

SUMMARY AUDIT REPORT

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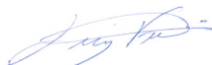
Cyanide Production Operation
Summary Audit Report

for

Proquigel Camaçari Unit/

Prepared by: Ferreira & Cerqueira Ltda.

Name of Company
Proquigel Camaçari



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Instructions

1. The basis for the finding and/or statement of deficiencies for each Standard of Practice should be summarized in this Summary Audit Report. This should be done in a few sentences or a paragraph.
2. The name of the mine operation, lead auditor signature and date of the audit must be inserted on the bottom of each page of this Summary Audit Report. The lead auditor's signature at the bottom of the attestation on page 3 must be certified by notarization or equivalent.
3. An operation that is in substantial compliance must submit a Corrective Action Plan with the Summary Audit Report.
4. The Summary Audit Report and Corrective Action Plan, if appropriate, with all required signatures must be submitted in hard copy to:

ICMI
1400 I Street, NW, Suite 550.
Washington, DC, 20005, USA.
Tel: +1-202-495-4020.

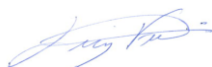
5. The submittal must be accompanied with 1) a letter from the owner or authorized representative which grants the ICMI permission to post the Summary Audit Report on the Code Website, and 2) a completed Auditor Credentials Form. The letter and lead auditor's signature on the Auditor Credentials Form must be certified by notarization or equivalent.
6. Action will not be taken on certification based on the Summary Audit Report until the application form for a Code signatory and the required fees are received by ICMI from the applicable gold mining company.
7. The description of the operations should include sufficient information to describe the scope and complexity of the gold mining operation and gold recovery process.

Name of Producer: PROQUIGEL QUÍMICA S.A. – CAMAÇARI UNIT
Name of Producer Owner: PROQUIGEL QUIMICA S/A
Name of Producer Operator: PROQUIGEL QUIMICA S/A
Name of Responsible Manager: Deiviti Caetano
Address: Rua Hidrogênio 824 Polo Petroquímico de Camaçari, Camaçari, Bahia State.....Country: Brasil
Telephone: (55) 71-38786532
Fax: (55) 71-38786532
E-mail: deiviti.caetano@unigel.com.br

Location detail and description of operation:

Proquigel Candeias Unit has its plant within the petrochemical complex in Candeias, an city located in Bahia, in northeastern Brazil. It is 50 kilometers far from Salvador the capital of the state of Bahia and 30 kilometers far from Camaçari Industrial Complex which was the first planned petrochemical plant in Brazil. The access is by a very good asphalted road.

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1) Company/ process description:

Synthesis of cyanides

The industrial process of obtaining sodium cyanide is very simple, summing up basically to a neutralization reaction acid / base between the hydrocyanic acid (HCN) supplied by Acrinor with a hydroxide (NaOH = sodium hydroxide = Caustic Soda or KOH = Potassium hydroxide = Caustic Potash).

In practice, the process occurs in two steps: dilution of the hydroxide and cyanide synthesis.

a) Dilution of hydroxides

The caustic soda is supplied in bulk imported or national origin at a concentration of 50% (w / w). Initially this feedstock needs to be diluted to avoid cyanide crystallization in solution (especially in colder regions). Typically, the solution of cyanide sodium with a concentration of 30 to 35% (w/w) is intended for mining, while 39 to 42% are specified only for briquette (solid sodium cyanide) in Proquigel Candeias.

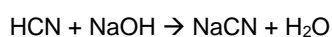
The hydroxides received 49 to 50% concentrations are diluted to the same concentration of between 34% to 45% for caustic soda (NaOH) or 38% to 42% for caustic potash (KOH). The concentration of soda or potash after dilution, will meet the needs required by the process to the desired concentration of Sodium cyanide (NaCN) or potassium cyanide (KCN).

b) Summary of Cyanide

At the top of the reactor, a gas absorption column, and recycle loop reactor the same itself is fed soda solution (or potash for production of potassium cyanide). Since hydrocyanic acid (HCN) is added in a mixer in the recycle loop reactor. The recycle contains, in addition to the sodium cyanide solution (or potassium), a minimal excess of 1.5% w / w caustic (or caustic potash production of potassium cyanide) to react with hydrocyanic acid (HCN). In the reactor, a constant recycle responsible for the perfect homogenization of the solution with an excess of hydroxide of 1.0% is maintained.

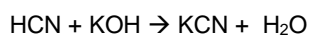
Due to the heat given off in the reaction, the reactor flow passes through a heat exchanger that is responsible for controlling the temperature not exceeding 45°C in solution.

The production of sodium cyanide is made by direct reaction between liquid hydrocyanic acid and sodium hydroxide solution the reaction is as follows:



This reaction is exothermic and releases: 7.45 kcal / mole HCN or 152 Kcal / kg NaCN

Since the manufacture of the potassium cyanide is carried out by direct reaction between liquid hydrocyanic acid Lily and potassium hydroxide in aqueous solution. The reaction is as follows:



Soon after the production, cyanide is stored in reservoirs with appropriate containment dike. The expedition to customers occurs in sealed trucks called isotanks.

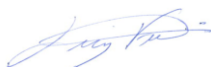
Auditor's Finding

This operation is:

in full compliance

in substantial compliance *(see below)

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not in compliance

With the International Cyanide Management Code.

