

ICMI Cyanide Code Gold Mining Recertification Audit

Summary Audit Report

**Newmont Corporation,
Porcupine Mine**

Ontario, Canada

**Submitted to:
The International Cyanide Management Institute
1400 I Street, NW – Suite 550
Washington, DC 20005
USA**

2024 Audit Cycle



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PORCUPINE MINE
ICMC SUMMARY AUDIT REPORT

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Mining Operation: Porcupine Mine

Mine Owner: Newmont Canada


Mine Operator: Newmont Canada - Porcupine

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Location and description of the operation

Newmont Porcupine's mill complex (Dome Mill) and No. 6 tailings management area service several mines in North-Eastern Ontario, Canada, within the Timmins area.

The Dome mill is located to the southwest of the neighborhood of South Porcupine, while the Hoyle Pond underground mine is situated approximately 20 km east of Timmins. The Hollinger open pit is located adjacent to the City of Timmins and the Borden underground mine is located approximately 180 km west of Timmins near the Township of Chapleau. The No. 6 Tailing Management Area is located approximately 3 km to the south of the Dome mill complex. The locations of the respective mines and mill are displayed in Figure 1.

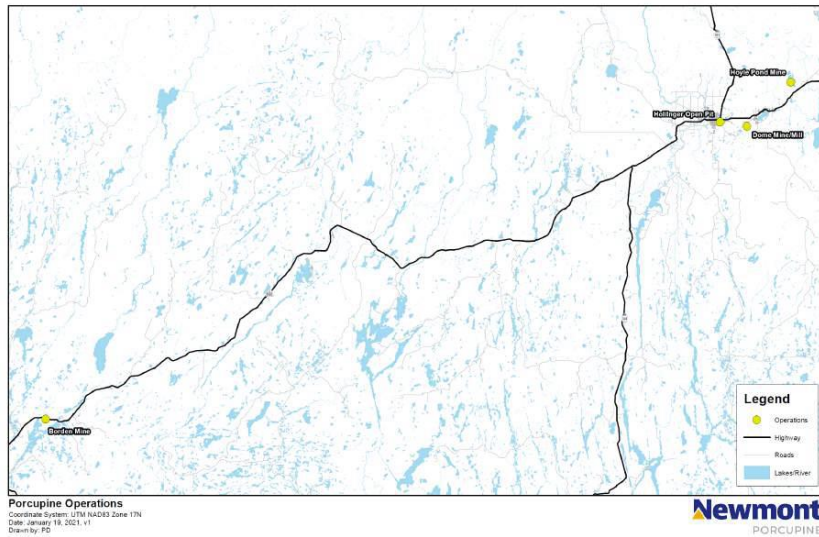



Figure 1: Location of Newmont Canada's Porcupine facility including the Borden Mine to the southeast

OPERATIONS

The Dome Mine was discovered in 1909 and was brought into commercial production in 1912. The underground and open pit mining and surface milling operations have been expanded a number of times since the early 1900s. Underground operations at the Dome Mine ceased in 2017 and ore from Hoyle Pond, Hollinger, and Borden resources, which are located off-site, are processed at the Dome mill.

The current Dome mill has a permitted capacity of up to 15,000 tonnes per day (tpd). Gold ore processing involves a combination of gravity and cyanidation techniques, including primary/secondary/tertiary crushing, rod/ball mill grinding, gravity concentration, cyanide leaching, carbon-in-pulp gold recovery, stripping, electrowinning and refining. The tailings from

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the process are discharged to the No.6 tailings management area which is located approximately 3 km to the south of the mill site.

The processing plant operates 24 hours per day, 365 days per year and recovers approximately 92% of the gold in the feed.

Bulk liquid sodium cyanide is purchased from Cyanco, a Cyanide Code certified producer and distributor. Cyanide is delivered to the facility in 30,000L tanker trucks from Cyanco's distribution facility located in Cadillac, Quebec, located approximately 265km to the east of Timmins, and unloaded into two (2) holding tanks having a combined total capacity of 211,026L. The facility typically receives one to two deliveries per week.

A cyanide detoxification plant was installed in 2010 but was never commissioned. Due to the operation of the facility, Weak acid dissociable (WAD) cyanide in mill tailings has been maintained below 50 mg/L without further cyanide detoxification.


