.
4. Continue the migration from 2D to 3D Mineral Resource estimation.
5. Account for gold fineness, refining costs, and payables in the calculation of cut-off grades for Mineral Resources and Mineral Reserves.

6. SLR notes that the permitting regime for Mineros operations have in the last several years been in a state of transition. Operating permitting has been harmonized to be carried out through the federal regulator ANLA instead of the regional regulator. In this respect, these years have been a learning period for both Mineros and ANLA, as Mineros gains insights into baseline data and environmental impact assessment needs and approaches of ANLA, and as ANLA gains a fulsome understanding of Mineros' operations through the mining life cycle. In some cases, specific terms of reference for environmental work desired by ANLA do not yet exist. In this regard, SLR recommends that Mineros:
  - Develop a strategic plan and schedule for permitting that is synchronized with a detailed LOM block exploitation plan.
  - Engage with ANLA as early as possible to establish general, and when appropriate detailed, terms of reference for future permit applications.
  - Initiate any additional baseline data collection and studies for future mine blocks well in advance of the LOM development timeframe for these blocks.
  - Integrate the strategic environmental plan into the overall performance management plan to ensure it is tracked regularly along with other critical performance indicators.
7. Appropriate management of surface waters in and around the facilities is a key factor for Mineros' successful alluvial mining operation. In this regard, SLR supports and encourages Mineros' efforts to investigate new technologies and approaches to ensure the Nechí Alluvial Property operations are not negatively impacted by extreme precipitation and runoff events, as well as mitigating potential environmental and social concerns associated with water discharge to the receiving environment.
8. The negative impact of illegal mining presents a significant frustration to local and regional inhabitants and Mineros. To the degree practically possible, Mineros should continue to engage with local, regional, and federal officials to assist them in working toward a sustainable solution to this issue.
9. 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 is based on the Nechí Alluvial Property Mineral Reserves production, economic assumptions, and capital and operating costs provided by Mineros and reviewed by SLR. Production and costs inputs have a reference point of July 1, 2021. All costs are based in Q1 2021 US dollars with no allowance for inflation.

A summary of the key criteria is provided below.

### 1.2.1 Economic Criteria

#### 1.2.1.1 Physicals

- Mine life (from Q3 2021 to Q1 2034):
  - Bucket line dredges: 12.7 years
  - Suction dredges: 9.3 years

- Terraces: 0.5 years
- Dredge average production rate:
  - Bucket line dredges: 73,400 m<sup>3</sup>/d (from Q3 2021 to Q1 2034)
  - Suction dredges: 7,960 m<sup>3</sup>/d (from Q1 2022 to Q1 2031)
  - Terraces: 545 m<sup>3</sup>/d (2H 2021)
- Processed:
  - Bucket line dredges:
    - Process feed: 328.9 Mm<sup>3</sup>
    - Au/Ag undiluted grade: 114.8 mg/m<sup>3</sup>
    - Contained Au ounces: 1,080,798 oz
    - Recovered Au ounces: 864,638 oz
  - Suction dredges:
    - Process feed: 26.8 Mm<sup>3</sup>
    - Au/Ag grade: 117.4 mg/m<sup>3</sup>
    - Contained Au ounces: 90,008 oz
    - Recovered Au ounces: 72,007 oz
  - Terraces:
    - Process feed: 99 km<sup>3</sup>
    - Au/Ag grade: 145.3 mg/m<sup>3</sup>
    - Contained Au ounces: 413 oz
    - Recovered Au ounces: 309 oz
  - Total:
    - Process feed: 355.8 Mm<sup>3</sup>
    - Au/Ag grade: 115 mg/m<sup>3</sup>
    - Contained Au ounces: 1,171,219 oz
    - Recovered Au ounces: 936,954 oz
- Gold metallurgical recoveries:
  - Bucket line dredges: 80% Au
  - Suction dredge: 80% Au
  - Terraces: 75% Au
  - Average: 80% Au
- LOM average annual production of approximately 77,000 oz Au between 2022 and 2033 (full production years).

### 1.2.1.2 Revenue

- Revenue is estimated based on:
  - A Mineral Reserve gold metal price of US\$1,500/oz Au for ounces not under the forward sales contract.
  - A forward sales contract of 4,000 oz Au/month for 2021 (six months), which will be renewed by Mineros for 2022 (12 months) and 2023 (six months until renewal). This contract mitigates the risk of low spot prices, but limits upside of high spot prices.
- Gold production: doré bars containing gold and silver are sent to two refineries, with a split of 50% (Switzerland) and 50% (USA) of production by refinery.
- Transport, treatment, and refining charges totalling a LOM average of US\$5.26/oz Au (doré) of production.
- The LOM Net Revenue after treatment charges and royalties is US\$1,363 million.

### 1.2.1.3 Costs

- Average operating costs:
  - Bucket line dredges: US\$0.95/m<sup>3</sup> processed
  - Suction dredges: US\$1.10/m<sup>3</sup> processed
  - Terraces: US\$13.17/m<sup>3</sup> processed
  - Support and Site G&A US\$0.87/m<sup>3</sup> processed
- Total operating costs of US\$652 million.
- Total unit operating cost of US\$1.83/m<sup>3</sup> processed or US\$697/oz Au recovered.
- Sustaining capital costs of US\$66.2 million, including alluvial plains project and operations sustaining activities.
- Concurrent reclamation and closure costs of US\$50.5 million (undiscounted) over the LOM and extending until 2050. For cash flow analysis simplification purposes all closure costs after 2035 have been discounted to 2035, giving a total reclamation and closure cost between 2021 and 2035 of US\$45.7 million in the economic analysis.
- All-In Sustaining Cost (AISC) of US\$901/oz Au.

### 1.2.1.4 Taxation and Royalties

- Corporate income tax rate in Colombia is between 30% and 33%.
- A cost model including depreciation and tax losses was provided by the Mineros finance team for use in the SLR cash flow model.
- Gold production from alluvial deposits in respect to mining concession contract tenures is subject to a 6% royalty on the gross value of gold produced. Gold production for alluvial gold deposits from the Recognition of Private Property (Reconocimiento de Propiedad Privada, or RPP) tenure is subject to a 2% royalty on the gross value of gold produced, and a 4% gold tax. At the time of settlement of gold royalties' payment there is an adjustment outlined by the Central Bank of Colombia, assuming 80% of the gold price for the calculation of the royalties' payment.



### 1.2.2 Cash Flow

An unlevered after-tax cash flow model has been developed by SLR for the Nechí Alluvial Property. The inputs for the cash flow model, such as the mine production schedule and capital and operating costs, were provided to SLR by Mineros' corporate finance and mine site technical teams, and the reference point of all inputs is July 1, 2021. The model does not consider the following components:

- Financing cost, other than interest included in capital lease rates
- Insurance
- Overhead cost for a corporate office

SLR has relied on an estimation of applicable taxes by Mineros. An after-tax cash flow summary is presented in Table 1-1. All costs are in Q1 2021 US\$ millions with no allowance for inflation.

**Table 1-2: After-Tax Cash Flow Summary  
Mineros S.A. – Nechí Alluvial Property**

Project Timeline in Years			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Commercial Production Timeline in Years			1	2			5	6	7	8	9	10	11	12	13	14	15	16	
Time Until Closure in Years			14	13	12	11	10	9	8	7	6	5	4	3	2	1			
<b>Market Prices</b>																			
Gold	US\$/oz	\$1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	-	
Gold Forward Contract - Stonex (NFTL FcStone)	US\$/oz	\$1,952	2,003	1,950	1,950	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Physicals</b>																			
Bucket Line Dredges - Ore Mined	000 m3	328,925	1,296	26,662	27,380	27,343	27,246	27,648	27,328	26,995	26,332	26,005	27,395	27,803	25,359	4,134	-	-	
Au Grade Mined	mg/m3	114,843	101.8	125.8	114.3	114.3	120.6	115.1	91.4	103.7	113.5	119.7	121.3	132.6	119.5	107.9	73.0	-	
Suction Dredges - Ore Mined	000 m3	26,805	-	2,257.99	2,630.53	3,151.84	2,821.70	3,013.27	3,024.53	3,161.60	3,069.11	2,812.10	861.87	-	-	-	-	-	
Au Grade Mined	mg/m3	117.35	-	98.1	118.2	147.7	125.7	109.8	85.4	111.5	128.8	138.9	75.9	-	-	-	-	-	
Terraces - Ore Mined	000 m3	99	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Au Grade Mined	mg/m3	145.31	145.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Ore Mined	000 m3	355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-	
Total Material Mined	000 m3	355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-	
Total Ore Processed	000 m3	355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-	
Gold Grade, Processed	mg/m3	115.03	104.87	123.60	114.60	123.43	116.07	93.20	101.84	113.25	120.67	123.03	130.90	119.52	107.92	72.97	-	-	
Contained Gold, Processed	koz	1,171	4.2	102.3	98.4	107.7	99.9	81.8	88.5	97.7	101.5	101.4	105.8	95.1	78.3	8.6	-	-	
Average Recovery, Gold	%	80.9%	79.5%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	-	-	
Recovered Gold	koz	937.0	3.3	81.8	78.7	86.2	79.9	65.4	70.8	78.2	81.2	81.2	84.7	76.1	62.6	6.9	-	-	
Payable Gold	99.92% koz	936.2	3.3	81.8	78.7	86.1	79.8	65.4	70.7	78.1	81.1	81.1	84.6	76.0	62.6	6.9	-	-	
<b>Cash Flow</b>																			
Gold Revenue - Reserve price	\$000s	1,290,219	-	50,599	81,933	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-	
Gold Revenue - Fwd/Hedge Contract	\$000s	146,937	6,653	93,523	46,761	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gold Gross Revenue	\$000s	1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-	
Gross Revenue Before By-Product Credits	\$000s	1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-	
Gross Revenue After By-Product Credits	\$000s	1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-	
Bucket Line Dredges - Mining Cost	\$000s	(313,151)	(6,597)	(24,838)	(25,186)	(25,168)	(25,121)	(25,151)	(25,161)	(24,999)	(24,679)	(24,520)	(25,193)	(25,390)	(24,208)	(6,776)	-	-	
Suction Dredges - Mining Cost	\$000s	(29,544)	-	(2,592)	(2,912)	(3,358)	(3,075)	(3,240)	(3,249)	(3,367)	(3,287)	(3,067)	(1,396)	-	-	-	-	-	
Terraces - Mining Cost	\$000s	(11,307)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Support Ops + Site G&A Cost	\$000s	(308,066)	(12,034)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(21,661)	(9,627)	-	-	
Offsite Treatment / Refining Cost	\$000s	(4,926)	(272)	(377)	(375)	(367)	(349)	(356)	(365)	(369)	(373)	(369)	(363)	(346)	(283)	-	-	-	
Royalties	\$000s	(68,747)	(306)	(6,900)	(6,160)	(6,175)	(5,725)	(4,685)	(5,069)	(5,602)	(5,816)	(6,068)	(5,450)	(4,487)	(478)	-	-	-	
<b>Total Cash Costs After By-Product Credits</b>	<b>\$000s</b>	<b>(725,741)</b>	<b>(20,515)</b>	<b>(58,715)</b>	<b>(58,694)</b>	<b>(59,145)</b>	<b>(58,356)</b>	<b>(57,657)</b>	<b>(57,903)</b>	<b>(58,401)</b>	<b>(58,223)</b>	<b>(57,604)</b>	<b>(57,068)</b>	<b>(55,271)</b>	<b>(46,703)</b>	<b>(17,162)</b>	-	-	
Operating Margin	\$000s	711,415	(13,862)	85,346	70,000	69,887	61,281	40,302	48,067	58,676	63,994	63,939	69,694	58,643	43,114	(6,821)	-	-	
Admin Expenses	\$000s	(7,355)	(283)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(283)	-	-	-	
EBITDA	\$000s	704,060	(14,145)	84,780	69,434	69,321	60,715	39,736	47,502	58,110	62,828	63,128	69,128	58,078	42,549	(7,103)	-	-	
Depreciation/Amortization Allowance	\$000s	(147,528)	(11,961)	(11,637)	(11,938)	(12,268)	(12,636)	(13,049)	(13,521)	(14,072)	(14,738)	(14,613)	(15,231)	(17,584)	(17,584)	-	-	-	
<b>Earnings Before Taxes</b>	<b>\$000s</b>	<b>556,133</b>	<b>(25,507)</b>	<b>73,143</b>	<b>57,497</b>	<b>57,053</b>	<b>48,080</b>	<b>26,687</b>	<b>33,980</b>	<b>43,037</b>	<b>48,094</b>	<b>51,515</b>	<b>63,198</b>	<b>50,494</b>	<b>34,965</b>	<b>(7,103)</b>	-	-	
Corp. Income Tax @ Effective Rate of:	\$000s	(169,071)	-	(22,448)	(16,979)	(16,476)	(13,842)	(7,372)	(9,483)	(12,443)	(13,581)	(14,570)	(18,065)	(14,258)	(9,555)	-	-	-	
<b>Net Income</b>	<b>\$000s</b>	<b>387,062</b>	<b>(25,507)</b>	<b>50,696</b>	<b>40,518</b>	<b>40,577</b>	<b>34,237</b>	<b>19,315</b>	<b>24,498</b>	<b>30,554</b>	<b>34,514</b>	<b>36,945</b>	<b>45,133</b>	<b>36,235</b>	<b>25,409</b>	<b>(7,103)</b>	-	-	
Non-Cash Add Back - Depreciation/Amortization	\$000s	147,928	11,361	11,637	11,938	12,268	12,636	13,049	13,521	14,072	14,734	14,613	15,231	17,584	17,584	-	-	-	
Working Capital	\$000s	-	1,097	(1,547)	275	(23)	46	396	(451)	(542)	(384)	(248)	(330)	131	87	(233)	1,922	-	
<b>Operating Cash Flow</b>	<b>\$000s</b>	<b>534,990</b>	<b>(13,049)</b>	<b>60,786</b>	<b>52,731</b>	<b>52,622</b>	<b>46,919</b>	<b>32,761</b>	<b>37,568</b>	<b>45,125</b>	<b>48,864</b>	<b>48,310</b>	<b>50,737</b>	<b>43,950</b>	<b>33,080</b>	<b>(7,336)</b>	<b>1,922</b>	-	
Development Capital	\$000s	(1,504)	(1,504)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sustaining Capital	\$000s	(64,734)	(7,804)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(2,475)	-	-	-	
Closure/Reclamation Capital	\$000s	(45,733)	(3,429)	(731)	(901)	(1,213)	(1,939)	(2,114)	(2,371)	(2,562)	(2,826)	(2,949)	(2,982)	(2,966)	(3,113)	(3,078)	(11,629)	-	
<b>Total Capital</b>	<b>\$000s</b>	<b>(111,969)</b>	<b>(12,736)</b>	<b>(5,682)</b>	<b>(5,851)</b>	<b>(7,083)</b>	<b>(6,899)</b>	<b>(7,065)</b>	<b>(7,322)</b>	<b>(7,512)</b>	<b>(7,776)</b>	<b>(7,900)</b>	<b>(7,932)</b>	<b>(7,916)</b>	<b>(5,588)</b>	<b>(3,078)</b>	<b>(11,629)</b>	-	
<b>LoM Metrics</b>																			
<b>Economic Metrics</b>																			
a) Pre-Tax																			
Free Cash Flow	\$000s	592,100	(25,785)	77,552	63,858	62,015	53,872	33,068	39,729	50,055	54,668	54,980	60,869	50,292	37,047	(10,414)	(9,707)	-	
Cumulative Free Cash Flow	\$000s	592,100	(25,785)	51,767	115,625	177,640	231,512	264,580	304,309	354,364	409,033	464,013	524,882	575,174	612,221	601,807	592,100	592,100	
NPV @ 8%	\$000s	352,524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NPV @ 10%	\$000s	314,247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NPV @ 12%	\$000s	281,585	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
b) After-Tax																			
Free Cash Flow	\$000s	423,023	(25,785)	55,104	46,879	45,539	40,030	25,696	30,246	37,613	41,088	40,410	42,805	36,034	27,491	(10,414)	(9,707)	-	
Cumulative Free Cash Flow	\$000s	423,023	(25,785)	29,319	76,198	121,737	161,767	187,464	217,710	255,322	296,410	336,820	379,625	415,659	443,150	432,736	423,023	423,023	
NPV @ 8%	\$000s	250,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NPV @ 10%	\$000s	223,239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NPV @ 12%	\$000s	199,598	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Operating Metrics</b>																			
Mine Life	Years	12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Maximum Daily Bucket Line Dredges Mining Rate	m3/d mined	75,964	7,118	73,047	75,015	74,708	74,645	75,747	74,872	73,756	72,143	71,247	75,054	69,286	68,900	-	-	-	
Maximum Daily Suction Dredges Mining Rate	m3/d mined	8,638	-	6,186	7,207	8,612	7,751	8,256	8,286	8,638	8,409	8,409	7,871	-	-	-	-	-	
Maximum Daily Terraces Mining Rate	m3/d mined	545	545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Maximum Daily Processing Rate	m3/d milled	84,003	7,664	79,233	82,222	83,320	82,376	84,003	83,159	82,394	80,551	78,951	77,415	75,964	69,286	68,900	-	-	
Bucket Line Dredges - Mining Cost	\$/ m3	50.95	5.09	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.94	0.94	0.92	0.91	0.95	1.64	-	
Suction Dredges - Mining Cost	\$/ m3	50.19	0.22	0.24	0.21	0.20	0.19	0.15	0.17	0.19	0.20	0.20	0.21	0.20	0.18	0.21	-	-	
Terraces - Mining Cost	\$/ m3	513.17	13.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Support + G&A Cost	\$/ m3	50.87	8.63	0.83	0.80	0.79	0.80	0.78	0.79	0.80	0.82	0.84	0.85	0.87	0.85	2.33	-	-	
Offsite Treatment / Refining Cost	\$/ m3	50.01	0.19	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07	-	-	
Royalties	\$/ m3	50.19	0.22	0.24	0.21														

### 1.2.2.1 Cash Flow Analysis

SLR prepared an unlevered LOM after-tax cash flow model to confirm the economics of the Nechí Alluvial Property LOM between Q3 2021 and Q1 2034. The project economics have been evaluated using the discounted cash flow method by considering annual processed tonnages and gold grade of ore. The associated process recovery, gold price, operating costs, refining and transportation charges, royalties, and capital expenditures were also considered. Taxes were estimated by Mineros and have not been confirmed by SLR.

The economic analysis demonstrates that the Mineral Reserves are economically viable at a flat gold price of US\$1,500/oz Au. The pre-tax NPV at a 10% discount rate is US\$314 million and the after-tax NPV at a 10% discount is US\$223 million (Table 1-2).

**Table 1-2: Cash Flow Analysis  
Mineros S.A. – Nechí Alluvial Property**

Item	Discount Rate	Units	Value
Pre-tax NPV at 8% discount	8%	US\$000	352,524
<b>Pre-tax NPV at 10% discount</b>	<b>10%</b>	<b>US\$000</b>	<b>314,247</b>
Pre-tax NPV at 12% discount	12%	US\$000	281,585
After-tax NPV at 8% discount	8%	US\$000	250,903
<b>After-tax NPV at 10% discount</b>	<b>10%</b>	<b>US\$000</b>	<b>223,239</b>
After-tax NPV at 12% discount	12%	US\$000	199,598

The undiscounted pre-tax cash flow is US\$592 million, and the undiscounted after-tax cash flow is US\$423 million. For this cash flow analysis, internal rate of return (IRR) and payback are non-applicable as there is no negative initial cash flow (no initial investment to be recovered).

The World Gold Council Adjusted Operating Cost (AOC) is US\$775/oz Au. The mine life capital cost, including both pre-production and sustaining unit cost, is US\$126/oz Au, for an AISC of US\$901/oz Au. The LOM average annual gold production during operation is approximately 77,000 oz Au between 2022 and 2033 (full production years).

### 1.2.3 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 pre-tax NPVs at a 10% discount rate. The following items were examined:

- Gold metal price
- Gold head grade
- Gold metallurgical recovery
- Operating costs
- Capital costs (Development, Sustaining, and Closure)

Pre-tax sensitivity over the base case has been calculated for -20% to +20% (for gold grade), -5% to +5% (for gold recovery), -20% to +35% (for gold price), and -10% to +15% (for operating costs and capital costs) variations to determine the most sensitive parameter of this project. The sensitivities are shown in Table 1-3 and Figure 1-1.

**Table 1-3: Sensitivity Analysis  
Mineros S.A. – Nechí Alluvial Property**

	<b>Head Grade (mg/m<sup>3</sup> Au)</b>	<b>NPV at 10% (US\$000)</b>
80%	92.03	125,858
90%	103.53	174,549
100%	115.03	223,239
110%	126.53	271,929
120%	138.04	320,620
	<b>Recovery (% Au)</b>	<b>NPV at 10% (US\$000)</b>
95%	76.0%	198,894
98%	78.0%	211,066
100%	80.0%	223,239
103%	82.0%	235,412
105%	84.0%	247,584
	<b>Metal Price (US\$/oz Au)</b>	<b>NPV at 10% (US\$000)</b>
80%	\$1,200	138,323
90%	\$1,350	180,781
100%	\$1,500	223,239
118%	\$1,763	297,540
135%	\$2,025	371,841
	<b>Operating Costs (US\$/m<sup>3</sup>)</b>	<b>NPV at 10% (US\$000)</b>
90%	\$1.65	247,841
95%	\$1.74	235,540
100%	\$1.83	223,239
105%	\$1.92	210,938
115%	\$2.11	186,336

	Capital Costs (US\$000)	NPV at 10% (US\$000)
90%	\$100,764	229,065
95%	\$106,362	226,152
100%	\$111,960	223,239
105%	\$117,559	220,326
115%	\$128,755	214,500

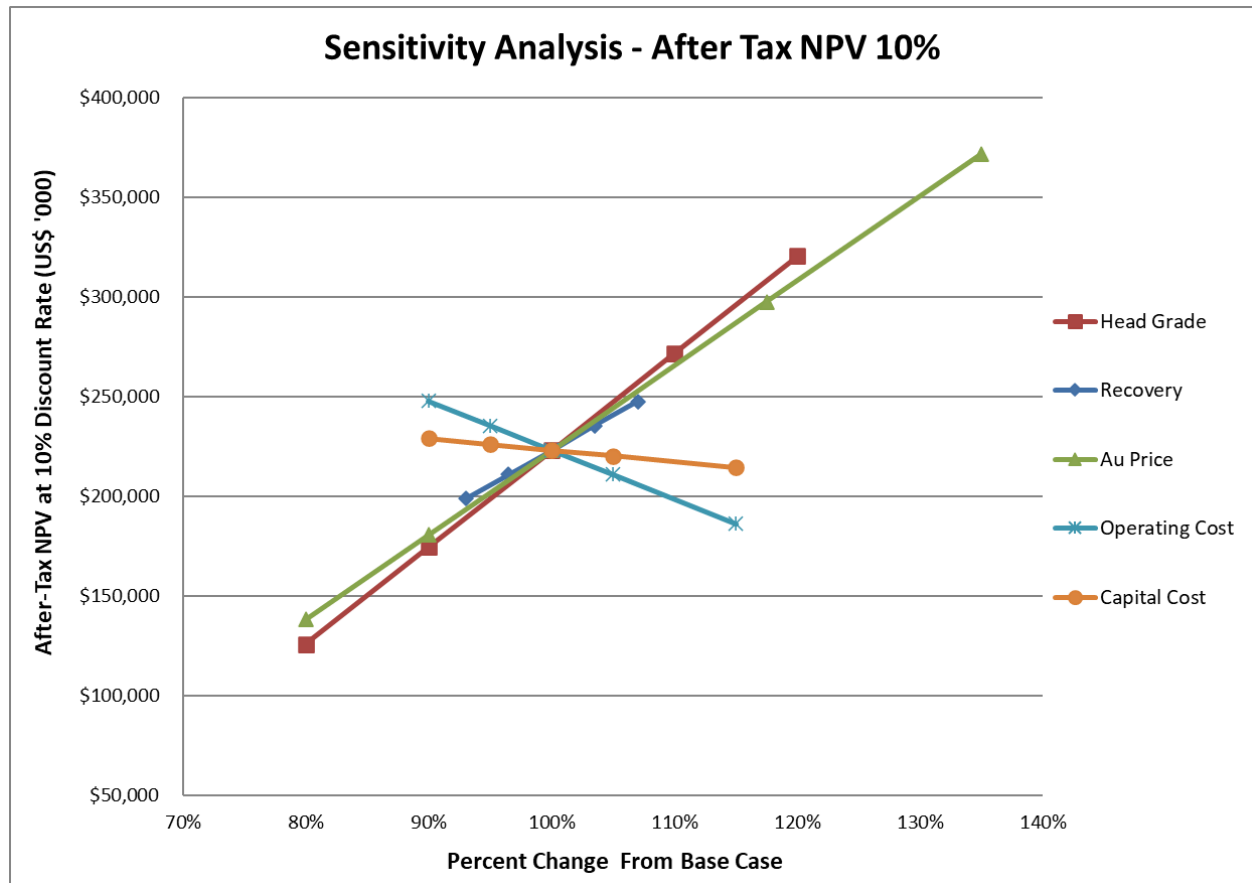


Figure 1-1: NPV Sensitivity Graph

The after-tax NPV is most sensitive to head grade, then gold price, followed by operating costs, metallurgical recovery, and capital costs.

## 1.3 Technical Summary

### 1.3.1 Property Description and Location

The Nechí Alluvial Property is located approximately 190 km north-northeast of Medellín in the northeast of the Antioquia Department, within the jurisdiction of the municipalities of El Bagre, Zaragoza, Caucaasia, and Nechí. Approximate coordinates for the centre of alluvial operations are 74°47'45" W longitude,

7°49'31" N latitude, corresponding to UTM Zone 18N 522,500E, 865,000N in the World Geodetic System 1984 (WGS84). Mineros' base of operations at El Bagre is readily accessible by daily commercial air service from the Olaya Herrera domestic airport in downtown Medellín. Flight time is approximately 40 minutes. The warm and tropical climate supports year round mining operations.

### 1.3.2 Land Tenure

Mineros, through Mineros Aluvial S.A.A., its wholly owned subsidiary, holds a 100% interest in the Nechí Alluvial Property under two types of mining titles: RPP and mining concession contracts. The RPP and concession contracts that constitute the Nechí Alluvial Property are contiguous and occupy an area along the Nechí River and flood plain of approximately 41,293 ha between the towns of Zaragoza and Nechí. Mineros holds one RPP (RPP 57011) with an area of 36,408 ha and five concession contracts with a total area of 4,885 ha. Mineros' surface and mineral rights are more than adequate to accommodate the Nechí Alluvial Property.

### 1.3.3 History

Artisanal and small scale alluvial mining has occurred in the vicinity of the Nechí Alluvial Property since antiquity. Illegal hard rock and alluvial miners continue to mine gold on a small and mid scale level throughout the district.

By the end of the 19<sup>th</sup> century, several gold mining companies operated in the northeast of Antioquia. Exploration drilling to establish the gold potential of the Nechí alluvium was initiated in 1903, and in 1906 mining of the west riverbank terraces using water monitors and conveyors began near the mouth of Pato Creek.

In 1908, the first bucket line dredge began operation. In the 1930s, Placer Development Limited acquired and consolidated the dredging operations under the name of Pato Consolidated. Pato Consolidated was subsequently acquired by International Mining Corp. in 1956 and Mineros purchased the land holdings and operations in 1974.

Historic gold production from the Nechí alluvial deposits from 1895 to 2021 is approximately 8.8 Moz Au, of which Mineros' operations account for approximately 3.0 Moz Au.

### 1.3.4 Geology and Mineralization

The Nechí Alluvial Property is situated in the alluvial valley and flood plain of the Nechí River lower basin that lies within the foothills of the Central Cordillera of the Andes Mountains. The 2021 active area of alluvial operations extends approximately 12.5 km on the east side of the Nechí River. East of the Nechí valley, Precambrian San Lucas quartz-feldspathic gneisses and schists, lower Paleozoic metasedimentary and calcareous rocks of the Cajamarca Complex, and younger Mesozoic intrusives of the Segovia batholith occur. The San Lucas and Segovia rocks form the San Lucas Ridge with elevations up to 600 metres above sea level (MASL). To the west of the Nechí valley, poorly consolidated Caucasia and Taraza Formation sedimentary rocks of Tertiary age form low, alluvium-covered hills that separate the Nechí valley from the Cauca River alluvial plain to the northwest.

The present surface of the Nechí valley is a fluvial flood plain, with its east flank tectonically uplifted as the San Lucas Ridge and its west bank uplifted as well between El Bagre and the village of Cuturu where the river is diverted to the east.

The Nechí alluvial deposit consists of polycyclic sediments sourced predominantly from the Segovia batholith, Antioquian batholith, and other intrusive bodies along the San Lucas Ridge, as well as some metamorphic rocks that surround the Nechí valley. The most important characteristics of the alluvial deposit from an exploration and alluvial mining perspective is the distribution of the gravels, clay beds, and the mud and sand overburden, as well as the nature and size of the gravel clasts and the variable size of the gold particles.

Erosion in the region over time has produced abundant sediments deposited in a basin that has experienced several events related to the filling and washing of alluvial sediments during its geological evolution. Examples are residual Tertiary alluvial terraces that have survived successive transgressions during glacial episodes as well as the preserved gold-bearing paleochannel deposits that preceded the Nechí River in geologic time, and that are now being exploited by dredging. The formation of alluvial gold placers depended on the geomorphologic and tectonic processes that occurred in the gold-enriched source area, such as paleoclimate conditions favouring the primary weathering and erosion of rock, flow, and fluvial dynamics in the transportation of materials, and setting of the deposition area.

Mineros has drill-delineated 95 gold-bearing alluvial zones or blocks occupying 3,660 ha for which Ward placer drilling results exceed the breakeven cut-off grades for the various types of deposits: river alluvial plains, alluvial terraces, and old dredge tailings. These zones or blocks constitute current in situ resources and reserves. All but three of the zones are river alluvial plain deposits which are irregular and vary in area from one hectare to 738 ha. Location/access, area, and depth dictate the dredging equipment to employ for mining. Average depth of the zones for the alluvial plains dredging is approximately 25 m, which includes overburden and pay gravels. Maximum dredging depth is 30 m. Mineros has outlined two blocks of tailings from previous dredging that total 11 ha and average 14 m in depth. The resource Carguero 2 block consists of old tailings from Pato Consolidated dredging in 1945 similar to the reserve block Cargueros which is currently in production. Mineros has also identified one low terrace of 14 ha and 14 m depth bordering the Nechí River alluvial plain.

Mining of the alluvial plain zones is planned by bucket line, wheel cutter suction, and “Brazilian” rotary head cutter suction dredges depending on location down river and scale of operation. The terraces and tailings are planned for mining by dredge or floating excavator and floating process plant.

The lowest resource cut-off grade is 34 mg/m<sup>3</sup> for alluvial plains material amenable wheel cutter suction dredging. A cut-off grade of 43 mg/m<sup>3</sup> is used for river plain resources designated for mining by Brazilian dredge. The resource cut-off grade for terrace alluvials is higher at 85 mg/m<sup>3</sup> because it requires using a mechanical floating excavator and floating process plant. Reserves cut-off grades are 38 mg/m<sup>3</sup> for bucket line dredge mining, 39 mg/m<sup>3</sup> for wheel cutter suction dredging, 49 mg/m<sup>3</sup> for “Brazilian” suction dredging, and 96 mg/m<sup>3</sup> for terraces and old tailings.

Gold in the Nechí alluvial gold deposits consists of free grains that are predominantly No. 4 or smaller, hosted by flood plain Tertiary fluvial gravels and sands. No. 4 gold grains are very fine (flour or powder gold), with individual grains weighing approximately 0.02 mg. No. 2 and No. 3 gold grains are also present. In terms of grain counting, No. 4, and smaller grains account for 96% of the grains logged in drill hole sampling, however, because of the large differential in grain weight, the weight contribution of No. 3 and No. 4 grains is 86%. As determined from fire assays of bullion, the gold grains are 850 to 900 fine (85% to 90% gold), with approximately 9% silver, 1% iron, and traces of platinum. Mineros currently uses an assumption of 890 fineness for Mineral Resource and Mineral Reserve estimation.

### 1.3.5 Exploration Status

Mineros explores and develops alluvial gold resources on the Nechí Alluvial Property by churn drilling vertical holes and sampling alluvium and terraces along the Nechí River, predominantly on the east flood plain that is closer to the likely source of gold, the Segovia batholith. In March 2021, Mineros began sonic drilling to explore terraces and old tailings along the west bank of the Nechí River. The current Nechí drill hole database contains 11,751 holes totalling approximately 278,172.36 m.

### 1.3.6 Mineral Resources

Alluvial gold Mineral Resource and Mineral Reserve reviews, audits and the preparation of internal NI 43-101 compliant technical reports have been carried out periodically for the Nechí Alluvial Property on behalf of Mineros by SLR since 2008. The most recent internal SLR technical report is dated July 31, 2020 and was based on YE 2019 Mineral Resources and Mineral Reserves for the Nechí Alluvial Property. In early 2021, SLR audited the YE 2020 alluvial gold Mineral Resources and Mineral Reserves as reported by Mineros and SLR submitted a letter report to Mineros management that the YE 2020 estimates were reasonable and acceptable under CIM (2014) definitions.

The Nechí Alluvial Property Mineral Resources and Mineral Reserves reviewed by SLR for this Technical Report are MY as of June 30, 2021, and have been prepared based on the depletion of YE 2020 Mineral Resources and Mineral Reserves and are based on updated current land title, permitting, environment, etc., information. As such, resource and reserves estimation criteria including metal prices, currency exchange rates, gold recovery, production costs, etc., are as of YE 2020.

The MY 2021 Mineral Resources for the Nechí Alluvial Property have been estimated internally by geologists and mining engineers employed by Mineros using conventional alluvial resource estimation methods, including grade capping and 2D polygonal grade estimation. As of June 30, 2021, the Nechí Alluvial Property Measured and Indicated Mineral Resources, exclusive of Mineral Reserves, total 528 million cubic metres (Mm<sup>3</sup>) averaging 80 mg/m<sup>3</sup> and contain 1,211,000 oz fine Au (Table 1-4). All previously estimated Inferred alluvial Mineral Resources have been upgraded to Indicated or Measured Mineral Resources or Mineral Reserves.

**Table 1-4: Alluvial Gold Mineral Resource Estimate as of June 30, 2021  
Mineros S.A. - Nechí Alluvial Property**

Category	Volume (Mm <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Contained Metal (koz Au)
Measured	510	81	1,175
Indicated	18	67	36
<b>Measured &amp; Indicated</b>	<b>528</b>	<b>80</b>	<b>1,211</b>

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a gold cut-off grade of 39 mg/m<sup>3</sup> for suction dredges, 43 mg/m<sup>3</sup> for Brazilian dredge alluvials and 85 mg/m<sup>3</sup> gold for terrace alluvials. Mineral Resources at Nechí are estimated using an average, long-term gold price of US\$1,700/oz Au and an exchange rate of COP3, 500.00:US\$1.00.
3. Alluvial gold at Nechí is 890 fine for resource estimation.
4. Average thickness of the resource pay gravel is 11.1 m. Average thickness of overburden is 12.0 m.
5. Resources and reserves are estimated to the depth of dredging and drill hole grade capping has been carried out at 290 mg/m<sup>3</sup>.



6. Mineral Resources are exclusive of Mineral Reserves.
7. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
8. Numbers may not add due to rounding.

The Qualified Person (QP) is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

Measured Mineral Resources are estimated in the detailed drilling areas (122 m x 122 m grid) and where 60 m x 60 m additional in-fill drilling has been performed in planned production areas. Measured and Indicated Mineral Resources that meet the reserves gold cut-off grades are converted to Mineral Reserves after the application of overburden dilution and dredge recovery factors.

### 1.3.7 Mineral Reserves

The as-built alluvial Mineral Reserve blocks, designed from cut-off grade and operation criteria, are overlaid on the resource polygons and the volume and volume weighted grade are estimated for the reserve blocks using all or part of the polygons and the polygon/drill hole grades. The design may incorporate all or parts of polygons below cut-off grade where necessary for dredge operation.

Measured and Indicated Mineral Resources that meet the Mineral Reserve grade of approximately 100 mg/m<sup>3</sup> as the desired production target grade are converted to Mineral Reserves after the application of overburden dilution and dredge mine recovery factors. All alluvial dilution is estimated to be 7.5%, at zero gold grade. Mine recovery of alluvial Mineral Resources is estimated to be 100% of fully diluted Measured Mineral Resources. As June 30, 2021, the alluvial Proven and Probable Mineral Reserves total 376 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> Au/Ag and contain 1,171,000 oz Au. Table 1-5 summarizes the Mineral Reserve estimate as of June 30, 2021.

**Table 1-5: Alluvial Mineral Reserve Estimate as of June 30, 2021  
Mineros S.A. - Nechí Alluvial Property**

Tenement	Block	Volume (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Doré (koz Au)	Contained Metal (koz Au)
<b>Proven Mineral Reserves – Bucket Line Dredge Plain Alluvials</b>					
RPP 57011	CA5	204,456	108	708	630
RPP 57011	CA6	18,235	115	67	60
LIC-6335	CA6	54,362	111	193	172
LIC-6118	CA6	11,996	106	41	36
LIC-6819	CA6	288	76	1	1
<b>Totals / Averages</b>		<b>289,336</b>	<b>109</b>	<b>1,011</b>	<b>900</b>
<b>Proven Mineral Reserves – Suction Dredge Plain and Terrace Alluvials</b>					
	PV1	388	108	1	1
RPP 57011	M31	1,225	107	4	4
	M29	3,466	104	12	10

Tenement	Block	Volume (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Doré (koz Au)	Contained Metal (koz Au)
	M27	3,338	140	15	13
	M30	5,594	116	21	19
	MPA5	5,850	84	16	14
	M505	2,437	125	10	9
	MA2	5,548	125	22	20
	Carguero	103	140	0.5	0.4
<b>Totals / Averages</b>		<b>27,948</b>	<b>113</b>	<b>102</b>	<b>93</b>
<b>Total Proven Mineral Reserves</b>		<b>317,284</b>	<b>109</b>	<b>1,112</b>	<b>990</b>
<b>Probable Mineral Reserves – Bucket Line Dredge Plain Alluvials</b>					
LIC-6335	CA6	58,589	111	225	200
<b>Total Probable Mineral Reserves</b>		<b>58,589</b>	<b>108</b>	<b>193</b>	<b>181</b>
<b>Total Proven &amp; Probable</b>		<b>375,772</b>	<b>109</b>	<b>1,316</b>	<b>1,171</b>

## Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated at cut-off grades of 38 mg/m<sup>3</sup> for mining by bucket line dredges, 49 mg/m<sup>3</sup> for Brazilian suction dredge alluvials, 39 mg/m<sup>3</sup> for wheel cutter suction dredge alluvials, and 96 mg/m<sup>3</sup> for terrace alluvials.
3. Mineral Reserves are estimated using an estimated gold price of US\$1,500/oz Au.
4. An exchange rate of COP3, 500.00:US\$1.00 was used.
5. Gold grade includes some silver. Alluvial gold at Nechí is 890 fine for reserve estimation.
6. A minimum alluvial mining depth for dredging of 12 m was used.
7. A maximum alluvial mining depth of 30 m was used.
8. Numbers may not add due to rounding.

The QP is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate. In August 2020, as part of its normal course operations, Mineros applied for riverbed occupation permits required for the exploitation of a portion of the Mineral Reserves, scheduled to be mined in 2021 and 2022. The application has been submitted and approval is expected to be received in Q4 2021.

### 1.3.8 Mining

Dredging operations are carried out 24 hours per day, 365 days per year. At approximately 80% availability due to equipment maintenance and clean-up, actual dredging is effectively 284 days per year. The nominal production capacity of each of five bucket line dredges, used to mine pay gravel, is 500 m<sup>3</sup>/h. The nominal capacity of the seven wheel cutter suction dredges used to strip overburden, and modified suction dredge No. 21 to mine pay gravel, ranges from 300 m<sup>3</sup>/h to 500 m<sup>3</sup>/h. The nominal capacity of the 12 Brazilian dredges planned for production is 160 m<sup>3</sup>/h. Planned annual production from mid-2021

to 2034 of 26.85 Mm<sup>3</sup> results in an average hourly production rate of 4,084 m<sup>3</sup> per hour (pay gravel plus overburden).

The alluvial mining operation consists of overburden removal and excavation of the gold-bearing gravel using large floating dredges. The deposits extend for more than 50 km along the Nechí River, with widths up to 3.5 km. The current overall mining process consists of the following four basic phases:

- Overburden removal and deposit with suction dredges or Brazilian dredges.
- Gravel removal with dredges.
- Size classification and gravimetric gold extraction.
- Final metallurgical processing of doré at the metallurgical plant and laboratory at Mineros' El Bagre complex.

### 1.3.9 Mineral Processing and Metallurgical Testing

The Nechí Alluvial Property has been in production for approximately 45 years under Mineros management.

Beneficiation of minerals recovered from the Nechí Alluvial Property starts by a gravity concentration and/or sluice box/blanket treatment on board the dredges or floating plants, followed by a concentration and smelting process in the El Bagre metallurgical plant at Mineros' El Bagre complex.

Alluvial mining utilizes the processing plants located on the five bucket line dredges, consisting of gravity concentration (jigs and sluice boxes in three stages). Three of the bucket line dredges have floating scavenger barges on each side that improve fine gold recovery. Wheel cutter suction dredge plain mining uses a floating processing plant (the Llanuras Plant) that is fed from one production suction dredge (dredge No. 21), with processing consisting of classification and gravity concentration (jigs, sluice boxes, and spirals). The 12 Brazilian rotary head suction dredges have on-board plants consisting of a single deck screen, shaking tables and table concentrate clean-up by Brazil mat sluices. Terrace and old tailings mining utilizes a floating backhoe to feed a floating processing plant, which uses gravimetric recovery units (trommel and sluice boxes) to obtain a concentrate.

Gold concentrates from the mining areas are treated in a gold recovery and smelting process in a facility and laboratory in Mineros' El Bagre complex. Gold quality has been reported consistently to be 890 fineness, or 89% gold in the final doré bar.

The metallurgical recovery estimated for the remaining reserves averages approximately 80%. The QP considers the recoveries estimated by Mineros to be reasonable.

### 1.3.10 Market Studies

The principal commodities, gold and silver, are freely traded, at prices that are widely known, so that prospects for the sale of Mineros gold production are virtually assured. Part of the gold production from the Nechí Alluvial Property for 2021 is sold under a forward contract with Stonex (former INTL FCStone Ltd). This contract will be renewed during the second half of 2021 for 2022 and 2033. The remaining gold production over the LOM not under forward contract will be sold at spot market prices.

### 1.3.11 Environmental and Social Considerations

Mining activity in Colombia is regulated by the Constitution of Colombia (the Constitution) and Law 99 of 1993, according to which the responsibilities related to environmental management are shared between

the Ministry of Environment, Housing and Territorial Development (Ministerio de Ambiente, Vivienda and Desarrollo Territorial, MAVDT), today Ministry of Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible, MADS), at the national level and the Autonomous Regional Corporations (Corporaciones Autónomas Regionales, CARs) at the regional level. MADS sets the national standards for mineral activities, while CARs are responsible for administering the natural resources and controlling environmental deterioration associated with extraction activities, such as mining, in their territorial jurisdictions, and issues project specific rules and requirements consistent with national regulations as suited to their jurisdictions.

In the case of the Nechí Alluvial Property, mining and mining related activities occur in the municipalities of Zaragoza, El Bagre, Cauca, and Nechí, for which the regional environmental authority is Corporación Autónoma Regional del Centro de Antioquia (CORANTIOQUIA). CORANTIOQUIA is headquartered in the city of Medellín and has a regional office in the municipality of Cauca.

Mineros' existing operations are carried out based on the approved 2001 EMP. Since 2018, to harmonize environmental management and prepare for transition to new environmental framework, Mineros requested that ANLA, in addition to its approval of the EMP, take on responsibility for all permits previously granted by CORANTIOQUIA pertaining to the mining and hydroelectric operation for current and future mining operations and activities. The procedural request was completed by early 2020.

In concert with the above, Mineros has, since 2018, submitted permit applications to ANLA for review and approval in support of existing operations (Stages 0, 0.5, 0.75 and 1). In mid 2021, Mineros submitted its latest permit application for large scale mining activities in a portion of the Sampumoso Sector (Stage 1.5) to ANLA. The ANLA review is underway and Mineros is optimistic that the permit will be granted before YE 2021. Based on SLR's discussions with Mineros and review of environmental documents and resolutions and correspondence with ANLA, SLR is of the opinion that Mineros' expectation of approval is reasonable and well founded.

In early 2020, the Nechí Alluvial Property was designated as one of five Projects of National and Strategic Interest (PINE) in Colombia by the MEM. This designation confirms Mineros' sustainable contribution to the country, region, and society, ensuring that Mineros will receive priority considerations during procedures with any level of government.

Mineros has established a world class management system for guiding its operation with respect to the environment, health and safety, and social responsibility. The system provides a proactive planning framework, allows for continuous updates of regulatory and permitting requirements and the distribution of these obligations among various operating units within Mineros as appropriate, and provides a dynamic framework for regular and exceptional performance monitoring. The system is supported by state-of-the-art management information system (MIS) application software hosted on server-based computer systems that link various operational and corporate departments of Mineros.

Prior to its elimination in 2012 to 2014, mercury was selectively used in the final stages of sluice gravity extraction on the barges. Sealed canisters containing the mercury gold amalgam were shipped daily by helicopter to El Bagre where processing of the amalgam was carried every ten days in a secure laboratory under controlled conditions in a retort furnace which captured the volatilized mercury for re-use. The use of mercury was carefully managed and controlled in accordance with government regulatory requirements. Tracking of mercury use and mass balance calculations were carried out to confirm that total mercury losses were within regulatory limits. Testing of air, water, and fish was carried out to confirm that mercury use complied with Mineros environmental permits.

The elimination of mercury was a significant achievement from a technical, environmental, and social perspective, and sets a performance standard for other alluvial mining and surface mining operations in the region.

SLR's site visit and review of Mineros' environmental management system and the various environmental permits and supporting documents have demonstrated that Mineros is progressively advancing and formalizing its environmental management system and has a comprehensive framework for identifying and addressing existing and potential environmental issues associated with its operations.

The integrated management system provides a strategic framework and operational platform for guiding Mineros' actions throughout the life cycle of the mineral extraction process from exploration through to final reclamation of formerly disturbed areas. It also provides the means of linking all the Mineros performance metrics, including environmental and social obligations, in a coherent system that can be used to measure Mineros' success with respect to environmental and social obligations within the context of its physical, social, and regulatory commitments.

SLR's review of information provided confirms that Mineros has substantially improved its EMPs and practices since its formation as Mineros S.A. and is in material compliance as of the issue date of this Technical Report. This improvement has been driven through corporate planning and management practices as articulated in Mineros' environmental management system and supported by the Mineros' integrated management system.

In addition to its operational environmental management, Mineros also has excellent closure practices. Alluvial mine blocks are reclaimed on a progressive basis with the objective of re-establishing pre-mining geomorphic conditions and agreed future land use objectives consistent with local landforms. Mineros' reclamation practices, combined with the setting and climate, allow for successful land reclamation to be achieved within several years of completion of mining. In addition to compensation of landowners/farmers for the use of the land and for damage caused by the mining operation, Mineros carries out residential building construction and revegetation with plants and crops at agreed locations after completion of reclamation. When farmers return to site after mining, Mineros assists them to obtain proper titles with the ANT. No evidence of legacy liabilities was noted with respect to past use of mercury by Mineros in its processing and recovery of gold prior to 2012.

In 2019, Mineros provided a Regional Integrated Management District (DRMI) Environmental Compensation Plan as required under its EMP and complying with Resolution 1612 of August 15, 2019. This plan addresses the rationale for selection of two potential compensation areas (El Sapo and Hoyo Grande) and the framework for moving forward on compensation actions to assist in regional restoration of impacts of mining and improve biodiversity and in the region. By Resolution 160PZ-RES2014-2056 of April 15, 2021, the environmental authority CORANTIOQUIA approved the compensation plan presented by Mineros, where the activities will be carried out in the Regional District of Integrated Management Ciénagas el Sapo and Hoyo Grande.

### **1.3.12 Capital and Operating Costs**

The capital and operating cost estimates have been prepared based on recent operating performance and the current operating budget for 2021. These costs were supplied to SLR by Mineros' corporate finance and mine site technical teams. SLR considers these cost estimates to be reasonable, as long as the production targets are realized.

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Mineros' estimate of capital costs required to maintain alluvial mining and processing operations over the LOM between Q3 2021 and Q1 2034, is estimated to be US\$111.96 million, including mining development, sustaining capital, and reclamation and closure costs.

Mineros' estimate of operating costs required to mine and process 356 Mm<sup>3</sup> of alluvial material is estimated to be US\$652 million over the LOM.

- Bucket line dredge LOM operating costs are estimated to be approximately US\$313.1 million, at an average operating cost of US\$334/oz Au.
- Suction dredge LOM operating costs are estimated to be US\$29.5 million, at an LOM average operating cost of US\$32/oz Au.
- Terrace alluvial LOM operating costs are estimated to be US\$1.3 million, at an average operating cost of US\$1.4/oz Au.
- Support operations and Site G&A LOM operating costs are estimated to be US\$308 million, at an average operating cost of US\$329/oz Au.

## 2.0 INTRODUCTION

SLR Consulting (Canada) Ltd (SLR) was retained by Mineros S.A. (Mineros) to prepare an independent technical report (Technical Report) on Mineros' Nechí alluvial gold mining operations (Nechí Alluvial Property) located in Colombia, South America. In 2019, SLR acquired Roscoe Postle Associates Inc. (RPA), which has been involved with the Nechí Alluvial Property since 2008. For the purpose of the Technical Report, references to SLR include RPA.

The purpose of this Technical Report is to support the disclosure of Mineral Resources and Mineral Reserves as of June 30, 2021, and to support a potential going-public transaction in Canada. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) as published by the Canadian Securities Administrators (the umbrella organization of Canada's provincial and territorial securities regulators). The effective date of this Technical Report is June 30, 2021.

Mineros is a publicly traded, Colombian-incorporated mining company, with corporate headquarters in Medellín, Antioquia Department. Its Nechí Alluvial Property is based in El Bagre, 190 km north of Medellín.

The Nechí Alluvial Property is in production and operations are centred in the town of El Bagre, located at the confluence of the Tiquí and Nechí rivers. The Nechí alluvial deposits have been exploited for gold by commercial dredging since 1937. The alluvial and terrace deposits and their source-gold quartz vein deposits hosted in intrusive rocks, flanking and upstream of them, have been worked by local artisanal miners since antiquity. Alluvial and informal mining activities continue in the region to the present and have resulted in impacts to the local and regional environments. Mineros purchased the mining concession titles covering the Nechí alluvial gold deposits from Pato Consolidated Gold Dredging Limited (Pato Consolidated) in 1974. Except for minor labour and social disruptions, the Nechí Alluvial Property has been in continuous operation and production since its acquisition by Mineros.

The Nechí Alluvial Property is approved and operated in accordance with applicable federal and regional requirements, as per the Plan de Manejo Ambiental (Environmental Management Plan, EMP) and applicable permit requirements and corporate social responsibilities and sustainability objectives. Mineros' operations are setting the industry standard for environmental and social management in the region.

There are four types of mining carried out at the Nechí Alluvial Property. The first, and predominant, method is alluvial plain mining using a combination of suction and bucket line dredges. The second method is wheel cutter suction dredge plain mining using new equipment that was purchased by Mineros in 2020. The third method is Brazilian rotary head suction dredge mining beginning in 2020. The fourth method is old tailings recovery and terrace mining using an amphibious excavator.

Mineros gold production from the Nechí Alluvial Property from 1974 to 2021 totals approximately 3.0 million ounces (Moz) Au, averaging approximately 61,600 ounces (oz) Au annually from 1974 to 2009 and 83,500 oz Au annually from 2010 to 2021. Mineros currently operates five dredge production units, each consisting of a wheel cutter suction dredge stripping mud and clay overburden ahead of a bucket line dredge that mines and processes underlying gold-bearing gravels and sands to a maximum depth of 30 m. Mineros carries out drilling with sonic and placer churn drills to explore the continuity of alluvial gold deposits along the Nechí River north of its operations to the confluence with the Cauca River and in-fill drilling of Mineral Resources to upgrade them to Mineral Reserves.

## 2.1 Sources of Information

Site visits were carried out from May 8 to 14, 2017 by Richard E. Routledge, M.Sc. (Applied), P.Geo., SLR Associate Principal Geologist, Holger Krutzmann, P.Eng., SLR Associate Principal Metallurgist, and Gerd Wiatzka, P.Eng., Associate Principal Environmental Specialist and Principal, Vice President and Director Mining of Arcadis Canada Inc. Mr. Luke Evans, M.Sc., P.Eng., SLR Principal Geologist and Global Technical Director, Geology Group Leader, visited El Bagre on May 8, 2017 and reviewed alluvial project data at Mineros' corporate office in Medellín on May 9, 2017. Messrs. Evans and Wiatzka's most recent site visit to El Bagre and the alluvial gold operations was from August 17 to 19, 2021. SLR has previously visited Mineros' Colombian properties in 2008 and 2010.

Alluvial gold Mineral Resource and Mineral Reserve reviews, audits, and the preparation of internal NI 43-101 compliant technical reports have been carried out periodically for the Nechí Alluvial Property on behalf of Mineros by SLR since 2008. The most recent internal SLR technical report is dated July 31, 2020 and was based on year end (YE) 2019 Mineral Resources and Mineral Reserves for the Nechí Alluvial Property. In early 2021, SLR audited the YE 2020 alluvial gold Mineral Resources and Mineral Reserves as reported by Mineros and SLR submitted a letter report to Mineros management stating that the YE 2020 estimates were reasonable and acceptable under CIM (2014) definitions.

Discussions were held with the following Mineros personnel based in Medellín and El Bagre during the site visits and with key personnel by teleconference and by email:

- Eduardo Flores Zelaya, Corporate V.P. Business Development (Medellín)
- Jorge Orlando Aceituno, Manager of Resource and Reserve Planning (Medellín)
- Luis Fernando Edi, Director of Resources and Reserves (Medellín)
- Raul Márquez, Director of Exploration Services (Medellín)
- Claudia Castaño, GIS Coordinator for Resources and Reserves, Medellín
- Alan Wancier, Corporate V.P. Administrative and Financial (Medellín)
- Esteban Melendez Reinoso, Corporate Investment Banking Analyst (Medellín)
- Ana Maria Rios Puerta, Financial Director (Medellín)
- Juan Camilo Santa Ayala, Financial Planning Director (Medellín)
- Mariana Cordoba Casas, Chief Planning and Control (Medellín)
- Rafael Castilla Rueda, Corporate Currency & Commodities Trader (Medellín)
- Patricia Ospina, Investor Relations Director (Medellín)
- Natalia Sylva, Sustainability Coordinator (Medellín)
- Lucas Talero, Mine Manager
- William Mesa, Mine Comptroller
- Clara Maria Lamus Molina, Chief Geologist of Alluvial Exploration
- Elkin de Jesus Ceballos Guerra, Director of Alluvial Mine Planning
- Carlos Andrés Serna Peña, Geologist Greenfield
- Juan Camilo Joiro Maestre, Short Term Planning Engineer
- Julian Osorio Arteaga, Director of Preparation, Alluvial Production Engineer
- Julio Jairo Carmona Franco, Director of Selective Mining, Alluvial Production Engineer
- Rafael Atencia, Director of Bulk Mining, Alluvial Production Engineer



- John Serna, Director Social Sustainability
- Luis Felipe Castaneda Garcia, Legal Environmental Chief - Alluvial Operation
- Daniela Palacio Yepes, Environmental Mining Lawyer
- Carlos Alberto Londoño Berrío, General Manager Sustainability
- Rubiel Quintero, Chief of Supplies and Warehouse – El Bagre Operations
- Alberto Mesa, General Director of Maintenance

Mr. Evans is responsible for the overall preparation of this Technical Report and shares responsibility for Sections 1 to 12, 14, and 23 to 27 with his co-authors. Mr. Routledge reviewed the geology, sampling, assaying, and resource estimates. Mr. Routledge is responsible for Sections 3, 4, 5, parts of Section 6, 7 to 12, 14, 15 and 23. Ian Weir, P.Eng., SLR's Consultant Mining Engineer, reviewed the mining practices, reserve estimate, and economics of the Nechí Alluvial Property and is responsible for Sections 15, 16, 18, 19, 21, 22, and 24. Mr. Krutzmann reviewed the metallurgical aspects of the operation and is responsible for Sections 13, 17, and parts of Sections 6 (past production). Mr. Wiatzka is responsible for reporting on the environmental, permitting, and related compliance aspects of this assignment and is responsible for Section 20 and parts of Sections 4 and 6. The authors share responsibility for Sections 1, 2, 25, 26, and 27 of this Technical Report. SLR would like to acknowledge the excellent cooperation in the transmittal of data by Mineros personnel.