Furthermore, the auditor verified that there have been no significant changes to processes, policies and procedures for the management of cyanide, no significant releases or exposures and no compliance issues over the past three years associated with this operation. * The Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

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Audit Company: Ferreira & Cerqueira Ltda.
Acting Audit Team Leader: Luiz Eduardo Ferreira
E-mail: luizeferreira2015@gmail.com (ICMI qualified lead auditor and TEA)
Names and Signatures of Other Auditors: NA

Date(s) of Audit: 18/11/2019 ~ 21/11//2019, 15/01/2020 ~ 16/01/2010(on site);
21/02/2020~22/02/2020 (off site)

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

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

1. OPERATIONS: *Design, construct and operate cyanide production facilities to prevent release of cyanide.*

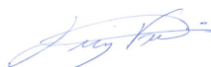
Production Practice 1.1: *Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.*

The operation is in full compliance with
 in substantial compliance with Production Practice 1.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that quality control and quality assurance programs were implemented during construction of cyanide, production and storage facilities. Observed that Proquigel Camaçari established, implemented

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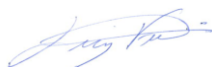
and maintains quality control and quality assurance programs for new and existing cyanide facilities and modifications / changes. Standards drawings reviewed and found duly implemented. Noted that records of quality control and quality assurance maintained as required. Evidenced that all materials used for construction of cyanide production facilities compatible with reagents used and processes employed. It is clearly defined and documented that material requirements for each piping system used on the project and specified all applicable standards, codes and technical specifications. Sampled examples were: NR 13 / American Petroleum Institute (API) 510 – Pressure Vessel Inspection Code; API 570 – Piping Inspection Code; ASME B31.1 – Power and Process Piping; ASME B31.3 – Process Piping; ASME B31.8 – Training Resources; API 620 – Design and Construction of Large Welded Low Pressure Storage tanks; API 650 – Welded Steel Tanks for Oil Storage; API 653 – Tank Inspection, Repair, Alteration and Reconstruction. Competence records such as training, education, experience and ability records of personnel involved with QC and QA matters were reviewed and found to be adequate. Evidenced that all materials used for construction of cyanide production facilities compatible with reagents used and processes employed. Evidenced that appropriately qualified personnel reviewed facility construction and provided documentation that the facility has been built as proposed and approved as required. Proquigel Camaçari presented all required documentation related to QC/QA documentation and records. ENG-C-50-01 which clearly defines the materials that shall be used is duly established, implemented and maintained. Sampled examples were: Sulfuric acid – carbon steel; Hydrochloric acid – carbon steel; Sodium hydroxide – carbon steel; Sodium cyanide – 304 L 304 L stainless steel; Sodium hypo chloride – poly vinyl chloride + plastic reinforced with fiberglass; Adipo nitrile – carbon steel; Acryl nitrile – carbon steel; Potassium cyanide – 304 L stainless steel; Potassium Hydroxide - 304 L stainless steel. Rhodia Piping specifications is duly established, implemented and maintained. Proquigel has an automatic system / interlock to shut down production systems and prevent releases due to outages and equipment failures. Evidenced documented operational instruction MAN.I.303 rev. 04 – “Maintenance in interlock system in Cyanide Plant” duly established, implemented and maintained. Records assessed provided evidenced that interlocks are duly implemented. Noted that the operation implements routine testing and/or maintenance to confirm that the tank level indicators and alarm systems are functioning properly. Evidenced that all of the control systems at their DCS room were operating adequately. Evidenced that cyanide is managed on a concrete that can minimize seepage to the subsurface. During the field audit noted that the all cyanide tanks have containment dikes and are located on a concreted area. All facilities use concrete. Reviewed “Technical Report” which states that all cyanide areas constructed in concrete area and is adequate to prevent and minimize seepage to the subsurface. The Technical report includes inspections of structures, dikes, floors, basins and pump bases. During field audit, observed that all cyanide storage tanks have over-fill protection. Evidenced that Proquigel monitors 24 hours/day its processes through a digital system - DCS (distributed control system) that controls and alarms levels, temperature, concentration and pressure. Evidenced that Proquigel Camaçari established, implemented and maintains internal documented procedure PCS.Q.04 10 that defines the alarm levels in DCS. Evidenced that all of the control systems at their DCS room were operating adequately. Noted that the operation implements routine testing and/or maintenance to confirm that the tank level indicators and alarm systems are functioning properly. Evidenced that secondary containments for process and storage tanks and containers constructed of materials that provide a competent barrier to leakage and sized to hold a volume greater than that of the largest tank or container within the containment and any piping draining back to the tank. As already mentioned all cyanide tanks have containment dikes and are located on a concreted area. Evidenced that spill prevention and containment measures are provided for all cyanide solution pipelines. Preventive measures: Plan for preventive inspection of all the cyanide lines and utilities in the cyanide area. All flanges are covered with vinyl canvas (flange cover). The isotank loading line has a protection (shirt) with vinyl canvas. Any and all leaks are directed to the effluent treatment basin, which has several equalization tanks and chemical destruction of cyanide, completed with the microbiology of Cetrel and its submarine outfall.

Proquigel presented all required documentation.

Production Practice 1.2: *Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.*

The operation is in full compliance with **Production Practice 1.2**
 in substantial compliance with
 not in compliance with

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Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that Proquigel Camaçari has an extensive system of plans, procedures, instructions and checklists that support management of the integrity of process equipment and its operation *in a manner intended to avoid cyanide releases and exposures*. Noted that shutdown operations are covered by pertinent documented procedures which clearly define power failure, steam failure shortage of air for the instruments, shortage of natural gas and water, unblocking and cleaning of equipment. Evidenced that SEG.NO.04 – clearly define the PPE that shall be used in each area.