TAILINGS MANAGEMENT

The processing plant operates 24 hours per day, 365 days per year producing an annual average of about 10,600 tonnes of tailings per day. Tailings materials are pumped to No.6 tailings management area via a two-stage pumping system and an HDPE pipeline. The tailings are transported in slurry form at 30% solids by weight. Tailing slurry is pumped via a 22-inch pipeline that branches into two 18-inch pipelines at the north dam to allow for the tailing material to be distributed around the perimeter of the facility to maintain beaches. A pond is also maintained at the north end of the basin where the emergency spillway is located, along with a mill water reclaim system.

The mill tailings discharge and reclaim water pipelines are located along a special containment corridor consisting of berms and an emergency drain pond to drain the lines in the event of a process upset. The tailings and reclaim water pipelines are also provided with additional containment by means of double-piping a section that passes in a low-lying area near a creek. The containment pond is also designed to temporarily store tailings material or reclaim water, if either line requires maintenance. Additionally, both lines feature a leak detection system in the form of flow differential detection.

The Emergency Spillway and perimeter embankments provide storage of the environmental design flood (the 30-day, 1:100-year return period rainfall (between November and May) plus snowmelt event, with an associated equivalent rainfall depth of 486 mm) and has the capacity to pass the inflow design flood (the probable maximum flood, associated with the 6-hr probable maximum precipitation, with an associated rainfall depth of 405 mm) without overtopping the North Dam. To date, the water level has reportedly not been high enough to flow over the spillway.

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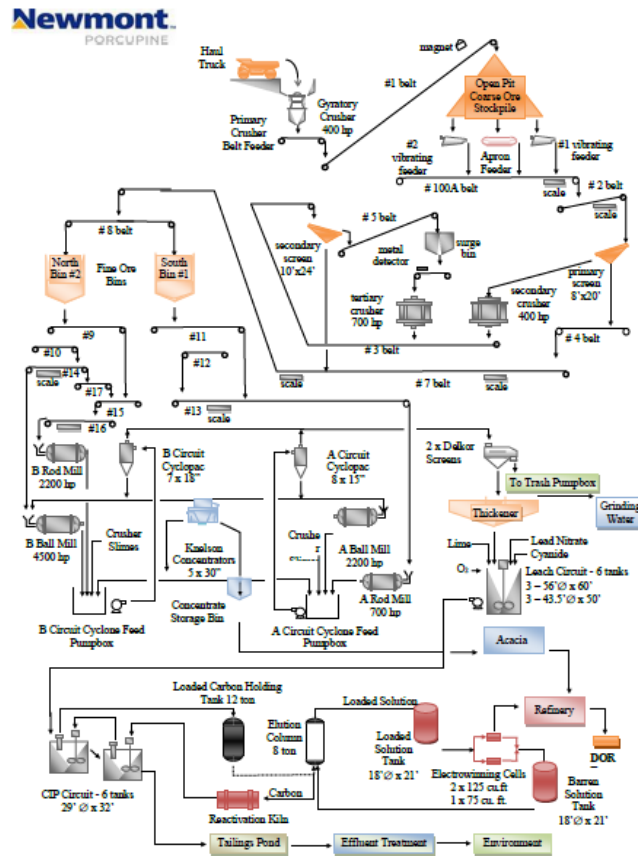
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The scope of the recertification audit at Porcupine mine includes the following cyanide facilities: Dome Mill (Mill) facilities including ball mill grinding, pre-leach thickener, cyanide leach tanks, Carbon in Pulp (CIP) circuit, elution circuit including the barren tank, and a cyanide offloading area including cyanide mixing and holding tanks. The scope also includes the tailings and reclaim water pipeline corridor and the emergency drain pond, No.6 Tailings Management Area (TMA), seepage collection ponds, the mill reclaim water pond, and the Dome Effluent Treatment Plant (ETP) that discharges treated cyanide water to the environment.

New cyanide facilities constructed since the 2021 recertification audit include rising of the No.6 TMA dam, a barren bleed line and a cyanide drop point to A2 leach.

Bulk liquid cyanide at 30% concentration is delivered to Porcupine in 30,000 L (Liters) tanker trucks. Cyanide is stored in cyanide mixing and holding tanks before it is distributed for use in the production facilities.

