Gold Mining Operations

Summary Audit Report

for

Aura Minerals Ltd/

Mineração Apoena/ Ernesto Facility.

April 2021

Prepared by NCABrasil Expert Auditors Ltd.

www.globalsheq.com

This summary audit report contains 39 pages

SUMMARY AUDIT REPORT

SUMMARY AUDIT REPORT
FOR GOLD MINING OPERATIONS

Instructions

1. The basis for the finding and/or statement of deficiencies for each Standard of Practice should be summarized in this Summary Audit Report. This should be done in a few sentences or a paragraph.

2. The name of the mine operation, lead auditor signature and date of the audit must be inserted on the bottom of each page of this Summary Audit Report. The lead auditor's signature at the bottom of the attestation on page 3 must be certified by notarization or equivalent.

3. An operation that is in substantial compliance must submit a Corrective Action Plan with the Summary Audit Report.

4. The Summary Audit Report and Corrective Action Plan, if appropriate, with all required signatures must be submitted in hard copy to:

ICMI (International Cyanide Management Institute)
1400 I Street, NW, Suite 550.
Washington, DC, 20005, USA.
Tel: +1-202-495-4020.

5. The submittal must be accompanied with 1) a letter from the owner or authorized representative which grants the ICMI permission to post the Summary Audit Report on the Code Website, and 2) a completed Auditor Credentials Form. The letter and lead auditor's signature on the Auditor Credentials Form must be certified by notarization or equivalent.

6. Action will not be taken on certification based on the Summary Audit Report until the application form for a Code signatory and the required fees are received by ICMI from the applicable gold mining company.

7. The description of the operations should include sufficient information to describe the scope and complexity of the gold mining operation and gold recovery process.

Mineração Apoena		11/06/2021
Name of Mine	Signature of Lead Auditor	Date

SUMMARY AUDIT REPORT

Name of Mine: Mineração Apoena/ Ernesto facility.
Name of Mine Owner: Aura Minerals Ltd.
Name of Mine Operator: Mineração Apoena.
Name of Responsible Manager: Vanessa Aparecida Apostólico (SHE Manager)

Address: Fazenda Ernesto Soarez de Carvalho, S/N, Zona Rural, 78250-000, Pontes e Lacerda.

State/Province: Mato Grosso (MT)
Country: Brasil
Telephone: (+5565) 3266-8371
Fax: not applicable
E-Mail: Vanessa Aparecida Apostólico <Vanessa.Apostolico@auraminerals.com>

Location detail and description of operation:

1. **Objective:**

The Ernesto mine, owned by Mineração Aura Minerals, is located near of the of Pontes and Lacerda city, in the Mato Grosso state - Brazil, and this descriptive is intended to present the entire process of obtaining the gold carried out by the processing plant.

2. **Introduction:**

The technology adopted for the processing of ore begins in primary crushing, followed by single stage milling (cyanide solution is not added at the milling circuit, so the milling circuit is not a cyanide facility), in which a SAG **(Semi-Autogenous Grinding)** mill system operating in closed circuit with hydro cyclones is used. The hydro cyclones act by separating the pulp coming from the mill through centrifugal force, the less dense part is concentrated in the center of the cyclone coming out of the upper part of the cyclone, which is called overflow and the denser part is concentrated on the sides of the cyclone coming out from the bottom, being called underflow.

The part of the underflow's classification mass feeds the concentration centrifugal circuit which after classification passes through intensive leaching (Acacia process) for the recovery of free gold. The overflow of the cyclone classification is thickened and pumped to CIL (Carbon in Leaching). In the CIL's process the gold goes through the process of solubilization by cyanide and adsorption in carbon.

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After the CIL's process is completed, the tailings are submitted to the detox process, which aims to neutralize the residual cyanide and thus the tailings be deposited in the dam (TSF/ Tailings Storage Facility) following all the conformities required by the Brazilian environmental legislation.

The gold is adsorbed in carbon and goes to the next step, called elution, in this process a solution of cyanide percolated by carbon, thus removing the adsorbed gold. Once the elution process is completed, the solution now enriched with gold proceeds to the electrolytic extraction process, in which process the gold is deposited in the cathode. The final step is due to the melting of the product of the cathode that is deposited in molds that after solidified, form the metallic bullions.

The flowchart's process is presented in Figure 1, indicating the main steps considered in the project.

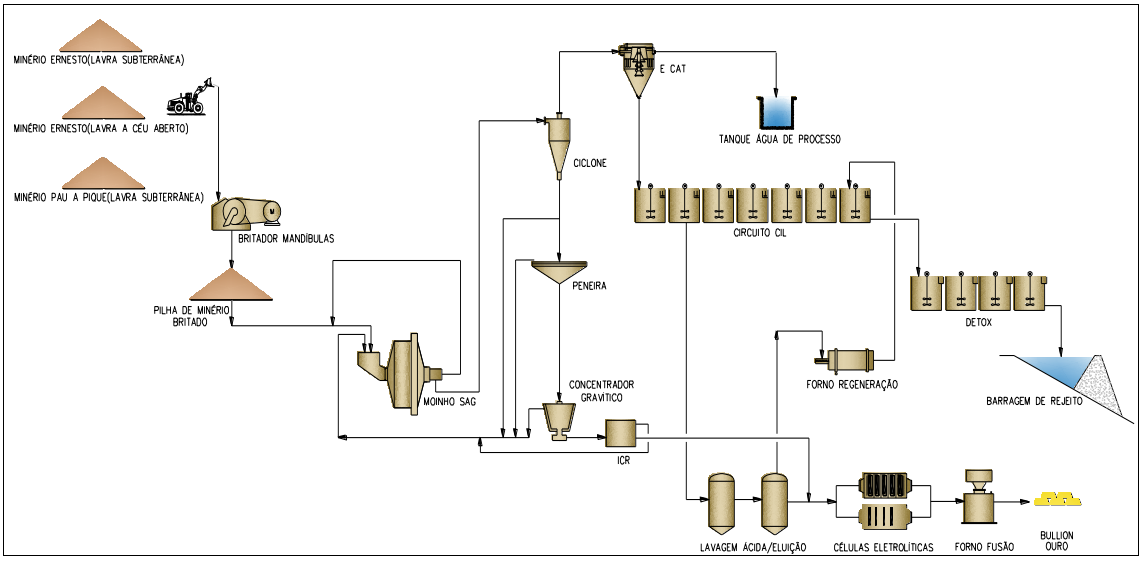

Figure 1 – The Aura Minerals plant's flowchart process.

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3. Descriptive memorial of the production process:

3.1. Primary crushing:

The first step to obtain gold is crushing. The crusher used in the plant is a jaw crusher, which is fed through a vibrator feeder (220-FE-001) with the support of a wheel loader.

The vibratory feeder (220-FE-001), with opening in the 100 mm grille, removes the ore with solids mass flow with a rate of 280 t/h. The ore retained in the grille of this feeder is discharged into the jaw crusher (220-CR-001). Both the passing material in the vibrating feeder grid and the material in the crusher discharge are collected and transported to the crushed ore's silo through the conveyor belts (220-CV-001/002), which are equipped with a metal detector (220-MD-001) and a metal extractor (220-EX-001).

Related to environmental compliance in the crushing stage, it has a dust reduction system, in all transfer. In the crushing stage only, physical processes are performed and so sodium cyanide is not used.

3.2. Grinding/ Milling and Gravimetric concentration:

The grinding/ milling circuit is intended to receive the crushed ore, with a top size of 101.6 mm and generate a product granulometrically compatible for the CIL step, with size 80% passerby in a mesh of 0.106 mm. To carry out the comminution process in the SAG mill, 5" steel balls are used.

The replacement of the SAG mill's balls is done directly in the mill feed, through the hopper (330-BN-003). The balls are discharged, with the support of electric hoist (330-CN-003) in box (330-XM-001) and later in the hopper.

The resumption of crushed ore for grinding, in the solids mass flow with a rate of 205 t/h, is carried out by the feeders (260-FE-002/003/005) and by the conveyor belt (260-CV-003) equipped with a scale (260-SL-004).

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The crushed ore (new feed) feeds the SAG mill (330-ML-001), which has dimensions of 19' x 19' (5.7 x 5.7 meters) and installed power of 2.5Mw **(Megawatts)**. The trommel (opening 10 x 20 mm) removes the pebbles from the discharge, which return to the SAG mill through the conveyor belts, 330-CV-004 and 260-CV-003, equipped with a scale (330-SL-002), constituting the part of the circulating load. The passerby in the trommel is collected in the box (330-PB-001) where process water is added to adjust the percentage of solids in the pulp (up to 52% solids) to feed 5 hydro cyclones with 500 mm in diameter, this feeding is performed by pumps (330-PP-001/001R). Hydro cyclones classify the pulp through centrifugal force into overflow and underflow.

The underflow of hydro cyclones is collected in the distribution box (330-DI-001), where half of the flow feeds by gravity the scalping sieve (360-SC-002), with opening in the 2 mm screen and the other half returns to the SAG mill, constituting another part of the circulating load. In the scalping sieve the retained material returns to the SAG mill, constituting one more part of the circulating load, while the passerby feeds the centrifugal concentration (360-CG-001).

The centrifugal concentration aims at the recovery of free and relatively coarse gold, and it is predicted that 0.16 t/h (dry base) of heavy concentrate (approximately 0.14% of the feed's plant) are transferred to the intensive leaching area. The light fraction of the centrifugal concentration returns to the SAG system, constituting another part of the circulating load.

In short, the circulating load consists of the following flows: retained in the trommel, 50% of the underflow of the cyclones, retained in the scalping sieve and tailings of the centrifugal concentration.

The overflow of hydro cyclones feeds the thickening step.

The drainage of the area is carried out by the pumps (330-PS-002/003).

In the grinding stage, only physical processes are performed with a reduction from 101.6 mm to 0.106 mm **and sodium cyanide is not used.**

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3.3. Thickening:

The cyclones' overflow (330-CY-001) of the SAG circuit are collected in the box (330-PB-002) and feeds the protection sieve (330-SC-001), DSM **screen** type **(sieve bend screen)**, with opening on the screen of 0.8 mm. The material retained in the sieve is collected in a box to be discarded while the passerby pulp, containing 32% solids, feeds the thickener (380-TH-001), E-CAT type **(Compact Automatic Thickener)**, with 11 meters in diameter. The thickener's overflow, consisting of water practically free of solids, feeds the process water tank (550-TK-045) for recirculation. The underflow composed of thickened pulp containing 52% solids is pumped (380-PP-004/004R) to the CIL area.

To improve the sedimentation, flocculant is dosed in the feed of the thickener, in the proportion of 0.03 kg / ton, ground and drainage of the thickening area is carried out by the pump (380-PS-009).

3.4. Intensive Leaching (Acacia Process):

Intensive leaching consists of the processing of gravimetric concentrate (0.16 t/h, dry base), obtained in continuous regime. Intensive leaching is conducted on a two batches per day, with the proportion of: 50 kg of cyanide and 3.0 kg of caustic soda per ton of concentrate on a dry basis, in addition an agent for activating gold solubilization at the ratio of 80 g/t of concentrate. In this phase, leachaid (a chemical product to improve the leaching dynamic) is added in the proportion of 0.003 kg/t in relation to the ground ore, this reagent accelerates the leaching kinetics.

