

# **INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE**

**Gold Mining Operations**

## **Summary Audit Report Form**

**For the  
International Cyanide Management Code**

**MINERAÇÃO APOENA S.A.  
AURA MINERALS GROUP  
SÃO FRANCISCO MINE**

**1<sup>st</sup> RECERTIFICATION AUDIT  
APRIL 08<sup>th</sup> to 11<sup>th</sup>, 2014**

**[www.cyanidecode.org](http://www.cyanidecode.org)**

The International Cyanide Management Code (hereinafter “the Code”), this document, and other documents or information sources referenced at [www.cyanidecode.org](http://www.cyanidecode.org) are believed to be reliable and were prepared in good faith from information reasonably available to the drafters. However, no guarantee is made as to the accuracy or completeness of any of these other documents or information sources. No guarantee is made in connection with the application of the Code, the additional documents available or the referenced materials to prevent hazards, accidents, incidents, or injury to employees and/or members of the public at any specific site where gold is extracted from ore by the cyanidation process. Compliance with this Code is not intended to and does not replace, contravene or otherwise alter the requirements of any specific national, state or local governmental statutes, laws, regulations, ordinances, or other requirements regarding the matters included herein. Compliance with this Code is entirely voluntary and is neither intended nor does it create, establish, or recognize any legally enforceable obligations or rights on the part of its signatories, supporters or any other parties.


## **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.
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:

**International Cyanide Management Institute (ICMI)**  
**1400 I Street, NW, Suite 550**  
**Washington, DC 20005, USA**

5. The submittal must be accompany by 1) a letter from the owner or authorized representative, which grants the ICMI permission to post the Summary Audit Report and Corrective Action Plan, if necessary, on the Code web site, and 2) a completed Auditor Credentials Form. The lead auditor's signature on the Auditor Credentials Form must be certify by notarization or equivalent.
6. Action will not be take 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.



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## SUMMARY AUDIT REPORT

### GENERAL INFORMATION

Name of Mine: Mina São Francisco  
Name of Mine Owner: Aura Minerals  
Name of Mine Operator: Mineração Apoena S.A.  
Name of Responsible Manager: Jota Júnior José de Azevedo  
Address: Mina São Francisco, Serra da Borda, s/n, CEP 78.245-000  
State/Province: Mato Grosso / Vila Bela da Santíssima Trindade  
Country: Brazil  
Telephone: 55 (65) 3259-1900  
E-Mail: [jota.azevedo@auraminerals.com](mailto:jota.azevedo@auraminerals.com)

### HISTORY

- In 1700, the first gold occurrence in São Francisco was discovered;
- From 1720 to 1830 about 60 t of gold were produced and shipped to Portugal;
- July 2003, Yamana acquired the mineral rights;
- March 2006 plant operation was started-up with commercial production reached in August 2006.
- In 2007, implementation of Cyanide Code was started in Mina São Francisco;
- In 2010, São Francisco and São Vicente mines were sold to Mineração Apoena S.A. starting to operate in May 1<sup>st</sup>.
- São Francisco Mine was certify under ISO 14001:2004 in 2010.
- In April 2012, São Francisco Mine was certify under the Cyanide Code.
- In September 2012, São Francisco Mine was certify under OHSAS 18001:2007.
- In April 2014, the Cyanide Code recertification audit was conclude.

### PRESENTATION OF THE COMPANY:


Mina São Francisco explores and benefits gold ore. It is located in the extreme west of the state of Mato Grosso, approximately 560km of the state's capital, Cuiabá and 112 km from Vila Bela da Santíssima Trindade. Currently, there is 847 employees working in Mina São Francisco, whose 274 are proper and 573 are third parties.

### PRODUCTIVE PROCESS

The exploration is make in open pit mine and the ore beneficiation is make through processes of Geological mapping, Mine, Crusher, Gravimetry, Leaching, Adsorption and Desorption, Smelting and Dams.

**Geologic mapping:** The geologic mapping consists on detailed comments of the petrologic and structural feature in field, and the relation of the lithological units and probable mineralized zones.

**Mine:** The Mine process is responsible for the ore extraction from ground and by its supply to the gravimetrical process and leaching process.



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**Crushing:** This unit breaks the ore rocks received from the mine for reduction of the granulometry to release the gold contained in the ore. This process is made through the crushing plant, using jaw and conical crushers, conveyor belts and intermediate stockpiles.

**Gravimetry:** Carries out the separation of the thick gold through the physical process that considers the difference of density between the materials.

**Leaching:** It is the selective dissolution of metallic components of ore through the action of a leaching agent (cyanide).

**Adsorption and Desorption:** Adsorption through activated coal is the process in which the solution including gold enters in contact with the coal and the gold is absorbed. The coal is distributed in the tanks in countercurrent system, where the coal is collected for posterior processing in the first adsorption tank, that way the coal of the previous tank is transferred to the next tank. Desorption is the process of recovery of the gold in the loaded coal proceeding from the leaching and adsorption. For this process of recovery, elution columns (Zadra type) are used.

**Smelting:** In this process, all the gold production is fused into gold bars that are sent to be externally refined.

**Dams:** There are four dams in Mina São Francisco:

- Longa Vida Dam: water inflow.
- Dique de Finos: decantation dam of effluent of the Gravimetric Plant and water reuse.
- Casarão Dam: safety dam of the gravimetric plant.
- Cabeceiras Dam: safety dam of cyaniding process.

### SUPPORT PROCESS

Some processes provide support to productive activities, such as SSMA – Health, Safety and Environment, Supplies, Financial Management, Human Resources and Communities.

The Management System documents are organized in Policies, Integrated Manual of Management System of Mina São Francisco, Standards of System (PS), Operational Standards (PO) and Forms of System Registries (FS).

### *Auditor's Finding*

This operation is

- ☒ in full compliance  
☐ in substantial compliance \*(see below)  
☐ not in compliance

With the International Cyanide Management Code.

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This Operation has maintained full compliance with the International Cyanide Management Code throughout the previous three-year audit cycle.

Audit Company: **JULIO MONTEIRO AUDITORES DA QUALIDADE LTDA.**

Audit Team Leader: **JÚLIO C. M. MONTEIRO**

E-mail: [jmaq@ig.com.br](mailto:jmaq@ig.com.br)

Names and Signatures of Other Auditors: -----

Date(s) of Audit: 1 st. RECERTIFICATION AUDIT - APRIL 08th to 11th, 2014

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 Verification Protocol for Gold Mine Operations and using standard and accepted practices for health, safety and environmental audits.

*Audit Team Leader:* Júlio C. M. Monteiro

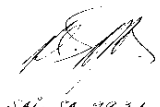
**1. PRODUCTION:**      *Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.*

Standard of Practice 1.1:      *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      ☒ in full compliance with      Standard of Practice 1.1  
                                 ☐ in substantial compliance with  
                                 ☐ not in compliance with

*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine has a contract with E.I. DuPont de Nemours & CO., INC. (DuPont) PO BOX 80023, WILMINGTON, DE 19880 +1 3029925336 Fax # certified according to the ICMI Practices for Producers of Sodium Cyanide. The contract between the parties ensures the supplying of solid cyanide and it was



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sign by Gary W. Spitzer - President of El Dupont de Nemours and Company, Carlos H. Bertoni - President, Director / Chairman of Mineração Açoena S.A. and Maurício F. Diniz - Chief Financial Officer. The contract is valid until the year 2015.

Additionally, São Francisco Mine contracted Proquigel Química S.A. on June 1st, 2013, a company recertified under the Code. The agreement nº CMMAT 1252/2013, valid to May 30th, 2014 was extended to May 30th, 2015. This contract ensures the supplying of solution or solid cyanide and it was sign by Roberto Noronha Santos, General Chief of Proquigel, Jota Júnior José de Azevedo, General Manager of São Francisco Mine, Cristiano de Oliveira Carvalho, Administrative and Financial Manager and Neil Hepworth, Operational Vice-president.

The cyanide used in São Francisco Mine is purchase from DuPont and Proquigel, both are producers certified under the Code. DuPont is responsible for the chain of custody from the origin to the Santos Port. The transportation from Santos Port to São Francisco Mine is responsibility of Niquini Transportes or Inovar Transportes. From Proquigel facility to São Francisco Mine, the cyanide is transport by Concórdia Transportes. São Francisco Mine is responsible for the chain of custody in this case, according to the contract between the parties. DuPont, Proquigel, Niquini, Concórdia and Inovar Transportes have contracts with São Francisco Mine and they are certify under the Code, according to the site of ICMI - [www.cyanidecode.org](http://www.cyanidecode.org), as producer and transporter, respectively.

The cyanide used by São Francisco Mine is purchase directly from the producers DuPont and Proquigel. Independent distributors are not involved in the purchase process.

