

INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE Gold Mining Operations Summary Audit Report



For The International Cyanide Management Code KINROSS – Paracatu de Minas – MG / Brasil

Verification Protocol <u>www.cyanidecode.org</u> March 2015

MARCH 2015 | KINROSS PARACATU



TABLE OF CONTENTS

INTRODUCTION

1 PRODUCTION

1.1 STANDARD OF PRACTICE1.1

2 TRANSPORTATION

- 2.1 STANDARD OF PRACTICE 2.1
- 2.2 STANDARD OF PRACTICE 2.2

3 HANDLING AND STORAGE

- 3.1 STANDARD OF PRACTICE 3.1
- 3.2 STANDARD OF PRACTICE 3.2

4 OPERATIONS

- 4.1 STANDARD OF PRACTICE 4.1
- 4.2 STANDARD OF PRACTICE 4.2
- 4.3 STANDARD OF PRACTICE 4.3
- 4.4 STANDARD OF PRACTICE 4.4
- 4.5 STANDARD OF PRACTICE 4.5
- 4.6 STANDARD OF PRACTICE 4.6
- 4.7 STANDARD OF PRACTICE 4.7
- 4.8 STANDARD OF PRACTICE 4.8
- 4.9 STANDARD OF PRACTICE 4.9

5 DECOMMISSIONING

- 5.1 STANDARD OF PRACTICE 5.1
- 5.2 STANDARD OF PRACTICE 5.2

6 WORKER SAFETY

- 6.1 STANDARD OF PRACTICE 6.1
- 6.2 STANDARD OF PRACTICE 6.2
- 6.3 STANDARD OF PRACTICE 6.3

7 EMERGENCY RESPONSE

- 7.1 STANDARD OF PRACTICE 7.1
- 7.2 STANDARD OF PRACTICE 7.2
- 7.3 STANDARD OF PRACTICE 7.3
- 7.4 STANDARD OF PRACTICE 7.4
- 7.5 STANDARD OF PRACTICE 7.5
- 7.6 STANDARD OF PRACTICE 7.6





8 TRAINING

- 8.1 STANDARD OF PRACTICE 8.1
- 8.2 STANDARD OF PRACTICE 8.2
- 8.3 STANDARD OF PRACTICE 8.3

9 DIALOGUE

- 9.1 STANDARD OF PRACTICE 9.1
- 9.2 STANDARD OF PRACTICE 9.2
- 9.3 STANDARD OF PRACTICE 9.3



X Lead Auditor Signature

INTRODUCTION

Information on the audited operation

Name of Mine: Morro do Ouro Mine Name of Mine Owner: Kinross Gold Corporation Name of Mine Operator: KINROSS Brasil Mineração S.A. Name of Responsible Manager: Alexandre Augusto Soares Matos Address: Rodovia BR 040 km 36,5 - Zona Rural – Morro do Ouro - Paracatu PO Box 168 - CEP 38600-000 State/Province: Minas Gerais Country: Brazil Telephone: 55 38 3679-1564 / 55 38 9916-1641 E-Mail: <u>alexandre.matos@kinross.com</u>

Aspects of the location and description of the operation:

The Kinross Morro do Ouro mine is an open-pit gold mine, located approximately 4 kilometers outside of Paracatu City - Minas Gerais State - Brazil. The mine currently produces a low grade ore (0.4 git) with production of about 16 ton of gold annually (2014).

In 2014 the mine processed 51,396,556 tons of ore. The licensing expansion of the Gold Hill Mine included increasing its production capacity to 61 million tons / year in addition to the construction of a new dam for tailings disposal called Eustáquio. The Process Plant is distributing in the different plants and production stages:

Plant 1

The Plant 1 processing circuit has two (2) sets of two (2) crushers in series for a total of four (4) crushers. The primary crusher is a hammer mill and the secondary crusher is a cone crusher.

The comminution stage contains four (4) 4.6m x 5.8m ball mills in parallel. The product from the ball mills is classified as underflow (coarse) and overflow (fine). Underflow material is returned to the circuit with the four (4) ball mills as well as a smaller fifth ball mill (5m x 7.6m). The overflow material continues on to a flotation concentration stage.

The flotation process contains a rougher stage and a cleaner stage. The flotation concentrate is then pumped to the hydrometallurgy plant.

In the hydrometallurgy plant, the flotation and jig concentrates are reground to 90% passing 325 meshes prior to leaching.

The concentrate is then leached in a cyanide solution, adsorbed using activated carbon, stripped and fused into bars (bullion) containing gold, silver and impurities in the smelting.



Plant 2

The Plant 2 process begins with the crusher circuit. The primary crusher is a MMD-type roll crusher located in the pit. A conveyor (TCLD) transports the sized material to a covered stockpile.

Six (6) feeders at the bottom of the stockpile feed a conveyor transporting the material to an 11.6 m semi-autogenous grinding (SAG) mill.

The SAG mill product is pumped to two (2) 7.3 m x 12 m ball mills and two (2) 7.9m x 12,8m ball mills. The oversize material is recirculated to the SAG for reprocessing.

After the ball mills, the pulp is classified in hydro-cyclones, with the fine material going to the flotation circuit and the coarse material being sent back to the ball mills or to the SAG.

The flotation circuit contains six (6) lines operating in parallel with four rougher lines and two cleaner lines.

The concentrates from the flotation is pumped to a verti-mill for regrinding to 90% passing 325 mesh. The verti-mill concentrate is screened sending the fines to the thickener and the coarser material is recycled back to the verti-mill.

The water removed in the thickener is returned to the milling circuit and the pulp is pumped to the hydrometallurgy plant.

A Knelson centrifuge concentrator was installed to extract Au in the circulating load. The Knelson produces a high grade gold concentrate. This concentrate is processed in an intense leaching (Acacia) system.

In the hydrometallurgy plant, a concentrate of 90% passing 325 mesh is leached in a cyanide solution, adsorbed using activated carbon, stripped and fused into bars (bullion) containing gold, silver and impurities in the foundry.

The Hydrometallurgy Plant

1 – Introduction

The Hydrometallurgy process is divided into two separate plants: Hydro I, Hydro II and III relating to the concentrate feed Plant I and II, respectively.

The Hydro II receives the flotation concentrate from plant I, which is directed to the steps of regrind and thickening.

The regrind aims to reduce the particle size parameter to 90% passing #325 in (0.044 mm) and the thickening of the pulp value for 46 to 53% solids.

In Hydro III, concentrate flotation plant II passes through the steps of regrind and thickening still in Plant II.

For both Hydros, the following steps are leaching, Dry Acid and elution, Coal Regeneration and Detox. The Detox step is common for the two Hydros.

There is also the HUB Knelson process in Hydro Plant I and II, which concentrate is treated at the Acacia Hydro II.

MARCH 2015 | KINROSS PARACATU

Lead Auditor Signature

2 - Leaching; Adsorption and Desorption

In Hydrometallurgy Kinross Paracatu is by CIL system (Carbon in Leaching). The first tank circuit is used to prepare pulp (adjust pH and oxygenation). In the second tank circuit added cyanide (34% solution).

The function is to make the cyanide leaching of gold according to the expected reaction.

For the adsorption of gold, carbon added in the last tank circuit CIC and the coal is pumped in counter-current to the pulp flow. Thus the production of coal or direction for the elution occurs in the second tank circuit.

After the activated carbon was adsorbed in the CIL leaching circuit, it needs to be desorbed to recover the gold adsorbed. Prior to gold dessorption, the coal is prepared with an acid washing using a dilute hydrochloric acid solution to remove impurities carried CIL leaching process.