For intensive leaching is acquired the "Intensive Leaching Package" which has facilities for leaching and solid/liquid separation of the leached pulp.

The auriferous liquor resulting from the stage is considered electrolyte, being pumped into the rich solution tank of the elution/electrolysis circuit, while the poor solution of this step returns to the cyanide solution distribution tank.

For the area safety, the shower system + eye wash (530-XM-021) and cyanide gas detectors are available.

3.5. Leaching / CIL (Carbon in Leaching):

The *thickening underflow*, pulp containing 52.0% solids (205 t/h) dry base, feeds the distribution box (430-PB-005) being normally discharged into the conditioning tank and pre-leaching (430-TK-003), mechanically agitated (430-AG-002), with a useful volume of 567 m^3 and can alternatively feed the first CIL tank.

Leaching is conducted at pH between 10.5 and 10.8 obtained by adding hydrated lime at the ratio of 1.0 kg/t of ore and sodium cyanide at the ratio of 0.35 kg/t of ore.

The CIL (leaching circuit) contains 7 tanks (430-TK-003/009) arranged in series, mechanically agitated (430-AG-003/009), with a nominal capacity of 567m^3 each.

The total residence time considered for pre-leaching and CIL is 24 hours, resulting in the solubilization of 88% of the gold values contained in the solids.

Each CIL tank, in addition to the continuous cascading pulp, contains (4.0 to 8.0) tons of active carbon. Knowing that each CIL tank has interstage sieves (430-SC-005/010), with an opening on the 0.8 mm screen, with the function of retaining carbon. New or regenerated carbon after dewatering through a sieve (430-SC-004) preferably feeds the last CIL tank (430-TK-009) or, alternatively, the tank 430-TK-008.

Carbon operates on a countercurrent regime, in other words, new/regenerated carbon fed in the last tank, which feeds the penultimate tank 430-TK-008 and then, until it reaches the first CIL tank (430-TK-003).

The carbon cycle in the CIL stage consists of its batch transfer for 5 hours a day through the pumps (430-PS-010/015).

The pulp containing carbon loaded from the first CIL tank (430-TK-003) feeds the vibratory sieve (430-SC-003) with opening 0.8 mm for retention of carbon that is transferred to the washing acid area.

The passing pulp without carbon returns to the same leaching tank.

There is a loss of fines carbon that is generated through the movements and agitation of carbon, to compensate for this loss is made a new carbon replacement, which represents a consumption of 0.09 kg of carbon per ton of ground ore.

In the last tank (430-TK-009), CIL effluent, feeds the DETOX process area.

For maintenance and operation of the area are available the electric hoist (430-CN-004), the manual hoists (430-CN-005/006), shower system and eyewash station.

The CIL leaching area is drained by the pumps (430-PS-016/017).

3.6. Detox Process:

The treatment of tailings' CIL (Detox) aims at environmental compliance for industrial effluents discharge and consists of cyanide degradation in concentrations of WAD cyanide (weak acid dissociation) in solutions greater than 100 ppm up to less than 1 ppm.

The pulp from the CIL feeds, through the box (410-PB-006), the detox process circuit consisting of 04 (four) tanks (410-TK-017/037/043/044), with a nominal capacity of 100 m^3 each, being a reserve, mechanically agitated (410-AG-009/010/018/019).

The following reagents are used in the process:

• Sodium metabisulfite: for cyanide oxidation at the ratio of 0.8 kg per ton of solids.

• Copper sulfate: as catalyst of the reaction at the ratio of 0.25 kg per ton of solids.

The pulp treated in the detox process system, with flow of 170.3 m^3/h of pulp containing 50.0% solids (120 t/h) is collected in the box (410-PB-008) and sent by the pumps (410-PP-018/018R) for disposal in the tailings storage facility (TSF).

For maintenance and operation of the area are available manual hoist (410-CN-019), shower system and eyewash station (530-XM-025).

Drainage of the detox area and carried out by the pump (410-PS-019).

3.7. Reuse of tailings pond's water:

Water from the tailings pond with WAD cyanide concentration less than 1 (one) ppm (usual WAD content is less than 0,005 ppm or not detectable) returns to the water tanks (550-TK-039/045) and feed the stages of milling, gravimetric concentration and Intensive Leaching (Acacia Process).

3.8. Acid Wash:

Acid washing begins when the acid washing column (461-TK-010), with 12 m³ volume, is complete with charged carbon (4 ton.).

Hydrochloric acid solution (3% HC1), preheated (461-HE-003), is added to the column to eliminate alkaline ground ions (nobly calcium carbonate) in carbon pores that impair the adsorption/elution capacity of gold. Hydrochloric acid consumption is 0.15 kg/ton of ground ore.

After acid washing the carbon is washed with water and caustic solution and transferred by ejector (461-ED-001) for the elution step. The washing stage as well as the entire elution area operates in cycles, being considered 01 (one) complete cycle per day.

3.9. Elution:

The configuration adopted for elution is the AARL (The Anglo-American Research Laboratories) method.

Elution occurs in the column (460-TK-011) by circulating a solution containing 3.0% NaOH and 3.0% NaCN by weight through charged carbon at 120°C and pressure from 3 to 3.5 atm. The solution, previously heated by the heat exchangers (460-HE-001/001R/002/002R), comes from the tank (460-TK-012) and is fed into the columns through the pumps (460-PP-022/022R).

The elution consists of the physical-chemical displacement of gold adsorbed in carbon to the poor electrolyte until its exhaustion, generating 57.5 m³ of electrolyte.

The electrolyte, after being cooled from 130°C to 60°C by heat exchangers (460-HE-001/001R), feeds the electrolytic extraction of gold and the elude carbon is removed from the column and transferred by the ejector (460-ED-002) for dewatering in the inclined vibratory sieve (461-SC-012) with 0.8 mm screen. The eluded carbon retained in the sieve feeds the regeneration step.

3.10. Carbon Regeneration:

The carbon retained in the sieve is sent to the carbon tank (461-TK-015) and transferred by the vibratory feeder (461-FE-005) to the rotary oven (461-BO-004), at a temperature of 700 °C, with an approximate residence time of 1 (one) hour, at the feeding of 0.22 t/h.

Regenerated carbon feeds the quench tank (461-TK-016) and is transferred by the ejector (461-ED-003) to the CIL area.

For maintenance and safety of the area are available the electric hoists (461-CN-007/008), shower and eyewash station (530-XM-022/023).

Drainage of the area and carried out by the pump (461-PS-023).

3.11. Electrolysis / Foundry:

The elution product and intensive leaching liquor feed the electrolyte tanks (460-TK-018/019). Two pumps (460-PP-024/024R) transfer the electrolyte to the 470-TK-046 tank, which feeds electrolyte cells by gravity (470-EC-001/002). The depleted electrolyte (poor) is collected in the tank (470-TK-034) and transferred to the CIL through 470-PP-026/026R pumps at the end of the electrolysis cycle.

The extraction of gold contained in the electrolyte is performed in 3 electrolyte cells operating in parallel, each cell containing 8 cathodes and 9 anodes of 900 x 900 mm in parallel. The anodes are made of stainless steel perforated sheets (AISI **(American Iron and Steel Institute)** 316 type stainless steel) and the cathodes are made of carbon steel wool.

The cells operate with a potential difference between an anode/cathode of 3.5 - 4.5 volts, sufficient to allow, by the action of the electric current, the reduction of gold to the elemental state and deposition in the cathode according to the following cathodic reaction:

$$Au(CN)_2^- + e = Au + 2\ CN^-$$

The cathode, when it contains approximately 2.0 kg of gold per kg of steel wool, is removed from the cell through the electric hoist (470-CN-009). Then, the steel wool is removed from the support structure and conditioned inside the digestion tank (470-TK-033), then rinsing the wool with water, to remove the excess of cyanide. Then there is digestion with dilute sulfuric acid (10%) for iron dissolution.

After digestion there is filtration, in vacuum filter (470-FL-001), drying, in an electric kiln (470-BO-001) and weighing the pie. Subsequently, the dried pie is mixed (480-MI-001) with the fuses (borax, silica, and nitrate) and fed into the melting furnace. The molten charge is tundished into ingot molds to produce a metallic bullion containing 90% to 95% gold.

The gold fusion takes place in the furnace (480-BO-002) heated to temperature from 1200 to 1300 °C by burning LPG (Liquefied Petroleum Gas)

The area has a gas and particulate reduction system composed of an extractor hood (470-FA-001), a gas washer (470-LG-001) and a bag filter (470-FL-002), in order to mitigate any environmental impact.

Shower system and eyewash stations are available for area safety (530-XM-026/027).

The drainage of the area is carried out by the pump (470-PS-027/070), and the effluent sent to the pulp dispensing box of the CIL Leaching Circuit (430-PB-005).

4. Preparation and distribution of reagents and additions:

4.1 Hydrated Lime:

The hydrated lime is received from trucks and stored in a silo composed of fabric filter (490-FL-003), storage silo (490-BN-010), rotary valve (490-XM-013) and helical conveyor (490-XM-028).

The preparation is carried out in a tank (490-TK-030) of 15 m³ of volume, where mechanically agitated (490-AG-016), the addition of water is made to prepare a 15% suspension. The dosage is performed by a helical transporter.

The pumps (490-PP-049/049R) transfer the hydrated lime from the preparation tank to the distribution tank (490-TK-031) of 15 m³ volume, mechanically agitated (490-AG-017).

The pumps (490-PP-050/050R) make the addition of hydrated lime at consumption points in the CIL (430-PB-005,430-TK-006). The pumping of the hydrated lime suspension is constant, and the pipe is in the ring and the remaining suspension is resumed to the distribution tank (490-TK-031).

For control of dosages/flows are considered flow meters and control valves.

For the environmental and safety operational control, maintenance and operation of the area are available the dust reduction system (490-FL-001), manual hoist (490-CN-005), shower and eyewash station (530-XM-004).

The drainage of the area is carried out by the pump (490-PS-051) and should be routed to the preparation tanks (490-TK-030) and distribution (490-TK-031) of hydrated lime.

4.2. <u>Caustic Soda</u>:

Sodium hydroxide (caustic soda) is received in solid form, in bags of 1 ton, and stored in a covered area (predicted stock of 22 bags).

The sodium hydroxide bag is transported by the electric hoist (490-CN-012) and fed to the hopper (490-BN-006) installed in the preparation tank. The distribution of the 8 m^3 caustic soda solution (490-TK-024) is mechanically agitated (490-AG-013). Water is added to this tank to prepare a 25% caustic soda solution. The consumption of sodium hydroxide is 0.12 kg/tons of ground ore.

The pumps (490-PP-037/037R) made the addition of caustic soda solution in the elution and acid washing (460-TK-012/461-TK-014), the pumps (490-PP-038/038R) to intensive leaching package (420-TK-001) and pumps (490-PP-069/069R) to cyanide solution preparation tank (490-TK-022).

For dosage control are considered control valves.