The Porcupine process flowsheet is presented below:



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Auditor's Finding


The International Cyanide Management Institute (ICMI) approved Audit Team verified that Porcupine operation is in **FULL COMPLIANCE** with ICMI Cyanide Code requirements for Gold Mining operations.

This operation has not experienced any compliance issues during the previous three-year audit cycle.

Porcupine Mine has experienced zero significant cyanide incidents during this 3-year recertification audit cycle.

This operation was determined to be in FULL COMPLIANCE with the International Cyanide Management Code.

Auditor's Attestation

Audit Company:	Paterson & Cooke
Lead Auditor:	Luis (Tito) Campos E-mail: titocampos@smartaccess.us
Mining Technical Auditor:	Chase Ruff Email: Chase.Ruff@patersoncooke.com 
Date(s) of Audit:	April 2 nd – 5 th , 2024

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 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 Institute for Mining Operations Verification Protocol and using standard and accepted practices for health, safety and environmental audits.

Porcupine Mine
Name of Operations


Signature of Lead Auditor

August 14th, 2024
Date

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SUMMARY AUDIT REPORT

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

Standard of Practice

1.1 Purchase cyanide from certified manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide, and to prevent releases of cyanide to the environment.

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

Discuss the basis for this Finding/Deficiencies Identified:

Porcupine purchased all of the cyanide used on site from Cyanco during the audit period. Cyanco's production facilities in North America are currently certified according to the ICM website. The current supply contract between Porcupine and Cyanco states that the supplier and all subcontractors will maintain certification with the Code. In the event Cyanco is not able to supply cyanide to Porcupine, the site would initiate a competitive tender process to source another supplier, the tender documents contain provisions that the supplier will have and maintain certification with the Code.


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

Standards of Practice

2.1 Require that cyanide is safely managed through the entire transportation and delivery process from the production facility to the mine by use of certified transport with clear lines of responsibility for safety, security, release prevention, training and emergency response.

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

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Discuss the basis for the Finding/Deficiencies Identified:

Porcupine's contract with Cyanco also includes transportation of cyanide from its production facilities to site. Cyanco's transportation and transloading supply chains for the site are the North American Rail & Truck Supply Chain which currently certified under the Code. Cyanide is delivered to the site via two trucking companies: Transport Nord-Ouest, Inc. and Quality Carriers Inc. Transport Nord-Ouest is currently certified under the Code as part of the Cyanco North America Rail & Truck Supply Chain. Quality Carriers Inc. is independently certified under the Code. Porcupine's contract states that Cyanco will maintain Code compliance for its transportation supply chain and all subcontractors Cyanco may use must also be certified under the Code. The site maintains copies of the Bills of Lading (BOLs) for all deliveries to the site which include chain of custody for the product. All orders and deliveries are also tracked electronically via SAP (logistics software).

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

Standards of Practice


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

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

Discuss the basis for this Finding/Deficiencies Identified:

Porcupine has one active cyanide offloading and storage facility at the Dome Mill that was designed and constructed in accordance with sound and accepted engineering practices. This was verified during the initial certification audit for Porcupine. No material changes or modifications have been made to these facilities since the initial audit and subsequent recertification audits, with the exception of the change from solid briquettes to liquid cyanide that occurred in 2019. The cyanide offloading system at the Dome Mill facility, including the cyanide mixing and cyanide holding tanks, was designed by Porcupine Engineering Services. The field portion of the audit confirmed that the cyanide offloading area is located outside of the mill building on concrete hardstanding. The cyanide mixing and holding tanks are located inside the mill building within the containment concrete berms of the mill. The cyanide offload area is subject to inspections prior to cyanide delivery, while the cyanide mixing and storage tanks are inspected weekly to detect any obvious releases or failure in containment. This requirement of

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the Code was confirmed through interviews with Mill personnel, review of tanks and containment volume calculations and other documentation; and field observations.