The washed coal then passes through a stripping column where gold is desorbed and the resulting rich solution is pumped to electrowinning for recovery of the final gold.

To resume with the coal to the circuit, the regeneration of the coal is performed, thereby increasing the activity of the reducing coal, and the new coal consumption.

3 - DETOX

The Detox is stage where the neutralization of cyanide using bisulfite Ammonium is held. At this stage the bisulfite flow is made according to the WAD cyanide content in the entry Detox to evaluate the efficiency of output of this process and the specific tank.

4 - LEACHING

4.1.1 - Cyanide Addition control in the first CIL tanks

There is an interlock between pH and 25TQ502 25TQ207 tank (second tank circuit CIC) with the addition of cyanide. If the pH reaches less than 9.8 cyanide dosing pump off, only offering starting condition after raising the pH.

4.1.2 - TAC

The unit has a tank with two probes in the leaching of Hydro III, cyanide control is performed in 25TQ502 and 25TQ509 first cyanide dosage tank and last tank of CIL, at the gateway to the Detox.

The unit has an automatically control for the cyanide dosage and regular dosage of this function in process output, avoiding waste.

The unit has a plan to implement automatic control logic and, at this moment, the technicians are evaluating the impacts due to the residence time be high.

In Hydro II, the hydrometallurgy is at TAC2000 replacement phase (with one drill in 25TQ207) for TAC1000, which will enable automatic control both in the process input and output. Meanwhile, the cyanide titration is done manually at the last tank, two times each work shift.

4.1.3 - pH meters and oximeters

The pH measuring instruments and oximeters present in the early tanks and at the end of the process, in order to ensure maximum efficiency and reduce consumption of inputs. All measurements are performed online and available to the Supervisory Hydro II and III Hydro.

The Cal and oxygen flow rates are also controlled automatically according to the set point required concentration.

4.1.4 - Calibration / Verification Instruments

Calibration / measuring instruments is carried out every week. This is performed using the appropriated measuring equipment by the Technological Development Department personnel and checked at the Chemical Laboratory. If any anomaly is detected or sudden change happens in the measuring instrumentation a specifically intervention shall be requested.

4.1.5 - Daily Control Inputs

Every day the consumption of raw materials is checked. If a problem is identified immediately actions were taken immediately.

It is also observed reduction in the specific consumption of cyanide, from the second half of 2012.

4.2 – DETOX

4.2.1 - Adding Ammonium bisulfite

The dosages of ammonium bisulfite and tank level are monitored directly on the control panel by monitoring.

Daily evaluate the function in dosage efficiency of Cn WAD levels at the input and output process.

5 - New Projects

• TAC 1000 - Hydro II: It was already requested the purchase of new TAC with two probes for control of the cyanide concentration in the input and process output.

• New Acacia: the main goal is to increase the recovery of Hydrometallurgy, processing larger amount of concentrated using Gravity. With this it will be possible to obtain a plant gain in reducing reagents in CIL. The forecast is to start in April / 2015.

• New Oven Hydro III Regeneration: With the installation of new regeneration oven Hydro III, the plant ensure the regeneration of 100% of the coal coming from the elution and returned to the CIL circuit. With this, it will be increased the recovery of CIL. The forecast is to start in May / 2015

• Oxygen Plant: With installation scheduled to end in May / 2015 the plan goal is to improve the oxygenation of the pulp and the leaching of gold. This will allow increasing the efficiency cyanidation enabling reduction of cyanide consumption. The VPSA plant will be operated by Air Liquide (new provider) and serves to produce oxygen on the site avoiding the continuous transport by road and reducing operating costs.

6 - Business Process Management

The Business Process Management is a methodology used to ensure performance in input variables before the output processes variables are affected, to increase the whole process efficiency

To implement this methodology, the following steps are used:

- General mapping of processes;
- Definition of control parameters and the specific correlation among the variables;
- Definition of controlled and monitored variables;
- Control System Implementation at the company Intranet (for automation) Controls charts; the system Summary; Manuals entries spread sheets.
- Staff training (Practical and Theoretical);
- Phase final tests and adjustments.
- Overall start up.

SUMMARY AUDIT REPORT

FOR CYANIDE GOLD MINNING OPERATIONS

Instructions

- 1. The basis for the finding and/or statement of deficiencies for each Transport 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 cyanide transportation 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 undergoing a Code Verification Audit 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, for a cyanide transportation operation undergoing a Code Verification Audit 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 accompanied 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 Website, and 2) a completed Auditor Credentials Form. The lead auditor's signature on the Auditor Credentials Form must be certified by notarization or equivalent.
- 6. Action will not be taken on certification based on the Summary Audit Report until the application form for a Code signatory and the required fees are received by ICMI from the applicable cyanide transportation company.
- 7. The description of the cyanide transport company should include sufficient information to describe the scope and complexity of its operation.

MARCH 2015 | KINROSS PARACATU

Auditor's Finding

Auditor's Finding

This Operation is:

X in full compliance

in substantial compliance

not in compliance

The International Cyanide Management Code

With the International Cyanide Management Code.

No significant cyanide incidents or exposures and releases were note as occurring during the audit period.

Audit Company: JMAQ AUDITORES DA QUALIDADE Ltda.

Auditor Team Leader: Julio César Macedo Monteiro

2nd. Auditor: Marcelo Vieira Monteiro

E-mail: *jmaq@ig.com.br*

Date(s) of Audit: March 2015

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 conduct in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Transportation Operations and using standard and accepted practices for health, safety and environmental audits.

Name and Signature ARTÓRIO 10º OFÍCIO DE NITERÓL REAGNÉE PERGENARIA EL LOS HEL CERAL ATREMA DE 2540. A 2047 10. JULIO DE ALTOR DE LOS DE Reconheco por SENELHANCA a firma de: JULIO CESAR MACEDO MONTERO. ICMI Lead Auditor Julio Monteiro Niterói, 22/84/2015. R\$6.65 08E11E84 da Verdade. Conf. por: En test MARIA DE FATIMA SANT ANA DA SILVA- Substituta-Mat.: 94/4480 EAMP72726 - DDF Consulte es Hund tirj.ius.hr/sitepublic MARCH 2015 | KINROSS PARACATU

Lead Auditor Signature

MARCH 2015 | KINROSS PARACATU

Lead Auditor Signature

Verification Protocol

1 PRODUCTION:

Encourage responsible cyanide manufacturing by purchasing from manufacturers that operate in a safe and environmentally protective manner.

1.1 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.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 1.1

 $\hfill\square$ Not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The Operation changed the supply contract from DuPont to Proquigel Química S.A. an International Cyanide Management Institute (ICMI) signatory company.

http://www.cyanidecode.org/

Proquigel Química S.A. has two facilities located in Brazil, at Camaçari and Candeias cities, both at the State of Bahia. These facilities produce solid and liquid cyanide. The Operation signed the Contract / Purchase Order nr. 8527-B1 on December 03 - 2013 and a Contract Amendment on December 04 – 2014. The responsibilities of each member states within the supply chain from production to transport to the mine. The contract specifies that all members within the supply chain must be certified under the Cyanide Code. The contract on item 3.1.1 states that the contracted carrier shall be responsibility of Proquigel and, subject to approval by Kinross, and are certified according to the international cyanide code. During the audit were seen and evaluated the following procedures for the purchase of sodium cyanide: PSSMA-CN-KBM-130 - Purchasing and Transport of Cyanide and, PSSMA-CN-KBM-043 - Qualification and Evaluation of Suppliers.