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

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

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

*Summarize the basis for this Finding/Deficiencies Identified:*

The product receives packaging and identification according to the encoding of the UN dangerous goods provided in regulations (Federal Resolution ANTT – Notional Agency of Road Transport, nº 420 and 96 044 Federal Decree). The regulation of transport of dangerous products (Federal Resolution ANTT 420 and 96.044 Federal Decree) sets the encoding required identification as the UN Dangerous goods. The labeling of cyanide packaging is available into English, Portuguese and Spanish. This item is also check in specific Audit verifying: SASSMAQ – Sistema de Avaliação de Segurança, Saúde, Meio Ambiente e Qualidade (Safety, Health, Environment and Quality System) by ABIQUIM – Associação Brasileira de Industrias Químicas (Brazilian Association of Chemical Industries). The same legal regulation is apply to products transported throughout Brazilian territory. DuPont and Proquigel are certify as manufacturers (including storage before shipment) and transportation of cyanide. It is comprise in its report the certification for so. Evidence found at <http://www.cyanidecode.org/signatorycompanies.php>

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Along cyanide path from the producer plant to the Operation, official and alternate routes were pre-established, including information of: hospitals, police, civil defense, local authorities and fire department. The Route Plans (Rotogramas) created by Niquini, Concórdia and Inovar were checked during the audit.

DuPont is responsible for the supply chain from Memphis to Santos Port. São Francisco Mine, in partnership to DuPont, provides trainings to port workers and carries out periodical inspections, according to the Code practices. The last training carried out for the company Santos Brazil's employees occurred on May 08<sup>th</sup>, 2013. It was checked during the audit, operational procedures and training records of Santos Brazil aimed to promote safe management of hazardous loads, such as: Check list of the forklift, IO 170 – Recognition of hazardous loads, IO 123 – Storage of hazardous loads.


The cyanide produced by Proquigel is packed and shipped in the producer facility, located in Candeias, Bahia, Brazil and sent to São Francisco Mine by road transport through trucks of Concórdia Transportes, certified under the Code. It is not receive by the port of entry. São Francisco Mine uses solid and solution sodium cyanide. The cyanide solution is produce in Bahia, Brazil and provided by Proquigel.

The solid cyanide is provide by DuPont, USA. Eventually, Proquigel also provides solid cyanide to São Francisco Mine. The Cyanide is package by DuPont and Proquigel in their site and shipped in containers (solid cyanide – provided by DuPont or Proquigel) or isotank (cyanide solution – provided only by Proquigel). The containers of DuPont are unloaded in Santos Port and transported by Niquini or Inovar's truck to Operation. The cyanide packages are keep inside the containers during the shipment. The containers are transfer to Niquini and Inovar's truck in Santos Port and they are only open in São Francisco Mine. The isotank of cyanide solution are loaded into Proquigel facility, transported by Concórdia Transportes and unloaded in São Francisco site. São Francisco Mine uses solid and solution sodium cyanide. The cyanide solution is produce in Bahia, Brazil and provide by Proquigel. The solid cyanide is provide by DuPont, USA. Eventually, Proquigel also provides solid cyanide to São Francisco Mine.

Solid cyanide is acquire through import, and the supplier has the responsibility for transportation from the factory to Santos Port, from where the responsibility lies on São Francisco Mine. From Port to São Francisco Mine the transportation is accomplish by Niquini or Inovar (both of them are certify under SASSMAQ and International Cyanide Management). Cyanide solution is purchase from Proquigel, located in Bahia, Brazil. São Francisco Mine is responsible for the transportation from Proquigel facility to the Operation.

The containers and isotank are maintain in trucks during all cyanide journey. It is not allow temporary storage during the transportation. The solid cyanide unloading is carry out under controlled conditions of procedure "PO-MA-MSF-ADR-001 – Receiving and Mixing of Solid Cyanide – Version 5 of November 22<sup>nd</sup>, 2013". Unloading of cyanide solution is accomplish according to "PO-MA-MSF-ADR-016 – Receiving and Mixing of Cyanide Solution – Version 3 of August 13<sup>th</sup>, 2013".

Niquini, Concórdia and Inovar have SASSMAQ Certification. It proves that the vehicles and equipment have support and maintenance of safety devices required for the transportation of dangerous goods. It was verified the copy of the certificate in SSMA Department of São Francisco Mine. All certificates are valid according to SASSMAQ time certification. SASSMAQ



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Certification is a guarantee of compliance with the requirements of safety training and activities involving the transport of dangerous goods. The transporters: Niquini, Inovar and Concórdia maintain contracts with São Francisco Mine. They have prepared to perform emergency services on the path established by Travel Itinerary fixing the conditions for supporting the transport of dangerous goods (schedules, telephones, stops, etc.).

The monitoring of transport is carry out by national satellite tracking system - average time, parades, events, locking container. The Emergency Plan is available on the trucks. The transporters: Niquini, Inovar and Concórdia maintain contracts with the expert company Suatrans Cotec to emergency response in the path set by Travel Itinerary, that also indicates the communication to be held in case of accidental scenario. They have a Manual for the Emergency Service involving hazardous products, transportation of cyanide, as well. The Emergency Plan is available on SASSMAQ System.


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 ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 2.2

*Summarize the basis for this Finding/Deficiencies Identified:*

DuPont is responsible for the chain of custody from the Memphis Rail Ramp in the U.S. to Santos Port in Brazil (Section 2 of the Contract) to solid cyanide. DuPont maintains formal standards, policies, guidelines, and procedures for ensuring safety distribution.

DuPont corporate standards exist for incident prevention, emergency response, transportation risk assessment, distribution regulatory compliance, training, handling and storage. In addition, DuPont maintains desk manuals with specific procedures for the procurement of transportation services and the management of transporters. The audit of DuPont Memphis Plant and LSI Terminal on September 18-21, 2012 was accomplish under the Code, combined audit of Consignor /Transporter management for global ocean transport and U.S./Canada rail and barge transport. The report of this audit contains information regarding the results of the DuPont consignor / transporter, results of the ocean carrier and port due diligence investigations. DuPont cyanide transportation management practices using ocean carriers (including ports) were evaluate against the Cyanide Code requirements documented in the ICMI Cyanide Code (2012), ICMI Cyanide Code Transportation Protocol (2009), and the ICMI Auditor Guidance for Use of the Cyanide Transportation Verification Protocol (2011). DuPont internal Standards, Policies, Practices, and Procedures regarding the management of the Cyanide Transportation Supply Chain were revise. The cyanide solution and solid cyanide supplied by Proquigel, are loaded in Proquigel facility, from where is transported to São Francisco Mine by Concórdia Transportes. The responsibility to the transportation from Proquigel facility to Operation is of São Francisco Mine, which has contracted Concórdia Transportes to conclude it.



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The agreement firmmed between São Francisco Mine and Concórdia Transportes establishes clear guidelines of responsibility of parties. The unload is carried out in the Operation site according to the standard "PO-MA-MSF-ADR-016 – Receiving and Mixing of Cyanide Solution – Version 3 of August 13<sup>th</sup>, 2013". São Francisco Mine has contracts with Niquini, Inovar and Concórdia for transport services of sodium cyanide.

These contracts set among other obligations Maintain certification in SASSMAQ - Safety, Health, Environment and Quality System, according to the program of ABIQUIM – Brazilian Association of Chemical Industry; Keep São Francisco Mine inform about transporter's status certification (certification, suspension, recertification) on SASSMAQ and International Cyanide Management Code (regardless of the availability of data. Source: <http://www.cyanidecode.org/signatorycompanies.php>). Keep formal contract with a company expert on emergency services, qualified according to the criteria of International Cyanide Management Code, providing the content of the clauses and the technical annexes, if requested by São Francisco Mine; Provide official and alternative routes from Santos Port to São Francisco Mine; The contract of carriage does not foresee the use of transfer station or facility temporary storage; It is prohibited to subcontract any parts of services."

São Francisco Mine maintains formal contracts with all parties involved in manufacture and transport of cyanide. Manufacturers and transporters are certify under the code. The contracts establish responsibilities for every step of the supply chain.


### **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 ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 3.1

*Summarize the basis for this Finding/Deficiencies Identified:*

SEI Consulting & Projects S / C Ltda developed the facilities projects of São Francisco Mine in partnership with DALTEC Consulting Engineering and Project Ltda. SEI works in the development of Engineering Projects in the areas of oil and gas, mining and metallurgy, steel and industry. SEI has broad market experience and customer focus in the national economic scenario. In their designs, uses the best technologies including 3D solutions. The design team of the SEI developed significant projects in the area of mining and metallurgy. This participation is present in complex industrial processing of copper ore, gold, zinc, potassium, phosphate, iron, kaolin, uranium, niobium, nickel, tantalum, zirconium, titanium and other minerals, allowing the team at the SEI recognition and reputable in this important sector of the economy. Source: <http://www.seiengenharia.com.br/> and <http://www.daltec.com.br/>



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Brazilian Army is responsible to authorize the purchasing, storage and use of cyanide in all Brazilian territory. São Francisco Mine has the license TR 9T/669/MT/14. Periodically, surveys in the Operation site are conducted by Army to check the cyanide facilities conditions. The last survey was concluded on April 01<sup>st</sup>, 2014. The solid and liquid cyanide storage is located far away from human settlements, communities and surface waters. However, the operation carries out hydrogen cyanide monitoring, through fixed and portable detectors equipped with visual and audio alarms, to verify the hydrogen cyanide gas concentration and reduce risks to workers. To accomplish unloads of cyanide solution, the isotank is placed aside the mixing area, on a concrete base built over a layer of High-Density Polyethylene Membrane (HDPE).

The base of unloading area is covered with waterproof product, has secondary containments around the perimeter and it is constructed to direct any leakage to the process. The entire operation in which there is the use of cyanide solution, there is an Automatic Control System. In the ponds and in the mixing tanks a system monitors overfilling with several sensors that will automatically transfer the solution to the pumps and so to the process.