The cyanide offloading area is located outside of the Mill building while the cyanide storage tanks are located inside the Mill area. These facilities are located far away from surface waters, communities, and any offices or places where workers might congregate. These facilities remain substantially unchanged since the initial certification audit and subsequent recertification audits. All personnel with access to the offloading and storage facilities, including contractors, receive site specific health and safety training. These measures minimize the potential for human exposure. Appropriate warning signage is placed at these facilities to alert operators of cyanide presence and hazards associated with it. Although the offloading and storage facilities are not within their own fenced areas, they are located within the fenced and secured areas of the Mill where public access is controlled. The cyanide mixing and holding tanks have two HCN monitors equipped with visual and audible alarms that will alert employees in case of a release of HCN gas. Outside of the Mill there are displays of the values reported by the HCN monitors located inside the building. In addition, standard operating procedures (SOP) "Mill Evacuation Procedure" and "HCN Gas Emergency Evacuation" include evacuation procedures for the Mill in cases of high concentrations of HCN gas.

The cyanide offloading area is designed and constructed to contain, recover or allow remediation of any leakage from the tanker truck. The offloading area has a concrete pad for trucks carrying liquid cyanide. This pad is constructed with cast-in-place reinforced concrete to prevent seepage to the subsurface. It has a drainage pipe that connects the offloading platform with the secondary containment of the Mill to collect any potential spillage during offloading and pump it back to the process. The offloading area is subject to inspections prior to cyanide delivery. The capacity of the offloading containment area significantly exceeds the cyanide delivery truck capacity. Cyanco trucks typically contain approx. 30,000L of cyanide solution. According to a technical memorandum dated June 23rd, 2010, regarding cyanide containment, the total containment for the offloading area is 53,927L.

The cyanide mixing and holding tanks have ultrasonic level indicators and high-level alarms installed. These levels are continuously monitored from the control room. Arrangements remain unchanged since the previous recertification audit. Standard operating procedure (SOP or procedure) "Liquid Cyanide Offload" is designed to prevent overfilling the tanks. The operators verify that the tank levels are low enough to receive the expected delivery. The cyanide delivery driver is required to verify the tank level prior to offloading. There are analog sensors in the offloading area for the driver to verify the tank levels. No cyanide liquid offload will be allowed if tank levels are greater than 59% and 52% for the mixing and holding tanks, respectively. Tank levels before and after cyanide offloading are documented in Cyanco's bills of lading. There is an audible and visual high-level alarm on each cyanide tank. High level alarms are set at 85% for each tank. Automatic shutoff occurs should the tanks reach 85% capacity. The level indicators in both cyanide tanks are continuously monitored from the control room to ensure they are operational. The auditors observed screenshots in PI system (software) showing that the level indicators were functioning correctly. The reliability and the functionality of the level alarms are

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maintained through checks of tank level, checks for the offloads, and routine monitoring by Mill personnel. These level sensors are maintained/calibrated every month and are included in the preventive maintenance program that is managed in SAP (maintenance software). Records for the recertification period were reviewed and found to be complete. No failures of the level indicators were reported for the recertification period.


The cyanide mixing and holding tank areas remain substantially unchanged since the initial certification audit and subsequent recertification audits. Cyanide tanks are secured to solid, reinforced concrete pedestal-type foundations and are contained within concrete berms with concrete flooring that provide an adequate barrier to prevent seepage to the subsurface. The mixing and holding tanks volumes are 121,779 L and 89,247 L, respectively. The tanks, berms and containment areas are subject to weekly inspections. The cyanide mixing and holding tanks are located within bermed concrete impoundments, which were observed to be of sound integrity and considered suitable for containment in the event of a release or tank failure. The containment area of the cyanide tanks is sized to contain 110% of the largest tank volume and has been confirmed previously as part of engineering specification checks. In addition, there is a sump that collects any fluids in the area and pumps it back to the process. During the field inspection, the containment area for the cyanide tanks was noted to be in good condition, with no significant damage, spalling or cracking evident.

The cyanide storage area for liquid cyanide remains substantially unchanged since the initial certification audits and subsequent recertification audits. The liquid cyanide storage area is located inside the Mill building. Both the mixing and holding tanks are equipped with forced air ventilation that exhausts outside the building. Build-up of hydrogen cyanide gas is unlikely to occur. In addition, the Mill building is equipped with adequate ventilation to prevent the build-up of hydrogen cyanide gas. "Liquid Cyanide Offload" procedure requires cyanide tank fans and building exhaust fans to be operational during offloading. The offloading and liquid cyanide storage facilities do not have their own fenced areas; however, they are located within the fenced and secured areas of the mill where public access is controlled. There is warning signage indicating that only authorized personnel are allowed in the area. In addition, temporary barriers are used when cyanide offloading, or maintenance activities are conducted. Cyanide is stored separately from incompatible materials such as acids, strong oxidizers, and explosives, and apart from foods, with appropriate barriers that will prevent mixing. Secondary containments are designed to prevent cyanide spills from mixing with incompatible materials, as verified by following potential flow paths. No storage of other materials was observed during the field inspection.