During the field audit evidenced all personnel using PPE as stated. Evidenced that Proquigel Camaçari operated and operates in conformance with its operation instructions, were written and proper to safety and environment according to its basic design. Noted that Proquigel Camaçari has several procedures for contingencies during upsets in its activities that may result in cyanide exposures or releases such as Emergency General Plan, Emergency Response Equipment, Crisis Control, Communication and Emergency Management, Emergency response Brigade, Emergency Response for Cyanide Plant, Procedure NO.SGI.013 defines methodology for management on change duly implemented. It defines that review and sign-off by environmental and safety personnel prior to implementation of proposed process and operational changes and modifications

Proquigel Camaçari established several internal documented procedures for maintenance activities. It is defined that all maintenance activities shall be preceded by performing pertinent Work Permits. Responsibilities of maintenance technical planning, maintenance supervisor, instrumentalist and process operator clearly defined. It is documented how to remove instrument and how to decontaminate them in order to avoid workers exposures to cyanide. The maintenance activities in Proquigel Candeias include corrective, preventive and predictive maintenance. Evidenced that the documentation identify specific items to be observed and include the date of the inspection, the name of the inspector, and any observed deficiencies as well as the nature and date of corrective actions documented, and records retained.

Process parameters are monitored with necessary instrumentation and is the instrumentation calibrated according to manufacturer's recommendations. All instrumentation used for controlling critical process parameters are calibrated and verified, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards as well as when no such standards exist, the basis used for calibration or verification is retained as documented information. Procedures are in place and being implemented to prevent unauthorized/unregulated discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in a secondary containment area. During the field audit evidenced that Proquigel established, implemented and maintained internal documented procedure NO.SGI.100.603 that defines methodology for management of liquid effluents. Evidenced that Proquigel manages its wastewater in accordance Brazilian regulations laws..Proquigel established, implemented and maintains internal documented procedure defining how to manage cyanide-contaminated solids which is in accordance Brazilian regulations as well as ICM1 principles. During the field audit evidenced that all cyanide-contaminated solids are identified, handled, storage and disposal in accordance Brazilian environmental laws. All cyanide residues are incinerated at Cetrel that is duly authorized by INEMA (local EPA) for this activity. The effluent generated in the solid cyanide plant of Candeias and Camaçari, after equalization and pH control in the B3410 basin is stored in tank F3330 and sent continuously for chemical treatment in CBE-AN (Acrinor) where the first stage is made with hypochlorite of sodium in S503 / MF435 followed by a second stage of decontamination of cyanide with hydrogen peroxide (much more efficiently than hypochlorite) in MT428. This effluent, thus treated, is sent to the Liquid Effluent Treatment Center (CETREL), where another form of decontamination is sequenced: the microbiological that fully specifies the effluent in accordance with CONAMA standards. The final disposal of this effluent is made by a submarine outfall.

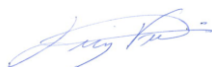
During the field audit evidenced that all cyanide solution is adequately stored in tanks, which are hermetically closed with adequate ventilation. . During the field audit evidenced that all cyanide solution is adequately stored in tanks, which are hermetically closed with adequate ventilation. Evidenced that are adopted all measures to avoid and minimize potential exposure of cyanide to moisture. Besides, it is stored in a closed and secure area where public access is prohibited. All cyanide areas have controlled access

Evidenced that Proquigel Camaçari has an internal documented procedure, MAN,I,500 that defines methodology for inspection cyanide tanks. Pertinent records were assessed and provided evidences that are duly implemented.

Production Practice 1.3: *Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.*

X in full compliance with

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The operation is in substantial compliance with Production Practice 1.3
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Inspections of the integrity of pressure vessels, tanks, pumps, valves, pipelines, secondary containments (addressing structural and corrosion concerns) are undertaken as part of preventive maintenance. Besides, inspections for leaks and housekeeping are performed too. Inspection records were reviewed and found to be in place. Evidenced that inspection frequencies are sufficient to assure that equipment is functioning within design parameters. Evidenced that documentation identify specific items to be observed and include the date of inspection, the name of inspector, and any observed deficiencies. Evidenced that inspection frequencies are sufficient to assure that equipment is functioning within design parameters. The nature and date of corrective actions are documented and pertinent records retained. During the audit field noted that tanks, secondary containments as well as pipelines, pumps and valves are in good preservation conditions

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

Production Practice 2.1: *Develop and implement procedures to protect plant personnel from exposure to cyanide.*

The operation is in full compliance with
 in substantial compliance with Production Practice 2.1
 not in compliance with

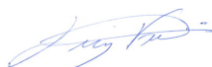
Summarize the basis for this Finding/Deficiencies Identified:

Proquigel Camaçari developed, documented, implemented and maintains a SHEQ (occupational health, safety, environmental and quality) management system, in order to adequately manage the identified hazards and evaluated risks. There is a formal hazard identification and risk evaluation procedure, which triggers the necessity to develop, document and implement (through operational training) the standard or safe operational procedures (SOP) for normal or routine activities or tasks, including planned maintenance ones. Noted during the interviews with operators that they actively participate in the development of such SOPs. The same approach is used and evidenced for the development, document and implementation of emergency response procedures. For non-routine tasks or activities (including maintenance ones), it is mandatory the realization of a pre-task hazard identification and risk evaluation (APR), which must be reviewed and approved by an assigned safety officer before the non-routine task is allowed/released (PTS/safe work permit). During the field audit evidenced several SOPs and APR.