For maintenance and safety of the area are available electric hoist (490-CN-012), shower system and eyewash station(530-XM-018).

The drainage of the area and performed by the pump (490-PS-039) should be sent to the preparation tank and distribution of caustic soda solution (490-TK-024).

4.3. Copper sulfate:

The copper sulfate (activator) is received in solid form, in bags of 1 ton, and stored in a covered area.

The bag of copper sulfate is transported by the electric hoist (490-CN-014) and fed in the hopper (490-BN-009) installed in the copper sulfate solution preparation tank (490-TK-028) of 5 m³ volume, mechanically agitated (490-AG-015). In this tank is added water for the preparation of a solution of copper sulfate at 20%.

The pumps (490-PP-046/046R) transfer the copper sulfate solution from the preparation tank to the 5 m³ volume distribution tank (490-TK-046R) and the pumps (490-PP-047/047R) carry out the addition of copper sulfate solution in cyanide neutralization.

For control of dosages/flows and considered flow meters and control valves.

For maintenance and safety of the area are available electric hoist (490-CN-014), shower system and eyewash station (530-XM-016).

The drainage of the area is carried out by the pump (490-PS-048) and should be routed to the preparation tanks (490-TK-028) and distribution (490-TK-029) of copper sulfate solution.

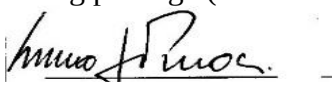
4.4. Sodium cyanide:

Sodium cyanide is received in solid form with a concentration of 98% NaCN, in bags of 1 ton, and stored in a covered and isolated storage area (predicted stock of 108 bags).

The sodium cyanide bag is transported by the electric hoist (490-CN-011) and fed to the hopper (490-BN-005) installed in the sodium cyanide solution preparation tank (490-TK-022) of 30 m³ volume, mechanically agitated (490-AG-012). Water is added to this tank to prepare a 20% sodium cyanide solution. To adjust the pH (> 11,5), before adding NaCN briquettes, a solution of sodium hydroxide is added.

The pumps (490-PP-032/032R) transfer the sodium cyanide solution from the preparation tank to the distribution tank (490-TK-023) which has a volume of 30 m³.

Pumps (490-PP-033/033R) add sodium cyanide solution to the CIL leaching circuit (430-TK-003/005), pumps (490-PP-03 4/034R) to the elution (460-TK-012) and pumps (490-PP-035/035R) to the intensive leaching package (420-TK-001).



For control of dosages/flows there are flow meters and control valves.

For maintenance and safety of the area are available electric hoist (490-CN-011), shower system and eyewash station (530-XM-019). Operators use portable calibrated HCN detectors, to detect 2,5 ppm HCN (alarm 1) and 4,5 ppm HCN (alarm 2).

The drainage of the area and carried out by the pump (490-PS-036) should be forwarded to the preparation tanks (490-TK-022) and distribution (490-TK-023) of sodium cyanide solution.

4.5. Hydrochloric acid:

Hydrochloric acid is received in liquid form, at a concentration of 32%, and stored in a covered area. Hydrochloric acid is transferred from its container through a drum pump (490-PS-040) to the tank for the preparation and distribution of hydrochloric acid solution (490-TK-025), in which the tank is added water to prepare a 3% solution.

The pumps (490-PP-041/041R) made the addition of hydrochloric acid solution in acid washing (461-HE-003).

For dosage/flow control are considered control valves.

Shower and eyewash station (530-XM-017) will be available for the safety of the area.

The drainage of the area is carried out by the pump (490-PS-042) and should be sent to the preparation tank and distribution of hydrochloric acid solution (490-TK-025).

4.6. Sodium metabisulphite:

Sodium metabisulphite is received in solid form, in bags of 1 ton, and stored in covered an area (predicted stock of 44 bags).

The sodium metabisulphite bag is transported by the electric hoist (490-CN-013) and feed to the hopper (490-BN-008) installed in the tank (490-TK-026) of preparation of the solution that has a volume of 10 m³, mechanically agitated (490-AG-014). Water is added to this tank to prepare the 20% sodium metabisulphite.

The pumps (490-PP-043/043R) transfer the sodium metabisulphite solution from the preparation tank to the distribution tank (490-TK-027) of a volume equal to 10 m³.

The pumps (490-PP-044/044R) perform the addition of sodium metabisulphite solution to cyanide neutralization.

For control of dosages/flows are considered flow meters and control valves.

For maintenance and safety of the area are available electric hoist (490-CN-013), shower system and eyewash station (530-XM-015).

The drainage of the area is carried out by the pump (490-PS-045) and should be routed to the preparation tanks (490-TK-026) and distribution (490-TK-027) of sodium metabisulphite solution.

4.7. Flocculant:

The flocculant is received in solid form, in bags of 25 Kg, and stored in a covered area (predicted stock of 2700 Kg or 2,7 ton).

The flocculant is prepared and distributed in the (490-TK-021) of 15 m^3 / volume, having 12 hours of autonomy, mechanically agitated (490-AG-011). Water is added to this tank to prepare a solution with a concentration at 1%.

The pumps (490-PP-031/031R) transport the flocculant solution to feed the thickening of concentrate (380-TH-001).

For control of dosages/flows are considered flow meters and control valves.

For maintenance and safety of the area are available electric hoist (490-CN-010), shower system and eyewash station (530-XM-005).

The drainage of the area is carried out by the pump (490-PS-052) and should be sent to the flocculant preparation and distribution tank (490-TK-021).

4.8. Carbon:

The carbon is received in bags of 500 kg and stored in its own area (predicted stock of 30 bags).

Carbon bags are transported by the crane and fed to leaching tanks (430-TK-008/009). The replacement of carbon is monthly made.

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5. <u>Storage of reagents</u>:

For safety of sodium cyanide storage sheds and reagents, showers and eyewash stations are available, as well as cyanide gas sensors to detect cyanide gas formation.

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Name of Mine	Signature of Lead Auditor	Date

SUMMARY AUDIT REPORT

Auditor's Findings

This operation is:

X in full compliance

□ in substantial compliance ***(see below)

□ not in compliance

with the International Cyanide Management Code.

**** The Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit (not applicable).

Audit Company: NCA Brasil Expert Auditors Ltd. (www.globalsheq.com)
Audit Team Leader: Celso Sandt Pessoa
E-mail: celsopessoa@ncabrasil.com.br (ICMI qualified lead auditor and TEA, since 2006) and celso@globalsheq.com
Names and Signatures of Other Auditors: none
Date(s) of Audit:
21~29/ April /2021 (on-site)
10~ 11/ June / 2021 (off-site)

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code and the **Mining Operations Verification Protocol** and using standard and accepted practices for health, safety and environmental audits.

Mineração Apoena Ltd.		11/06/2021
Name of Mine	Signature of Lead Auditor	Date

SUMMARY AUDIT REPORT

1. PRODUCTION: ***Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.***

Standard of Practice1.1: *Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 1.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
It was evidenced that the contract # 2142 (dated 22/05/2019), signed between the operation and the solid cyanide producer (Proquigel Ltd.), clearly addresses that the solid cyanide to be sold to Mineração Apoena must be produced at a Cyanide Code certified solid cyanide production facility.
Proquigel Química Ltd., solid cyanide production plants in Brazil, are certified since 17/September/ 2009. Last recertification was on 19/ June/2020 (according to information available at ICMI (International Cyanide Management Institute) website).
The gold mining operation does not buy any type of cyanide from distributors.

2. TRANSPORTATION: ***Protect communities and the environment during cyanide transport.***

Standard of Practice 2.1: *Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 2.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
There is a written contract between the operation and Proquigel Química Ltd (contract # 2142, dated 22/05/2019), and another contract (# 0002/ 2018) between the operation and Concórdia Transportes Rodoviários Ltd, a Cyanide Code certified transporter since 29/12/2009 (last certification was on January 6, 2022), according to ICMI´s website available information), both addressing responsibilities related to packaging and labelling (in accordance with Brazilian legislation). Dye colorant sachets are provided by Proquigel, which is responsable to store the solid cyanide prior to shipment. The transporter is responsable to select the transport route, transport the solid NaCN, maintain the trucks and bugs, train and qualify its drivers, respond to emergencies during the transport and the security during the transport to the operation. There is no interim storage along the route. The contract between the operation and Concórdia Transportes Rodoviários Ltd. clearly addresses that the cyanide transporter shall be Cyanide Code certified.The contracts among the three stakeholders don't allows sub-contracting any activity related to solid cyanide road transportation.

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Standard of Practice 2.2: Require that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 2.2
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

As previously mentioned, (Standard of Practice (SoP) 2.1), the reviewed contracts clearly address that the solid cyanide transporters must be Cyanide Code certified. ConcórdiaTransportes Rodoviários Ltd. is certified in accordance to the ICMI website. The solid sodium cyanide is transported straight from the Proquigel facilities in Bahia State to the operation, without any interim storage or changing of transporter.

The operation retains all the documentation brought to the site by Concórdia TransportesRodoviários Ltd. All the documentation is issued by the Proquigel Química Ltd. and by Concórdia Transportes Rodoviários Ltd. All the purchasing and transportation documentation are inspected by the operation purchasing process (documentation incoming inspection), before the purchasing process be considered concluded.

3. HANDLING AND STORAGE: Protect workers and the environment during cyanide handling and storage.

Standard of Practice 3.1: Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 3.1
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The cyanide storage warehouse and the cyanide solution preparation areas were designed, constructed and inspected according to the Brazilian engineering standards and legislation, by SEI Engenharia Ltd. Reviewed as built drawing # YA285-05-0490-31-0013(2), dated 10/06/2011. These installations are maintained in accordance with preventive maintenance plans (refer to SoP 4.1). Also evidenced during the field audit, that such installations are well maintained and kept in order.

Both areas were constructed on a specific assigned area (defined through a risk analysis process), with structural concrete ground, which is away from people and surface waters. The entrance to such areas (they are locked) is restricted only to authorized and qualified personnel (operators and supervisors), as evidenced during the field audit.

The audited operation only uses solid NaCN. Anyway, as previously mentioned, the receiving area ground is fully concreted. If any incident in the reception occurs, it is very simple to contain and recover the solid NaCN due to the concreted ground and the qualification of the plant operators (refer to SoP 8.2 and SoP 8.3). Emergency response procedures are in place if such kind of real incident occurs.

It was evidenced during the field audit, that level indicators and level alarms (periodicaly calibrated) are available in both tanks, the preparation one and at the NaCN solution distribution tank.

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Both tanks, are installed inside a secondary containment installation, with concrete walls and floor, and drainage and pumping systems, which volume is 110% greater of the volume of both tanks. the secondary containment is fully concreted, as evidenced in the design documents and in the field audit. The storage warehouse was specifically designed and constructed for this purpose, with concreted floor and walls, under roof and very well ventilated, as evidenced in the design documentation and in the field audit. In the same way, the preparation and distribution tanks are constructed inside a secondary containment (structural concrete base and walls), under a roof and with natural ventilation (fenced). There are no other incompatible materials beyond sodium cyanide in these areas, as evidenced in the field audit. The solid NaCN storage warehouse was designed and constructed specifically for this purpose. Only solid NaCN wooden boxes (the original boxes from the NaCN producers (Proquigel)) are stored in this warehouse, over pallets and with maximum of three boxes in each pile. All evidenced in the field audit and defined at an operational documented procedure. All these areas (reception, storage and preparation) are fenced and locked, and only authorized workers are allowed to go into such area, as evidenced during the field audit. Safety signage clearly indicates that smoking, drinking and eating is such areas is forbidden.