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

The operation is: in full compliance

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- in substantial compliance
- not in compliance with Standard of Practice 3.2

Discuss the basis for this Finding/Deficiencies Identified:

Porcupine only uses liquid cyanide delivered in tanker trucks; no drums or wooden crates are involved. Porcupine Standard Operating Procedure (SOP or procedure) "Liquid Cyanide Offload" specifies that the Porcupine Mill operator and the truck driver shall monitor and control the entire offload operation. Non-drip fittings are used for the cyanide offload. The SOP also addresses identification and response for the cleanup of any leakage. Any spills or leaks related to a cyanide offload and onto the pad would be directed inside the Mill secondary containment and returned into the process.

Porcupine has SOP "Liquid Cyanide Offload" that outlines the requirements for inspection, observation and offloading of liquid cyanide, as well as the operation and function of valves, pumps, and various interlocks within the cyanide offloading process. The SOP considers two scenarios: offloading into the mixing tank and offloading into the holding tank. The SOP also addresses the routine maintenance of the pipes and valves used for offloading liquid cyanide. Evidence of preventive and corrective maintenance was observed by the auditors. Coupling and hoses of the tanker truck are maintained by the transporter company. There is a cyanide offload checklist that is completed on every cyanide delivery that includes requirements to check emergency showers and eye wash stations prior to cyanide offloading. In addition, the SOP describes safe practices to complete the offload. Both the transporter and operator must confirm that the storage tank has sufficient capacity for the offload. The bills of lading document the pH of the liquid cyanide and tank levels prior and after offloading. The operators have radios for communication with the control room in the event of an emergency. Operators are familiar with the emergency shut off procedure of the tanker truck, which is also included in the SOP. SOP "Liquid Cyanide Offloading" mentions that, if required, the offload operator shall wash out the cyanide containment of any cyanide residue. Non-drip fittings are used for the cyanide offload. No spills related to cyanide offloading were reported during this recertification cycle. SOP "Liquid Cyanide Offloading" requires operators to use the appropriate PPE during offloading activities. These include rubber boots, face shield, goggles, rubber gloves, chemical resistant coveralls, and portable HCN monitor. The SOP also specifies that the Porcupine operator and the truck driver shall remain at the cyanide tanker for the entire duration of the offload. The SOP does not specifically mention that the Porcupine operator should observe the liquid cyanide offloading activities from a safe area, as the operator also has to complete some tasks during the offloading process. Portable HCN monitors are used to detect any HCN presence during offloading activities. The liquid cyanide already comes with a pink colorant dye. A cyanide offloading event was observed during the audit. The review indicated that Porcupine has appropriate SOPs and practices to handle and offload cyanide solutions in a safe manner.

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

Standards 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.

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


Discuss the basis for the Finding/Deficiencies Identified:

The scope of the recertification audit at Porcupine mine includes the following cyanide facilities: Dome Mill facilities including ball mill grinding, pre-leach thickener, cyanide leach tanks, Carbon in Pulp (CIP) circuit, elution circuit including the barren tank, and a cyanide offloading area including cyanide mixing and holding tanks. The scope also includes the tailings and reclaim water pipeline corridor and the emergency drain pond, No.6 Tailings Management Area (TMA), seepage collection ponds, the mill reclaim water pond and the Dome Effluent Treatment Plant (ETP) that discharges treated cyanide water to the environment.

Porcupine has manuals, plans and Standard Operating Procedures (SOPs) for the safe operation of cyanide facilities. More than 20 documents between manuals, procedures and checklists related to cyanide management were reviewed during the audit. All SOPs include a description of the tasks to be performed, a section related to PPE requirements and considerations of safety hazards. Procedures are reviewed and updated when there are significant changes in the tasks. Procedures and work instructions were reviewed and found to be sufficiently detailed to enable safe operation.