The operation implemented procedure to review proposed and operational changes and modifications for their potential impacts on worker health and safety, and incorporate the necessary worker protection measures. Evidenced internal documented procedure NO.SGI.013 that defines methodology for MOC – management on change. Evidenced that above-mentioned procedure is duly established, implemented and maintained.

Proquigel Camaçari uses fixed and portable HCN detectors, all set to alarm at 4,5 ppm hydrocyanic acid or sodium cyanide dust. The fixed ones installed at specifically assigned points were the potential to expose workers above 4.7 ppm exists. They are installed in line and interconnected with the interlock system. Once alarmed, the entire operation shuts-down. Besides, others actions are taken such as evacuation or investigation by emergency responders, in the event that HCN gas or cyanide dust triggers the 4.5 ppm alarm level on the personal and/or fixed HCN monitors. The fixed detectors are calibrated every six months, by an authorized dealer / qualified representative in Bahia/ Brazil). Observed that the portable detectors are systematically calibrated (every six months) and the associated records are kept on file. During the

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field audit and interviewing the plant personnel noted that they are involved in the development, evaluation and updating of health and safety. The work force is also involved in the change management process. Proquigel's Camaçari monitoring equipment are maintained, tested and calibrated as directed by the manufacturer as well as the pertinent records are maintained for at least one year.

The operation identified all points where workers could be exposed to HCN or NaCN dust above 4,7 ppm. Internal documented procedure SEG.NO.04 – clearly define the PPE that are mandatory in such areas such as full mask breather, Tyvec overall, chemical resistant gloves and boots.

All operational activities in the process plant are monitored through CCTV system from the main control room and all the operators are equipped with radios. HCN detectors also placed in critical points at the plant, connected to alarms and the interlock system. During the field audit noted that such controls are effective. Beyond that, the process plant is equipped with emergency response resources such as antidotes, fire extinguishers, autonomous breathing apparatus, low-pressure showers and eye washers, water, absorbent materials.

Evidenced that the operation has a comprehensive health monitoring system for all workers of the operation to determine their fitness to perform their specified tasks. Proquigel Camaçari established, designed, implemented and maintains internal documented procedures SOC.PR.03 Occupational Health Medical Control Program (PCMSO) and SOC.PR.04 PCMSO that defines all occupational health system in accordance with Brazilian legal requirements NR 7. Proquigel Camaçari maintains and retains all documented information on its legal requirements and other requirements and ensures that it is updated to reflect any changes. Specific monitoring of urine (thiocyanate control) is performed for process plant workers every six months. According to the Brazilian law (NR7), the operation must issue an occupational health certificate (ASO), retaining one copy and delivering another copy to the worker. These certificates state if the worker is able to work in its function or not. In the last three years there were not any cases of worker not able to work in the production process. Reviewed (for the last three years), the occupational health certificate (ASO - Atestado de Saúde Ocupacional) for production workers and emergency team members.

Evidenced that the operation defined, implemented and maintains internal documented procedure NO.SGI.100.0020 that clearly defines a clothing change policy for all workers, contractors, visitors (like auditors). Evidenced during the field audit that in the exit of the production area there are specific drums for potentially or really contaminated clothing (Tyvec overall, gloves, jackets) must be disposed in this drum and sent to final disposal (incineration) at Cetrel. It is mandatory before you leave the production area to wash your boots in a place specifically designed for this purpose. Non-contaminated normal production clothing (cotton) is not allowed to leave the operation with workers and is sent to a specific qualified laundry.

The production plant site and surroundings are richly identified with safety and warning signals about the presence of cyanide and showing the necessary PPE to be used. Clearly evidenced during the field audit. Evidenced during the field audit that there are in place comprehensive safety and warning signals and placards, including the ones that is forbidden to eat, drink smoke or have open flames in areas where there is the potential for cyanide contamination.


Production Practice 2.2: *Develop and implement plans and procedures for rapid and effective response to cyanide exposure.*

The operation is in full compliance with
 in substantial compliance with Production Practice 2.2
 in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that the operation established, implemented and maintains internal documented procedures to respond cyanide exposure in order to address potential releases of cyanide that may occur on site or may otherwise require response such as: PP.SGI.404.001 – Emergency, communication and crisis control management, PP.SGI.404.002 – Emergency Brigade Performance PP.SGI.404.001 – Emergency communication and Use of radio PP.SGI.401.0019 – Emergency Response for Cyanide Plant, SEG.R.05.03 - Emergency response Team; Camaçari Petrochemical Pole Contingency Plan Evidenced during the field audit that the operation maintains (as part of preventive maintenance program) low pressure showers and eye washers in the plant, with specific water line for these installations, which were tested during the audit and worked accordingly. Evidenced in the process plant several non-acid fire extinguishers, adequately maintained and up to date inspected (monthly inspections) by the occupational safety process.

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Evidenced during the field audit that the operation made available all necessary and mandatory resources for use in the plant like water, oxygen, resuscitator (life pack 500 AED), breathing apparatus, antidote (e.g: amyl nitrate, cyanokit 5 gr), radio, CCTV.