MARCH 2015 | KINROSS PARACATU

Lead Auditor Signature

2 TRANSPORTATION:

Protect communities and the environment during cyanide transport.

2.1 STANDARD OF PRACTICE 2.1: ESTABLISH CLEAR LINES OF RESPONSIBILITY FOR SAFETY, SECURITY, RELEASE PREVENTION, TRAINING AND EMERGENCY RESPONSE IN WRITTEN AGREEMENTS WITH PRODUCERS, DISTRIBUTORS AND TRANSPORTERS.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 2.1

 $\hfill\square$ Not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed an agreement among the operation, the cyanide producer and transporter clearly defined the applicable responsibilities. A sampled example was the Contract / Purchase Order nr. 8527-B1 on December 03 - 2013 and a Contract Amendment on December 04 - 2014. The observed agreement establishes the responsibility of Proquigel Química S.A. for hiring of transport provided that previously approved by Kinross Paracatu and duly certified according to the international code of sodium cyanide. During the period of validity of the 8527-B1 contract evidenced the use of Concordia carrier for Sodium cyanide in solution and Niguini carrier for solid cyanide. Freight is the type CIF - Cost, Insurance and Freight, which guarantees delivery in Kinross under the responsibility of Proquigel Química S.A. and the contracted carrier, within the chain of custody. It was evidenced that labeling shall be in languages English / Portuguese necessary to identify the material. The labelling is clearly defined all the applicable legal requirements. Sampled example was the agreement mentioned 2.1.1a (Contract / Purchase Order nr. 8527-B1 at item 3.1.5). Evaluation and selection of routes, including community involvement are clearly defined as applicable legal requirements. Sampled example was the agreement mentioned at item 2.1.1a (Contract / Purchase Order nr. 8527-B1 at item 3.4.1). Emergency response throughout transport responsibilities are clearly defined as applicable legal requirements. Sampled examples were the agreements mentioned at item 2.1.1a (Contract / Purchase Order nr. 8527-B1 at item 3.4.3).

2.2 STANDARD OF PRACTICE 2.2: *REQUIRE THAT CYANIDE TRANSPORTERS IMPLEMENT APPROPRIATE EMERGENCY RESPONSE PLANS AND CAPABILITIES AND EMPLOY ADEQUATE MEASURES FOR CYANIDE MANAGEMENT.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 2.2

 \Box Not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The Contract / Purchase Order nr. 8527-B1 at item 3.4.4 between KINROSS Paracatu and PROQUIGEL Química S.A. requires certification under the Code. PROQUIGEL Química S.A. and the road transporters are recertified in accordance with ICMI website. The cyanide transporters Concórdia and Niquini transportes are recertified in accordance with ICMI website.

See <u>www.cyanidecode.org</u>

MARCH 2015 | KINROSS PARACATU

3 HANDLING AND STORAGE:

Protect workers and the environment during cyanide handling and storage.

3.1 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.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 3.1

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that the facilities for unloading, storing and mixing cyanide were designed and constructed in accordance with Brazilian engineering practices. Sampled some examples like as built drawings and engineering specifications for warehouse 1 and warehouse 2. Relevant changes to the original reception and preparation area was observed related to the new cyanide solution discharge area. Evidences were available that the warehouse was extended. It was observed, during the field audit and reviewing engineering documentation, those secondary containments for cyanide preparation and distribution tanks were constructed in accordance to Brazilian engineering standards and were constructed with HDPE (high density polyethylene) membrane and concrete, offering an effective barrier to seepage. Cyanide preparation and distribution tanks are located inside these contained areas, as observed in the field audit. Also observed that these areas were maintained in a good manner and kept dry. Field audit showed that these areas are well maintained and provided with concrete floor and 5 degree tilt to the truck parking. The unloading and storage areas for solid and solution cyanide is located away from other people circulating on the plant. The access to this area is limited to qualified operators and all the doors are locked. It was reviewed a security procedure which defines that only authorized people are allowed to work inside the sodium cyanide warehouse. The warehouse is inside an area closed by chains at all times and the gates are locked. By field observations was evidenced that security (locking systems) and safety (signage) issues were everywhere. The area is far from surface waters, not being a risk for that. The sodium cyanide is stored in its original packages at the warehouse. No incompatible materials are allowed to be stored in this warehouse. The entire area has a concrete floor and the cyanide (solid and solution) is stored under roof. The sodium cyanide warehouse is duly covered by a roof and that

concrete and high density poly-ethylene was used on the floor. Also was evidenced that the NaCN boxes remain under original pallets. The Operation performed discharge monitoring of liquid cyanide with due compliance with the established operating procedures, including proper training of those responsible. The tanks are provided with level indicator and high-level alarm. These alarms are monitored by the supervisory system of the room operation in hydrometallurgy plant. The cyanide-mixing tank is located on a concrete surface. A spill containment pond built under it in case of emergency. Operation has the monitoring gas cyanide dispositive all day in the cyanide mixing in the area. It was observed, during the field audit, that sodium cyanide storage area has adequate ventilation (natural one).



Lead Auditor Signature

3.2 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.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 3.2

 \Box not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidences were available (specific procedures - PPROC-HDM-KBM-006 -Mixing, PGSUP-ALMOX-KBM-001 - Receiving and cyanide storage in big bags, and field observations) showing that the operation prevents exposures and releases during cyanide unloading and mixing activities. The operation has all critical valves inside this area clearly identified, tagged and locked. Couplings are covered in order to prevent spills. During the evaluation was carried cyanide discharge monitoring solution and, the following documents were reviewed: APT (Preliminary Task Analysis) and APR (Preliminary Risk Analysis) of 03.03.2015. Empty NaCN bigbags are neutralized and washed before being discharged to final destination (coprocessing destruction). The washing solution returns to the solution tanks. During the field audit it was reviewed the Procedure PGSUP-ALMOX-KBM-009 - Neutralization of cyanide bags and big bags and the following Waste disposal records (MTR) nr. 03, 04 and 05/2015. The Operation does not use cyanide drums. Empty NaCN big bags are neutralized and washed before being discharged to final destination (coprocessing destruction). The washing solution returns to the solution tanks. The operation implemented specific Procedure PGSUP-ALMOX-KBM-001 -Receiving and cyanide storage in big bags related to NaCN boxes handling and lifting. Adequate device to enable handling without rupturing or puncturing was evidenced (fork-lifters and cranes). Evidences were available (specific Procedure PGSUP-ALMOX-KBM-001 - Receiving and cyanide storage in big bags and field audit) showing that the pile limit is 3 boxes. Although the cyanide solution preparation is not manual (is automated), adequate PPEs are available for personnel authorized to prepare NaCN solution (it is mandatory to use them). The two operators are in permanent radio contact with control room. They have portable HCN detectors and the control room operators also monitor HCN through others HCN permanent detectors. The NaCN solution preparation activity is 100% monitored at all stages.