Besides the Automatic Control System, the operation has manual techniques of monitoring the level of the solution, which consist on visual verification along with a graduated scale. This verification is accomplished in the first shift and record in a spreadsheet, which is maintained in the Management Control System. All the cyanide storage and process tanks are located on a concrete surface that was constructed following the design criteria.

The secondary containments for cyanide storage and mixing tanks were constructed of concrete. The operation has a sodium cyanide warehouse area designed and constructed according to Code, with adequate ventilation, under a roof and walls, locked and with no public access. Otherwise, the operation carries out hydrogen cyanide monitoring through fixed and portable detectors equipped with visual and audio alarms, to verify the safety concentration range before any access to the building. This warehouse is used only for the storage of sodium cyanide boxes, and is far away from other incompatible substances. Liquid cyanide is not stored in the Operation site. Once the isotank arrives in the plant, the solution is unloaded directly in mixing tanks and applied immediately on the process.

During the audit, designs of concrete ground were revised. The procedure "PS-MA-MSF-MAN-001 – Design and Document Control – Version 01 of September 4<sup>th</sup>, 2012" establishes the management of access in these designs.

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	<input checked="" type="checkbox"/> in full compliance with	Standard of Practice 3.2
	<input type="checkbox"/> in substantial compliance with	
	<input type="checkbox"/> not in compliance with	

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### *Summarize the basis for this Finding/Deficiencies Identified:*


The agreements firmed between São Francisco Mine and transporters include a clause establishing the prohibition to use cyanide containers for any other proposes than holding cyanide. The plastics bags are decontaminate by submersion in tanks with sodium hypochlorite solution and rinse with water three times. The solution is direct to the ponds and recirculated in the process. The cyanide used in the operation is pack in plastic bags and stored in wooden boxes. The boxes are decontaminated, stored in the temporary storage central of residues and disposal in accordance to Brazilian legal requirements. Brazilian Environmental Regulatory Agency does not allow exportation of residue, the wooden boxes and decontaminated bags, are place in containers in the temporary storage central of residues waste storage, with restricted access within the area of the plant. The operation follows the procedure "PO-MA-MSF-ADR-001 – Receiving and Mixing of Solid Cyanide – Version 5 of November 22<sup>nd</sup>, 2013". Through observations and interviews, it can be assess that the Operators have the knowledge necessary to perform the unloading and preparation.

The standard "PO-MA-MSF-ADR-001 – Receiving and Mixing of Solid Cyanide – Version 5 of November 22<sup>nd</sup>, 2013" establishes the neutralization of the wooden boxes, must be make separately from the bags in individual tanks installed in the Preparation Area. It was also carry out the training in this standard for all operators and still carried out the DuPont Safety Training for Sodium Cyanide, for leader operators, supervisors, engineers, and operations time coordinators, maintenance, job safety, environment, occupational health, laboratory and representative of all the other areas in the Company.

Operators who were interview during unloading and mixing tasks: Emerson Pachuri Leite and Jussan Rodrigo Pessim de Paula.

The Auditor has verified that the empty bags of cyanide are rinse three times with fresh water, ensuring they are free of cyanide before being send to temporary storage central of residues. Samples of neutralized material are make after each neutralization process, being verify that the results are under the maximum limits established by International Cyanide Management Code. Containers are remove by an authorized transporter that sends the residues to expert companies on hazard residues treatment, licensed by SEMA – *Secretaria Estadual de Meio Ambiente* (State Department of Environment).

The evidence of implementation was verify through observation of Employees performing these tasks, and field interviews with personnel responsible for them. The conclusion was that all interviewed employees have knowledge of their tasks and associated risks during cyanide operations. The Operation has implemented the operational standard "PO-MA-MSF-ADR-001 – Receiving and Mixing of Solid Cyanide – Version 5 of November 22<sup>nd</sup>, 2013" and "PO-MA-MSF-ADR-016 – Receiving and Mixing of Cyanide Solution – Version 3 of August 13<sup>th</sup>, 2013". This standard establishes that two operators are required to conclude the liquid or solid cyanide unload, and describes the correct way to operate the valves and couplings that compose the process until the step of mixing. After this step, the operation of valves is describe at PO-MA-MSF-ADR-004 "Operation Plant – Version 04 of March 16<sup>th</sup>, 2014". Through observations and interviews, it could be assess that the Operators have the knowledge



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necessary to perform the unloading and preparation. In addition, an Automatic Control System monitors the all phases of the process.

Once the cyanide container arrives in São Francisco Mine, it is inspect to verify the entirety of wooden boxes. When the wooden boxes are unloaded in the warehouse, it is once again inspect to guarantee the conditions of stacking. Once the cyanide reaches the mixing area, it is guarantee that the cyanide containers did not present any evidence of rupturing and puncturing. The stack height for cyanide storage is 3 wooden boxes according to DuPont and Proquigel's advice. During and after mixing the operators clean up the area according to the standard "PO-MA-MSF-ADR-001 – Receiving and Mixing of Solid Cyanide – Version 5 of November 22<sup>nd</sup>, 2013". Through observations and interviews, it could be assess that the operators have the knowledge necessary to perform the unloading and preparation. The Personal Protective Equipment's are appropriate for the task. Two operators perform the preparation. Additionally, another person monitors the task by CCTV (Close Circuit Television) installed in Control Room.


**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      ☒ in full compliance with      Standard of Practice 4.1  
                                 ☐ in substantial compliance with  
                                 ☐ not in compliance with

*Summarize the basis for this Finding/Deficiencies Identified:*

The Operation has established and implemented procedures for the management and operation activities including Contingency Planning, inspection and preventive maintenance of



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the facilities of Sodium Cyanide. Inspections on tanks containing cyanide solutions are carry out through checklists, verifying the structural integrity, signs of corrosion and leakage.

Planed preventative maintenances are accomplish periodically according to maintenance plans available at Engeman, a system for maintenance planning used by São Francisco Mine. The procedure PS-MA-GER-COR-004 "Legal and Other Requirements – Version 2 of April 17<sup>th</sup>, 2012" establishes a routine of identification, access and conformity assessment with legal requirements regarding to São Francisco Mine. It can be verify that the necessary parameters for the design of cyanide facilities are map and were implement. The Management Control System ensures, through management procedures cited in 4.1, that tasks involving cyanide storage, handling, mixing, neutralization and disposal are safe. São Francisco Mine has established and implemented procedures for management and operation activities, including Emergency Response Plan, Inspections and Preventive Maintenance of sodium cyanide facilities. Inspections on tanks containing cyanide solutions are carry out through checklists, considering: structural integrity, corrosion signs and leakage.

The water levels in the ponds are control through daily visual inspections on the first shift. There are also level sensors that are monitor by Automatic Control System. The records of these inspections are maintain in the Control Management System, called SIGA. The operation has flow meters in all productive process that provides information to the water balance. During the audit, it was revised the document "São Francisco Mine Water Balance – Version 2013", that presents the consumed water volume, through charts and flowchart. The Water Balance contains information regarding to water consumption in each step of the process: mine, crusher, gravimetric, leaching, adsorption, desorption, human use and effluents discharges.

In an interview with the SSMA Manager and the operator of Water Treatment Station, the water balance consistency could be confirm. It was verified the procedure PS-MA-GER-COR-001 "Change Management – Version 01 of September 14<sup>th</sup>, 2012" that establishes methodology to plan and approve any changes in structures, equipment's, layouts and processes, and guarantees the control of new risks. The main objective of the procedure is to establish a systematic to make sure that the necessary changes will be evaluate before they are implanted, and must be definitely implant only when the impacts or damages to the people, properties, quality of product, or the environment are controlled. The procedure defines what activities are subject for approval in accordance with the risks evaluation. If the risk is consider low level, the Area Manager and the SSMA Manager make the approval; in case the risk is considered medium or high, the Area Manager, SSMA Manager and the General Manager must make the approval. Change management records regarding to the building of liquid cyanide unloading facilities were check during the audit. São Francisco Mine has the procedure "PS-MA-COR-GER-006 - Analysis and treatment of non-conformance – Version 01 of December 01<sup>st</sup>, 2010", which establishes that, if water balance discrepancy occurs and if deviation is detected, through inspections or monitoring of the facilities, the Operation must be accomplished a causes investigation and corrective actions must be taken.

If necessary, tasks related to cyanide process must be disrupt, until normal operational conditions are restore. In this case, actions to assure the safety for a temporary closure forecast in PS-MA-MSF-GER-001 "Emergency Response Plan – Version 04 of July 18<sup>th</sup>, 2013"



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and PS-MA-COR-BEN-001 “Decontamination Equipment’s Involving Cyanide – Version 01 of November 10<sup>th</sup>, 2010”.

Through checklists conducted daily and weekly, inspections are accomplished by the operation team. Problems are identified quickly and the necessary fixes are carried out immediately. According to operational procedures and “Preventive and Corrective Maintenance Plan”, inspections are carried out routinely to verify the structural integrity of cyanide solution tanks and signs of corrosion or leaks of cyanide.


All areas where there is storage and handling or movement of cyanide solution are impermeable and have channels and containment boxes with capacity for 110% of the volume of the largest container kept in the area. The operation has a detection, containment, and recirculation system that includes several underground pumps provided for sensors that are activated in case of leakage, rupturing or overflow of solution tanks.