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

## 2.2 List of Abbreviations

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

µm	micron	kPa	kilopascal
°C	degree Celsius	kVA	kilovolt-amperes
°F	degree Fahrenheit	kW	kilowatt
µg	microgram	kWh	kilowatt-hour
A	ampere	L	litre
a	annum	L/s	litres per second
bbl	barrels	m	metre
BCM	bank cubic metre	M	mega (million)
Btu	British thermal units	m <sup>2</sup>	square metre
C\$	Canadian dollars	m <sup>3</sup>	cubic metre
cal	calorie	mg/m <sup>3</sup>	milligrams per cubic metre
cfm	cubic feet per minute	min	minute
cm	centimetre	MASL	metres above sea level
COP	Colombian peso	mm	millimetre
cm <sup>2</sup>	square centimeter	mph	miles per hour
d	day	MVA	megavolt-amperes
dia.	diameter	MW	megawatt
dmt	dry metric tonne	MWh	megawatt-hour
dwt	dead-weight ton	m <sup>3</sup> /h	cubic metres per hour
ft	foot	opt, oz/st	ounce per short ton
ft/s	foot per second	oz	Troy ounce (31.1035g)
ft <sup>2</sup>	square foot	oz/dmt	ounce per dry metric tonne
ft <sup>3</sup>	cubic foot	ppb	part per billion
g	gram	ppm	part per million
G	giga (billion)	psia	pound per square inch absolute
gal	Imperial gallon	psig	pound per square inch gauge
g/l	gram per litre	RL	relative elevation
g/t	gram per tonne	rpm	rotations per minute
gpm	Imperial gallons per minute	s	second
gr/ft <sup>3</sup>	grain per cubic foot	st	short ton
gr/m <sup>3</sup>	grain per cubic metre	stpa	short ton per year
hr	hour	stpd	short ton per day
ha	hectare	t	metric tonne
hp	horsepower	tpa	metric tonne per year
in	Inch	tpd	metric tonne per day
in <sup>2</sup>	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/h	kilometre per hour	yd <sup>3</sup>	cubic yard
km <sup>2</sup>	square kilometre	yr	year

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### 3.0 RELIANCE ON OTHER EXPERTS

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

- Information available to SLR at the time of preparation of this Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Technical Report.

For the purpose of this Technical Report, SLR has relied on ownership information provided by Mineros. The client has relied on a legal opinion dated September 14, 2021 by Bogota based law firm Brigard Urrutia Abogados S.A.S (Brigard Urrutia), a copy of which has been provided to SLR and relied upon by SLR with Brigard Urrutia's consent. This opinion is relied on in Section 4 and the Summary of this Technical Report. SLR has not researched property title or mineral rights for the Nechí Alluvial Property and expresses no opinion as to the ownership status of the property.

SLR has relied on Mineros for guidance on applicable taxes, royalties, and other Colombian government levies or interests, applicable to revenue or income from the Nechí Alluvial Property. This applies to the economic analysis in Section 1 and Section 22.

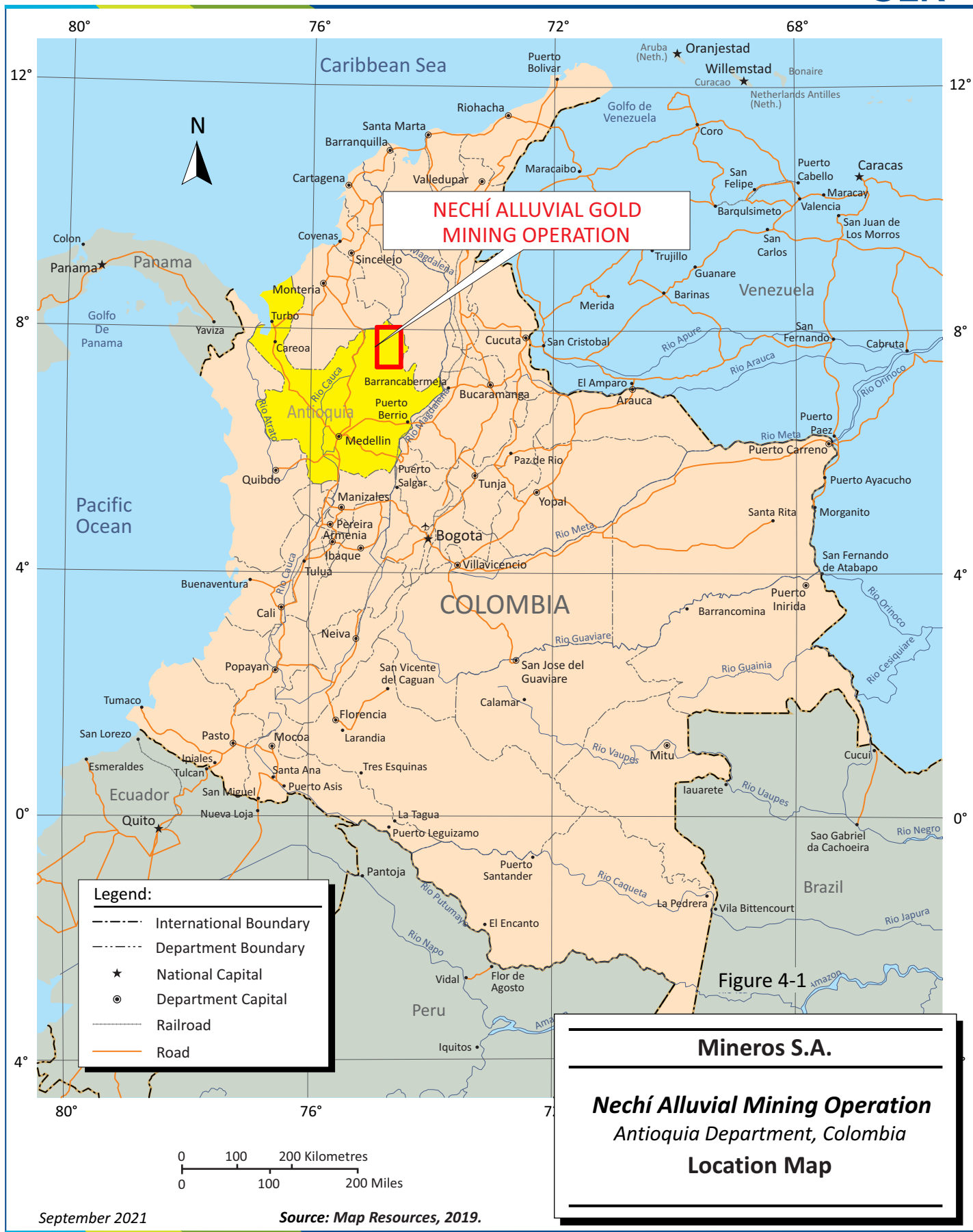
Except for the purposes legislated under provincial securities laws, any use of this Technical Report by any third party is at that party's sole risk.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

The Nechí Alluvial Property is located approximately 190 km north-northeast of Medellín in the northeast of the Antioquia Department, within the jurisdiction of the municipalities of El Bagre, Zaragoza, Cauca, and Nechí. Approximate coordinates for the centre of alluvial operations are 74°47'45" W longitude, 7°49'31" N latitude, corresponding to UTM Zone 18N 522,500E, 865,000N in the World Geodetic System 1984 (WGS84).

Mineros has established its own mine grid system based on an arbitrary origin with coordinates 100,000 m east, 100,000 m north, and elevation 82.54 m located at the El Bagre town shoreline on the Tiquí River. For conversion to WGS 84, the approximate equivalent points for the Mineros grid origin are: Zone 18N UTM 520,532E, 840,188N. The Mineros grid origin is 918,810 m E, 1,332,300 m N with an elevation of 53.53 MASL on the official Colombian MAGNA-SIRGAS National grid established by the Agustín Codazzi Geographical Institute (Instituto Geográfico Agustín Codazzi, or IGAC) that has its origin in Bogota. Other than for small scale maps, coordinates in this Technical Report appear in either the MAGNA-SIRGAS IGAC or WGS84 UTM system.

Figure 4-1 shows the location of the Nechí Alluvial Property.



## 4.1 Land Tenure

Mineros, through Mineros Aluvial S.A.S., its wholly owned subsidiary, holds a 100% interest in the Nechí Alluvial Property under two types of mining titles: Recognition of Private Property (Reconocimiento de Propiedad Privada, RPP) and mining concession contracts (contrato de concesión minera). All the Nechí Alluvial Property Mineral Resources and Mineral Reserves are located on these tenements. Mineros formerly held approximately 36,408 ha under 29 RPP Mines tenements, which were originally acquired as private land while the State of Antioquia (now the Antioquia Department) Mining Code, Act 127 of October 21, 1867 (1867 Code), was in force. The RPP conferred rights for surface and mining exploitation. The 1867 Code was replaced by Act 20 of 1969, which eliminated the former rights to private ownership, but preserved the rights of existing RPPs. The former 29 RPPs have now been consolidated into RPP 57011. Rights associated with those claims have been preserved in the RPP, and successor laws, including the current Mining Code, Law 685 of August 2001, as the amended 2001 Colombian Mining Code (the 2001 Mining Code), which recognizes the private property of mining titles granted under previous laws. The primary obligations to be complied with to maintain an RPP in good standing are the payment of government royalties based on production from the RPP, the gold tax and the periodic submission to the applicable mining regulator of Basic Mining Format (FBM) forms providing technical, economic, and statistical mining data. There are no work requirements, claim maintenance taxes, or surface fees required to be paid to maintain a RPP in good standing, and RPPs will not expire, however, the rights granted by an RPP will be extinguished and the RPP terminated if activities are suspended without just cause for a period exceeding 12 months.

Mineros also holds five concession contracts covering 4,885 ha. Concession contracts are granted under Article 16, Chapter II of the 2001 Mining Code. The 2001 Mining Code provides for only one type of mining title, known as a concession contract, which is granted for a term of 30 years commencing on the date of registration at the Colombian National Mining Registry (the Mining Registry) maintained by the National Mining Agency (Agencia Nacional de Minería, ANM), divided into three phases:

- Exploration, with a three-year term, which may be extended for additional periods of up to two years, for a maximum term of 11 years.
- A construction and assembly phase, with a three-year term, which may be extended for one additional year.
- Exploitation with a term equivalent to the remaining term of the contract.

A concession contract can be extended up to 30 years if new technical, economic, environmental, and social studies indicate that such extension is beneficial in terms of government policy. The location of a concession contract is given by a reference point with distances and bearing, or by map coordinates.

Concession contracts need to be registered before the Mining Registry in order to be enforceable upon third parties. Registration grants the contract a plaque or number, which will be considered the reference of the mining title.

A surface fee (canon superficial) is due annually upon contract registration with the Mining Registry during the exploration and construction phases of the concession contract. The surface fee is calculated per hectare as multiples of the minimum daily wage, which is adjusted annually (for 2021, COP 908,526 or approximately \$236 at an exchange rate of COP3,850.00:US\$1.00). During the construction and assembly phase, the titleholder must pay a yearly surface fee equivalent to the last one paid for the exploration period.

For current concession contracts, the surface fee payable is calculated as shown in Table 4-1.

**Table 4-1: Surface Fee Payment Scheme for Concession Contracts  
Mineros S.A. - Nechí Alluvial Property**

Number of Hectares (ha)	Minimum Daily Wage/ha		
	Up to Year 5	Years 5 to 7	Years 8 to 11
0 to 150	0.5	0.75	1
151 to 5,000	0.75	1.25	2
5,001 to 10,000	1	1.75	2

The primary obligations required to maintain concession contracts in good standing are outlined in Table 4-2.

The RPP and concession contracts that constitute the Nechí Alluvial Property are contiguous and occupy an area along the Nechí River and flood plain of approximately 41,293 ha between the towns of Zaragoza and Nechí and are centred near the confluence of the San Pedro stream and the Nechí River. Figures 4-2 and 4-3 show the location of the Nechí Alluvial Property, RPP 57011, and the five concession contracts.

**Table 4-2: Key Obligations to Maintain Concession Contracts in Good Standing  
Mineros S.A. - Nechí Alluvial Property**

Phase of Concession	Term + Extension	Surface Tax	Work Plan Requirement	Environmental Requirements	Environmental Mining Insurance Policy	Royalty	Reports and other filings
Exploration	3 years + 2 years extensions, up to 11 years in total	Yes	Minimum Exploration Program ( <i>Programa Mínimo Exploratorio</i> )	Mining Environmental Guides (Términos de Referencia – Trabajos de Exploración, Programa Mínimo Exploratorio y Plan de Trabajos y Obras (PTO) para materiales y minerales distintos del espacio y fondo marino) No environmental license is required. However, depending on the use of renewable resources different environmental permits would be needed (i.e., Superficial Surface Water Concession, among others).	5% of planned annual exploration budget	No	Basic Mining Format (Formato Básico Minero)
Construction	3 years + 1 year extension	Yes	Work Development Plan (Plan de Trabajos y Obras)	Requires Environmental Licence – Licencia Ambiental (issued upon approval of Environmental Impact Assessment –Estudio de Impacto Ambiental, and includes all other permits required for this phase).	5% of planned investment as per work plan ( <i>Plan de Trabajo y Obras</i> )	No, unless anticipated exploitation occurs. In such case, equal to a percentage of the value of the extracted mineral and that varies depending on the mineral that is extracted	Basic Mining Format (Formato Básico Minero) Royalty Declaration (in case of anticipated exploitation)



Phase of Concession	Term + Extension	Surface Tax	Work Plan Requirement	Environmental Requirements	Environmental Mining Insurance Policy	Royalty	Reports and other filings
Exploitation	30 years minus term of exploration and construction. It may be extended for additional 30 year-term, subject to approval of the Mining Authority.	No (Exception made on areas kept by the concession holder to undertake exploration activities during a 2-year period).	Work Development Plan (Plan de Trabajos y Obras)	Yes. Requires Environmental License (issued upon approval of Environmental Impact Assessment and includes all other permits required for this phase)	10% of the result of multiplying the estimated annual production of the mineral of the concession for the price at pithead for the applicable mineral as annually determined by the Colombian government	Yes, equal to a percentage of the value of the extracted mineral and that varies depending on the mineral that is extracted	Basic Mining Format (Formato Basico Minero) Royalty Declaration

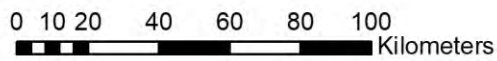
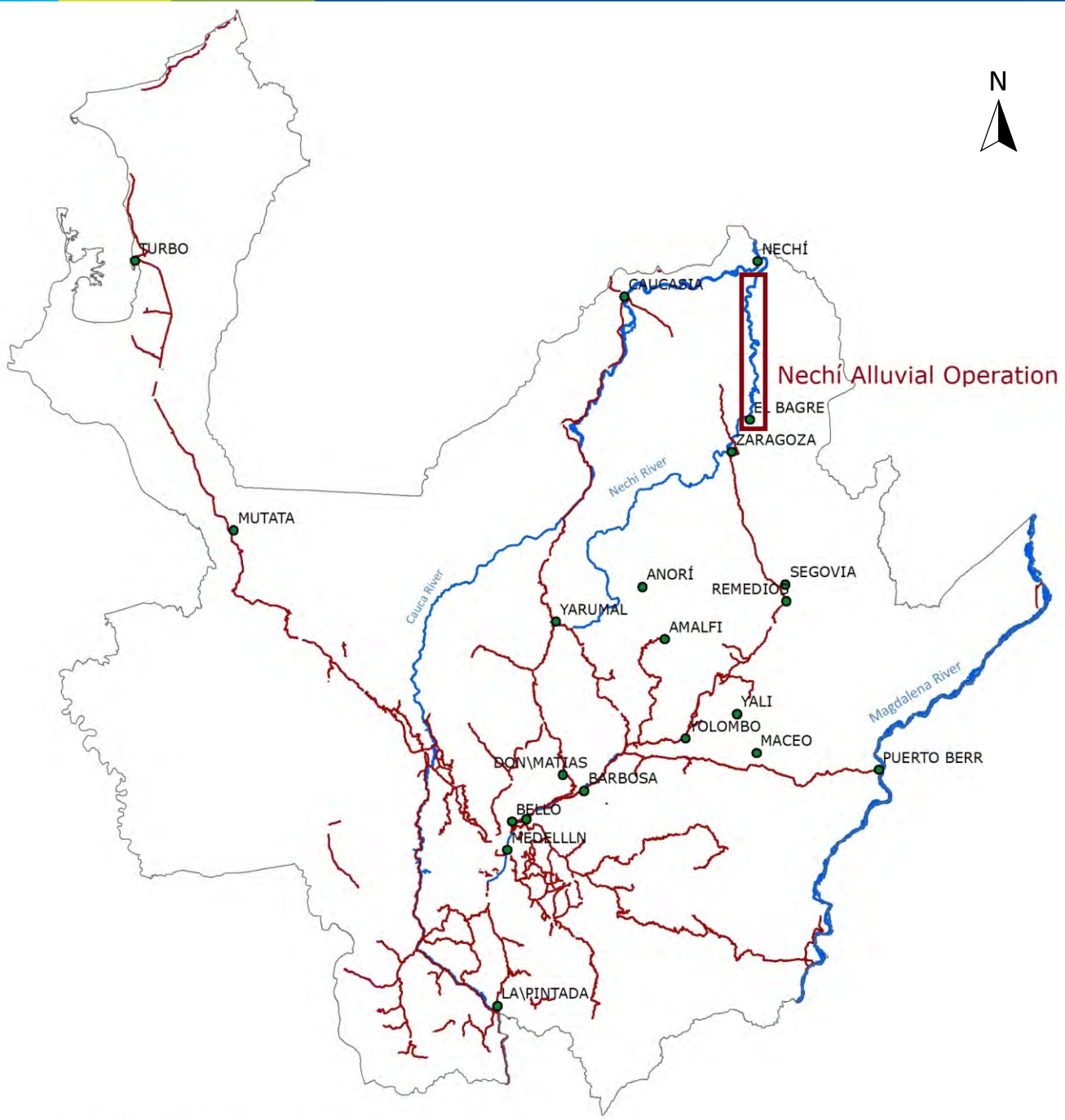
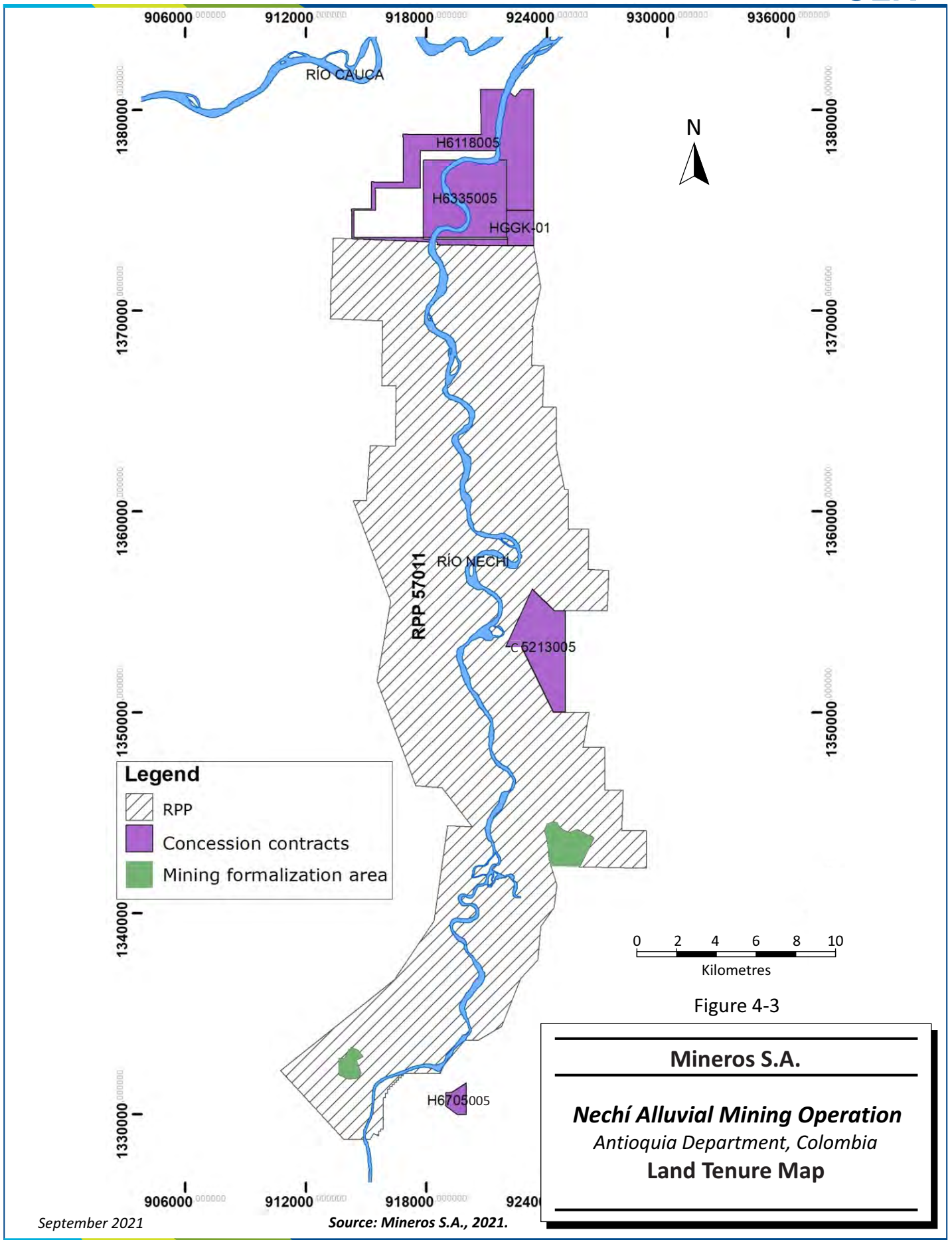


Figure 4-2

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Alluvial Mining Operations Location**



September 2021

Source: Mineros S.A., 2021.

Table 4-3 lists the RPP and concession contracts held by Mineros Alluvial S.A.S., a wholly owned subsidiary of Mineros, for the Nechí Alluvial Property. Mineros' holdings provide more than adequate coverage for alluvial exploration and dredging operations. The title opinion of Brigard Urrutia dated September 14, 2021 indicates that as at the date of such opinion, such titles were current and valid, were in full force and effect, had not been suspended and were not subject to any application or proceedings for their revocation or modification.

**Table 4-3: RPP and Contract Concessions  
Mineros S.A. - Nechí Alluvial Property**

No.	Mine Name	National Mining Registration Code	Area (ha)	File Code	Status	Expiry (MM/DD/YYYY)
<b>RPP Concessions</b>						
RPP 57011	Cienaga Grande	EDKA-03	36,407.84	R57011	Exploitation	N/A
<b>RPP Total</b>			<b>36,407.84</b>			
<b>Concession Contracts</b>						
No. 5213	-----	HCBP-01	997.61	C5213005	Exploitation	1/21/2033
No. 6118	-----	HFKM-03	1,939.52	H6118005	Exploration	7/31/2035
No. 6335	-----	HGGD-08	1,593.01	HGGD-08	Exploration	8/27/2036
No. 6819	-----	HGGK-01	234.32	HGGK-01	Exploitation	11/29/2037
No. 6705	-----	HGPJ-07	121.05	H6705005	Exploration	8/27/2036
<b>Concession Contracts Total</b>			<b>4,884.51</b>			

## 4.2 Surface Rights

Table 4-4 summarizes surface rights relevant to the Nechí Alluvial Property.

**Table 4-4: Surface Rights  
Mineros S.A. - Nechí Alluvial Property**

Project	Property Name	Right	Nature of the Property	Registry Number	Area	Location
.75	Guamo Viejo	Improvements	Vacant	Unknown	127.32 ha	El Bagre, Antioquia
.75	Aguas Negras	Improvements	Vacant	027 - 1805	150 ha	El Bagre, Antioquia
.75	Las Vegas	Improvements	Vacant	027 - 13647	674.84 ha	El Bagre, Antioquia
.75	El Porvenir	Improvements	Vacant	027 - 6717	400 ha	El Bagre, Antioquia

Project	Property Name	Right	Nature of the Property	Registry Number	Area	Location
.75	Burdeos	Improvements	Vacant	027 - 24663	100 ha	El Bagre, Antioquia
Sampumoso	Puerto Leticia	Improvements	Vacant	Unknown	100 ha	El Bagre, Antioquia
Sampumoso	Burdeos	Improvements	Vacant	027 - 24663	100 ha	El Bagre, Antioquia
Sampumoso	Las Colinas	Improvements	Vacant	Unknown	62 ha	El Bagre, Antioquia
Llanuras	Playa Rica	Improvements	Vacant	027 - 1282	483 ha	Zaragoza, Antioquia
Llanuras	Buenos Aires (Terreno Astilleros)	Improvements	Vacant	027 - 1238	134.87 ha	Nechí, Antioquia
Llanuras	El Socorro	Improvements	Vacant	Unknown	274.66 ha	Nechí, Antioquia
Llanuras	"El Esfuerzo"	Improvements	Vacant	Unknown	149 ha	Zaragoza, Antioquia
Llanuras	"El Chaparral"	Property	Private, derivate from a vacant land	027 - 17302	104 ha	Zaragoza, Antioquia
Llanuras	"El Socorro"	Improvements	Vacant	027 - 1268	50 ha	Zaragoza, Antioquia
Llanuras	"La Bamba"	Improvements	Vacant	027 - 1267	19 ha	Zaragoza, Antioquia
Llanuras	"Las Golondrinas"	Mining easement	Private, derivate from a vacant land	027-12193	26.204 ha	Zaragoza, Antioquia
Llanuras	La Campesina	Mining easement	Private, derivate from a vacant land	027-12195	63.883 ha	Zaragoza, Antioquia
Llanuras	Parcela 3 Inspolicía Buenos Aires	Mining easement	Private	027-13030	1.32 ha	Zaragoza, Antioquia
Llanuras	La Vega	Improvements	Vacant	027 - 1219	188 ha	Zaragoza, Antioquia
Llanuras	El Oasis	Improvements	Vacant	027 - 1240	108 ha	Zaragoza, Antioquia
CA5 - Etapa 2	Paragüay	Mining easement	Vacant	027-7391	120 ha	El Bagre, Antioquia
CA5 - Etapa 2	Santa Rosa	Mining easement	Vacant	027 - 7390	110 ha	El Bagre, Antioquia

Project	Property Name	Right	Nature of the Property	Registry Number	Area	Location
CA5 - Etapa 2	Gracias a Dios	Improvements	Vacant	Unknown	250 ha	El Bagre, Antioquia
CA5 - Etapa 2	Cagüi	Improvements	Vacant	Unknown	293 ha	El Bagre, Antioquia
CA5 - Etapa 2	La Virgencita	Mining easement	Vacant	Unknown	43.5 ha	El Bagre, Antioquia
CA5 - Etapa 2	Yo si	Improvements	Vacant	Unknown	160 ha	El Bagre, Antioquia
CA5 - Etapa 2	Puerto Triunfo	Improvements	Vacant	Unknown	17 ha	El Bagre, Antioquia
Terrazas	Villa Amparo	Mining easement	Private	027-24450	23 ha	Zaragoza, Antioquia

Mineros holds surface rights under public deeds that are filed in the national property register, and hence is the registered owner of Chaparral, having clean and clear title over this property.

Mineros has temporary or permanent mining easements over 168 ha of surface land corresponding to the properties named *Las Golondrinas, La Campesina, Villa Amparo, Parcela 3 Inspolicia Buenos Aires, La Virgencita*, under which Mineros makes certain payments to landowners/farmers in compensation for the use of the land and for damage caused by the mining operation, lost crops, and lost time. The amounts paid depend on the type of crops, size of the farmland, and duration. After dredging, Mineros reclaims the land by levelling the dredge tailings and restoring the impacted areas with revegetation of plants and crops, that in some cases are assigned to local families. In some cases when the mine plan changes, additional compensation for an extension is negotiated with the landowners.

Mineros has mining easements over 230 ha with the registered holder of improvements in State Land properties named *Paraguay and Santa Rosa*. As a mining title holder, Mineros is entitled to request that ANT grant an easement over these kinds of property. Mineros also holds over 3,700 ha under “*compra de mejoras*” terms, specifically *Paraguay, Santa Rosa, Guamo Viejo, Puerto Leticia, Las Colinas, El Socorro (No. 2), El Esfuerzo, Gracias a Dios, Cagüi, Aguas Negras, Las Vegas, Yo si, Puerto Triunfo, El Porvenir, Burdeos, Playa Rica, Buenos Aires (Terreno Astilleros), El Socorro, La Bamba, La Vega and El Oasis*. This refers to private purchase and sale agreements with residents who do not hold formal title to the land that they occupy, and therefore lack title to sell or transfer. These are outright land purchases that do not need to be renewed. When the farmers are returned to land acquired under “*compra de mejoras*” terms after mining, Mineros assists them to obtain proper titles with the Agencia Nacional de Tierras (ANT).

Mineros own improvements on State Lands, specifically *El Porvenir, Burdeos, Playa Rica, Buenos Aires (Terreno Astilleros), El Socorro, La Bamba, La Vega and El Oasis*. The registered right to the improvements does not confer the Companies any rights to these properties. Mineros as holder of a Mining Title is entitled to request the ANT the issuance of an easement over the property.

The QP is of the opinion that Mineros’ surface and mineral rights are more than adequate to accommodate the Nechí Alluvial Property. SLR is not aware of any environmental liabilities on the property. Mineros has all required permits to continue working on the property. SLR is not aware of any other significant factors and risks that may affect access, title, or the right or ability to operate or carry out its proposed work at the property.

### 4.3 Taxes and Royalties

There are no claim maintenance taxes (surface fee) required to maintain the RPP in good standing. Mineros is subject to a royalty equal to 2% of the value of gold produced from alluvial deposits on its RPP tenement. RPPs are subject to government royalty payment obligations according to article 227 of Law 685 of 2001, in application of article 330 of Law 1955 of 2019. The royalty applicable to alluvial gold produced from RPPs is 2% of gross production. RPPs are also subject to a gold tax of 4% pursuant to Law 488 of 1998.

The concession contracts are subject to an annual mining fee that is payable during the exploration and development stages. The fee is calculated per hectare as multiples of the minimum daily wage, which is adjusted annually. For 2021, the taxes totalled COP\$908,526, or approximately US\$236, at an exchange rate of COP3,850: US\$1.00. Mineros is subject to a royalty equal to 6% of the value of gold produced from alluvial deposits on its concession contract tenements. Minerals produced from concession contracts are subject to royalty payments pursuant to Article 227 of the Mining Code, which provides that the exploitation of non-renewable natural resources owned by the State generate royalties, calculated based on a percentage, fixed or progressive, of the exploited gross product, and its sub-products, calculated or measured on gross product. The amount of the royalty payable is calculated based on the amount of exploited mineral, the price settlement basis set by the Mining and Energy Planning Unit (published every three months) and the royalty percentage determined by law. The calculation is expressed in the following formula:  $V = A \times P \times R$ , (“V”: Value of the royalty “A”: Amount of the exploited mineral, “P”: Price settlement basis, and “R”: Royalty percentage). The royalty percentage varies by mineral. Gold and silver are subject to a 4% royalty, except for gold from alluvial deposits, like the Nechí Alluvial Property, which are subject to a 6% royalty.

Annual mining fees and mining and environmental performance insurance policy fees must be obtained and submitted to the mining authority for registered concession contracts. Mineros confirms that these fees have been paid and the concession contracts are in good standing.

### 4.4 Colombian Mining and Environmental Regulatory Framework

#### 4.4.1 Mining

Colombian mining is currently regulated under the 2001 Mining Code. Despite changes to the mining act since the RPP were acquired in 1974, the mining titles granted as RPP under historical mining regulations are exempt from the new requirements to maintain title, and are not subject to surface fees. RPP areas are, however, subject to payment of royalties, and the unauthorized suspension of activities without just cause for more than 12 months may lead to termination of the RPP

The Colombian Mining regulatory authorities with jurisdiction over Mineros’ activities are:

- **Ministry of Mines and Energy of the Government of Colombia (Ministerio de Minas y Energía, MME)**, the principal mining authority in Colombia and in charge of formulating, adopting, directing, and coordinating the policies, plans and programs of the sector.
- **National Mining Agency (Agencia Nacional de Minería, ANM)** is a national public entity ascribed to the MME and is in charge of administering the mineral resources property of the State and promoting their optimal and sustainable development. The ANM manages the Mining Registry, which is the database in which the general information of mining titles in Colombia is recorded. The ANM is also the primary authority in charge of granting mining titles in Colombia.

- **Mining Secretary of the Department of Antioquia (Secretaría de Minas de Antioquia) (the Mining Authority)**, which, pursuant to authority delegated by the ANM, administers mining titles for the Antioquia Department, and holds the power to grant and monitor mining titles within such jurisdiction.
- **Mining and Energy Planning Unit (Unidad de Planeación Minero Energética, UPME)**, an entity created in order to coordinate, with the other entities of the mining and energy sector, the development and use of mining and energetic resources and maintains the Colombian Mining Information System (Sistema).

According to Article 332 of the Constitution of Colombia (the Constitution), the State has ownership over the subsoil and non-renewable natural resources therein located, save for those private properties recognized under former laws. As such, the authorization of the State is required in order to undertake mining projects in Colombia. This authorization is awarded by the State in the form of a mining title, which gives its holder the right to explore and exploit mineral resources, whether from the subsoil or the surface.

Under the 2001 Mining Code, the concession contract covers exploration, mine development (“construction and assembly”), and exploitation or mining phases. The concession contract is valid for 30 years and can be extended up to 30 years if new technical, economic, environmental, and social studies indicate that such extension is beneficial in terms of government policy. For the purpose of concession application, the concession contract area is located on a map from a starting point and defined by corner coordinates, i.e., the procedure is equivalent to map staking in Canadian jurisdictions. The maximum size for a concession contract is 10,000 ha.

As defined in Colombian law, the concession contract includes three stages, each with specific obligations.

#### **4.4.2 Exploration Stage**

The exploration stage begins when the contract is recorded in the Mining Registry. This stage covers a period of three years and can be extended for additional two-years terms, up to 11 years. Annual surface fees are payable as described below (as well as royalties) and a mining and environmental insurance policy is required that is based on 5% of exploration budget.

A work and development program (WDP) and environmental management program (EMP) must be filed in order to proceed to the development stage. The EMP includes all the necessary environmental criteria, information, data, and recommendations; describes the region’s physical, social and economic background; and provides an evaluation of the impacts of exploration and development with plans for prevention, mitigation, correction, and compensation. The EMP must also describe specific measures that will be used during the production and the closure process: a management plan, implementation strategy, and costs.

#### **4.4.3 Development Stage**

The development stage for construction covers a period of three years and may be extended for one additional year. The annual surface fee applies, as well as the requirement for a mining and environmental insurance policy based on the 5% of the WDP budget. In order to proceed to mining, an Environmental Licence must be obtained based on completion, submission, and approval of an Environmental Impact Study, and the WDP shall be approved by the Mining Authority.



#### 4.4.4 Production Stage

The production stage covers a period of 30 years, including the previous years of exploration and development, i.e., effectively a duration of 21 to 24 years with the option of a 30 year extension. Similar to the preceding stages, environmental insurance policies are required based on 10 % of estimated annual production of the mineral produced. There are no property taxes (surface fees), however, production royalties are payable as defined by regulations in force at the time the concession contract is granted.

### 4.5 Environmental Requirements

Mineros' Nechí Alluvial Property operations are subject to regulation by the following environmental regulators:

- **Ministry of Environment and Sustainable Development – (Ministerio de Ambiente y Desarrollo Sostenible, MADS)**, which acts as the national administrator for environment, housing, territorial development, drinking water, and basic sanitation.
- **Autonomous Regional Corporation of Antioquia (Corporación Autónoma Regional del Centro de Antioquia, CORANTIOQUIA)** is the regional authority responsible for environmental preservation and management. CORANTIOQUIA grants environmental permits for atmospheric emissions, vegetation use, wastewater disposal, water use, and riverbed occupation.
- **National Authority of Environmental Licences (ANLA)** is an agency of the Government of Colombia constituted in the year 2011. It is in charge of granting or denying licences, permits, and environmental procedures. Mineros' operations at the Nechí Alluvial Property, which predate the promulgation of Law 99 of 1993, were regulated under an EMP approved by the then Ministry of Environment (MOE). After its creation, the ANLA assumed the evaluation, control, and monitoring of this program.

Table 4-5 illustrates the permitting process for Mineros.

**Table 4-5: Environmental Permitting Process  
Mineros S.A. - Nechí Alluvial Property**

Environmental Management Plan	Environmental Permits	Description
Approved by ANLA	Approved by CORANTIOQUIA and ANLA since 2018	Specific environmental requirements related to all processes and activities as identified in Mineros' environmental management system, as regulated under the ISO 14001 Standard

Mineros' environmental management system identifies all the environmental aspects for all Mineros processes and activities and links them to respective environmental regulations to ensure compliance. Each component in the system generates required actions and responses that are recorded in a centralized database managed by the Mineros Environment and Occupational Health and Safety divisions.

The Mining Act 99 of 1993 dictated that Environmental Licences would be required to carry out mining. After a period of transition, in 1996, the MOE required Mineros to develop an EMP. The EMP was presented to the MOE on September 20, 2000 and was approved by Resolution 810 on September 3, 2001,

The EMP has been satisfactorily implemented since 2002 and audits have been carried out annually for the property, dredging operations, and the El Bagre complex. The comprehensive plan deals with solid and hazardous waste disposal, planned forest intervention areas, surface water, dust and air quality, mercury use (in the past), monitoring of air, water and fish, Nechí plain tailings reclamation and reforestation, possible well drilling for agricultural development, water quality at extraction wells and flooded areas, as well as land use and environmental education programs.

The EMP was modified in July 2003 through Resolution 805, which approved the assembly and operation of Production Unit 4 and authorized the exploitation of blocks BJ1, BJ2, BJ3. Then, through Resolution 1885 of December 2005, the exploitation of blocks RV1, RV2, RV4, N1, BL1, A1, A2, A3, RV2-A and RV3 was authorized. Resolution 126 dated January 2008 approved the operation of Production Unit 5 and blocks BJ3, BJ5, MbJ4, CA1, CA2, CA3, CA4 were released.

In August 2013, the EMP was modified with Resolution 833, which endorses the operation of the Providencia I hydroelectric plant, which supplies energy to the mining operations. In February 2015, through Resolution 125, the last modification of the EMP was made, where the operation of blocks CA5, RMCA5, extension BJ3, extension BL1, M27, M29, M30, M31, M505, MPA5, PV1 was authorized. The elimination of mercury in the processing stage was endorsed, the operation of the Providencia III hydroelectric plant and its distribution line was included, and the EMP measures were updated.

In 2019, the EMP was amended by Resolution 1612 of August 2019, in order to authorize the closed pool mining method in the CA5 block, as well as the selective dredging of the BJ3, BJ4, BJ5, CA1, CA2, CA3, and CA4 blocks and the closed pool method on the marginal blocks PV1, M27, M29, M30, M31, MA2, MPA5, and M505.

Resolution 1612 also includes modifying some management practices and the updates to the Regional Integrated Management offsite compensation requirements.

In August 2020, as a part of its ordinary course operations, Mineros requested that ANLA amend the EMP for the Nechí Alluvial Property, mainly to include additional riverbed occupation permits, forestry use permits, and water concessions in the Sampumoso and Llanuras areas, all being blocks within the feasibility mining stage corresponding to the existing RPP. On April 9, 2021, ANLA issued Resolution 00659 of 2021, authorizing some of the permits, but denying others. Mineros appealed to ANLA for reconsideration and by Resolution 01098 dated June 23, 2021, ANLA modified its initial decision and granted all of the water concessions and forestry use permits requested on more than 4,000 ha within Sampumoso area (but none of the riverbed occupation permits in the Sampumoso area) subject to compliance with certain conditions relating to the fact that Sampumoso is considered swampland (*cienaga*). As a result of ANLA Resolution 01098 of 2021, the EMP for the Nechí Alluvial Property is sufficient to support planned exploitation activities through December 2021. On August 12, 2021, Mineros filed a new amendment to the EMP for the Nechí Alluvial Property seeking to obtain final approval for the riverbed occupation permits and the remaining forestry use permits in Sampumoso, in addition to all permits for the Llanuras area. Approval is expected in October or November 2021. If approved, the EMP for the Nechí Alluvial Property is sufficient to support planned exploitation activities through 2022.

The QP is not aware of any environmental liabilities on the property from past or present operations. Mineros has all required permits to continue work on the property and anticipates receiving the riverbed occupation permit before YE 2021. SLR is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

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

### 5.1 Accessibility

Mineros' base of operations at El Bagre is readily accessible by daily commercial air service from the Olaya Herrera domestic airport in downtown Medellín. Flight time is approximately 40 minutes. The José María Córdova international airport that serves Medellín is 30 km southeast of the city at Rionegro, a 45 minute drive.

Access by road from El Bagre to Medellín is available via two routes. One route is 250 km and approximately 12 hours of driving via the town of Segovia to the south of El Bagre. Alternatively, the other route is from Medellín by paved Highway 25 to the town of Cauca, situated on the Cauca River, and then southeast to El Bagre, a distance of 300 km and approximately eight hours of driving.

Heavy and large equipment, e.g., processing plant equipment, dredges, or disassembled dredge components, may be transported to site on vessels up to 500 tonnes from Cartagena on the Caribbean Ocean via the Magdalena and Cauca rivers that are downstream of the Nechí River.

Dredging operations are currently centred approximately 35 km north of El Bagre on the Nechí River and its flood plain. Access for operations personnel is provided by approximately 6.5 m long fibreglass power boats, which seat up to 18 people, and motorized long canoes. Equipment is moved by towed barges. The water fleet is currently 18 boats, five canoes, and five barges. Access by power boat to the dredging area averages approximately 25 minutes at high water, assuming a full load.

Helicopter platforms are installed on the bucket line dredges for personnel access and for transport of gold amalgam to El Bagre. Mineros' Bell 206B3 helicopter is used for this purpose.

### 5.2 Climate

Climate information is available in a baseline study prepared by Mineros for the MOE in 1999. This study relied on climate-related measurement data obtained over 11 years from 1970 to 1980 at the Santa Margarita weather station, as well as data collected from 1953 to 1963 at El Bagre airport. This information may be somewhat outdated given the climate change since then, but it serves to give a reasonable perspective. The climate supports year round mining operations.

The ambient temperature is very uniform throughout the year, fluctuating by  $\pm 1^{\circ}\text{C}$  and averaging  $27.6^{\circ}\text{C}$ . Higher temperatures correspond to periods of low rainfall.

Monthly precipitation as rainfall ranges from 70 mm to 550 mm. Relative humidity is medium to high and averages 81.2%, with 79% during the dry season from December to March and 83% during the wet season from May to November. The high humidity is typically manifested in hazy to cloudy skies and frequent electric thunderstorms that commonly occur in late evening and overnight.

While the climate is conducive to year-round dredging operations and exploration, the wet and dry seasons and level of precipitation have an impact on operations in that the water levels in the Nechí River vary seasonally up to 5 m. Access to river and flood plain channels, orphaned meanders, and ponds for exploration drilling and operation of the dredges is scheduled to account for water levels and for dredge working depths. Mineros operates year-round.

### 5.3 Local Resources

The El Bagre area has a long history of artisanal alluvial mining activity, however, only 2% of mining supplies needed for operations are available locally. General labour is readily available in the area, while skilled labour must be found elsewhere in Colombia or trained on site. The Colombian army has a base at El Bagre and its operations are supported in part by Mineros since the army provides security services for Mineros' mining operations and exploration projects in El Bagre District. Mineros also participates with the government in training students for the mining trades at El Bagre and has the option of hiring program graduates.

### 5.4 Infrastructure

Infrastructure at the Nechí Alluvial Property is described in Section 18 of this Technical Report. Mineros' surface rights are more than adequate to accommodate the mining operations, power generation and transmission, mining personnel, waste disposal, and processing infrastructure for the Nechí Alluvial Property.

### 5.5 Physiography

The Nechí Alluvial Property is located in the Central Cordillera foothills within the Lower Cauca River physiographic region, which includes the Cauca and Nechí River valleys. The municipalities of Taraza, Caceres, Cauca, Zaragoza, El Bagre, and Nechí are situated in the valleys and are surrounded by a predominance of pastureland for livestock, jungle with mixed vegetation, and land developed for alluvial mining.

The area of alluvial operations on the Nechí River flood plain has low topographic relief with elevation in the order of 50 MASL. To the east, the area is mountainous over the Segovia batholith and San Lucas gneisses where elevations are up to 600 MASL. Low hills and terraces are found west of the Nechí River. The main geomorphological and morphodynamic units identified in the area are:

- Elevated landforms, i.e., hills and mountains cored by igneous and metamorphic rocks (PMM1) that control the Nechí River valley.
- Low, rounded, and dissected hills with elevations of less than 150 MASL along the west margin of the Nechí River flood plain. The hills are formed over subhorizontal Tertiary sedimentary rocks (TLM) that generally appear as a peneplain extending north to the Cauca River. This unit is generally covered by gold-bearing Quaternary alluvial sediments including alluvial fans (QCCA) originating from artisanal gold mining.
- Alluvial landforms in the Nechí River flood plain consisting of:
  - Dissected alluvial plain terraces abandoned by the river but that may be subject to flooding.
  - Alluvial flood plain subject to flooding by the Nechí River and other tributaries. This is the working area of the dredges that constitutes most of the Nechí alluvial property.
  - Recent alluvial deposits occurring as mobile landforms related to the river channel such as bars, beaches, and islands. The sediments accumulate by the lateral migration of the river channels or from flood deposition.
  - Tailings resulting from dredging have variable thicknesses and composition depending on the original characteristics of the pay gravels mined. After 70 years of mining, tailings have become the most important landform of the valley.

- Flood depressions consisting of extensive marsh lands or permanent ponds originating from abandoned meanders or old channels.
- Natural levees controlling the lateral migration of the river bed and formed by flood or overbank deposition of silt and fine sand that become slightly compacted along river banks.

## 6.0 HISTORY

### 6.1 Ownership and Exploration History

The Nechí Alluvial Property is located in a region that has seen artisanal and small scale alluvial mining since antiquity. By the end of the 19<sup>th</sup> century, several gold mining companies operated in the northeast of Antioquia. Among these were the Colombian Mining Company, Frontino and Bolivia Mining Company, Oroville Dredging Company, Compañía Francesa de Segovia, and Compañía Francesa del Nechí.

Exploration to establish the gold potential of the Nechí alluvium was initiated in 1903. Later, in 1906, Pato Mines Company, a subsidiary of Oroville Dredging Company (Oroville), commenced exploitation of terraces with water monitors and conveyors on the west river bank of the Nechí River, near the mouth of Pato Creek.

In 1908, the first bucket line dredge with a digging reach of 12 m began operation. In the 1930s, Placer Development Limited acquired the shares of Oroville, creating a new company under the name of Pato Consolidated. Pato Consolidated continued exploration along the Nechí River and, after confirming large alluvial gold reserves, added bucket line dredges capable of digging up to 20 m depth. Further exploration between 1930 and 1934 indicated that the Nechí alluvial deposits contained gold up to a depth of 30 m. By 1938, Pato Consolidated had constructed the Providencia hydro plant, with a capacity in excess of that needed for power dredges, mechanical shops, and facilities at El Bagre.

The main exploration method over the past century has been churn drilling. The Mineros drill hole database includes Pato Consolidated holes dating back to 1931.

In 1956, International Mining Corp. acquired the assets of Pato Consolidated, Nechí Valley Gold Dredging, and Cuturu Gold Dredging and amalgamated these companies into a single entity under Pato Consolidated for the exploitation of the Nechí alluvial deposits. By 1965, seven bucket line dredges were working the alluvials, however, three of them were later retired because of insufficient reach. Pato Consolidated purchased its last dredge in 1969.

Mineros Colombianos S.A. (Mineros Colombianos) was formed in the early 1970s as a Colombian holding company with investments in several mining companies. Mineros Colombianos acquired International Mining Corp.'s two Colombian properties, including Pato Consolidated's Nechí alluvial operations in 1974. Mineros Colombianos was split into Mineros de Antioquia S.A. and Mineros del Chocó S.A. Mineros de Antioquia S.A. (now Mineros) was profitable, whereas Mineros del Chocó S.A. failed and was liquidated in 1977.

In the late 1970s, Mineros experienced difficulties with the assembly of dredge No. 10 that was finally commissioned in 1980. In the following years, the company faced new operational challenges with the emergence of armed groups in Colombia. In 1983 and 1985, the El Bagre camp and offices were attacked and damage was caused to their buildings and installations. The Providencia power plant was occupied several times and dredge No. 4 was sunk in 1984. During these years, Mineros was able to successfully resist the armed groups, and dealt with civil strikes and the loss of local labour during the movement of farmers to the cities. Mineros involved the participation of the army, police, workers, and their families to manage the social challenges in Colombia.

In 1994, Mineros purchased Mineros Nacionales, a Colombian company that operated the Marmato underground gold mine, a low grade vein deposit. After several years, the Marmato mine was sold because it did not meet Mineros' production goals.

During the 1990s, intensive in-house and outside consulting studies were commissioned to undertake a systematic assessment of each production process and operations unit with the objective of increasing productivity and making better use of existing resources. The studies led to significant changes in company organization and operations.

In 2004, Mineros de Antioquia S.A. changed its name to Mineros S.A. In 2010, an additional alluvial production unit was commissioned through the purchase of a wheel cutter-suction dredge from the Netherlands and a bucket line dredge from Brazil that was moved and re-assembled on the Nechí River. In 2020-2021, two Royal IHC wheel cutter suction and seven Daman CSD250 rotary head suction “Brazilian” dredges were put into production. Mineros purchased the wheel cutter units and one Brazilian dredge from the Netherlands.

## 6.2 Past Production

Historic gold production from the Nechí alluvial deposits from 1895 to 2021 is approximately 8.8 Moz Au, of which Mineros’ operations account for approximately 3.0 Moz.

Table 6-1 provides Mineros’ past gold production for the Nechí Alluvial Property from 1974 to 2021, inclusive. Figure 6-1 illustrates Mineros’ alluvial gold production, and dredged volume, from 1974 to 2021, inclusive. SLR notes that the 2021 figure includes the actual production for the first half (H1) of 2021 and the forecast production for the second half (H2) of 2021.

**Table 6-1: Mineros Alluvial Gold Past Production  
Mineros S.A. - Nechí Alluvial Property**

Year	Fine Gold (oz Au)	Year	Fine Gold (oz Au)
1974	45,230	1998	59,643
1975	41,606	1999	56,754
1976	47,412	2000	66,337
1977	49,063	2001	64,497
1978	48,953	2002	63,972
1979	39,316	2003	62,324
1980	48,824	2004	67,170
1981	46,162	2005	79,414
1982	39,354	2006	92,667
1983	45,331	2007	68,180
1984	49,499	2008	81,740
1985	40,271	2009	90,040
1986	42,634	2010	84,473
1987	38,251	2011	95,214
1988	38,008	2012	94,063
1989	43,532	2013	94,169

Year	Fine Gold (oz Au)	Year	Fine Gold (oz Au)
1990	40,265	2014	95,355
1991	52,918	2015	86,142
1992	45,960	2016	89,732
1993	42,882	2017	88,894
1994	59,808	2018	77,151
1995	41,940	2019	54,567
1996	53,834	2020	69,939
1997	61,465	2021	71,807 <sup>1</sup>
<b>1974 to 2021 Total</b>		<b>2,956,761</b>	

Note:

1. Based on 2021 H1 actual production of 40,519 oz and 2021 H2 forecast of 31,288 oz

Mineros S.A Alluvial Gold Production

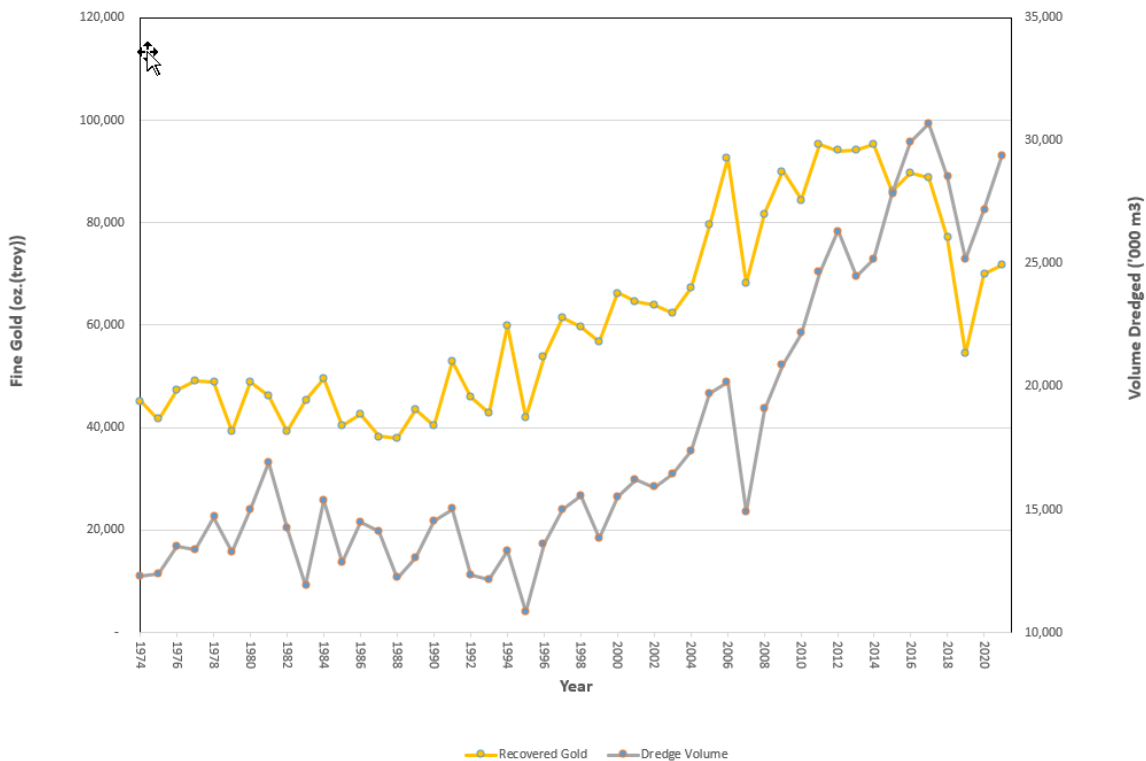


Figure 6-1: Nechí Alluvial Gold Production 1974 to 2021

Table 6-2 shows the actual volume of gravel and fine gold produced by each production unit up to mid-2021. The last column indicates a comparison between projected volumes of gravel to be removed and actual production (R/P). Because of the nature of the mining operation, there is variation between the



estimated and actual volumes removed. The average hourly production for the five units is approximately 500 m<sup>3</sup>/h per unit.