4 **OPERATIONS:**

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

4.1 STANDARD OF PRACTICE 4.1: *IMPLEMENT MANAGEMENT AND OPERATING SYSTEMS DESIGNED TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT INCLUDING CONTINGENCY PLANNING AND INSPECTION AND PREVENTIVE MAINTENANCE PROCEDURES.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.1

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation did document and implement operational procedures. A systemic procedure PSSMA-CN-KBM-044 was in place, which defines the requirements to develop all steps of the operational procedures. Evidenced several operational procedures clearly defining process criteria, PPEs and preactivity inspections. Some of these reviewed procedures were: PGSUP-ALMX-KBM-001 - Receiving, Handling and Storage of NaCN, PPROC-HDM-KBM-006 - NaCN Solution Preparation, PPROC-HDM-KBM-009 - NaCN big bags neutralization and disposal, PSSMA-CN-KBM-063 – Tailings Dam, among others. The facility has a new tailings dam, called Eustáquio. The new dam was not in operation in the last recertification audit of international cyanide code. Currently, the Santo Antonio dam is still in operation, which will be gradually transferred to the Eustáquio dam. During the visit, it was reviewed the as built drawings of Santo Antonio tailings dam, provided by GeoHydroTech Engineering Co and Eustáquio tailings dam, provided by Knight Piésold Consulting. It was shown during the evaluation the Maintenance Manual, Operation and Monitoring of Eustáquio Dam - GHT31GL601Q001-MO-RB. Kinross will start next month of April 2015, the heightening of the Eustáquio dam to expand its capacity. The proposed increasing height is 6.0 meters. The specific tank in operation at the time of the audit was the # 10 and is ready to operate the new tank # 11. Other specific tanks have been disabled or are in decommissioning phase and recovery of degraded areas according to the PRAD - Degraded Areas Recovery Plan provided for in environmental licensing by the competent authotity. It was verified that the construction projects meet the engineering requirements for dams and tanks. The freeboard of operational criteria meets project settings for both the specific tanks as to the dams. The Eustáquio dam minimum freeboard is 2.0 meters, according to the Knight Piésold Consulting project nr. KP Project DV201-00434.02. Documented procedure PSSMA-CN-KBM-021 - Change Management was revised. The change

management procedure is adequately implemented. Evidenced the Change Management form PSMS-FORM-KBM-068. The operation has operational procedures (Inspection Routes), where all aspects that shall be inspected are addressed, including the appropriated frequencies. All inspection results are recorded in a system that saves the results. Required actions are recorded in the same system. The Audit Team considers that the inspections are carrying out in sufficient frequency to ensure and document its operation within the designed parameters. Standby generators systems are in place. Preventive maintenance, including testing is established. Weekly tests (system function and operation) are performed. The generators have 8 hours capacity for energy supply. The emergency system is connected in the lime tanks, for pH control, if necessary. Evidenced the hydrometallurgical plant generator with 440V voltage capability (TAG 66GD503) with scheduled maintenance and held on 08/20/2014 - Work Order 980 695. The operation have many cyanide related emergency plan covering any potential incident involving cyanide, The emergency plans resulted from risk evaluation and considering all potential cyanide related emergency scenarios, including upset in the water balance (considering even the cessation of the operation), any deviation from design and operational criteria (e.g.: pH, freeboard, leaching solution concentration and flow, among others). During the field audit the following procedures were reviewed: PSSMA-CN-KBM-077 - Preparadeness and Emergency Response Plan, PE - 01 -Cyanide Solution Leak, PE - 04 - Leak in Specific Tanks, PE-05 - Taillings dams Emergencies and PE-08 - Leak in Chemical Transport. Evidences too a procedure PSSMA-CN-KBM-063 - Tailings dam - dams Management. PSSMA -PE-KBM 039 - Environmental Monitoring. Evidenced that maintenance process developed and implemented specific checklists to perform routine inspections (inspection routes) and measurements at tanks (thickness, corrosion and leakage), and process plant installations such as secondary containments, drainage system and locks. Included in inspection routes covering the cyanide circuit at the operation. Inspection routes, covering the cyanide circuit at the operation. Field observations showed that all the pipelines and pumps are well maintained. Pipe thickness measurement was verified according to the PSMS-FORM-KBM- 273 of 11.17.2014 (TAG B0208 from A to F). There is a specific inspection rout covering the specific tanks and ponds. Field observations showed that all the installations are well maintained. Inspectors were trained on the fulfillment of inspections records. All records were dated and signed by the inspectors. Specific checklist for Visual equipment inspection - PSSMA-FORM-KBM-280 was developed and implemented. The operation implemented a preventive maintenance program, and documents activities to ensure that equipment, installations and devices function as necessary for safe cyanide management.

MARCH 2015 | KINROSS PARACATU

I

4.2 STANDARD OF PRACTICE 4.2: *INTRODUCE MANAGEMENT AND OPERATING SYSTEMS TO MINIMIZE CYANIDE USE, THEREBY LIMITING CONCENTRATIONS OF CYANIDE IN MILL TAILINGS.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.2

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Cyanidization tests are usually performed in order to identify opportunities to reduce the cyanide consumption. Pre-aeration process is implemented in order to reduce the cyanide use and the results were very positive. A cyanide automatic titration device is in place. The operation has an operational system for efficient controls of cyanide addition based on the gold concentrations. This automatic device has a set point control. There is the pH control as well, with maintenance of pH between pH 10.2 to 10.5. There is an interlock between pH and 25TQ502 25TQ207 tank (second tank circuit CIC) with the addition of cyanide. If the pH reaches less than 9.8 cyanide dosing pump off, only offering starting condition after raising the pH.The unit has a tank with two probes in the leaching of Hydro III, cyanide control is performed in 25TQ502 and 25TQ509 first cyanide dosage tank and last tank of CIL, at the gateway to the Detox.The unit has an automatically control for the cyanide dosage and regular dosage of this function in process output, avoiding waste.

The unit has a plan to implement automatic control logic and, at this moment, the technicians are evaluating the impacts due to the residence time be high. In Hydro II, the hydrometallurgy is at TAC2000 replacement phase (with one drill in 25TQ207) for TAC1000, which will enable automatic control both in the process input and output. Meanwhile, the cyanide titration is done manually at the last tank, two times each work shift.

4.3 STANDARD OF PRACTICE 4.3: *IMPLEMENT A COMPREHENSIVE WATER MANAGEMENT PROGRAM TO PROTECT AGAINST UNINTENTIONAL RELEASES.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.3

 \Box not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation did develop a comprehensive and probabilistic water balance management system considering storm and rain history, incoming water, effluent discharge rate in the tailings dam and evaporation rates. It was observed that the water balance management Procedure PPSMA-CN-KBM-068 -Management of water and wastewater resources. During the field audit were evidenced flow data, residual flow, bathymetric survey, rainfall data and any changes made due to the construction of the new Eustáquio dam. In the year 2014 was created by the Kinross an Internal Committee to discuss the issues related to water balance. It was then established SISGERH - Management of Water Resources with use of internal data (monitoring, supervisory, operation) and external (climatological, legal and design parameters). The rainfall data collection system with consolidation of monthly results was verified. It was found the result of the history of Santo Antonio dam since 2004 and Eustaquio dam since 2011. Established four rainfall stations - Eustáquio 2, Eustáquio 3, Santo Antonio and Rio do Ouro Mine. The data obtained are compared to Brazilian national reference by INMET - National Meteorology Institute. There was not any incident related to water balance in the last 3 years. Inspection and monitoring programs is carried out. Inspection records and monitoring data were observed. The KINROSS meets the legal requirement Portaria DNPM 416/2012 - Dam Safety. The KINROSS holds an annual schedule of geotechnical inspections of dams involving dams and specific tanks. During the field audit were checked the checklists dam safety (2014/2015), book of monthly monitoring records of meetings (topics: erosion, color changes of water, drainage, pruning vegetation on slopes and berms, treatment and others). The following records were found: geotechnical inspection reports of the Eustáguio dam DRF32IN601I021RT RA Rev A and Rev RA DRF32IN601I025RT, biweekly report of solid ("macico") inspection - DIEFRA (result: "stable dam"), dam Report Santo Antonio DRF31IN601I021RT RA Rev A (result: "stable dam"), Inspection Report of the Specific Tank # 11 DRF25IN601I042RT RA and Specific Tank # 10 DRF25IN601I040RT RA, both presenting results of "no abnormality with stable behavior." The following records were found: geotechnical inspection reports of the Eustáquio dam DRF32IN601I021RT RA Rev A and Rev RA DRF32IN601I025RT, biweekly report of solid ("macico") inspection - DIEFRA (result: "stable dam"), dam Report Santo Antonio