The operation has an inspection plan defined in the FS-MA-MSF-ADR-030 “Inspection Chronogram of Cyanide Plant – Version 02 of September 05<sup>th</sup>, 2012” that determines the frequency to verify the tanks, pipelines, contentions, mixing area, cyanide transportation truck and surrounding area. The Operation monitors daily the freeboard of ponds, through a graduated scale. The record of this monitoring contains data that provide information to control the ponds volume and prevent overflows. The quality of the surface water is monitored every two months according to Brazilian legal requirement “Resolution CONAMA nº 357” (CONAMA is the Brazilian National Council for Environment). Through checklists conducted daily and weekly, the operation team accomplishes inspections. Problems are identified quickly and the necessary fixes are carried out immediately.

The inspections accomplished by maintenance are defined in the Maintenance Plan. In visit of cyanide plant, it is possible to verify that cyanide solution tanks have good operational conditions. There are no signs of corrosion or leaks of cyanide. Dates of inspections, the names of the Inspector’s, and any observed deficiencies are appointed in the Maintenance System. Records are kept. The equipment and devices, such as solution pumps and pipelines are included in the “Preventive and Corrective Maintenance Plan” as critical items. This Plan is managed by the ENGEMAN System Software, a maintenance management system, which are linked by TAG identification. The Operation has Emergency Power Generators covered by regular inspection and maintenance plan. This equipment is connected to the critical components, in case of failure of primary energy, should fire pumps and other equipment in order to prevent unintentional releases and exposures.

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      ☒ in full compliance with      Standard of Practice 4.2  
                                 ☐ in substantial compliance with  
                                 ☐ not in compliance with  
                                 ☐ not subject to



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*Summarize the basis for this Finding/Deficiencies Identified:*

Not Applicable. São Francisco Mine doesn't have mills.

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

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


*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine has a Hydrological Study of the region and maintains the monitoring of the meteorological conditions, the quality of the surface water and groundwater. In the Technical Report of the Hydrology, Hydrological, Geological- Geotechnical and Director Plan for the feasibility II São Francisco Project by Golder Associates Brasil Consultoria e Projetos LTDA on March 2004, was evaluated the regional history of the average rainfall including the calculation of the 10.000 year rate of return rainfall, which was considered in the dimension of the ponds. The period of the greatest amount of rainfall is between November to April. For this period, there is a plan that establishes the neutralizations and the volume control of solution.

During this period, when discards occurs, cyanide WAD, cyanide total, cyanide free and pH are analyzed each half-hour. Records are keep in the Management Control System. The volume of cyanide solution applied on heap leaches is 1800 m<sup>3</sup>/h, with concentration of 300 mg/l (quantify measured on mixing output). The cyanide dissociates in heaps and reaches concentration 30 mg/l on heaps output. In the ponds, the medium cyanide concentration is approximately 30 mg/l. The solution is maintain in recirculation, except in rainfall periods when planed discharges are necessary. In this case, the solution of pond that has lower cyanide concentration is direct to neutralization pond.

The regional history of the average rainfall, including the calculation of the 10000-year rate of return rainfall, and the water consumption in the process in the period from 2007 to 2010 was consider in the facilities project. The Design of Ponds considers rate of return rainfall in the region with technical reserve for storage and prevents the overflow in sufficient time, for neutralization and controlled disposal. Besides the design criteria, the operation maintains the region's weather monitoring, including the evaporation, sunlight and rainfall, through the Weather Station Vantage Pro2 installed into the site. The weather data obtained is consider to plan neutralization and discards of cyanide solution.

Besides the design criteria that indicate the data on climatic conditions, the operation maintains the region's weather monitoring. The operation has a Weather Station Vantage



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Pro2 that provides a weather forecast and monitors the daily rainfall. The operational procedures and cyanide dosage is adjusted according to it. Considering the climate of the region, there is no historical record of formations of ice or snow that may contribute to the increase of water directed to the Ponds, Tanks and Dams. The Operation has an Emergency Power Generator covered by regular inspection and maintenance plan. This equipment is connect to the critical components that in case of failure of primary energy, should immediately initiate pumps and other equipment in order to prevent unintentional releases and exposures.

As a preventive measure, 40% of the ponds are maintain free to guarantee that there will be enough capacity to contain extra volume of solution caused by the emergency. The groundwater monitoring is conduct evaluating the effectiveness of containment. Three operational ponds, one excess pond and one neutralization pond are monitor. The maximum volume of each pond is determined in the Construction Project, which considers the historical rainfall indices. The monitoring of the ponds level and cyanide concentration is make daily and each pond has an adequate freeboard. Below the freeboard required for each pond.

The disposal of the solution in surface water is accomplished in the rainfall period (November through April), when the level of the ponds reaches 60% of its capacity. Before the disposal of the solution, it has accomplished the cyanide neutralization using Hydrogen Peroxide and the pH balance using Sulfuric Acid. The disposal is perform only upon confirmation of the neutralization of the effluent through internal lab analyses. The Operation monitors the rainfall and adjusts its procedures according to the obtained data.


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

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

*Summarize the basis for this Finding/Deficiencies Identified:*

In São Francisco Mine, the solution applied in heaps, from mixing area, has a concentration of approximately 300mg/l. In this phase, the solution is lead to the leaching through closed pipelines, causing the wildlife no access to the solution. In the drainage channels, where the solution is direct from the heaps to the ponds, and in full uncover areas, the concentration of solution is approximately 30mg/l. The mixing, storage, and handling areas are fenced to avoid the entrance of big and small animals.

To prove the efficiency of the controls, the Operation performs a monitoring of wildlife every semester, in the rainy and dry season, in the Operational Site and surrounding areas. This



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study is provide by a multidisciplinary team from Omega Ambiental, a Company specialized on Environmental Studies, Péricles Botelho - CREA / RN 120015192-5 - SEMA 397, is the technical responsible for the study.

The solution applied in the heaps has a concentration of 300mg/l, which is apply through closed pipelines, and there are procedures to avoid impoundments on the top of the heaps. The cyanide concentration is measure through the internal laboratory each shift, to provide information in the stability of the process. Thereby, the Operation guarantees that the wildlife is protect by not having contact with concentration higher than 50 mg/l. Records of analysis sampled last year show that the maximum concentration of cyanide WAD detected was 38.5 mg/l occurred in a process pond.

The cyanide WAD average concentration was 3.5 mg/l. The areas where there is open water are just in the drainage channels, which transport the solution from the heaps to the ponds, and in the ponds. Solution analysis are conduct by internal laboratory, every shift, to confirm the WAD cyanide concentration. According to records kept, the maximum WAD cyanide concentration in these areas is approximately 30mg/l.


The Operation maintains standard "PO-MA-MSF-ADR-012 - Heap leaching - Version 04 of August 12<sup>th</sup>, 2013" that defines procedures to avoid impoundment on top of the heaps. This standard establishes that, in case of detected impoundments in the heap surface, the area must be restricted until the excavator employee accomplishes the scarification of the area, so that the solution percolates in the heaps. This standard also establishes measures so that the heap surface is not compacted to make easy the solution percolation.

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 ☒ in full compliance with  
☐ substantial compliance with Standard of Practice 4.5  
☐ not in compliance with

*Summarize the basis for this Finding Deficiencies Identified:*

The Operation accomplishes discharge in the surface water during the rainfall period (November to April). This discharge is authorize by the environmental regulatory agency, SEMA – Secretaria Estadual de Meio Ambiente (State Department of Environment), according to the Environmental Operational License - LO 305723 / 2012. The monitoring records indicate the cyanide WAD concentration level in the discharged effluent is less than 0.5 mg/l. The analysis are carry out by an external lab – Araxá Ambiental, accredited according to license number CRL 0552 by INMETRO – Brazilian National Institute of Metrology and Quality. Analysis reports issued by Araxá Ambiental throughout 2013 shows that the maximum cyanide WAD concentration detected was 0.1 mg/l.



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The Operation has a discharge procedure that establishes neutralization of cyanide through the Hydrogen Peroxide application and pH balance through Sulfuric Acid, which is accomplished in the rainfall season (November to April). After the neutralization, analysis is carried out to confirm the pH and the cyanide concentration. In case the concentration of cyanide is lower than 0.022mg/l and pH is equal to or less than 9, then a discharge is concluded in Cabeceiras Dam.

Analysis reports issued by Araxá Ambiental throughout 2013 shows that free cyanide concentration greater than 0.00 mg/l was not detected in the effluent or the mixing zone. São Francisco Mine has operational control systems that avoid indirect discharge, such as: the areas where occur storage, handling and mixing of cyanide are impermeable, and has pumps that direct possible spills of solution to ponds. To verify the efficiency of the controls and to guarantee that the cyanide concentration is less than 0.022 mg/l, the underground and surface water qualities are monitored every two months, through analysis concluded by external lab (Araxá Ambiental). The records are maintained in Management Control System, which demonstrates that free cyanide concentration greater than 0.00mg/l was not detected last year.

The results of the effluents analysis, surface and groundwater are compared to the defined parameters by the International Management Cyanide Code and CONAMA – Conselho Nacional do Meio Ambiente (Brazilian Environmental Council). In the legal requirements which are: “Resolução CONAMA Nº 357/2005” (surface water quality), “Resolução CONAMA Nº 396/2008” (groundwater quality), “Resolução CONAMA Nº 397/2008” and “Resolução CONAMA nº 420/2011” (parameters for effluents discharge).