Porcupine has manuals and procedures that identify the assumption and parameters for the safe operation of cyanide facilities. The Operations, Maintenance and Surveillance (OMS) Manual for No.6 TMA considers a requirement to contain the Environmental Design Flood (EDF) which is the 30-day, 1:100-year rainfall (between November and May) plus snowmelt event to keep with Ontario Ministry of Natural Resources guidelines. The OMS also requires providing a minimum design freeboard of 1 meter (3 feet) above the maximum operating pond elevation for the dams during discharge of the Inflow Design Flood (IDF). Freeboard data for the recertification period was reviewed by the auditors and evidenced that at all times the pond elevation maintained at least the required freeboard. This was also evidenced by the auditors during the field visit to the TMA. The "Mill water system" narrative document indicates that the maximum operating level of the mill reclaim water storage pond is 97%. There is a high-level alarm at that level to alert operators. The OMS Manual also includes a requirement to maintain WAD cyanide levels below

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50 mg/L at the point of final discharge to ensure compliance with the Code. In addition, the "Cyanide Reduction Process Operation Guideline" outlines how WAD cyanide concentrations on tailings are reduced to levels below 45 mg/L prior to discharge to the TMA. The Effluent Treatment Plant (ETP) Plant Operations Manual outlines procedures for the operation of the plant and site-specific discharge criteria for cyanide, which is 0.12 mg/L Total Cyanide.

Porcupine has developed and implemented SOPs for cyanide related tasks, which describe the standard practices necessary for the safe and environmentally sound operation of cyanide facilities. The operation has identified equipment, personnel, and procedures for cyanide offloading as well as for storage facilities, milling facilities, processing facilities, TMA facilities and all associated piping and pumps as having contact with cyanide. The Operations, Maintenance and Surveillance (OMS) Manual includes a list of critical aspects and areas to be inspected and inspection frequencies. At the TMA, Porcupine conducts inspections of the tailings pipeline corridor, emergency drain pond, dams, reclaim water pumphouse, ETP, presence of wildlife, seepages and pumping stations, emergency spillway, among others. These inspections are conducted by different areas (Mill, TMA, and Environmental) at frequencies that vary from daily (5 times per day), weekly, monthly, and annually. The Engineer of Record (EOR) conducts annual dam safety inspections at the TMA. In the case of the Mill, the weekly cyanide system inspections and the weekly containment inspections include aspects such as presence of salts, secondary containment, corrosion, condition of cyanide tanks, among others. Safety showers and eyewash stations are inspected daily. The auditors sampled inspection records for the last 3 years and found them to be complete.

Newmont has a corporate-wide software called CMS (Change Management Software) that is used for Management of Change (MoC). This software includes the identification and review of the proposed changes; identification of relevant stakeholders for the project, analysis, and evaluation of the changes by a multidisciplinary team including health, safety and environmental aspects; sign off by all areas that participated in the evaluation, approval, and implementation of the change with action plans.

Porcupine has implemented contingency procedures for the Mill and tailings facilities to respond to upsets in water balance, problems identified by monitoring and inspections, and to address temporary closure or cessation of the facilities. Procedures include step-by-step measures for providing response measures for emergencies related to failures of cyanide equipment, and response plans to address upsets in the water balance. The OMS Manual and the Tailings Emergency Response Plan (ERP) include contingency scenarios and emergency response situations related to water management at the TMA and associated facilities such as: A fire limited to one building or portion thereof within the No.6 TMA; presence of toxic gas within one of the buildings associated with No.6 TMA; a water line rupture and release of sludge within the immediate area of the containment dam structures at the No.6 TMA; a rupture of a natural gas line; a limited release of toxic gas from a building in proximity to the No.6 TMA; a downed power line; uncontrolled release of flood water or a dam failure; a dam fails and uncontrolled release of tailings and wastewater into the surrounding environment; flooding of the downstream communities; release of contaminated water into the environment; release of sludge or tailings