**Table 6-2: 2021 Mineros Alluvial Mining Gold Production to June 30, 2021  
Mineros S.A. - Nechí Alluvial Property**

Production Unit	Volume (m <sup>3</sup> )	Fine Gold (kg Au)	Fine Gold (oz Au)	R/P (%)
<b>Bucket Line Dredge Mining Alluvial Plains</b>				
DR3	2,717,512	168	5,403	90%
DR5	2,481,011	160	5,149	80%
DR10	2,449,106	262	8,425	97%
DR14	2,081,431	193	6,191	69%
DR16	2,621,082	237	7,627	103%
Subtotal	12,350,141	1,020	32,794	89%
<b>Excavator Mining</b>				
Terraces	178,435	11	353	45%
<b>Wheel Cutter Dredge Alluvial Plains Mining</b>				
Draga21	396,449	32	1,038	36%
<b>Brazilian Dredge Alluvial Mining</b>				
Mulata	0	0	2	0%
Estatal	223,545	11	342	38%
Antioqueña	393,097	73	2,340	260%
La Victoria	209,958	9	283	31%
La Fortaleza	317,382	21	677	75%
La Morenita	363,803	42	1,336	148%
La Esperanza	296,265	42	1,354	451%
Subtotal	1,804,050	197	6,332	235%
Total	14,729,074	1,260	40,519	110% <sup>1</sup>

Note.:

- Recovered versus plan (weighted by gold production)

The mine plan for 2021 envisioned mining mainly the CA5 and Carguero tailings reserve blocks, however, Mineros encountered delays with the final approval of environmental permits for CA5. This dictated the alternative mining of tailings and marginal blocks, including one MY 2021 resource block, by bucket line dredge 14 (production unit #4) and the suction dredges. These blocks were not part of YE 2020 Mineral Reserves or included in the 2020 LOM plan. This resulted in the 2021 production in Table 6-2 not being totally depleted from YE 2020 reserves to state MY 2021 reserves.

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## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Nechí Alluvial Property lies within the Central Cordillera, one of the three physiographic subdivisions (Central, Western, and Eastern Cordillera) of the Andes Mountains in northern South America.

The area is known as the Segovia-Remedios-Zaragoza Mining District and is host to hydrothermal vein mineralization, which has seen small scale hard rock mining. Large scale alluvial gold mining has been carried out since the 1800s.

Cordilleran rocks in the area have had a complex geological and tectonic evolution, spanning from the Precambrian era to the Quaternary age. Figure 7-1 shows the regional geology of the Nechí Valley from Zaragoza south of El Bagre to north of the town of Nechí, as well as the general location of Mineros' alluvial and exploration project areas.

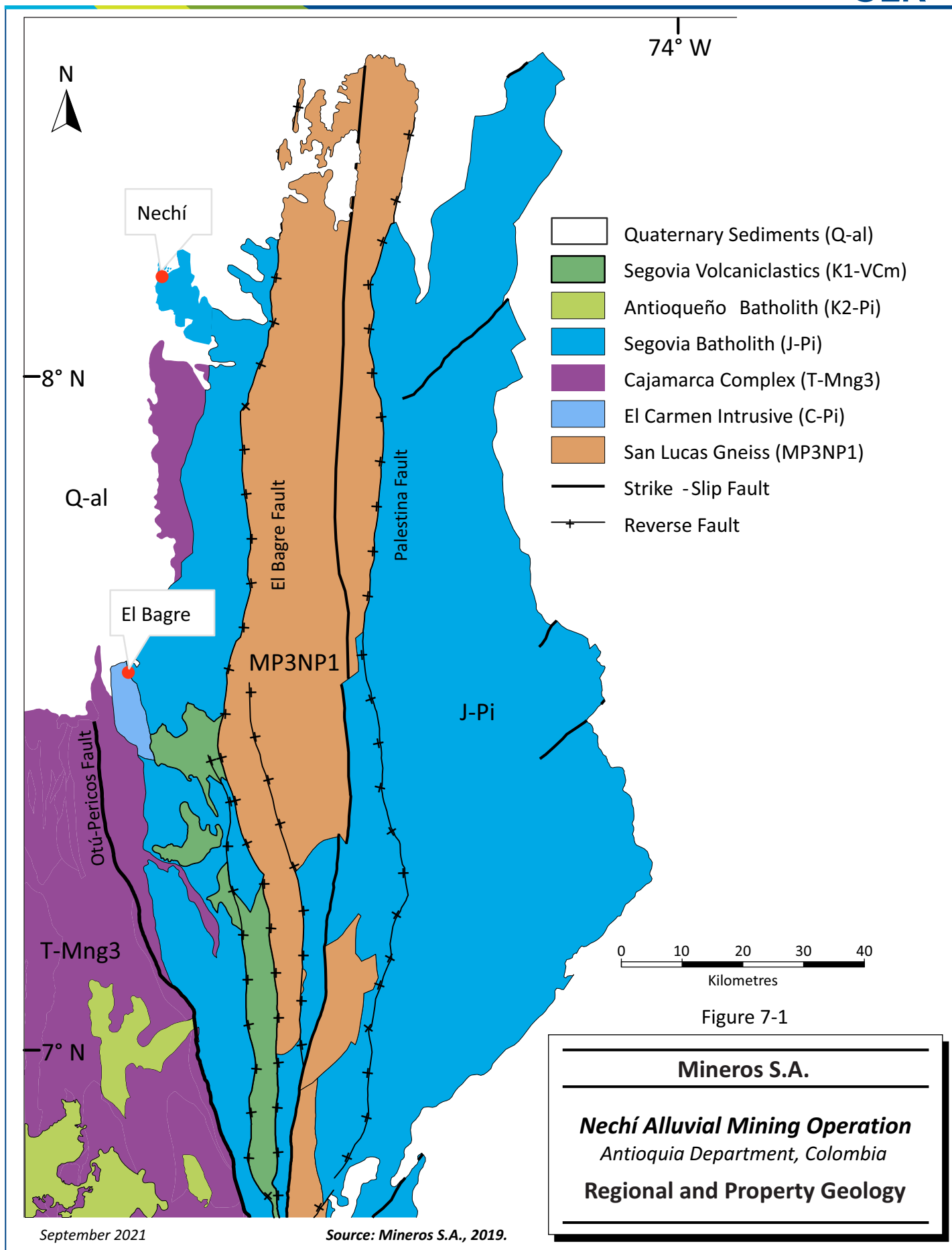


Figure 7-1

**Mineros S.A.**

**Nechí Alluvial Mining Operation**  
 Antioquia Department, Colombia

**Regional and Property Geology**

### 7.1.1 Precambrian Gneisses and Amphibolites (Pgnsl)

East of the Nechí valley, Precambrian San Lucas quartz-feldspathic gneisses are exposed in an elongated body extending 50 km along the east side of the Otu-Pericos regional fault. The San Lucas gneisses incorporate lenses of amphibolite and marble. The rocks have been affected by granulite facies metamorphism and are correlated with the  $1300 \pm 100$  to  $752 \pm 70$  Ma Sierra Nevada de Santa Marta granulites.

### 7.1.2 Paleozoic Cajamarca Complex (Pzmf)

Metamorphic rocks of the Cajamarca Complex are bounded on the east by the Otu Fault and on the west by the San Jeronimo Fault. The complex is composed mainly of quartzose metasedimentary rocks, alumina-rich siliceous and basic schists, with some calcareous bodies that were formed during the Lower Paleozoic and have undergone several metamorphic events. Cajamarca Complex rocks are mapped on the east and the west of the Nechí River where they are represented by quartz-feldspathic gneisses that have variable fabrics from schistose, gneissic, and migmatitic.

### 7.1.3 Mesozoic Segovia Batholith (Jdse)

Diorites composing the Segovia batholith lie east of the Nechí River, in fault contact (Bagre Fault) with the San Lucas gneisses to the east and in intrusive contact with the Cajamarca Complex to the west. The batholith is elongated north-south, coinciding with the regional tectonic framework, and extends for 270 km attaining a width on surface of 50 km in its central part. The latest U-Pb dating indicates an isotopic age of  $154 \pm 1.6$  Ma.

### 7.1.4 Cenozoic Caucasia Formation (Ngca)

The Caucasia Formation is exposed mostly west of the Nechí River flood plain and consists of poorly consolidated conglomerates composed of gravel and boulders of metamorphic rocks and milky quartz embedded in a clayey sand matrix. The contact with the overlying Taraza Formation is gradational.

### 7.1.5 Taraza Formation (Ngt)

Taraza Formation rocks are poorly consolidated yellow-coloured sandstones, locally cross-bedded, with conglomerates composed of milky quartz-rich gravel and other conglomerates locally interspersed in the strata. This unit and the Caucasia conglomerates outcrop from Zaragoza in the south along the western margin of Nechí River flood plain to the Cauca River where the alluvial plain broadens. There is a clear contact and escarpment between the Taraza sediments and the Quaternary deposits that fill the Nechí-Cauca valley, likely marking the Otu Fault trace.

### 7.1.6 Quaternary Alluvium (Qal)

Quaternary alluvium borders the Nechí River from Zaragoza to the Cauca River. These deposits are slightly consolidated and are composed of gravel (60% to 70%) and sand (30% to 40%). The gravels contain coarse clasts/cobbles commonly composed of quartz diorite, amphibolite, sericite schist, vein quartz, andalusite, quartzite, quartz-feldspathic gneisses and, locally, conglomeratic beds characterized by white quartz fragments. Clay lenses within the alluvium are also common. Most of the alluvial dredging is carried out in this unit.

## 7.2 Local and Property Geology

The alluvial mining titles are predominantly underlain by Quaternary alluvial sediments bordered on the east by the Cajamarca Complex rocks and on the west by Cacausia and Taraza formations. The Quaternary sediments are the main material mined by dredging. The alluvium has been subdivided into four units in which seven types of gold-bearing gravels can be differentiated. The stratigraphy from oldest to youngest is represented by bedrock Cajamarca schists, succeeded in turn by Tertiary clay-rich sediments (false bedrock), alluvial gravel pediment, and terraces.

### 7.2.1 Pediment Gravels

Pediment gravels cover the Tertiary sedimentary rocks and, in some areas, the metamorphic rock terrain. This unit was developed by broad scale erosion and surface runoff and has smooth slopes that were later down-cut by the river or tectonically elevated. The material mainly occurs as coarse sands and gold-bearing quartzite- and amphibolite-rich gravels.

### 7.2.2 Terraces

Composed of gold-bearing gravels, the terrace materials generally overlie rock and can be differentiated from those in the river bed. They are formed from several types of material and their reddish colour is evidence of exposure and oxidation that is not evident in the flood plain alluvium. Elevations of this landform serve to distinguish three generations of terraces.

- The highest terraces are the most extensive of the terraces in the area and have been the most exploited by artisanal miners. Their average height above the Nechí River is between 35 m and 40 m. These terraces are found on both margins of the alluvial valley, from El Bagre to Puerto Claver, and from Cuturu to the Caceri Stream, and further downstream to Bijagual, with their sizes diminishing downstream. The highest terraces can be described as a gold-bearing Quaternary gravel lying on Tertiary rocks. Gold is mined to the contact with the Tertiary basement.
- Widely distributed on the west flood plain, a second set of terraces are between 18 m and 28 m above the Nechí River. These materials are deposited on Tertiary sedimentary rocks and are approximately 11 m to 12 m thick. The stratigraphic column from the top to the base is: fine sands with fine gravel lenses; a layer of mottled violet, yellow, and white clayey silt of variable thickness; and a layer of gold-bearing medium gravels with 3 cm to 8 cm coarse clasts.
- The lowest generation of terraces is a maximum of 8 m above the river and is interpreted to represent a once higher elevation of the alluvial plain. This unit has less gravel than the other terraces and appears to have lower gold content. These low terraces were dredged near the municipality of El Bagre. Some of these terraces may be buried below the current flood plain surface.

### 7.2.3 Flood Plain Deposits

Flood plain deposits are more extensive in the Nechí River's valley than in the Cauca River valley. They constitute fine to coarse sediments deposited in river channels and surrounding areas as a response to varied hydraulic regimes. Three channel gravel units have been identified which correspond to different depositional times that postdate the terraces.

- **Basal paleochannel gravels:** These were the main beds of a high-gradient river approximately 3 km wide. Their average thickness is 8 m and they are characterized by coarse gravels, grey- and

white-coloured sands, and important gold content. These gravels are the oldest and richest of the channel deposits.

- **Young channel gravels:** These formed in recent paleochannel of a moderate-gradient river 300 m wide. The single main channel was displaced horizontally and vertically through the last 10,000 years while its basin was totally filled. The remaining paleochannels are filled by medium and fine gravels, grey sand with some gold content.
- **Modern channel gravels:** These are the youngest gravels identified. They are composed of finer gravel with low gold content and were deposited in low-gradient channels.

#### 7.2.4 Alluvial Gold Deposit Formation and Relevant Controls

After the Tertiary alluvial sediments were deposited on metamorphic rocks in the lower Nechí basin, a period of extreme morphogenetic activity occurred driven by Quaternary climate variations (such as glaciations) combined with tectonic uplift. Climate variations lowered sea levels and caused the river to downcut the Tertiary valley alluvium, form new channels, and modify surrounding flood plain banks and slopes.

Material at higher elevations was left as terraces that contain older layers of eroded Tertiary material such as foothill gravels. In a number of instances during river evolution, gravel had been deposited along the high terraces as natural dikes, forming full terraces that acted as levees for the evolving post-Tertiary flood plain.

A braided stream fluvial environment developed as the river reached maximum down-cutting levels and its coalescing gravel bed attained a width of three kilometres. Due to high river gradients, a fairly uniform basal gravel layer with high gold content was deposited. At La Angostura, on the Cauca River approximately 115 km downstream of the Nechí Alluvial Property, a structural control acting as a natural dam affected the river's hydraulic regimen and was a key factor in the accumulation of the gravels by diminishing the flow rate and contributing to deposition of gold particles.

#### 7.2.5 Source Material, Weathering and Erosion

The Nechí alluvial deposit consists of polycyclic sediments sourced predominantly from the Segovia batholith, Antioquian batholith, and other intrusive bodies along the San Lucas Ridge, as well as some metamorphic rocks that surround the Nechí valley. Most of the gold deposited with the Nechí alluvium is derived from igneous and metamorphic rocks enriched with primary disseminated and vein gold mineralization. This source area is located to the east and south along the Nechí and Porce rivers as well as their tributaries. Generally, the intrusive rocks are very susceptible to weathering in addition to other genetic and tectonic processes which promote disintegration and the liberation of resistant minerals and gold.

#### 7.2.6 Transport and Geomorphology

Fluvial gradient and energy level variations, in addition to irregularities in the river currents, lead to concentration of heavy minerals and the natural separation of the light minerals. The Nechí and the Cauca rivers and their tributaries have transported eroded materials through an elevation difference of approximately 600 m until reaching the wide, mature valley where gradient and flow energy was lost causing sedimentation and gold concentration.

### 7.2.7 Bedrock

Bedrock characteristics are considered a key factor in the deposition of heavy minerals and economic quantities of gold. Texturally smooth and uniform rocks or massive crystalline forms are poor traps for gold since they also allow for high current velocities and only minor turbulence. Foliated and jointed rock fabrics and other rocks with rough surfaces that impede river flow are the most favourable surfaces for placer gold concentration. Such is the case for the Porce and Nechí valleys, which are underlain by slates and schists of the Cajamarca Formation.

### 7.2.8 Alluvial Stratigraphy

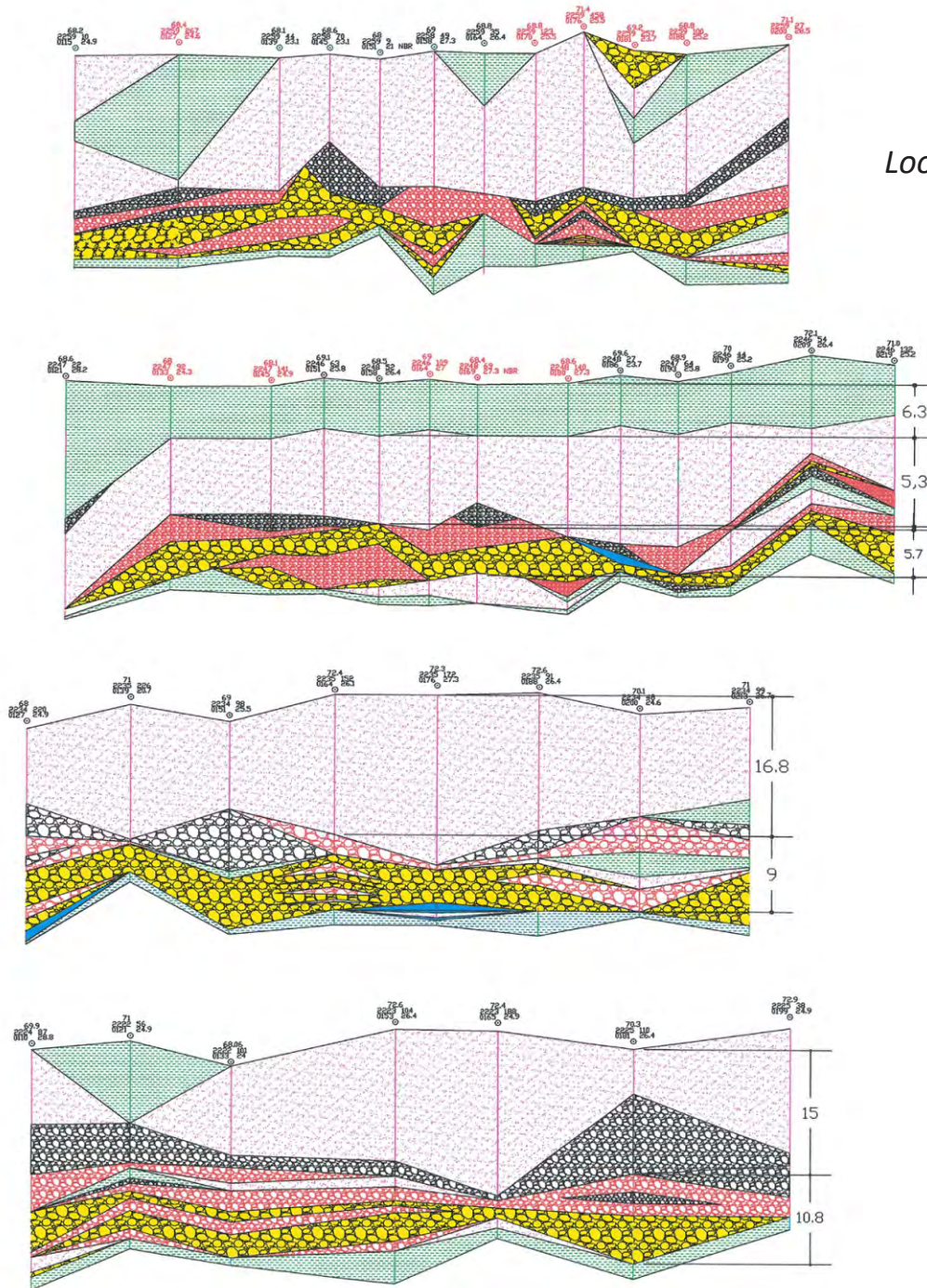
The alluvium stratigraphic column is a gradational sequence consisting of basal coarse gravels followed by, or intercalated with, medium gravels and fine gravels, succeeded by sands and clays, and overburden. The sequence represents the gradual diminishing of sediment load in a fluvial environment. The alluvium was deposited over a hard, compacted clay (false bedrock), considered to be the top of the Tertiary basement, or older Cajamarca metamorphic rocks.

Overburden is composed of fine materials, principally mud and clays, characterized by smooth sticky texture and brown and grey colours. Overburden thickness varies from 6 m to 16 m locally.

The Nechí gravels carry rounded to subrounded clasts of quartz diorite, amphibolite, sericite schist, quartz, quartzite, quartz-feldspar rich gneiss, and white quartz-bearing conglomerate in a sandy matrix. The degree of sphericity is generally medium to high and clasts are moderately sorted. The coarse clasts vary in proportion within a greyish-white medium sand matrix. Locally, gravel is differentiated into fine, medium and coarse layers as defined by screen fractions 1/8" - 3/8"; 3/8" - 2", and >2". Gravel thickness ranges from 2 m to approximately 12 m. Alluvial gold is principally associated with gravels having fragments over 2 in. (51 mm) in diameter.

Figure 7-2 illustrates the alluvial stratigraphy for former alluvial gold reserve block A2.

The reverse faults include the Quebra Patas with strike and dip offsets of 60 m and 15 m, respectively, and a number of approximately 10 m displacement faults that are accompanied by drag folding.



Looking North

BLOCK A2

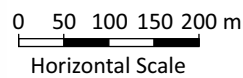
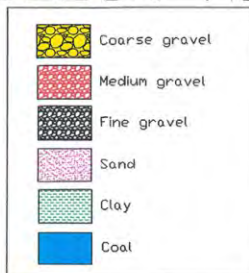


Figure 7-2

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Alluvial Stratigraphy for Former Reserve Block A2**

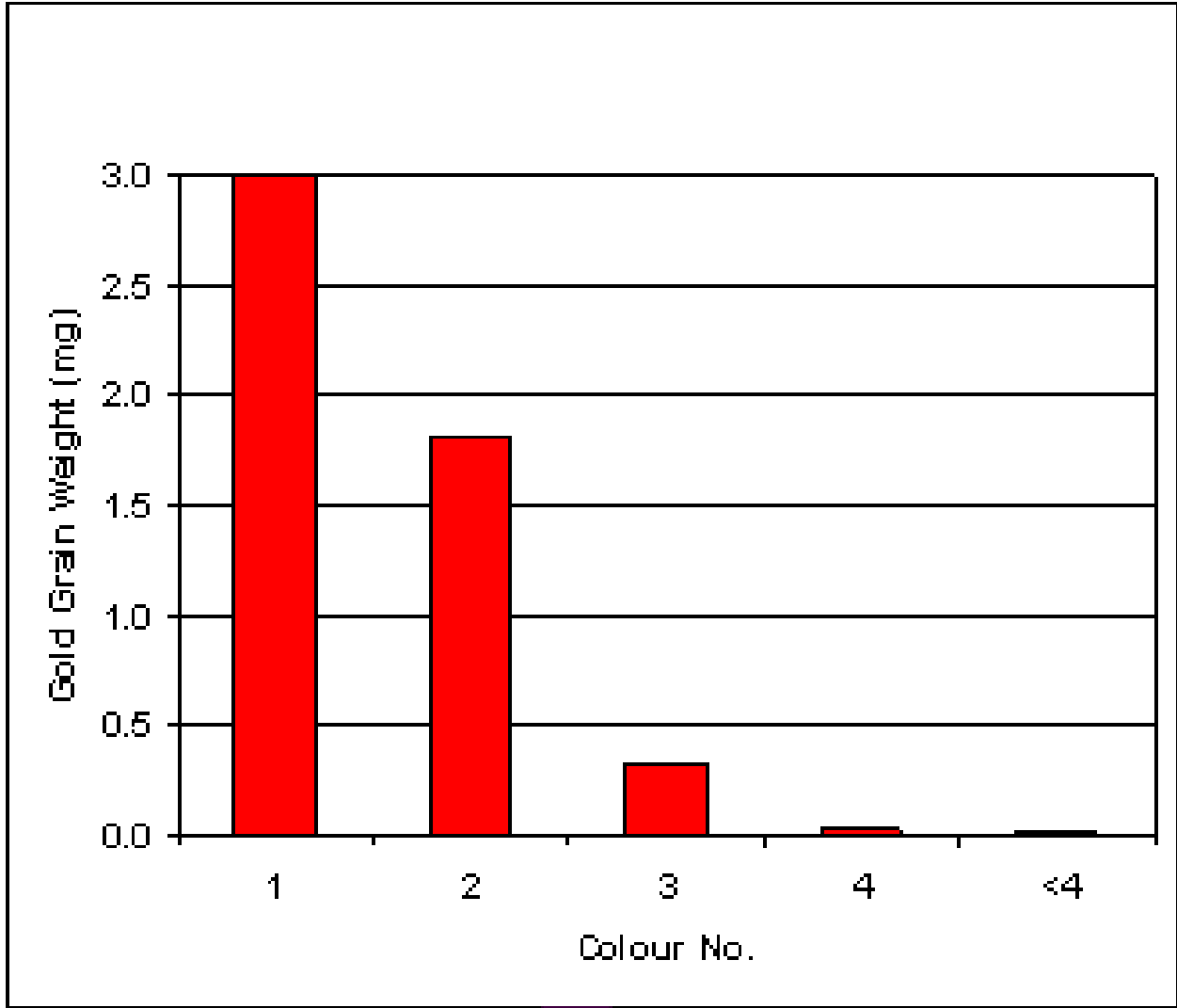


Mineros has drill-delineated 95 gold-bearing alluvial zones or blocks occupying 3,660 ha for which Ward placer drilling results exceed the breakeven cut-off grades for the various types of deposits: river alluvial plains, alluvial terraces, and old dredge tailings (Table 7-1). These zones or blocks constitute current in situ resources and reserves. All but three of the zones are river alluvial plain deposits, which are irregular, and vary in area from one hectare to 738 ha. Location/access, area, and depth dictate the dredging equipment to employ for mining. Average depth of the zones for the alluvial plains dredging is approximately 25 m, which includes overburden and pay gravels. Maximum dredging depth is 30 m. Mineros has outlined two blocks of tailings from previous dredging that total 11 ha and average 14 m in depth. The resource Carguero 2 block consists of old tailings from Pato Consolidated dredging in 1945 similar to the reserve block Cargueros which is currently in production. Mineros has also identified one low terrace of 14 ha and 14 m depth bordering the Nechí River alluvial plain.

**Table 7-1: Summary of Mineral Reserve and Mineral Resource Zones/Blocks  
Mineros S.A. – Nechí Alluvial Property**

Zones/Blocks	Count	Area (ha)	Average Depth (m)	Mining Extraction Method
Alluvial Plains	5	1,258	26	Bucket Line Dredge
Alluvial Plains	75	2,028	24	Wheel Cutter Suction Dredge
Alluvial Plains	13	318	24	Brazilian Rotary Cutter Head Suction Dredge
Alluvial Terraces	1	45	14	Floating Excavator Floating Plant
Dredge Tailings	2	11	14	Floating Excavator/Floating Plant
<b>Total</b>	<b>95</b>	<b>3,660</b>	<b>24</b>	

Gold in the Nechí alluvial gold deposits consists of free grains, which are predominantly No. 4 or smaller, hosted by flood plain Tertiary fluvial gravels and sands. Eighty percent of the gold grains are 150 µm to 180 µm. No. 4 gold grains are very fine (flour or powder gold), with individual grains weighing approximately 0.02 mg. No. 2 and No. 3 gold grains are also present. In terms of grain counting, No. 4, and smaller grains account for 96% of the grains logged in drill hole sampling (Figures 7-3 and 7-4), however, because of the large differential in grain weight, the weight contribution of No. 3 and No. 4 grains is 86% (Figure 7-5).



Gold Grain #	Raw Gold (mg Au)
1	3.00
2	1.30
3	0.33
4	0.02
<4	0.01

Figure 7-3: Gold Grain Weight Versus Gold Grain Number

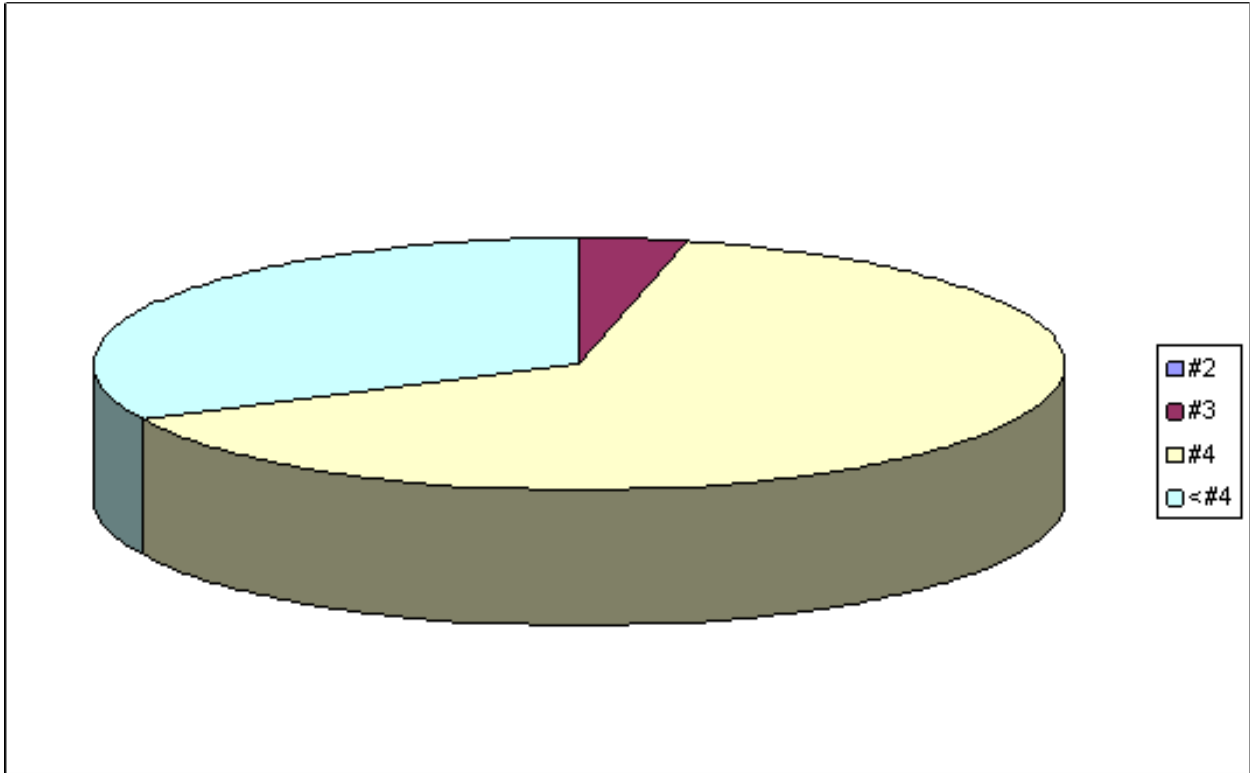


Figure 7-4: Gold Distribution by Grain Count

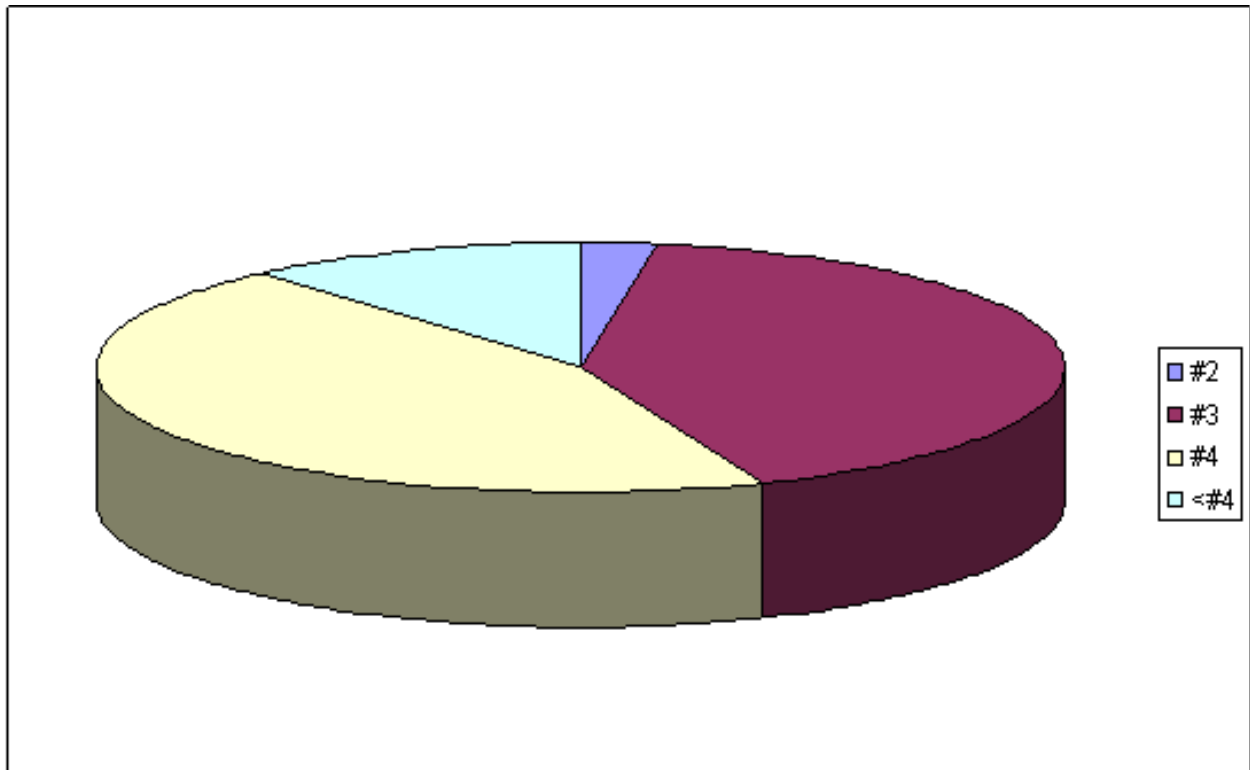


Figure 7-5: Gold Distribution by Grain Weight Proportions

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Fluvial flow regime is the primary geologic control on alluvial gold deposition. The dominance of fine gold grain sizes indicates a low-gradient system consistent with Mineros' interpretation of Tertiary paleochannels within flood plain gravels.

As determined from fire assays of bullion, the gold is 850 to 900 fine (85% to 90% gold), with approximately 9% silver, 1% iron, and traces of platinum.

Resistate heavy minerals separated from various process streams on the dredges have been studied for potential economic interest as industrial minerals (Lamus et al., 2006). Those present in Nechí River black sands have been identified as magnetite, ilmenite, titanomagnetite, zircon, monazite, and minor hematite, chromite, and rutile. The monazite is sometimes intergrown with xenotime and thorite. Ilmenite averages 49% TiO<sub>2</sub> and has elevated Mn. Silicate gangue and other minerals are principally quartz plagioclase, chlorite, clinozoizite, hornblende, ferro-actinolite, and minor muscovite, biotite, and pyrite.

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## 8.0 DEPOSIT TYPES

The Nechí alluvial deposits may be classed as a Tertiary gravel plain gold placer with bordering bench or terrace deposits. The gravel plain style of placer is Mineros' primary exploration target for dredging. Gravel plain deposits are generally characterized by well-rounded gravels, few boulders, and fine gold distributed vertically and laterally in the pay formations. Such placers are formed in low-velocity shifting stream channels in low-gradient valleys. Gold grades in the Nechí River flood plain are elevated at the mouths of creeks draining the high ground (Segovia batholith) to the east and these areas likely represented the merging of creek or river placers with the main gravel plain. In the upper reaches of the Nechí River, the gold-bearing gravel plain placers likely grade into river placers.

The Nechí deposits appear to have formed at the same time as the gold-bearing gravels of Tertiary age mined in the Sierra Nevada Mountains of Nevada, California, and Oregon in the western USA, however, the US placers formed in higher energy environments are higher grade and have been subjected to uplift and burial by late Tertiary volcanic rocks and sediments. The Nechí deposits are more akin to the dredging fields of Hammonton and Folsom, California.

## 9.0 EXPLORATION

At the Nechí Alluvial Property, Mineros personnel conduct alluvial gold exploration drilling using conventional light weight portable Ward churn drills on 122 m x 122 m grids down to 60 m x 60 m grids. Owing to the targeted alluvial gravels lying under overburden commonly up to 14 m deep in the Nechí River flood plain, churn drilling is the only practical means of placer gold sampling. Exploration in the past was carried out initially by “scout” drilling for reconnaissance sampling on 800 m to one kilometre lines with 480 m step-outs which was followed up with in-fill drilling at step-outs of 122 m to delineate potential resources. Much of the virgin favourable ground on the east bank of the Nechí River on the RPP land and concession contracts has now been explored and scout and wide spaced drilling have been completed. Drilling and results are described in Section 10.

For the current 2020 to 2022 exploration campaign, Mineros planned to employ seven Ward churn drills as follows:

- Two drills performing scout drilling on the west bank of the Nechí River
- Three drills testing old Pato Consolidated tailings
- Two drills deployed to tighten the drilling grids in future operating areas, with the aim of improving the reliability of Mineros’ short-term mine plans

The campaign was budgeted for approximately 25,500 m at a cost of US\$2.83 million as of early 2020 COP exchange rates. The location of exploration and in-fill drilling planned for 2020 to 2022 is shown in Figure 9-1.

The detailed in-fill drilling was planned in seven locations from 1,359,000N to 1,371,000N in resource areas near current reserves and bucket line dredge operations and to the south in areas of past operations.

### 9.1 2020 Exploration

Approximately 6,119 m in 250 holes were drilled at an average cost of US\$123/m. Holes were located as follows:

- Left Bank: 1,460.35 m (67 holes) from which an Indicated Resource block of approximately 82 ha was outlined at the southeast end of the Nechí Alluvial Property. The block average grade is 67mg/m<sup>3</sup> (35,614 oz contained gold). This alluvial plains block has the potential for Brazilian or wheel cutter suction dredging and for expansion through additional drilling planned for 2021.
- Cargueros: 3,074.9 m (127 holes) drilled to provide support for ongoing mining operations.
- Fill-in Drilling CA5 reserve block: 1,584.3 m (56 holes), to tighten the grid for added confidence in the reserves estimate and grade control.

### 9.2 2021 Brownfield Exploration to Mid Year

Mineros drilled 4,996 m in 239 holes at an average cost of US\$126/m as follows:

- Left Bank: 3,194 m in 175 holes to assess the potential to infer resources by the end of the year in addition to upgrading low grade Indicated Resources to Measured Resources that were reported in 2020. Average grades to date are 56 mg/m<sup>3</sup>.

- Grid fill-In: 1,802 m were completed in 64 holes for grade verification and control with average grades of 106 mg/m<sup>3</sup>.

In March 2021, Mineros acquired a CRS-V CompactRotoSonic Crawler sonic drill rig from Eijkelpamp SonicSampDrill of the Netherlands. Sonic drilling is intended to replace some of the planned Ward drilling primarily of terraces and old dredge tailings on the Left Bank (west bank) of the Nechí River. The sonic drill rig offers advantages in lower mobilization/demobilization time where terrain conditions permit and higher ground penetration rates compared to the churn drill rigs. Mineros is achieving 360 m to 400 m sonic drilling per month compared to 120 m/month with a Ward drill. To June 30, 2021, 1,515 m of sonic drilling has been completed on the Left Bank.

Mineros has approximately 15,000 ha of unexplored terrain within the RPP, located on the Left Bank of the Nechí River. The scout drilling planned from 2020 to 2022 consisted of approximately 110 holes at 250 m departures on 11 lines at one kilometre to 1.5 km latitudes from 1,331,000N to 1,353,500N extending from the west of El Bagre to approximately 22.5 km to the north. Follow-up in-fill drilling is being undertaken to define new resources as described above.

Based on past experience, Mineros expects a discovery success rate factor of 2.5%, which represents potential for approximately 50 Mm<sup>3</sup> of pay gravels. Mineros had not explored these Left Bank areas because most of them are characterized by terrace landforms of smaller volumes compared to the alluvial river plains and not optimal for bucket line dredging. However, dredging with smaller, more mobile equipment such as the suction dredges or excavator mining methods has been adopted by Mineros in recent years for mining the terraces and smaller alluvial plain areas that were inaccessible for the large bucket line production units. The terraces represent a good exploration target with good potential for expanding the resources in the future.

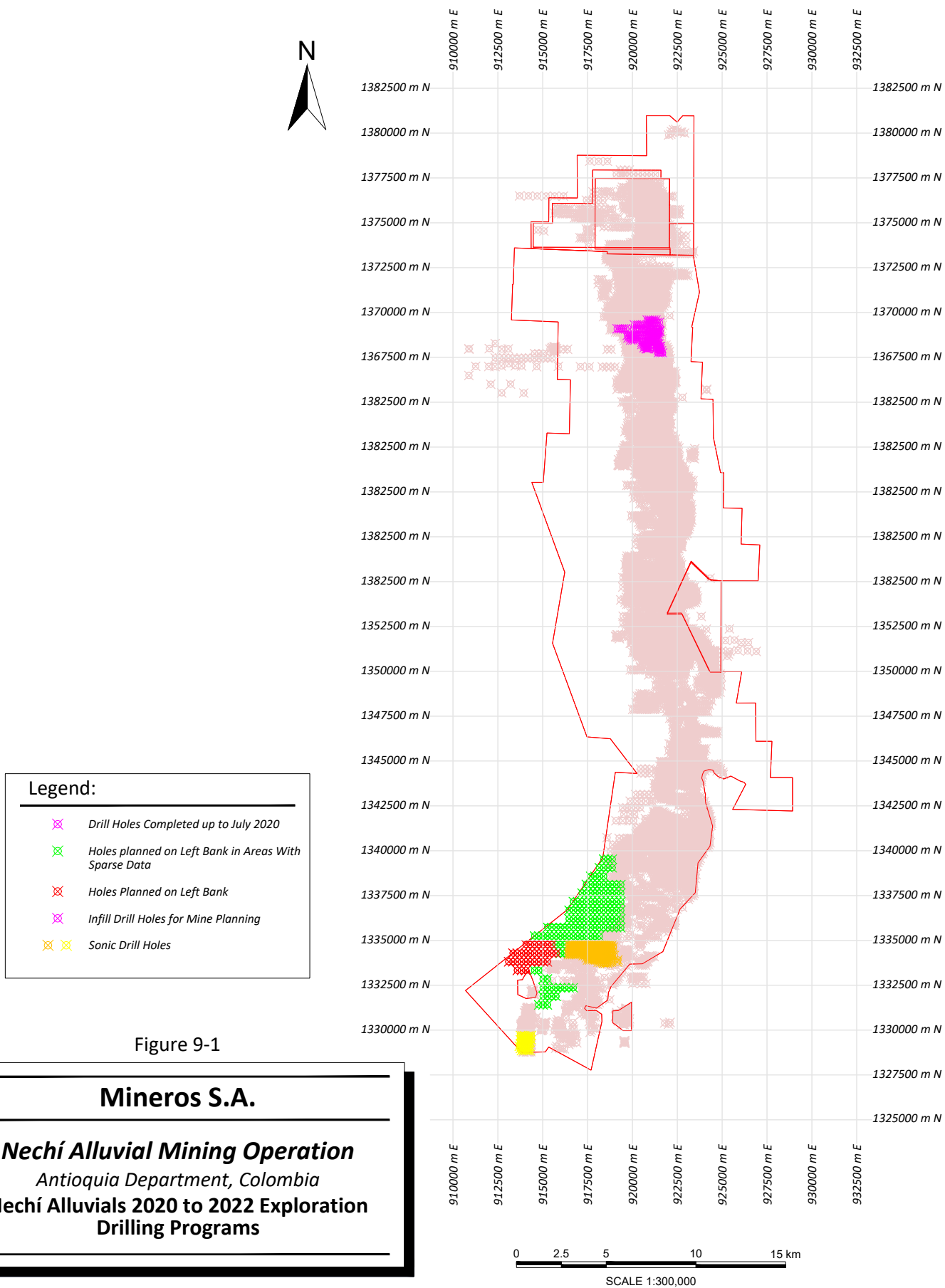


Figure 9-1

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Nechí Alluvials 2020 to 2022 Exploration Drilling Programs**



## 10.0 DRILLING

Mineros explores and develops alluvial gold resources on the Nechí Alluvial Property by churn drilling vertical holes and sampling alluvium and terraces along the Nechí River, predominantly on the east flood plain that is closer to the likely source of gold, the Segovia batholith.

SLR reviewed the 2021 drill hole databases provided by Mineros. The general drilling database totals 11,751 holes totalling approximately 278,172.36 m (Table 10-1 and Figure 10-1). The general database is a subset of the overall “Placer 2000” database. In addition to Mineros drilling, the database includes Pato Consolidated holes dating back to 1931 for which information is incomplete and some of this old data is recorded in imperial units. Old Pato Consolidated data continues to be added to the Placer 2000 database.

**Table 10-1: Drilling Summary by Year  
Mineros S.A. - Nechí Alluvial Property**

Year	Holes	Metres (m)	Year	Holes	Metres (m)
1931	1	25.91	1980	29	689.70
1936	2	35.61	1981	110	2,598.20
1939	36	619.86	1982	126	3,010.50
1940	87	1,942.22	1983	80	1,832.90
1941	198	4,359.77	1984	116	2,615.70
1942	323	7,929.08	1985	133	2,933.70
1943	234	5,437.48	1986	133	2,459.10
1944	98	2,098.01	1988	3	71.40
1945	116	2,789.57	1989	4	81.00
1946	68	1,757.52	1990	35	688.86
1947	111	2,796.50	1991	23	507.60
1948	69	1,387.70	1992	30	604.01
1949	21	413.12	1993	30	667.90
1950	13	252.07	1994	45	1,152.30
1951	1	19.20	1995	84	1,749.45
1952	29	677.86	1996	159	3,354.92
1953	31	607.48	1997	204	4,704.70
1954	153	2,402.33	1998	242	5,603.40
1955	78	1,462.44	1999	35	787.80
1956	11	171.90	2000	202	4,816.20
1957	19	499.42	2001	254	6,557.55
1958	11	236.76	2002	289	7,684.05

Year	Holes	Metres (m)	Year	Holes	Metres (m)
1959	33	801.94	2003	375	9,197.42
1960	49	1,031.36	2004	444	10,662.45
1961	35	787.45	2005	404	10,110.84
1962	4	101.20	2006	347	8,672.55
1965	20	407.54	2007	270	6,583.80
1966	15	364.84	2008	385	8,815.17
1967	43	887.25	2009	410	9,554.54
1968	56	1,143.90	2010	542	12,740.44
1969	130	2,968.12	2011	470	11,737.49
1970	56	1,328.32	2012	437	10,497.84
1971	20	538.29	2013	404	10,023.96
1972	20	417.00	2014	427	9,880.50
1973	49	1,194.02	2015	384	9,222.48
1974	60	1,508.40	2016	411	10,576.20
1975	41	986.40	2017	328	8,239.66
1976	17	422.10	2018	262	6,484.14
1977	28	698.70	2019	185	4,802.40
1978	19	429.90	2020	247	6,053.75
1979	9	210.90	2021	239	4,996.35
			<b>Total</b>	<b>11,751</b>	<b>278,172.36</b>

Mineros annual exploration and resources and reserves definition drilling over the last five years since 2016 is summarized in Table 10-2. The declining average hole depth for 2021 reflects the shallower exploration holes in terraces and old tailings.

**Table 10-2: Drilling Summary from 2016 to 2021  
Mineros S.A. - Nechí Alluvial Property**

Year	Holes	Metres (m)	Average Depth (m)
2016	411	10,576.20	25.7
2017	328	8,239.66	25.1
2018	262	6,484.14	24.7
2019	185	4,802.40	26.0
2020	247	6,053.75	24.5
2021	239	4,278.90	17.9

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Mineros uses a PolyCad drill hole database for resource and reserve estimation, which contains coordinates and summary data such as calculated hole depths and grades.

Mineros owns one Fairbanks and ten Ward placer drills. The Ward drills are set up for both platform and pontoon use. The Ward drill is a lightweight mechanized churn drill designed for remote access mobility and is typically used in South America. The Fairbanks drill has been used mostly for piezometry work. Mineros has its churn drills fabricated under contract in Colombia while piping is imported from the USA. Downhole tooling is standardized at 4<sup>1/2</sup>” internal diameter (ID) drive casing and 5<sup>5/8</sup>” outside diameter (OD) casing shoes. Piping is smaller than the 6” casings traditionally used in the USA Cordilleran alluvial placer exploration. The churn drills are crewed by eight people including a supervisor, driller and helpers/loggers, a panner, security, surveyor(s), and a canoe/boat operator for pontoon operations. Holes are drilled to a dredging depth of 30 m or to bedrock/false bedrock. Drilling penetrates 0.3 m in hard clay false bedrock or bedrock to ensure bedrock has been reached and to sample any gold in crevices that may be recovered during dredging.

**Legend**

Gold Grade (mg/m<sup>3</sup> Au)

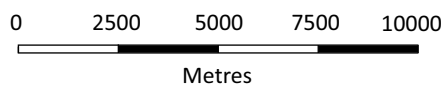
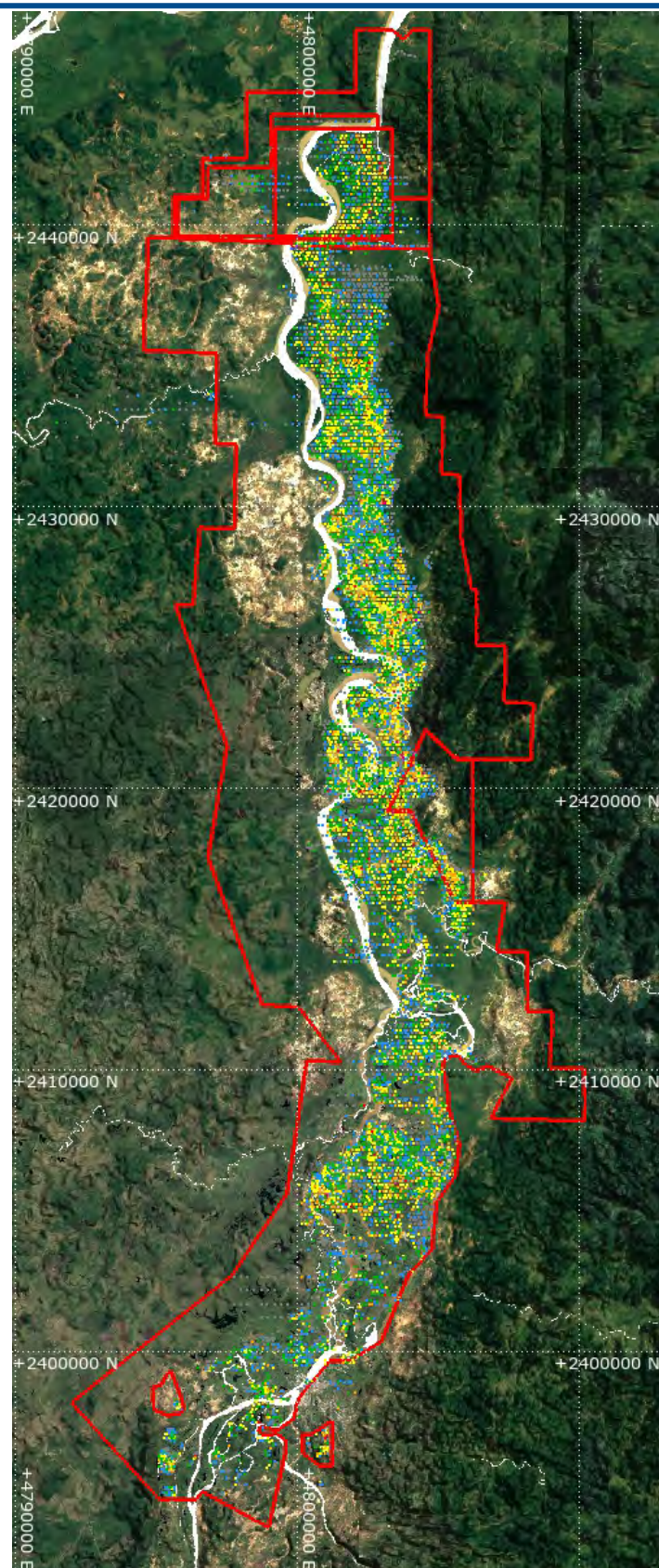
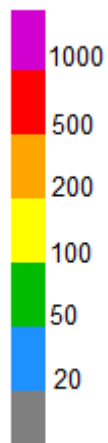


Figure 10-1

**Mineros S.A.**

***Nechí Alluvial Mining Operation***

*Antioquia Department, Colombia*

**Location of Ward  
Churn Drill Holes**

September 2021

Source: Mineros, S.A., 2021

The CRS-V CompactRotoSonic dual tube sonic drill uses a one metre customized  $4\frac{1}{2}$ " ID sample barrel inside a  $6\frac{5}{8}$ " casing which compares to the churn drill tooling in terms of sampling diameter. However, whereas the churn drilling samples may be as short as 0.3 m, the sonic sampling is at one metre. Crew size is similar for both sonic and churn drilling since logging, sampling, and sample processing at the sonic rig is the same as for churn drilling. Drill logging and sampling data are now recorded electronically on tablets at the drill rig with data exported to the main drill hole database in El Bagre at the end of the shift.

For Measured Mineral Resources, drilling is carried out on a 122 m x 122 m grid set up initially from maps and aerial photographs. Hole step-outs are staggered with respect to adjacent lines to form a triangular pattern. The spacing is a practical carry-over from Pato Consolidated work on 400 ft by 400 ft grids. Detailed drilling to a spacing of 60 m x 60 m is progressively carried out as resources are evaluated for reserves. The gold grade distribution is shown in Figures 10-2 and 10-3. Lines are located by theodolite with drill collars, then located by global positioning system (GPS) on the ground. The hole spacing has been supported through variogram study in ISATIS software indicating grade continuity reaching several hundred metres (Figure 10-4). Final collar location is determined by Total Station survey.

The amount of material actually recovered for each sample can vary, so a number of recovery factors are applied as discussed in Section 11 of this Technical Report.