According to the CONAMA’s legal requirements the maximum limit of total cyanide for effluent discharge is 1.0 mg/l, for the WAD cyanide the maximum limit is 0.2 mg/l and for the free cyanide the maximum limit was not established. For the surface and groundwater, it was not established a maximum limit. When the results are out of the established limits by CONAMA or the Code an investigation is made to determine its cause, and corrective actions taken to eliminate the problem. After the corrective actions have been concluded, the future results are watched to verify that the problem is really solved.


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 ☒ in full compliance with  
☐ in substantial compliance with  
☐ not in compliance with

Standard of Practice 4.6

*Summarize the basis for this Finding/Deficiencies Identified*

In São Francisco Mine areas, where the solid cyanide and cyanide solution are stored, handled and mixed, there are impermeable protections constructed with concrete or High-Density Polyethylene Membrane (HDPE). In case of solution spills, the solution is pumped to the ponds through submersible pumps. The Operation has a procedure PS-MA-MEA-COR-002 “Water



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and Effluents Monitoring – Version 06 of August 02<sup>nd</sup>, 2013” to measures the protection system efficiency through analyze of water quality. According to Brazilian regulations, there are no limits established for any types of cyanide in groundwater, so the Operation uses the limits of World Bank SHE Guidelines as comparison base.

The limits established by World Bank SHE Guidelines are: 0,5 mg/L WAD cyanide, 0,1 mg/L free cyanide and 1,0 mg/L total cyanide. It can be verified in Water Analysis Reports issued by Araxá Ambiental, external lab qualified according to INMETRO (Brazilian National Institute of Metrology), the highest concentration recorded in the period from January, 2013 to April, 2014, were: 0.008 mg/l WAD cyanide (January, 2013), 0.017 mg/l total cyanide (March, 2013) and 0.006 mg/l free cyanide (May, 2013). The Operation does not capture groundwater to human consumption or operational use. All water used in Operation is capture at Longa Vida Stream and treated in the Water Treatment Station. The Operation’s mine is open pit. Mill tailings are not use for any purpose.

According to Analysis Reports issued by external laboratory, there are not historical records of cyanide concentrations above the levels of protective to beneficial use of groundwater. However the Operations has the procedure “PS-MA-COR-GER-006 - Analysis and treatment of non-conformance – Version 01 of December 01<sup>st</sup>, 2010”, which establishes that analysis of causes must be concluded and corrective actions must be defined to all parameter above legal limits identified in monitoring.


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

The operation is	<input checked="" type="checkbox"/> in full compliance with	Standard of Practice 4.7
	<input type="checkbox"/> in substantial compliance with	
	<input type="checkbox"/> not in compliance with	

*Summarize the basis for this Finding/Deficiencies Identified:*

The areas where there is solid cyanide or solution cyanide have impermeable protection and recirculation system. The cyanide is stocked in a covered warehouse provided with impermeable ground, drainage channels that directs the flow to the ponds, screen protected openings at the top, to make easier the natural ventilation and locks, to prevent the entry of no authorized people. The mixing is make in tanks installed in impermeable area. The solution goes up to the leaches through closed pipelines.

There are channels under these pipelines that are impermeable for High-Density Polyethylene Membrane (HDPE). The ponds build in a hole excavated on soil. Sand drains were install on bottom of excavation bellow of base of clay. Over the base, two layers of High-Density Polyethylene Membrane (HDPE) with 1.5mm thick were install. All drainages of cyanide plant are direct to the ponds. There are submersible pumps that capture spills and direct to the ponds. In all steps of process, the cyanide is maintain separated from other chemical products to prevent reactions. All areas where there is storage and handling or movement of cyanide solution are impermeable and have channels and containment boxes with capacity for 110%



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of the volume of the largest container kept in the area. The containment areas are equipped with pumps that return solutions to the process. The pumps start automatically when the volume of liquids on the containment reaches a maximum level. There is a secondary containment for all tanks in São Francisco Mine, and there is a procedure for remediation of contaminated soil and water, “PS-MA-MSF-GER-001 Emergency Response Plan – version 04 of July 18<sup>th</sup>, 2013.” To prevent spills, all cyanide tanks have automatic level sensors. These sensors trigger pumps that transfer the solution to next process stage, preventing overflows.

To containment spills, in case of anti-overflows system failures, the leaks will be contained by impermeable ground and channels provided by submersible pumps, those return the spills to the ponds. In all areas where there is solid cyanide or cyanide solution, contentions are provide, including channels under the pipelines that are impermeable by high-density polyethylene membrane or concrete. These measures guarantee the efficiency of prevention of releases of solution to the environment.


All the pipelines are protect with specific materials to prevent the risks to surface water. During the implementation of the São Francisco Mine’s project, guidelines were follow: relevant technical implementation and use of cyanide, as shown in the Feasibility Study. Solution pipelines are construction using Carbon Steel ASTM A106 GR. B and Stainless Steel AISI 316L. It was utilized the method established by ANSI B31.1 Standard to define which should be the most appropriated material. Tanks and absorption columns were construct using Carbon Steel ASTM A-36 or ASTM A-283 GC and Stainless Steel AISI 304, except acid tanks and wash coal that was construct using glass fiber.

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 ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 4.8

*Summarize the basis for this Finding/Deficiencies Identified:*

During construction, inspections were carry out by SEI and Daltec Engineering Technical Team, (companies responsible for the designs and construction of São Francisco Mine). After each construction step, it was elaborated an assurance Quality Report, based on tests accomplished according to ABNT – Associação Brasileira de Normas Técnicas (Brazilian Association of Technical Standards). To guarantee the quality control of heaps construction, São Francisco Mine created and implemented a standard “PS-MA-COR-GER-001 – Changes Management – Version 01 of September 15<sup>th</sup>, 2010” that establishes methodology to plan and approve any changes in structures, equipment’s, layouts and processes. Before the construction of the heaps bases, drillings and trenches were, accomplish to investigate soil characteristics. These studies showed that soil is composited superficially for thin layer of sand (approximately 1.20 m), followed by a clay layer and hard lateritic (which has high resistance to percolation).



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During earthworks, the sand layer was removed to level the heap bases and achieve the compaction needed. After this step, new drillings were carried out to confirm soil compaction.

To ensure the suitability of materials, this was defined according to ABNT (Brazilian Association of Technical Standards). It was created and implemented the standard PS-MA-MSF-MAN-001 – “Design and Document Control – Version 01 of September 4<sup>th</sup>, 2012”, which establishes a systematic to: elaboration, review, approval, storage, control, confidentiality, protect and dispose of the structural construction designs, keeping the control and insurance quality of construction of Cyanide Plant.

Daily backups are carried out ensuring safety against loss and documents changes. Construction Designs of São Francisco Mine Plant were elaborated and implemented by SEI Consultoria & Projetos S/C Ltda. (CNPJ 65.135.956/0001-46) in partnership with DALTEC Consultoria em Engenharia e Projetos Ltda. (CNPJ 41.769.787/0001-38). Note: In Brazil, the legal requirements about technical responsibility were established by CREA – Conselho Regional de Engenharia e Arquitetura (Regional Council of Engineering and Architecture). These legal requirements establish that Engineers and Architects must be licensed by CREA and that technical responsibility to works realized for these professionals must be registered through ART – Technical Responsibility Annotation.


*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	<input checked="" type="checkbox"/> in full compliance with	Standard of Practice 4.9
	<input type="checkbox"/> in substantial compliance with	
	<input type="checkbox"/> not in compliance with	

*Summarize the basis for this Finding/Deficiencies Identified:*

The Laboratory responsible for external monitoring is Araxá Ambiental. Araxá Ambiental has ISO 17025 and ISO 9001 certifications. São Francisco Mine maintains evidences of external laboratory conformity to legal requirements, such as personnel qualification, statistical techniques for sampling, testing methods, maintenance and equipment calibration. Specifically procedures specify the following parameters: methodology and places where samples be taken sample preservation techniques, chain of custody procedures, shipping instructions, and cyanide types to be analyzed.

Specifically procedures specify the sampling conditions that are registered in analysis report available in Environment Department. The Operation has procedures and protections against cyanide accidental discharges and a rigorous control of planned discharges. Samples of cyanide solutions existents on process are collected in several points of plant and analyzed by internal lab, to determinate the cyanide concentration and pH. The results these analyses used to quantify needed reagents to neutralize the solution before discharges. The solution neutralized is analyzed again to ensure the secure discard.



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The quality of surface water, when the neutralized solution is discard, is monitor too. The samples are collect in 5 points downstream site and analyzed by Araxá Ambiental. Inspections are conduced daily for operational team of cyanide plant, to checks existence of dead or sick animals. The records are maintains in Management System. Since 2005, scientific studies are conduct every six months by Omega Ambiental, Technical Responsible: Forest Engineer Pericles Botelho – Registry CREA nº 120015192-5, and SEMA nº 397, to assess potential occurrences of impacts on Herpectofauna and ichthyofauna. These studies are perform during the rainy season and dry season.

Tree Wildlife Monitoring Reports were verify by Auditor: March and September 2013, March 2014. Evidences of wildlife killing in the area considered covered by the project's São Francisco Mine, are not detect. During the Audit, there is no evidence of the formation of significant impoundments on the cell surface of leaching. Surface and groundwater monitoring is conducted every two months by external lab and daily by internal lab. Inspections to check impacts to wildlife are daily conducted and wildlife monitoring is carry out every six months. In both monitoring, damages evidences have not been identify to fauna; therefore, the monitoring frequency is adequate to ensure efficiency of controls and environmental preservation.