Proquigel Camaçari inspects its first aid equipment regularly to assure its available when needed as well as first-aid emergency response equipment are stored and/or tested in such manner that assures they will be effective when used. Several internal documented procedures are established, implemented and maintained related to above-mentioned requirements. Sampled examples were: SOC.I.02.R.01 – Occupational health equipment preventive inspection; SOC.I.02.R.02 – Emergency kits for chemical intoxication Inspection; SOC.I.02.R.05 – Ambulance inspection; SOC.I.01.R.02 – Medicine Control; SOC.I.06.R.01 – Sterilized materials preventive inspection; SOC.I.02 – Occupational health preventive maintenance. Evidenced five points where these first aid equipment at Proquigel such as medical center, hydrocyanic acid unit, sulfuric acid unit, sodium cyanide solution loading area and solid sodium cyanide warehouse. The above-mentioned procedures clearly defines who, when, where, what, why and how to do the inspections, tests and preventive maintenances first-aid emergency response equipment. Reviewing pertinent records evidenced duly implemented as stated.

Evidenced expiration date of chemicals related to cyano kit as well as the preservation conditions has been dully inspected, controlled and managed.

Evidenced, during the field audit that environmental, safety and health related information (MSDS, internal documented procedures signage, first aid posters) available are written in Portuguese.

Evidenced during the field audit that cyanide containing installations and equipment are clearly identified and as well as the flow in the piping. Evidenced that process tanks, storage tanks, reactor, containers and piping containing cyanide are duly identified in accordance Brazilian Standards NBR 7197 and NBR 6493, as well as the direction of cyanide flow in piping.

Evidenced in the system and field audit that the operation has a decontamination operational procedure consisting of strategically placed low-pressure showers, eye washers and water hoses. In the event of any suspicious of skin contamination the person must unvested and abundantly washed with water. The access to the production plant is performed through a personal magnetic card. Visitors, suppliers and workers are not allowed to stay alone in these areas. Mandatory PPEs are defined and during field audit observed adequately used in such areas. It is also mandatory, when leaving the process plant area to wash your boots in a specifically designated area. During the field audit, all these procedures were checked and found in conformance. Evidenced that the medical center of the operation has its own facility to decontaminate any suspicious case and, if necessary. The operation has a well-equipped medical center, with all the necessary resources (including an expert doctor in chemical intoxication and a team of qualified work nurses), such as all sort of antidotes, oxygen installations, decontamination area, among others. . It is clearly defined that only medical staff administers cyanide antidote injections If necessary, the operation may use the Camaçari Complex Medical Center or the São Rafael Hospital downtown Salvador city. Depending on the grade of intoxication, the exposed worker may be transported by ambulance or helicopter.

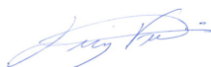
The operation developed and implements operational procedures to transport potentially or really intoxicated workers to external medical facilities, such as the Camaçari Complex Medical Center or the São Rafael Hospital downtown Salvador city.

Dr. Alexandre Rodrigues (operation expert MD in chemical intoxication) developed partnership with the Camaçari Complex Medical Center and the São Rafael Hospital, which are fully equipped and with expert medical team to respond to cyanide intoxication. Dr. Alexandre MD also developed response procedures to cyanide intoxication and trained the partners medical team (doctors and nurses) in such procedures.

Evidenced that the operation plans, perform, review and implement improvements related to emergency drills. Reviewed drills dated on July 31, 2019 - related to an intoxicated worker with cyanide in the Cyanide plant and directed to the Proquigel's Medical Center, September 14, 2018 a drill related to leakage of hydrocyanic acid and sodium cyanide, October 24, 2018 - HCN emission during cyanide discharge (performed with Kinross Paracatú) and July 13, 2017 a drill related to leakage of hydrocyanic acid. All planned objectives were achieved, and it was not necessary to change the emergency response procedure for this scenario. The operation developed, documented, implemented and maintains a management procedures (SGI-NO-03 and SEG-NO-03) in order to investigate and evaluate cyanide exposures, define and implement improvement pertinent actions (corrective and / or preventive for the case of real or potential incidents respectively) and verify the effectiveness of the corrective or preventive actions taken. Reviewing pertinent records well as interviewing with coordinators, supervisors and operational personnel we conclude that in the last three years did not occur Proquigel's workers or contractor submitted to cyanide exposure

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3. MONITORING: **Ensure that process controls are protective of the environment.**

Production Practice 3.1: *Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.*

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The operation is in full compliance with
 in substantial compliance with Production Practice 3.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Proquigel Camaçari does not have any direct discharge to surface waters. All the effluents produced by the operation are sent to CETREL, which is the operation responsible to treat all the effluents generated at the Camaçari Complex. The operation manages its effluents in accordance with documented procedure NO.SGI.100.0603– Liquid Effluent Management which is in accordance with Brazilian legislation as well as ICMI requirements. The operation has indirect discharge to surface water (Atlantic Ocean). Contaminated, non-contaminated and organic effluents are sent to CETREL to be treated. The cyanide-contaminated effluent is previously treated at Proquigel, then sent to ACRINOR tank TQ-428, where it receives a second treatment, and then sent to CETREL to final treatment.