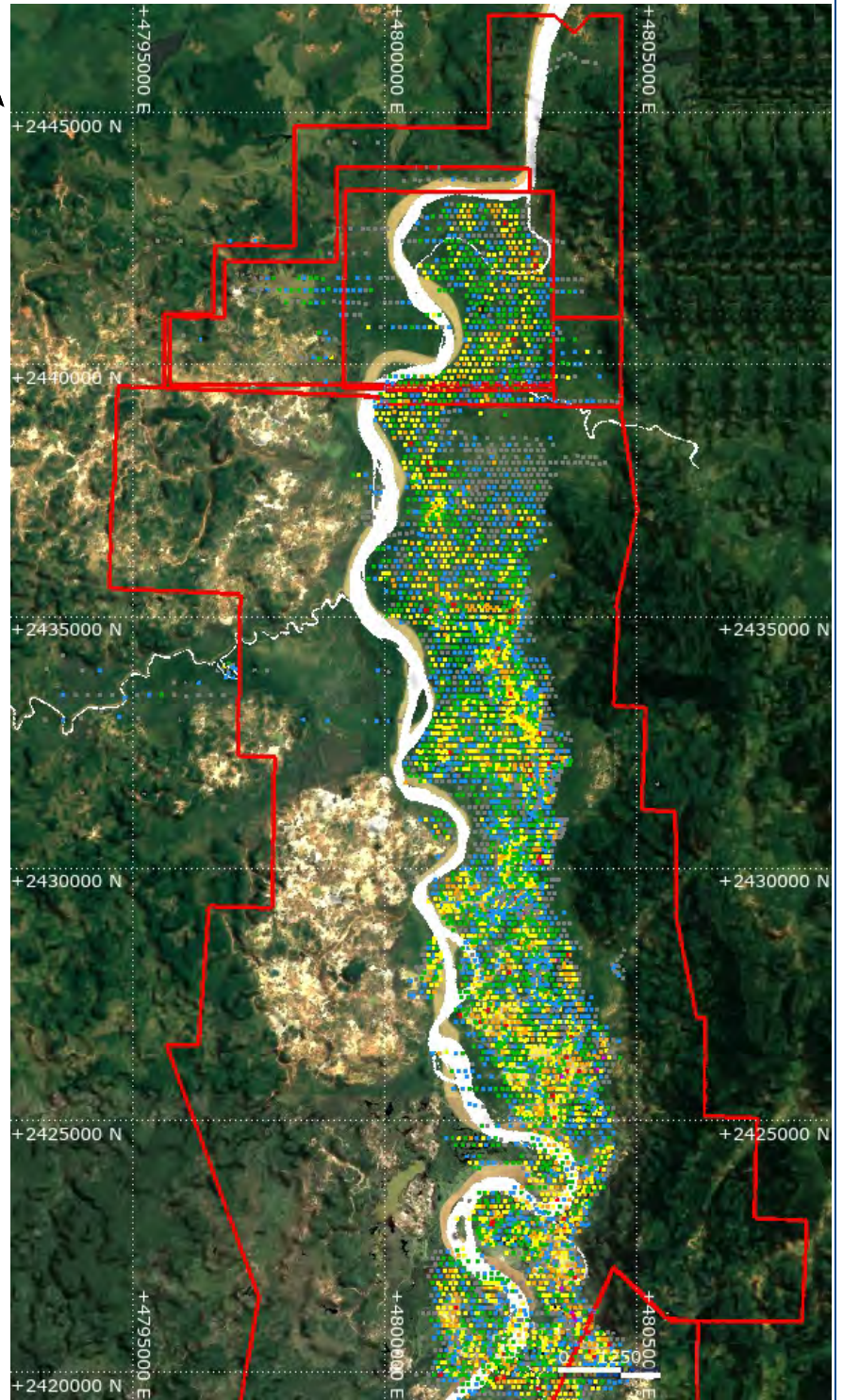
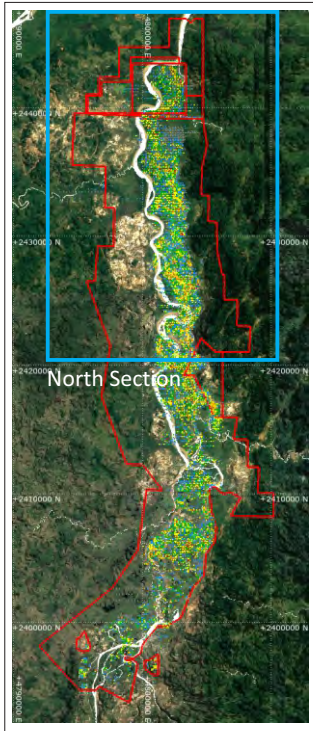


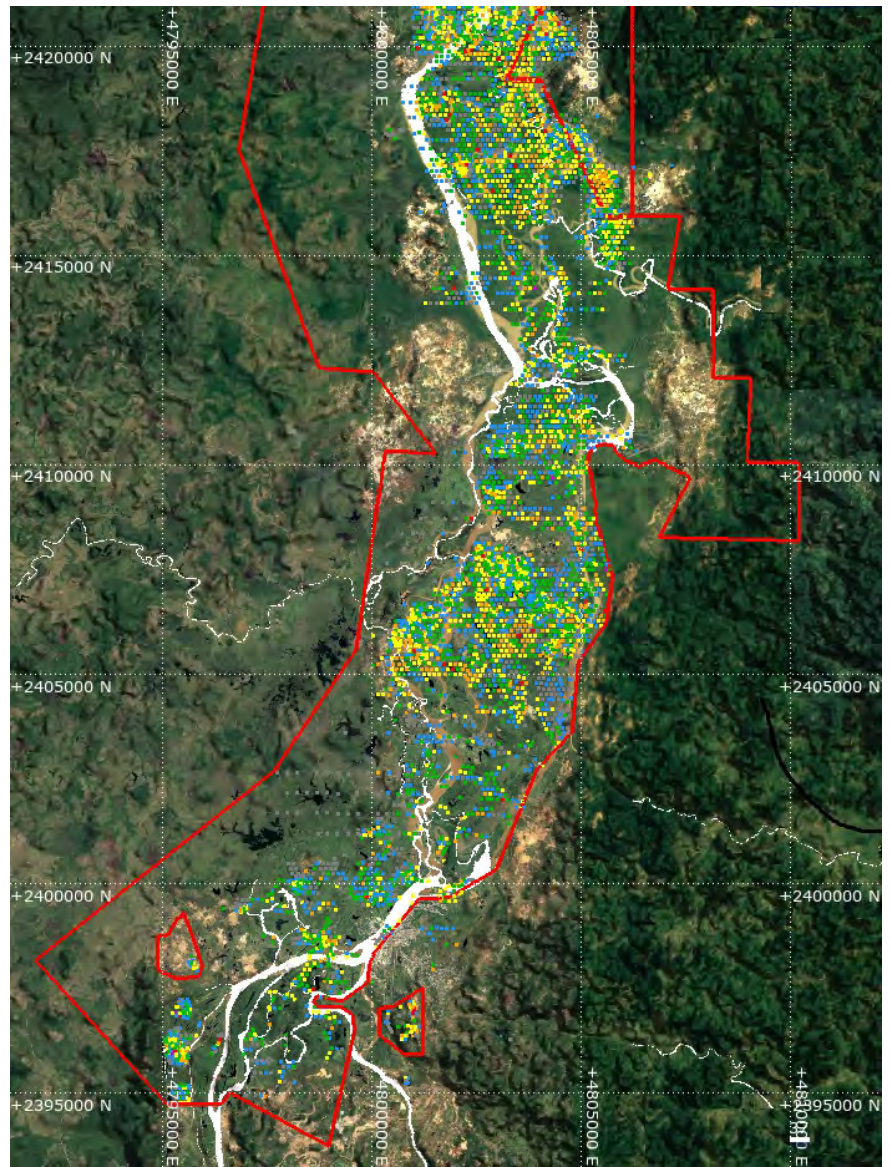
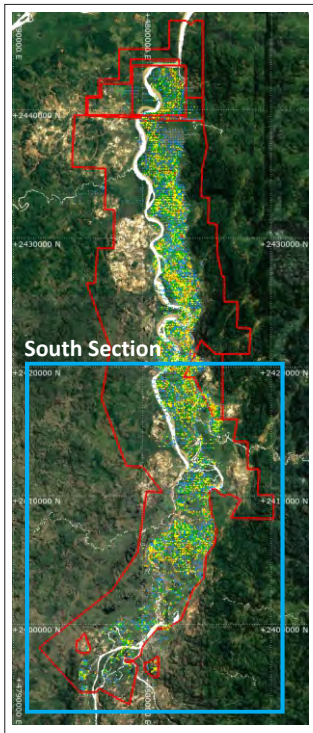
Figure 10-2

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Gold Grade Distribution in Churn  
 Drill Holes - North Section**

September 2021

Source: Mineros, S.A., 2021



**Legend**

Gold Grade (mg/m<sup>3</sup>Au)

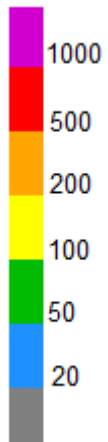


Figure 10-3

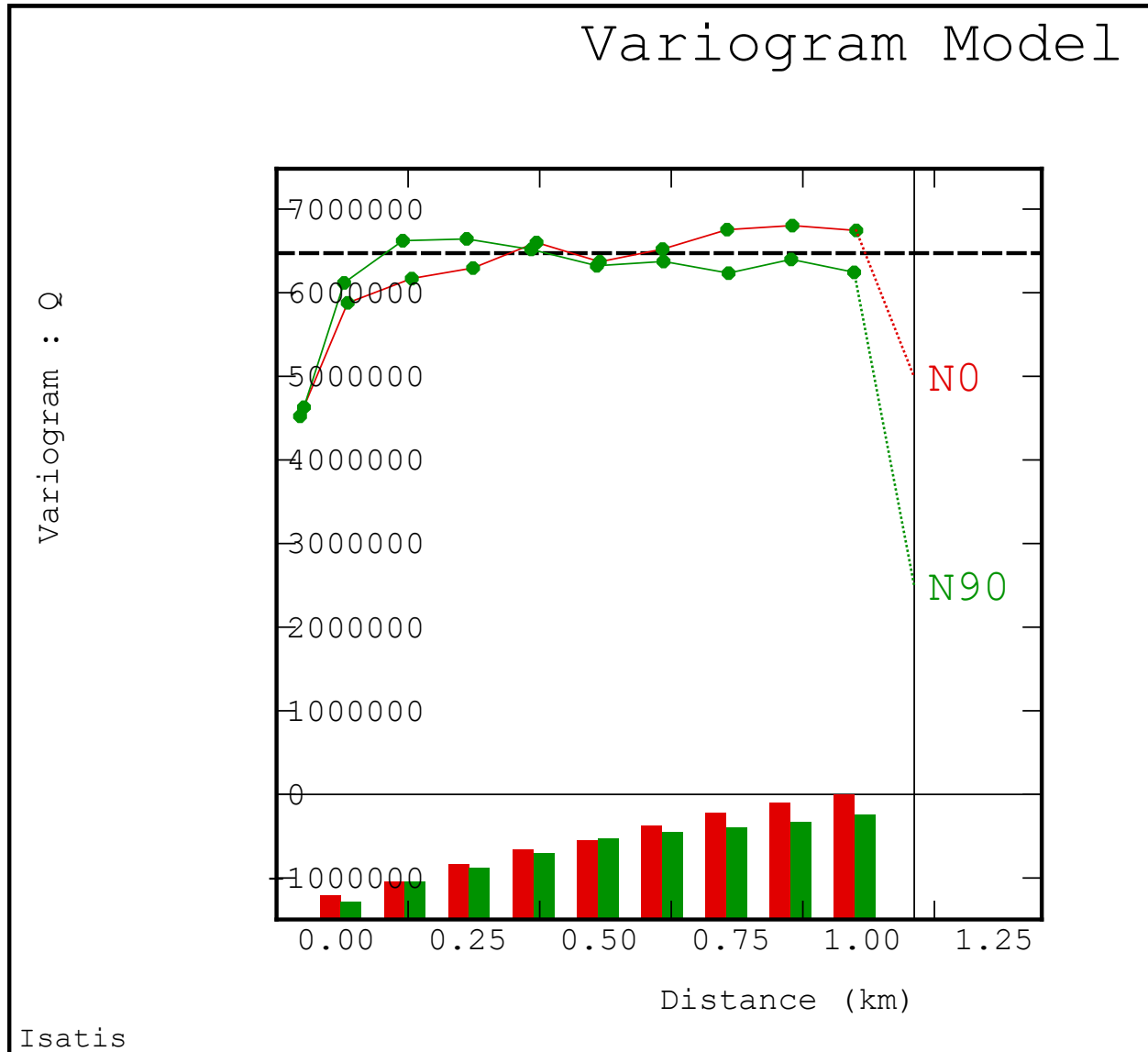
**Mineros S.A.**

*Nechí Alluvial Mining Operation*  
*Antioquia Department, Colombia*

**Gold Grade Distribution in Churn  
 Drill Holes - South Section**

September 2021

Source: Mineros S.A., 2021.



**Figure 10-4: Variogram of Alluvials Drill Hole Gold Grades**

A single gold grade is estimated for the entire pay formations (coarse clastics: gravels/sands) in the hole and holes with grades above cut-off are contoured in plan to outline Measured Mineral Resource areas. The areas are irregular and, more often than not, have a northerly trend parallel to the Nechí River. The north-south variogram range is approximately 500 m compared to 250 m in the east-west direction (Figure 10-4).

The resource area blocks range from approximately one hectare to 254 ha and average approximately 30 ha. Reserve area blocks range from one hectare to 738 ha.

SLR's review of alluvial cross-sections indicate that the basal pay gravels are generally deeper than 20 m and are subhorizontal and continuous hole to hole, justifying vertical drilling and the drilling density. The alluvium is in the order of 18 m to 30 m thick of which gravels account for two metres to approximately



12 m. There is short distance thickening and facies changes related to localized channels, however, this affects more the fine gravels, sands, and clays in the mid to upper alluvial column.

Mineros' 122 m exploration drilling grid compared favourably to the one-hole-per-four-acres spacing used for placer exploration in the Folsom (California) alluvial gold district, where bucket line dredging of approximately one billion cubic yards (765 Mm<sup>3</sup>) grading from 100 mg/m<sup>3</sup> to 200 mg/m<sup>3</sup> was carried out along 16 km of American River alluvials from 1898 to 1962 (Table 10-3). The Folsom district is one of the largest alluvial gold production areas of the USA (Clark, 1970). The Mineros detailed grid (60 m x 60 m) now used for reserves in-fill drilling compares favourably to hole spacings for US placers sampling in general.

**Table 10-3: Drill Hole Spacing Comparison  
Mineros S.A. - Nechí Alluvial Property**

Location of Placer	Drill Hole Density (Acres/hole)	Drill Hole Density (m <sup>2</sup> /hole)	Grid (m)
Mineros (Colombia)	1.3	5,152	60
Mineros (Colombia)	3.7	14,884	122
US placers	1	4,047	64
US placers	2	8,094	90
US placers	3	12,141	110
Folsom, CA	4	16,188	127
US placers maximum	10	40,469	201

Source: US Dept. Interior, Tech. Bull. 4, 1970.

For the SLR 2020 Technical Report, SLR reported on the drilling density completed for the 78 blocks in the YE 2019 resources and reserves estimate which is summarized in Table 10-4 and further supports confidence in Mineros exploration and reserve and resource classifications when compared to the Folsom large river alluvial plain placers which were similar to those at Nechí.

**Table 10-4: Churn Drilling Density Averages in Resource and Reserve Blocks  
Mineros S.A. - Nechí Alluvial Property**

Classification	Drill Hole Density (ha/hole)	Drill Hole Density (Acres/hole)	Blocks
Proven Reserves	0.4	1.1	14
Probable Reserves	1.2	2.9	1
Alluvial Plains Resources	0.6	1.4	56
Terraces & Old Tailings	0.3	0.6	7

The area of current resources and reserves drilling extends over 47.5 km from 1,330,000N to 1,377,500N (IGAC- Magna). With respect to El Bagre, alluvial plain resources extend over 44 km from seven kilometres to the west-southwest to 40 km to the north, whereas alluvial plain reserves extend from 34 km to 45 km north. The alluvial plain resources generally flank or fill in previously exploited blocks. Terrace resources are located several kilometres south, west, and west-northwest of town. Small residual blocks of reserves

designated for mining by a smaller wheel cutter suction or Brazilian dredge are located along the Nechí River plain approximately seven kilometers to 24 km north of El Bagre.

Drilling on 122 m and closer spaced grids extends over 49 km from 1,328,500N to 1,377,750N. Mineros has completed 5,136 churn drill holes totalling 123,154.8 m to define alluvial resources and reserves of which 2,201 holes totalling 54,113.5 m define Proven and Probable Mineral Reserves. The bulk of the current resources and reserves have been drilled on the east side of the Nechí River flood plain.

Residual isolated areas of the widely spaced “scout” drill holes are located west and north of RPP 57011 as listed in Table 10-5.

**Table 10-5: Scout Drilling Areas  
Mineros S.A. - Nechí Alluvial Property**

<b>North of El Bagre (km)</b>	<b>Lateral Extent (km)</b>	<b>Terrain</b>
44	5	Nechí west river plain
35	10	Nechí west river plain
19	3	Nechí east river plain
10	3	Nechí west river plain

Mineros maintains an alluvial drill hole database which includes logs/data for individual drill records and a PolyCad database of drill hole summary data used for resource estimation.

## 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

### 11.1 Sampling Method and Approach

The method of sampling for the Ward and Fairbanks drills is by conventional placer churn drilling and sampling which relies on a standardized advance or drive of a casing (drive pipe), break-up of the sample material in the casing by a downhole placer churn bit, and collection of samples by means of vacuum pumping material out of the casing. The placer drilling method is effective at collecting a volume-representative sample that is necessary for estimating the raw gold grade in milligrams per bank cubic metre (BCM). Mineros' drilling and sampling methods adhere to classic procedures developed for placer churn drills (Keystone, Hillman, Fairbanks, Ward, etc.) in the late 1800s and early 1900s in the USA and are employed worldwide. The method of logging, sampling, on site sample processing, quality assurance and quality control (QA/QC), and security for the sonic drill sampling is the same as for the churn drilling as described below, except that sample intervals are at one metre, consistent with the core barrel length, and the grade correction factor for casing and shoes as described for churn drilling is not employed since the sonic drill bit and sample tube are the same diameter and sonic sample is relatively undisturbed.

Barren soil, mud, and clay overburden overlying the pay formations is penetrated at variable lengths up to six metres. The overburden is logged, and the collected sediments are discarded, with the piping washed. Pay formations sands and gravels are sampled at 0.3 m (sometimes 0.6 m) drives and pumped from the casing, emptied into the mud box for examination, and then washed into the volume box (12 in. x 6 in. x 6 in.) for volume measure carried out by a volume stick. The sample is then screened to  $-1/8$  in. and the undersize panned by an 18 in. pan (batea) on the rig.

Gold grains recovered from black sand in the batea are examined by hand lens, picked, and counted according to size, i.e., gold grain numbers 1 to 4 (Table 11-1), and accumulated in a gold sample vial that is labelled for grid line and hole number. Drilling sample logs record grain numbers from 2 to <4.

**Table 11-1: Gold Grain Numbers and Weights  
Mineros S.A. - Nechí Alluvial Property**

Grain #	Gold (mg Au)
1	3.00
2	1.30
3	0.33
4	0.02
<4	0.01

Samples are panned three times to ensure no gold is lost. Detergent is used for degreasing and eliminating water surface tension. Since gold is accumulated in a single vial from all samples, only a single grade based on actual weight for the entire clastic column is available for each hole. The drill supervisor/foreman is responsible for the gold grain count and recording. The supervisor on Ward drill 9 visited by SLR in May 2017 has 25 years of experience.

Panned black sands are accumulated from each sample and retained. At the end of the hole, the black sands are run through a 150 cm by 30 cm sluice for final clean-up. Any gold recovered is recorded and

added to the sample gold vial. The gold sample vial and black sand is returned to El Bagre. In the past, all gold was recovered by mercury amalgamation in a Gilkey bowl, however, such gold is generally <200 mesh and considered not dredge-recoverable, so this practice has been discontinued and the black sands simply stored. Gold in the sample vial is nitric acid-washed, the gold grains are handpicked and weighed by micro-balance, and the actual weight is recorded to complete the logging and sampling.

The alluvium is logged, aided by granulometry from screen fractions produced from a screen deck on the rig. Processed sediment (i.e., rejects) is temporarily stored in rice bags on the drill rig until the hole is completed and then is placed back in the hole when pulling the casing.

The sampling procedure is generalized in Figure 11-1.

For every sample taken, a series of factors are employed to correct the estimated weight of gold from grain counting as well as the actual weight of gold in the sample vial determined in the El Bagre laboratory. Grade corrections for each advance are necessary to account for incomplete filling or excessive swell of material in the drill casing. Incomplete filling can be caused by hard material packing the casing, lost core forced out by the bit in loose ground, or by boulders or gravel clasts too large to be broken by the placer drill bit or partially blocking the casing during advance. Overfilling may be caused by running ground or differential water pressure that forces material into the casing. Factors are based on actual and theoretical core rise in the casing and theoretical volume versus recovered volume in the volume box.

If the core rise or volume is less than theoretical, the gold weight is adjusted up; when it is greater, the grade is adjusted down (Figure 11-2). The factor is dependent on casing and casing drive shoe diameters and is standardized for a 30 cm advance per sample.

**Sample or Core Factor (FC):** The ratio between the theoretical material rise in the casing and the advance casing is determined from the external, or outside, diameter (ext or OD) and internal diameter (int or ID) of the casing and casing drive shoe. The relationship is based on the volume that enters the casing drive shoe and the casing.

By multiplying the core factor by the advance, the theoretical rise of material in the casing is obtained; i.e., rise in the casing = FC x the advance.

Formula:

$$(FC) = \left( \frac{\phi_{ext \text{ shoe}}}{\phi_{int \text{ casing}}} \right)^2$$

where  $\phi$  is diameter

The tooling used by Mineros for Ward drilling is:

$\Phi$  of the casing shoe:  $5\frac{7}{8}$ " or 5.875"

$\Phi$  (internal) of the casing:  $4\frac{1}{2}$ " or 4.5"

The core factor is therefore  $(5.875/4.5)^2 = 1.704$

The theoretical rise for a 30 cm (i.e., 1 ft) advance is calculated as:  $1.704 \times 30 \text{ cm} = 51.13 \text{ cm}$ . In practice, results indicate that 52 cm as the theoretical rise is effective. For a 6" pipe, the rise is 0.44 m.

**Volume Factor (FV):** is the theoretical volume corresponding to a rise of 30 cm of material in the casing, i.e.,  $FV = \text{internal area of the casing} \times \text{the advance}$  or:

$$\frac{\pi D^2}{4} \times \text{advance} \therefore D = \text{ID casing}$$

The formula corresponding to the cross-section of the casing shoe is converted from inches to metres by multiplying by 0.0254.

$$FV = 3.1416 \times (5.875'' \times 0.0254 \text{ m/inch}/2)^2 = 0.0175 \text{ m}^2$$

Multiplying by 0.3 m gives the theoretical volume of 0.00524 m<sup>3</sup> for a 4.5" pipe and 0.0082 m<sup>3</sup> for a 6" pipe. In practice, Mineros uses 0.0054 m<sup>3</sup> for its 4.5" casings.

**Drive Shoe Factor (FZ):** is the theoretical advance the casing must be driven to obtain one cubic metre of material:

$$(FZ) = \left(\frac{4}{\phi \pi D^2}\right) \therefore D = \text{Shoe OD}$$

$$(FZ) = \frac{4}{\phi \text{ int casing}^2 \times FC}$$

Shoe factors are 66 m for a 4.5" pipe and 40 m for a 6" pipe.

In practice, as recorded in the drill logs, the corrections made for each advance in pay gravel depend on the length of casing advance, pumping volume measurement, sample volume, gold grains classification and number, and weight estimate of gold in the gold grains. Correction is made either by volume or by sample rise taking the more conservative adjustment.

*Volume correction:*

$$\frac{(\text{Theoretical volume} \times \text{Estimated gold})}{(\text{Measured volume} - \text{Estimated gold})}$$

*Or*

*Correction by sample rise:*

$$\frac{(\text{Theoretical rise} \times \text{Estimated gold})}{(\text{Actual rise} - \text{Estimated gold})}$$

The total correction for the drill hole recorded in the drill logs is applied to the actual weight of gold and accumulated corrections for the individual advances:

$$\text{Total Correction} = (\sum \text{Corrections} \times \text{Actual weight}) / \text{Estimated Weight}$$

$$\text{Corrected Gold} = \text{Actual weight} \pm \text{Total Correction}$$

$$\text{Calculated depth} = \text{Basement depth} + 0.30 \text{ m}$$

$$\text{Final grade} = (\text{Corrected Gold} \times \text{Shoe factor}) / \text{Calculated depth}$$

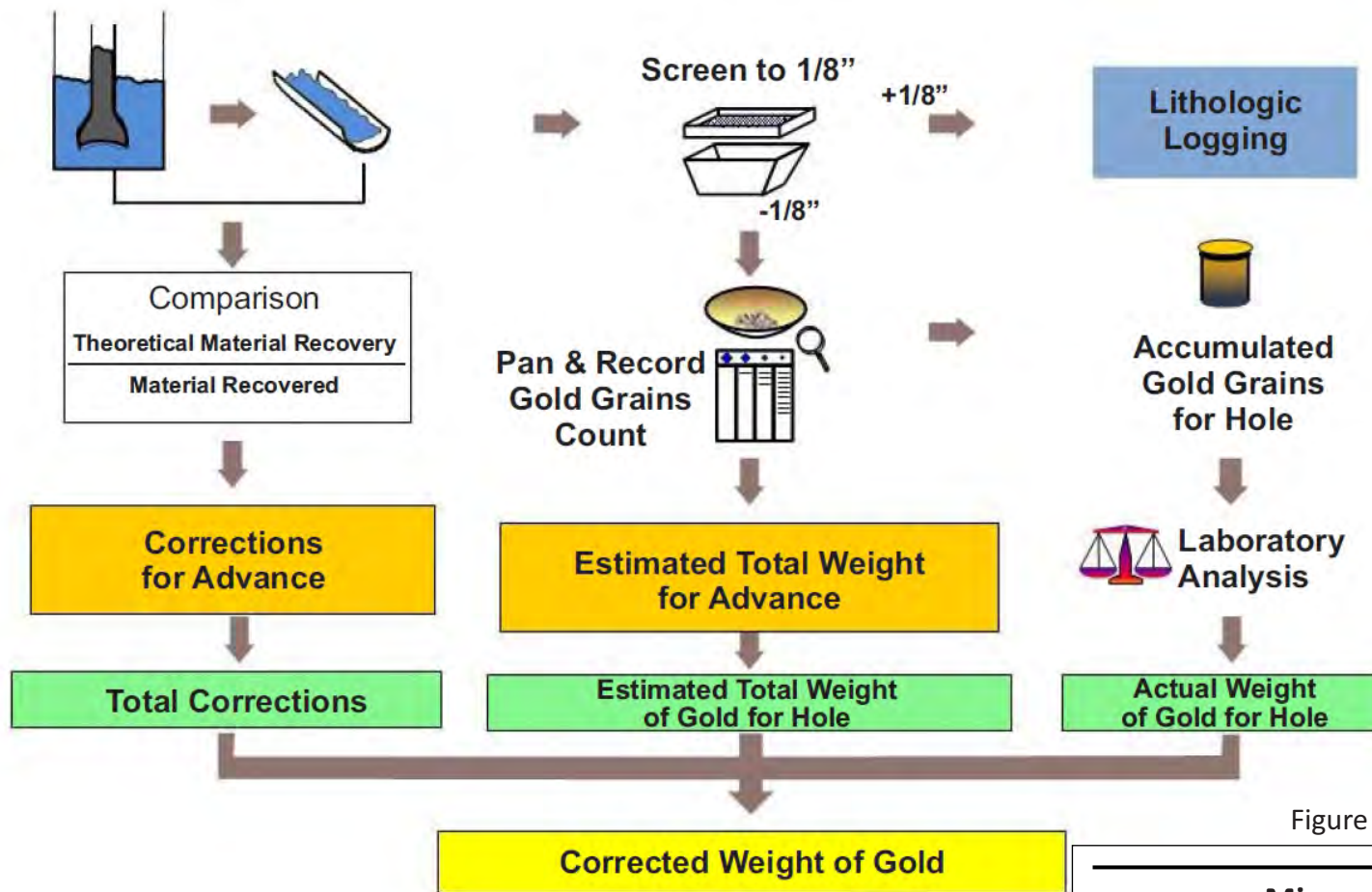
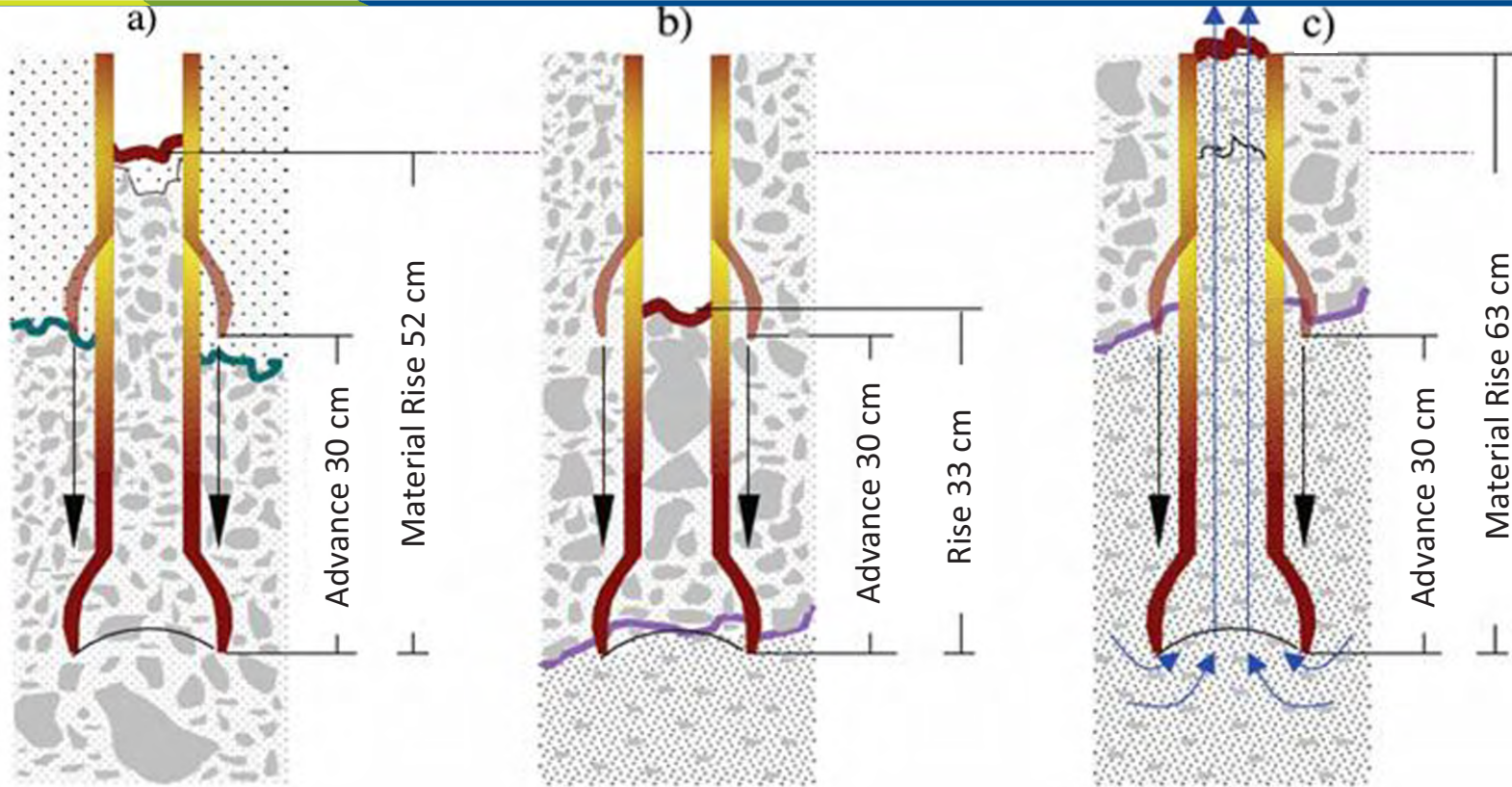


Figure 11-1

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Generalized Sampling Procedure**



No Correction

Positive Correction  
Increase Gold

Negative Correction  
Deduct Gold

Figure 11-2

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Placer Sampling Correction**

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## 11.2 Sample Preparation, Analysis and Security

For placer drilling and sampling, there is no further sample preparation after the sample recovery and panning/slucing on the drill rig, as described in Section 12. Analysis consists of acid washing and weighing the gold grains accumulated for the hole, which is carried out by Mineros personnel on an electronic microbalance at the laboratory in the Mineros dredge black sands final processing and gold smelter facility at the El Bagre complex. The weighed gold and final corrected gold weight are recorded in the drill logs and the database, and then the sample is archived.

The gold sample vials from the drills are transported to El Bagre at the end of the daily shift under control of the drill supervisor by the service boats which have on-board security. The processing/smelter facility is within the secured gated compound at the El Bagre complex and in addition has its own internal security.

In the QP's opinion, Mineros' drilling, sampling, sample preparation, gold analysis and security are industry standard for large scale alluvial gold deposits and adequate for the estimation of alluvial gold Mineral Resources and Mineral Reserves.

## 11.3 Quality Assurance and Quality Control

Until 2009, Mineros had not implemented a QA/QC program with respect to alluvial gold sampling on the Ward drills. Historic industry practice to assure effective sample recovery and thus the quality of sampling for churn drilling was done by periodically dropping a known number of lead shots down the casing before sample pumping, and counting the shot recovered during sample panning.

On SLR's recommendation in 2008, Mineros began the practice of dropping metal shot (ball bearings) down the casing and recording the number of shot recovered by sample pumping. Generally, all the shot has been recovered during the first of the three sample pumpings, and where not, all the shot has been recovered after the third pumping confirming the quality of the placer sampling.



## 12.0 DATA VERIFICATION

While on past site visits and during ongoing audits, the SLR QP examined a number of Ward drill logs for verification of the completeness of entries and procedures and overall quality of the recording process. The drill hole data since 1991 are also stored in “Placer 2000” database software, which is a customized version of “Stratigraph” by Geostat International Systems Inc. (Geostat), a subsidiary of SGS S. A., of Blainville, Québec, Canada. The Placer 2000 database was examined on screen for randomly selected drill holes.

Two operating Ward churn drills were visited by SLR QP in the field in 2008 and Ward Drill 9 was visited in 2017 to observe and review Mineros’ alluvial sampling and logging practices. A Ward drill was also visited in 2021. Visible gold was observed during the gold panning steps at all visits. SLR did not conduct any independent sampling to verify the results of any specific drilling and sampling owing to the nature of the task, i.e., the need for drilling equipment and experienced crew, and time constraints in that completing a drill hole requires five days, not including mobilization/demobilization time.

Mineros conducted comparative testing of sonic drill sampling versus sampling in eight churn drill holes in 2019 prior to purchasing the sonic drill rig in 2021. The sonic sampling tended to capture less gold and be lower grade in virgin terrace sampling but was closer to churn drill results in grade and gold weight for dredge No. 10 tailings sampling for which it is being used at present (Figure 12-1). Given the variability in results noted for twin churn drill holes and differing sampling lengths for churn and sonic drilling, the performance of the sonic drilling is reasonable for tailings exploration.

CARGUEROS DE LA DRAGA 10																	
Pozo	TENOR						PESO ORO REAL		TAMAÑO DE PARTÍCULAS								Distribución De Partículas
	TENOR			PROF			PESO ORO REAL		<4		4		3		2		
	WARD	SONICO CC	SONICO SC	WARD	SONICO CC	WARD	SONICO CC	W	S	W	S	W	S	W	S		
3358-0294	71	76	93	30.3	34	25.1	29.3	221	1012	624	52	0	1	0	0	Ward: 20.1-30 m Sónico: 22-32 m	
3363-0293	81	96	81	33	34	35.3	25.6	475	531	732	390	2	24	0	1	Ward: 4-32.4 m Sónico: 4-30 m	
3347-0294	58	49	44	30	30	20.4	12.22	145	178	438	37	0	0	0	0	Ward: 3-23.7 m Sónico: 2-30 m	
TERRENO VIRGEN-BLOQUE AGROMINEROS BAGRE																	
Pozo	TENOR						PESO ORO		TAMAÑO DE PARTÍCULAS								Distribución De Partículas
	TENOR			PROFUNDIDAD			PESO ORO		<4		4		3		2		
	WARD	SONICO CC	SONICO SC	WARD	SONICO CC	WARD	SONICO CC	W	S	W	S	W	S	W	S		
0216-0083	116	72	95	14.7	18	22.1	14.4	755	876	298	252	20	17	0	0	Ward: 2.1-13.8 m Sónico: 1-16 m	
0216-0074	158	88	104	11.7	14	19.8	11.5	237	57	249	88	24	13	0	0	Ward: 4-11.4 m Sónico: 2-12 m	
0222-0091	281	176	147	14.4	17.5	62	19.5	643	237	661	296	49	2	0	0	Ward: 4-13.8m Sónico: 9.3-14 m	
0221-0086	156	111	144	14.4	16	19.1	32.9	707	635	421	164	11	5	0	0	Ward: 7.8-13.8 m Sónico: 8-12 m	
0211-0083	253	455	512	16.5	19	39.9	77.3	515	401	1043	1534	80	17	0	0	Ward: 3-13.2 m Sónico: 1-14 m	

**Figure 12-1: Comparison of Twinned Sonic and Churn Drill Holes Sampling**

The QP obtained the PolyCad drill hole database as of May 2017. The data was formatted and imported into Gemcom Software International Inc. GEMS 6.7.4 mining software (GEMS) for review. The drill holes were viewed on screen and validated in GEMS. GEMS has rigorous error checking routines that find out-of-sequence errors, overlapping intervals, missing intervals, etc. SLR performed the same exercise for the 2019 database.

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The check in 2017 resulted in 23 holes with duplicate identification numbers and five holes with zero length or negative lengths. As of YE 2019, the duplicates remain to be corrected in the database and 12 holes have zero length and zero grade. Several holes having coordinates outside the resource/reserve areas, and the Mineros tenements themselves, need to be corrected.

The 23 holes with duplicate identification numbers are twins of older holes (“redrills”) dating from 1940 to 1992 of which 20 holes were originally drilled in the 1940s. The twin holes were drilled from 1982 to 2013 of which 20 holes were drilled in the 1990s. Except for one isolated hole, the holes were drilled in a relatively small 33 km<sup>2</sup> area of the overall resource area of the Nechí alluvial plains. The twin holes returned hole grades lower than the original holes for 13 of the 23 pairs and summed grades for the pairs were -1,023 mg/m<sup>3</sup>, indicating that the twin holes are generally lower grade. Mineros states that results (grade) usually differ for redrills. SLR notes that for the redrills, only the results for the more recent of the twinned hole pairs are used for Mineral Resource estimation. SLR recommended that the twin holes be relabelled with identification numbers distinct from the original holes and that Mineros continue with this best practice in future. Other than the few errors above, Mineros’ drill hole database is of good quality and adequate for alluvial Mineral Resource and Mineral Reserve estimation.

The QP is of the opinion that the drill hole database is acceptable to support Mineral Resource and Mineral Reserve estimates.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

### 13.1 Mineral Processing

The Nechí alluvial gold deposit has been in production for approximately 45 years under Mineros management.

There are four main mining methods – bucket line dredges, “Brazilian” suction dredges, the Llanuras production unit, and terrace mining – each with a different gold processing plant associated with it. Bucket line dredge mining utilizes the processing plants located on the five bucket line dredges. The “Brazilian” suction dredges have on-board processing plants. The Llanuras production unit that is fed from suction dredge No. 21 has a separate floating processing plant. Terrace mining utilizes a backhoe to feed a floating processing plant, which uses gravimetric recovery units to obtain a concentrate.

Mineral beneficiation in the alluvial operation starts by a gravity concentration and/or sluice box/blanket treatment on board the dredges, followed by a concentration and smelting process in the El Bagre metallurgical plant at the El Bagre complex. The gold quality has been reported consistently to be 890 fineness, or 90% gold in the final doré bar. The beneficiation process is described in greater detail in Section 17. The use of mercury amalgamation was suspended at some of its operations in 2012 and completely phased out by 2014, and replaced by use of extra jigs, sluice boxes, and blankets.

The final gold production per dredge (DR) to June 30, 2021 is shown in Table 13-1. Total historical gold production is reported in Section 6 History.

**Table 13-1: Bucket Wheel Dredge Gold Production to June30, 2021  
Mineros S.A. – Nechí Alluvial Property**

Dredge Unit	Final Gold Production (oz Au)
DR3	5,403
DR5	5,149
DR10	8,425
DR14	6,191
DR16	7,627
Total	32,794

The gold production from the bucket wheel dredges up to June 30, 2021 of 32,794 ounces represents the final gold production after treatment at the El Bagre metallurgical plant.

The metallurgical recovery estimated for the remaining reserves averages approximately 80% (Table 13-2). The recoveries are estimated by Mineros and appear to be reasonable.

The QP is of the opinion that there are no deleterious elements that could have a significant effect on potential economic extraction.

**Table 13-2: Reserve Metallurgical Recoveries  
Mineros S.A. – Nechí Alluvial Property**

Area Description	Gold (oz Au)		Metallurgical Recovery (%)
	In-Situ (890 Fineness)	Recovered	
Bucket Line Dredge Plain Alluvial	1,080,798	864,638	80%
Suction Dredge Plain Alluvial	90,008	76,513	80%
Terrace Alluvial	413	2,728	75%
Total	1,171,219	936,954	80%

The recoveries are provided by Mineros, and appear to be reasonable, although there is no metallurgical back-up available for the recoveries. The recoveries are based on past production experience. In general, alluvial gold mineralization does not vary significantly spatially so it is reasonable to apply recovery estimates based on past experience to the remaining reserves.

## 13.2 Metallurgical Testing

Replacement of the mercury amalgamation process on the dredges made the operations safer and environmentally easier to operate.

As production moved down river, the gold was becoming finer, with resultant lower recovery from the jigs. In 2014, Mineros initiated a test project with Gekko, where an InLine Pressure Jig (IPJ)-based pilot plant was installed on the barge operation, which was tethered to, and received its feed from, the dredge No. 10 production unit.

The pilot plant was commissioned in July 2014, establishing IPJ parameters in preparation for performance trials, which commenced on October 22, 2014. The trials produced very encouraging gold recovery results in the +90% range, with the highest being 96%, all on feed of very fine to fine gold with a nominal maximum size of approximately 200  $\mu$ .

Based on the test results from the pilot plant, Mineros decided to implement the Gekko pressurized jig technology on one of the two jig recovery circuits of dredge No. 10, replacing the gravimetric concentration equipment, from the primary stage to the production of concentrates, prior to the cleaning stage in the sluice boxes.

The Gekko jigs did not perform well in operation and were removed from dredge No. 10.

## 14.0 MINERAL RESOURCE ESTIMATE

### 14.1 Mineral Resource Summary

Alluvial gold Mineral Resource and Mineral Reserve reviews, audits and the preparation of internal NI 43-101 compliant technical reports have been carried out periodically for the Nechí Alluvial Property on behalf of Mineros by SLR since 2008. The most recent internal SLR technical report is dated July 31, 2020 and was based on YE 2019 Mineral Resources and Mineral Reserves for the Nechí Alluvial Property. In early 2021, SLR audited the YE 2020 alluvial gold Mineral Resources and Mineral Reserves as reported by Mineros and SLR submitted a letter report to Mineros management that the YE 2020 estimates were reasonable and acceptable under CIM (2014) definitions.

The Nechí Alluvial Property Mineral Resources and Mineral Reserves reviewed by SLR for this Technical Report are mid year (MY) as of June 30, 2021, and have been prepared based on the depletion of YE 2020 Mineral Resources and Mineral Reserves and review of current land title, permitting, environment, etc., information. As such, resource and reserve estimation criteria including metal prices, currency exchange rates, gold recovery, production costs, etc., are as of YE 2020.

The MY 2021 Mineral Resources at the Nechí Alluvial Property are summarized in Table 14-1. As of June 30, 2021, the alluvial Measured and Indicated Mineral Resources total 528 Mm<sup>3</sup> averaging 80 mg/m<sup>3</sup> and contain 1.21 Moz Au. Exploration has upgraded all Inferred Mineral Resources to either Indicated or Measured Mineral Resources. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions) are used for Mineral Resources.

**Table 14-1: Alluvial Gold Mineral Resource Estimate as of June 30, 2021  
Mineros S.A. - Nechí Alluvial Property**

Category	Volume (Mm <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Contained Metal (koz Au)
Measured	510	81	1,175
Indicated	18	67	36
<b>Measured &amp; Indicated</b>	<b>528</b>	<b>80</b>	<b>1,211</b>

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a gold cut-off grade of 39 mg/m<sup>3</sup> for suction dredges, 43 mg/m<sup>3</sup> for Brazilian dredge alluvials and 85 mg/m<sup>3</sup> gold for terrace alluvials. Mineral Resources at Nechí are estimated using an average, long-term gold price of US\$1,700/oz Au and an exchange rate of COP3, 500.00:US\$1.00.
3. Alluvial gold at Nechí is 890 fine for resource estimation.
4. Average thickness of the resource pay gravel is 11.1 m. Average thickness of overburden is 12.0 m.
5. Resources and reserves are estimated to the depth of dredging and drill hole grade capping has been carried out at 290 mg/m<sup>3</sup>.
6. Mineral Resources are exclusive of Mineral Reserves.
7. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
8. Numbers may not add due to rounding.

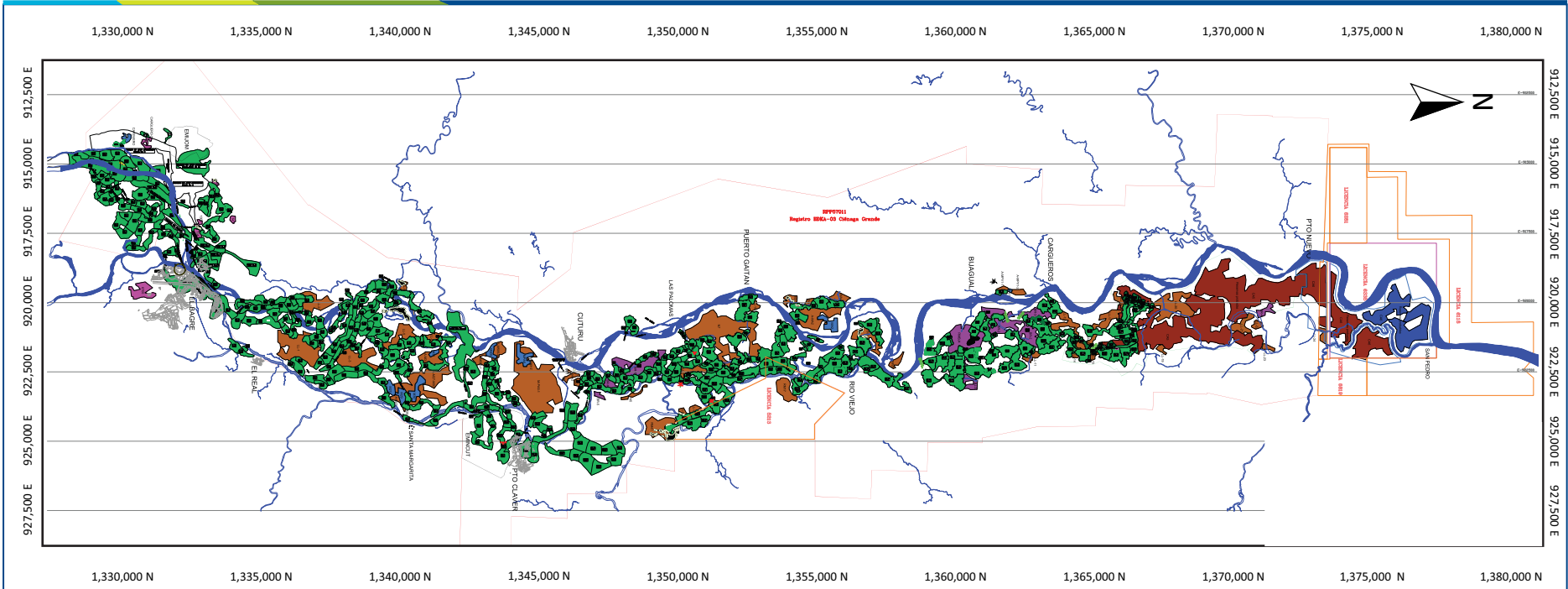
The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

## 14.2 Mineral Resource Estimation Methodology and Parameters

The Mineral Resources for the Nechí Alluvial Property have been estimated internally by geologists and mining engineers employed by Mineros using conventional alluvial resource estimation methods, including grade capping and 2D polygonal grade interpolation. SLR has reviewed and accepted the resource estimation work by Mineros personnel.

In keeping with CIM (2014) definitions and industry best practices, Mineros has stated the Measured and Indicated Mineral Resources exclusive of Mineral Reserves. There are no alluvial Inferred Mineral Resources for MY 2021.

All Mineral Resources are on RPP 57011 and contracts 5213 and 6705 and include areas south of 1,373,500N (IGAC) that are south of the current bucket line dredging operations area. Although they meet current cut-off grade criteria and are amenable to smaller scale dredging, they may not be economically viable in future for large scale dredging because of the capital costs required to move the bucket line dredges back upstream and for preparation of large dredge ponds. Resource areas further upriver west of El Bagre are comprised of terraces and residual tailings of mining operations carried out up to 75 years ago. Figure 14-1 shows a location plan of the resource blocks as of MY 2021.



**Legend:**

- Proved Reserves
- Probable Reserves
- Other Reserves
- Terraces
- Plains
- Previous Dredging
- Illegal Mines
- Concession Limit

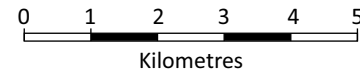


Figure 14-1

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Plan View of**  
**Reserve and Resource Blocks**

June 2021

Source: Mineros S.A., 2021.

### 14.2.1 Cut-off Grades

The alluvial resource cut-off grade is applied to the entire hole and represents the grade of the pay gravels diluted by the overburden at zero grade, i.e., it is the average grade determined by weighting the grades of the pay gravel and overburden by the thickness of the gravel and overburden. The resources are reported on the same basis and at essentially a diluted grade. This method of applying the grade to the entire hole facilitates the identification of resources in plan by contouring the grades of the drill holes.

The Mineral Resource cut-off grade is breakeven and incorporates all operating costs for dredging and overburden stripping. Table 14-2 shows the assumptions used by Mineros to estimate Mineral Resource cut-off grades of 85 mg/m<sup>3</sup>, 34 mg/m<sup>3</sup> and 43 mg/m<sup>3</sup> for the terraces, wheel cutter suction dredge alluvial plains (Llanuras production unit) and Brazilian dredge alluvial plains and old tailings blocks, respectively. The resource cut-off grade for the bucket wheel dredges is not shown below because all of the bucket wheel dredge material is included in the reserves.

**Table 14-2: Resource Cut-Off Grades  
Mineros S.A. - Nechí Alluvial Property**

Parameter	Units	Terraces	Cutter Suction Dredge Plains	Brazilian Dredge Plains
Gold Price	US\$/oz Au	1,700	1,700	1,700
Exchange Rate	COP/US\$	3,500	3,500	3,500
Unit Operating Cost	US\$/m <sup>3</sup>	3.35	1.45	1.59
Process Recovery	%	75%	80%	70%
<b>Cut-Off Grade</b>	<b>mg/m<sup>3</sup> Au</b>	<b>85</b>	<b>34</b>	<b>43</b>

SLR notes that the Mineral Resource cut-off grade does not incorporate the gold fineness (890) or refining payables for gold and silver and refining costs, which would increase the cut-off grades by approximately 13%. Incorporating gold fineness accounts for most of this impact on cut-off grade. SLR also notes that the Mineros calculation method results in a cut-off grade one to two milligrams higher than conventional methods.

### 14.2.2 Classification Criteria

Measured Mineral Resources are estimated in the detailed drilling areas (122 m x 122 m grid) and where 60 m x 60 m additional in-fill drilling has been performed in planned production areas. Measured and Indicated Mineral Resources are converted to Mineral Reserves after the application of overburden dilution and dredge recovery factors.

The criteria for Measured Mineral Resource estimation are as follows:

- **Resource Outlines:** Outlines are created for discrete areas of drill holes with grades exceeding the breakeven cut-off grade and for the type of mining under consideration (alluvial plain, terrace, dredge type, old tailings). The cut-off grade is applied on a raw gold basis. Where the resource outline cuts a portion of a non-resource polygon, the volume within the resource outline is assigned a grade and depth weighted proportionally by volume from the adjoining polygons.
- **Capping high grades:** Where grade exceeds 290 mg/m<sup>3</sup>, the hole grade is assigned 290 mg/m<sup>3</sup>. SLR notes that this capping procedure is applied where the in-situ diluted grade of the drill hole



exceeds the cap grade. This approach was adopted in 2019 following a study of recent grade data by Mineros. Prior to 2019, Mineros employed a capping methodology inherited from Pato Consolidated in which the weighted average of the uncut grade of the subject hole and the grades of the six surrounding holes was calculated. If the average grade exceeded the grade cap of 274 mg/m<sup>3</sup>, the hole was assigned 274 mg/m<sup>3</sup>. If not, the hole was assigned the weighted average grade of it and the surrounding holes. In SLR's opinion Mineros' new grade capping method is reasonable in as much as it is based on currently used statistical approaches for grade capping and is developed from more recent drilling data in areas mined down river from where Pato Consolidated operated.

- Estimating the average grade and thickness of the areas based on polygonal grade interpolation in plan using "PolyCad".

Placer 2000, in addition to its database function, performs all the calculations and gold weighting corrections described for the churn drilling sampling method and approach. The data from Placer 2000 is exported to Geostat's PolyCad Rockworks 99 software (PolyCad) customized for Mineros. PolyCad uses the polygonal method to estimate Measured Mineral Resources.

### 14.2.3 Grade Capping

Mineros undertook statistical analysis of drill hole grades area by area based on grouping of holes on the east-west grid lines for six groups of lines and for the total grade data from all these lines. Lines were grouped as follows: L3240-L3582, L3240-L4557, L3556-L3910, L3898-L4252, L4240-L4557, and L2000-L5607, which have some areal overlap. Analysis consisted of histograms, boxplots, normal probability plots, data disintegration plots, and line plots. Grades ranged up to 7,259 mg/m<sup>3</sup> for all holes. The choice of capping thresholds varied by area and was affected by subpopulations of higher grades on histograms and probability plots for some subareas. Mineros' choice of 290 mg/m<sup>3</sup> as a cap grade was based on the boxplot for total grade data at the 94.5<sup>th</sup> percentile. This threshold agrees well with most of the subareas and is conservative relative to capping levels inferred from other graphical methods. The boxplot capping threshold impacts 365 holes, or 5.5%, of the 6,513 holes used for the statistical analysis. In SLR's opinion, the new cap grade has no material impact on the Mineral Resource estimate and is not substantially different from the Pato Consolidated cap grade of 274 mg/m<sup>3</sup> used historically until 2019, however, it is now supported by statistical analysis.

The alluvial gold Measured and Indicated Mineral Resources estimates as of MY 2021 are listed in Table 14-3.

Indicated Mineral Resources are estimated after interpretation of the geological continuity through the paleochannels, supported by geomorphological aspects and stratigraphic correlations on cross-sections of boreholes that have grades meeting the gold grade cut-off. Indicated Mineral Resources are estimated for areas that have 85% drilling coverage at the 122 m x 122 m spacing with grade determined by weighted averaging by pay gravel thickness. Other criteria include the accessibility and amenability to dredging and the dredgeable portion of the accessible areas (60% from usual operations planning).