**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 ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 5.1

*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine has a Decommissioning Plan Cyanide Plant. The general closure guidelines were set on “Conceptual Closure Plan of São Francisco Mine” created by VOGBR - VOGBR GEOTHECNICS & WATER LTDA in 2008, under responsibility of the engineer Paulo Lemos, 69184 / D - CREA / MG. This document was reviewed on January 2014 by the company ERM – Environment Resource Management, according to the report “*Suporte no Planejamento do Fechamento das Unidades de Mineração de Ouro da Aura Minerals – São Francisco Mine – 1º Termo Aditivo – CTSER 0011/2013*”, including a full revision of decommissioning scenarios, closure costs. Comparing both versions of Closure Plan. It can be verify that there are not significant changes in methodologies of cyanide plant closure. The operational procedures to decommission cyanide facilities are detail on “PS-MA-COR-BEN-001 - Decontamination of Equipment’s Involving Cyanide - Version 01 of November 22<sup>nd</sup>, 2010”, which is applied also to equipment’s parts replaced.



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The closure of São Francisco Mine is foreseen to 2015. The Closure Plan forecasts that five years will be necessary to neutralization and decommissioning, after definitive stop of production. During the first year, cyanide solution will be applied to recover the residual gold. From second to half of third year, the heaps will be washed with water, which will be recirculated until cyanide concentration is less than 0.02mg/l.

Application of neutralizing solution, composed of hydrogen peroxide and sulfuric acid, will be started on second semester of third year, as well as neutralized solution discharges and emptying of ponds and pipelines, to enable installations decommissioning and recovery of impacted areas. The waters and effluents monitoring will be continued during five years after closure.

The Closure Plan of São Francisco Mine is assessed once a year by the Committee for Critical Analysis formally designated in terms of SIGA – Apoena Integrated Management System for Safety, Health and Environment. If necessary, a review is proposed by the Committee. The last review was concluded on January 2014 by ERM – Environment Resources Management, showed in the document “*Suporte no Planejamento do Fechamento das Unidades de Mineração de Ouro da Aura Minerals – São Francisco Mine – 1º Termo Aditivo – CTSE 0011/2013*”.

It was checked during the audit the record “FS-MA-COR-GER-005 – Designation of Critical Analyze Committee Members” – signed at October 29, 2013.


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

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

*Summarize the basis for this Finding/Deficiencies Identified:*

The necessary investments and costs related to decommissioning activities (recovery, treatment, hiring of specialized services, transportation, etc.) were calculated considering the current forecast of life of mine. Resources provisions are made to assure the necessary fund to mine closure. In order to comply with corporate guidelines established by Aura Minerals Inc., the Operation maintains and updates every year, a spreadsheet based in current contracts with third parties and commercial proposals obtained through formal quotation process concluded by São Francisco Mine's supply team.

The closure costs are audited every year by an expert company for financial audits – Pricewaterhouse Coopers. As defined by the Operation, Closure Plan reviews are carried out in accordance to the Committee assessment. The last review was concluded on January 2014. The period between reviews is used to obtain more consistent information on the tailings, the engineering and environmental aspects, and stakeholders' expectations. Technical studies, water quality analyses are foreseen.



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In each Closure Plan review, the closing costs will be reassess. The Operation has a contract with an expert company to carry out the Financial Audits to prove the adequacy of closure costs provision. Every year, São Francisco Mine is audit by Pricewaterhouse Coopers Canada (PwC) which submits a report to Aura Minerals Inc. The last audit was recorded through the report "Consolidate Financial Statement – version March 26<sup>th</sup>, 2014", which includes the finding about the closure costs.

Note: In Brazil, there is no legal requirement for approval by jurisdiction of the closure costs, excluding insurance and bond.

### **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      ☒ in full compliance with      Standard of Practice 6.1  
   ☐ in substantial compliance with  
   ☐ not in compliance with

*Summarize the basis for this Finding/Deficiencies Identified:*

The Operation has established and implemented procedures for the management and operation activities including Contingency Planning, inspection and preventive maintenance of the facilities of Sodium Cyanide. According "PS-MA-MSF-GER-001 - Emergency Response Plan - Version 04 of July 18<sup>th</sup>, 2013", "PO-MA-MSF-ADR-001 - Receiving and Preparation of Solid Cyanide - Version 05 of November 22<sup>nd</sup>, 2013" and "PO-MA-MSF-ADR-016 - Receiving and Unloading of Liquid Cyanide - Version 03 of August 12<sup>th</sup>, 2013", personal protective equipment's are necessary. In inspection on the operational area, it was verify that this equipment's are available. São Francisco Mine also has the procedure "PS-MA-COR-GER-001 – Changes Management – Version 01 of September 15<sup>th</sup>, 2010" that establishes support for the necessary measures to control new risks.

The main objective of the procedure is to establish a systematic to make sure that the necessary changes will be evaluate before they are implanted, and must be definite implanted only when the impacts or damages to the people, properties, quality of product, or the environment are controlled. The procedure defines what activities are subject for approval in accordance with the risks evaluation. If the risk is consider low level, the Area Manager and the SSMA Manager make the approval; in case the risk is considered medium or high, the Area Manager, SSMA Manager and the General Manager must make the approval. The Change Management Procedure is apply for any changes in productive process, software's, systems, equipment's, industrial plant, pit projects, waste piles, plant projects, materials composition and environmental control. To provide continuous improvement, the Operation maintains the "IDEALIZE Program" that is an open channel for ideas for improving operations. Through specific form, the employees show ideas about safety, health and environment improvements. These ideas are vote by Committee for Critical Analysis that considers some criteria to choose the better idea: higher gain in safety, health, environment and production,



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costs reduction and possibility of application in several areas. The champion idea will be implement and the employee will win an award.

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 ☒ 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 minimum pH established by Operation is 11 (eleven). Each hour, measurements of pH are conduct through internal laboratory. If necessary, the dosage of caustic soda is increased and a new analysis is conclude. São Francisco Mine has a rigorous control of pH. During mixing and application, the pH is maintain greater than 11, so the formation of gases is impossible, except in case of accidents.

Mobile gases detectors are provide to each worker involved in cyanide activities. Autonomous respirators are available in storage, mixing and handling areas. The risks related to cyanide are map on Operational Procedures and adequate PPE to each activity are available. All workers are training on Operational Procedures and Supervisors carry out behavioral assessments routinely. Behavioral assessments records are maintain on Work Safety Department. Calibration Plan and the relevant records are manage by the SIGA – Management Integrated System of Apoená. Records of the gas detectors calibration are keep for three years according to the procedure based on the Manufacturer's manual.

It was demonstrated signaling mapping of the areas corresponding to the use of cyanide. The signaling was completely check through inspections. The Operators have the knowledge about the place where there is the presence of cyanide, and the restrictions imposed to the situations presented. In visit on the areas could be observe: showers, low-pressure eye wash stations, dry powder or non-acidic sodium bi-carbonate and fire extinguishers located at strategic places. Periodic inspections are carry out and the records demonstrate that the emergency devices, listed above, were tested.

The tanks and pipelines are properly identify and there is indication of fluid flow direction and transference conditions (temperature, pressure, flow). They also have the imprint "Cyanide Solution" or stripes in purple. São Francisco Mine uses the International Code of Colors for visual identification of pipes containing cyanide solution. MSDS "Safety Information Sheets for Chemical Products", including cares to prevent accidents and the necessary actions in accidental events, are available in the areas of handling and storage of cyanide. There are also banners and pocket cards with all the security information.

There is the standard "PS-MA-COR-SEG-001 – Incidents analyses and communication – version 03 of December 03<sup>rd</sup>, 2013 that establishes guidelines to record, investigates causes and takes corrective actions in case of any incidents including cyanide scenarios. Reports of incidents



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analyses and communication are registered in PM Drive System, management software, including evidences of incidents investigation and actions plan to consider, when applicable, corrections to: Personnel qualification; Review of procedures; Adequacy of measurement systems; Adjustment of equipment / facilities and Modification of materials.

São Francisco Mine has no incidents involving cyanide scenario in its site since the beginning of Aura Minerals operation on May 2010.

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


The operation is ☒ 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:*

In all operational areas of São Francisco Mine has means of communication and mitigation to accidental event involving cyanide, such as emergency alarms; Emergency kits with amyl nitrite, oxygen, physiological saline, gauzes, remover solution of corrosive and irritable substances for eyes and skin; Communication system via radio and telephone; Showers and low-pressure eyewash stations. The amyl nitrite is storage in refrigerators and it has preserved a temperature between 36° and 46° F, according manufacturer advices. Through checklists, the characteristics of antidotes are periodically inspect, considering the information provided by the manufacturer.

The Operation has implemented and maintained the Procedure “PS-MA-MSF-GER-001 - Emergency Response Plan - Version 04 of July 18<sup>th</sup>, 2013”, which identifies accident scenarios involving cyanide and for which are established contingency plans for assisting victims and shedding cyanide. São Francisco Mine has first aid kits in operational areas and the workers are training to use them. Two emergency vehicles equipped with life-support devices are available to take and transfer victims intoxicated for cyanide to treatment on the own ambulatory or local hospital, covering all shifts, endowed with all the resources for medical assistance. Drivers of emergency vehicles receive training and undergo retraining to operate this type of vehicle. Weekly inspection records are available in Occupational Health Department.