The management of groundwater quality is made in accordance with internal documented procedure NO.SGI.100.0607 – Management of ground water. . Reviewing CETREL monitoring reports evidenced that all monitoring results demonstrated that cyanide concentrations in groundwater were below the adopted acceptance criteria of <0.005 mg/L total cyanide

The three types of cyanide Total (CNt), Free (CNf) and Weak Acid Dissociable (CNw) are evaluated. .

During the last three years there was not any reported seepage that could negatively impact the beneficial use of underground water.

] Evidenced that Proquigel Camaçari limit atmospheric process emissions of hydrogen cyanide gas such that the health of workers and the community are protected. During the field audit observed that all the HCN pipeline circuit is monitored through HCN sensors and alarm at 4.5 ppm HCN. This system is connected with the interlock system that shuts down the whole operation. This is basically a standard operational control

The operation has a solid and implemented monitoring program for surface and underground waters.

The monitoring frequencies are in accordance with the criteria defined in the environmental permit issued by INEMA, the local EPA. Several monitoring reports and results were reviewed, and found in conformance, and based on that, the established frequencies seems to be adequate to characterize the medium being monitored. Any changes on the monitoring frequencies (air and water), must be reviewed and approved by the local EPA. No cases were evidenced.

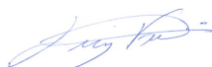
4. TRAINING: **Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.**

Production Practice 4.1: *Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.*

The operation is in full compliance with
 in substantial compliance with Production Practice 4.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

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Evidenced that the Human Resources process developed, documented, implemented and maintains a management system focused on the integration and training of all workers to understand the hazards of cyanide and to conduct refresher training periodically. Observed that internal documented procedures NO.SGI.0002 – Basic Safety Training, FO.SGI.0002.01 – Evaluation of effectiveness of safety, health and environment integration training, FO.SGI.100.011.01- Evaluation of effectiveness of basic cyanide training. Defined the refresh training frequency (yearly), for subjects such as: Safety Basic Training, Cyanide Basic Training, Personnel Protective Basic training - PPE. The training is through "e-learning" approach, or at class room and the attendees submitted to tests after the training. Training records (initial, refresh as well as evaluation of effectiveness) were reviewed and found in conformance.

Human Resources process developed, documented, implemented and maintains in conjunction with the SHE process developed specific training program focused on the use and maintenance of PPE. This training is part of the integration of new workers and is refreshed for the work force on a yearly basis through the e-learning platform or at classroom. Tests performed in the end of the training session in order to ensure that the worker learned and maintain the knowledge about the subject trained. Records, specifically related to PPE training were reviewed and found as required.

The Human Resources process developed, documented, implemented and maintains in conjunction with the Production process an "on-the-job training program" to train workers to perform their normal production tasks with a minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases. This program takes approximately three months and is consisted of technical operational training. Before the on-the-job training, all new workers must pass through the introductory training as previously mentioned 2018 and 2019 on-the-job training programs reviewed and noted that both of them have the following program content: Production structure, Process description. Operational procedures; Environmental, Occupational Health and Safety instructions, Emergency procedures; Emergency Response Brigade; Preventive Maintenance procedures; Dangerous Products Work, Confined Space Work, Work at height. Reviewed records evidenced duly implemented.

Evidenced that the training elements necessary for each job is identified in the training materials. The technical-operational training is based on the developed and implemented operational procedures.

Occupational health, safety and environmental training materials are developed by the SHE process.

All the assigned training instructors are at minimum master supervisor which are working in the operation since its start-up, in most of the cases.

All personnel that will work on the production plant must be approved in the introductory training and in the "on the job" training, before be allowed to work on the plant. Reviewing training records evidenced duly implemented. he introductory training effectiveness evaluated in accordance with internal methodology FO.SGI.0002.01 All cyanide-related training including the on-the-job training have their effectiveness evaluated by testing and on the job observation.

Then, the master supervisor evaluates the operator performance and he decides if the trainee operator is approved or not. Evidenced duly implemented.

Production Practice 4.2: *Train employees to respond to cyanide exposures and releases.*

The operation is in full compliance with **Production Practice 4.2**
 in substantial compliance with
 not in compliance with

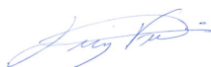
Summarize the basis for this Finding/Deficiencies Identified:

All plant / process operators are trained and qualified to be emergency responders. The emergency responders training takes around 33 hours of training which scope includes: first aid, firefighting, chemical emergencies, emergency hardware use, drills. This process performed every year. The performance of the participants is determined through testing (theoretical and practical).

All operators are trained and qualified to be emergency responders. Annually they participate in a refreshing training session and participate in emergency drills. The routines drills used to test and improve their response drills in accordance with SEG.P.05.R.01. All the emergency drills reviewed in terms of performance to confirm if the personnel did act adequately and the emergency response plan is correct. Reviewed intoxication drill report, carried out during 2017, 2018 and 2019 where the results were adequately reviewed.

Proquigel Camaçari retain training records, which address the trainee name, instructor name, scope of training, date of training, duration of training, and the performance of the trainee.