Standard of Practice 3.2: *Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.*

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 3.2
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Empty NaCN big-bags are washed with a sodium hydroxide solution, then decontaminated in a specific container with a solution of water and sodium hypochlorite (remains 24 hours into this solution), then dried and sent back to Proquigel Química Ltd. All decontaminated big-bags are stored inside the decontaminated wooden boxes, which are closed and sent back to Proquigel Química Ltd. All NaCN big-bags are decontaminated and sent back to Proquigel Quimica Ltd.. The decontamination solution is frequently changed and disposed in the solution preparation tank.

All sea containers are inspected and cleaned (if necessary) by the preparation operators. An inspection record is retained and signed by the Concórdia Transportes Rodoviários driver and the operation worker, as an evidence that the sea container brought to the operation is returning in adequate conditions and cleaned.

All receiving and mixing procedures were verified during the field audit. A cyanide solution batch preparation was witnessed. Critical valves are clearly identified, tagged and locked. All flanges are covered in order to mitigate any potential leakage or spill. A preventive maintenance program for such critical equipment and installations is in place (refer to SoP 4.1). All cyanide wooden boxes are handled with a fork lifter and placed in a specific place under a lifting device, to be lifted to the preparation solution tank. This was evidenced during the field audit. As previously mentioned, the maximum of three (3) wooden boxes are allowed to be piled. Evidenced this procedure during the field audit. In the event of any spills (or not), the secondary containment is washed after the solution preparation activity and the water is collected in the drainage system and returns to the preparation tank. This procedure was evidenced during the field audit.

The preparation/ mixing process is automatic. Nevertheless, there are always two qualified operators performing this activity, fully equipped with adequate PPEs (tyvec overall, full face mask, chemical gloves and boots, HCN detector). All the activity is monitored from the production control room. All operational procedures were evidenced during the field audit.

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Proquigel Química Ltd. supplies solid NaCN with red dye colorant powder. It was evidenced that the cyanide solution is red. Evidenced the NaCN solution preparation process, during the field audit.

4. OPERATIONS: Manage cyanide process solutions and waste streams to protect human health and the environment.

Standard of Practice 4.1: *Implement management and operating systems designed to protect human health and the environment utilizing contingency planning and inspection and preventive maintenance procedures.*

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 4.1
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was evidenced that the operation designed, documented, implemented and maintains a SHEQ (Safety, Health, Environmental and Quality) management system in order to manage their SHEQ aspects, including cyanide. Reviewed all cyanide related management and operational procedures, that are mentioned at the Detailed Audit Report.

All the operational and management procedures, were developed, reviewed and approved by authorized personnel and addresses, where applicable, design assumptions and outputs (as freeboard for the TSF, solution pH, flows) and regulatory (defined by the local EPA (Environmental Protection Agency) and by the Occupational Health & Safety Brazilian Standards (NRs) parameters (e.g: free (CNf) and WAD/Weak Acid Dissociation (CNw) cyanide content in effluents or tailings), and Brazilian legislation (e.g: Article # 18, from Portaria # 416 of DNPM (Departamento Nacional de Pesquisas Minerais), applicable to the TSF (Tailings Storage Facility) management. All these procedures were developed and implemented considering hazard identification and risk evaluation and are under the coordination of the SHE (Safety, Health and Environmental) management process. All sampled operational and management procedure were developed with the purpose to manage and operate the production plant and maintenance in a safe and environmentally sound manner.

It was observed that the operation developed, documented and implemented a change management procedure, where all proposed changes are reviewed by a multi-disciplinary team, that always includes the environmental and occupational health and safety processes, using a risk analysis approach to make decisions (accept or not the proposed change). All involved processes representatives must sign-off the change management request record, independent if the required change was accepted or not. Evidenced one case of the change management procedure, related to the replacement of the elution column, occurred in 2020.

In the event off any up-set in the water balance the plant shuts-down and there is no income or outcome of liquid effluents into the system. In the event of any deviation of operational or monitoring procedures, contingency responses are addressed in the own procedures. The operation also developed a complete emergency plan (refer to Principle # 7), when contingency plans and measures are not effective to mitigate or control any problem occurred during the operation of the hydro-metallurgical process, including the TSF (Tailings Storage Facility) management.

In the event of a temporary closure or cessation of operations, the operation will manage the cyanide (in any type), in accordance with the decommissioning plan (refer to SoP 5.1). A temporary closure will be also managed through the change management procedure.

The operation defined and implemented a structured inspection plan, focusing the condition of the installations and equipment. It was evidenced that the process plant (hydro-metallurgy) is inspected on different frequencies, depending on the type of equipment or installation to be inspected. This could be weekly, monthly, quarterly, semester or annually. The defined inspections frequencies are in accordance with the OEM (Original Equipment Manufacturer) instructions, the Maintenance process experience and expertise with the equipment and installations and up to now are demonstrating to be adequate to maintain the operation operating in conformance with the design parameters. The TSF inspection plan establishes different frequencies, depending on the aspects to be inspected. The frequency maybe daily or every two weeks. The TSF inspection frequencies are defined in accordance with the TSF designer, the TSF Corporate management process, the Brazilian legislation for TSF management and the operation experience with the activity and is demonstrating to be adequate to maintain the TSF operating in accordance with the design parameters, as evidenced during the field audit (visual inspection and interview with the TSF operator on duty).

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The operation inspects all cyanide containing tanks (and respective secondary containment) every quarter (internal inspection) and annually, the operation contracts an external supplier to inspect the same tanks and their respective secondary containments. All inspection and maintenance (corrective and preventive) are managed through the ENGEMAN (trade mark) software system. The inspections records are retained by the operation.
The operation does not have leach pads or process ponds.
Pipelines and valves are inspected together with cyanide containing tanks. Pumps have their own inspection and maintenance procedures and instructions. Reviewed inspection and maintenance plans and records for pumps, pipelines and valves.
Every two weeks the TSF is inspected, in accordance with the TSF management manual procedure and the Brazilian legislation for TSF management. Reviewed all inspection records between 02/01/2021 and 23/04/2021. This is a legal requirement and there is a specific inspection checklist which includes, among others, TSF related aspects, the available freeboard and the condition of all the surface water diversions (drainage channels). The operation also inspects, on a daily basis and with a reduced scope, which includes the available freeboard, presence of dead animals and the drainage channels, the TSF. Records of such daily operational inspections are retained by the operation and were reviewed during this audit. The inspection results are recorded in the work order, addressing the obtained results, the inspector who did the inspection or the programmed maintenance and the date. In the event of any nonconformities, the ENGEMAN system generates another corrective maintenance worker order.
It is important to note that, on the operational side, inspections are also performed by the shift supervisors, on a monthly basis, focused on specific installations such as emergency showers and eye washer stations, critical valves, secondary containments, breathing apparatus and fire extinguishers. Records of such inspections are retained by the operation and were reviewed during this audit. Shift supervisors were interviewed also, during the field audit.
The operation defined a preventive maintenance plan for cyanide related facilities and critical equipment (mainly focused on the pumping system and the generator back- up system, such as tanks, piping, instrumentation (HCN detectors and alarms), pumps, valves, secondary containments, drainage systems. Inspections (into the maintenance scope) are performed in between preventive maintenance activities, beyond the daily operational inspection procedure, performed every shift (which is an input for corrective maintenance, when necessary). It is important to report that the operation has the redundancy approach for the pumping system, always with a second pump in stand-by status, as evidenced in the field audit.
It is also important to mention that the preventive maintenance program is applied to the critical instrumentation and electricity backup systems. Preventive maintenance records are retained by the operation and were reviewed during this audit. The operation has three 550 kVA **(kilo Volt Ampere)** generators (613-GE-001/ 002/ 003). These three generators have the capacity to maintain the pumping system and agitators working normally in a neutral operation (no leaching will be conducted during this period). The plant will remain recirculating pulp (neutral condition) while fed by the generators. The generators are maintained and tested on monthly basis. Reviewed the performed testing and maintenance records between September 2020 and March 2021.

Standard of Practice 4.2: *Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.*

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 4.2
□ not in compliance with
□ not subject to

Summarize the basis for this Finding/Deficiencies Identified:

Although the operation does not add cyanide solution during the milling process (consequently the milling circuit IS NOT a cyanide facility), it designed, documented and implemented a cyanide consumption management model in order to evaluate and determine the best cyanide consumption rate, in accordance with the ore quality. The NaCN consumption target for this year is 315g/ ton. YTD (Year to Date) result is 303g/ ton.
GAT (Gravity Amenability Test) is performed periodically to determine the level of amenable gold within the orebody. Bottle testing is also performed by the operation in order to determine the necessary amount the NaCN solution versus the gold recovery performance. The cyanide solution addition to the CIL process is a function of the available free cyanide at CIL pulp. Every two hours the free cyanide content at CIL pulp is determined and then the cyanide solution added to the process is adjusted, if necessary. The pulp sample is taken from CIL tank 430-TK-003, where the NaCN solution is added, in a semi-automatic process.