DRF31IN601I021RT RA Rev A (result: "stable dam"), Inspection Report of the Specific Tank # 11 DRF25IN601I042RT RA and Specific Tank # 10 DRF25IN601I040RT RA, both presenting results of "no abnormality with stable behavior." All results (from 2012 to 2015) were below the freeboard for the Specific tanks and Tailings dams, demonstrating the effectiveness of the water balance management system. All results (from 2012 to 2015) were below the freeboard for the Specific tanks and Tailings dams, demonstrating the effectiveness of the water balance management system. All results (from 2012 to 2015) were below the freeboard for the Specific tanks and Tailings dams, demonstrating the effectiveness of the water balance management system. Hydrological report considers appropriate mass balance and the design of safety structures for the tailings dams – Santo Antonio and Eustáquio are in accordance with ICOLD – International commission of large dams. The Eustáquio dam minimum freeboard is 2.0 meters, according to the Knight Piésold Consulting project nr. KP Project DV201-00434.02 For the Specific tanks # 09, 10 and 11 freeboard was determined as adequate with the water balance calculation.

4.4 STANDARD OF PRACTICE 4.4: *IMPLEMENT MEASURES TO PROTECT BIRDS, OTHER WILDLIFE AND LIVESTOCK FROM ADVERSE EFFECTS OF CYANIDE PROCESS SOLUTIONS.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.4

 \Box not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation adopts some practices to the protection of life. During the audit field, were evidenced access controls such as gates, fences, use of padlocks and warning signs on the perimeter. In the Specific tanks #9 and 10, the WAD cyanide does not exceed 50 mg/l.

It was evidenced that the operation did several improvements in order to ensure the CNw below 50ppm in all open waters (TSF and specific tanks). Monitoring results showed that these improvements resulted in CNw below 50ppm. It was evidenced that the operation developed, documented and implemented a specific procedure to investigate any cyanide related incident linked with the local fauna - PSSMA-CN-KBM-132 - Biological Resource Management - fauna and flora. In the event of any dead animal found in tailing ponds or tailing dams, the dead animal shall be sent to a veterinary in order to determine the causes that lead the death. No evidences of mortality were observed during the audit of birds, other wildlife and livestock from adverse effects of cyanide process solutions.

4.5 STANDARD OF PRACTICE **4.5**: *Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.5

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation does not directly discharge solutions containing cyanide to surface waters. All processed effluents are stored at the TSF after passing through the specific tanks. The operation does not have an indirect discharge to surface water. The records "surface water quality 2012-2015" presents the concentration of free cyanide below this level. The records "surface water quality 2012-2015" presents the concentration of free cyanide below this level. The records "surface water quality 2012-2015" presents the concentration of free cyanide below this level. Maximum free cyanide content was 0.005 ppm. All monitoring results evidenced that there is no contamination of surface waters with cyanide.

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

X in full compliance with

The operation is	$\hfill\square$ in substantial compliance with	Standard Practice 4.6
	not in compliance with	

Summarize the basis for this Finding/Deficiencies Identified:

The TSF and the specific tanks are made with HDPE membranes in order to avoid seepage. The operation also installed several piezometers down gradient of the operation in order to monitor if this control is effective (HDPE membrane).

KINROSS has several monitoring piezometers down-gradient of the operation where cyanide analyses are being performed with results below the quantification limit. Monitoring piezometers are located in the area of the specific tanks, downstream of the tailings dams, and in the hydrometallurgy area that are monitored and which present results in compliance with the Brazilian standard for underground (drinkable) water (not detected) – Portaria MS 518/2004. No underground operations exist at KINROSS Paracatu.There is no seepage from the operation that has caused cyanide concentrations of ground water to rise above levels protective of beneficial use.

4.7 STANDARD OF PRACTICE 4.7: *PROVIDE SPILL PREVENTION OR CONTAINMENT MEASURES FOR PROCESS TANKS AND PIPELINES.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.7

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Cyanide tank areas are surrounded by containment walls, constructed according to engineering specifications and according to Brazilian safety and environmental laws. Cyanide piping is protected against spilling, in order to protect the workers and the environment. Cyanide piping system is fully identified through color codes. Secondary containment areas are 150% greater biggest tank volume according to Memorial than the Descritivo MP25FX01F001MD - General cyanide pipeline. The operation implemented a pumping system that is used to pump any effluent or after a rain that is contained in the secondary containments. All the effluent is pumped back to the process. The plant also has a drainage system. All pipelines that contain cyanide solution have a secondary protection, mainly to avoid the contamination of the workers as observed in the field audit. The process plant pipelines (carbon steel and HDPE ones) that contains cyanide solutions, were identified and have a secondary protection. The operation floor is concreted. All observed in the field audit.

4.8 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.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.8

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was evidenced that the operation did implement a change management procedure – PPSMA-CN-KBM-021 in order to ensure that all modifications to the existing facilities will be performed on a structured way. During the Audit the Engineering Manual for construction of facilities - KRP-02-GG-501-G-001-ME was presented and reviewed. In this document all details for QC/QA, presenting requirements as project design, as built and reviews. Were verified QC/QA to the construction of the specific tanks. All new installations (pipelines and process tanks) were designed and constructed in accordance with Brazilian

MARCH 2015 | KINROSS PARACATU

engineering standards. Since the certification audit KINROSS built a Hydrometallurgy plant III. Were verified all performed projects (design) of the facilities built (retention basins, tanks, pipes, pumps and others. The compatibility of the materials with cyanide was checked and the adequacy of soil compaction was reviewed.Based in the Brazilian requirement all professionals have to present notes for technical responsibility. The document "Data Book Equipamentos Hidrometalurgia I, II and III", that presents all tests and conforming to the design and the operation acceptance.

Quality control, quality assurance or as built drawings was available for all parts of the facility using cyanide.

4.9 STANDARD OF PRACTICE 4.9: *IMPLEMENT MONITORING PROGRAMS TO EVALUATE THE EFFECTS OF CYANIDE USE ON WILDLIFE, SURFACE AND GROUND WATER QUALITY.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 4.9

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidences were available at the procedure PSSMA-CN- KBM- 039 – Environmental Monitoring, which list the monitoring stations, parameters, sampling frequency, sampling and preservation procedures, legal requirements such as conditions and contain means to implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

All sampling and analytical protocols were developed by gualified chemical laboratory technicians and are in accordance with "Standard Methods for the Examination of Water and Wastewater, 22^a edition." Environmental sampling protocol of surface and ground water - PSSMA-CN-KBM-058 procedure was also evidenced. Determination of Cyanides specifies the sampling conditions that are registered in analyze report available in Environment Department. Evidences of procedures documented in the last revisons - PSMA-CN-KBM-058 - Sampling protocol of surface water and groundwater; PSSMA-CN-KBM-063 - Tailings Dam PSSMA-CN-KBM-068 - Water and Dam Management; Wastewater Management and others. The operation hasn't direct and indirect discharges of process water to surface water. The effluent from the toe drains are directed to the two creeks called Santo Antonio and Eustáquio located downstream the tailings dams. The effluent from the toe drains is monitored weekly for total cyanide. All the weekly results for total cyanide at the toe drains monitoring station since 2012 are below the quantification limits. There are monitoring wells downstream the tailings dam, in the area of the specific tanks #9, 10 and 11, and a well in the hydrometallurgy area were cyanide is monitored frequently. The Audit Team considers that the inspections are carrying out in sufficient frequency and accordig the Brazilian legislation and the Minas Gerais

State EPA (Environmental Protection Agency) permits to ensure and document its operation within the designed parameters.