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into the environment; downed or damaged power lines within the No.6 TMA. Porcupine has several manuals, procedures and checklists for the safe operation of cyanide facilities. These documents include actions to be taken to regain control of the operation in case of upset conditions identified during cyanide facilities monitoring and inspections. In addition, the OMS manual also includes activities related to surveillance of the tailings corridor and actions to be taken in case of a tailings/reclaim water line rupture. Porcupine has implemented an emergency drain pond close to the Porcupine creek to contain any leakage from the tailings/reclaim water pipeline. Water levels are monitored on an ongoing basis on the PI system including the TMA reclaim pond level, the Mill reclaim water pond level, flows and pressure on the tailing and reclaim water pipelines. In relation to a temporary closure or cessation of operations scenario, actions to be taken are described in the Dome Mine Closure Plan Amendment, dated December 2023. Section 7 of the plan describes rehabilitation measures in case of a temporary suspension of activities and Section 8 describes rehabilitation measures in a state of inactivity, including measures to ensure that all impoundment structures (including the TMA and associated ponds) are monitored as per operating conditions.

The cyanide mixing and holding tanks are inspected weekly. Inspection forms include specific items related to inspection of structural integrity of the tanks and signs of corrosion and leakage. All other tanks containing cyanide, such as the CIP tanks, leach tanks, barren tank, loaded solution tank, and reclaim water tank are also inspected weekly. Nondestructive tests (NDT) are conducted annually for tanks holding cyanide solutions including the cyanide mixing and holding storage tanks, CIP tanks, leach tanks and the elution column. These nondestructive tests are included in SAP as part of the preventive maintenance program. Secondary containments configuration remains substantially unchanged from the previous recertification audits. None of the containment areas has any drains to the adjacent land surface. Secondary containment are inspected on a weekly basis. During the field visit, the secondary containments were observed to be generally free of any fluids or materials stored within them. The Mill water reclaim pond has only one plastic liner and no Leak Collection and Recovery System (LCRS). Porcupine is planning to install a second plastic liner and the design should include an LCRS. Pipelines, pumps and valves at the Mill, cyanide offloading area, and TMA are inspected every week for deterioration and leakage by both Mill and maintenance personnel. Inspection forms were verified for the inclusion of items related to deterioration and leakage of pipes, pumps and valves. The auditors reviewed completed inspection forms for the recertification period and found them to be complete. The TMA is inspected for critical aspects including integrity of dam and available freeboard. Historical freeboard at the TMA was reviewed and verified that it was managed according to its design criteria. WAD cyanide levels are also monitored on a weekly basis. There are no diversion ditches for surface water control incorporated into the Tailings Management Area design, as the TMA is located at a higher elevation than the surrounding terrain. The auditors conducted a field inspection during the site visit and verified the condition of tanks, secondary containments, pipelines, pumps, valves, tailings pipeline corridor, tailings freeboard, and the presence of salts. These inspections also included cyanide offloading and storage facilities. The auditors reviewed inspections records and verified that inspections to cyanide facilities are conducted in a consistent manner.

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Porcupine has implemented an inspection program with frequencies that vary from daily (5 times per day), weekly, monthly, and annually at the Mill and TMA area. Inspections are conducted by different areas (Mill, TMA, and Environmental). The inspections are documented including the name of the inspector, date, area inspected, identified deficiencies and a section to include corrective action plans. Identified deficiencies are noted and corrected or reported to supervision for corrective action. Deficiency notifications are sent to maintenance planners where they schedule corrective maintenance via work orders. The inspection program is sufficient to assure and document that the systems are operating within design parameters. At the TMA, Porcupine conducts inspections of the tailings pipeline corridor, emergency drain pond, dams, reclaim water pumphouse, ETP, presence of wildlife, seepages and pumping stations, emergency spillway, among others. In the case of the Mill, the weekly cyanide system inspections and the weekly containment inspections include aspects such as presence of salts, secondary containment, corrosion, condition of cyanide tanks, among others. Safety showers and eyewash stations are inspected daily. It is the professional opinion of the auditors that the inspection program of cyanide facilities, including offloading and storage activities, and the frequency of inspections are sufficient to assure and document that the operation is safe and functioning within design parameters. The auditors reviewed inspections records for the last 3 years and verified that inspections are conducted in a consistent manner.