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Standard of Practice 4.3: Implement a comprehensive water management program to protect against unintentional releases.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.3
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation designed and implemented a water management system, in accordance with a Brazilian legislation (NBR 13028/ 2017)), and the Mining Operations Verification Protocol (February 2018).
The water balance management model was developed by GHT (Geo Hydro Tech) Engenharia Ltd. (technical report dated March 2021). The operation water balance is directly linked with the TSF management protocol and is addressed at the APO-021-1404-RT-001(1) technical protocol. The model was developed using the Acqua Tailings software (which allows a dynamic water balance management) and consider the raining volume of 274,6 mm (24 hours), during raining season (October to March) and evaporation rate of 159,9 mm (24 hours) in the dry season (April to September). Precipitation and evaporation data was provided by INMET (Instituto Nacional de Meteorologia), between 1981 and 2010). The model also considered the data available at WORLD METEOROLOGICAL ORGANIZATION (1986). *Guidelines on the selection of Reference Climatological Stations (RCSs),* from the existing Climatological Station Network. WMO/TD-No.130. Geneva/Switzerland). The TSF freeboard is daily monitored (minimum freeboard is 1,5 meter) as well as the precipitation and evaporation (reviewed monitoring records between 20/August / 2020 ~ 24/ April/ 2021). Maximum monthly forecast for incoming water into the TSF is 265.000,00 cubic meters, during the raining season. Maximum monthly evaporation forecast is 60.000,00 cubic meters, during the dry season. The operation consumes 186.00,00 cubic meters from the TSF effluent (industrial return water), to keep the production rate of 217 ton/ month. Two storm events (assumptions) were considered. One considering the run-off channels in the perimeter of the TSF, discharging downstream of the TSF (normal scenario) and the other one the run-off water discharging, partially, into the TSF (abnormal situation). The model considers the probability of the 10000 years return storm interval, during the *Life of Mine (LOM),* as 0,04%, considering the period between 2021 and 2025. Considering all the assumptions, the worst-case scenario (for the raining season) will be the TSF volume reaching elevation quote 364 meters, where the overtopping quote is 367 meters (3 meters freeboard). For the dry season, the available industrial water at the TSF will be enough to keep the production rate of 217 ton/ month. It can be said that the results obtained by the described model meet the requirements of Standard NBR 13.028 / ABNT (Associação Brasileira de Normas Técnicas)/ 2017), regarding hydraulic safety under the established design conditions. The operation operates the TSF with an operational freeboard higher that that one established in the design phase, focusing the stability and safety of the TSF. It was evidenced, during the field audit, that the operation installed a freeboard level reference, in order to facilitate the daily visual inspection of the available freeboard.
The operation measures precipitation and evaporation, daily, comparing the obtained values with those ones used in the initial probabilistic study. It was evidenced and reviewed the evaporation and rain profile between August 2020 and April 2021. The following aspects were considered in the wáter balance management model:
Design storm duration and storm return Interval, the quality of existing precipitation and evaporation data in representing actual site conditions, the amount of precipitation entering a pond or impoundment resulting from surface run-on from the up-gradient watershed, solution losses in addition to evaporation, such as the capacity of decant, drainage and recycling systems, allowable seepage to the subsurface, and allowable discharges to surface wáter, the effects of potential power outages or pump and other equipment failures and the capacity and on-line availability of necessary treatment, destruction or regeneration systems. The operation operates the TSF with an operational freeboard higher that that one established in the design phase, focusing the stability and safety of the TSF. It was evidenced, during the field audit, that the operation installed a freeboard level reference, in order to facilitate the daily visual inspection of the available freeboard. The operation measures precipitation and evaporation, comparing the obtained values with those ones used in the initial probabilistic study. It was evidenced the evaporation and rain profile between August 2020 and April 2021.

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Standard of Practice 4.4: Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.4
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

All the process areas (hydro-metallurgy) is fenced and the access is restricted to authorized employees, as evidenced in the field audit. The TSF is also fenced. There were no records of fauna or domestic animals' mortality since October 2018, when the *Cyanide Code* began to be implemented by the operation. WAD cyanide in TSF is kept much below 50 ppm. All monitoring results between 2018 and 2021 are below 0,005 ppm CN WAD (not detected). In accordance with the environmental permit issued by the local EPA, the operation monitors three different types of cyanide (total, free and WAD). There are three sampling points at the TSF (refer to SoP 4.9), as defined by the environmental permit. Reviewed the monitoring records between 22/01/2021 and 22/04/2021 and the presence of FREE and WAD cyanide was not detected, confirming the effectiveness of the DETOX process (destruction of residual cyanide). Reviewed records of TSF inspections and monitoring reports since 2018 and there is not any case of fauna/ wildlife mortality, evidencing that maintaining CNw below 50 ppm is effective in preventing significant wildlife mortality. All the a.m results demonstrate that the use of cyanide at process plant is optimized and the residual cyanide is adequately treated.

Standard of Practice 4.5: Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.5
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation, according to its environmental permit, must monitor the water quality at two creeks, one downstream of the TSF (Córrego Lavrinha) and the second one upstream of the TSF (Córrego do Cágado). The operation does not directly or indirectly discharge any effluent to the two creeks. There are two sampling points at each creek, one upstream the operation and the other downstream of the operation, as defined by the environmental permit. The monitoring of the surface waters quality is performed by an ISO (International Standardization Organization) 17025 qualified laboratory (Bioética Ambiental Ltd. / CRL 0354/ Inmetro Brasil). Reviewed monitoring results between April 2020 and April 2021. All results for Total cyanide (CNt) are below 0,005 ppm, demonstrating that the operation has no significant impact on the surface waters. All analytical methods are in accordance with the Standard Methods for the Examination of Water and Waste Water (23rd edition/2017). All the Bioética Ambiental analytical procedures are certified in accordance with ISO 17025 standard (Their certification was granted by Inmetro, according to the Brazilian legislation). The operation does not have any indirect discharge to surface waters. The monitoring results at Córrego Lavrinhas and Córrego do Cágado confirm that. It was not evidenced any indirect discharge to surface waters. The surface water quality is monitored on a regular basis and the results shall be informed to the local environmental protection agency/ EPA. Reviewed monitoring records between 2020 and 2021 (results until April 2021) and communication records with local EPA, presenting the monitoring results. No nonconforming monitoring results were evidenced.

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Standard of Practice 4.6: *Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.6
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation designed, documented and implemented a specific water management system (please refer to SoP 4.3) and a TSF operational management system in order to manage any potential seepage to protect the beneficial use of underground water. In order to verify the effectiveness of such operational controls, the operation designed, documented and implemented a ground water monitoring plan in accordance with the requirements addressed at its environmental permit, issued by the local EPA, the Brazilian standard NBR 15847/ 2010 and the Brazilian law CONAMA (Conselho Nacional de Meio Ambiente) 396/ 2008. There are three sampling points, where CNt (total cyanide) is monitored. All sampling, custody and analytical evaluation is performed by Bioética Ambiental, an ISO 17025 certified laboratory (all analytical methods are in accordance with the Standard Methods for the Examination of Water and Waste Water (23rd edition).

It is important to report that there is no specific value for any type of cyanide in the Brazilian legislation for the quality of ground water. There is a reference at CONAMA 396 standard defining the maximum value for Total cyanide as 0,070 ppm. The operation adopted, as acceptance criteria, the value of free cyanide for surface waters (less than 0,022 ppm). The operation monitors the underground water quality, through three monitoring points, specifically defined for this purpose. Reviewed the monitoring reports between April 2020 and March 2021. All results for Total cyanide (CNt) are below 0,005 ppm. The operation does not use mill tailings as backfill. **No** seepage was observed. The monitoring through piezometers clearly showed that. It was not evidenced, since 2018, no incident involving cyanide impacting surface or underground water.

Standard of Practice 4.7: *Provide spill prevention or containment measures for process tanks and pipelines.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.7
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The cyanide unloading, storage, mixing and process solution tanks areas were constructed in order to prevent that any process solution spill could impact the human life and the environment. All these areas were observed during the field audit (engineering documentation was also reviewed) and confirmed that these areas are concreted, with secondary containments (preparation, Acacia,CIL and DETOX tanking areas), providing a good and effective barrier to mitigate any potential seepage. The. secondary containment volume is 110% bigger than the biggest tank inside it, as observed at engineering records and during the field audit. This installation is provided with a pumping system, that allows the return of any leakage back to the tanks. The pumping system was included in the preventive maintenance program. Verified, during the field audit, that all cyanide process solution pipelines are provided with spill prevention systems (pipe into pipe or pipe over V profiles and flange covers), to collect leaks and prevent releases to the environment and to prevent the human life to be impacted also. The process detoxed tailings are delivered to the TSF through HDPE pipes which are enclosed into compacted soil channels. The effluent (industrial water) returns through HDPE pipelines, which are enclosed into compacted soil channels. It was evidenced the WAD cyanide content in the TSF is very low (much less than 1 ppm), and after 48 hours of exposure to UV radiation, the CNw is not detected. The operation did a risk evaluation and confirmed that cyanide is not a hazard to surface waters, because all cyanide solution pipelines are far from surface waters. All cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions (carbon steel (tanks) and stainless steel or HDPE (piping)).

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Standard of Practice 4.8: *Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.8
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Reviewed the design documentation (as built drawings YA285-05-0490-31-0013(2), YA285-03-0430-04-0051(3), YA285-05-0430-11-0002(4), YA285-05-0430-11-0001(5) and YA-285-03-FE-0000-31-0001(3)), all prepared by SEI Engenharia Ltd, prepared for the former operation owner (Yamana Gold), related to all process areas, including the TSF, which was, after soil compaction, sealed with clay. Reviewed as assembled drawing PAX-EPP01-430-M-DF-19440-0041(0), for CIL tanking area. Performed by Parex Engenharia Ltd.Reviewed as built data book PAX-EPP01-430-M-DF-19440-0041(0), for process tanking installations. Performed by Parex Engenharia Ltd. Reviewed as built structural installations (secondary containments) SEI-YA285-05-430-11-003(4), SEI-YA285-05-430-11-004(3) and SEI-YA285-05-430-11-005(3), all prepared by SEI Engenharia Ltd. Acacia installation CS 1000, quality assurance records (as built drawings and fabrication records) were reviewed at CONSEP databook (job # C10716)). Also reviewed CONSEP commissioning report dated 30/09/2012. Also reviewed CONSEP training records dated 14/09/2012, for Acacia reactor operators (refer to SoP 8.2).CONSEP is the Acacia installation designer and producer, based in Australia.Beyond the a.m documentation it was also reviewed the soil compaction works and tests, performed by Terrafácil Teraplanagem Ltd., based on Millf method, according to the Brazilian technical standard NBR 12102. The TSF earth works (soil compaction) and sealing process were approved by the technical responsible of Terrafácil Terraplanagem Ltd., in accordance with Brazilan Standard NBR 12102.

The Acacia installation was commissioned by CONSEP engineers and technicians and accepted by Yamana Gold (former operation owner) project manager, as conforming, in September 2012. Commissioning reports are maintained by the operation. Other cyanide containing facilities were commissioned and approved by SEI Engenharia Ltd. and the Yamana Gold´s project manager in November 2012. The commissioning databook retained by the operation includes partial commissioning reports (fabrication, inspection and testing reports) and the final commissioning records (rump-up testing, monitoring and pre-production records). The TSF earth works (soil compaction) and sealing process were approved by the technical responsible of Terrafácil Terraplanagem Ltd. and by the Yamana Gold´s project manager. All requested design, fabrication, inspection, testing and commissioning documentation was promptly available and is retained by the operation. The operation has a Technical Documentation library.

Standard of Practice 4.9: *Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 4.9
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

According to the Brazilian legislation, all mining operations operating TSF´s and other installation with the potential to impact human life and the environment, must have in place protocols to inspect, on a regular basis, all these installations. Apoena developed such protocols to inspect the TSF, including fauna, surface and underground waters, and other process facilities. All process operators are aware the if any incident impacting the local fauna must be promptly informed to the environmental management process. Records of such monitoring activities are retained by the operation and reviewed during this opportunity.

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In accordance with Brazilian environmental legislation, an environmental monitoring shall be performed by certified laboratories, in accordance with ISO 17025 standard. It was evidenced that all environmental monitoring (open, surface and underground waters) is performed by Bioética Ambiental Laboratory, an ISO 17025 certified laboratory by Inmetro Brasil. As previously mentioned, Bioética Ambiental, an environmental laboratory services supplier, is certified in accordance with ISO 17025, where all their management system and analytical procedures are documented and certified by Inmetro Brazil. On the other hand, the operation also defined and documented, in the environmental monitoring plan, the system involving the environmental monitoring of the operation. The operation never evidenced wildlife mortalities in open and surface waters, caused by cyanide intoxication. There is a daily inspection of the TSF to observe, among others aspects, the presence of wildlife mortalities. All interviewed personnel are aware that any evidenced wildlife mortality must be reported to the Environmental Manager.
The environmental monitoring frequencies are in accordance with the environmental permit issued by the local EPA (Environmental Protection Agency), and are demonstrating, as previously mentioned at SoPs 4.4, 4.5 and 4.6, that are adequate to characterize the medium being monitored and to identify any changes in a timely manner.