**Table 14-3: Alluvial Gold Measured and Indicated Mineral Resources  
Mineros S.A. - Nechí Alluvial Property**

Tenement	Block	Pay Gravel BCM (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Overburden BCM (000 m <sup>3</sup> )	Total Volume BCM (000 m <sup>3</sup> )	Area (ha)	Total Depth (m)	Raw Gold (kg Au)	In Situ Diluted Grade (mg/m <sup>3</sup> Au)	Fine Gold (000 oz Au)
<b>Measured Resources</b>										
<b>Terraces</b>										
RPP 57011	CARGUERO-2	959	156	496	1,455	10.4	14.1	149.3	103	4.3
LIC-6705	T-6705	927	367	1,514	2,441	44.8	5.5	340.6	140	9.7
<b>Total Terrace Resources</b>		<b>1,886</b>	<b>126</b>	<b>2,010</b>	<b>3,896</b>	<b>55.1</b>	<b>7.1</b>	<b>489.9</b>	<b>121</b>	<b>14.0</b>
<b>Alluvial Plains</b>										
	LL-1	1,985	102	765	2,750	13.2	20.8	201.6	73	5.8
	LL-2	2,161	120	716	2,877	11.5	25.0	260.3	90	7.4
	LL-3	2,824	111	1,314	4,138	18.8	22.0	312.9	76	9.0
	LL-4	1,754	223	1,469	3,223	15.4	20.9	390.3	121	11.2
	LL-5	1,224	136	939	2,163	9.3	23.2	167.0	77	4.8
	LL-6	1,188	137	1,456	2,644	13.9	19.0	163.2	62	4.7
RPP57011	LL-7	1,670	99	449	2,119	8.9	23.9	165.4	78	4.7
	LL-8	546	206	1,046	1,591	8.1	19.7	112.6	71	3.2
	LL-9	3,892	165	5,782	9,673	41.8	23.1	642.0	66	18.4
	LL-10	15,224	117	9,066	24,290	110.2	22.1	1,777.7	73	50.9
	LL-11	5,855	214	9,390	15,245	71.8	21.2	1,253.8	82	35.9
	LL-12	1,760	264	2,121	3,880	15.5	25.1	464.4	120	13.3
	LL-13	454	164	452	906	5.7	15.8	74.3	82	2.1

Tenement	Block	Pay Gravel BCM (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Overburden BCM (000 m <sup>3</sup> )	Total Volume BCM (000 m <sup>3</sup> )	Area (ha)	Total Depth (m)	Raw Gold (kg Au)	In Situ Diluted Grade (mg/m <sup>3</sup> Au)	Fine Gold (000 oz Au)
	LL-14	2,514	237	4,966	7,480	39.5	19.0	595.2	80	17.0
	LL-15	784	210	1,594	2,378	11.1	21.4	164.2	69	4.7
	LL-16	2,822	169	3,722	6,544	27.6	23.7	476.6	73	13.6
	LL-17	11,957	182	16,299	28,256	123.0	23.0	2,180.7	77	62.4
	LL-18	658	226	1,073	1,731	7.7	22.6	148.4	86	4.2
	LL-19	4,015	118	1,412	5,426	22.5	24.1	475.3	88	13.6
	LL-20	528	360	1,365	1,894	14.0	13.6	190.4	101	5.4
	LL-21	4,962	254	11,820	16,782	70.8	23.7	1,261.9	75	36.1
	LL-22	29,752	196	35,372	65,125	254.3	25.6	5,839.0	90	167.1
	LL-23	149	248	69	218	1.5	14.1	36.9	169	1.1
	LL-24	736	165	822	1,558	7.7	20.2	121.5	78	3.5
	LL-25	495	180	1,018	1,513	5.5	27.7	88.9	59	2.5
	LL-26	6,327	110	2,869	9,196	34.2	26.9	694.4	76	19.9
	LL-27	683	379	1,242	1,925	8.2	23.4	258.6	134	7.4
	LL-28	3,819	212	5,906	9,726	41.7	23.3	809.2	83	23.2
	LL-29	596	176	576	1,172	4.9	23.8	104.5	89	3.0
	LL-30	188	344	864	1,051	4.6	23.0	64.4	61	1.8
	LL-31	819	121	470	1,290	4.7	27.6	99.3	77	2.8
	LL-32	1,068	126	984	2,052	7.3	28.1	134.5	66	3.8
	LL-33	360	113	291	650	2.3	28.8	40.6	62	1.2
	LL-34	3,401	191	3,705	7,106	29.3	24.3	648.1	91	18.5

Tenement	Block	Pay Gravel BCM (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Overburden BCM (000 m <sup>3</sup> )	Total Volume BCM (000 m <sup>3</sup> )	Area (ha)	Total Depth (m)	Raw Gold (kg Au)	In Situ Diluted Grade (mg/m <sup>3</sup> Au)	Fine Gold (000 oz Au)
	LL-35	17,245	215	29,119	46,363	205.8	22.5	3,712.9	80	106.2
	LL-36	680	164	707	1,387	5.8	23.9	111.4	80	3.2
	LL-37	545	164	556	1,101	8.4	13.1	89.5	81	2.6
	LL-38	2,500	136	2,639	5,139	18.3	28.0	340.2	66	9.7
	LL-39	1,121	124	838	1,958	7.4	26.5	138.6	71	4.0
	LL-40	3,502	124	1,411	4,912	18.2	27.0	434.9	89	12.4
	LL-41	1,610	184	1,848	3,458	14	25.4	295.6	85	8.5
	LL-42	9,827	115	6,364	16,192	66.1	24.5	1,126.3	70	32.2
	LL-43	2,432	170	1,717	4,150	16.4	25.2	413.7	100	11.8
	LL-44	3,955	129	3,325	7,280	29.7	24.5	510.4	70	14.6
	LL-45	1,593	244	1,379	2,972	13.3	22.3	389.2	131	11.1
	LL-46	1,344	234	3,201	4,546	19.8	23.0	314.0	69	9.0
	LL-47	573	220	1,192	1,764	7.2	24.7	125.8	71	3.6
	LL-48	962	243	1,615	2,577	12.5	20.6	233.6	91	6.7
	LL-49	969	100	631	1,600	5.5	28.9	97.4	61	2.8
	LL-50	567	156	535	1,103	4.0	27.7	88.3	80	2.5
	LL-51	1,142	141	898	2,040	8.8	23.1	161.4	79	4.6
	LL-52	1,563	102	1,625	3,188	11.8	26.9	159.6	50	4.6
	LL-53	4,022	114	4,112	8,134	32.0	25.4	460.0	57	13.2
	LL-54	934	104	834	1,768	7.0	25.2	97.1	55	2.8
	LL-55	501	137	353	854	3.3	25.8	68.8	81	2.0

Tenement	Block	Pay Gravel BCM (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Overburden BCM (000 m <sup>3</sup> )	Total Volume BCM (000 m <sup>3</sup> )	Area (ha)	Total Depth (m)	Raw Gold (kg Au)	In Situ Diluted Grade (mg/m <sup>3</sup> Au)	Fine Gold (000 oz Au)
	LL-56	612	125	605	1,217	4.7	25.9	76.7	63	2.2
	LL-57	729	113	943	1,672	6.6	25.4	82.2	49	2.4
	LL-58	1,090	75	570	1,661	5.8	28.6	82.1	49	2.3
	LL-59	4,765	130	5,388	10,153	47.5	21.4	621.0	61	17.8
	LL-60	442	218	356	798	2.9	27.2	96.4	121	2.8
	LL-61	9,238	122	9,819	19,057	75.5	25.2	1,124.2	59	32.2
	LL-62	590	103	536	1,125	4.3	26.0	60.8	54	1.7
	LL-63	2,204	121	1,720	3,923	14.5	27.0	266.9	68	7.6
	LL-64	1,045	75	748	1,793	9.5	18.9	78.7	44	2.3
LIC-5213	RM17	2,394	223	4,758	7,152	34.4	20.8	533.0	75	15.3
RPP 57011	RM41	5,723	191	4,685	10,408	49.4	21.1	1,090.7	105	31.2
<b>Total Alluvial Plain Resources</b>		<b>203,587</b>	<b>167</b>	<b>226,432</b>	<b>430,019</b>	<b>1,836.7</b>	<b>23.4</b>	<b>33,899.6</b>	<b>79</b>	<b>970.00</b>
<b>Brazilian Dredge Alluvial Plains</b>										
	B13A	881	276	1,291	2,171	8.5	25.4	243.2	112	7.0
	B13B	1,074	154	522	1,596	6.4	25.0	164.9	103	4.7
	B14	677	201	1,136	1,812	8.9	20.4	136.2	75	3.9
	B15	211	257	215	425	2.8	15.3	54.2	127	1.5
RPP57011	BR-1	680	103	288	968	3.9	24.9	69.9	72	2.0
	BR-2	1,280	217	1,575	2,855	11.8	24.3	277.5	97	7.9
	BR-3	4,954	240	8,987	13,941	61.0	22.9	1,187.4	85	34.0
	BR-4	169	230	414	584	2.6	22.6	38.9	67	1.1

Tenement	Block	Pay Gravel BCM (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Overburden BCM (000 m <sup>3</sup> )	Total Volume BCM (000 m <sup>3</sup> )	Area (ha)	Total Depth (m)	Raw Gold (kg Au)	In Situ Diluted Grade (mg/m <sup>3</sup> Au)	Fine Gold (000 oz Au)
	BR-5	1,035	256	1,948	2,983	15.6	19.1	265.3	89	7.6
	BR-6	11,536	177	12,096	23,632	96.5	24.5	2,038.7	86	58.3
	BR-7	2,750	163	3,192	5,942	24.0	24.7	447.8	75	12.8
	BR-8	1,799	156	1,152	2,951	11.5	25.6	279.9	95	8.0
	RMBJ4	8,749	168	7,258	16,006	64.2	24.9	1,471.5	92	42.1
<b>Total Brazilian Dredge Resources</b>		<b>35,795</b>	<b>186</b>	<b>40,074</b>	<b>75,866</b>	<b>317.7</b>	<b>23.9</b>	<b>6,675.6</b>	<b>88</b>	<b>190.9</b>
<b>Total Measured Resources</b>		<b>241,268</b>	<b>170</b>	<b>268,516</b>	<b>509,781</b>	<b>2,209.6</b>	<b>23.1</b>	<b>41,065.1</b>	<b>81</b>	<b>1,174.9</b>
<b>Indicated Resource</b>										
RPP 57011	LL-RI-MI1	11,937	104	6,535	18,472	81.6	22.6	1,244.6	67	35.6
<b>Measured &amp; Indicated Resources</b>		<b>253,205</b>	<b>167</b>	<b>275,051</b>	<b>528,253</b>	<b>2,291.2</b>	<b>23.1</b>	<b>42,309.7</b>	<b>80</b>	<b>1,210.5</b>

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources at Nechí are estimated at a raw gold cut-off grade of 34 mg/m<sup>3</sup> for alluvial plains, 85 mg/m<sup>3</sup> for terraces and 43 mg/m<sup>3</sup> for Brazil dredge alluvials and dredge tailings.
3. Mineral Resources are estimated using a gold price of US\$1,700 per ounce and an exchange rate of 3,500 COP:US\$1.00.
4. Alluvial gold is taken at 890 fine for resource estimation.
5. Resources are estimated to the depth of dredging and drill hole grade capping has been carried at 290 mg/m<sup>3</sup>.
6. Average thickness of pay gravel is 11.1 m. Average depth of overburden is 12.0 m.
7. In situ volume represents material in the entire alluvial column from surface to maximum dredging depth and includes overburden and gravels.
8. Excludes the San Pedro stream and the strip between tenements 6118 and 6335.
9. Mineral Resources are exclusive of Mineral Reserves.
10. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.
11. Numbers may not add due to rounding.

SLR notes that the use of polygonal interpolation differs from the manual triangle blocking method traditionally used for placer gold estimates and is somewhat less smoothed, however, the method is not materially different. The churn drill hole pattern is staggered, a carry-over from earlier Pato Consolidated operations, and is amenable to use of the triangle method however, automation and computer software is not readily available. SLR's examination of some of the polygonal blocking has found that on occasion there are gaps between polygons that likely arise from a maximum projection distance set in the PolyCad software. The result is a slight underestimation of the resource. Mineros personnel state that the gaps have not been noted in resources converted to reserves.

### 14.3 2D Polygonal Resource Checks

For auditing purposes in 2018, SLR selected a small area of new reserves, Carguero, and carried out a two dimensional (2D) block modelling exercise to confirm the results from PolyCad using the PolyCad database and the reserve boundary polygon. Grades were capped using the Mineros/Pato Consolidated procedure. Blocks sized at 15 m x 15 m x hole depth were generated within the bounding polygon for the resource area and block grade-thickness and depth were estimated by inverse distance squared ( $ID^2$ ) for the model. A search distance of 122 m was used in keeping with the drill hole spacing. Block grades were determined by dividing block grade-thicknesses by block depths. The resulting BCM volume, average grade, and average depth were very close (3.6% on ounces) to the Mineros estimate for the in-situ resource. The exercise confirmed that the use of PolyCad for Mineral Resource and Mineral Reserve estimation is acceptable for well-drilled reserve and resource blocks.

SLR performed the same exercise in 2019 for the LL-22 and RM-17 resource blocks that are included in MY 2021 resources.

#### 14.3.1 LL-22

The LL-22 Measured Mineral Resource was estimated by Mineros at 2,155,358 m<sup>3</sup> grading 54 mg/m<sup>3</sup>. For independent verification, SLR carried out conventional estimation using a resource boundary or polygon at the LL-22 site to contain holes at or exceeding the 2019 resource cut-off grade of 23 mg/m<sup>3</sup>. The polygon perimeter was based on one half the distance between the resource and non-resource holes similar to Mineros practice. SLR extracted 13 holes at or exceeding the cut-off grade at the LL-22 site from the general resource database as well as the PolyCad database which is the subset of the general database used by Mineros for the Mineral Resource estimate. SLR notes that there were holes exceeding cut-off grade in the general database which could be used for resource estimation but which are not included in the PolyCad database and were not included in the Mineros resource polygon at that time. Moreover, the Mineros polygon was much smaller than the one outlined by SLR and enclosed only six holes. Using the additional holes identified by SLR, 2D block modelling and  $ID^2$  interpolation with soft boundaries results were 4,845,000 m<sup>3</sup> at 37 mg/m<sup>3</sup>. This is substantially larger volume with lower grade but somewhat higher in contained gold than the Mineros Mineral Resource estimate. SLR noted that for the Mineros polygon, the drilled resource area was in part reduced by eliminating two holes at the resource north margin that are at breakeven cut-off grade. This sterilized an additional hole above cut-off grade. In addition, Mineros excluded holes north of the LL-22 resource polygon because they are surrounded by holes of very low grades less than 10 mg/m<sup>3</sup>.

SLR used the Mineros polygon and re-interpolated the resource based on the same estimation parameters and six holes resulting in 2,130,351 m<sup>3</sup> averaging 50 mg/m<sup>3</sup>. Compared to Mineros, this is -1% on volume, -6% on grade, and -8% on contained gold ounces. Nearest neighbour (NN) estimation by SLR results in only -0.4% on volume, -1.9% on grade, and -2.2% on contained gold. SLR considers that results between

estimation methods within 10% are acceptable and in this case, differences can be explained by SLR's smoothing and use of a soft boundary versus Mineros' non-smoothed polygonal estimation and essentially hard polygon boundary and fewer available holes.

### 14.3.2 RM-17

RM-17 is a Measured Mineral Resource block reported in 2019 by Mineros at 7,714,000 m<sup>3</sup> grading 75 mg/m<sup>3</sup>. SLR performed the same check exercise as for LL-22. The polygons outlined by Mineros and SLR, and holes extracted from the general and PolyCad databases for the RM-17 site, were similar. SLR estimated the resource based on the same method and parameters used for LL-22 above. The volumes and grade were virtually identical for RM-17 and confirm Mineros' estimation methodology.

From the above check, it would appear that smaller resource areas with few defining holes that are estimated by block modelling and interpolation with smoothing and a soft boundary may experience a slightly lower result compared to the polygonal estimation used by Mineros, however, for larger areas, results between methods are comparable. SLR notes, however, that judiciously excluding holes with breakeven cut-off grades or surrounded by holes with very low grades inhibits the repeatability of estimation by auditing parties.

## 14.4 3D Block Model Checks

In 2019 SLR selected three areas of resources (LL-21, LL-22, and LL-23) and carried out a three dimensional (3D) block modelling exercise to confirm the results from PolyCad using the PolyCad database and the resource boundary polygons (Figure 14-2). No capping was applied. Topographic and mineralized gravel base surfaces were developed from the collars of the drill holes and the depth of the lowermost gravel unit in each drill hole. Blocks sized to 40 m x 40 m x depth to mineralized gravel base were generated within the bounding polygon for the resource area and grades were estimated by NN method for the block model (Figure 14-3).

The volumes produced within the analyzed polygons were within +/- 1.0% of the volumes reported by Mineros (Table 14-4). Gold grades between SLR and Mineros were almost identical for the largest resource polygon analyzed (LL-21) but were 13.5% higher for LL-22 and 4.1% lower for LL-23. The overall contained gold ounces difference was minimal for polygon LL-21 (0.9%), low for polygon LL-23 (-4.5%), and moderate for polygon LL-22 (+12.6%). In the case of the polygons examined, differences between the Mineros and the SLR estimates are explainable due to use of different estimation methods. SLR considers that the 3D block model check results between estimation methods are acceptable.

As observed in the 2D check, a smaller resource area with few defining holes that are estimated by block modelling and interpolation with smoothing and a soft boundary may experience a slightly lower result compared to the polygonal estimation used by Mineros, while for larger areas, results between methods are comparable (LL-21) or even indicate that a higher grade may be present (e.g., LL-22) when calculated using a 3D block model.



**Table 14-4: 3D Block Model Check Results Carried out in 2019  
Mineros S.A. - Nechí Alluvial Property**

Block	Total Volume BCM (m <sup>3</sup> )		Volume Difference (%)	Grade (mg/m <sup>3</sup> Au)		Grade Difference (%)	Raw Gold (oz Au)		Raw Gold Difference (%)
	Mineros	SLR		Mineros	SLR		Mineros	SLR	
LL-21	7,470,266	7,538,200	0.9%	72	72	0.0%	538	505	0.9%
LL-22	2,155,358	2,137,200	-0.8%	54	61	13.5%	116	103	12.6%
LL-23	1,307,971	1,302,500	-0.4%	45	43	-4.1%	59	64	-4.5%

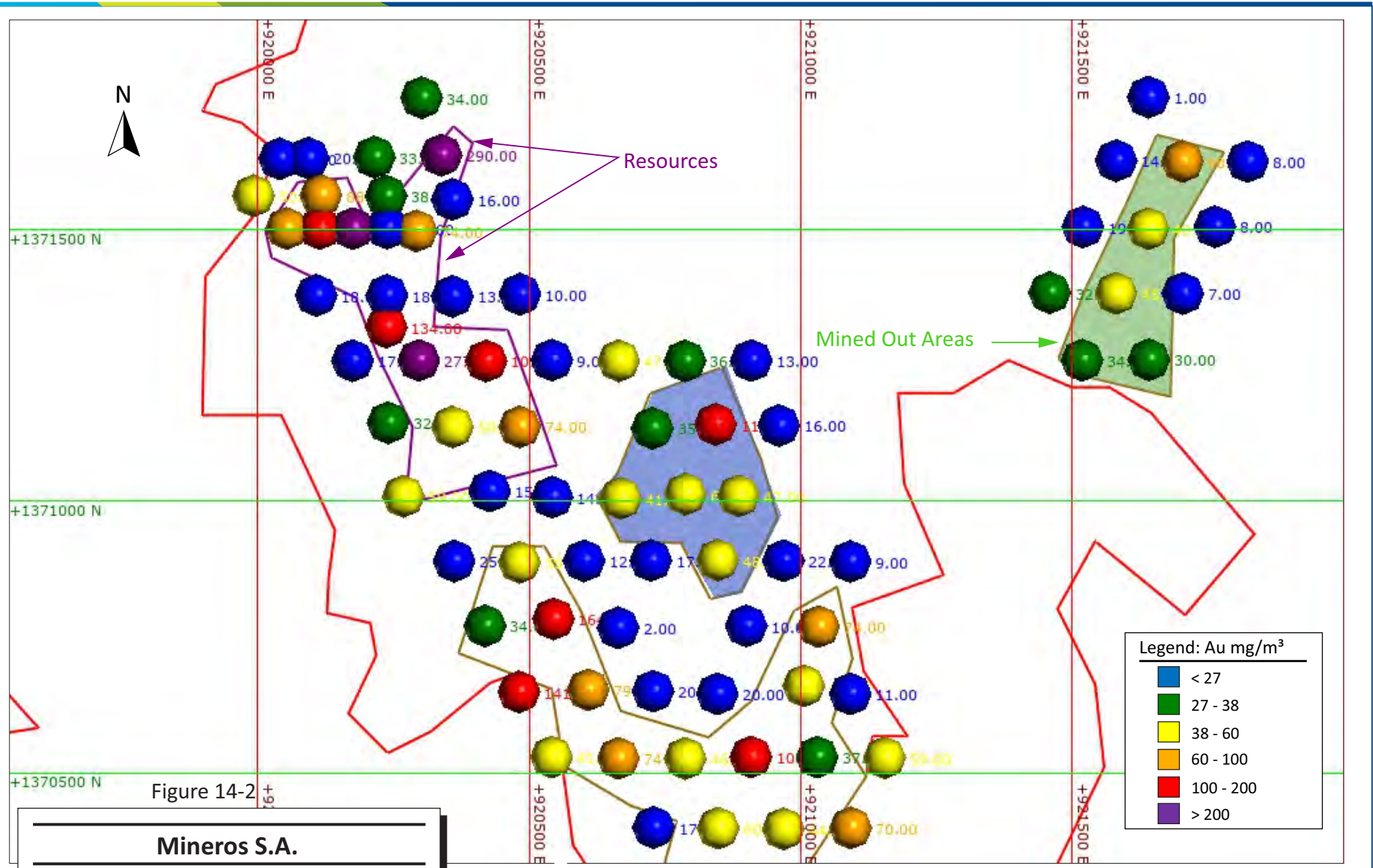


Figure 14-2

**Mineros S.A.**  
***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Example of Resource Polygons**

June 2021

Source: SLR, 2021.

Looking East-Northeast

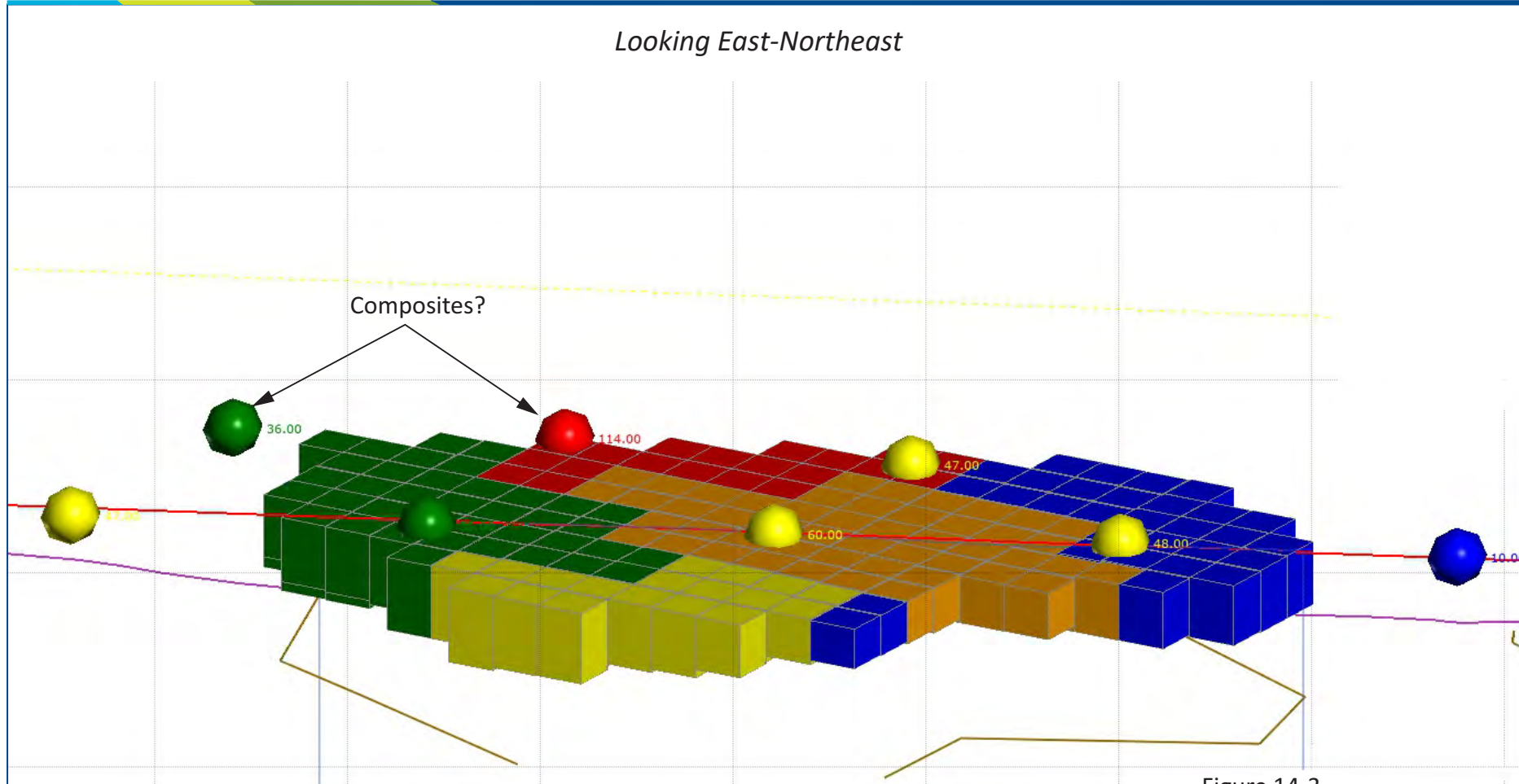
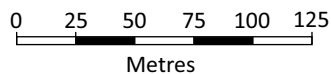


Figure 14-3

Legend: Au mg/m<sup>3</sup>

- < 27
- 27 - 38
- 38 - 60
- 60 - 100
- 100 - 200
- > 200



September 2021

Source: SLR, 2021.

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Resource Polygon LL-22**

## 15.0 MINERAL RESERVE ESTIMATE

### 15.1 Mineral Reserve Summary

The alluvial gold Mineral Reserves at the Nechí Alluvial Property are summarized in Table 15-1 and the reserve blocks are shown in Figure 15-1. As of June 30, 2021, the Proven Mineral Reserves total 318 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 989,949 oz Au and Probable Mineral Reserves total 59 Mm<sup>3</sup> averaging 108 mg/m<sup>3</sup> (combined gold plus some silver) and contain 181,269 oz Au for total Mineral Reserves of 376 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 1,171,219 oz Au.

**Table 15-1: Alluvial Mineral Reserve Estimate as of June 30, 2021  
Mineros S.A. - Nechí Alluvial Property**

Tenement	Block	Volume (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Doré (koz Au)	Contained Metal (koz Au)
<b>Proven Mineral Reserves – Bucket Line Dredge Plain Alluvials</b>					
RPP 57011	CA5	204,456	108	708	630
RPP 57011	CA6	18,235	115	67	60
LIC-6335	CA6	54,362	111	193	172
LIC-6118	CA6	11,996	106	41	36
LIC-6819	CA6	288	76	1	1
<b>Totals / Averages</b>		<b>289,336</b>	<b>109</b>	<b>1,011</b>	<b>900</b>
<b>Proven Mineral Reserves – Suction Dredge Plain and Terrace Alluvials</b>					
RPP 57011	PV1	388	108	1	1
	M31	1,225	107	4	4
	M29	3,466	104	12	10
	M27	3,338	140	15	13
	M30	5,594	116	21	19
	MPA5	5,850	84	16	14
	M505	2,437	125	10	9
	MA2	5,548	125	22	20
	Carguero	103	140	0.5	0.4
<b>Totals / Averages</b>		<b>27,948</b>	<b>113</b>	<b>102</b>	<b>93</b>
<b>Total Proven Mineral Reserves</b>		<b>317,284</b>	<b>109</b>	<b>1,112</b>	<b>990</b>

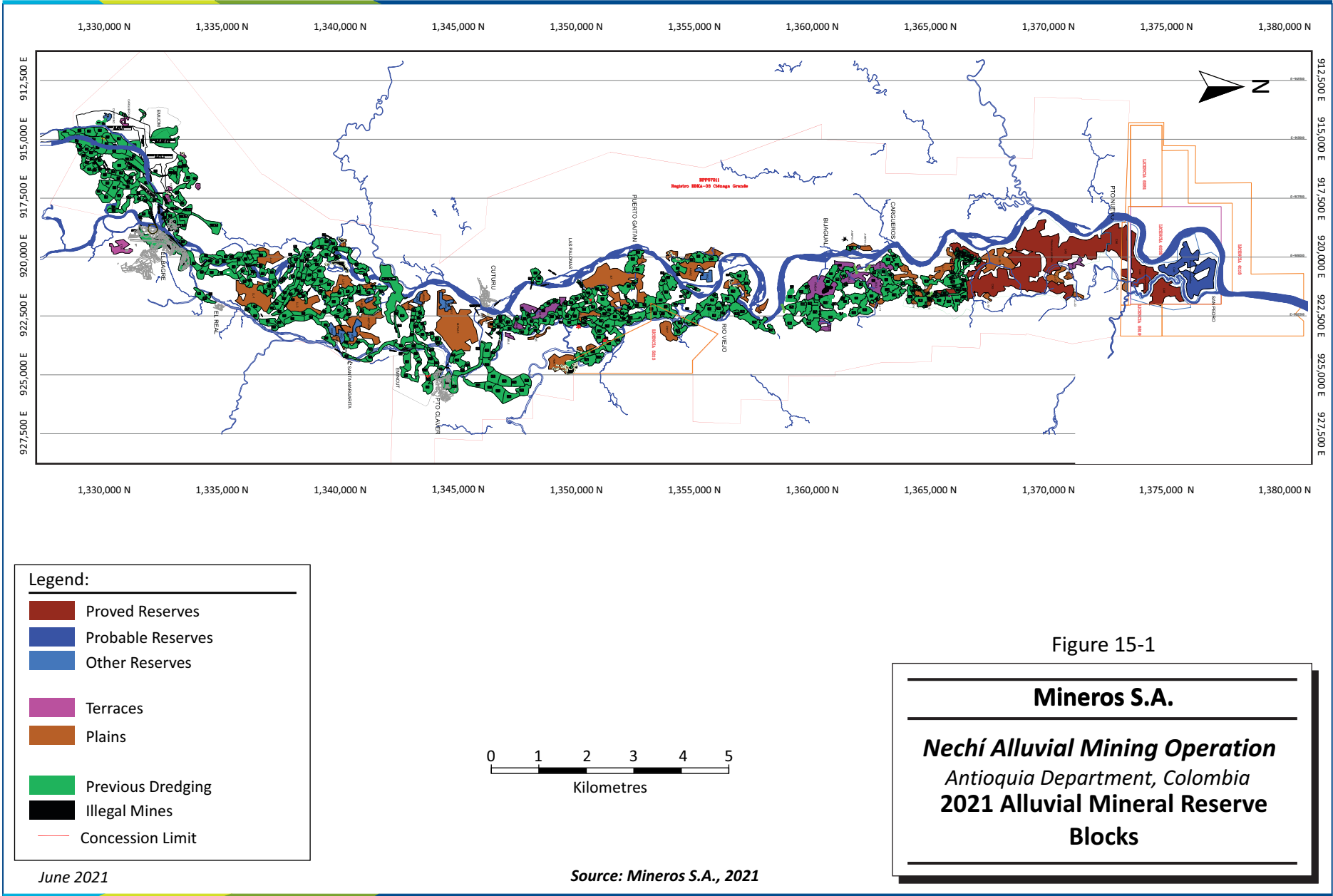
Tenement	Block	Volume (000 m <sup>3</sup> )	Grade (mg/m <sup>3</sup> Au)	Doré (koz Au)	Contained Metal (koz Au)
<b>Probable Mineral Reserves – Bucket Line Dredge Plain Alluvials</b>					
LIC-6335	CA6	58,589	111	225	200
<b>Total Probable Mineral Reserves</b>		<b>58,589</b>	<b>108</b>	<b>193</b>	<b>181</b>
<b>Total Proven &amp; Probable</b>		<b>375,772</b>	<b>109</b>	<b>1,316</b>	<b>1,171</b>

## Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated at cut-off grades of 38 mg/m<sup>3</sup> for mining by bucket line dredges, 49 mg/m<sup>3</sup> for Brazilian suction dredge alluvials, 39 mg/m<sup>3</sup> for wheel cutter suction dredge alluvials, and 96 mg/m<sup>3</sup> for terrace alluvials.
3. Mineral Reserves are estimated using an estimated gold price of US\$1,500/oz Au.
4. An exchange rate of COP3,500.00:US\$1.00 was used.
5. Gold grade includes some silver. Alluvial gold at Nechí is 890 fine for reserve estimation.
6. A minimum alluvial mining depth of 12 m was used.
7. A maximum alluvial mining depth of 30 m was used.
8. Numbers may not add due to rounding.

The QP is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate. In August 2020, as part of its normal course operations, Mineros applied for riverbed occupation permits required for the exploitation of portions of the Mineral Reserves, scheduled to be mined in 2021 and 2022. Approvals for portions of the application mining areas were provided in the first half of 2021, and additional information was requested for other areas. For these areas, Mineros undertook additional data collection and environmental studies as requested, and in August 2021, submitted the revised application for these areas. Mineros and the ANLA have been in active communications and have held several meetings to ensure that the information provided met with ANLA's requirements for review. Based on their dialogue with ANLA and confirmation from ANLA that the information met with the requirements of terms of reference, Mineros expects the application to be granted before YE 2021. Additional permit applications covering the balance of the reserves will be submitted periodically in the future.

Based on SLR's discussions with Mineros and review of environmental documents and resolutions and correspondence with ANLA, SLR is of the opinion that Mineros' expectation of approvals in the future is reasonable and well founded.



## 15.2 Mineral Reserve Estimation Methodology and Parameters

For Mineros production planning and economic analysis, the Measured Mineral Resources in the current operations area are reviewed by engineering personnel block by block for each dredge production unit based on the practicalities of access, dredge mobility, a minimum operational area of 60 m, deforestation and overburden stripping characteristics, dredge pond criteria, buffer zone allowance next to the main Nechí River, and associated cost criteria. Dilution for overburden slump and suction dredge depth versus dredge-recoverable alluvium, and expected dredge mining recovery are applied to estimate production-based Mineral Reserves included in the Life of Mine (LOM) plan. Mineros also prepares a long-term plan that includes Proven Mineral Reserves and Measured and Indicated Mineral Resources for internal planning purposes.

The as-built alluvial Mineral Reserve blocks, designed from cut-off grade and operation criteria, are overlaid on the resource polygons and the volume and volume weighted grade are estimated for the reserve blocks using all or part of the polygons and the polygon/drill hole grades. The design may incorporate all or parts of polygons below cut-off grade where necessary for dredge operation.

Measured and Indicated Mineral Resources that meet the Mineral Reserve cut-off grades for the intended mining methods (i.e., dredge type or excavator) are converted to Mineral Reserves after the application of overburden dilution and dredge mine recovery factors.

SLR notes that the Mineral Reserves contain a layer of overburden with an average thickness of 12 m. Since this material does not contain gold above cut-off grade it should not be included in the Mineral Reserves. SLR recommends that only the pay gravels be included the Mineral Reserves and that the overburden that is removed using the suction dredges be discounted from the overall reported Mineral Reserve volumes. This does not impact the overall quantity of contained gold as the gold grade is averaged over the bulk of the material, however, it will result in a lower volume of material at a higher grade.

### 15.2.1 Cut-off Grades

Mineros used four separate cut-off grades for Mineral Reserve estimation, one for bucket line dredge plain alluvial areas, one for terrace alluvial and old tailings areas, one for wheel cutter suction plain alluvial areas and one for Brazilian rotary cutter suction dredging of alluvial plains. These cut-off grades were estimated based on historic alluvial operating costs and budgeted suction plain and terrace alluvial operating cost estimates and metallurgical recoveries. The cut-off grades in Table 15-2 represent the breakeven gold grades based on a US\$1, 500/oz Au gold price.

**Table 15-2: Alluvial Mineral Reserve Cut-Off Grade  
Mineros S.A. - Nechí Alluvial Property**

Description	Units	Bucket Line Dredge Plain Alluvials	Terrace Alluvials	Suction Plain Alluvials	Brazilian Suction Plain Alluvials
Gold Price	US\$/oz Au	1, 500	1, 500	1, 500	1,500
Volume	Mm <sup>3</sup>	28.3	0.46	3.08	0.70
Metallurgical Recovery	%	80%	75%	80%	70%
Total Cost Pesos	COP million	142,171	5,396	15,636	3,903

Description	Units	Bucket Line Dredge Plain Alluvials	Terrace Alluvials	Suction Plain Alluvials	Brazilian Suction Plain Alluvials
Exchange Rate	COP/US\$	3, 500	3, 500	32500	3,500
Total Cost	US\$ million	40.6	1.5	4.5	1.1
Unit Cost	US\$/m <sup>3</sup>	143	3.36	1.45	1.59
<b>Cut-off Grade</b>	<b>mg/m<sup>3</sup> Au</b>	<b>38</b>	<b>96</b>	<b>39</b>	<b>49</b>

SLR notes that for operating cost estimate purposes, the bucket line dredge plain alluvial cost in Table 15-2 includes additional waste material corresponding to channel excavations, dike construction, material required to close channels, and the excavation of additional sediment material required prior to the arrival of the pay gravel and suction dredges. The terrace and suction plain alluvial costs in Table 15-2 do not include this extra material as this additional volume is required only for the operation of the bucket line dredges.

### 15.2.2 Dilution and Mine Extraction

There are two main sources of dilution:

- Waste material above the pay gravel that was not removed by the suction dredge.
- Side-wall waste slough.

Bucket line dredge, suction dredge, and terrace mining dilution is estimated to be 13.9%, at zero gold grade, based on past operating performance and detailed mine plan calculations. For the LOM plan, the first year for bucket line dredging average dilution is 14.3% with successive years at 10% of the pay gravels. Dilution for suction dredging and terrace excavation is 7.5% of pay gravels. The pay gravel dilution for bucket line dredging resolves into an average dilution factor of 5.7545% of the total in situ volume reported as reserves. For the other proven reserves in the plains and terraces to be extracted by the suction dredges, the average dilution factor for the in situ volume is 3.882%. For YE 2020 these factors were 5.928% and 3.882%, respectively. The MY 2021 change in the former factor is 3% and results in a slight increase in the overall reserves that are otherwise unchanged from YE 2020.

Mine extraction is estimated to be 100% of the Measured and Indicated Mineral Resources that have been converted to Mineral Reserves using the appropriate cut-off grades.

### 15.2.3 Additional Considerations for Plain Alluvials

Other considerations for plain alluvial Mineral Reserve estimation are:

- A minimum dredge operation width of 60 m to allow two cuts of 30 m each. The preferred operating widths are 120 m to 150 m.
- A minimum depth of 5 m below the water level to float the dredge and a maximum dredging depth of approximately 30 m.
- A depth limit at the dredging face in alluvium of 5 m to 10 m depending on the dredge.
- Access and associated costs.
- A dredge must work in a pond and access is generally from the Nechí River through the existing streams in the flood plain.



### 15.3 Reconciliation of Mid Year 2021 and Year End 2020 Mineral Resources and Mineral Reserves

SLR notes that there have only been small decreases in Mineral Reserves and Mineral Resources from YE 2020 to MY 2021. (Tables 15-3 to 15-5). The 5% to 6% decrease in reserves is accounted for by production from tenement RPP57011 block CA5 as well as 61% to 68% decreases in the small Cargueros block of old tailings. Block CA5 is mined by bucket line dredging whereas the Cargueros block is being mined by excavator. The overall reduction in reserves is only 3%.

Resources are virtually unchanged from YE 2020 except for block RMBJ4 composed of Brazilian dredgeable alluvial plains material. This block was reduced by 724,000 m<sup>3</sup> and 7,693 contained ounces of gold with grade lowered from 100 mg/m<sup>3</sup> to 92 mg/m<sup>3</sup>. Mineros encountered delays with environmental permitting for CA5 Proven Reserve block which was in production by bucket line dredging during 2021. Consequently, production unit #4 (dredge No. 14) was moved to nearby permitted Measured Resources block RMBJ4 to maintain 2021 alluvial plain production rates. Production at RMBJ4 is ongoing.

**Table 15-3: Comparison of Mineral Reserves MY 2021 versus YE 2020  
Mineros S.A. - Nechí Alluvial Property**

Year	Volume (m <sup>3</sup> )	Area (ha)	Depth (m)	Contained Gold		Grade (mg/m <sup>3</sup> Au)
				Raw (kg Au)	Fine (oz Au)	
YE 2020	388,104,690	1,410.6	26.0	42,299	1,210,361	109
MY 2021	375,771,917	1,368.0	26.0	40,931	1,171,219	109
Δ M Y2021 vs YE 2020	(12,332,773)	-42.6	0	(1,368)	(39,142)	-0.06
Δ% MY 2021 vs YE 2020	-3%	-3%	0%	-3%	-3%	0%

**Table 15-4: Comparison of Proven Reserves (Alluvial Plains Bucket Line Dredge)  
Mineros S.A. - Nechí Alluvial Property**

Date	Tenement	Block	Diluted Vol. (m <sup>3</sup> )	Area (ha)	Depth (m)	Contained Gold		Grade (mg/m <sup>3</sup> Au)
						Raw (kg Au)	Fine (oz Au)	
YE 2020	RPP 57011	CA5	216,312,770	779.5	26.2	23,378	668,935	108
MY 2021	RPP 57011	CA5	204,455,702	738.4	26.2	22,033	630,450	108
Δ MY 2021 versus YE 2020			(11,857,069)	(41)	(0)	(1,345)	(38,485)	(0)
Δ%			-5%	-5%	0%	-6%	-6%	0%
<b>Other Proven Reserves (Tailings Excavator)</b>								
YE 2020	RPP 57011	Carguero	318,874	2.3	14.0	37.4	1,070	113
MY 2021	RPP 57011	Carguero	103,069	0.8	12.2	14.4	413	140
Δ MY 2021 versus YE 2020			(215,805)	(1)	(2)	(23)	(657)	27

Date	Tenement	Block	Diluted Vol. (m <sup>3</sup> )	Area (ha)	Depth (m)	Contained Gold		Grade (mg/m <sup>3</sup> Au)	
						Raw (kg Au)	Fine (oz Au)		
			Δ%	-68%	-64%	-13%	-61%	-61%	24%

**Table 15-5: Comparison of Mineral Resources MY 2021 Versus YE 2020  
Mineros S.A. - Nechí Alluvial Property**

Classification	Tenement/ Block	In Situ Volume (m <sup>3</sup> )	Area (ha)	Depth (m)	In Situ Gold		Grade (mg/m <sup>3</sup> Au)
					Raw (kg Au)	Fine (oz Au)	
<b>YE 2020</b>							
Measured Resources	-	511,225,558	2,215.6	23.1	41,334	1,182,735	81
Indicated Resources	RPP57011/ LL-RI-MI1	18,471,999	81.6	22.6	1,245	35,614	67
Total Resources		529,697,557	2,297.2	23.1	42,579	1,218,349	80
<b>MY 2021</b>							
Measured Resources	-	509,781,232	2,209.6	23.1	41,065	1,175,043	81
Indicated Resources	RPP57011/ LL-RI-MI1	18,471,999	81.6	22.6	1,245	35,614	67
Total Resources		528,253,231	2,291.2	23.1	42,310	1,210,657	80
Δ MY 2021 vs YE 2020		-1444326.37	-6.00	0.00	-269	(7,693)	-0.29
Δ%		0.00	0.00	0.00	-0.01	-0.01	0.00
<b>Measured Resources</b>							
Δ MY 2021 vs YE 2020		(1,444,326)	(6)	(0)	(269)	(7,693)	-0.30
Δ%		-0.3%	-0.3%	0.0%	-0.7%	-0.7%	-0.4%

## 16.0 MINING METHODS

### 16.1 Mining

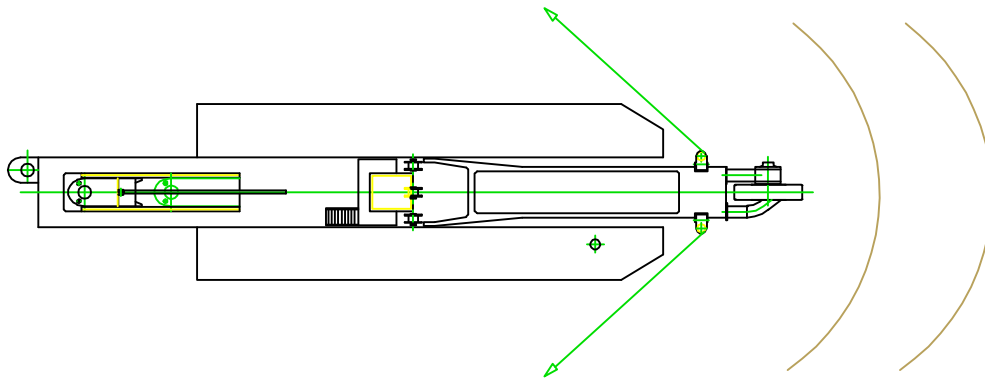
Dredging operations are carried out 24 hours per day, 365 days per year. At approximately 80% availability due to equipment maintenance and clean-up, actual dredging is effectively 284 days per year. The nominal production capacity of each of five bucket line dredges, used to mine pay gravel, is 500 m<sup>3</sup>/h. The nominal capacity of the seven wheel cutter suction dredges used to strip overburden, and modified suction dredge No. 21 to mine pay gravel, ranges from 300 m<sup>3</sup>/h to 500 m<sup>3</sup>/h. Planned annual production from mid-2021 to 2034 of 26.85 Mm<sup>3</sup> results in an average hourly production rate of 4,084 m<sup>3</sup> per hour (pay gravel plus overburden). The current mine life is 12.7 years with a combination of large suction and bucket line dredges, smaller alluvial plain wheel cutter (Llanuras production unit) and Brazilian rotary head suction dredges that started in 2020, and terrace/old tailings mining by floating excavator. Mineros owns and operates the bucket line dredges, wheel cutter suction dredges and one Brazilian suction dredge. Mineros operates the bucket line dredges, however, all the suction dredges are operated under contract.

The alluvial mining operation consists of overburden removal and excavation of the gold-bearing gravel using large floating dredges. The deposits extend for more than 50 km along the Nechí River, with widths up to 3.5 km. The 2021 active area of alluvial operations extends approximately 12.5 km on the east side of the Nechí River towards the northern part of the property. The current overall mining process consists of the following four basic phases:

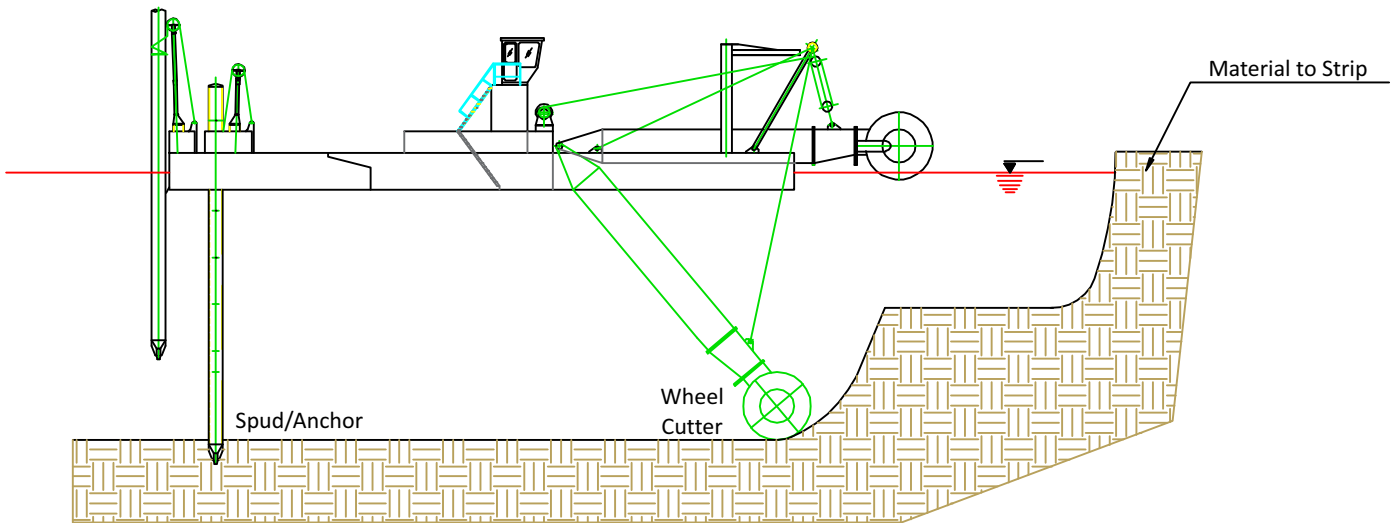
- Overburden removal and deposit with suction dredges or Brazilian dredges.
- Gravel removal with dredges.
- Size classification and gravimetric gold extraction.
- Final metallurgical processing of doré at the metallurgical plant and laboratory at Mineros' El Bagre complex.

Currently, five production units account for approximately 80% of the alluvial production and carry out the first three operations above. A production unit, consisting of a wheel cutter-suction dredge, a bucket line dredge, and support equipment including a bulldozer, a track-mounted crane, an amphibious backhoe, a boat, and other minor equipment. Each unit is a self-contained independent operation. Five bucket line production units are currently in operation. Figure 16-1 shows a suction dredge schematic.

The mining of a reserve block is initiated by removing the vegetal layer, including trees and any other obstacle to dredge operation. The suction dredge must be anchored and the discharge pipes installed prior to initiating stripping operations. This is assisted by an amphibious backhoe.



PLAN



SECTION

Figure 16-1

<p><b>Mineros S.A.</b></p> <hr/> <p><b><i>Nechí Alluvial Mining Operation</i></b>  <i>Antioquia Department, Colombia</i></p> <p><b>Suction Dredge Operation Schematic</b></p>
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The suction dredge then proceeds to remove the first four metres of surficial material. The removal of material continues downwards, suctioning volumes in two metre by four metre cuts, with a variable dredge operation width between 60 m and 300 m. The clay removal proceeds in front of the dredge for 16 m, then the dredge returns to the starting point and excavates another four metre deep volume. The excavation continues to the average dredge depth of 12 m (with a maximum of 18 m for dredge No. 19). The removed material is pumped through a discharge pipe behind the bucket line dredge and discharged between two bucket line dredge backfill dumps. In this manner, the clay material is kept confined helping to facilitate re-vegetation activities. A suction dredge and floating discharge pipe are pictured in Figure 16-2.



**Figure 16-2: Suction Dredge**

The bucket line dredge is specifically designed to exploit low grade, deep alluvial deposits at a large scale. The dredge combines the extraction of alluvial material, processing, and recovery of the valuable material, and the discharge of tailings under one roof. The removal of gold-bearing gravel comprises several operations: dredging, advance forward, lateral displacement, tailings disposal, and water supply. The operation proceeds slowly and uniformly, leaving behind a ground surface slightly above the original wetland, permitting the reclamation of areas subject to flooding and protecting ground edges from erosion. Photos of a bucket line dredge are shown in Figures 16-3 and 16-4. Mineros' dredging method is shown in Figure 16-5.



**Figure 16-3: Bucket Line Dredge**



**Figure 16-4: Bucket Line Dredge from Above**

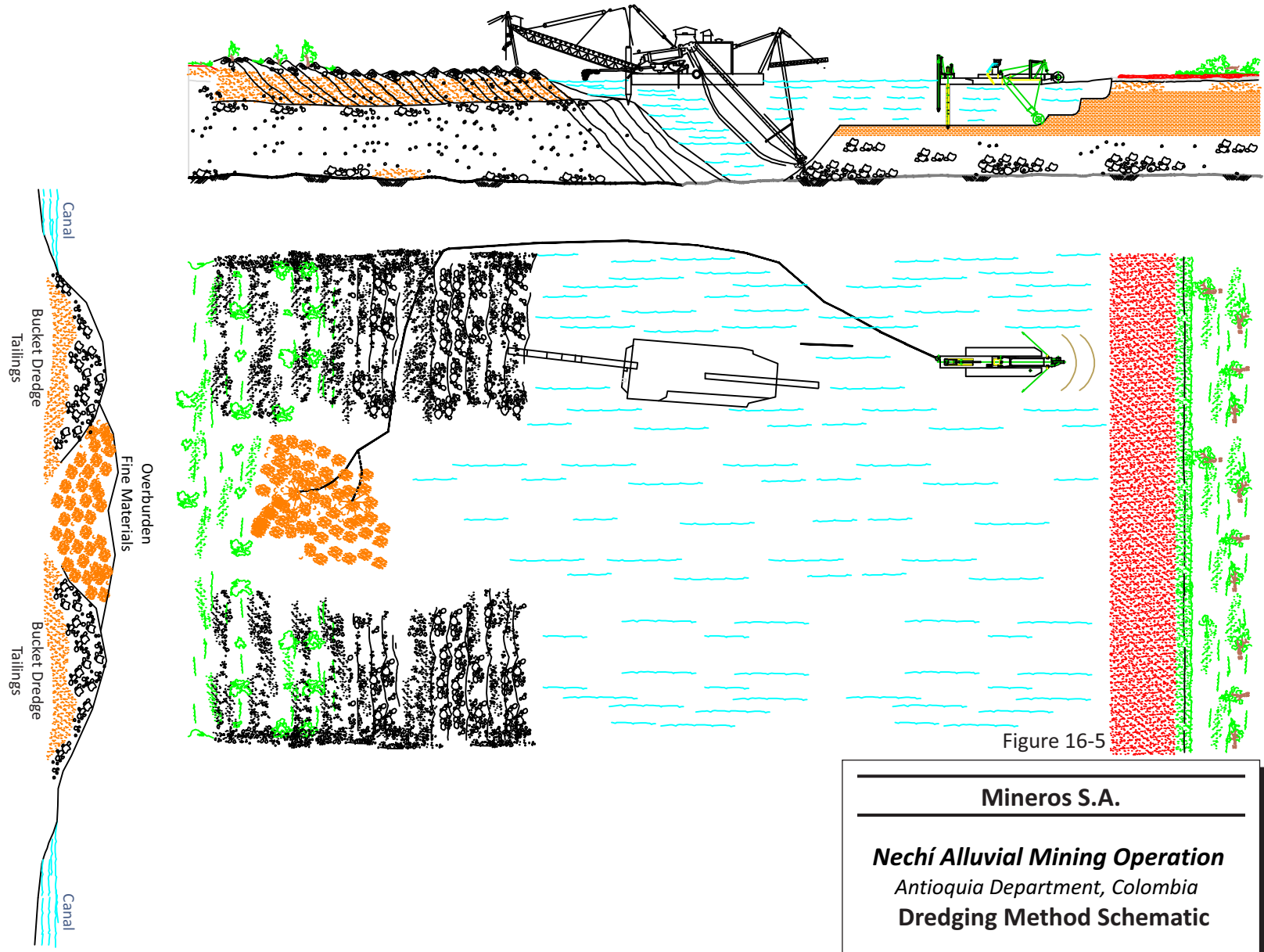


Figure 16-5

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Dredging Method Schematic**

The length of the face to be mined is a function of the geometry of the reserve block, and normally ranges from 60 m to 300 m. In turn, the face is subdivided into sectors (“cuts”) that vary from 40 m to 50 m in width. Once the dredge is anchored, the bucket arm up and both bow and stern cables in correct position, the dredging can commence.

In general, the operation consists of horizontal and vertical movements. The horizontal sweeping (“swing”) movement goes from side to side of the cut, following a circular path centred at the anchor point, with a radius equal to the length between the anchor and the end of the bucket arm. As part of short-term mine planning, the coordinates of the anchor point and the azimuth angles of each end of the face are given to the captain of the dredge.

The vertical sweeping goes from surface to the desired depth. This action is achieved by lowering the bucket arm by 0.2 m to 0.5 m beginning at one end of the cut after a horizontal sweeping pass has been completed. The arc so described is a function of the length and corresponds to a circumference centred in the upper drum, where the bucket arm swings, and the end of the arm. Once the planned depth is reached, the dredge can advance forward or move laterally to a new cut. The forward advance depends on the type of material to be dredged and generally is from one metre to three metres.