An inspection program for wildlife mortalities exists. There is a vigilance program with daily inspections in the area of the specific tanks and dams to check the occurrence of wildlife mortality. There were no mortalities recorded.

5 DECOMMISSIONING:

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

5.1 STANDARD OF PRACTICE 5.1: PLAN AND IMPLEMENT PROCEDURES FOR EFFECTIVE DECOMMISSIONING OF CYANIDE FACILITIES TO PROTECT HUMAN HEALTH, WILDLIFE AND LIVESTOCK.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 5.1

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

According to the Brazilian environmental legislation, the operation must establish a general plan to recover the area where it was installed. This plan is called PRAD - Degraded Area Recovery Plan and shall be updated every five years and presented to the Minas Gerais local environmental agency. It was verified written procedure for decommisioning PSSMA–CN–KBM–138 - Mine Closure Plan. Was evidenced that the plan was revised and updated, addressing the requirements related to reactives disposal and the sequence of activities. During the audit also underlined Technical Report PAFEM - Environmental Plan Morro do Ouro Mine closure dated July 2011, with forecast revision in July 2015.

The PAFEM is established based on the following assumptions: Mine closure and completion (2006), International Council on Mining and goals (ICMM), Corporate Standard KINROSS, Brazilian law and assumptions of environmental licensing, work methodologies and collections, studies and projects existing.

5.2 STANDARD OF PRACTICE 5.2: ESTABLISH AN ASSURANCE MECHANISM CAPABLE OF FULLY FUNDING CYANIDE RELATED DECOMMISSIONING ACTIVITIES.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 5.2

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

An estimate of costs to fund the activities implemented by third parties that decommissioning is defined and updated annually. It was checking the document Industrial Area Closure Cost Estimate for database report 2011 Golder Associates - RT-002_000-545-J-2011. The Minas Gerais local mining legislation (DN COPAM 127/2008) demand and establish financial mechanisms to be follow by the operation. KINROSS implemented a self-guarantee mechanism. The operation has established a self-insurance mechanism based on the requirements set forth in Chapter 40, Section 264 of the U.S. Code of Federal Regulations (40 CFR 264). An audit of non-consolidated financial statements of KINROSS Paracatu was conducted to demonstrate that the KINROSS Paracatu operation met the standard for financial strength. The audit was conducted in February 10, 2015 by independent financial auditors from KPMG LLP (licensed Public Accountants), based in Toronto / Canada. The financial statements included total liabilities, net worth, net income, depreciation, depletion, amortization, current assets, current liabilities, net working capital, tangible net worth, Asset Retirement Obligation, and total assets. In their review, the KPMG financial auditors adhered to Section 9100 of the Canadian Institute of Chartered Accountants Handbook entitled "Reports on the results of applying specified procedures to financial information other than financial statements". As noted in the statement from KPMG, all financial amounts were found to be in agreement, and all financial ratios were found to be in agreement, indicating that KINROSS Paracatu meets the KINROSS internal standard, based on 40 CFR 264, designed to fullfill Standard of Practice 5.2, of establishing an assurance mechanism capable of fully funding cyanide related decommissioning activities. It was also checked the Conceptual Plan of Closing / Plan Restoration Areas - physical - Financial schedule from October 2010.

6 WORKER SAFETY:

Protect workers' health and safety from exposure to cyanide.

6.1 STANDARD OF PRACTICE 6.1: *IDENTIFY POTENTIAL CYANIDE EXPOSURE SCENARIOS AND TAKE MEASURES AS NECESSARY TO ELIMINATE, REDUCE AND CONTROL THEM.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practi	ce 6.1
--	--------

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that process plant tested and gualified a neutralization procedure prior to maintenance activities. The neutralization procedure is documented in an operational procedure and the neutralization activity in double checked, by the operation supervisor and the maintenance worker. The preliminary risk assessment is performed by the two parts and the installation is released by the process supervisor. During the audit it was reviewed the procedures PMAN-MHI-KBM-032 - Pre-Maintenance activities, PPROC-HDM-KBM-053 - Neutralization of installations before maintenance activities, PSSMA-CN-KBM-018 - PPEs, PSSMA-CN-KBM-020 - Confined Spaces, PSSMA-CN-KBM-036 - Respiratory Protection, PSSMA-CN-KBM-059 – Areas delimitation, PSSMA-CN-KBM-069 - Chemicals management, PSSMA-CN-KBM-080 - Safety signs, among others. The operation retains documents and records in accordance with the control document matrix, using the requirements of the certified Integrated Management System in Safety, Health and Environment (OHSAS 18001:2007 and ISO 14001:2004). It was observed that the operation employees participate effectively in the risk identification and evaluation and in the development of operational procedures. Attendance lists, in the procedures revisions were observed as well as personal interviews with the operators and supervisors, confirming that the operation workforce is full involved in the risk analysis and in the operational procedures developments and improvements. It was evidenced in the field audit the PSSMA-CN-KBM-075 procedure -Identification, assessment and control of risks and aspects. Were also found APR - Preliminary Risk Analysis, APT - Preliminary Analysis of Labor and PT permissions work for specif and critical risks, including all the cyanide operations risks. The procedures require, when necessary, the use of personal protective equipment and address pre-work inspections as standard procedure format. It was observed that risk maps cover all activities. Besides, it was noted that the Management of Changes procedure - PSSMA-CN-KBM-021 is duly established, implemented and maintained.

6.2 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.

X in full compliance with

The operation is	in substantial compliance with	Standard Practice 6.2
------------------	--------------------------------	-----------------------

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that operation determined that the minimum pH value shall be equal or greater than 12. This value is addressed at the operational procedures for cyanide solution preparation. It also observed during field audit and interview with operators. It was observed that operators use portable HCN sensors which are previously calibrated against Brazilian or International Standards. The PAC – Calibration Plan have been checked and the following monitoring devices: Fixed Gas Transmitter HCN25TQ252 (valid calibration until May / 2015), portable 52HCN30 and 52HCN31 Transmitters (valid calibration until April / 2015). The operation has no areas where it exceeds 10 ppm. The procedure provides emergency response if it has a higher level to 4.7 parts per million and the staff have no activity and proceed to the evacuation of personnel. It was observed that areas and activities are duly identified as required. Sampled examples were risk maps. The necessary PPE are clearly defined. It was evidenced, during the field audit, that operators use PPE as stated. It was defined that KINROSS Paracatu established, documented, maintained and implemented methodology for preventive maintenance as well as calibration plan which ensure that cyanide monitoring equipment is used as defined by the manufacturer. The operation has defined, documented and implemented the Procedure – PSSMA-CN-KBM-085 – Incidents Investigation, to investigate and evaluate any kind of incidents or accidents. It was not evidenced the occurrence of any cyanide related incident involving plant operators in the last three years. The operation has an Integrated Management System certificate establishing procedures for retention and disposal of documents and records system and establishes the temporality for each document and records. (PSSMA-CN-KBM-074 - Documents and Records Control) It was evidenced the fire extinguishers master list, which is used to support the maintenance frequency. Inspections and tests showers and eyewash stations are carry out monthly Technical Work Safety. All cyanide tanks and piping are clearly painted, identified and the flow direction clearly showed, as evidenced in the field audit. The MSDS is in Portuguese language duly established documented, maintained and implemented at the required areas.