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

Production Practice 5.1: *Prepare detailed emergency response plans for potential cyanide releases.*

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The operation is in full compliance with
 in substantial compliance with Production Practice 5.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that Proquigel Camaçari established, implemented and maintains internal documented procedures in order to address potential releases of cyanide that may occur on site or may otherwise require response such as: PP.SGI.401.0019 – Emergency Response for Cyanide Plant, PP.SGI.404.001 – Emergency Communication and Crisis Control Management, PP.SGI.404.002 – Emergency Brigade Performance, PP.SGI.404.001 – Emergency communication and Use of Radio, SEG.R.05.03 - Emergency Response Team; Camaçari Petrochemical Pole Contingency Plan

The Plan consider Catastrophic release of hydrogen cyanide; Releases during loading and dissolution operations; Releases during fires and explosions; Pipe, valve and tank ruptures; Power and equipment failures/outages as well as overtopping of ponds, tanks and waste treatment facilities (all of them at PP.SGI.401.0019)

The Plan describe specific response actions, as appropriate for the anticipated emergencies, such as evacuating site personnel and potentially affected communities from the area of exposure, the use of cyanide antidotes and first aid measures for cyanide exposure, the control of releases at their source as well as the containment, assessment, mitigation and future prevention of releases (all of them at PP.SGI.401.0019)

Production Practice 5.2: *Involve site personnel and stakeholders in the planning process.*

The operation is in full compliance with
 in substantial compliance with Production Practice 5.2
 not in compliance with


Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that Proquigel Camaçari involved its workforce and stakeholders, including potentially affected communities, in the emergency response planning process. Internal documented procedure PP.SGI.401.0019 defines methodology that Proquigel uses in order to involve its workforce and stakeholders. Noted that training is provided to stakeholders addressed emergency response planning and pertinents records are duly maintained.. Evidenced duly implemented.

Proquigel made potentially affected communities aware of the nature of their risks associated with accidental cyanide releases, and consulted with them directly or through community representatives regarding what communications and response actions are appropriate. Evidenced records providing evidences that the Health, Safety and Environmental Manager Mr. Deiviti Caetano SSMA manager) as well as Alexandre Rodrigues (Medicine Doctor) performed a presentation about "Sodium Cyanide Manual" for all Companies of Beta Area Camaçari Petrochemical Complex.

Proquigel has involved local response agencies such as outside responders and medical facilities in the emergency planning and response process. Evidenced contract signed between Suatrans and Proquigel Camaçari. Suatrans is a company of Ambipar group with extensive experience in the segment of environmental emergency response. Suatrans has a Call Center, 7 days a week, 24 hours, 365 days a year as well as has strategically distributed emergency service bases allowing greater agility to act in major disasters with solutions for the prevention and mitigation of environmental accidents. To ensure immediate assertive action, the Control and Emergency Management Center's infrastructure comes from two separate plants, generator, backup equipment and mobile equipment. Specialized in emergency

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response involving hazardous chemicals, Suatrans operates in accordance with its clients' Emergency Action Plans that guide the global performance of its highly trained teams, counting with the support of specially designed equipment. Noted that the above-mentioned plan is in full compliance with Brazilian regulations specifically with dangerous products road transportation.

Proquigel engage in regular consultation or communication with stakeholders to assure that the Plan addresses current conditions and risks. Evidenced Protocol Presentation with stakeholders and other interested parties; Programa Ver de Dentro; Niquini Meeting ((cyanide transporter), Concordia meeting (cyanide transporter). Presentation letters containing cyanide information from The Health, Safety and Environmental Manager of Proquigel Candeias Mr. Deiviti Caetano as well as Alexandre Rodrigues (Medicine Doctor) for interested parties.

Proquigel engages in regular consultation or communication with stakeholders to assure that the Plan addresses current conditions and risks. Evidenced that the Health, Safety and Environmental Manager Mr. Deiviti Caetano (SSMA manager) as well as Alexandre Rodrigues (Medicine Doctor) performed a presentation about "Sodium Cyanide Manual" for all Companies of Camaçari Beta Area. Sampled examples of involved local response agencies, outside responders were: Aratú Naval Base (is a military base of Brazilian Navy It is located on the Paripe Peninsula, in Aratú Bay, Cetrel (company responsible for water supply, treatment and final disposition of industrial effluents and waste, water distribution and re-use, besides the total environmental monitoring of Camaçari Petrochemical Complex), Chesf (company responsible by the generation, transmission and commercialization of electrical energy, Codeba (a Public Port Company), INEMA (the local EPA). Detran (State Traffic Department), DNER (Brazilian Department of highway), Road federal Police, Military Police, Limpec (Municipal Public Cleaning Company). Evidenced that Proquigel has involved medical facilities in the emergency planning and response process. Sampled examples were: Hospital São Rafael Caxias D'Or, SAMU, Hospital Municipal de Camaçari, Hospital Santa Isabel, Hospital Santa Helena, PAME Hospital and Hospital Centro de Medicina Humana Evidenced records of training provided by Proquigel for all direct or indirectly persons involved with cyanide like PAM - Mutual Aid Plan, PAME – Medical Emergency Plan, Camaçari Industrial Promotion Committee (COFIC) and Environmental and Industrial Safety (COSIMA).

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Production Practice 5.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response.