Displacement is the lateral advance that the dredge makes going from one cut to the next. For this operation, the anchor must be raised and then, with the help of the bow and stern cables, the dredge is moved at one kilometre per hour to a new position. Generally, two or three movements of this kind are required per cut before moving to the next one.

During the dredging operation, good anchorage is crucial to prevent the dredge moving backwards while digging. Proper anchorage is aided by tailings disposal. A portion of the coarse tailings (+ $\frac{3}{8}$  in., or +9.5 mm) is split from the main tailing conveyor and deposited behind the hull near the anchor position to consolidate a good base. The balance of coarse gravel is deposited behind the dredge, forming small round mounds separated by two metres to three metres, reflecting the movements of the dredge. The processed -9.5 mm tailings are deposited several metres behind the stern through discharge channels located port and starboard. The operation of the dredge is conducted to allow the construction of two parallel tailings structures, with clay from the suction dredge deposited between them.

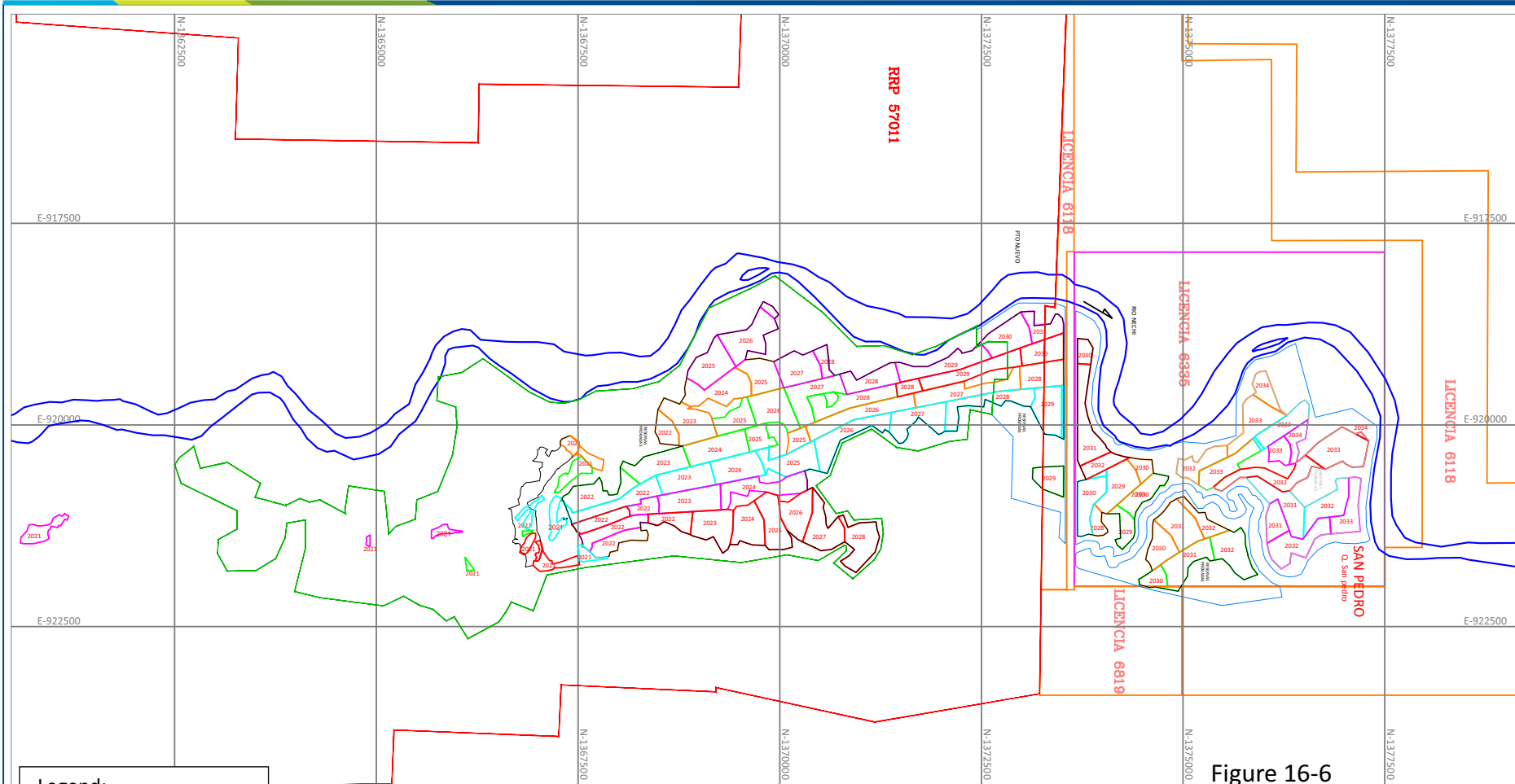
Dredges operate on water and must have access channels and ponds linked to the main Nechí River prior to the exploitation of a reserve block.

Due to the suction dredge removing the barren sediments overlying the pay gravel, it is not possible to mark the limits of the face and cuts as is done for hard rock mining. To delineate the blocks to be removed, all control points are given in coordinates that are followed by on-board GPS instrumentation. The bucket line dredges are equipped with all the necessary instrumentation to assist the dredge captain in directing the movements of the dredge during the extraction of the gravel.

The dredge operator plots each movement in a special form, indicating actual coordinates of anchor, depth, and azimuths. With this information, the Engineering Department calculates the dredged volumes and plots the actual removed material on a daily basis.

A summary of the LOM plan for the bucket line dredge alluvials is shown in Figure 16-6, while a LOM plan for the suction plain and terrace alluvials is shown in Figure 16-7.





- Legend:**
- Dredge No. 3
  - Dredge No. 5
  - Dredge No. 10
  - Dredge No. 14
  - Dredge No. 16
  - Dredged Areas

Figure 16-6

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Life of Mine Plan –**  
**Bucket Line Dredge Alluvials**

September 2021

Source: Mineros S.A., 2021

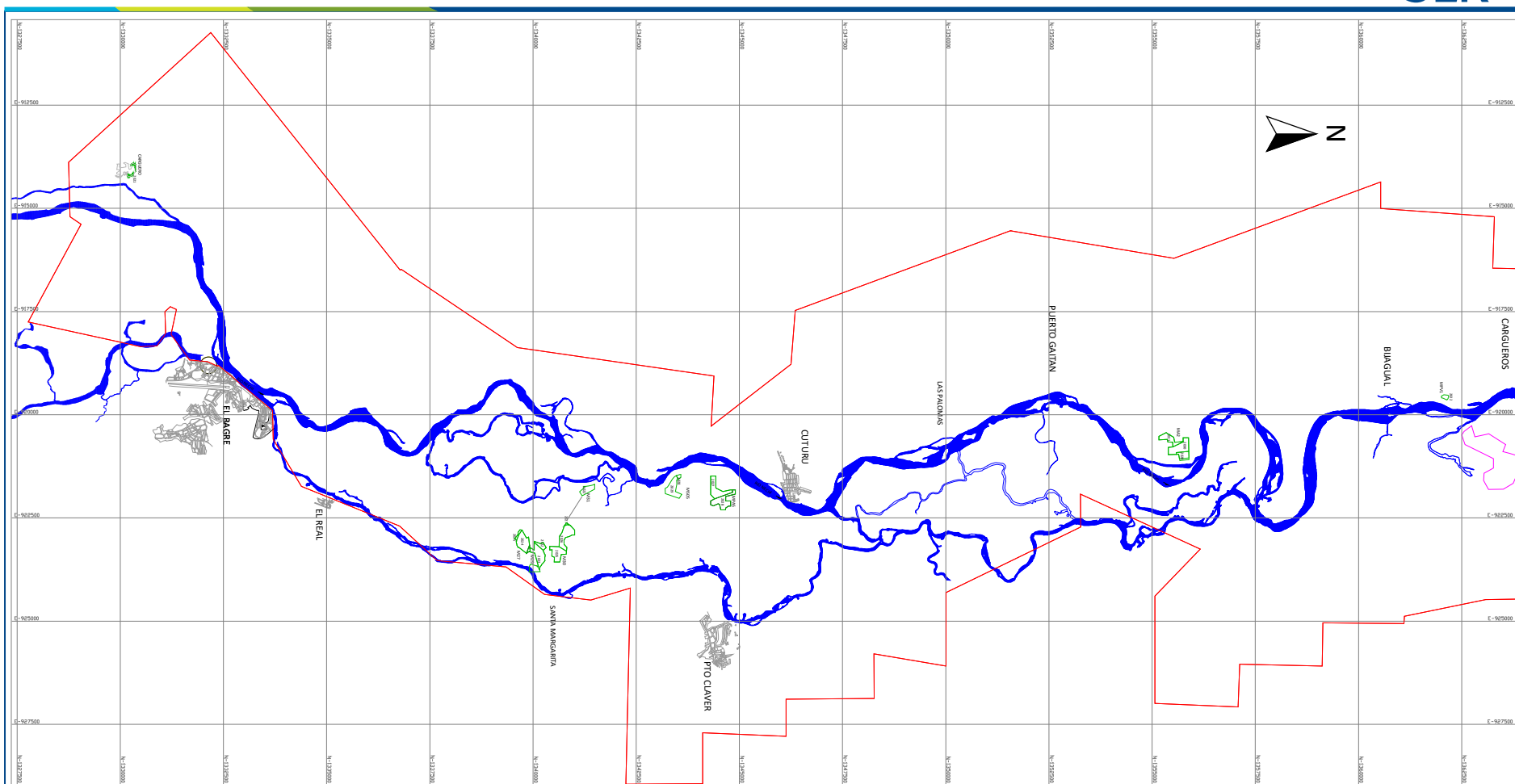


Figure 16-7

**Legend:**

- Concession Limit
- Other Reserves

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Life of Mine Plan -**  
**Suction Plain and Terrace Alluvials**

## 16.2 Mining Equipment

### 16.2.1 River Dredges

Mineros currently has five bucket line dredges in operation, numbers 3, 5, 10, 14, and 16 as shown in Table 16-1. Each production unit works with one of seven suction dredges shown in Table 16-2.

**Table 16-1: Bucket Line Dredge Production Units  
Mineros S.A. - Nechí Alluvial Property**

Item	Bucket Line Dredges				
	Dredge No. 3	Dredge No. 5	Dredge No. 10	Dredge No. 14	Dredge No. 16
Name	Jobo	Boyaca	Dobaibe	Santa Paula	Santa María
Model	Yuba	Yuba	Yuba	Natomas	Yuba
Year of Construction	1936	1938	1938	1936	1939
Year of Rebuild	2010	2014	1980	2004	2008
Year Purchased	1937	1938	1975	1979	2007
Total Length (m)	105.3	109.48	143	123	114
Length of Hull (m)	47.98	50.38	76.4	52.05	52.4
Width of Hull (m)	30.28	22.56	24.38	21.39	25.3
Depth of Hull (m)	3.05	3.35	3.35	3.35	3.05
Length of Arm (m)	47.56	47.55	58.52	52.21	48
Number of Buckets	103	103	125	110	103
Dredge Capacity (m <sup>3</sup> /min)	30	30	30	30	30
Single Bucket Volume (m <sup>3</sup> )	0.39	0.39	0.39	0.39	0.39
Bucket Line Velocity (rpm)	8.25	8	7.39	9.55	8.25
Rotary Screen Size (m)	2.44x14.63	2.44x14.63	2.74x16.25	2.97x16.25	2.44x14.63
Dredge Depth Range (m)	26	28.5	30	28	26.5

**Table 16-2: Suction Dredge Production Units  
Mineros S.A. - Nechí Alluvial Property**

Item	Suction Dredges						
	Dredge No. 11	Dredge No. 12	Dredge No. 13	Dredge No. 15	Dredge No. 17	Dredge No. 18	Dredge No. 19
Name	Yamesí	Bijugüal	Mayaba	San Lucas	Los Ángeles	San Martín	San Pedro
Model	IHC	IHC	IHC	IHC	IHC	IHC	IHC
Year of Construction	1992	1994	1998	2004	2004	2012	2012
Year of Rebuild	2010	N/A	N/A	N/A	2017	N/A	N/A

Item	Suction Dredges						
	Dredge No. 11	Dredge No. 12	Dredge No. 13	Dredge No. 15	Dredge No. 17	Dredge No. 18	Dredge No. 19
Year Purchased	1992	1994	1998	2004	2008	2013	2013
Total Length (m)	25.15	29.5	29.5	25.15	26.5	43	43
Width of Hull (m)	7.98	8.39	8.39	7	9.2	9.49	9.49
Depth of Hull (m)	1.46	1.8	1.8	1.46	1.46	2.48	2.48
Suction Head Diameter (mm)	350	450	450	350	609.6	550	550
Discharge Head Diameter (mm)	450	500	500	450	558.6	550	550
Dredge Depth Range (m)	12	12	12	12	14	18	18

In addition to the bucket line and suction dredges used to mine the deeper portion of the alluvials, Mineros commissioned two new wheel cutter suction dredges to its fleet in 2020, dredge No. 20 and dredge No. 21, to mine the shallower plain alluvials. Dredge No. 20 is used to remove the overburden down to a depth of 15 m. Dredge No. 21 mines the pay gravel down to a depth of 28 m and feeds the “Llanuras” plant. The general specifications of these suction dredges are shown in Table 16-3.

**Table 16-3: Wheel Cutter Suction Dredge Production Units  
Mineros S.A. - Nechí Alluvial Property**

Item	Suction Dredges	
	Dredge No. 20	Dredge No. 21
Name	Bijao	Marianito
Model	IHC	Rohr IDRECO
Year of Construction	2020	2020
Year of Rebuild	N/A	N/A
Year Purchased	2020	2020
Total Length (m)	26	44.5
Width of Hull (m)	7	8.6
Depth of Hull (m)	1.5	2
Suction Head Diameter (mm)	450	432
Discharge Head Diameter (mm)	450	432
Dredge Depth Range (m)	15	28

Dredge No. 20 “Bijao” is a suction dredge from the same manufacturer as the overburden stripping suction dredges, Royal IHC. The dredge is 34.8 m long (26.0 m long pontoons), 7.0 m wide, and has a hull depth of 1.5 m. The dredge utilizes an IHC HRCS2 submerged dredge pump with installed power of 400 KW and a suction and discharge diameter of 450 mm with a capacity of 0.2 m<sup>3</sup>/s to 1.1 m<sup>3</sup>/s. The dredge utilizes a 2.4 m IHC BW2410 bucket cutter wheel diameter that rotates in the range of 0.0 rpm to 18.6 rpm and is powered by a Häggglunds CB400-360 hydraulic motor. It has a dredging arm that can reach a depth of 15 m that is raised by a 72 kN IHC Hytop HWH72 winch.

Dredge No. 20 removes overburden (gold-free material such as rocks, sands, clay, silts) that is at a depth of between 4 m and 15 m, by using cutting and suction. The overburden material is transported through an on-board metal pipeline and a floating pipe of high-density polyethylene, bringing the dredged material to its final disposal in a tailings area. The location of the tailings area is approximately 200 m to 800 m from the dredge. The dredge has two cylindrical anchors 560 mm in diameter and approximately 19 m in length. A movable anchor, called a dredging anchor, is responsible for carrying out the forward and reverse movements of the dredge. This dredge is not self-propelled, so for its movement between work areas it must be towed with boats.

During the dredging operation this dredge has three degrees of freedom in the position of the dredge wheel:

- Forward and reverse movement produced by the dredging anchor.
- Deepening and lifting movement produced by lifting and deepening of the dredging ladder using the ladder winch.
- Lateral movement using a parabolic type of short travel using the winches that are positioned at the bow at the starboard and port side of the dredge.

The No. 20 and 21 dredges are shown in Figure 16-8.



No. 20



No. 20, No. 21 and Plant

**Figure 16-8: Dredge No. 20 and 21**

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Dredge No. 21 “Marianito” is a suction dredge manufactured by ROHR IDRECO that uses an IDRECO IDP450 submersible dredge pump. The dredge is 52.8 m long (44.5 m long pontoons), 8.6 m wide, and has a hull depth of 2.9 m. Material is suctioned through a 432 mm diameter pipe and discharged through a 381 mm pipe using a 750 kW electric motor with an average dredging capacity of 2,700 m<sup>3</sup>/h for gravel and 2,500 m<sup>3</sup>/h for sand (approximately 540 tonnes per hour (tph) of solid material). The dredge is equipped with two cutter wheels that contain fourteen 2.5 m diameter buckets that are powered by a 180 kW Hägglunds hydraulic motor. The dredge has a dredging arm that can reach a depth of 28 m that is raised by a 147 kN winch.

Dredge No. 21 removes pay gravel (gold-bearing material) that is at a depth of between 15 m and 28 m, by using cutting and suction. Material is transported through an on-board metal pipeline and through a high polyethylene floating pipe density bringing dredged material to a floating mill named the “Llanuras Plant” for the first stage of mineral extraction by means of pressurized Gekko jigs.

The configuration of the No. 21 dredge is shown in Figure 16-9.

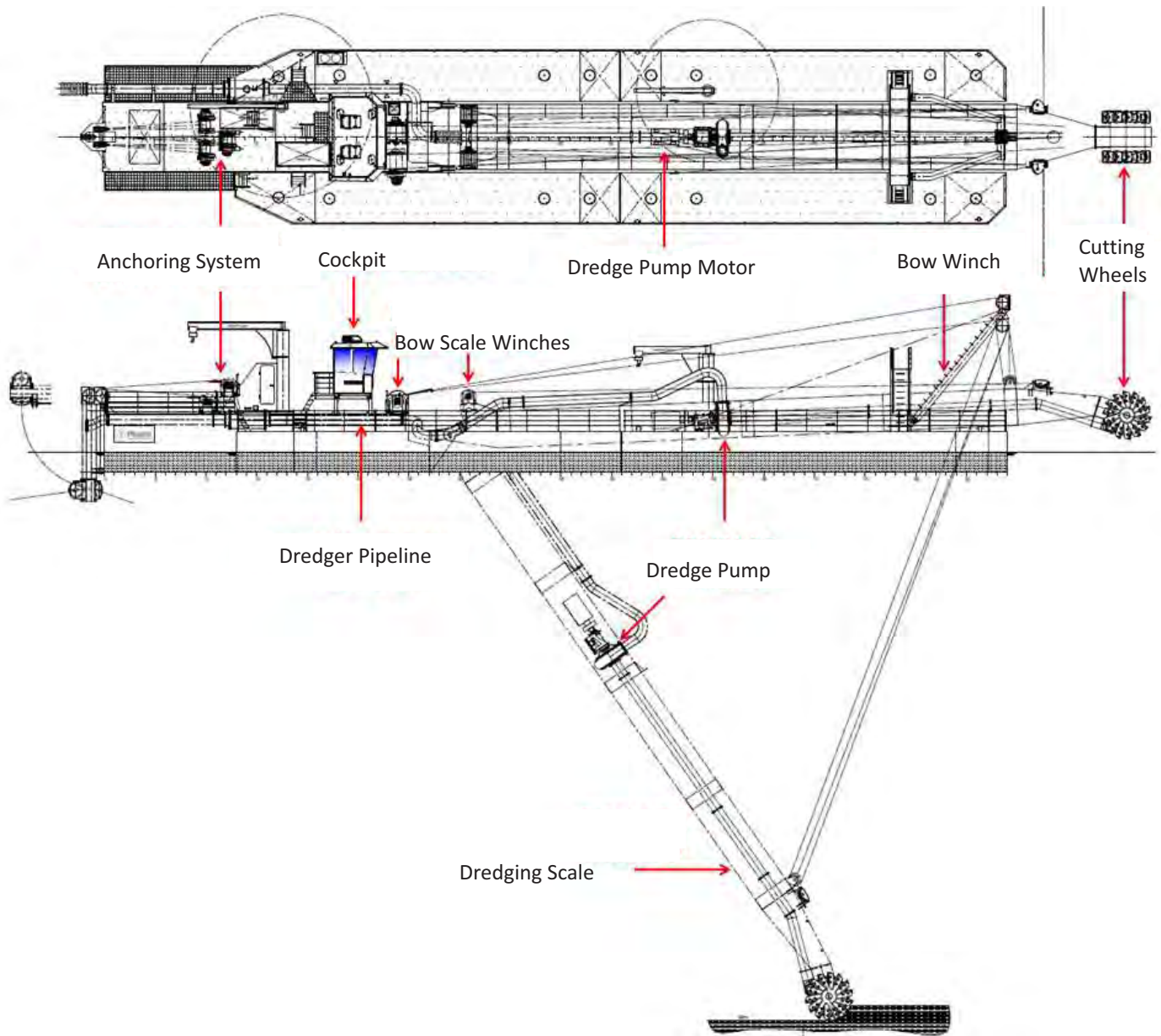


Figure 16-9

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Configuration of Dredge No. 21**



In 2020, six “Brazilian” type of dredges were employed to mine the river alluvial plain resources and old tailings (Figure 16-10). In 2021, a seventh dredge saw limited use. Mineros plans to use 12 Brazilian dredges in the mining of the current reserves. Of these, Mineros owns one, and eleven are operating under contract. All crews are contracted. General specifications of the Brazilian dredge are shown in Table 16-4.

**Table 16-4: Brazilian Suction Dredge Units  
Mineros S.A. - Nechí Alluvial Property**

Item	Brazilian Dredges General Specifications
Model	Damen CSD250
Year of purchase	2020
Total length (m)	24
Width of hull (m)	13
Depth of hull (m)	1.8
Suction head diameter (mm)	460
Discharge head diameter (mm)	500
Dredge depth range (m)	24
Dredge arm width range (m)	20
Cutter head diameter (mm)	915
Cutter head area (m <sup>2</sup> )	0.66
Advance/rotation (m)	0.15
Advance/min. (m)	4.5
Production rate (m <sup>3</sup> /h)	160

After removal of the vegetation and topsoil using a bulldozer and overburden waste clays and sands by wheel cutter suction dredge, mining of the underlying gravels is carried out by the Brazilian dredge using a suction rotary cutter head. The dredge uses the extended cutting arm against the face of the gravels while maintaining the wall at approximately 60° for stability. Pay gravel is loosened and extracted by a dome-shaped cutter head constructed of five toothed conical sheets rotating at 30 rpm. Material and water enter the suction pipe nozzle in the centre of the cutter head and is pumped by the on-board solids pump through the suction pipe to be discharged to a grizzly at the head of the on-board recovery plant. The 600 HP solids pump is 18 in. x 20 in. with an installed capacity of 160 m<sup>3</sup>/h and an operating efficiency of 80%. Recovery plant tailings are placed behind the dredge and used as a backstop for support.

The rotary cutter head permits the Brazilian dredge to strip and mine from surface down and the on-board recovery plant gives it the compactness and flexibility to work small areas and mine old tailings and terraces as well as the alluvial plains. As such, areas that are too small and up-river of current large blocks of bucket line mining reserves, and are thus uneconomic to remobilize and mine by the production units, are recoverable.



**Figure 16-10: Brazilian Dredges**

In 2020, Mineros began mining the Cargueros block of circa 1945 Pato Consolidated dredging tailings located west of El Bagre on the west bank of the Nechí River. Mining is by barge-mounted extended-reach Caterpillar 336DL excavator backhoe capable of digging 86 m<sup>3</sup>/h to feed a trailing floating processing plant operating in a closed pond independent of the Nechí River (Figure 16-11). The excavator is equipped with 0.8 m<sup>3</sup> bucket and can dig to 12 m depth.



**Figure 16-11: Floating Excavator/Plant Mining Cargueros Dredge Tailings**

### 16.2.2 Heavy Equipment

The operations support equipment includes track excavators, amphibious backhoes, track bulldozers, wheel backhoes, and mobile cranes (Table 16-5). Figure 16-12 shows a dredge and some of the support equipment.

**Table 16-5: Alluvial Mining Heavy Equipment  
Mineros S.A. - Nechí Alluvial Property**

Equipment	Type	Model	Make	Units
Excavator	Track	220LC	Hyundai	1
Excavator	Track	320DL	Caterpillar	3
Excavator	Track	320L	Caterpillar	1
Backhoe	Amphibious	320DL	Caterpillar	5
Bulldozer	Track	D65EX	Komatsu	2
Bulldozer	Track	D51PX	Komatsu	1
Crane	Wheel	25 ton	Grove	1



**Figure 16-12: Heavy Equipment**

### 16.2.3 Stationary Cranes

There are flexible arms (guy cables) and rigid arm (steel truss) stationary cranes at the industrial port facility (Table 16-6).

**Table 16-6: El Bagre Stationary Cranes  
Mineros S.A. - Nechí Alluvial Property**

Type of Crane	Location	Model	Capacity (Tons)	Engine (hp)
Static	Port	Mast 4 ton	4	25
Static	Operation Field	DKS 30/40	30	25
Mobile	Port	STERN ST 190	4	25
Static	Workshop	Pelligrini DKS 30/40	30	25
Mobile	Industrial Area	Grove RT 530E, 2003	15	25

### 16.2.4 River Transportation

The river equipment includes boats, canoes, and barges (Table 16-7). Boats and canoes are used for personnel and light load transportation. Barges are towed by boats and are used to transport heavy loads. Boats have a seven tonne capacity and canoes a two tonne capacity.

**Table 16-7: River Transport Equipment  
Mineros S.A. - Nechí Alluvial Property**

Type	Engine (hp)	Model	Dimensions		Units
			Length (m)	Width (m)	
Boat	200	MFB YAMAHA	7.54	1.9	19
Boat	115	MFB YAMAHA	7.54	1.9	1
Boat	150	MFB YAMAHA	7.54	1.9	2
Canoe	150	MFB YAMAHA	15	1.5	11
Canoe	115	MFB YAMAHA	15	1.5	1
Motor Launch	150	Diesel GM 671	16.67	2.82	7
Tug	150	Diesel GM 671	16.67	2.82	1

### 16.2.5 Ground Transportation

Vehicles are used for transportation inside the El Bagre compound. Transportation outside El Bagre is contracted out to third parties. A list of vehicles is provided in Table 16-8.

**Table 16-8: El Bagre Ground Transportation  
Mineros S.A. - Nechí Alluvial Property**

Vehicles	Duty	Units
Pick-Up Truck	People and loads	8
Bus	People	1
Van	People	1
Flatbed Truck	Loads	3
Truck	People and loads	3
SUV	People	3
Dump Truck	Materials	6
Ambulance	As required	1

### 16.2.6 Aerial Transportation

A helicopter is used to transport the daily concentrate production from the dredges to Mineros' final recovery facility in El Bagre. Bullion from the facility is also moved every ten days from El Bagre to the international airport at Rionegro for shipment to the buyer/refiner.

## 17.0 RECOVERY METHODS

There are four main mining methods – bucket line dredges, “Brazilian” suction dredges, the “Llanuras” production unit, and terrace mining – each with a different gold processing plant associated with it. Bucket line dredge mining utilizes on-board processing plants and three of the five bucket line dredges have barges attached with floating scavenger plants. The “Brazilian” suction dredges have on-board processing plants. The wheel cutter suction dredge mining uses a floating processing plant (the “Llanuras Plant”) that is fed from dredge No. 21. The Brazilian suction dredges employ rotating cutter heads and have sluice recovery plants on board. Terrace/old tailings mining currently utilizes a barge-mounted backhoe to feed a trailing floating processing plant, which uses gravimetric recovery units to obtain a concentrate.

Gold concentrates from the mining areas are treated in a gold recovery and smelting process in a facility and laboratory in the El Bagre complex. The processes are summarized below.

### 17.1 Bucket Line Dredge Alluvial Processing

Mineral beneficiation from the bucket line dredge consists of gravity concentration and gravity gold treatment on board the dredge. The beneficiation process is summarized below. The overall metallurgical recovery estimated for the remaining reserves averages approximately 80%. The recoveries have been estimated by Mineros and the QP considers them to be reasonable.

#### 17.1.1 Screening

The bucket line arm excavates gravel at a rate of approximately 500 m<sup>3</sup>/h and delivers it to a main hopper feeding a rotating trommel with screen at 9.5 mm mesh (3/8 in.). The oversize material is discharged by a conveyor belt behind the bucket line dredge to form backfill (tailings), with a portion dumped near the anchor to strengthen the anchor base. Ten percent of the material spills at the hopper and is caught by a screening device that discharges coarse material directly into the water, with undersize returned to the process stream. The screening stage reduces the material flow to a rate of 320 m<sup>3</sup>/h.

#### 17.1.2 Gravity Concentration

The smaller size material obtained from the trommel and the fine material caught by the catching device are both conveyed to a distributing tank that feeds the first of three gravity concentration stages. The circuit is set up as follows:

- **Primary Concentration.** Jigs process material smaller than 9.5 mm to produce two fractions at a concentration ratio of 10:1. Concentrates proceed to the next stage and the overflow, or tails, is sent to a scavenger sluice box and those tails are dumped behind the dredge. At this concentration stage, the flow of gravel is reduced to 20 m<sup>3</sup>/h.
- **Secondary Concentration.** Concentrates generated in the first stage are processed in the second gravity phase at a concentration ratio of 6:1. Concentrates pass to the next stage and tails are sent to a scavenger sluice box and then to tails. After this stage, material flow is 3.5 m<sup>3</sup>/h.
- **Tertiary Concentration.** Concentrates generated in the second stage are processed in the third gravity phase at a concentration ratio of 6:1. At this point, the process stream rate is 0.6 m<sup>3</sup>/h. Concentrate proceeds to the gold recovery area described below. Tails are returned to the secondary stage.

### 17.1.3 Dredge Final Gold Recovery

By 2014, the use of mercury amalgamation was discontinued and replaced by the use of sluice boxes, carpet tables, and spirals, for gold recovery from the jig circuit.

The concentrate from the third stage of jigs is sent to a series of sluice boxes for recovery. The tails from these sluice boxes pass over a carpet table to recover gold. Tails from the table continue to a set of spirals and a final sluice box for scavenger gold recovery. The last sluice box tails are sent to the primary scavenger sluice box. Three of the bucket line dredges currently have satellite final scavenger felt-lined sluices on barges attached to the sides of the hull at the back of the dredge. These take the tails that were previously sent to the primary scavenger sluice box and discharge to the pond.

The sluice boxes are cleaned daily to produce a concentrate weighing approximately 20 kg to 25 kg. This concentrate is sent daily by helicopter to the El Bagre metallurgical plant for final treatment and smelting.

A detailed schematic of the present beneficiation process on board the bucket line dredge is shown in Figure 17-1.

Access to the gold room is limited to few dredge personnel and a high level of security is in place for the gold recovery process. Mineros maintains sophisticated security monitoring devices along the full concentration process and armed security guards are maintained on board.

## 17.2 Suction Dredge Processing

The processing plant used in the suction dredge mining area is a floating plant fed by material from dredge No. 21, which works in conjunction with an overburden suction dredge (dredge No. 20). The process is shown below in Figure 17-2.

The suction dredge process is divided into five operations:

- Classification and Dewatering - Utilizes screens and hydrocyclones to separate the gold bearing material from large waste.
- Roughing and Scavenging - Utilizes Gekko IPJ for primary gold separation (roughing) and “Cleveland” 12 pack jig for secondary gold separation (scavenging) of the gold concentrate.
- Cleaner and Recleaner - Utilizes IPJs for first stage upgrading (cleaning), and a “Cleveland” type jig for secondary cleaning (recleaning) the gold concentrate.
- Final Concentrate Gold Recovery - Utilizes automatic and manual sluice boxes and spirals to maximize gold recovery from the concentrate.
- Final Gold Recovery - Utilizes a manual sluice box, and a magnetic separator to remove magnetic materials from the remaining gold concentrates, before being shipped in 20 kg containers to the El Bagre metallurgical plant.

## 17.3 Brazilian Dredge Processing

The on-board processing plant used on the Brazilian dredge employs a grizzly and Brazilian mat sluices to concentrate gold bearing black sands which are transported to the El Bagre metallurgical plant for final processing (Figure 17-3). The Brazil suction dredge gold recovery process is as follows:

- Classification of 160 m<sup>3</sup>/h of suctioned material by discharge to a 1” grizzly to separate the -25 mm gold bearing fraction from large waste. The screen undersize and suctioned pulp water reports for gravimetric concentration.

- Gravimetric concentration of 70% the gold bearing heavy mineral sands by means of 12-one metre wide sluices lined with Brazilian mats for gold recovery.
- The grizzly oversize and sluice tailings constitute 99.7% of the mined material and are discarded to the pond behind the dredge.
- Clean-up of the sluice concentrates is done after every 20 hours of operation with the concentrate being shipped in 20 kg containers to the El Bagre metallurgical plant.

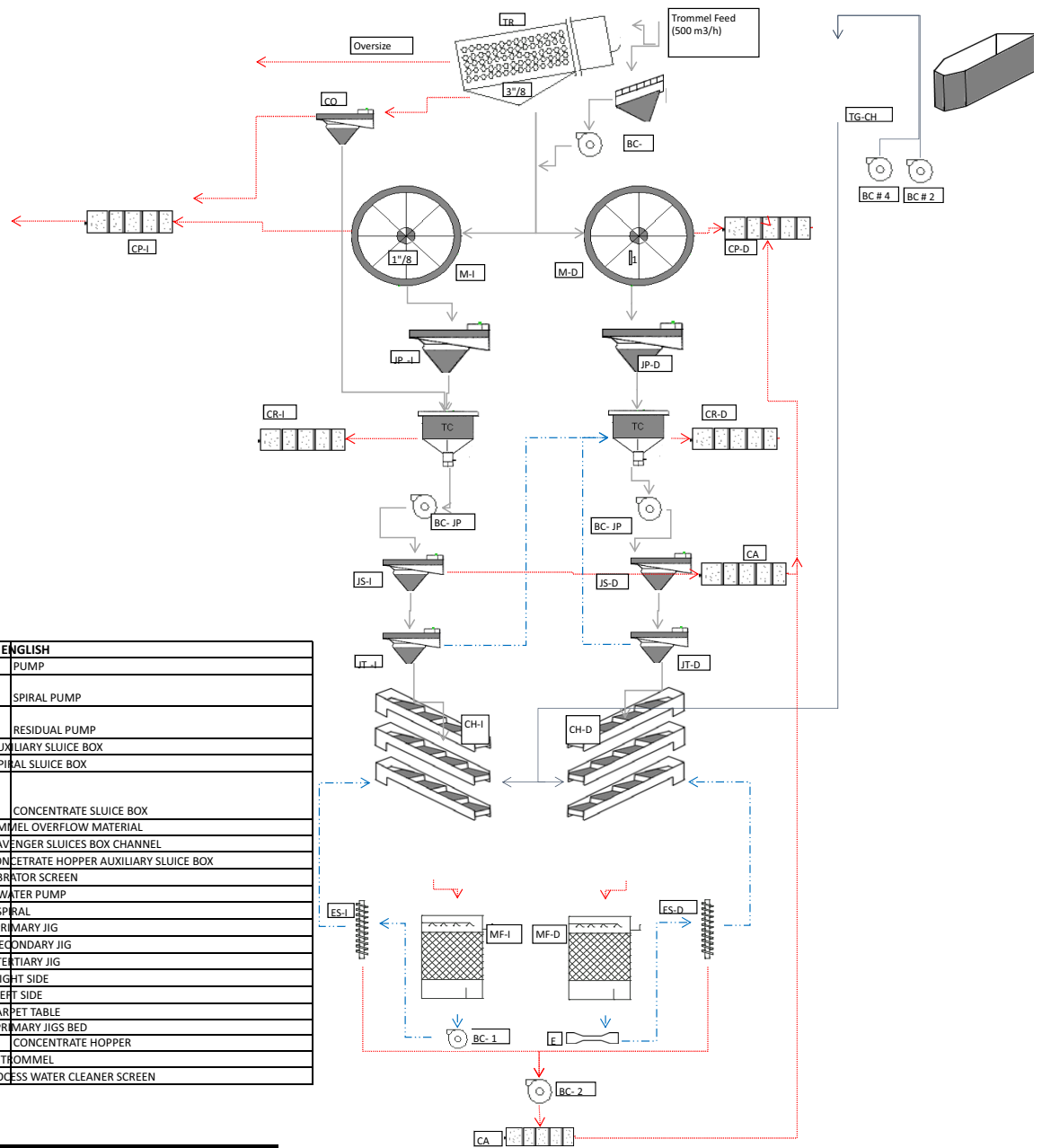
## 17.4 Terrace/Old Tailings Processing Plant

The terrace processing plant operating at the Cargueros site is fed with material recovered from the underflow of a rotating trommel screen capable of processing up to 120 m<sup>3</sup>/h. The trommel is fed by the excavator backhoe, in operation 24 hours a day.

The floating plant has a primary material receiving hopper, with the material passing through a trommel where it is dispersed with high pressure water. Material is filtered through perforations in the trommel, and passes through recovery and discharge gutters, obtaining feed for further processing. The trommel oversize is removed from the end of the trommel by a conveyor belt.

The material from the trommel is sent to a secondary process area utilizing sluice boxes and felt gold blankets for gold recovery.





	SPANISH	ENGLISH
BC	BOMBA	PUMP
BC-1	BOMBA ESPIRAL	SPIRAL PUMP
BC-2	BOMBA RESIDUAL	RESIDUAL PUMP
CA	CANALON AUXILIAR	AUXILIARY SLUICE BOX
CE	CANALON ESPIRAL	ESPIRAL SLUICE BOX
CH	CANALON HIDRÁULICO	CONCENTRATE SLUICE BOX
CO	MATERIAL OLSON Y BABERO	TROMMEL OVERFLOW MATERIAL
CP	CANALON PERIMETRAL	SCAVENGER SLUICES BOX CHANNEL
CR	CANALON REBOCE	CONCENTRATE HOPPER AUXILIARY SLUICE BOX
CV	CRIBA VIBRATORIA	VIBRATOR SCREEN
E	ELEVADOR	WATER PUMP
ES	ESPIRAL	SPRAL
JP	JIG PRIMARIO	PRIMARY JIG
JS	SECUNDARIO	SECONDARY JIG
JT	TERCIARIO	TERTIARY JIG
D	LADO DERECHO	RIGHT SIDE
I	LADO IZQUIERDO	LEFT SIDE
MF	MESA DE FELPAS	CARPET TABLE
M	MESA DE ARENA	PRIMARY JIGS BED
TC	FANQUE CONCENTRADO	CONCENTRATE HOPPER
TR	TROMMEL	TROMMEL
TG	FANQUE DE GRAVEDAD	PROCESS WATER CLEANER SCREEN

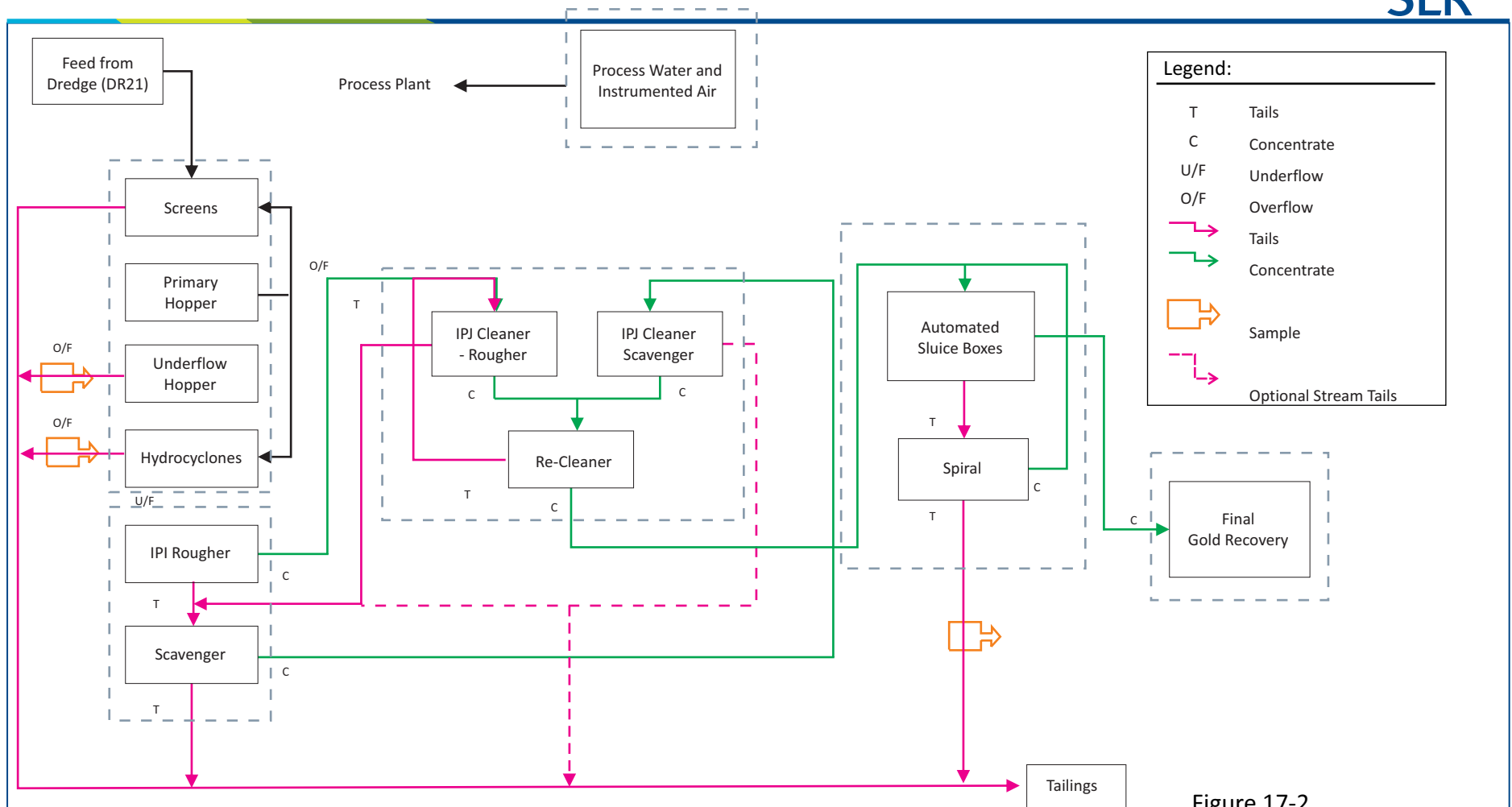
Lines	
Tails	→
Concentrate	→
Recirculation	→
Process Water	→

Figure 17-1

**Mineros S.A.**

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**Nechí Alluvial Mining Operation**  
*Antioquia Department, Colombia*  
**Bucket Line Dredge Process**  
**Flowsheet**



**Legend:**

- T Tails
- C Concentrate
- U/F Underflow
- O/F Overflow
- Tails (pink arrow)
- Concentrate (green arrow)
- Sample (orange arrow)
- - - Optional Stream Tails (dashed pink arrow)

Figure 17-2

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**Llanuras Process Plant**

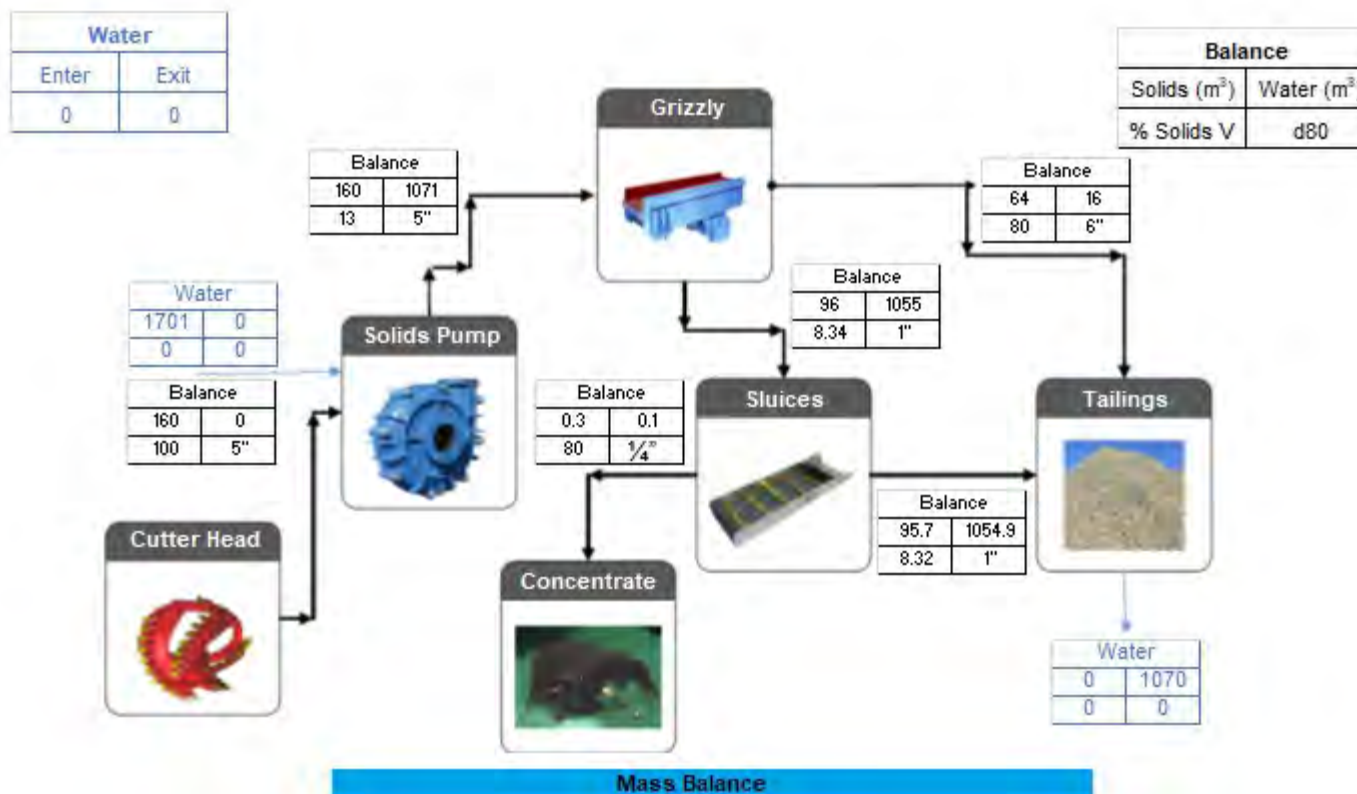


Figure 17-3

**Mineros S.A.**

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***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*

**Brazilian Dredge  
 Process Flowsheet**

## 17.5 El Bagre Metallurgical Plant

Gold concentrate from the dredges is flown by helicopter daily to the metallurgical plant at Mineros' El Bagre complex, for final gold recovery and smelting.

Figure 17-4 shows the process flowsheet for the final gold recovery plant.

The received concentrate is deposited on a vibrating screen which splits the feed using a +/- 20 mesh. The +20 mesh material is sent to a sluice box for gold recovery and the resulting tails are pumped out.

The -20 mesh material is sent to two stages of angular rotating tables, with the recovered gold concentrate going to a drying and magnetic separation step, after which the final gold concentrate is sent for smelting.

The tails from the angular rotating tables are sent to a three stage gold recovery circuit. Each of the stages consists of a gravity gold concentrator, with the primary and secondary circuit having spirals and the third, a sluice box following the gravity concentrator. The concentrate from the gravity concentrators and spirals is returned to the primary angular rotating table. The tails from the final circuit are sent to a flotation step for final gold scavenging.

A quantity of recovered gold, mixed with borax and sodium nitrate (approximately equivalent to one gold bar (ingot) is fed into in a preheated furnace at 1,000°C.

Melted gold from the furnace is poured into a mould and, once cooled, is hammered and cleaned by steel brush to remove slag adhering to its surface. Once the bar is cleaned and dry, small samples are drilled and analyzed in the laboratory by conventional fire assay to determine the gold and silver content (fineness) of the bar. Bars are weighed, and stamped with the company name, number of the bar, and weight in grams and ounces. Finally, the bars are packed and flown by helicopter to Río Negro and then shipped overseas.

The weight of the bars is approximately 19 kg, and the composition is 90% Au, 9% Ag, 1% Fe, and traces of platinum.

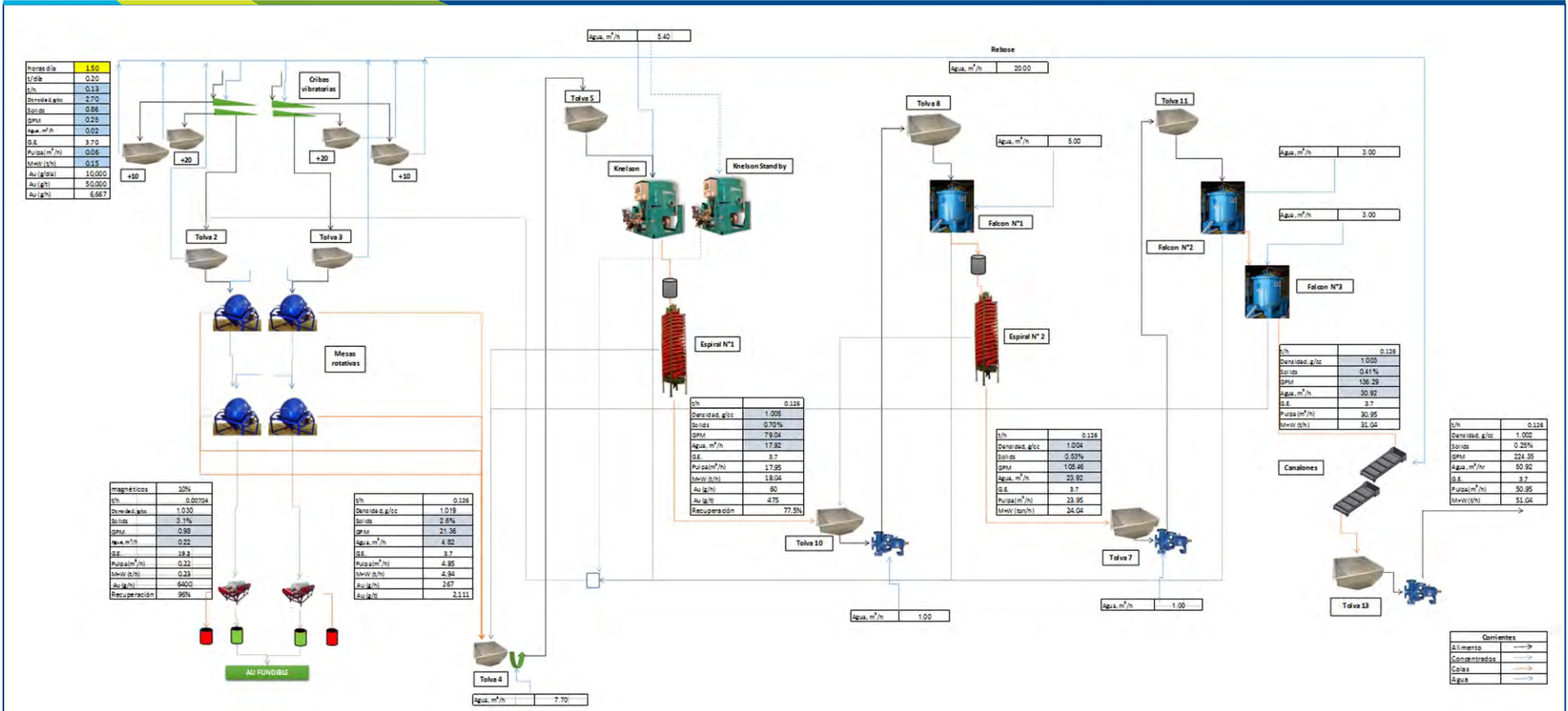


Figure 17-4

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*

**El Bagre Metallurgical  
Plant Process Flowsheet**

## 18.0 PROJECT INFRASTRUCTURE

Mineros' base of operations for the Nechí Alluvial Property is established as a complex adjacent to the municipality of El Bagre. El Bagre is located on the southeast riverbank of the Nechí at its confluence with the Tiqui River. The El Bagre complex includes a secure working compound consisting of offices for administration, engineering, exploration, health and safety, as well as a gold smelting facility and assay laboratory, maintenance/fabrication shops and warehouses, port facilities, helicopter hangar and pads, fuel stations, a diesel power generation plant, water supply and treatment system, and an unsecured area of restaurant/recreational complexes, hospital, and employee and guest housing. The working compound is secured by gates and security personnel and occupies 6.4 ha. The general layout is shown in Figure 18-1.

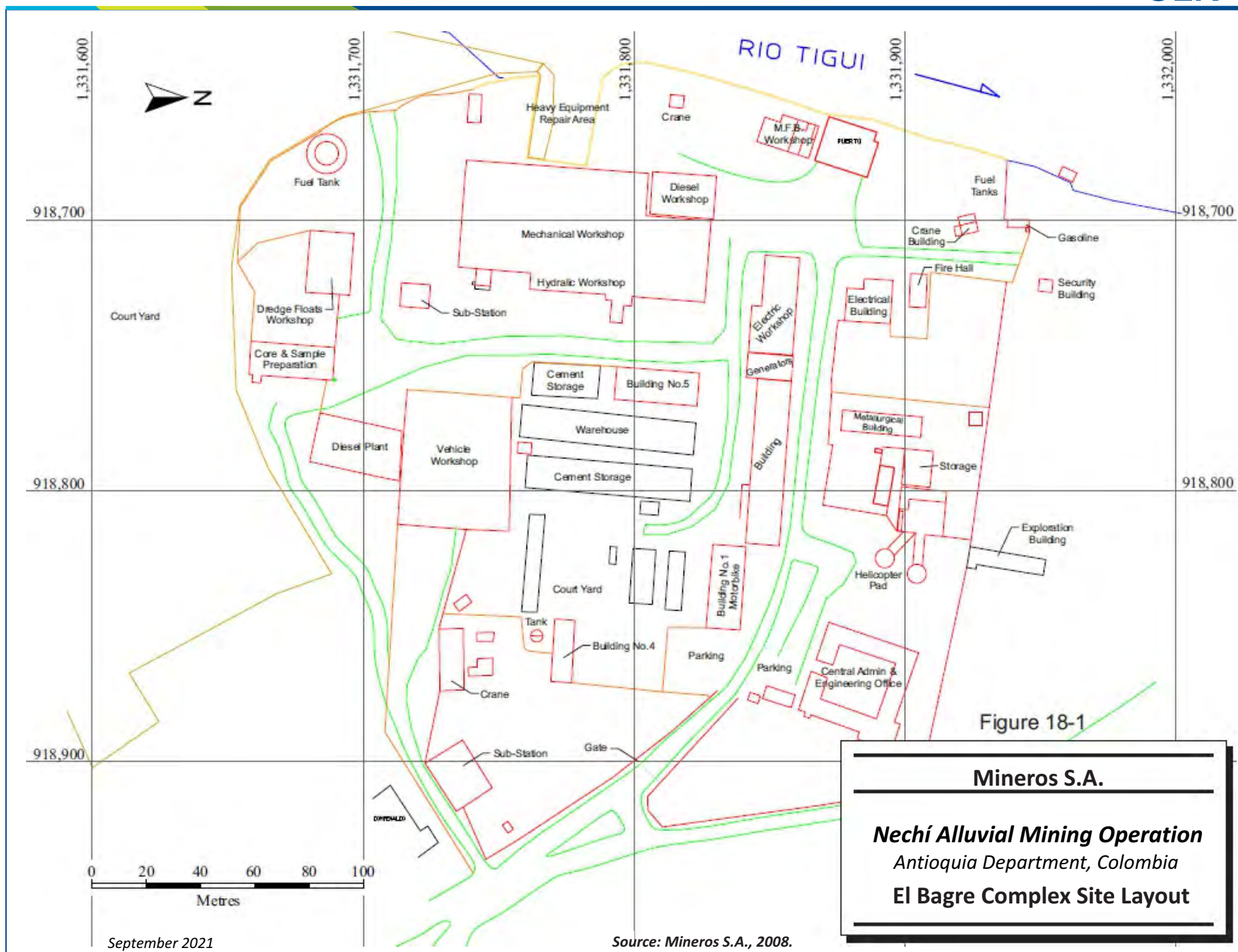
The administration building houses the Operation Manager's office and several departments, including engineering, maintenance, research and development, administration, energy, and human relations. Adjacent buildings provide accommodation for Mineros personnel. The gold smelting/laboratory building and the helicopter pad are nearby.