6.3 STANDARD OF PRACTICE 6.3: DEVELOP AND IMPLEMENT EMERGENCY RESPONSE PLANS AND PROCEDURES TO RESPOND TO WORKER EXPOSURE TO CYANIDE.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 6.3

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that operation has an emergency office, a health care center fully equipped with showers, controlled antidote kits, 3 calibrated resuscitators devices (defibrillators), ambulances, emergency hot phone lines, and radio and oxygen cylinders. These facilities were evidenced in the field audit. Antidote kits are available at the cyanide unloading, storage and mixing locations. The kits are also available at the Hydrometallurgy plant. All the first aid equipment is effectively inspected as required. Inspection records provide evidenced the duly implementation. The antidotes are stored under temperature controlled conditions into a refrigerator and their validity is daily checked. The operation implanted an emergency office inside the plant, fully equipped with oxygen, antidotes, first aid procedures, emergency phones, radios, filters, masks, among others. The operation has also a health care center (two doctors and six nurses divided into work shifts), also equipped with oxygen center, antidotes, two ambulances and three resuscitators / defibrillators. All the emergency and medical installations and personnel were evidenced during the field audit. The audit team verifies that the antidote is in the date of validly. It was observed that cyanide related emergency drills are effectively performed by the operation, including involving the local Hospitals teams in the exercises. It was evidenced 2013, 2014 and 2015 annual emergency mock plan. See Principle 7 for more details. The operation has two ambulances and qualified drivers according Brazilian National legal requirements called "Resolução CONTRAN 168/2004" and "Resolução 484/2014". Local hospitals are also gualified by KINROSS – "Hospital Municipal de Paracatu" and Hospital São Lucas. Kinross Paracatu has two doctors and six nurses trained and available all day long in order to provide necessary actions in potential emergencies. Kinross Paracatu has agreements with "Hospital Municipal de Paracatu" and "Hospital São Lucas" which have trained doctors to work in case of emergency with cyanide.

7.1 STANDARD OF PRACTICE 7.1: PREPARE DETAILED EMERGENCY RESPONSE PLANS FOR POTENTIAL CYANIDE RELEASES.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.1

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was evidenced that the operation defined, documented and implemented some Emergency Plans in order to respond to cyanide related emergencies. During the audit the following plans were reviewed: PE-KBM-01 - Cyanide solution leakage, PE-KBM-012 – First Aid / Medical Services to Injured, PE-KBM-04 - Leak in specific tank, PE-KBM-08 - Leak in chemical transport, and PE-KBM-05 – Emergency at Taillings dams. It was evidenced that the mentioned Emergency Plans - PE-KBM-01 - Cyanide solution leakage, PE-KBM-012 – First Aid / Medical Services to Injured, PE-KBM-04 - Leak in specific tank, PE-KBM-08 - Leak in chemical transport, and PE-KBM-04 - Leak in chemical transport, and PE-KBM-04 - Leak in specific tank, PE-KBM-08 - Leak in chemical transport, and PE-KBM-05 – Emergency at Taillings dams - clearly defines specific responses to that situations, considering internal and external stakeholders.

7.2 STANDARD OF PRACTICE 7.2: INVOLVE SITE PERSONNEL AND STAKEHOLDERS IN THE PLANNING PROCESS.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.2

 \Box not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was evidenced that Emergency Plans define responsibilities of several stakeholders (internal and external), including security and health authorities, public authorities, Federal Road Police, local hospitals, response suppliers and community representatives. During the audit it was reviewed the general emergency plan – PAE - PPSMA-CN-KBM-077. The emergency response plans, including the general emergency plan called PPSMA-CN-KBM-077 - PAE – Emergency Response Plan - was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities and community representatives.

7.3 STANDARD OF **P**RACTICE **7.3**: *D*ESIGNATE APPROPRIATE PERSONNEL AND COMMIT NECESSARY EQUIPMENT AND RESOURCES FOR EMERGENCY RESPONSE.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.3

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The emergency response plan (PAE) was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities and community representatives. Responsibilities and authorities are clearly defined and communicated to all involved stakeholders (internal and external). The emergency response brigade members are voluntary but passed through a selection process (medical, theoretical and practical), to be assigned as a brigade member. It was observed, through training records and personal interviews, that brigade members were trained as required. Training and qualification records were reviewed in this opportunity and maintained at HR – Human Resources area. During the audit were checked the emergency brigade training records held on 02.10.2015 and the training of review of Hidrometallurgy operational and emergencies procedures held in 02.24.2015. It was evidenced an available list which defines the emergency response equipment protection gear available. The emergency response plan identifies the required resources that are necessary to each situation. The basic emergency response equipment is consisted of two ambulances, one complete equipped emergency truck and auxiliary equipment (PPEs) for the brigade members, such as chemical/flame resistant overall, chemical gloves, oxygen masks and cylinders, chemical masks.

7.4 STANDARD OF PRACTICE 7.4: DEVELOP PROCEDURES FOR INTERNAL AND EXTERNAL EMERGENCY NOTIFICATION AND REPORTING.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.4

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that Emergency plan (PAE) was reviewed, approved and communicated to several stakeholders (internal and external), including security and health authorities, public authorities and community representatives.

The plan clearly defines the communication procedures to be used during an cyanide related emergency including a list of emergency phones (24 hours available) of all emergency brigade members, leaders, managers and general manager, public authorities, hospitals, cyanide supplier, cyanide transporters Niquini and Concórdia (In this cases according the Agreement between KINROSS and PROQUIGEL Química S.A. nr. 8527-B1). The communication procedures also involve the security process of the operation. Necessary resource are clearly defined and provided. Communication procedures with external media were finding in place. All information related to emergencies at the operation is under the responsibility of the Corporate Communication Process. Verified in the last revision the procedure PSSMA-CN-KBM-079-Stakeholders Communication.

7.5 STANDARD OF PRACTICE 7.5: INCORPORATE INTO RESPONSE PLANS AND REMEDIATION MEASURES MONITORING ELEMENTS THAT ACCOUNT FOR THE ADDITIONAL HAZARDS OF USING CYANIDE TREATMENT CHEMICALS.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.5

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The revised emergency plan PE-004 - Leak in specific tank and PE-008 - Leak in chemical transport, explicitly prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water. It was observed that Emergency Plan clearly defines the required monitoring procedures to be implemented in the event of soil and water potential contamination. An environmental monitoring plan is mentioned in the Emergency Plan which includes sampling methodologies, parameters and, where practical, possible sampling locations emergency response plan as required. The revised Emergency Plans PE-KBM-004 - Leak in specific tank and PE-KBM-08 - Leak in chemical transport considers all the items Recovery mentioned or neutralization of solutions as or solids, Decontamination of soils or other contaminated media,c) Management and/or disposal of spill clean-up debris, Provision of an alternate drinking water supply

7.6 STANDARD OF **P**RACTICE **7.6**: *PERIODICALLY EVALUATE RESPONSE PROCEDURES AND CAPABILITIES AND REVISE THEM AS NEEDED.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 7.6

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed that Emergency Plan is reviewed and revised when necessary (after real incidents or after simulation tests). Sampled examples were: Emergency Simulation Records such as 2013, 2014 and 2015 according to annual emergency mock plan.

Both cyanide and others related emergency plans are being update regularly. Also sampled the following specific simulation scenarios: leak in specific tank – 01.27/2015, leakage of cyanide – 03.17.2014 and leak with victim removal – 05.08.2014. It was observed that after emergency drill, the drill results are reviewed and discussed among the participants. The opportunities for improvement raised-up during the drill are considered as corrective/ preventive actions and managed adequately. Reports related to the drills and their reviews were found in place.