5. DECOMMISSIONING: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.

Standard of Practice 5.1: Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 5.1
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
The operation decommissioning and closure plan was developed by Mrs. Diane Lister (BSc in Geological Engineering and MSc in Mining Engineering/ Canadian Professional Engineer Credential # 25689). This conceptual closure and decommissioning plan considered the Brazilian Mining legislation (decree # 9406/2018, the Mining Code and law 14066/2020/ TSF safety policies), the ICMM (International Council on Mining and Metals) Mining Closure protocol and the IBRAM (Instituto Brasileiro de Mineração) protocol. Also considered the ARO (Asset Retirement Obligation) for 2025 and the LOM (Life of Mine) for 2035. The report includes the physical and financial schedules. The conceptual closure plan addresses all the procedures to be followed to neutralize the cyanide circuit installations before dismantling them. The above mentioned plan also includes the decommissioning activities to be implemented related to the TSF.
Basically, the same procedure used to neutralize cyanide installations before maintenance activities, using basic solutions (sodium hypochlorite), will be used to neutralize cyanide installations before decommissioning and dismantling them. The implementation schedule addresses all necessary decommissioning activities that shall be performed between 2021 and 2035 (ARO/ LOM). Beginning in 2036, the operation will be monitoring the environment (open, surface and underground waters, fauna and flora, revegetation process effectiveness, among other aspects) for 10 (ten) years, according to the Brazilian legislation. The plan is updated, at least, every five years.

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Standard of Practice 5.2: *Establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 5.2
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The mentioned conceptual decommissioning and closure plan mentioned at SoP 5.1, addresses the estimate costs (reclamation costs) to implement the plan by a third part, according to 2021 values that are projected to 2035 values and calculated year by year. Every year, these costs are updated. The Brazilian Mining Legislation does not demand or establish any financial mechanism to be followed by the operation. The operation implemented a self-guarantee mechanism. Beyond this mechanism, the operation has also insurance certificates related to the operational risks. Annually the operation has its financial health audited by independent third-party auditors. The financial audit was carried out in accordance with International Financial Report Standards (IRFS), which are acceptable either in Brazil and internationally. The financial audit report clearly states that the operation has enough financial health to fund the implementation of the decommissioning and closure plan. The financial audit report was distributed to external stakeholders such as banks, Brazilian stock exchange chamber, Brazilian Public Financial authorities. The last financial audit was performed by PWC (Price, Waterhouse, Coopers) Independent Auditors Ltd., dated 26/06/2020 (refer to 2019 and 2018 financial year).
The financial audit report related to the financial year of 2020, dated
10/ May/ 2021, was also reviewed during this audit. The auditor also concluded that the operation has financial health to implement its decommissioning and closure plan. PWC Independent Auditors Ltd. is an accredited financial auditing institution (accreditation # CRC- 2SP000160/ O-5)), according to the Brazilian Financial Auditing legislation. The audits were led by Mr. Marcos Magnusson de Carvalho, a certified financial auditor (register # CRC- 1SP2155373/ O-9), according to the Brazilian Financial Auditing legislation.

6. WORKER SAFETY: Protect workers' health and safety from exposure to cyanide.

Standard of Practice 6.1: *Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce or control them.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 6.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation identified and evaluated all the SHE risks associated with the cyanide and in order to have the risks under control and mitigated, the operation defined, documented and implemented specific management and operational procedures for cyanide related activities. The following operational documented procedures were reviewed and verified during the field audit: please refer to SoP 4.1. The operation (process plant) defined and implanted an operational procedure (PO-MA-ERN-BEN-026(0)), where all cyanide installations and equipment shall be neutralized before any maintenance activity. The procedure consists firstly in washing the equipment/ installation with a basic solution and after that a continuous rinsing with water. The maintenance technicians are only authorized to perform their work (work permit) after this procedure and that there are no traces of cyanide in the equipment/ installation. This procedure is performed by the process operators and approved by the process supervisor. Records of work permits were evidenced during the audit.
According to Brazilian Occupational Safety Standard NR-33 (confined space management), the operation identified all confined space existing at areas 490 (process plant/ preparation) ,430 (process plant/ CIL), 410 (detox process) and 420 (Acacia). Confined spaces management procedure is defined at PS-MA-EPP-SEG-006(0).

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All reviewd documented operational procedures addresses the required personnel protective equipment and pre-work inspections, as evidenced in the field audit and during the documentation review.
The operation documented and implemented a change management procedure (PS-MA-COR-GER-001(3)) in order to review the SHE risks linked with the proposed change. Between 2018 and 2021 there was one situation in the cyanide circuit requiring the use of the change management procedure (elution column replacement).
The work force participates effectively in the risk identification and evaluation, and in the development of operational procedures. Annually, the operation programs and implement a refresh training session, where the operational procedures are reviewed by the operation team (process engineer, supervisors and operators) and, if applicable, updated. (refers to SoP 8.2 for additional information).

Standard of Practice 6.2: *Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.*

The operation is:
X in full compliance with
□ in substantial compliance with Standard of Practice 6.2
□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
The operation determined that the minimum pH value shall be equal or greater than 10.5 for process solutions and 11.5 (or greater) for strong cyanide solution (preparation). The noted minimum pH values are targeted to limit the evolution of hydrogen cyanide gas during production and mixing activities.
The operation has fixed HCN detectors in the preparation tank area, CIL area, Acacia area, Elution area and Detox area, and the operators also use portable calibrated HCN detectors. Both cases evidenced in the field audit. Alarm level is set for 2.5 ppm (alarm 1) and 4.5 ppm (alarm 2/ to leave the area) HCN. It was evidenced that the operation defined, documented and implemented an operational control procedure, which describes in detail, the steps to be followed in the preparation of NaCN solution, beginning with the control of the pH (> 11.5) at the preparation tank (water + soda), before adding solid NaCN briquettes. This activity is performed by a qualified operator, using adequate PPEs and observed by a second qualified operator, also using adequate PPEs, as evidenced in the field audit. It was observed a complete NaCN solution preparation activity.
The operation has fixed calibrated HCN detectors in process areas, and the operators also use portable calibrated HCN detectors. Both cases evidenced in the field audit. Beyond these controls, all the operators use adequate personal protective equipment and are qualified operators, being trained in operational and emergency response procedures.
As previously mentioned, both, the fix and portable ones, are maintained and calibrated in accordance with a calibration management system (defined in accordance with the OEM (Original Equipment Manufacturer) instructions, in this case, Honeywell Instruments. The system defines an annual calibration frequency). managed by the SHE (Safety, Health and Environmental) Process (portable ones) and by the Maintenance process (fixed ones). Reviewed the following instruments and respective calibration records, which are retained by the operation for one year, at least: 750-CN-001, 750-CN-002, 750-CN-003 (portable HCN detectors) and 420-AIT-001, 430-AIT-003, 460-AIT-001 and 490-AIT-001 (fixed HCN detectors).
All portable HCN detectors calibrations were performed on August, 24th, 2020 by Yorgos Ambiental Ltd. HCN standard gas used to calibrate the HCN detectors are valid until 31/01/2022. All fixed HCN detectors calibrations were performed by Digimed Ltd. on 30/11/2020. Standard HCN used in their calibration are traceable to Honeywell Instruments and valid until 01/January/ 2022.
It was evidenced during the field audit that the signage is clear and effective, covering the presence of cyanide, that eating, drinking and smoking is not allowed and also open flames are prohibited.
As previously mentioned, Proquigel Quimica Ltd. (a Cyanyde Code certified NaCN producer) provides de solid NaCN with dye colorant. During the field audit it was evidenced at the CIL feeding tank that the cyanide solution is colored.

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All the required auxiliary installations (Collective Protection Equipment) were evidenced to be in place and operational. Before starting an activity involving cyanide, emergency showers and low-pressure eye washers are tested by the plant operators, in order to ensure they are working well. They were tested during the audit and worked properly. The operation has also implemented a system to manage all the fire extinguishers available at the plant.
There are two types (CO2 for electrical installations and dry powder for the other ones) of fire extinguishers, identified through a specific number and the maintenance seals and stickers. It was evidenced the fire extinguishers master list, which is used to support the maintenance frequency, all managed by the SHE process. All the fire extinguishers management process was reviewed and approved by the local Military Firefighters Corps of Mato Grosso State (maintenance of fire extinguishers are performed by Extinfogo Ltd., and approved supplier (by the Military Firefighters Corps). Reviewed the fire extinguishers master list FS-MA-EPP-SEG-066 (31/03/2021). During the field audit, it was evidenced that all sampled fire extinguishers were in conformance.
All cyanide tanks and piping are clearly painted, identified and the flow direction clearly showed, as evidenced in the field audit. It was evidenced that the operation implemented an emergency program inside the plant where all cyanide related information is available in Portuguese. This emergency program includes the safety information related to cyanide (MSDS), first aid procedure, alarm systems (refer to Principle 7).
The operation defined, documented (PS-MA-COR-SEG-001(6)) and implemented a procedure to investigate and evaluate any kind of incidents (real or potential) involving cyanide. Between 2018 and 2021 (ytd), no cyanide related incident (real or potential) has occurred. The mentioned procedure was, unfortunately, already implemented to investigate incidents (real and potential) not related to cyanide.

Standard of Practice 6.3: *Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.*

The operation is:
X in full compliance with
☐ in substantial compliance with
☐ not in compliance with
Standard of Practice 6.3

Summarize the basis for this Finding/Deficiencies Identified:
As evidenced in the field audit, the operation has water (low pressure eye-wash and showers, tested during the field audit and inspected on a monthly basis (refer to SoP 4.1), oxygen bottles (weekly inspected), two resuscitators (EAD/ Model MDF-03 ECAFIX/ weekly inspected)), antidote kits (monthly inspected, including cyanokit, sodium nitrite and sodium thiosulphate), radio & telephone (tested during the audit), alarm system at receiving and storage areas as well as at the cyanide preparation area. In the event of any intoxication with cyanide, the medical protocol (PS-MA-EPP-MED-002(6)) defines that the intoxicated person must be supplied with oxygen coming from O2 bottles or manual breathing device (ambu) that are available in strategic points at the process plant. If necessary, the EAD (External Automatic Defibrillator) is used, followed by the use of antidotes. All first aid equipment and antidotes are regularly inspected. Reviewed records of inspections performed between 2018 and 2021. During the field audit, it was observed that the antidote kits were within the valid dates. The antidotes kit, is adequately stored and maintained as defined by the antidote's producer, as evidenced during the field audit. The inspection records are retained by the Medical Services process (operation ambulatory). The operation did develop, document and implement a specific integrated (SHE) cyanide related emergency plan (refer to principle 7). At the ambulatory it was evidenced a specific emergency procedure (PS-MA-EPP-MED-002(6)), related to cyanide intoxication management, only for medical team use. Only the medical team (doctor, paramedic, nurses) are trained and allowed to administer cyanide antidotes (cyanokit, sodium nitrite and sodium thiosulphate), according to the Brazilian legislation.
The operation has its own medical facility in order to respond any type of cyanide related intoxication. This facility, as observed in the field audit, has two ambulances (daily inspected and ready to be used (including full fuel tank)), oxygen bottles (weekly inspected), two EAD (weekly inspected and tested), radio and telephone, antidotes (monthly inspected). The workforce is composed by a doctor (4h/ day and 5x/week) and four nurses (24h/day and 7x/week).
It was evidenced that the operation provided adequate PPEs for the medical team, to be used when assisting cyanide intoxicated employees.