The maintenance shops are organized into three departments:

- Mechanical and Hydraulic
- Electrical
- Transport

The mechanical department provides maintenance and repair services to the dredge operating units, fabricating approximately 50% of the parts needed for the Nechí Alluvial Property. An important task of the shop is to repair buckets for the dredges.

The electrical department repairs electrical motors and is responsible for electrical installations; it also has an instrumentation unit. A warehouse dedicated to electric motor storage is located at the electrical shop.



**Mineros S.A.**  
***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**El Bagre Complex Site Layout**

September 2021

Source: Mineros S.A., 2008.

The transportation unit has a motor warehouse and yard, a diesel shop, a vehicle shop (run by third parties), and an outboard engine shop.

Although most of the facilities were built in the 1950s by Pato Consolidated, SLR observed that all facilities were operational and that safety measures and control procedures were in place at all locations.

The warehouse department is responsible for spares and consumables for the Nechí Alluvial Property. There are four warehouses: warehouses 1, 4, and 5 and a General Storage Deposit. In addition to these buildings, there are three yards and four other areas to store parts and supplies. Of the general inventory, 67% is dredge parts and 14% is hardware. Materials in the warehouse are classified as strategic materials, warning strategic materials, and replacement materials. There is a second group that includes materials that are ordered only when requested, as well as materials that are required occasionally or when a new project is initiated. Two percent of the materials for operations are bought in El Bagre, 90% is purchased in other parts of Colombia, and 8% is imported.

The residential area of the El Bagre complex covers 224.9 ha and has the appearance of a large natural park rather than a mining camp. The buildings and facilities are spread out and there are trees and flowers everywhere. Housing includes family living quarters, singles accommodations, and guest houses. Club Bellavista, a social club, includes a restaurant, bar, tennis courts, swimming pool, gym, and pool hall. There are several soccer fields and other sports facilities located in the residential area.

Franklin Hospital has an area of 1,878.1 m<sup>2</sup>, with 20 beds, an operating room, maternity room, and pharmacy. In 1996, the operation of the hospital was handed over to the *Dirección Seccional de Salud de Antioquia*, a state health institution. Another former Mineros health unit at El Bagre is managed by the same institution.

El Tomin airport is west adjacent to the Mineros residential area and occupies an area of 200 m by 1,350 m, or 27 ha. The 700 m blacktop runway runs N5°E and is 12 m wide, offering access for light and short take off and landing (STOL) aircraft only. The airport facilities were originally owned by Mineros, however, were turned over to the municipality of El Bagre.

The port is adequate for the maritime needs of Mineros and is well equipped with moveable docks, cranes, and a fuel supply. The port is very active, with barges and high-speed boat traffic intense at peak hours, as alluvial mining operations are serviced mainly by water.

## 18.1 Potable Water Supply System

The El Bagre complex is serviced by a potable water supply system, which consists of an intake, an aqueduct, and a treatment plant. The intake is located at Villa Creek, a tributary flowing into the Nechí River. The facility has two 40 hp pumps that raise water 42 m and deliver it at 13 L/s via a 10 in. diameter pipe to the treatment plant, a distance of 1.7 km.

The water treatment plant is located 800 m east of the camp and contains a sedimentation tank, and filtering and storage units. Water is pumped to the storage unit into a 75.6 m<sup>3</sup> elevated tank from where it is distributed to users via a pipe network. Users located in higher zones are fed by 5 in. and 3 in. diameter pipes and users located in lower zones are fed by a 10 in. pipe. The system is designed for a capacity of 400 L/person/day, sufficient for 5,000 persons. Actual water consumption is 2,000 m<sup>3</sup>/day.

Water quality controls are stringent; pH and residual chlorine are measured every hour. Filtering capacity is 37.8 L/s.



## 18.2 Industrial Water Supply

Industrial water is pumped from the Tiqui River into a 34 m<sup>3</sup> elevated tank by a floating pump at a rate of 25.2 L/s. The industrial network feeds the fire protection system at 0.5 L/s, the sand processing at the laboratory at 1.0 m<sup>3</sup>/h, and the bucket cooling at the shop at 0.25 m<sup>3</sup>/min. The industrial water consumption is 2,880 m<sup>3</sup>/month.

## 18.3 Sewage

The sewage system is available for the entire camp. The system has grease traps, septic tanks, and filtration nets. In higher areas where houses are spread out, septic tanks are located so that one tank serves several houses. Isolated houses, such as the manager's house, have their own septic tank. In lower areas, with a higher house density, there are several larger tanks. All tanks are periodically emptied and cleaned, and sludge is used as fertilizer in green areas.

## 18.4 Solid Waste Management

A controlled access complex exists in which waste management activities occur. This area has separate facilities for hazardous waste storage prior to removal and disposal at licensed facilities, storage of materials that will be recycled, organic materials storage, and lined landfill disposal cells for domestic waste. The landfill wastes are compacted weekly and covered with an interim cover every two weeks.

## 18.5 Electric System

The El Bagre complex electrical infrastructure consists of the Providencia hydroelectric plant, a main substation (2.4 kV/44.0 kV) located at the plant, a 44 kV transmission network from the power plant to the distributing substations, several voltage reducing substations (44.0 kV/7.2 kV), distribution networks at 7.2 kV for the different users, and 7200/440/220/110 distribution substations in the dredge production units. The system is backed up by two diesel emergency systems, one at Bijagual (three diesel generators), and the other in the El Bagre Industrial Zone (five diesel generators, only two operable).

The Providencia power system has two plants:

- Providencia I - 5 m<sup>3</sup>/s water intake, length of 3.8 km, head of 208 m. The powerhouse is on surface, with five generators powered by Pelton turbines, four with a 2.5 MVA capacity and a fifth at 4.5 MVA. Combined capacity is 15 MVA with a basic generation of 9.4 MW at 2,300 V.
- Providencia III - 14 m<sup>3</sup>/s water intake, length of 4.0 km, head of 87 m. The power house has two Pelton generators, each with a capacity of 7 MVA, capable of generating 10 MW at 4,160 V.

Power is transformed in the substation to 44 kV. Power is transmitted from the plant to the users by a transmission network consisting of two parallel lines supported by steel lattice towers of variable height from 6 m to 20 m. The length of the transmission line from the plant to the most remote substation is approximately 87 km. Figure 18-2 shows the El Bagre electrical distribution system.

The high voltage network feeds three substations (S/T): Río Viejo S/T, the Industrial area S/T, and Bijagual S/T. At the substations, the voltage is reduced from 44.0 kV to 7.2 kV by means of 1,600 kVA transformers. From the substations, 7.2 kV lines, ranging from 0.5 km to 4.5 km long, feed each of the consumption points: dredge production units, camp, shops, aqueduct, etc.

Dredge production units are fed from the Río Viejo S/T. From this substation, temporary transmission lines approximately 4.5 km in length are built to a last still post, and from this point an approximate 600

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m long, 15 kV insulated (submarine type) cable is laid to bring power to the dredges. The dredges are equipped with transformers to further reduce the voltage to industrial levels of 480 V, 220 V, and 110 V.

The Industrial Zone S/T power is reduced from 44 kV to 7.2 kV and is fed to branches leading to shops, offices, aqueducts, hospital, etc. Altogether there are seven substations in this area. From this substation, a one kilometre branch runs to the El Bagre S/T, an Empresas Públicas de Medellín power facility that serves to sell surplus energy.

The Bijagual S/T is under construction and will serve alluvial mining north of the current operations including Production Unit 5, currently being reassembled on site at the alluvial operations. It will be an interconnection substation to the Empresas Públicas de Medellín system in order to permit Mineros to buy power from the national system.

The backup power system is located in the El Bagre complex. It consists of six diesel generating units, with an installed capacity of 3,400 kW. This system is used during contingencies or when maintenance operations are carried out. The backup system is sufficient to operate two bucket line dredges and the El Bagre complex.

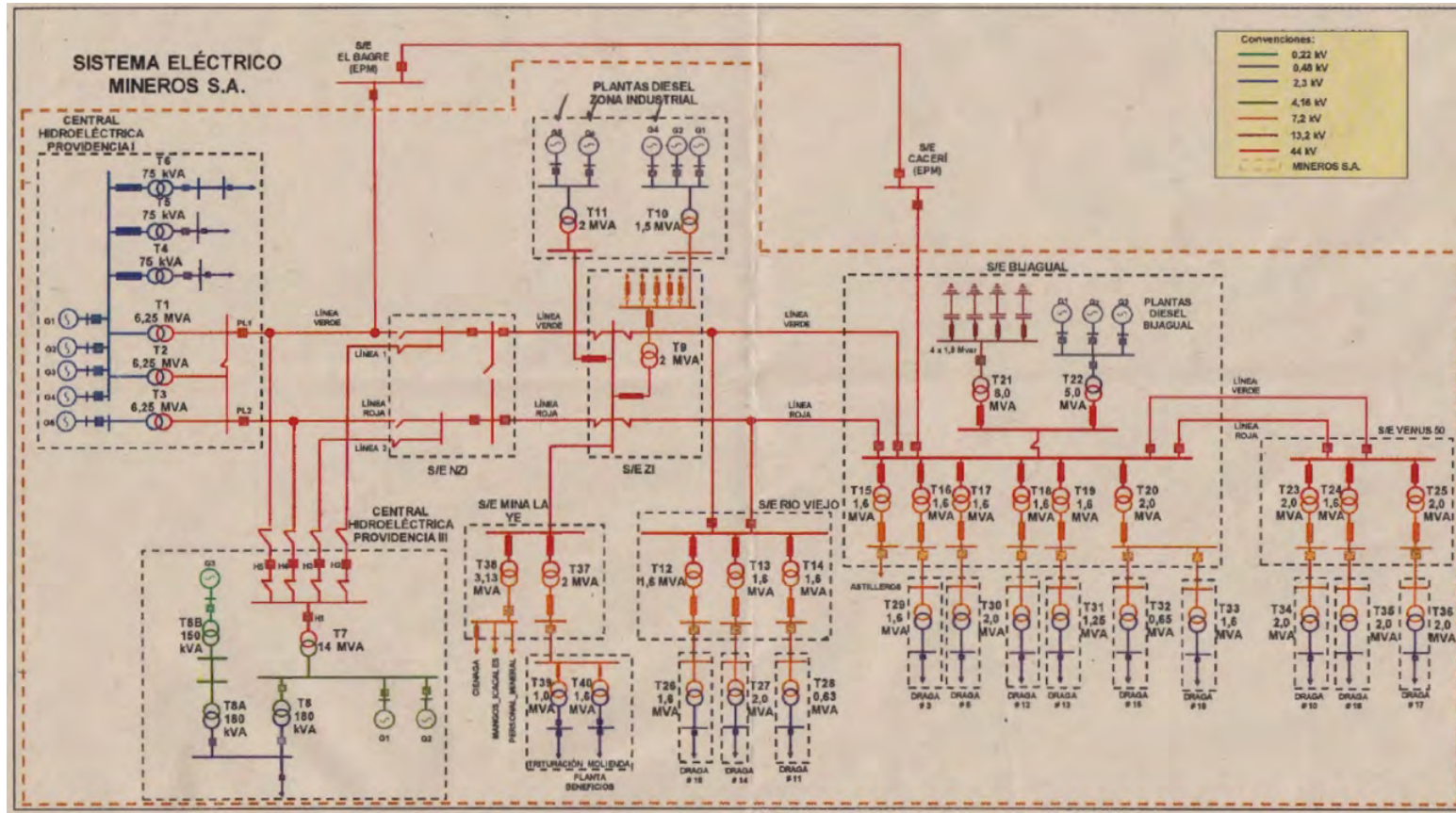


Figure 18-2

**Mineros S.A.**

***Nechí Alluvial Mining Operation***  
*Antioquia Department, Colombia*  
**El Bagre**  
**Electrical Distribution System**

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## 19.0 MARKET STUDIES AND CONTRACTS

### 19.1 Markets

The principal commodities, gold and silver, are freely traded, at prices that are widely known, so that prospects for the sale of Mineros gold production are virtually assured. Part of the gold production from the Nechí Alluvial Property for 2021 is sold under a forward contract with Stonex (former INTL FCStone Ltd). This contract will be renewed during the second half of 2021 for 2022 and 2033. The remaining gold production over the LOM not under forward contract will be sold at spot market prices.

### 19.2 Contracts

Mineros has contracts in place with Argor Heraeus Switzerland and Asahi US for doré refining. The production split for doré refining is 50% production sent to each refiner. SLR has reviewed the contract terms and is of the opinion that they are within industry norms. Off-site doré charges, including transportation and shipping, logistics and custom duties, insurance, security, and refining total US\$5.26/oz Au.

Mineros also has precious metals forward contracts in place for the Nechí Alluvial Property with Stonex (the 2002 ISDA Agreement with INTL FCStone Ltd). Currently, for 2021 the contract with Stonex covers 4,000 oz Au per month for 6 months. For 2021 the contract with BNS was eliminated.

- Year 2021: For 4,000 oz Au per month contracted with a call price between US\$1,700/oz Au and US\$2,305/oz Au.

During the second half of the year 2021, Mineros plans to renew the contract with Stonex as precious metals broker for production from the Nechí Alluvial Property for two more years. This contract allows Mineros to mitigate the risk of low spot prices and will ensure revenue between 2021 and 2023 at prices above the Mineral Reserve price of US\$1,500/oz, but could limit the upside in the current market of high spot prices.

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## 20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

### 20.1 Overview

Mining activity in Colombia is regulated by the Constitution and Law 99 (1993), according to which the responsibilities related to environmental management are shared between the Ministry of Environment, Housing and Territorial Development (Ministerio de Ambiente, Vivienda and Desarrollo Territorial, MAVDT), today Ministry of Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible, MADS) at the national level and the Autonomous Regional Corporations (Corporaciones Autónomas Regionales, CARs) at the regional level. MADS sets the national standards for mineral activities, while CARs are responsible for administering the natural resources and controlling environmental deterioration associated with extraction activities, such as mining, in their territorial jurisdictions and issues project specific rules and requirements consistent with national regulations as suited to their jurisdictions.

In the case of the Nechí Alluvial Property, mining and mining related activities occur in the municipalities of Zaragoza, El Bagre, Cauca, and Nechí, for which the regional environmental authority is Corporación Autónoma Regional del Centro de Antioquia (CORANTIOQUIA). CORANTIOQUIA is headquartered in the city of Medellín and has a regional office in the municipality of Cauca.

### 20.2 Regulatory Framework

The Constitution adopted in 1991 under the influence of international environmental law, provided a major step towards the modernization of the legal environmental management framework in Colombia. It recognized the rights and obligations to its citizens, and power was allocated to different state entities to enforce the tasks of planning, prevention, and protection of the environment. In 1993, Law 99 of 1993 created the Ministry of Environment as the highest government authority with responsibility for environmental matters. In 2003, Decree 216 expanded its role to also include the MAVDT. In 2011, MAVDT was reorganized and renamed MADS by Law 1444 of 2011.

#### 20.2.1 Ministry of Environment and Sustainable Development (MADS)

MADS is the lead agency for the management of environment and natural renewable resources, and as such, defines policies and regulations for the recovery, conservation, management, handling, use of renewable natural resources and environment over all Colombian territory. MADS' responsibilities related to mining activities are, among others, the following:

- Jointly with the MEM, issue rules, policies, and technical standards for the control of pollution, prevention of environmental damage, establishment of standards and limits for the levels of atmospheric and aquatic emissions, etc.
- Through Decree 3573 in 2011, ANLA was created and is in charge of ensuring that the projects, works or activities subject to licensing, environmental permits, or procedures comply with environmental regulations.
- In December 2016, through Resolution 2206, MADS issued the new terms of reference for the preparation of environmental impact studies required for the processing of environmental licences for mining projects.

In 2015, in order to compile and rationalize environmental regulations within a single legal instrument, Decree 1076 was issued, the only regulatory decree of the Environment and Sustainable Development sector. According to article 2.2.2.3.2.2 of Decree 1076 (2015), ANLA can grant licences to mining projects of metals and gemstones when the exploitation of material is projected to be greater than or equal to 2 Mtpa. ANLA also has a role in monitoring and control of the obligations established in the EMP.

Regulatory updates for the mining sector during 2019 included:

- Decree 1158 (2019) – requiring community censuses for mining projects with certification of residence issued by the mayor's office, to avoid voluntary migration to mining projects.
- Law 1955 (2019)
- Art 12: Special authorization for mercury-free gold beneficiation plants,
- Art 22: Requirement of early environmental licence for mining formalization,
- Art 23: Assignment of mining titles.
- Resolution 077 (2019) – regulating dates for the presentation of Environmental Compliance Reports (ICA).
- Resolution 0114 (2019) – establishing terms of reference for preparation and presentation of environmental studies.

Regulatory updates specific to Mineros operations included:

- Resolution 1612 – updates to Resolution 125 (2015) requiring compensation for impacts on natural resources and biodiversity loss of approximately 1,800 ha
- Resolution 40925 (2019) – establishing terms for presentation of Basic Mining Forms
- Resolution 604 (2019) - establishing terms of reference for preparation and presentation of annual report of mining activities for RPP
- Resolution 100 (2020) – establishing the terms for presentation of reserves and resources report before the mining authority
- Law 1121 (2021) – modification of Law 599 (2000) regarding environmental crimes

## 20.2.2 Autonomous Regional Corporations and Urban Environmental Units (CARS)

CARS are regional public bodies. Colombia has 33 CARs organized in accordance with areas that constitute a same ecosystem or that comprise a geopolitical, biographic, or hydro-geographic unit. Each unit is autonomous, with independent financial and administrative functions. In regard to mining, CARs have the following responsibilities:

- To monitor and inspect the rules and national policies issued by MADS, as well as impose sanctions on violators of the rules. CARs have jurisdiction to issue more stringent rules, policies, and standards than the national standards promulgated by MADS, if it is technically justified.
- To issue permits, authorizations, and environmental licences for works or projects to be developed within their respective territorial jurisdictions. According to article 2.2.2.3.2.3 of Decree 1076 (2015), CARs grant environmental licences to mining projects of metals and gemstones when the exploitation of material is projected to be less than 2 Mtpa.

## 20.3 Status of Mineros Environmental Permits and Licences

The following subsections have been developed based on general public information reviews, meetings, and presentations with Mineros staff, and reviews of documents provided by Mineros. These comments

give a general overview of Mineros' compliance with the environmental regulations with respect to the Nechí Alluvial Property. The documents reviewed include government information web sites, the resolutions and administrative acts issued by MAVDT and ANLA for Mineros operations and associated information provided by Mineros, as well as detailed environmental performance information contained in Mineros' environmental management system (EMS) and integrated management system files. The resolutions issued by CORANTIOQUIA, with respect to use of natural resources (water concessions, forest use, river bed occupation, wastewater and emissions), information and actions undertaken by Mineros in response to these resolutions, and the findings of the third party independent compliance auditor acting on behalf of the regulators were also reviewed.

### **20.3.1 Historical Operations**

Prior to its acquisition by Mineros in 1974, the Nechí Alluvial Property was operated by Mineros de Antioquia S.A. and its predecessors with limited resources applied to environmental and social management. Mineros has developed and implemented environmental and social management plans designed to mitigate negative environmental and social impacts, and remediate, where possible, environmental liabilities from historical operations.

### **20.3.2 Past Operations**

SLR's review of information provided confirms that Mineros has substantially improved its EMP and environmental management practices since its formation as Mineros S.A. and is in material compliance at this time. This improvement has been driven through corporate planning and management practices as articulated in the environmental management system and supported by the Mineros' integrated management system.

Due to the large scale nature of the alluvial mining exploitation activities, operations at the Nechí Alluvial Property fall within the jurisdiction of ANLA. Similarly, as activities were initiated in 1974, i.e., before Law 99 of 1993 came in force, the legal mechanism of monitoring and environmental control was the EMP (paragraph 1, article 2.2.2.3.9.1, Decree 1076 of 2015).

The EMP was adopted by Resolution 0810 of 2001, which has been amended several times at the request of Mineros due to the expansion and entry into operation of expanded mining areas and obtaining environmental permits, the last one approved through Resolution 659 of 2021, amended by Resolution 01098 of 2021. This resolution established a set of obligations for the proper management of physical, biotic, and socio-economic impacts of the Mineros operations. In the matrix provided by the company and entitled "Control and Monitoring of the Environmental Legal Performance of Mineros S.A.", these obligations are reported to have been fulfilled and the company to be in material compliance with its obligations.

Article 5 of Resolution 0810 of 2001 states that during the time of execution of the project, Mineros must conduct ongoing environmental monitoring by an independent party in order to supervise the activities and verify compliance with the obligations established in the EMP. From review of the information provided, it is seen that the company is in material compliance and that efforts are underway to address a limited number of deficiencies identified in the past environmental EMP audit (establish additional forest lands to offset damage caused by mining operations).

The review of a report prepared by MAVDT pursuant to a site visit conducted in January 2008 found that there were no infractions of environmental laws or sanctions related to Mineros operations. The review of an internal report prepared for the shareholders of the company indicates that there are no complaints

from outside parties, such as the municipality or public comptrollers. In general, the documents reviewed show that the company is progressive and willing to comply with the EMP and the related requirements of the environmental authority and that the company is taking proactive measures in that regard.

### 20.3.3 Present Operations

Since SLR's 2008 and 2010 reviews of Mineros operations, the following significant changes have been made with respect to environmental aspects of the Nechí Alluvial Property. The key aspects included:

- Modifications to the EMP.
- Certification of the Providencia I and Providencia III hydroelectric power plants under the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM).
- Elimination of the use of mercury.
- Ongoing development of social framework and related contributions.
- CORANTIOQUIA's approval of the compensation plan filed by Mineros

In 2015, Mineros' 2001 Environmental Licence was amended under Resolution 0125 with the key changes as follows:

**ARTICLE ONE:** Modifies the EMP of Resolution 0810 of 2001, to authorize the following works or activities:

- Exploitation of the CA5 and RMCA5 blocks.
- Expansion of the BJ3 and BL1 blocks.
- Exploitation of the M27, M29, M30, M31, M505, MPA5, PVI, MA2 marginal blocks - Llanuras Project.
- Elimination of mercury in the process stage.
- Inclusion of the Providencia III hydroelectric power station and its distribution line.

**ARTICLE TWO:** Updates the EMP to conform to the new approach and programs. Modifications to the environmental management system have been ongoing as the company strives for continuous improvement of its management and reporting practices. Some restructuring and reorganization of roles and responsibilities have occurred to support more effective environmental management and to be in conformance with the Environmental Licence amended under Resolution 0125. At present, Mineros uses a Total Productive Management (TPM) approach in its environmental management philosophy. Administratively environmental management and monitoring include the following general modules:

- Environmental impact management
- Chemical controls
- Contractor management
- Solid waste management
- Waste recovery
- Environmental education
- Emergency preparedness and response
- Carbon footprint reduction

The EMP was amended by Resolution 1612 of August 2019 to authorize the use of the closed pool mining method in the CA5 block, as well as the selective dredging of the BJ3, BJ4, BJ5, CA1, CA2, CA3, and CA4



blocks and the closed pool method on the PV1, M27, M29, M30, M31, MA2, MPA5, and M505 marginal blocks. This change includes modifying some of the related management plans. In 2020, Mineros submitted the environmental permit application and associated supporting environmental impact assessments to ANLA for mining of these blocks.

During the application review period, the following regulatory changes occurred:

- Resolution 2021-597 of December 17, 2020, by means of which CORANTIOQUIA regulates the Plan of Integral and Sustainable Forest Management in the Jurisdiction of CORANTIOQUIA – POF, where the zoning that delimits the areas subject to territorial planning is sought.
- Decree 050 of January 19, 2021, which prohibits the exercise of exploration and mining activities in the paramo ecosystem.
- Resolution 0773 of April 7, 2021, which defines the actions to be developed of the Global Harmonized System. Decree 690 of June 24, 2021. Through which the sustainable management of wild flora and non-timber forest products is defined.
- Resolution 699 of July 6, 2021, the parameters and the maximum permissible values of the punctual discharges to the soil are defined.

Through Resolution No. 659 of April 9, 2021, ANLA provided Mineros with approval for the occupation of riverbed, forest uses and water concessions for a portion of the blocks and requested additional information (hydraulic modelling, fauna monitoring) for several proposed mining blocks - MPA5 Lentic, M505 Lentic, and Sampumoso Lentic.

As Resolution No. 659 of April 9, 2021 did not grant all of the permits that had been applied for, Mineros filed an appeal for replacement which was resolved through Resolution 01098 of June 23, 2021, that approved 51 ha for mass exploitation and 101 ha for selective exploitation (Stage 1).

To address ANLA's request for additional information on the blocks containing lentic systems (MPA5, M505, and the Sampumoso Lentic) in the original application, Mineros undertook in 2020 and 2021 additional baseline information collection and additional environmental assessments of existing baseline conditions and potential impacts of working in the lentic systems under various operational scenarios. The work (referred to as Stage 1.5) was carried out in accordance with terms of reference as agreed to with ANLA staff to ensure that the environmental assessment would meet ANLA's information requirements with respect to lentic systems.

The environmental impact study for Stage 1.5 is based on the information filed for Stage 1 (as its area was entirely contained in Stage 1), along with the additional information that ANLA had considered lacking to grant the full suite of permits for all blocks. Since June 23, 2021, Mineros and ANLA have had five meetings to ensure that all required information is included, to present and discuss the new modelling and studies for ANLA analysis and comments, and to avoid misunderstandings regarding the company's approach to the terms of reference issued by the regulator.

The environmental impact study for Stage 1.5 entitled "Modification Environmental Management Plan Application for Environmental Permits for the Sampumoso Sector, August 2021" was filed on August 12, 2021 with ANLA (filing number 2021169802-1-000). After the issuance of the administrative writ that dictates the initiation of the modification procedure, ANLA has four months by law to make a decision. However, due to the limited additional scope of the application (e.g., ANLA focus is on the additional information requested for CA5 and RMCA5 in the Sampumoso sector) and the Mineros meetings and

discussions with ANLA, Mineros is confident that this modification review can be completed by ANLA within 75 days and that ANLA will approve the application.

Based on the information presented to SLR and discussion with Mineros staff during August 2021, SLR is of the opinion that Mineros has undertaken actions requested by ANLA from its review of the Stage 1 application in its Stage 1.5 application documents with respect to the provision of additional baseline data, analysis and discussion of potential impacts, mitigation and compensation as required. Thus, SLR is optimistic that the Stage 1.5 application for riverbed occupation and related activities in CA5 and RMCA5 in the Sampumoso sector will be approved by ANLA.

Existing resolutions and permits for the Nechí Alluvial Property are as listed below in Tables 20-1 and 20-2, respectively.

**Table 20-1: List of Resolutions  
Mineros S.A. - Nechí Alluvial Property**

File	Procedure	Site/Location	Act of Approval
LAM0806	PMA/ Environmental License	El Bagre, Zaragoza, Caucasia and Nechí	Resolution 0810, September 3, 2001
PZ8-2002-1	Channel Occupation	Port access channel - Industrial Zone	Resolution 130PZ-367 of July 26, 2002
PZ5-2004-11	Use of Natural Forest	Santa Rosa, Puerto Claver (Blocks PJ1, PJ2 and RV2, BJ2)	Resolution 130PZ-983 of January 17, 2005
PZ5-2005-9	Use of Natural Forest	Veredas Rio Viejo and Río San Carlos, Puerto Claver (RV3 Blocks, MI)	Resolution 130PZ-1128 of September 14, 2005
PZ5-2005-8	Use of Natural Forest	Veredas Rio Viejo and Río San Carlos, Puerto Claver (RV3 Blocks, MI)	Resolution 130PZ-1129 of September 14, 2005
PZ5-2004-10	Use of Natural Forest	Río Viejo and Sabalito Sinaí, Puerto Claver (Blocks PJ1, PJ2 and RV2, BJ2)	Resolution 130PZ-984 of January 17, 2005
PZ1-2010-4	Surface Water Concession	Quebrada Villa, domestic use Camp Miners	Resolution 130PZ-1109-1985 of September 20, 2011
PZ7-2010-4	Discharge	Mining Camp and Industrial Zone	Resolution 130PZ-1108-1962 of August 23, 2011
PZ5-2011-2	Single Forestry Use	Puerto Claver, Sabalito Sinai, Rio Viejo and San Carlos trails	Resolution 130PZ-1204-2089 of April 25, 2012
PZ1-2011-14	Surface Water Concession	House Machines Providencia III, Broken Unnamed nombre (Code: 13379) Use: domestic	Resolution 130PZ-1202-2037 of February 8, 2012
PZ7-2011-7	Discharge	Providencia III, domestic wastewater	Resolution 130PZ-1202-2033 of February 8, 2012

File	Procedure	Site/Location	Act of Approval
PZ5-2011-32	Use of Natural Forest	Providence III	Resolution 130PZ-1206-2119 of 7, 2012 June
PZ5-2011-43	Use of Natural Forest	Sabalito Sinai, Rio Viejo and Boca del Guamo	Resolution 130PZ-1306-2525 of 27, 2013 June
PZ5-2011-45	Use of Natural Forest	Providence III	Resolution 130PZ-1307-2533 of 31, 2013 July
PZ3-2014-3	Environmental License	Gold Mining Alluvial Terraces, Cargo Block 1	Resolution 160PZ-1509-3387 of September 15, 2015
PZ7-2014-18	Discharge	Providencia I, La Planta sector Domestic wastewater	Resolution 160PZ-1607-3759 of July
PZ7-2014-19	Discharge	Providencia I, water intake sector of Aljibes Domestic wastewater	Resolution 160PZ-1607-3760 of July
PZ1-2016-1	Surface Water Concession	Providence I	Resolution 160PZ-RES1902-1029 of February 26, 2019
PZ3-2016-4	Environmental License	Amacerí Gold Mine- El Bagre, Santa Rosa village	Resolution 160PZ-RES1712-6998 of December 12, 2017
PZ7-2016-27	Discharge	Shipyard Camp Domestic wastewater	Resolution 160PZ-RES1707-3466 of July 7, 2017
PZ6-2017-16	Fixed Sources	Metallurgical laboratory	Resolution 160PZ-RES1712-7170 of December 20, 2017
PZ5-2017-173	Use of Natural Forest	Bijagual and Buenos Aires (alluvial exploitation Blocks M27, M29, M30, M31, PV1 and MPA5 of the Llanuras Project)	Resolution 160PZ-RES1709-4824 of September 11, 2017
PZ7-2018-270	Discharge, Non-Domestic Wastewater	Astilleros Camp	Resolution 160PZ-RES1901-458 of January 31, 2019
PZ1-2018-286	Surface Water Concession	Nechí River – Astilleros camp	Resolution 160PZ-RES2003-1211 from March 13, 2020
PZ1-2020-434	Surface Water Concession	Providencia Anorí River	Resolution 160PZ-RES2008-4578 of August 12, 2020.
PZ5-2011-43	Use of Natural Forest	Sabalito-Sinaí, Rio Viejo y Boca del Guamo, del municipio de El Bagre	Resolution 160PZ-RES2014-2056 of April 15, 2021

**Table 20-2: List of Permits  
Mineros S.A. - Nechí Alluvial Property**

Permission	Resolution	Authority	Expiration (MM YYYY)
Epifitas Harvesting	Resolution ATV 949 of 2019 Resolution 0810 of September 2001 with its respective amendments Resolution 0805 July 2003 Resolution 1885 December 2005 Resolution 0126 January 2008 Resolution 0833 August 2013 Resolution 0125 February 2015 (Modified WFP) Resolution 0728 July 2015 Resolution 857 June 2018	Ministerio de Ambiente y Desarrollo Territorial	Jun 2022
PMA / LA	Resolution 1612 August 2019 (Includes closed pool, approves contingency plan, approves other permits) Resolution 0489 March 2020 Resolution 1726 October 2020 (Guamo's channel occupation and other permits) Resolution 00659 April 2021 (Surface Water Concession, Use of Natural Forest, and other permits) Resolution 01098 June 2021 (Modified Resolution 659, 2021)	ANLA	For the life of the Mine
Cativo Harvesting	Resolution 040-RES1902-834, February 2019	CORANTIOQUIA	Jun 2029
Cativo Harvesting	Resolution 040-RES1908-4121, August 2019	CORANTIOQUIA	Jun 2029
Providence Water Concession I	Resolution 160PZ-RES1902-1029, February 2019	CORANTIOQUIA	Feb 2069
Industrial/Domestic Wastewater	Resolution 130PZ-1108-1962, August 2011	CORANTIOQUIA	Aug 2021
Industrial/Domestic Wastewater	Resolution 160PZ-RES1702-902 February 2017	CORANTIOQUIA	Marc 2022
Water Concession	Resolution 130PZ-1109-1985, September 2011	CORANTIOQUIA	Sept 2021
Water Concession	Resolution 130PZ-1109-1985, sept 2011	CORANTIOQUIA	Oct 2021
Industrial/Domestic Wastewater	Resolution 160PZ-1607-3759, July 2016	CORANTIOQUIA	Aug 2026
Water Concession	Resolution 160PZ-1612-3968, December 2016	CORANTIOQUIA	Dec 2021
Industrial/Domestic Wastewater	Resolution 160PZ-RES1702-903, February 2017	CORANTIOQUIA	Marc 2027

Permission	Resolution	Authority	Expiration (MM YYYY)
Industrial/Domestic Wastewater	Resolution 160PZ-RES1707-3466, July 2017	CORANTIOQUIA	Aug 2027
Air Emissions	Resolution 160PZ-RES1712-7170, December 2017	CORANTIOQUIA	Dec 2027
Industrial/Domestic Wastewater	Resolution 160PZ-RES1901-458, February 2019	CORANTIOQUIA	Jan 2029
Industrial/Domestic Wastewater	Resolution 130PZ-1107-1953, July 2011	CORANTIOQUIA	Apr 2027
Surface Water Concession	160PZ-RES2003-1211, March 2020	CORANTIOQUIA	Mar 2030
Industrial/Domestic Wastewater	Resolution 160PZ-1607-3759, July 2016	CORANTIOQUIA	Jul 2026

Modifications to various aspects of the EMP have taken place to address primary objectives associated with mitigation of environmental impacts and restoration of areas impacted by mining activities. Several key initiatives have been undertaken in that regard as discussed in the following subsections.

### 20.3.4 Mitigation and Reclamation of Environmental Impacts

#### 20.3.4.1 Use and Elimination of Mercury from Mineros Operations

A major environmental concern associated with all gold mines that use mercury as part of the recovery process is the potential for release/loss of mercury during operations. To address this concern, Mineros pursued a multi-faceted approach that included operational management controls, state of the art equipment, practices, and monitoring.

To minimize potential losses, Mineros used close loop systems at both the dredge operations and the gold recovery furnace. To confirm that the processes were effective, Mineros measured its use of mercury through the mining and recovery process to ensure that operations adhered to the regulatory limits for mercury loss. The measurements included mass balances from mining and retort operations, as well as air monitoring of the retort furnace operation.

As a further step prior to elimination of mercury use, Mineros introduced climate controls in the areas where mercury was used to reduce potential volatilization of mercury. In addition, Mineros supported metallurgical research aimed at completely eliminating the need for mercury in the recovery process. Initial process steps and process modifications occurred in 2012. The goal to eliminate mercury use in Mineros' operations was achieved in 2014, at which time recovery processes and equipment were modified to remove the need for mercury use at all of the dredge operations and from the El Bagre recovery plant. This was a significant positive environmental and socio-political achievement.

The present system uses gravity and magnetic separation and no chemicals are added in the recovery process. In addition to the environmental benefits of this new processing approach, the process also results in enhanced gold recovery.

#### 20.3.4.2 New Approach to Mining and Restoration of Alluvial Blocks

The primary environmental disruptive activities associated with alluvial mining operations on the Nechí River relate to the dredge mining of the flood plain areas. In carrying out the alluvial mining, the first step

is the use of a cutter suction dredge to remove the upper layer of soils and sediments to an approximate depth of 12 m. This step is followed by bucket excavation of the deeper soils and gravels to the bedrock surface at a depth of approximately 28 m. The typical bucket line dredge excavation rate is 500 m<sup>3</sup>/h. Materials mined during this step are screened and processed for the recovery of free gold.

To mitigate potential impacts from the alluvial mining activities in the Nechí River flood plains, Mineros develops and implements an annual mine plan that includes planning for dredge exploitation, drainage and sediment control, habitat and fauna management, and reclamation (see below). The plan considers the existing vegetation cover on areas to be mined, development of operating practices for drainage analysis, and design of sediment control features, as well as spill prevention and emergency response.

In 2014, Mineros submitted modifications to the original 2001 EMP that included a new approach to alluvial mining. This approach is based on minimizing the “hydrological footprint” of operational activities during mining, and at cessation of mining, to re-establish ecosystems that mirror baseline conditions in the formerly mined block to the degree practically possible. This approach received approval in 2015 under Regulation 0125 as noted above.

To execute the new mining approach, Mineros provides detailed mapping of proposed exploitation areas, access zones, dredged material deposit areas, and plans that illustrate how the area will be left at the end of exploitation. Prior to mining, Mineros carries out detailed baseline environmental studies of the existing watershed conditions (terrestrial and aquatic, flora/fauna, fish and birds, etc.), so that potential impacts can be identified, and mitigation measures planned. The studies include detailed topography, bathymetric, and drainage surveys of each block prior to operation. Site specific (instead of generic) ecological restoration designs are developed for each block considering local geomorphology and ecological conditions, vegetation, food supply, and breeding sites, among others, in order to estimate the capacity for new species in these ecosystems.

In carrying out mining activities, Mineros is undertaking measures to maintain the hydraulic conditions of the immediate environment, including isolating natural flows from active working areas, and minimizing interruption of natural watershed oscillations during the operation. A key action in this respect is the re-establishment of cutoff banks that isolate the working areas and create a closed pool that is not connected to the main river flows. Through the establishment of these isolation banks, water inflows and outflows from the closed pool mine block are minimized and sediment loads released to the environment are greatly reduced.

The sequencing and direction of the dredging is planned in such a manner as to allow progressive reclamation to occur within the mine blocks. Using this approach, coupled with a reclamation design based on re-establishing features in a manner consistent with pre-mining watershed conditions ensures that regeneration of the mined areas occurs quickly and in such a manner as to enhance natural biodiversity of the region. Based on field observations and time stamped photographic images reviewed, it is evident that restoration arising from this new approach is highly successful.

#### **20.3.4.3 Environmental Insurance**

As part of its risk management, Mineros has an environmental liability policy that covers up to a value of \$5,000,000 for any accidental event that causes deterioration to the environment.

#### **20.3.4.4 Program for Mining Smaller Marginal Blocks**

Mining activities are planned for smaller blocks which were previously considered marginal using bucket line dredges. The approach to mining these areas will be to use smaller cutter suction barges to excavate

the areas and provide the process feed of the gold bearing materials to smaller floating gravity mills. The mills will use gravity separation technology similar to that of the larger barges but on a smaller scale. Throughput will be in the order of 350 m<sup>3</sup>/h versus the larger bucket line dredges that operate at approximately 550 m<sup>3</sup>/h. Using the new approach to mining (as discussed in the previous subsection) and the smaller mining and process recovery equipment, environmental disturbances will be minimized when carrying out mining in these areas and reclamation to local targeted end points should be readily achievable.

#### 20.3.4.5 Future Mining Areas

In addition to the current operation, an environmental impact study is being prepared for submission to ANLA at the end of 2021 (Stage 2), in support of a request for a new amendment of the Environmental Management Plan for exploitation of one big block (CA5, 1,026 ha) within the EMP, which will allow operations with bucket line dredges for a period of four years.

Within the EMP, there are also 27 historically mined marginal blocks (6,204 ha) on the west side of the Nechí River that Minerós is planning to exploit with Brazilian dredges and dredge No. 21. At this time Minerós is planning to develop an environmental impact study in 2022, for submission to ANLA to amend the EMP for exploitation of three of these marginal blocks (2,300 ha).

Furthermore, Minerós has three mining concessions to the north of its existing concession, identified with numbers 6118, 6819 and 6335 (3,766.85 ha). As these areas are not included in the EMP, Minerós will undertake additional environmental studies and assessments of these areas in support of a new licensing process with ANLA and the Mining Authority for exploitation of these areas with bucket line dredges in 2026 and beyond.

#### 20.3.4.6 Pilot Program for Mining “Terraces”

A pilot program has been put into operation for mining small surface blocks using shovel excavation coupled with ore processing in a small floating gravity separation mill. This approach combines the tools typically employed by small scale miners for surface strip mining, with the processing plant technology developed by Minerós for processing smaller alluvial deposits as discussed above at a rate of 120 m<sup>3</sup>/h.

Through the successful execution of this pilot program, if achieved, Minerós is hoping to show that mining can be carried out profitably and in an environmentally responsible manner, without the use of mercury, and that the reclamation of the mining area can be carried out in a manner consistent with pre-mining conditions. If this can be done and is accepted by the small scale and artisanal mining community, it opens the way for future developments of this type in both greenfield and brownfield locations. This could result in significant socio-economic contributions being achieved in an environmentally sustainable manner.

#### 20.3.4.7 Legalization of Informal Miners

While still in the early stages, Minerós has interacted with the small scale and artisanal mining community including the EMIJOM and EMICUT organizations, to gain their understanding and support for such an approach. Minerós is currently selecting smaller miners of the area to carry out operating contracts with them. Minerós supports the legalization of informal miners with the objective of reducing environmental and health and safety risks that are associated with illegal mining activities. A brief overview of projects with artisanal miners is provided below.

- In 2013, Minerós transferred 127 ha for the formalization of mining by a group of miners from the Middle Jobo municipality of Zaragoza, called EMIJOM. As a commitment to formalization

processes, Mineros has continued strengthening the technical, social, and environmental aspects of the group's activities. At EMIJOM, there are three active production units and more than 60 miners who now perform mining legally, working in compliance with occupational health and safety obligations, that do not use mercury, and also have environmental impact studies and mining planning.

- In 2015, in support of formalization and regulation, a pilot mining project was initiated through operating contracts for two specific sectors of the RPP, called Block El Bagre and Block Amacerí, of 49.7 ha and 51.6 ha, respectively. The production of these blocks is planned to be carried out with new dredging equipment called "Brazilian dredges" which are on order for 2021. As part of this pilot initiative, environmental studies were required to obtain environmental licence for mining of the blocks. Mineros worked with the operator to complete the respective studies and thus obtain the environmental licence under Resolution 160PZ-RES1712-6998.
- In 2017, a new project contract was signed with Suministros Agromineros S.A.S. (Suministros Agromineros). This organization includes representatives of the natives living in the area with whom an operating contract was signed to dredge marginal areas located within the RPP. This production unit employs 27 people from the area, who have access to employment benefits, follow safety procedures, and maintain good environmental practices. The project controls include monitoring and control of production and social and environmental management. The operation will be carried out without the use of mercury.
- In 2017, the process of transferring the mining title for an area of 369 ha to the members of Empresa Minera Nuevo Cuturú (EMINCUT) was completed. In this formalization process, there are four mining production units, led by 16 partners. Each production unit employs 27 people. As a result, more than 100 families derive their livelihood from formal mining activity carried out with dignity and legality.

The pilot projects implemented through contracts with Suministros Agromineros, which operates a production unit in a closed pool without the use of mercury, generates about 60 direct jobs and has produced approximately 5,000 ounces of fine gold without the use of mercury.

Mineros has received and evaluated seven more applications for formalization. Of these, four have passed through internal due diligence review for new mining formalization projects and Mineros is providing four production units for these formalized small scale mining programs.

#### **20.3.4.8 Clean Energy Production**

Mineros is investigating opportunities associated with the CDM under the UNFCCC to reduce its carbon footprint. Opportunities considered include:

- emission reductions resulting from the new approach in alluvial mining of large blocks
- the use of biodiesel in diesel generators (3 MW in total)
- carbon credits for reforestation of mine impacted areas
- development of rubber tree plantations (at present, Mineros has 969 ha in plantation)

Mineros is producing hydroelectricity at Providencia I and Providencia III (a total of 14 MW installed capacity) under its UN certification for the hydroelectric power plants. The clean energy source produces more power than needed by Mineros operations and excess power is sold into the country grid.

As part of its search for clean energy opportunities, Mineros is considering a proposal to create a solar park through a Power Purchase Agreement (PPA) where solar panels are installed on company property.



The solar park project is designed to be suitable for the operational facilities of El Bagre, although to date, it has not been decided whether it would be built within the existing El Bagre complex or in a new area. At present the proposed maximum generation from the solar park is 2 MW from an area of 2.5 ha, although these values are not yet final.

## 20.4 2018/2019 Significant Environmental Events and Changes

### 20.4.1.1 Upset Conditions and Emergency Response

The Nechí Alluvial Property was negatively impacted by a catastrophic offsite event not related to Mineros operations. In April and May 2018, a catastrophic failure occurred at the construction site of Empresas Públicas de Medellín's Hydroelectric Ituango Project on the Cauca River north of Medellín. The failure was the result of tunnel collapses and plugging, that in turn resulted in the unplanned rise of the reservoir and subsequently uncontrolled releases of vast amounts of water from reservoir. The releases caused massive damage in the watershed downstream of the hydroelectric project. The elevated water level of the Cauca River also created a damming effect at the confluence of the Cauca and Nechí Rivers, which in turn resulted in very high Nechí River water levels. These extreme water levels were an unforeseeable change in hydraulic conditions that resulted overtopping of the exploitation isolation berms, and the associated release of sediment laden waters from the mining areas.

As a result of this event, the ANLA required Mineros, among others, to monitor the surface water sources affected, and to implement actions to mitigate impacts on communities affected by the emergency in such a way as to guarantee the basic support of food and water resources, until the recovery to normal conditions of the fishing areas affected. Additionally, the authority required Mineros to update its contingency plan in accordance with the guidelines established in Decree 2157 of 2017, specifically in relation to the Disaster Risk Management Plan of Public and Private Entities.

Mineros has responded to these requirements and submitted a modified EMP and Disaster Risk Management Plan in November 2018 for ANLA review and evaluation. By way of Article 8 of Resolution 01612 of August 15, 2019, ANLA approved the EMP modification and Risk Management Plan for the Nechí Alluvial Property.

### 20.4.1.2 Mineros Requested Changes to Permitting Regime

In 2018, to harmonize environmental management, Mineros requested that ANLA, in addition to its approval of the EMP, consider taking over responsibility for all permits previously granted by CORANTIOQUIA related with the mining and hydroelectric operation for current and future mining operations and activities.

The ANLA permitting process was underway in 2019 and mining activities were thus constrained during that period until all permits were re-established under ANLA. Mineros did not foresee any material issues with respect to the ANLA permitting process and, as expected, all necessary permits were in place by the end of 2019 or early 2020. By Resolution 01612 of August 15, 2019, in Articles 13 and 15, ANLA will include the permits that are part of the jurisdiction of CORANTIOQUIA once the existing term of the CORANTIOQUIA permit expires.

Permission	Resolution
Concession of surface waters Providencia I and Aljibes	Resolution 160PZ-RES1902-1029 of February 26, 2019.File: PZ1-16-01
Port industrial zone port occupancy permit	130PZ-1107-1953 of 14 July 2014.File: PZ8-02-01

As a result of this process, there are no longer any constraints on operations associated with changes in the permitting regime.

Mineros holds a separate environmental licence granted by CORANTIOQUIA with respect to the mining of terrace alluvials and blocks El Bagre and Amacerí, which is different from the environmental license granted by ANLA with respect to its alluvial plain dredging operations, and is not part of the change requested of ANLA by Mineros.

### 20.4.1.3 Project of National and Strategic Interest (PINE) Designation

In early 2020, the Nechí Alluvial Property was designated as one of five PINES in Colombia by the MEM. This designation confirms Mineros' sustainable contribution to the country, region, and society and ensures that Mineros will receive priority considerations during procedures with any level of government. The other four projects are Gramalote, Quebradona, Soto Norte, and Buriticá.

Projects must satisfy the following criteria in order to qualify for designation as a PINE:

- Significantly increase the productivity and competitiveness of the national or regional economy.
- Generate significant impact on direct job creation or through linkages and/or investment of capital.
- Generate a positive return on investment and be operationally sustainable.
- Increase the export capacity of the national economy.
- Generate significant income for the Nation and the regions.
- Contributes to the fulfillment of the goals established in the National Development Plan (PND).

The advantages of a PINE designation primarily arise from an enhanced relationship with government and regulatory authorities, including:

- PINE projects will receive priority during procedures with government entities of any level.
- Other implications/attributes associated with PINE designation:
  - Greater visibility of the operation.
  - Investment and growth commitments.
  - Greater quality and opportunity in requests.

### 20.4.1.4 Offsite Compensation

In 2019, Mineros prepared a Regional Integrated Management District (DRMI) Environmental Compensation Plan as required under its EMP as updated by Resolution 1612 in August 2019.

The DRMI addresses the rationale for selection of potential compensation areas (El Sapo and Hoyo Grande), the framework for moving forward on compensation actions to assist in regional restoration of impacts of mining and improve biodiversity and in the region. The plan is a comprehensive document based on the grouping methodology first self approved in 2018 and subsequently by Resolution 1612. The

plan provides the strategic framework and methodology for a two year program to select, prepare for, and implement a conservation program with landowners in the El Sapo and Hoyo Grande regions. The conservation program includes, to various degrees, conservation and restoration of connectivity corridors and habitat restoration and enrichment in the lower Cauca Antioqueno. The plan also provides local and regional participatory management and strengthening of the social and cultural values of the territory.

As part of the advancement of the DRMI, the owners of selected properties will be approached to assess their participation. Once the status of the selected properties and their availability have been confirmed, the local and regional compensation strategy will be defined, which includes the following alternatives:

- Restoration: Reforestation and conservation of existing forests.
- Sustainable: Productive Projects: Include mass production fish farming projects within the DRMI.
- Projects in existing agricultural areas.

In September 2020, Mineros filed Compensation Plan with the environmental authorities. On April 15, 2021, CORANTIOQUIA approved the Compensation Plan by means of Resolution 160PZ-RES2104-2056.

#### 20.4.1.5 Illegal Mining of Reclaimed Lands

In 2019 and 2020, there were incursions by illegal miners in some previously reclaimed mined areas. This illegal activity disturbed these productive plots and generated significant environmental damage. As a result of these activities, the legal landowners of the plots became uncertain as to their status on the land, which in turn contributed to the desertion of the lands by some and to the reduction of the commercialization of the products from these lands.

Measures taken and planned to mitigate these activities include:

- The mining authority was informed of the situation of misuse of mining resources.
- A baseline survey of social and agro-environmental issues was completed.
- Visits are planned to the affected locations to assess the impacts and hold meetings with the plot owners to identify their views and concerns.
- Alternatives will be generated and assessed to see what can be implemented economically.

## 20.5 Socio-Economic Obligations

The socio-economic setting in which Mineros activities are carried out is particularly sensitive as the area is one of the poorest regions in the Antioquia Department, with poverty indices of more than 50%. Given this context, Mineros is the most important company in the region and undoubtedly one of the primary engines of the provincial economy.

In recognition of the above, and in compliance with its obligations under the EMP licence granted by MADS, Mineros has developed a corporate social responsibility (CSR) policy framework. It should be noted that Resolution 0125 of 2015 approved a social management plan (SMP) established in the EMP. The SMP includes among others, the following requirements:

- Prioritize local labour hiring, use of suppliers and contractors, and the acquisition of goods and services in the region where it conducts its operations.
- Develop and implement at least three initiatives for “productive alternatives” per year for each of the five municipalities that are within Mineros’ area of influence. “Productive alternatives” are

activities that Mineros carries out with the communities that contribute to local consumption and income generation of these communities.

- In association with community representatives, carry out evaluations of the social management programs every two years, assessing among other aspects the effectiveness of the programs, program results, and program quality with respect to objectives. Using these evaluations, consider whether changes should be made for the continuity of the programs or whether the new programs should be considered for implementation.
- Provide support for the formalization of informal mining.

According to the principles guiding Colombian environmental legislation, the process of developing a new policy of community relations must be public, transparent, participatory, and disseminated widely among the affected communities. From site observations and discussions, and from the review of company and third party information, it appears that all of these criteria are being met by Mineros.

In carrying out the social obligations under its social program, Mineros has worked with regional and municipal governments to assist them in various initiatives, including assisting ANT through the provision of cartographic support in property legalization through mapping, environmental education, restoration of lands impacted by past illegal mining; providing support to regional municipalities on housing development and cultural program initiatives; and working on various awareness and education programs including work coordinated efforts with the State Education Agency (SENA) to develop and support various skill development and job training programs.

## 20.6 Corporate Social Responsibility

In addition to Mineros' environmental, health and safety, and quality programs, Mineros has also implemented a social responsibility program, which is both broad yet well-focused program, aimed at assisting local and regional communities/peoples in developing sustainable programs and initiatives that extend beyond mining operations.

The objectives of Mineros' social responsibility program are to facilitate and support opportunities for people in the region. The model used by Mineros focuses on the following areas:

- Environment – minimizing the negative impacts on the region
- Education – promoting opportunities and access to education
- Health – support for basic needs and services, specialist services, family planning
- Economic Development – opportunity creation, micro projects, business development

Mineros has a core team supported by contractors that direct the CSR efforts. These individuals work with local and regional governments and community organizations, NGOs and strategic alliances to support improvements in community well-being.

Examples of program achievements in the area of education include construction of schools in remote regions, school cafeterias, and transportation support to access schools, development of academic learning modules. Examples of program elements in health care include sponsorship of nursing care, support for provision of specialist medical fly-in service, and support to family planning programs. Improvements in basic hygiene are supported through the provision of toilets and potable water in various communities. Economic development initiatives focus on poverty reduction through provision of strategic advice and direct support to micro projects. Mineros tracks and shares information on its CSR program

and reports through annual sustainability reports in accordance with the reporting framework of the Global Reporting Initiative (GRI).

## 20.7 Environmental, Health and Safety and Social Management

Mineros has developed and implemented an integrated management program (IMP) that is used to guide and monitor overall performance of all facets of the operations. The IMP is a sophisticated state-of-the-art management system that guides and links all aspects and activities associated with the mining efforts throughout all stages of their life cycle. The IMP is used to establish and monitor internal objectives for all operations of the mine, as well as to interface with and follow the external requirements and commitments of Mineros, especially in regard to its environmental and social commitments and obligations. The IMP is supported through a sophisticated computer-based application and network architecture that allows all levels of the organization access as appropriate.

Within the context of this overall integrated management system, Mineros has developed an underlying framework program for the management of environmental, health and safety, and social aspects associated with company operations.

Mineros developed a sophisticated environmental management system that has been ISO1400 certified (certification first received in 2006, renewed in 2021) for the Nechí Alluvial Property. This program provides the management framework for oversight and guidance to all departments and activities with respect to environmental matters. The aim of the environmental management system is to ensure that Mineros' operations are fully aware of and compliant with both the regulatory obligations and the objectives and commitments made with respect to ongoing improvements in operations. In addition, the aim of the environmental management system is to ensure that reclamation steps are met in a timely and appropriate manner.

Mineros has also developed a health and safety management program (HSMP) for the Nechí Alluvial Property that has been OSHAS 18000 certified (certification received in 2008, renewed in 2021). The HSMP provides guidance framework for planning, tracking, and implementing safe working practices throughout the organization.