8 TRAINING:

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

8.1 STANDARD OF PRACTICE 8.1: TRAIN WORKERS TO UNDERSTAND THE HAZARDS ASSOCIATED WITH CYANIDE USE.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 8.1

 $\hfill\square$ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The operation trains all personnel who may encounter cyanide hazard recognition according the procedure to control training PDRH-CN-KBM-061, Training Matrix and the Training PGRII. During the audit in the area of Human Resources were highlighted: integration training schedule, specific training cyanide to own and hired staff, cyanide management training - theoretical and

practical module, among others. Evidences were available that the company retained cyanide training records according the procedure. Evidence was available that the training effectiveness, through simulation tests, is verified by the operation.

8.2 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.

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 8.2

 \Box not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidences were available (introductory training program, on the job training program, training records, personal interviews with operators) that the company trains appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment through systematic training procedures. Plant operators are qualified based on education, training, experience and personal skills. Sampled examples were: integration training schedule, specific training cyanide to own and hired staff, cyanide management training - theoretical and practical module. The operation maintains records according to the integrated management system certificated in safety, health and environment (OHSAS 18001:2007 and ISO 14001:2004) for manage all documents including records. The employees are trained prior to working with cyanide; records were checked to 2014 and 2015. Verified specific training cyanide to own personnel and contractors with a schedule of four hours more than 2 hours update. These trainings are biennial. The last record is evidenced from 02/09/2015. The Human Resources area maintains records according to the integrated management system certificated in safety, health and environment (OHSAS 18001:2007 and ISO 14001:2004) for manage all documents including records. It was checked the training material Training PGRII deals with the integration -Cyanide Management Training. Specific training material was established for specific functions, such as operators, laboratory technicians, warehouse keepers, emergency brigade members. A general introductory training, related to risks associated to cyanide is also provided to the own personnel and subcontractors. It was found the introductory Training Schedule that occurs 2 times a month. Highlighted the latest lists dated 02.03.2015 and 02.19.2015. Were verified records of refresher training on cyanide management to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. Biennial refreshing training is also provided to all workers

working with cyanide. Simulation and written tests and planned job observations are used to verify the effectiveness of the training sessions.

8.3 STANDARD OF PRACTICE 8.3: *TRAIN APPROPRIATE WORKERS AND PERSONNEL TO RESPOND TO WORKER EXPOSURES AND ENVIRONMENTAL RELEASES OF CYANIDE.*

X in full compliance with

The operation is	in substantial compliance with	Standard Practice 8.3
------------------	--------------------------------	-----------------------

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was observed through on the job training program, emergency training program, training records and personal interviews that the plant operators and maintenance employees have been trained in the procedures to be followed if cyanide is released. Through emergency training program, training records and personal interviews that cyanide response personnel, including unloading, mixing, production and maintenance workers, have been trained in decontamination and first aid procedures. Emergency Response Plan regarding cyanide, including the use of necessary response equipment. It was observed, through emergency training program, training records and personal interviews that cyanide response personnel, including unloading, mixing, production and maintenance workers, have been trained in decontamination and first aid procedures. The Brigade Members were train and gualified before being assigned as Emergency Brigade Members. Decontamination and first aid procedures are included in the emergency drills training scope. It was observed, through meeting records, that communication with community members, medical providers, hospitals and police officer, about the elements of the Emergency Response Plan related to cyanide are performed regularly, mainly before emergency training drills. Sampled examples were: Security and health authorities, public authorities and community representatives. During the audit stated the training records - PSSMA-FORM-KBM-211 - cyanide poisoning, held on 01.29.2015 at the Hospital Municipal de Paracatu and the kits inspection training and first aid cyanide poisoning performed on 01.19.2015 at KINROSS emergency office. It was observed, through emergency training program and associated records, that refresher training for response to cyanide exposures and release have been conducted as stated. Emergency Simulation Training: leak in specific tank - 01.27/2015, leakage of cyanide - 03.17.2014 and leak with victim removal – 05.08.2014. It was observed through emergency training program and reports that simulated cyanide emergency drills are periodically conducted for training purposes. These mock drills cover the work exposures and environmental releases. Sampled examples were: leak in specific tank – 01.27/2015, leakage of cyanide – 03.17.2014 and leak with victim removal - 05.08.2014. It was verified the reports made after drills that include

MARCH 2015 | KINROSS PARACATU

I

strong performances and opportunity for improvement. The Emergency Plan defines that with some deficiency are identified the procedure must to be changed. The records documenting the cyanide training, including the names of the employee and the trainer, the date of training, the topics covered and how the employee demonstrated an understanding of the training materials.

9 **DIALOGUE**:

Engage in public consultation and disclosure.

9.1 STANDARD OF PRACTICE 9.1: *PROVIDE STAKEHOLDERS THE OPPORTUNITY TO COMMUNICATE ISSUES OF CONCERN.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 9.1

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The company has several forms of media to provide stakeholders the opportunity to communicate issues of concern. The means showing an effectiveness contact with stakeholders (Internal and External) are: KINROSS website, "Fale Conosco" phone nr. 0800 038 10 51, Visit Program Inside KINROSS, KINROSS Newspaper, "Teor" (online newspaper), Internal Communication Committee, "Integrar" Program, among others.

9.2 STANDARD OF PRACTICE 9.2: *INITIATE DIALOGUE DESCRIBING CYANIDE MANAGEMENT PROCEDURES AND RESPONSIVELY ADDRESS IDENTIFIED CONCERNS.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 9.2

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

The Company informs in its website (www.kinross.com.br) in the chapter "Health and Safety and Environmental" the Cyanide Code, including the effects and care related to cyanide. The Visit Program allows the Communities to visit the Plant and be aware of the risks of cyanide.

MARCH 2015 | KINROSS PARACATU

9.3 STANDARD OF PRACTICE **9.3**: *MAKE APPROPRIATE OPERATIONAL AND ENVIRONMENTAL INFORMATION REGARDING CYANIDE AVAILABLE TO STAKEHOLDERS.*

X in full compliance with

The operation is \Box in substantial compliance with Standard Practice 9.3

□ not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

It was verified corporate brochure that describes how the activities are conducted, and information on how the cyanide is managed. These informations are available to communities and other stakeholders. The Auditors Team stands out among others the Social Integration Program "INTEGRAR". The Program received the fifteen Award of Excellence - Community Relations Ores & Minerals of the Journal in 2013 and, was chosen as one of 15 best initiatives in the State of Minas Gerais getting the Millennium Development Goals Award - Minas Gerais (ODM-MG), sponsored by the State Government in partnership with the United Nations (UN) and the João Pinheiro Foundation. The program has four key axes integrate the shares are held within four main areas of activity: Education, Culture, Work and Incomes Generation and Environmental Education. The program is aligned to Integrate Social Investment Policy of KINROSS, which has adherence to the values and strategic guidelines of the company, and also to develop its activities considering the issues raised in the Sustainable Development Plan of Paracatu City - Paracatu 2030. The visit program Inside KINROSS permit that the Communities visit the Plant and be aware about the risks of cyanide. The operation did not have any of the above mentioned incidents. In the event of such kind incidents, the operation will make information available through the TOLL FREE phone number (0800-038 10 51), which is available 24hours per day or through the SHE Department phone +55(38)3679-1179.

Stakeholders may also access:

- Labor public authority DRT/ MG7 http://portal.mte.gov.br/delegacias/mg
- Environmental protection agency <u>www.feam.br</u>