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All workforce is able to attend and respond any cyanide related emergency and intoxication, including first aid procedures and resuscitation. Reviewed refresh training records for the medical team (refer to SoP 8.3). For high complexity cases, the reference hospitals are the Hospital Vale do Guaporé and Hospital São Lucas, both situated at Pontes e Lacerda town, and were evaluated and approved by the operation doctor.
The operation has developed and qualified two local hospitals. Hospital Vale do Guaporé is a private hospital and Hospital São Lucas is municipality hospital, belonging to the Brazilian Public Health System (SUS)). The operation has its own ambulances (2), as previously mentioned, which is daily inspected and ready to be used. The first aid is always performed by the operation medical team (doctor and nurses).
As previously mentioned, the operation developed and qualified two local hospitals that could be used in cyanide related emergencies. Beyond the hospital infrastructure, the operation provided antidote kits to them and trained the hospital staff in the use of such antidotes. The antidotes are kept under controlled conditions and inspected, on a monthly basis, by the operation nurses. Reviewed inspection records performed between 2018 and 2021 (ytd).
All the interfaces with this plan were presented to external hospitals (drills as a training aspect), as part of their training, beyond other external stakeholders, like firefighters from Pontes e Lacerda municipality (refer to Principle 7/ SoP 7.6). After all emergency drills, the results are reviewed and all identified opportunities of improvement (corrective and preventive ones) are incorporated into the cyanide emergency plan.

7. EMERGENCY RESPONSE ***Protect communities and the environment through the development of emergency response strategies and capabilities.***

Standard of Practice 7.1: *Prepare detailed emergency response plans for potential cyanide releases.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 7.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
The operation defined, documented and implemented procedures to respond to cyanide related emergencies. Evidenced Cyanide Emergency Response Plan (PS-MA-EPP-SEG-012(4)), encompassing cyanide emergency scenarios related to transport, unloading, operations and emergency brigade management. The plan clearly addresses the required resources, PPEs, communication channels and protocols, and telephones (including Proquigel Química Ltd. and transporter ones) as well as the specific procedures for each identified scenario.
The emergency communication loop includes the emergency communication to the emergency plan coordinators, response brigade leaders and members, operation management team, external stakeholders (e.g – hospital, local firefighters, communities, emergency response suppliers) and, depending to the extension and the magnitude of the emergency, public authorities and press (please refer to SoP 9.3**).**
The above mentioned emergency plan describes specifically the response for all cyanide related emergencies, identified through a risk analysis process **such as catastrophic release of hydrogen cyanide from storage or process facilities, transportation accidents, releases during unloading and mixing, releases during fires and explosions, pipe, valve and tank ruptures, overtopping of ponds and impoundments, power outages and pump failures, uncontrolled seepage, failure of cyanide treatment, destruction or recovery systems and failure of tailings impoundments and other cyanide facilities**
Cyanide related emergencies responses during external transportation to the operation are covered by the plan, in connection with the NaCN producer (Proquigel Química Ltd.) and NaCN transporter ones, both stakeholders are Cyanide Code certified, and the operation, that will have a support role in this scenario. The internal NaCN transportation is also covered by this emergency plan. The plan is specific to solid NaCN transportation by truck (transporting into original bigbags, inside wood boxes, into sea containers) and to the specified route between Proquigel Química Ltd. and the operation. Proquigel Química Ltd. demands that all cyanide transporters have a contract with Ambipar Response Spain Ltd. (Brazilian branch), that is an emergency response services supplier, in order to transport Proquigel´s solid NaCN by road (CIF (Cost Insurance Freight) or FOB (Free On Board)).

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The emergency plan clearly addresses specific responses to those situations, considering internal and external stakeholders. It was observed that, in the last years (since 2018), any type of cyanide related emergency has occurred in the operation (this means that there were no emergencies involving cyanide since 2018, in the operation and during the transportation of cyanide from Proquigel Química Ltd. to the mining operation), demonstrating that the cyanide management in the operation is effective.

Standard of Practice 7.2: *Involve site personnel and stakeholders in the planning process.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 7.2
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities (local hospitals), public authorities, emergency response suppliers, community representatives. Before a training exercise (mock drill), the plan that will be simulated is discussed, again, with all the stakeholders (internal and external) that will participate in the training exercise. The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives (the operation provided specific meetings with external stakeholders (such as local hospitals and the military firefighters) about cyanide related emergencies). See also Principle 9.The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives, the cyanide supplier and transporters.
The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the drill. Last integrated drill including several stakeholders was conducted on May 2021. In 2020, due to Covid 19 pandemic situation, it was not possible to perform the planned drill exercises. The emergency response plan (PAE) was found at revision 4, dated 19/ May/ 2021.

Standard of Practice 7.3: *Designate appropriate personnel and commit necessary equipment and resources for emergency response.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 7.3
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation SHE Manager is the coordinator and the Process and Performance Manager is her substitute.
The emergency response brigade members are voluntary and passed through a selection process (medical, theoretical and practical), to be assigned as a brigade member. The brigade members were trained and qualified before being assigned as emergency brigade members (refer to SoP 8.3). The emergency brigade master list addresses all the necessary information about the brigade members, including contact details of internal and external stakeholders. The emergency communication loop is clearly defined at the Cyanide Emergency Response Plan (PS-MA-EPP-SEG-012(4)). The emergency response plan coordinator is the first to be communicated. The brigade members are contacted by the brigade leader. An emergency response committee (COE) is formed in order to manage the emergency.The emergency brigade organizational flowchart clearly defines the role of each member.
All necessary resources to respond to emergency situations related to cyanide are addressed at the emergency plan.

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The emergency response hardware is monthly inspected by the safety and health officers of the operation. The ambulances are daily inspected and tested. Records of such inspections were evidenced and found in place. The emergency response plan, which addresses the role of internal and external resources in the event of an emergency, was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the drills. During the planning phase of the emergency drills, the external stakeholders that will participate in the drill are communicated again about their roles in the drill. This procedure was evidenced for the drill performed in May 2021.The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the drills. Another implemented control is to perform periodic meetings with stakeholders, in order to discuss and updated (if necessary) the emergency response plan. Before a training exercise (mock drill), the plan that will be simulated is discussed, again, with all the parties (internal and external) that will participate in the training exercise. Such procedure was evidenced in the May 2021 emergency drill.

Standard of Practice 7.4: Develop procedures for internal and external emergency notification and reporting.

	X in full compliance with	
The operation is:	□ in substantial compliance with	Standard of Practice 7.4
	□ not in compliance with	

Summarize the basis for this Finding/Deficiencies Identified:

The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the drills. Another implemented control is to perform periodic meetings with stakeholders, in order to discuss and updated (if necessary) the emergency response plan. The emergency communication loop is clearly defined and also contact information is available in the plan. The contact information list was up dated on 19/ May/ 2021. The emergency communication loop includes the emergency communication to the emergency plan coordinators, response brigade leaders and members, operation management team, external stakeholders (e.g – hospital, local firefighters, communities, emergency response suppliers) and, depending to the extension and the magnitude of the emergency, public authorities and press (please refer to SoP 9.3).

The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the drills. Another implemented control is to perform periodic meetings with stakeholders, in order to discuss and updated (if necessary) the emergency response plan. The emergency communication loop is clearly defined and also contact information is available in the plan. Communication procedures with external media were found in place (refer to SoP 9.3).

Standard of Practice 7.5: Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

	X in full compliance with	
The operation is:	□ in substantial compliance with	Standard of Practice 7.5
	□ not in compliance with	

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Summarize the basis for this Finding/Deficiencies Identified:

The operation defined, documented and implemented procedures to respond to cyanide related emergencies. Evidenced Cyanide Emergency Plan PS-MA-EPP-SEG-012(4). Responsibilities and authorities are clearly defined and communicated to all involved stakeholders (internal and external). The emergency committee organizational flowchart was also evidenced.

Solid briquettes are recovered with the aid of cleaning devices and disposed into plastic bags (returned to plant and disposed into cyanide solution tanks). The solid NaCN is received and stored at specifically designed concreted areas, as mentioned at SoP 3.1. In the event of releases of solid NaCN directly on non-protected soil, the soil shall be neutralized, after the recovery of NaCN briquettes, with the aid of specific chemicals products such as sodium hypochlorite solution, magnesium oxide **(15 %)** or soda solution. Sodium hypochlorite solution **(20%)** is available at process plant, as well as MgO solution and soda solution. Magnesium oxide bags and soda bags are available in the chemical products warehouse. If necessary, soda solution (25 %) will be prepared, by process plant operators, in a 1000-liter isocontainer. All three chemical products are effective in cyanide oxidation, being the only difference among them, the oxidation dynamic. Neutralized soil samples shall be taken every 5 cm (in depth), sent to the laboratory for analytical evaluation in order to determine if the neutralization process was effective and the soil is cyanide free. It was not evidenced, during the field audit, any unprotected area that could be impacted by solid NaCN or NaCN strong solution. Cyanide solutions are recovered with the aid of specific floor pumps, available inside the secondary containments and returned to the process tanks.

Neutralized soil is removed and disposed into plastic bags, returned to the plant and then forwarded to final disposal at a certified brown field area. Surface waters are monitored and no chemical products are allowed to neutralize the impacted surface water. Contaminated debris returns to the plant (into plastic bags) and then are forwarded to the final disposition at a certified brown field area or sent to final disposition (incineration) on a qualified by local EPA) supplier. The operation has the responsibility (shared with the public authorities) to manage and provide drinking water to the affected stakeholders, in the event of any cyanide related emergencies into water supply resources (surface waters). The operation has a contract with a local drinking water supplier to provide, also, drinking water to the affected stakeholders. Clearly the emergency plans state that chemicals are not allowed to be used in surface water treatment. The operation emergency brigade does not have these kinds of chemicals in their emergency response kit, as evidenced in the field Audit The plan clearly defines the required monitoring procedures to be implemented in the event of soil and water potential contamination. An environmental monitoring plan is addressed at the emergency response plan.