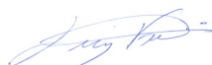
The operation is in full compliance with **Production Practice 5.3**
 in substantial compliance with
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified:

Evidenced that Emergency Plan:

- a) Designate primary and alternate emergency response coordinators with explicit authority to commit the resources necessary to implement the Plan - SEG.R.05.03 - Emergency Response Team
- b) Identify Emergency Response Teams - Internal Emergency Brigade - SEG.R.05.03 - Emergency Response Team
- c) Require appropriate training for emergency responder -. PP.SGI.401.0019 – Emergency Response for Cyanide Plant and SEG.R.05.03 - Emergency Response Team
- d) Include call-out procedures and 24-hour contact information for the coordinators and response team members - PP.SGI.401.0019 – Emergency Response for Cyanide Plant;
- e) Specify the duties and responsibilities of the coordinators and team members - SEG.R.05.03 - Emergency Response Team
- f) List all emergency response equipment that should be available - PP.SGI.401.0019 – Emergency Response for Cyanide Plant;

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- g) Include procedures to inspect emergency response equipment and assure its availability when required - PP.SGI.401.0019 – Emergency Response for Cyanide Plant;
- h) Describe the role of outside responders, medical facilities or communities in emergency response procedures? Yes. PP.SGI.401.0019 – Emergency Response for Cyanide Plant;

Evidenced that above-mentioned Emergency Plans designate primary and alternate emergency response coordinator. It is clearly identified the Emergency Response Team and individual responsibilities and authorities. Training requirements defined. Evidenced that Proquigel Emergency Brigade trains continually in accordance Brazilian legislation laws.

During the field audit, evidenced all emergency response equipment were available on-site as stated. Pertinent checklists provided evidence that emergency response equipment inspected as stated. Observed a list containing 24-hour contact information for the coordinators and response team members. Role of outside responders, medical facilities and communities in emergency response procedures are clearly describe such as PAM, PAME, COFIC, COSIMA, INEMA, Militar Fire Brigade, Area Beta Camaçari Brigade, e, Bahia Militar Police, Bahia Civil Police, Suatrans, Concordia Transportes, Niquini Transportes, Hospital São Rafael, Organized Civil Society.

Evidenced that Proquigel Camaçari confirmed that outside entities included in the Plan are aware of their involvement and are included as necessary in mock drills or implementation exercises. Records assessed reviewed and provided evidences of adequate aware of outside entities.

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Production Practice 5.4: *Develop procedures for internal and external emergency notification and reporting.*

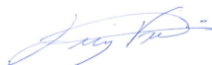
The operation is in full compliance with in substantial compliance with not in compliance with Production Practice5.4

Summarize the basis for this Finding/Deficiencies Identified:

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Internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant clearly identifies procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the emergency, as appropriate. Evidenced that the above-mentioned procedure is duly established, implemented and maintained. Internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant clearly identifies procedures and contact information for notifying potentially affected communities of the incident and/or response measures and for communication with the media. Evidenced that the above-mentioned procedure is duly established, implemented and maintained.

Production Practice 5.5: *Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.*

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The operation is in full compliance with in substantial compliance with not in compliance with Production Practice 5.5

Summarize the basis for this Finding/Deficiencies Identified:

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Evidenced that internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant clearly describe appropriate remediation measures, such as recovery or neutralization of solutions or solids, decontamination of soils or other contaminated media and management and/or disposal of spill clean-up debris, and provision of an alternate drinking water supply, as appropriate. All equipment has a cyanide recovery system through the drains of all equipment and sampling points, which minimizes losses and possible contamination in sample failures or equipment maintenance. Any internal leaks inside the unit are conducted via a closed internal channel to an underground basin, B3410, which directs all effluents for equalization and storage in the F3330, which transfers the effluent in a controlled manner, incorporating without impact in the treatment of Acrinor. Cleaning residues from the entire plant are treated according to the Solid Waste Management Plan, .Evidenced that the above-mentioned documented procedure is duly established, implemented and maintained.

Evidenced that internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant clearly prohibit the use of chemicals such as sodium hypochlorite, ferrous sulfate and hydrogen peroxide to treat cyanide that has been released into surface water

Evidenced that that internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant clearly address the potential need for environmental monitoring to identify the extent and effects of a release, and include sampling methodologies, parameters and, where practical, possible locations. It addresses the need for monitoring releases into both water and soil, as well as identifies the species of cyanide to be monitored. Evidenced that the above-mentioned documented procedure is duly established, implemented and maintained.

Production Practice 5.6: *Periodically evaluate response procedures and capabilities and revise them as needed*

The operation is in full compliance with in substantial compliance with not in compliance with Production Practice 5.6

Summarize the basis for this Finding/Deficiencies Identified:

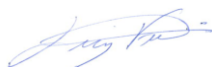
Evidenced that internal documented procedure PP.SGI.401.0019 – Emergency Response for Cyanide Plant include provisions for reviewing and evaluating its adequacy on an established frequency. Evidenced that the above-mentioned documented procedure have been revised over this three-year ICMI audit period as stated and that it is duly established, implemented and maintained.

Evidenced that mock emergency drills conducted periodically as part of the Plan evaluation process. Records of mock emergency drills clearly demonstrate – Objectives of simulations such – Review of Emergency Plans, Review of check emergency Procedures Training of Emergency Response Brigade, Review of stakeholders involvement, Review of Communities Involvement, , Measuring of Communication effectiveness , Review of Internal resources, Review of PAME and PAM.

Evidenced that planning and evaluation of emergency drills have been duly performed as stated in internal documented procedure SEG.P.05.R.05.

There are provisions to evaluate the Plan after any emergency that required its implementation, and for revising it as necessary. Reviewing pertinent records, performing field audit and interviewing all Proquigel Camaçari levels was not evidenced the occurrence of any cyanide incident in the last three years. Evidenced that planning and evaluation of emergency drills have been duly performed as stated in internal documented procedure SEG.P.05.R.05

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