In summary, Mineros has established a world class management system for guiding its operation with respect to the environment, health and safety, and social responsibility. The system provides a proactive planning framework, allows for continuous updates of regulatory and permitting requirements and the distribution of these obligations among various operating units within the company as appropriate, and provides a dynamic framework for regular and exceptional performance monitoring. The system is supported by state-of-the-art management information system (MIS) application software hosted on server-based computer systems that link various operational and corporate departments of Mineros.

## 20.8 Mine Closure

Historical mining in the Nechí River basin including artisanal, informal, and illegal mining that still occurs to date, continues to impact the regional environment. Within this context, Mineros operations offer an example of what can be achieved in terms of impact mitigation and successful restoration. Mineros' alluvial closure practices are progressive and state of the art. Land and water restoration is achieved quickly on final closure of a mined block. Based on information reviewed and site visit observations, closure works have returned the lands and waters to either pre-mining conditions or better, consistent with Mineros' plans as approved by the regulatory authorities.

As in open pit mining, alluvial mining is disruptive to the existing environment in the footprint of the area being mined. Unlike open pit mining, however, at the completion of Mineros alluvial mining activities in a mining block, the mined areas are returned to similar, or sometimes better, land uses than pre-mining conditions. This is accomplished through a progressive reclamation method that is integral to the mining process and prepares the excavated land for return to one of three land uses: forest lands, farmlands, or wetlands as per the EMP requirements.

When carrying out the activities, suction dredge soils are stored for re-use on top of the bucket line dredge spoils. On completion of an area within a mining block, the bucket line dredge spoils are contoured and graded, then covered with cutter suction sediments/soils. As noted earlier, the new approach used for mining as approved by Resolution 0125, provides for even more enhancement to the reclamation program design, and for even better reclamation results than previously generated.

Given the climate of the area, natural re-vegetation is extremely productive. Mineros has established a nursery that is also used to re-vegetate selected areas with desired tree, grass, and plant species. Examples were observed of former mining areas that had been reclaimed to productive use in two to four years. The preparation of farmlands provides resettlement opportunities for approved families. The preparation of wetlands along the river basin adds to the biodiversity of the region.

Mineros closure objectives for the Nechí Alluvial Property include: the development of three productive parcels (farms) per year; the planting of more than 100,000 plants per year; and re-vegetation to grasslands and forest lands of more the 30 ha and 100 ha per year, respectively. In addition to these efforts, Mineros is also committed to developing wetlands on an agreed portion of the mined areas. Wetland development initiatives include drainage and flow design, shoreline improvements, fish and animal stocking, as well as physical measures to protect the wetland from human intrusion.

Mineros success with its closure program has contributed positively to the local and regional social and economic climate. Based on SLR's review, Mineros has a sound understanding of its closure liabilities and requirements and manages its obligations effectively. SLR notes that our review did not identify any pre-existing liabilities associated with legacy operations and past use of mercury in the recovery process at its operations.

### **20.8.1 Closure Costs**

The obligations related to closure of the alluvial mining operations include restoration of 1,122 ha and forestry compensation of 3,601 ha.

Progressive reclamation, restoration, and re-use of impacted lands is the fundamental closure approach successfully employed by Mineros. Costs associated with these efforts, including the operation of supporting activities and infrastructure (e.g., nurseries, etc.), are carried as part of the annual operating costs of the alluvial mining operations.

In addition to the progressive reclamation efforts for directly impacted Mineros mine lands, off site restoration activities are also planned for as part of the planned environmental compensation conservation strategy in the DRMI of the El Sapo and Hoyo Grande wetlands as required under its EMP, and as updated by Resolution 1612 in August 2019. While the plan has not been finalized and is subject to approval, Mineros carries a provision for the obligations of the plan on its annual balance sheets. In 2019, the provision was approximately US\$1.139 million. As of June 2020, the provision was estimated at COP3,395,945,903, or approximately US\$1.045 million. By June 2021, the provision was estimated at a total accumulated amount of COP\$17,342,539,729, or approximately US\$4,702,103. These costs appear

reasonable in respect to mine reclamation and compensation. SLR notes, however, that Mineros carries no cost allowance for closure of the industrial zone infrastructure at El Bagre or its support areas.

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## 21.0 CAPITAL AND OPERATING COSTS

The capital and operating costs presented in this section include only the costs required for mining and processing Mineral Reserves from the Nechí Alluvial Property, with a reference point of July 1, 2021. The capital and operating cost estimates have been prepared based on recent operating performance and the current operating budget for 2021. These costs were supplied to SLR by Mineros' corporate finance and mine site technical teams. SLR considers these cost estimates to be reasonable, as long as the production targets are realized.

All costs in this section are expressed in Q1 2021 US dollars, and consider an exchange rate of COP\$3,650 per US\$1.00.

### 21.1 Capital Costs

SLR was provided with a breakdown of development and sustaining capital expenditures for the Nechí Alluvial Property. These costs are based on historical performance and the current operating budget for 2021. Development of alluvial plain reserves for 2021, and sustaining capital for dredging north system, from 2020 to 2033. A summary of these capital cost estimates is presented in Table 21-1.

Total LOM capital costs are estimated to be US\$66.2 million. Growth capital has been excluded from the estimate, as it is unrelated to mining currently defined Mineral Reserves.

Mine closure and concurrent reclamation costs for this Technical Report LOM scenario are based on Mineros' environmental reclamation estimate for the Nechí Alluvial Property of US\$50.5 million (undiscounted) over the LOM expanding until year 2050. For the cash flow analysis simplification purposes, all closure costs over year 2035 have been discounted to year 2035, giving a total reclamation and closure costs between years 2021 and 2035 of US\$45.7 million used for the economic analysis. For further details about Nechí Alluvial Closure Plan refer to sub-section 20.8 Mine Closure.



**Table 21-1: Capital Cost Estimate  
Mineros S.A. – Nechí Alluvial Property**

Item	Units/Yr	Total	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Development (Suction Dredges)	US\$ M	1.50	1.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	US\$ M	64.73	7.80	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	2.48	-	-
Reclamation and Closure	US\$ M	45.72	3.43	0.73	0.90	2.13	1.94	2.11	2.37	2.56	2.83	2.95	2.98	2.97	3.11	3.08	11.63
<b>Total</b>	<b>US\$ M</b>	<b>111.96</b>	<b>12.74</b>	<b>5.68</b>	<b>5.85</b>	<b>7.08</b>	<b>6.89</b>	<b>7.06</b>	<b>7.32</b>	<b>7.51</b>	<b>7.78</b>	<b>7.90</b>	<b>7.93</b>	<b>7.92</b>	<b>5.59</b>	<b>3.08</b>	<b>11.63</b>

## 21.2 Operating Costs

### 21.2.1 Bucket Line Dredges

The operating cost estimates for Mineros' bucket line dredge operations were prepared based on recent historical operating performance, the current operating budget for 2021 and forecast LOM. Bucket line dredge LOM operating costs, required to mine and process an estimated 328.9 Mm<sup>3</sup> of Mineral Reserves, are estimated to total approximately US\$313.1 million, or US\$0.95/m<sup>3</sup>. The LOM operating cost estimate is broken down into fixed and variable cost components, as presented in Table 21-2.

**Table 21-2: LOM Bucket Line Dredge Operating Cost Estimate  
Mineros S.A. - Nechí Alluvial Property**

Item/Cost	Units/yr	LOM
Volume	Mm <sup>3</sup>	328.9
Recovered Gold	000 oz Au	864.6
Fixed Costs	US\$ M	154.0
Variable Costs	US\$ M	159.1
Total Cost	US\$ M	313.1
Unit Costs	US\$/oz Au	334
	US\$/m <sup>3</sup>	0.95

### 21.2.2 Suction Dredges

The operating cost estimates for Mineros' suction dredge operations were prepared based on recent historical operating performance, the current operating budget for 2021, and forecast LOM. Suction dredge LOM operating costs, required to mine and process an estimated 26.8 Mm<sup>3</sup> of alluvial material, are estimated to total approximately US\$29.5 million, or US\$1.10/m<sup>3</sup>. The LOM operating cost estimate is broken down into fixed and variable cost components, as presented in Table 21-3.

**Table 21-3: LOM Suction Dredge Operating Cost Estimate  
Mineros S.A. - Nechí Alluvial Property**

Item/Cost	Units/yr	LOM
Volume	Mm <sup>3</sup>	26.8
Recovered Gold	000 oz Au	72.0
Fixed Costs	US\$ M	6.6
Variable Costs	US\$ M	22.9
Total Cost	US\$ M	29.5
Unit Costs	US\$/oz Au	32
	US\$/m <sup>3</sup>	1.10

### 21.2.3 Terrace Alluvial Mining

The terrace alluvial mining LOM operating costs, to mine and process an estimated 99,218 m<sup>3</sup> of terrace alluvial material in 2021, are estimated to be US\$1.3 million. Table 21-4 summarizes the LOM terrace alluvial operating cost estimate.

**Table 21-4: LOM Terrace Alluvial mining Operating Cost Estimate  
Mineros S.A. – Nechí Alluvial Property**

Item	Units	Estimate
Volume	m <sup>3</sup>	99,218
Gold	oz Au	309
Total Cost	US\$ M	1.3
Unit Cost	US\$/oz Au	1.4
	US\$/m <sup>3</sup>	13.17

### 21.2.4 Support Operations and General and Administrative Costs

Support Operations and Site G&A costs comprise the different administrative support areas for the mine and processing operations, such as administration and finance, logistics, communications, legal, maintenance, environmental. This is considered a fixed cost, comprised mainly of labour. As per Mineros' LOM forecast it currently represents approximately 47% of operating costs, and is estimated to total approximately US\$308 million, or US\$0.87/m<sup>3</sup> for a total 356 Mm<sup>3</sup> processed reserves. Support operations and Site G&A LOM operating costs average US\$329/oz Au.

### 21.2.5 Life of Mine Operating Costs

The operating costs required to mine and process 356 Mm<sup>3</sup> of alluvial material are estimated to be US\$652 million over the LOM, as shown in Table 21-5.

**Table 21-5: LOM Operating Cost Summary  
Mineros S.A. - Nechí Alluvial Property**

Item	Units	Total	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bucket Line Dredge Reserves	US\$ M	313.15	6.60	24.84	25.19	25.17	25.12	25.32	25.16	25.00	24.68	24.52	25.19	25.39	24.21	6.78
Suction Dredge - Reserves	US\$ M	29.54	-	2.59	2.91	3.36	3.08	3.24	3.25	3.37	3.29	3.07	1.40	-	-	
Terraces - Reserves	US\$ M	1.31	1.31	-	-	-	-	-	-	-	-	-	-	-	-	
Support Areas	US\$ M	308.07	12.03	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	21.66	9.63
G&A	US\$ M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total</b>	<b>US\$ M</b>	<b>652.07</b>	<b>19.94</b>	<b>51.50</b>	<b>52.17</b>	<b>52.59</b>	<b>52.26</b>	<b>52.62</b>	<b>52.48</b>	<b>52.43</b>	<b>52.03</b>	<b>51.66</b>	<b>50.66</b>	<b>49.46</b>	<b>45.87</b>	<b>16.40</b>

## 22.0 ECONOMIC ANALYSIS

The economic analysis contained in this Technical Report is based on the Nechí Alluvial Property Mineral Reserves production, economic assumptions, and capital and operating costs provided by Mineros and reviewed by SLR. Production and costs inputs have a reference point of July 1, 2021. All costs are based in Q1 2021 US dollars with no allowance for inflation.

A summary of the key criteria is provided below.

### 22.1 Economic Criteria

#### 22.1.1 Physicals

- Mine life (from Q3 2021 to Q1 2034):
  - Bucket line dredges: 12.7 years
  - Suction dredges: 9.3 years
  - Terraces: 0.5 years
- Dredge average production rate:
  - Bucket line dredges: 73,400 m<sup>3</sup>/d (from Q3 2021 to Q1 2034)
  - Suction dredges: 7,960 m<sup>3</sup>/d (from Q1 2022 to Q1 2031)
  - Terraces: 545 m<sup>3</sup>/d (2H 2021)
- Processed:
  - Bucket line dredges:
    - Process feed: 328.9 Mm<sup>3</sup>
    - Au/Ag undiluted grade: 114.8 mg/m<sup>3</sup>
    - Contained Au ounces: 1,080,798 oz
    - Recovered Au ounces: 864,638 oz
  - Suction dredges:
    - Process feed: 26.8 Mm<sup>3</sup>
    - Au/Ag grade: 117.4 mg/m<sup>3</sup>
    - Contained Au ounces: 90,008 oz
    - Recovered Au ounces: 72,007 oz
  - Terraces:
    - Process feed: 99 km<sup>3</sup>
    - Au/Ag grade: 145.3 mg/m<sup>3</sup>
    - Contained Au ounces: 413 oz
    - Recovered Au ounces: 309 oz

- Total:
  - Process feed: 355.8 Mm<sup>3</sup>
  - Au/Ag grade: 115 mg/m<sup>3</sup>
  - Contained Au ounces: 1,171,219 oz
  - Recovered Au ounces : 936,954 oz
- Gold metallurgical recoveries:
  - Bucket line dredges: 80% Au
  - Suction dredge: 80% Au
  - Terraces: 75% Au
  - Average: 80% Au
- LOM average annual production of approximately 77,000 oz Au between 2022 and 2033 (full production years).

### 22.1.2 Revenue

- Revenue is estimated based on:
  - A Mineral Reserve gold metal price of US\$1,500/oz Au for ounces not under the forward contract.
  - A forward sales contract of 4,000 oz Au/month for 2021 (six months), which will be renewed by Mineros for 2022 (12 months) and 2023 (six months until renewal). This contract mitigates the risk of low spot prices, but limits upside of high spot prices.
- Gold production: doré bars containing gold and silver are sent to two refineries, with a split of 50% (Switzerland) and 50% (USA) of production by refinery.
- Transport, treatment, and refining charges totalling a LOM average of US\$5.26/oz Au (doré) of production.
- The LOM Net Revenue after treatment charges and royalties is US\$1,363 million.

### 22.1.3 Costs

- Average operating costs:
  - Bucket line dredges: US\$0.95/m<sup>3</sup> processed
  - Suction dredges: US\$1.10/m<sup>3</sup> processed
  - Terraces: US\$13.17/m<sup>3</sup> processed
  - Support and Site G&A US\$0.90/m<sup>3</sup> processed
- Total operating costs of US\$652 million.
- Total unit operating cost of US\$1.83/m<sup>3</sup> processed or US\$697/oz Au recovered.
- Sustaining capital costs of US\$66.2 million, including alluvial plains project and operations sustaining activities.

- Concurrent reclamation and closure costs of US\$50.5 million (undiscounted) over the LOM expanding until 2050. For cash flow analysis simplification purposes all closure costs after 2035 have been discounted to 2035, giving a total reclamation and closure cost between 2021 and 2035 of US\$45.7 million used for the economic analysis.
- All-In Sustaining Cost (AISC) of US\$901/oz Au.

#### 22.1.4 Taxation and Royalties

- Corporate income tax rate in Colombia is between 30% and 33%.
- A cost model including depreciation and tax losses was provided by the Mineros finance team for use in the SLR cash flow model.
- Gold production from alluvial deposits in respect to mining concession contract tenures is subject to a 6% royalty on the gross value of gold produced. Gold production for alluvial gold deposits from RPP tenure is subject to a 2% royalty on the gross value of gold produced, and a 4% gold tax. At the time of settlement of gold royalties' payment there is an adjustment outlined by the Central Bank of Colombia, assuming 80% of the gold price for the calculation of the royalties' payment.

## 22.2 Cash Flow

An unlevered after-tax cash flow model has been developed by SLR for the Nechí Alluvial Property. The inputs for the cash flow model, such as the mine production schedule, and capital and operating costs were provided to SLR by Mineros' corporate finance and mine site technical teams, and the reference point of all inputs is July 1, 2021. The model does not consider the following components:

- Financing cost, other than interest included in capital lease rates
- Insurance
- Overhead cost for a corporate office

SLR has relied on an estimation of applicable taxes by Mineros. An after-tax cash flow summary is presented in Table 22-1. All costs are in Q1 2021 US\$ millions with no allowance for inflation.

**Table 22-1: After-Tax Cash Flow Summary  
Mineros S.A. – Nechí Alluvial Property**

				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Project Timeline in Years				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Commercial Production Timeline in Years				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time Until Closure in Years				14	13	12	11	10	9	8	7	6	5	4	3	2	1	-	-
		US\$ & Metric Units	LOM Avg / Total																
<b>Market Prices</b>																			
Gold		US\$/oz	\$1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Gold Forward Contract - Stonex (NFTL FcStone)		US\$/oz	\$1,952	2,003	1,950	1,950	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Physicals</b>																			
Bucket Line Dredges - Ore Mined	000 m3		328,925	1,296	26,662	27,380	27,343	27,246	27,648	27,328	26,995	26,332	26,005	27,395	27,803	25,359	4,134	-	-
Au Grade Mined	mg/m3		114,83	101.8	125.8	114.3	120.6	115.1	91.4	103.7	113.5	119.7	121.3	132.6	119.5	107.9	73.0	-	-
Suction Dredges - Ore Mined	000 m3		26,805	-	2,257.99	2,630.53	3,151.84	2,831.70	3,013.27	3,024.53	3,161.60	3,069.11	2,812.10	861.87	-	-	-	-	-
Au Grade Mined	mg/m3		117.35	-	98.1	118.2	147.7	125.7	109.8	85.4	111.5	128.8	138.9	75.9	-	-	-	-	-
Terraces - Ore Mined	000 m3		99	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Au Grade Mined	mg/m3		145.31	145.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Ore Mined	000 m3		355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-
Total Material Mined	000 m3		355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-
Total Ore Processed	000 m3		355,829	1,395	28,920	30,011	30,495	30,067	30,661	30,353	30,156	29,401	28,817	28,257	27,803	25,359	4,134	-	-
Gold Grade, Processed	mg/m3		115.03	104.87	123.60	114.60	123.43	116.07	93.20	101.84	113.25	120.67	123.03	130.90	119.52	107.92	72.97	-	-
Contained Gold, Processed	koz		1,171	4.2	102.3	98.4	107.7	99.9	81.8	88.5	97.7	101.5	101.4	105.8	95.1	78.3	8.6	-	-
Average Recovery, Gold	%		80.9%	79.5%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	-	-
Recovered Gold	koz		937.0	3.3	81.8	78.7	86.2	79.9	65.4	70.8	78.2	81.2	81.2	84.7	76.1	62.6	6.9	-	-
Payable Gold	99.92%	koz	936.2	3.3	81.8	78.7	86.1	79.8	65.4	70.7	78.1	81.1	81.1	84.6	76.0	62.6	6.9	-	-
<b>Cash Flow</b>																			
Gold Revenue - Reserve price	\$000s		1,290,219	-	50,599	81,933	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-
Gold Revenue - Fwd/Hedge Contract	\$000s		146,937	6,653	93,523	46,761	-	-	-	-	-	-	-	-	-	-	-	-	-
Gold Gross Revenue	\$000s		1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-
Gross Revenue Before By-Product Credits	100.0%	\$000s	1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-
Gross Revenue After By-Product Credits	\$000s		1,437,156	6,653	144,121	128,694	129,032	119,637	97,959	105,970	117,077	121,617	121,534	126,792	113,914	93,815	10,341	-	-
Bucket Line Dredges - Mining Cost	\$000s		(313,151)	(6,597)	(24,838)	(25,186)	(25,168)	(25,121)	(25,151)	(25,161)	(24,999)	(24,679)	(24,520)	(25,193)	(25,390)	(24,208)	(6,776)	-	-
Suction Dredges - Mining Cost	\$000s		(25,544)	-	(2,592)	(2,912)	(3,358)	(3,075)	(3,240)	(3,249)	(3,367)	(3,287)	(3,067)	(1,396)	-	-	-	-	-
Terraces - Mining Cost	\$000s		(11,307)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support Ops + Site G&A Cost	90%	\$000s	(308,066)	(12,034)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(24,068)	(21,661)	(9,627)	-
Offsite Treatment / Refining Cost	\$000s		(4,926)	(272)	(377)	(375)	(375)	(367)	(349)	(356)	(365)	(369)	(373)	(363)	(346)	(283)	-	-	-
Royalties	6%	\$000s	(68,747)	(306)	(6,900)	(6,160)	(6,175)	(5,725)	(4,685)	(5,069)	(5,602)	(5,816)	(6,068)	(5,450)	(4,487)	(478)	-	-	-
Total Cash Costs After By-Product Credits	\$000s		(725,741)	(20,515)	(58,775)	(58,694)	(59,145)	(58,356)	(57,903)	(58,401)	(58,223)	(57,940)	(57,668)	(55,271)	(50,703)	(17,162)	-	-	-
Operating Margin	50%	\$000s	711,415	(13,862)	85,346	70,000	69,887	61,281	40,302	48,067	58,766	63,994	63,693	69,694	58,643	43,114	(6,821)	-	-
Admin Expenses	\$000s		(7,355)	(283)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(566)	(283)	-	-
EBITDA	\$000s		704,060	(14,145)	84,780	69,434	69,321	60,715	39,736	47,502	58,110	62,828	63,128	69,128	58,078	42,549	(7,103)	-	-
Depreciation/Amortization Allowance	\$000s		(147,538)	(11,361)	(11,637)	(11,938)	(12,268)	(12,636)	(13,049)	(13,521)	(14,072)	(14,738)	(15,613)	(15,931)	(17,584)	(17,584)	-	-	-
Earnings Before Taxes	\$000s		556,133	(25,507)	73,143	57,497	57,053	48,080	26,687	33,980	44,037	48,094	51,515	63,198	50,494	34,965	(7,103)	-	-
Corp. Income Tax @ Effective Rate of:	24.0%	\$000s	(169,071)	-	(22,448)	(16,979)	(16,476)	(13,842)	(7,372)	(9,483)	(12,443)	(13,581)	(14,570)	(18,065)	(14,258)	(9,555)	-	-	-
Net Income	\$000s		387,062	(25,507)	50,696	40,518	40,577	34,237	19,315	24,498	31,595	34,514	36,945	45,133	36,235	25,409	(7,103)	-	-
Non-Cash Add Back - Depreciation/Amortization	\$000s		147,928	11,361	11,637	11,938	12,268	12,636	13,049	13,521	14,072	14,734	15,613	15,931	17,584	17,584	-	-	-
Working Capital	\$000s		-	1,097	(15,447)	375	(23)	46	396	(451)	(542)	(384)	(330)	131	87	(233)	1,922	-	-
Operating Cash Flow	\$000s		534,990	(13,049)	40,786	52,731	52,622	46,919	32,761	37,568	45,125	48,864	48,310	50,737	43,950	33,080	(7,336)	1,922	-
Development Capital	\$000s		(1,504)	(1,504)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	\$000s		(64,734)	(7,804)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(4,950)	(2,475)	-	-	-
Closure/Reclamation Capital	\$000s		(45,733)	(3,429)	(731)	(901)	(2,133)	(1,939)	(2,114)	(2,371)	(2,562)	(2,826)	(2,949)	(2,982)	(2,966)	(3,113)	(3,078)	(11,629)	-
Total Capital	\$000s		(111,960)	(12,736)	(5,682)	(5,851)	(7,063)	(6,899)	(7,065)	(7,322)	(7,512)	(7,776)	(7,900)	(7,932)	(7,916)	-	-	-	-
<b>LoM Metrics</b>																			
<b>Economic Metrics</b>																			
<b>a) Pre-Tax</b>																			
Free Cash Flow	\$000s		592,100	(25,785)	77,552	63,858	62,015	53,872	33,068	39,729	50,055	54,668	54,980	60,869	50,292	37,047	(10,414)	(9,707)	-
Cumulative Free Cash Flow	\$000s		(25,785)	51,767	115,625	177,640	231,512	264,580	304,309	354,364	409,033	464,013	524,882	575,174	612,221	601,807	592,100	592,100	-
NPV @ 8%	8.0%	\$000s	352,524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NPV @ 10%	10.0%	\$000s	314,247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NPV @ 12%	12.0%	\$000s	281,585	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>b) After-Tax</b>																			
Free Cash Flow	\$000s		423,023	(25,785)	55,104	46,879	45,539	40,030	25,696	30,246	37,613	41,088	40,410	42,805	36,034	27,491	(10,414)	(9,707)	-
Cumulative Free Cash Flow	\$000s		(25,785)	29,319	76,198	121,737	161,767	187,464	217,710	255,322	296,410	336,820	379,625	415,659	443,150	432,736	423,023	423,023	-
NPV @ 8%	8.0%	\$000s	250,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NPV @ 10%	10.0%	\$000s	223,239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NPV @ 12%	12.0%	\$000s	199,598	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Operating Metrics</b>																			
Mine Life	Years		12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum Daily Bucket Line Dredges Mining Rate	m3/d mined		75,964	7,118	73,047	75,015	74,708	74,645	75,747	74,872	73,756	72,143	71,247	75,054	69,286	68,900	-	-	-
Maximum Daily Suction Dredges Mining Rate	m3/d mined		8,638	-	6,186	7,207	8,612	7,751	8,256	8,286	8,638	8,409	8,409	7,871	-	-	-	-	-
Maximum Daily Terraces Mining Rate	m3/d mined		545	545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum Daily Processing Rate	m3/d milled		84,003	7,664	79,233	82,222	83,320	82,376	84,003	83,159	82,394	80,551	78,951	77,415	75,964	69,286	68,900	-	-
Bucket Line																			



### 22.2.1 Cash Flow Analysis

SLR prepared an unlevered LOM after-tax cash flow model to confirm the economics of the Nechí Alluvial Property LOM between Q3 2021 and Q1 2034. The project economics have been evaluated using the discounted cash flow method by considering annual processed tonnages and gold grade of ore. The associated process recovery, gold price, operating costs, refining and transportation charges, royalties, and capital expenditures were also considered. Taxes were estimated by Mineros and have not been confirmed by SLR.

The economic analysis demonstrates that the Mineral Reserves are economically viable at a flat gold price of US\$1,500/oz Au. The pre-tax net present value (NPV) at a 10% discount rate is US\$314 million and the after-tax NPV at a 10% discount is US\$223 million (Table 22-2).

**Table 22-2: Cash Flow Analysis  
Mineros S.A. – Nechí Alluvial Property**

Item	Discount Rate	Units	Value
Pre-tax NPV at 8% discount	8%	US\$000	<b>352,524</b>
<b>Pre-tax NPV at 10% discount</b>	<b>10%</b>	<b>US\$000</b>	314,247
Pre-tax NPV at 15% discount	15%	US\$ '000	281,585
After-tax NPV at 8% discount	8%	US\$ '000	250,903
<b>After-tax NPV at 10% discount</b>	<b>10%</b>	<b>US\$ '000</b>	<b>223,239</b>
After-tax NPV at 15% discount	15%	US\$ '000	199,598

The undiscounted pre-tax cash flow is US\$592 million, and the undiscounted after-tax cash flow is US\$423 million. For this cash flow analysis, internal rate of return (IRR) and payback are non-applicable as there is no negative initial cash flow (no initial investment to be recovered).

The World Gold Council Adjusted Operating Cost (AOC) is US\$775/oz Au. The mine life capital cost, including both pre-production and sustaining unit cost, is US\$126/oz Au, for an AISC of US\$901/oz Au. The LOM average annual gold production during operation is approximately 77,000 oz Au between 2022 and 2033 (full production years).

### 22.3 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 pre-tax NPVs at a 10% discount rate. The following items were examined:

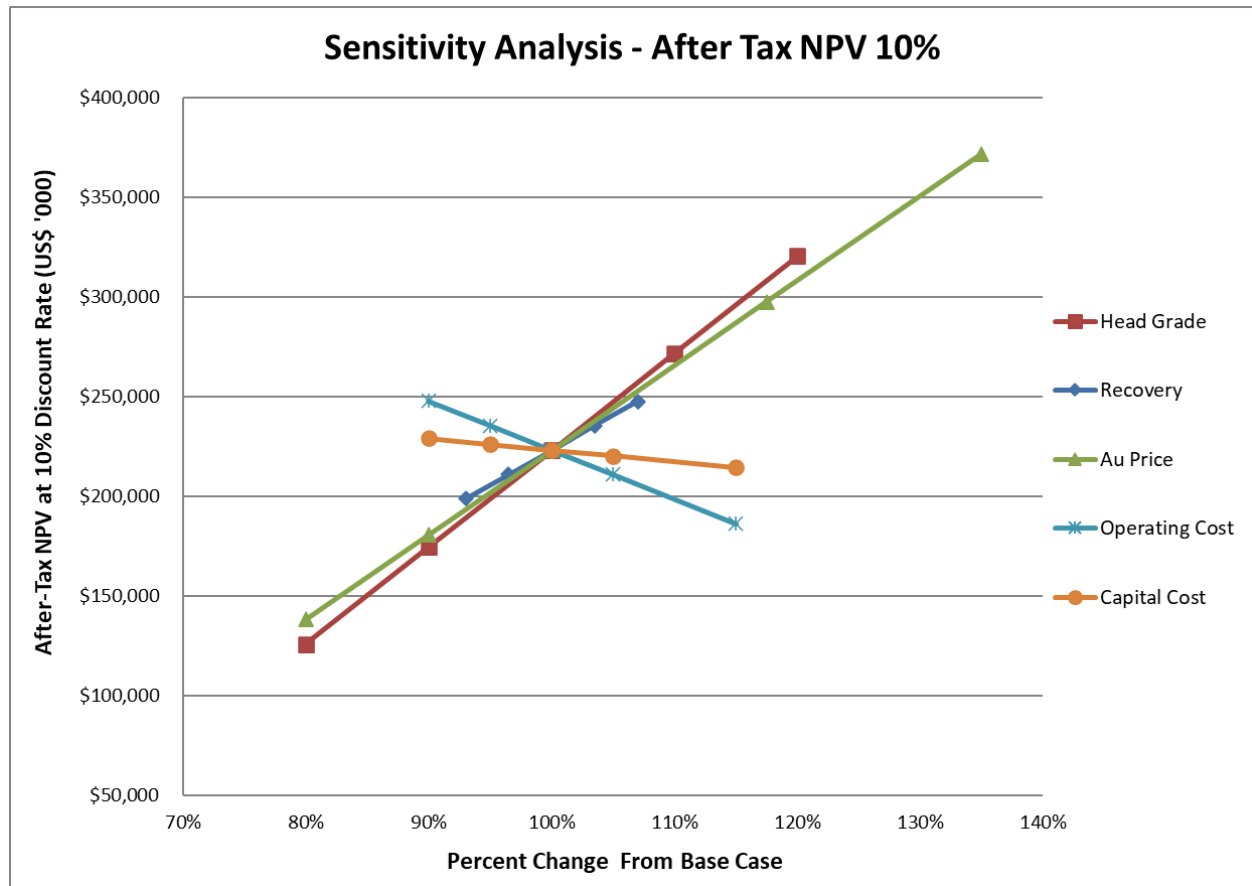
- Gold metal price
- Gold head grade
- Gold metallurgical recovery
- Operating costs
- Capital costs (Development, Sustaining, and Closure)

Pre-tax sensitivity over the base case has been calculated for -20% to +20% (for gold grade), -5% to +5% (for gold recovery), -20% to +35% (for gold price), and -10% to +15% (operating costs and capital costs) variations to determine the most sensitive parameter of this project. The sensitivities are shown in Table 22-3 and Figure 22-1.

**Table 22-3: Sensitivity Analysis  
Mineros S.A. – Nechí Alluvial Property\**

	<b>Head Grade (mg/m<sup>3</sup> Au)</b>	<b>NPV at 10% (US\$000)</b>
80%	92.03	125,858
90%	103.53	174,549
100%	115.03	223,239
110%	126.53	271,929
120%	138.04	320,620
	<b>Recovery (% Au)</b>	<b>NPV at 10% (US\$000)</b>
95%	76.0%	198,894
98%	78.0%	211,066
100%	80.0%	223,239
103%	82.0%	235,412
105%	84.0%	247,584
	<b>Metal Prices (US\$/oz Au)</b>	<b>NPV at 10% (US\$000)</b>
80%	\$1,200	138,323
90%	\$1,350	180,781
100%	\$1,500	223,239
118%	\$1,763	297,540
135%	\$2,025	371,841
	<b>Operating Costs (US\$/m<sup>3</sup>)</b>	<b>NPV at 10% (US\$000)</b>
90%	\$1.65	247,841
95%	\$1.74	235,540
100%	\$1.83	223,239
105%	\$1.92	210,938
115%	\$2.11	186,336

	Capital Costs (US\$000)	NPV at 10% (US\$000)
90%	\$100,764	229,065
95%	\$106,362	226,152
100%	\$111,960	223,239
105%	\$117,559	220,326
115%	\$128,755	214,500



**Figure 22-1: NPV Sensitivity Graph**

The after-tax NPV is most sensitive to head grade, then gold price, followed by operating costs, metallurgical recovery, and capital costs.

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## 23.0 ADJACENT PROPERTIES

This section is not applicable.

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## 24.0 OTHER RELEVANT DATA AND INFORMATION

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

## 25.0 INTERPRETATION AND CONCLUSIONS

Mineros purchased the mining titles that constitute the Nechí Alluvial Property and alluvial mining equipment from Pato Consolidated in 1974. Mineros' Nechí Alluvial operations have continued virtually uninterrupted since 1974. Additional concession contracts have been continuously acquired since 1974 as part of ongoing exploration to delineate Mineral Resources and Mineral Reserves. Mineros has estimated Mineral Resources and Mineral Reserves and has prepared a Life of Mine (LOM) plan that covers a period of approximately 13 years from 2021 to 2034 based on Proven and Probable Mineral Reserves. This LOM plan demonstrates the economic viability of the Mineral Reserves.

SLR offers the following conclusions and opinions:

- As of June 30, 2021, the Proven Mineral Reserves total 317 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 989,950 oz Au and Probable Mineral Reserves total 58 Mm<sup>3</sup> averaging 108 mg/m<sup>3</sup> (combined gold plus some silver) and contain 181,270 oz Au for total Mineral Reserves of 376 Mm<sup>3</sup> averaging 109 mg/m<sup>3</sup> (combined gold plus some silver) and contain 1,171,220 oz Au.
- As of June 30, 2021, the Nechí alluvial Measured Mineral Resources total 510 Mm<sup>3</sup> averaging 81 mg/m<sup>3</sup> and contain 1,175,043 oz Au. Indicated Mineral Resources total 18 Mm<sup>3</sup> averaging 67 mg/m<sup>3</sup> and contain 35,614 oz Au. Total Mineral Resources are 528 Mm<sup>3</sup> averaging 80 mg/m<sup>3</sup> and contain 1,210,657 oz Au. All alluvial Inferred Mineral Resources have been upgraded to Indicated or Measured Mineral Resources. Mineral Resources are exclusive of Mineral Reserves.
- SLR notes that there has only been a minor decrease in Mineral Reserves for MY 2021 compared to YE 2020 that is the result of Mineral Reserves depletion from 2021 mining. Mineral Resources have remained largely unchanged from YE 2020, apart from the minor decrease in volume and grade of one Measured Resource block for which mining was initiated in 2021 due to a permitting delay for a nearby reserve block.
- SLR is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource and Mineral Reserve estimates.
- Mineros' Nechí alluvial mining operations are efficiently run and employ state-of-the-art to industry-standard technical procedures.
- Mineros' drilling, sampling, sample preparation, gold analysis, and security procedures are consistent with industry standards for large scale alluvial gold deposits and adequate for the estimation of alluvial gold Mineral Resources and Mineral Reserves.
- The Mineral Resources and Mineral Reserves estimates prepared by Mineros are reasonable and adequate for alluvial mine planning.
- In 2021, Mineros began the transition from the 2D polygonal approach to a 3D resource block modelling approach using Seequent's Leapfrog software and both methods are currently being used for short term mine planning.
- There is good exploration potential to discover new terrace resources on the western bank of the Nechí River, which will be the focus of Mineros' 2022 exploration drilling program.
- Mineros has begun using drones for surveying and mine planning and received a new LiDAR equipped drone during SLR's site visit.

- Planned external dilution is estimated based on the mine plan and design, and equipment used. This planned external dilution is estimated based on historical reconciliation data, including excavation surveys, and includes slough and suction waste that remained on top of the excavated pay gravel. Average gravel dilution is estimated to be 13.8% at zero grade.
- Mine extraction for bucket line dredge alluvial, suction plain alluvial, and terrace alluvial mining is estimated to be 100% and is considered to be reasonable.
- The LOM plan appears to be reasonable and SLR's independent cash flow analysis, based on the LOM plan and corporate information, confirms that the Mineral Reserves are economic and the Proven and Probable Mineral Reserve classification for the Nechí Alluvial Property is acceptable under CIM (2014) definitions.
- Mineros' El Bagre complex infrastructure and facilities, including maintenance shops, warehouses, water supply system, power supply, and other related units, are functional and in good repair. Although major equipment components such as electric power units and some maintenance equipment are quite old, they are well serviced and in excellent operating condition. Schedules for regular maintenance are in place and followed.
- SLR visited Production Unit 4, consisting of bucket line dredge No. 14 and suction dredge No. 15, in 2010 and Production Unit 1 bucket line dredge No. 3 in 2017. All sections pertaining to bucket line dredge production were visited and time was spent on the bridge observing the positioning systems and navigation controls. The complete flow of gravel, from the bucket line until final disposal as backfill, was followed and gravity recovery by on board jigs, tables, spirals, and sluices was observed. SLR is of the opinion that Mineros personnel exercise good care and control during the mining and final gold recovery operations. The set of operating procedures and planning methods are adequate for this type of dredging operation and ensure that mining is always kept under control.
- Prior to 2012, mercury was used in the quaternary concentration stage of gold recovery on the dredges. The use of mercury was carefully managed and controlled in accordance with government regulatory requirements. Commencing in 2012, Mineros eliminated the use of mercury for gold recovery from some of its operations. By 2014, all use of mercury had been eliminated from its barge and plant facilities. This was a significant achievement from a technical, environmental, and social perspective, and sets a performance standard for other alluvial mining and surface mining operations in the region.
- The dredge processing is operating well, with the change from mercury amalgamation to gravity recovery contributing to a safer environment.
- The general organization of the Nechí Alluvial Property operations, including union relations, hiring procedures, job evaluation, salary reviews, etc., is subject to internal systematic review and is upgraded to reflect any change in the operating procedures. The safety measures, controls, manuals of procedures, and other documents are of excellent quality and serve to minimize work accidents.
- Mineros' approved EMP provides the framework for meeting environmental regulations and corporate social obligations. The EMP provides overall strategic and technical guidance to operations ensuring conformance with environmental and social requirements. It is leading edge industry best practice.
- In 2018, Mineros initiated a request that the ANLA, in addition to approving EMPs, take on responsibility for future mining and hydroelectric permits for Mineros operations. The process

required for this request was completed in early 2020. This harmonization improves the effectiveness of the permitting process.

- Permits are in place for the Nechí Alluvial Property and Mineros' operations are in material compliance. The most recent ANLA permit application of August 2021 for mining of the CA5 and RMCA5 blocks in the Sampumoso sector is a re-submission of an earlier application which was granted for all blocks apart from those blocks which ANLA requested additional baseline and assessment data for. Based on Mineros' meetings and discussions with ANLA, the August 2021 submission provides the requested information and Mineros is confident ANLA will approve the application. From SLR's discussions with Mineros and review of information provided, it appears that the requested information has been provided and supports Mineros' optimism for approval.
- In early 2020, the Nechí Alluvial Property was designated one of five PINE in Colombia by the MEM. This designation confirms Mineros' sustainable contribution to the country, region, and society and ensures that Mineros will receive priority considerations during procedures with any level of government.
- El Bagre facilities are well maintained, and material recycling, re-use, and waste management systems are effective and well managed.
- Mineros' environmental management system is continuously evolving and improving. Environmental performance monitoring and control systems are refined to reflect changes to operations and areas of activities. Environmental tracking of key performance indicators allows for operational monitoring of achievements against planned targets and commitments.
- In 2019, Mineros provided a DRMI Environmental Compensation Plan as required under its EMP and in compliance with Resolution 1612 of August 15, 2019. This plan addresses the rationale for selection of two potential compensation areas (El Sapo and Hoyo Grande) and the framework for moving forward on compensation actions.
- Mineros has developed a new approach for alluvial mining of large blocks that reduces impacts on the environment during active mining and enhances restoration and return of mined lands to pre-mining landforms and environments. This approach reduces impacts on the main river channels, including limiting water used in mining, reduction of sediment load to the river, and reduction of the release of chemicals, wastes, and other substances into the river system. Using this new approach, restoration efforts are carried out in a manner that strives to achieve a final landform that is similar to the pre-mining setting of the area.
- In addition to terrace mining, Mineros has developed and is implementing plans to support informal alluvial mining which include formalized mining at EMIJOM project, pilot work at Block El Bagre and Block Amacerí, land transfer to EMINCUT, and contracts with Suministros Agromineros S.A.S. These initiatives are providing significant job opportunities to local peoples and generate real wealth and social contributions while mitigating environmental impacts and avoiding the use of mercury.
- Mineros has excellent closure practices. Alluvial mine blocks are reclaimed on a progressive basis with the objective of re-establishing pre-mining geomorphic conditions and agreed future land use objectives consistent with local landforms. In addition, Mineros compensates landowners/farmers for the use of the land, damage caused by the mining operation, lost crops, lost time, etc., depending on the type of crops, size of farmland, etc., and, after completion of reclamation, carries out residential building construction and re-vegetation with plants and crops at agreed locations. When the farmers are returned to site after mining, Mineros assists them in



obtaining proper titles with the ANT. Recent incursions by illegal mining on reclaimed lands is a cause for concern and needs to be addressed as expeditiously as possible.

- As the Nechí Alluvial Property is an active operation, capital, and operating cost estimates were prepared based on recent operating performance and the current 2021 operating budget. SLR reviewed the sustaining capital and operating costs required for the mine operations and considers these estimates to be reasonable, provided the production targets are realized.
- The economic analysis of the Nechí Alluvial Property operations yields a positive result, confirming that the Nechí Alluvial Property Mineral Reserves are economically viable. The economic analysis indicates an after-tax net present value (NPV), at a 10% base discount rate, of \$223 million.
- Forward sales contracts for part of the production between 2021 and 2023 mitigate the risk of low spot prices, and during this period, ensure revenue at prices above the Mineral Reserve price of US\$1,500/oz Au. The contracts, however, limit the upside in the current market of high spot prices.

## 26.0 RECOMMENDATIONS

SLR offers the following recommendations:

1. SLR notes that the Mineral Resources and Mineral Reserves contain a layer of overburden with an average thickness of 12 m. As this material does not contain gold above cut-off grade, it could be excluded from the Mineral Resources and Mineral Reserves after moving from the current 2D polygonal methodology to 3D block modelling approaches. SLR recommends that only the pay gravels be included in future Mineral Resource and Mineral Reserve estimates. This does not impact the overall quantity of contained gold since the gold grade is averaged over the bulk of the material, however, it will result in a lower volume of material at a higher grade.
2. Continue to evaluate the potential for reprocessing old tailings in previously mined higher grade areas.
3. Continue to carry out exploration and in-fill drilling with the Ward and sonic drills.
4. Continue the migration from 2D to 3D Mineral Resource estimation.
5. Account for gold fineness, refining costs, and payables in the calculation of cut-off grades for Mineral Resources and Mineral Reserves.
6. SLR notes that the permitting regime for Mineros operations have in the last several years been in a state of transition. Operating permitting has been harmonized to be carried out through the federal regulator ANLA instead of the regional regulator. In this respect, these years have been a learning period for both Mineros and ANLA, as Mineros gains insights into baseline data and environmental impact assessment needs and approaches of ANLA, and as ANLA gains a fulsome understanding of Mineros' operations through the mining life cycle. In some cases, specific terms of reference for environmental work desired by ANLA do not yet exist. In this regard, SLR recommends that Mineros:
  - Develop a strategic plan and schedule for permitting that is synchronized with a detailed LOM block exploitation plan.
  - Engage with ANLA as early as possible to establish general, and when appropriate detailed, terms of reference for future permit applications.
  - Initiate any additional baseline data collection and studies for future mine blocks well in advance of the LOM development timeframe for these blocks.
  - Integrate the strategic environmental plan into the overall performance management plan to ensure it is tracked regularly along with other critical performance indicators.
7. Appropriate management of surface waters in and around the facilities is a key factor for Mineros' successful alluvial mining operation. In this regard, SLR supports and encourages Mineros' efforts to investigate new technologies and approaches to ensure the Nechí Alluvial Property operations are not negatively impacted by extreme precipitation and runoff events, as well as mitigating potential environmental and social concerns associated with water discharge to the receiving environment.
8. The negative impact of illegal mining presents a significant frustration to local and regional inhabitants and Mineros. To the degree practically possible, Mineros should continue to engage with local, regional, and federal officials to assist them in working toward a sustainable solution to this issue.

9. Continue efforts towards improving efficiencies and approaches to mining and development operations as opportunities arise in these areas.

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## 28.0 DATE AND SIGNATURE PAGE

This report titled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia” with an effective date of September 15, 2021, was prepared and signed by the following authors:

**(Signed & Sealed) Luke Evans**

Dated at Toronto, Ontario  
September 15, 2021

Luke Evans, M.Sc. P.Eng.  
Principal Geologist

**(Signed & Sealed) Richard E. Routledge**

Dated at Toronto, Ontario  
September 15, 2021

Richard E. Routledge, M.Sc. (Applied), P.Geo.  
Associate Principal Geologist

**(Signed & Sealed) Ian Weir**

Dated at Toronto, Ontario  
September 15, 2021

Ian Weir, P.Eng.  
Senior Mining Engineer

**(Signed & Sealed) Holger Krutzelmann**

Dated at Toronto, ON  
September 15, 2021

Holger Krutzelmann, P. Eng.  
Associate Principal Metallurgist

**(Signed & Sealed) Gerd Wiatzka**

Dated at Toronto, ON  
September 15, 2021

Gerd Wiatzka, P.Eng.  
Consulting Civil/Environmental Engineer  
Principal, Vice President and Director Mining  
of Arcadis Canada Inc.

## 29.0 CERTIFICATE OF QUALIFIED PERSON

### 29.1 Luke Evans

I, Luke Evans, M.Sc., P.Eng., as an author of this report entitled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia” prepared for Mineros S.A., with an effective date of September 15, 2021, do hereby certify that:

1. I am a Principal Geologist and Global Technical Director, Geology and Mineral Resources, with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON, M5J 2H7.
2. I am a graduate of University of Toronto, Ontario, Canada, in 1983 with a Bachelor of Science (Applied) degree in Geological Engineering and Queen’s University, Kingston, Ontario, Canada, in 1986 with a Master of Science degree in Mineral Exploration.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg. #90345885). I have worked as a professional geologist for a total of 38 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Consulting Geological Engineer specializing in resource and reserve estimates, audits, technical assistance, and training since 1995.
  - Review and report as a consultant on numerous exploration and mining projects around the world for due diligence and regulatory requirements.
  - Senior Project Geologist in charge of exploration programs at several gold and base metal mines in Quebec.
  - Project Geologist at a gold mine in Quebec in charge of exploration and definition drilling.
  - Project Geologist in charge of sampling and mapping programs at gold and base metal properties in Ontario, Canada.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Nechí Alluvial Property most recently on August 17 to 19, 2021.
6. I am responsible for overall preparation of the Technical Report and I share responsibility for Sections 1 to 12, 14, and 23 to 27 of the Technical Report.
7. I am independent of Mineros applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared internal technical reports dated September 11, 2017, July 31, 2019, and August 15, 2020 that included the Nechí alluvial gold property that is the subject of this Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15<sup>th</sup> day of September, 2021

**(Signed & Sealed) *Luke Evans***

Luke Evans, M.Sc., P.Eng.



## 29.2 Richard E. Routledge

I, Richard E. Routledge, M.Sc. (Applied), P.Geo., as an author of this report entitled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia” prepared for Mineros S.A., with an effective date of September 15, 2021, do hereby certify that:

1. I am an Associate Principal Geologist with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of Sir George Williams (now Concordia) University, Montreal, Quebec, Canada in 1971 with a Bachelor of Science degree, Major Geology, and of McGill University, Montreal, Quebec, Canada in 1973 with a Master of Science degree in Applied Mineral Exploration.
3. I am registered as a Practicing Member of the Association of Professional Geoscientists of Ontario (#1354). I have worked as a geologist for 48 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Review and report as a consultant on numerous exploration and mining projects around the world for due diligence and regulatory requirements, including:
  - Evaluation of the potential for desert placer gold mining, Ad Duwayah area, Saudi Arabia.
  - Review of alluvial gold resources of certain tenements in the Zamar gold fields, Mongolia.
  - Evaluation of placer gold mining potential of certain properties in the Caucasia area, Antioquia, Colombia.
  - Evaluation of gold placer dredging potential of certain areas in Burundi, east Africa.
  - Vice President Exploration for a junior mining company in charge of diamond exploration programs in NWT and property evaluations worldwide for a variety of commodities, including gold, base metals, and diamonds.
  - Senior geologist with a major Canadian mining company in charge of evaluation of advanced properties/projects and acquisitions for a broad variety of metals and industrial minerals.
  - Consulting Geologist and Associate of three major Canadian mining and geological consulting firms specializing in resource and reserves estimates and audits.
4. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
5. I visited the Nechí Alluvial Property and facilities from May 8 to 14, 2017, and earlier from July 8 to 17, 2008 and from July 27 to August 3, 2010.
6. I am responsible for Sections 3, 4, 5, 7, 8, 9 share responsibility with my co-authors for Sections 6, 10, 11, 12, 14, 15 and 23, and related disclosure in Sections 1, 2, 25, 26, and 27 of the Technical Report.
7. I am independent of Mineros applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared previous internal technical reports dated December 16, 2010, September 11, 2017, July 31, 2019, and August 15, 2020 for Mineros that included the Nechí Alluvial Property that is the subject of this Technical Report.

9. I have read NI 43-101, and the part of the Technical Report for which I am responsible has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. As of the effective date of the Technical Report, to the best of my knowledge, information, and belief, the part of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 15<sup>th</sup> day of September, 2021

**(Signed & Sealed) *Richard E. Routledge***

Richard E. Routledge, M.Sc. (Applied), P.Geo.

### 29.3 Ian Weir

I, Ian Weir, P.Eng., as an author of this report entitled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia” prepared for Mineros S.A., with an effective date of September 15, 2021, do hereby certify that:

1. I am a Consultant Mining Engineer and Technical Manager, Mining Engineering and Expert Witness, with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2. I am a graduate of Queen’s University, Kingston, Ontario, in 2004 with a B.A.Sc. degree in Mining Engineering.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 100143218). I have worked as a mining engineer for a total of ten years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Project evaluation, mine planning, and financial analysis for NI 43-101 reporting.
  - Supervision of mine development at a copper mine in Chile from the pre-stripping phase to a fully operational mine.
  - Mining engineer at gold and copper open pit projects in Chile and USA.
  - Mineral Reserve estimation for gold operations worldwide
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I did not visit the Nechí Alluvial Property.
6. I am responsible for Sections 15, 16, 18, 19, 21, 22, and 24 of the Technical Report and related disclosure in Sections 1, 2, 25, 26, and 27.
7. I am independent of Mineros applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared a previous internal technical report dated August 15, 2020 for Mineros that included the Nechí Alluvial Property that is the subject of this Technical Report t.
9. I have read NI 43-101, and the part of the Technical Report for which I am responsible has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 15, 16, 18, 19, 21, 22, 24, and related disclosure in Sections 1, 2, 25, 26, and 27 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15<sup>th</sup> day of September, 2021

**(Signed & Sealed) Ian Weir**

Ian Weir, P.Eng.

## 29.4 Holger Krutzelmann

I, Holger Krutzelmann, P. Eng., as an author of this report entitled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia”, prepared for Mineros S.A., with an effective date of September 15, 2021, do hereby certify that:

1. I am an Associate Principal Metallurgist with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave Toronto, ON M5J 2H7.
2. I am a graduate of Queen’s University, Kingston, Ontario, Canada in 1978 with a B.Sc. degree in Mining Engineering (Mineral Processing).
3. I am registered as a Professional Engineer in the Province of Ontario (Reg. #90455304). I have worked in the mineral processing field, in operating, metallurgical, managerial; and engineering functions, for a total of 42 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Reviews and reports as a metallurgical consultant on a number of mining operations and projects for due diligence and financial monitoring requirements
  - Senior Metallurgist/Project Manager on numerous gold and base metal studies for a leading Canadian engineering company.
  - Management and operational experience at several Canadian and U.S. milling operations treating various metals, including copper, zinc, gold and silver.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Nechí Alluvial Property and facilities from May 8 to 14, 2017.
6. I am responsible for Sections 6.2, 13, and 17 and related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
7. I am independent of Mineros applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared previous internal technical reports dated September 11, 2017, July 31, 2021, and August 15, 2020 that included the Nechí alluvial gold property that is the subject of this Technical Report.
9. I have read NI 43-101, and the part of the Technical Report for which I am responsible has been prepared in compliance with NI 43-101 and Form 43-101F1.
10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 6.2, 13, and 17, and related disclosure in Sections 1, 25, 26, and 27 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 15<sup>th</sup> day of September, 2021

**(Signed & Sealed) Holger Krutzelmann**

Holger Krutzelmann, P.Eng.

## 29.5 Gerd Wiatzka

I, Gerd Wiatzka, P.Eng., as an author of this report entitled “Technical Report on the Nechí Alluvial Gold Mineral Resource and Mineral Reserve Estimates, Antioquia Department, Colombia”, prepared for Mineros S.A., with an effective date of September 15, 2021, do hereby certify that:

1. I am a Consulting Civil/Environmental Engineer and Principal, Vice President and Director Mining of Arcadis Canada Inc. of Unit 12, 121 Granton Drive Richmond Hill, ON, L4B 3N4.
2. I am a graduate of the University of Waterloo, Waterloo, Ontario, in 1974 with a B.A.Sc. (Honours) degree in Civil Engineering.
3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 49882012) and the Northwest Territories and Nunavut (L1701). I have worked as a civil/environmental engineer for more than 40 years since my graduation. My relevant experience for the purpose of the Technical Report is based on:
  - More than 40 professional years of experience in the resource sector including engineering design, site assessment and permitting, project and construction management, closure planning and implementation
  - More than 25 years’ experience as an environmental professional
  - Approximately seven years’ experience in management information and technology services
  - Worldwide project experience in the mining sector including environmental assessments, closure planning, numerous due diligence assessments, liability assessments, 43-101 reviews of projects ranging major mining operations
  - Provision of expert services to state and federal governments as well as national and international financial institutions (including the European Bank for Reconstruction and Development, the International Finance Organization).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Nechí Alluvial Property and facilities most recently from August 17 to 19, 2021 and earlier from May 8 to 14, 2017, July 8 to 17, 2008, and July 27 to August 3, 2010.
6. I am responsible for the preparation of Section 20 and environmental aspects of Sections 1, 4, 6, 25, 26, and 27 of the Technical Report.
7. I am independent of Mineros applying the test set out in Section 1.5 of NI 43-101.
8. I have prepared previous internal technical reports dated December 16, 2010, September 11, 2017, July 31, 2021, and August 15, 2020 for Mineros that included the Nechí Alluvial Property that is the subject of this Technical Report.
9. I have read NI 43-101, and the part of the Technical Report for which I am responsible has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. As of the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 20 and the environmental aspects of Sections 1, 4, 6, 25, 26, and 27 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 15<sup>th</sup> day of September, 2021

**(Signed & Sealed) *Gerd Wiatzka***

Gerd Wiatzka, P.Eng.