Standard of Practice 7.6: Periodically evaluate response procedures and capabilities and revise them as needed.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 7.6
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation defined, documented and implemented procedures to respond to cyanide related emergencies. Evidenced Cyanide Emergency Plan # PS-MA-EPP-SEG-012(4). The emergency response plan was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities, emergency response suppliers, community representatives. When performing emergency drills, the operation invites specific stakeholders to participate in the emergency drills. Another implemented control is to perform periodic meetings with stakeholders, in order to discuss and updated (if necessary) the emergency response plan. The emergency communication loop is clearly defined and also contact information is available in the plan. The plan is, at least, reviewed every two years (or before, depending on the results of the drill exercises). The emergency plan was updated in 19/ May/ 2021. Evidenced the 2019, 2020 (not implemented due to Covid 19) and 2021 Annual Emergency Drill plan. Evidenced one emergency drill performed in May 2021, involving NaCN. The 2021 drill was an integrated one (environmental, health and safety). Reviewed the report dated 28/05/2021.Opportunities of improvement (corrective and preventive) were identified and implemented.

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After each emergency drill or after a real emergency, the drill / emergency results are reviewed and discussed among the participants (lessons learned protocol). The opportunities of improvement raised-up during the drill / emergency are considered as corrective or preventive actions and managed adequately, resulting in the updating of the emergency response plan. Reports related to the drills and their review were found in place. There were no emergencies related to cyanide between 2018 and 2021. The Cyanide Emergency Response Plan PS-MA-EPP-SEG-012(4) was updated four times in the last three years as a result of such reviews.

8. TRAINING: Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use.

The operation is:	**X** in full compliance with □ in substantial compliance with □ not in compliance with	Standard of Practice 8.1

Summarize the basis for this Finding/Deficiencies Identified:

The operation did design, document and implement an introductory training program ("Integration Training") which is applied to all new employees and contractors coming to work in the operation. This introductory training program (24 hours) scope is focused on general aspects of the operation including sodium cyanide management system, cyanide related risks, emergency situations related to cyanide and first aid procedures related to cyanide exposures. All the introductory training is in accordance with Brazilian Occupational Safety standard NR-22.

The operation implemented a refresh training program (every three years), which is applied for all employees and contractors. The content of the cyanide refresh training program is a summary (4 hours training session) of the introductory training above mentioned. Both introductory training program and refresh training program records are retained by the operation. It is important to note that the job rotation at this operation is very low. Most of the process plant operators and supervisors are experienced ones, and are working since the beginning of the operation. Reviewed initial and refresh training records performed between 2018 and 2021. Last introductory and refresh training was conducted on 14/04/2021. All attendants had 100% performance on the test evaluation.

Instructors of these trainings (introductory and refresh) are environmental technicians, health technicians and safety technicians. The training records are an assistance list with the date, instructor name, attendees name and signatures, training content and general perception about the attendee's performance made by the instructor. During the field audit, it was evidenced that the employees are aware about the cyanide related risks.

Standard of Practice 8.2: Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

The operation is:	**X** in full compliance with □ in substantial compliance with □ not in compliance with	Standard of Practice 8.2

Summarize the basis for this Finding/Deficiencies Identified:

After the introductory training (24 hours), all employees that will work directly with cyanide (operators, laboratory technicians, maintenance technicians) will pass through an "on the job training" which consists basically on the training in operational procedures and emergency procedures (40 hours). These operational training is provided by the operation supervisors and process engineers. After the on the job training, the employees will work under supervision during 40 days. After that, the employee is qualified (or not) to work alone.

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The operational on the job training consists basically on the operational and emergency procedures. The training is divided in theory and practice. All the operational aspects are clearly identified in the training materials. Reviewed on the job training program for plant operators (CIL process, Acacia process and NaCN solution preparation), plant maintenance technicians and laboratory technicians. Operational training is provided by supervisors and process engineers, during 40 hours. The on the job training is divided in several topics (depending on the function). Only after the trainee is approved in a specific topic, he is allowed to move forward to another topic. After 40 hours of operational training (theory and practice), the trainee will work during 45 days, under supervision.
In the ending of this period, the trainee is qualified (or not) to work in the operation. Records of such operational on the job training are retained by the operation. Reviewed operational training records performed between 2018 and 2021. Job rotation in the operation is very low. CIL and Acacia process operators, as well as laboratory and maintenance employees, are experienced ones. All employees that work directly with cyanide are recycled in cyanide management in the event of any change in operational procedures.
The involved persons, beyond participating in the change's proposal and review, are trained just after the changed procedure is approved. Refresh training program scope includes general cyanide knowledge and specific operational cyanide knowledge, as well as emergency response procedures. These refresh training programs are performed, at least, every two years, if no change in the operational procedures have occurred. Reviewed refresh training records for the operational employees (CIL and Acacia process, laboratory and maintenance) performed between 2018 and 2021. All employees that work directly with cyanide are recycled in cyanide management, at least, every two years.
The operation verifies the effectiveness of the provided training (refresh one too) through testing, as well as through planned job observations (operational and emergency ones). In both cases (on the job training and refresh training), records are maintained. It was evidenced that the training records (on the job and operational refresh training) address the training scope, the trainees' names, the instructors' names, the training date and the performance of the trainees.

Standard of Practice 8.3: *Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.*

The operation is:
X in full compliance with
□ in substantial compliance with
□ not in compliance with
Standard of Practice 8.3

Summarize the basis for this Finding/Deficiencies Identified:
All the plant personnel were trained in cyanide related emergencies. Every year, the employees are re-trained (refresh) in these procedures. Last refresh training was carried out on 10/02/2021. Records of such training were evidenced. Such trainings are mandatory according to Brazilian Occupational Safety standard NR-22. The emergency response brigade members are voluntary and passed through a selection process (medical, theoretical and practical), to be assigned as a brigade member. The brigade members were trained and qualified before being assigned as emergency brigade members. Decontamination and first aid procedures are included in the emergency training scope. All brigade members are CIL/ Acacia operators or maintenance technicians. Non brigade members that work directly with cyanide are also trained in emergency response procedures, including first aid and decontamination procedures. They take part in the emergency drills, like the one performed in May 2021, as part of the planned job observation (emergency response procedures) management procedure. In April 2018, Proquigel´s Health & Safety technicians provided an introductory training to the operation operational team, related to NaCN management, first aid procedures and decontamination procedures. Records of such training session are retained by the operation and were reviewed during the on-site audit. The emergency response brigade members are voluntary and passed through a selection process (medical, theoretical and practical), to be assigned as a brigade member. The theoretical and practical training sessions include the training in the specific emergency response equipment, such as autonomous breathers, type A and B overalls, fire extinguishers, among others. The brigade members were trained and qualified before being assigned as emergency brigade members. All members were trained in the emergency response procedure. Last performed training was on September 2020. Next one is programmed for September 2021. This annual refresh training is mandatory according to the Brazilian legislation. Before the emergency simulation exercises, the emergency plan that will be simulated is again reviewed and discussed among the participants. Records of such briefing meeting, related to the May 2021 emergency drill, was reviewed.

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As previously mentioned, (see Principle 7), the operation planned and implemented an emergency response exercise calendar. The performance of the emergency responders are observed (PJO/ Planned Job Observations) and reported. In the event of any identified opportunity of improvement, corrective and/ or preventive actions are defined and implemented, including the revision of the emergency plan (PS-MA-EPP-SEG-012(4) was found at revision 4, which means that it was updated four times since its creation). The operation retains all training records (e.g- attendance list) related to cyanide training, which includes the trainee name, the trainer name (usually a process supervisor or a professional safety engineer or military firefighter), the training scope, the final score of the trainee (after a test or a PJO (planned job observation) or an emergency drill) and the general overview of the trainer about the trainees performance. If a training session results in a qualification, a certificate is issued by the responsible stakeholder (internal or external).

9. DIALOGUE: Engage in public consultation and disclosure.

Standard of Practice 9.1: Provide stakeholders the opportunity to communicate issues of concern.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 9.1
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation provides the opportunity for stakeholders to communicate issues of concern regarding the management of cyanide through a direct telephone lines (0800-738-4809 and (55+65) 996-365-596, also WhatsApp)). These telephone lines are communicated to the stakeholders through newspaper, radio advertisement, leaflets and also communicated during specific and programmed meetings with stakeholders. There is also a specific channel at www.canaldeetica.com.br/aura, available to all stakeholders. The operation may be contacted through the following email: faleconosco@mineracaoapoena.com.br

All callings are recorded by the operation. It was evidenced that this communication channel is used by the stakeholders, but none of the reviewed records was related to cyanide concerns. The operation also designed and implemented a communication program with all the communities potentially affected by the operation aspects, and other stakeholders, based on specific and planned meetings. This program is called “Mina Aberta (Open Mine)”, where the operation and stakeholders discuss several matters related to the operation activities, routines and policies. Records of such meetings, performed in 2018, 2019 and 2021 are maintained by the operation and were reviewed during this audit. During 2020, due to the pandemic of Covid 19, such program was performed through remote mode.

Another opportunity to internal stakeholders to communicate points of concerns related to cyanide management is through the daily safety and health dialogues and also through email. The operation maintains accounts at Instagram, Facebook, LinkedIn and YouTube.

Standard of Practice 9.2: Initiate dialogue describing cyanide management procedures and responsively address identified concerns.

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 9.2
☐ not in compliance with

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Summarize the basis for this Finding/Deficiencies Identified:
The operation implemented and maintains communication channels with stakeholders (internal & external) in order to dialogue with them. The “Mina Aberta” program is consisted by programmed meetings with several stakeholders, where several matters, related to the operation activities, routines and policies are discussed. Virtual interaction through social medias is also used by the operation. The operation´s contact information is available in all these types of media. Planned meetings and workshops, with public authorities, are also used by the operation to dialogue with external stakeholders. Finally, the operation training programs, focused on cyanide management, are also used to dialogue with internal stakeholders (employees and contractors).

Standard of Practice 9.3: *Make appropriate operational and environmental information regarding cyanide available to stakeholders.*

The operation is:
X in full compliance with
☐ in substantial compliance with Standard of Practice 9.3
☐ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:
The operation designed, documented and made available a specific leaflet describing how the cyanide is managed and relevant information related to cyanide emergencies. This document is available for all stakeholders and is available at the operation reception. When you check-in the operation, you receive one of this leaflet. Although the local population, in most of the cases, is not illiterate, the operation disseminated, in verbal or visual form, information related to cyanide management at the operation (e.g- meetings with community representatives, Mina Aberta program). Although no incidents related to cyanide had happen at the operation in the last three years, in the event of such incidents, the operation, according to the directions addressed at its Crisis Management Manual, will make the information public through the Corporate Communication Process, linked with the Crisis Management Committee. Beyond communicating with the media (television, newspaper, Instagram, Facebook and other public media), it is mandatory the operation to communicate the following public authorities (e.g- EPA, IBAMA (Instituto Brasileiro de Meio Ambiente), Defesa Civil, Polícia Civil, Delegacia Regional do Trabalho). Such public authorities make such news available to the general public through their websites.
The following contact information is available to the general public:
0800-738-4809 (corporate communication) and (+5565) 996-365-596
Email: faleconosco@mineracaoapoena.com.br (corporate communication).
Website: www.auraminerals.com and www.canaldeetica.com.br/aura
The operation will also make information related to cyanide incidents public, through the corporate communication process, and through press releases. It was evidenced that the corporate communication process documented and implemented communication procedures with the media (newspaper, internet media and television).

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