The Operation has the contract CTSER 207/2010 (valid until December 2014) with Santa Casa, hospital located in Pontes e Lacerda Town, for emergency care, where professionals were training for such service. Actions be taken in scenarios of possible incidents are planned in the Emergency Response Plan and are conducted through simulated exercises, in accordance with the established chronogram. The results obtained during the performance of simulated exercises are report and serve as feedback for the necessary revisions, in a process of continuous improvement. Action plans are establish to all non-conformities.



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During the audit, it was checked records of the emergency drills: Rupturing of a cyanide pipeline causing intoxication of a victim – concluded on July 31, 2013 and Tipping of a truck during the transportation of a cyanide solution isotank - concluded on July 12, 2013.

### **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.*

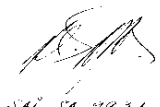
The operation is      ☒ in full compliance with      Standard of Practice 7.1  
   ☐ in substantial compliance with  
   ☐ not in compliance with

*Summarize the basis for this Finding/Deficiencies Identified:*

The Operation implemented and maintained the Procedure PS-MA-MSF-GER-001 “Emergency Response Plan – version 04 of July 18<sup>th</sup>, 2013.” identifying incidental scenarios and for which one contingency plans were established to respond potential scenarios foreseen and applicable in the operation of São Francisco Mine. Roles of passers, security officer (responsible for start the Emergency Brigade), Brigade Chief and Brigade Team Members are defined in this standard, as well as, the channels and communication procedures. The emergency scenarios identified on Emergency Response Plan are classify in PAE – Emergency Assistance Plans. The version 04 of de Emergency Response Plan was review in order to comply with NR 35 (Regulatory Standard of Brazilian National Work Agency that establishes guidelines to height work). The responsible for the Emergency Response Plan implementation is Mr. Ederwan Lino Moraes, Safety Work Technician.

São Francisco Mine establishes contract with Niquini, Concórdia and Inovar Transportes for services for the transport of sodium cyanide.

The contracts set among other obligations: Maintain certification in SASSMAQ - Safety, Health, Environment and Quality System, according to the program of ABIQUIM – Brazilian Association of Chemical Industry; Keep São Francisco Mine informed about Niquini’s status certification (certification, suspension, re-certification) on SASSMAQ and International Cyanide Management Code (regardless of the availability of data: Source <http://www.cyanidecode.org/signatorycompanies.php>). Keep formal contract with a company expert on emergency services, qualified according to the criteria of International Cyanide Management Code, providing the content of the clauses and the technical annexes, if requested by São Francisco Mine; Provide official and alternative routes from Santos Port to São Francisco Mine and the contracts prohibit the use of transfer station or facility temporary storage. Reviewed the document "Plan of Care for Emergency and Hazardous Pollutants, developed by the SOS - COTEC - GAC PAE - Revision 03 of August 17<sup>th</sup>, 2013 - SOS COTEC mode that has as main objectives: to safeguard human life, protect the environment, protect equipment and facilities of the transporters and others, maintain the image and reputation of transporter and return to normal operation.



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International Cyanide Management Code (regardless of the availability of data on the Site <http://www.cyanidecode.org/signatorycompanies.php>).

It was also verify the item 9.8.2 of the PS-MA-MSF-GER-001 “Emergency Response Plan”, related to emergencies during transportation.

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

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

*Summarize the basis for this Finding/Deficiencies Identified:*

External resources, as identified / indicated as needed to serve on the “Emergency Response Plan” was activate for discussion and revision of the same configuration. Community Representatives, Fire Department, Federal Police, and Local Authorities of places potentially affect by accidental scenario involving cyanide were consulted for elaboration / revision of Emergency Plan, according to the submitted lists of signatures. Every 12 months, the Emergency Plan is update, and reviewed if necessary with stakeholders involved.

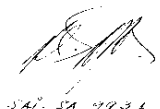
Standard of Practice 7.3: *Designate appropriate personnel and commit necessary equipment and resources for emergency response.*

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

*Summarize the basis for this Finding/Deficiencies Identified:*

The item 8.1.5 of the PS-MA-MSF-GER-001 “Emergency Response Plan – version 04 of July 18th, 2013.” sets out the responsibilities, authorities and who will be the coordinator, leader and member of Emergency Brigade. Emergency Brigade team was define covering all shifts in São Francisco Mine. São Francisco Mine has a training program for the members of the Emergency Brigade with a semester recycling, performing simulated incidental scenarios involving cyanide. In the Emergency Response Plan, there are contact channels indications. The Emergency Brigade has contact channels 24-hour through the phone 1934 and channel 6 of internal radio system.

The contact information of Brigade Member is describe on “Emergency Response Plan”. The resources needed for performance in accident scenarios are show in “Emergency Response Plan”. The equipment’s of emergency are storage in a specific room: “Brigade Base”. There is also a special truck equipped with contention devices and two ambulances with life-support devices. The items used under incidental scenarios are inspect according to the types, quantities, expiration dates, status, etc. Equipment’s and devices for emergency response are



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included in preventive and corrective maintenance plan, as main priority. It was verify during the audit the inspection record "FS-MACOR-SEG-052 – Inspection of emergency equipment's" concluded on March 5, 2014.

The role of the outside responder was establish on Emergency Response Plan. This role is:

- Fire Department and Federal Highway Police: isolation of impacted area, rescue and first aid to victims on way from Santos Port to Operation and direct to medical posts;
- Hospitals and Medical Posts: specialized medical care for victims of intoxication for cyanide;
- External brigade: neutralization, remove and contain cyanide residues;
- Communities: communicate incidents and the following brigade instructions.

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

The operation is ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 7.4

*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine has "Communication Plan" that provides: Issues to be communicated, target audience, sense of communication, channels used for communication, frequency of communication update, responsibilities, managements, regulatory agencies, responders, medical facilities contact information, potentially affected communities and media.

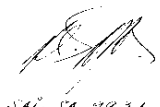
The Item 6.9 of the PS-MA-MSF-GER-001 "Emergency Response Plan – version 04 of July 18<sup>th</sup>, 2013" establishes responsibilities for the external responders: Fire Department, Federal Highway Police, Hospitals and Medical Posts, External brigade, Community, Civil Defense.

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.*

The operation is ☒ in full compliance with ☐ in substantial compliance with ☐ not in compliance with Standard of Practice 7.5

*Summarize the basis for this Finding/Deficiencies Identified:*

The procedure provides that the solid cyanide, if shed, must be kept dry through coverage with canvas. In rainy periods, the contaminated soil be remove and samples be send to lab to



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analysis. In case of solution shedding in soil, it is necessary to apply caustic soda solution (5%). The soil must be collected and directed to heap leaches.

The item 9.8.1 of the "Emergency Response Plan", establishes that in case of cyanide shedding in surface water, the water supply of Communities must be stopped and potable water must be provided until the cyanide concentration is lower than 0.1 ppm. This item also prohibits the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide on the treatment of cyanide spills into surface waters in order to avoid a higher contamination level of surface water. "Emergency Response Plan" foresees that samples of contaminated media must be analyzed to verify the contamination level. The methodology and parameters are defined on PS-MA-MSF-MEA-002 "Water and Effluents Monitoring".

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

The operation is ☒ 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 "Emergency Response Plan" has a requirement to review (keep updated information of names and contacts of coordinators and members of the brigade and other involved). To maintain the update of the Emergency Plan is established to periodically evaluation (12/12 months), and revision as necessary of Emergency Plans with external stakeholders involved. The Operation simulates all the potential cyanide failure scenarios, through a chronogram and it is revised according to the results of emergency drills.

Actions taken in scenarios of possible incidents are planned in the Emergency Response Plan and are conducted through drills, in accordance with the established chronogram. The results obtained during the performance of drills are reported and serve as feedback for the necessary revisions, in a process of continuous improvement. Action plans are established to all non-conformities. During the audit, it was checked records of the emergency drills:

- Rupturing of a cyanide pipeline causing intoxication of a victim – concluded on July 31, 2013;
- Tipping of a truck during the transportation of a cyanide solution isotank - concluded on July 12, 2013.

"Emergency Response Plan" indicates the necessary resources from external sources, as well as the involvement of outside agencies to find the incidental scenarios involving cyanide. The stakeholders are involved on preparation, approval and review of the "Emergency Response Plan". Their participation in the drills is determined and recorded in the preparation of Analysis Report. Every 12 months the Emergency Plan is updated, and reviewed as necessary with external stakeholders involved. The last revision was made on July 18, 2013.



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**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 ☒ 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:*

Operation has documented, implemented and maintains procedures to train the employees and third parties to understand the risks associated to the use of sodium cyanide in their activities. The trainings are conducted in accordance to FS-MA-MSF-RHU-002 - General Training Plan - Version 02, April 02<sup>nd</sup>, 2014, annex of the standard PS-MA-COR-RHU-001 - "Competence and Training – Version 3, September 06<sup>th</sup>, 2013", which establishes guidelines to identify training necessities, to plan trainings and to retain records. The Procedure "PS-MA-COR-RHU-001 - Competence and Training – Version 3, September 06<sup>th</sup>, 2013", establishes refresh training yearly or when necessary.

Records of trainings were check during the audit, as quoted bellow:

- Mrs. Emerson Pachuri Leite and Jussan Rodrigo Pessim de Paula – Operators of Cyanide Facilities - operational training carried out on November 25<sup>th</sup>, 2013, in accordance to the standard PO-MA-MSF-ADR-001 – Cyanide receiving and mixing – Version 05, November 22<sup>nd</sup>, 2013.
- Ms. Ana Paula Ferreira Martins Pignaton and Cristiane do Rocio Archanjo – Environmental Engineer and Environmental Analyst - Training about the sodium cyanide characteristics, principles and practices of International Management Cyanide Code

There are training records available in Human Resources Department. Training records are keep for 20 years, according to Brazilian Legislation - Labor Law Consolidation (CLT).



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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 ☒ 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:*


The procedure for each task in São Francisco Mine identifies and prevents the exposure or accidental release of HCN. Environmental monitoring activities and personnel are also report as mechanisms to assess the effectiveness of preventive controls. People directly involved cyanide process are training according to Operational Procedures and Emergency Plan. Other employees are aware of the actions be taken in the manifestation of each incidental scenario. The trainings include own and third parties employees that are part of the process and are exposed to dangers and damage related to cyanide.

During the audit, the FS-MA-MSF-RHU-002 - General Training Plan - Version 02, April 2, 2014 was check. This document is an annex of PS-MA-COR-RHU-001 - "Competence and Training" and sets all obligatory trainings, periodicity, responsibilities, attendees and training length involving the use of sodium cyanide and the Code practices. These employees act like instructors for the other employees. The training for the instructors is tough in company by Du Pont technical team each year.

The last training taught by DuPont for São Francisco Mine's instructors was carry out on July 31, 2013. The training plan for 2014 forecasts a medical training to be concluded in May, for São Francisco Mine's medical team, brigade members, doctors and nurses of regional institutions for health assistance. The training of new Employees, including third parties, is carried out prior to the beginning of the working activities, according to procedures PS-MA-COR-RHU-001 - "Competence and Training – Version 3, September 06th, 2013", and PS-MA-COR-RHU-002 - "Induction Training – Version 05 – October 25th, 2013". The Procedure PS-MA-COR-RHU-001 - "Competence and Training – Version 3, September 06th, 2013", establishes refresh training yearly or when necessary. The Procedure PS-MA-COR-RHU-001 - "Competence and Training – Version 3, September 06th, 2013", item 9 provides a systematic assessment of the effectiveness of trainings through observations on the job and specific written tests for each job position.

In addition to interviews conducted by the Auditor for verification of the understanding of information acquired during training. It was evaluated written tests answered by attendees of the last Induction Training class, concluded on April 4, 2014. The results were consider satisfactory.

During the audit, the attendance lists and certifications for these trainings were verify.



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

The operation is ☒ 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:*

The operational procedures related to each task of process indicate the cares, which be taken to prevent exposure or accidental release of cyanide. Environmental monitoring activities and personnel are also report as mechanisms to assess the effectiveness of preventive controls. Potential accident scenarios for the staff directly involved is training in the specific tasks set out in the Emergency Planning and the others are aware about the actions to take in each manifestation of accidental scenario. The Team of Emergency Response is training by local Fire Department every six months. The last Brigade training was conclude on February 24-26, 2014.


The Emergency Plans indicate the necessary resources from external sources as well as the involvement of outside agencies for the care of accident scenarios involving cyanide. The preparation, approval and review of plans involve external stakeholder. Their participation in drills is record in the Analysis Report. The standard PS-MA-MSF-GER-001 – Emergency Response Plan, sets that SSMA (Safety, Health and Environment Department) is responsible to plan, implement, assess the drills records and take actions whether improvements are necessary. The Operation simulated all the potentials cyanide failures scenarios through a chronogram and revised according to the results of mock drills.

Transportation in incidental scenarios are detail and considered in this plan. Scenarios involving intoxication of people and environmental contamination are consider to plan trainings. After each drill, a meeting is conducted to assess the non-conformities occurred during the exercise. Corrective actions are establish in accordance to the standard PS-MA-COR-GER-006 – Non-conformance treatment – version 01 of December 1, 2010. In the case of identifying deficiencies, relevant procedures are review and the staff involved is retraining.

All the Training Records includes: the names of the employee and the trainer, the date of training, the topics covered, and if the employee demonstrated an understanding of the training materials.

### **9. DIALOGUE: Engage in public consultation and disclosure.**

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



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

*Summarize the basis for this Finding/Deficiencies Identified:*

The Operation has documented, established and maintained Procedure PS-MA-COM-COR-001 "São Francisco Mine Communication Plan", which defines communications channels to inform stakeholders about issues related to cyanide management. Pictures and attendance lists demonstrate that communication is being hold through:

- Publication in regional newspaper – “Folha Regional” – March, 2014;
- Information about cyanide management published in internal newspaper – “Visão de Ouro” – April 2014 – Edition nº 04;
- TV programs on regional channel – “SBT – Sistema Brasileiro de Televisão”;
- Lectures and trainings – Lecture to regional Fire Department carried out on October 10<sup>th</sup>, 2013;
- Brochures, posters and outdoors – Evidenced posters containing phone an e-mail for contact about doubts related to cyanide issues available in schools, restaurants and São Francisco Mine’s office located in Pontes e Lacerda Town.


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

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

*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine maintains a Policy of Social Accountability that includes several programs, such as:

- COMPOR Program that provides opportunities to community to visit São Francisco Mine’s site. During visits, the visitors learn about the productive process, risks and controls related to it. There is a special chapter about cyanide and Cyanide Code during the presentation, showing the correct way of storage and handling, as well as, existence of controls to protect people and environment.
- Open communication channel to community suggestions, questions and complaining through the telephone +55 (65) 3259-1921 or e-mail: [atendimento.apoena@auraminerals.com](mailto:atendimento.apoena@auraminerals.com).
- Mobilizar Program – an annual day with voluntary activities involving the communities of towns around the Operation site, discussing issues about cyanide management.



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- Disclosing to neighboring farmers about risks related to cyanide management and actions to control managed by São Francisco Mine are carry out through visits promoted by Community Relations team. The goal of these visits is to build a relation based in transparency and liability between community and the Operation.

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

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


*Summarize the basis for this Finding/Deficiencies Identified:*

São Francisco Mine has distributed brochures to community, has posted technical articles at Mineração Apoená website and communicated to competent Authorities about safe conditions for the use of Cyanide in São Francisco Mine, considering: supply, transportation, processing and disposal activities. Cyanide information is available to stakeholders through social programs (e.g. "GUARINI", "COMPOR", "MOBILIZAR", banners, lectures, videos and stands. The Operation had never had incidents with cyanide, but establishes in the procedure PS-MA-MSF-GER-004 – Communication Plan if Mineração Apoená – São Francisco Mine – Version 3 – August 27, 2013 that any incidents that happen with people hospitalization or fatality, must be communicate to Work Ministry Agency Brazilian.

A truck, which was transporting a container containing 20 tons of solid cyanide, has tumbled into a drainage channel between Santos Port and Deicmar Customs Terminal on March 17, 2013. There were no victims or environmental contamination. The cyanide produced by DuPont Plant, located in USA, and imported by São Francisco Mine, was under responsibility of Deicmar S.A. during the customs clearance, when the incident has occurred. According to Brazilian legal requirements, the producer or the importer has not had any authority over the product during the customs clearance. However, São Francisco Mine and DuPont have supported technically Deicmar since it has become a São Francisco Mine's supplier, and to take the necessary measures to move, storage and dispose safely the cyanide involved in the incident.

Santos Regulatory Agencies were involve by Deicmar during all steps of the cyanide container management, such as CETESB (State Environmental Agency), Brazilian Army, Civil Defense, local hospitals and Brazilian Customs.

The emergency expert company, Suatrans SOS Cotec, was contract to handle the cyanide, which was transferred to a special package, recommended by DuPont, and transported to São Francisco Mine where it was disposed in the leaching process. Deicmar has not permitted São Francisco Mine participation in analysis of the incident causes. Due this, other custom terminal, Santos Brazil, was contract and Deicmar was exclude from São Francisco Mine's supplier list.



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Santos Brazil is training by São Francisco Mine and DuPont periodically. The last training was conclude on August 2013.

The Operation had never had incidents with cyanide, but establishes in the procedure PS-MA-MSF-GER-004 – Communication Plan of Mineração Apoena – São Francisco Mine – Version 3 – August 27, 2013 that any incidents that happen with people hospitalization or fatality must be communicate to Work Ministry Agency Brazilian, Environmental Agency Brazilian and communities. São Francisco Mine had never had cyanide release that had cause any environmental contamination or people intoxication.

However, in accordance to Brazilian legal requirements, the standard PS-MA-MSF-GER-004 – Communication Plan of Mineração Apoena – São Francisco Mine – Version 3 – August 27, 2013 establishes that incidents that results in employees or community intoxication or significant environmental contamination must be inform formally to National Regulatory Agencies.

There are not register of effluents discharge containing cyanide concentrations over the limits established by the Code or Brazilian Regulatory Agencies, neither there is evidences of exceeded cyanide concentration in surface water that receives the discharges of treated effluent. São Francisco Mine protocols annually a report containing the results of effluents and water monitoring in order to comply with the Technical Report 68597/2012, annex of Operational License emitted by SEMA (Environmental State Agency of Mato Grosso, Brazil).



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