Records of inspections are retained and reviewed by the auditors. The inspections are documented and include the date of the inspection, the name of the inspector and observed deficiencies. Inspection forms are reviewed by the supervisor to ensure good quality of inspections. The inspection program also includes cyanide offloading and storage facilities. Corrective actions identified that are related to maintenance of equipment at processing facilities are managed by the Maintenance area. These corrective actions are managed using the SAP software, where work orders are tracked, prioritized, planned and closed. The auditors reviewed examples of items identified during inspections and records of the implementation of the corrective actions until they were closed. All other corrective actions not related to maintenance of equipment that are identified through inspections conducted by Mill personnel are tracked, actioned and followed up until closure in a board located at the Mill. The auditors reviewed examples of items identified during inspections and records of the implementation of the corrective actions until they were closed.

The Maintenance area has a preventive maintenance (PMs) program that vary from weekly (pH meters), monthly (pumps, pipelines, valves, flow meters, gauges, level sensors, sump pumps, filters, seepage ponds, safety showers), quarterly (HCN sensors), and annually (Nondestructive tests on tank and pipes). The preventive maintenance program helps perform periodic maintenance and inspections of the integrity of process equipment, piping and tanks to ensure they are working properly. SOP "Cyanide Pre-Work" is used to ensure that any equipment that contains cyanide is properly decontaminated prior to performing maintenance and that maintenance personnel wear necessary personal protective equipment. Porcupine develops a weekly plan for preventive and corrective maintenance using SAP software. Preventive and corrective maintenance plans are generated automatically for each week. Work orders generated from inspection forms are entered in the system, including assigned priority. The

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auditors observed examples of both preventive maintenance and corrective maintenance records for the recertification period and found them to be complete.

Porcupine receives electricity from the public grid to run its operations. Necessary power for the mill, TMA, and seepage collection is 0.968 Megawatts (MW). As backup power, Porcupine has 4 generators to maintain the water balance with a combined total capacity of 2.9 MW. These generators have the capacity to run all critical equipment to maintain the water balance in the ponds. In the event of a power outage, these generators would start up automatically. Backup generators are checked on a monthly basis to ensure they are in ready condition in case of a power loss. Porcupine provided examples of preventive maintenance records for the power generators for the last three years. A review of these records confirmed that the generators are checked weekly for fuel level, lighting, heating and are also start-tested. This inspection would trigger a corrective maintenance work order if required.


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

- The operation is: in full compliance
 in substantial compliance
 not in compliance with Standard of Practice 4.2

Discuss the basis for this Finding/Deficiencies Identified:

Porcupine conducts programs to determine the appropriate cyanide addition rates in the Mill and adjust addition rates as necessary. Optimal cyanide control has been implemented at the site. Free cyanide rates are adjusted using TAC online analyzers and manual titrations at various points in the leach train. Porcupine concluded that the optimal set point for cyanide at the plant is 200 mg/L free cyanide on the first leach tank, which is the only addition point used by the operation. Cyanide addition at the first leach tank is controlled using TAC online analyzers. Samples are taken every 15 minutes at different stages of the process and analyzed for free cyanide following the requirements of the "Cyanide addition control narrative" document. If free cyanide values are out of the optimal range, it will automatically adjust the pumps accordingly and reduce or increase cyanide addition to the process. Operators also take manual samples every 3 hours to confirm cyanide levels. Porcupine has one effluent discharge point which operates seasonally from July to October. During discharge, the Effluent Treatment Plant (ETP) uses SO₂ and CuSO₄ to neutralize any excess cyanide. A cyanide detoxification plant was installed in 2010 but has never been commissioned. WAD cyanide in mill tailings has been maintained below 50 mg/L without further cyanide detoxification.

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4.3 Implement a comprehensive water management program to protect against unintentional releases.


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

Discuss the basis for the Finding/Deficiencies Identified:

Porcupine is using a comprehensive, probabilistic water balance using the Monte Carlo simulation software, Goldsim. This model is used for estimation of short-term projects, continuing operations at the Mill, and for mine closure. An external consulting company (BGC Engineering Inc) updates and calibrates the model twice a year using weather data, bathymetry data and climate change guidance provided by Newmont. Porcupine is using this Goldsim water balance model since this recertification period. The water balance includes the following factors: tailings deposition rates; precipitation, evaporation (calculated), and seepage rates; impacts of freezing and thawing, water treatment and discharges to surface waters. Potential power outages are not included in the water balance as Porcupine has emergency backup generators on site which will avoid any effects on water balance activities. A description of the water balance model and calculations is included in the Technical Memorandum "Fall 2023 Water Balance Model Update of No.6 TMA with ETP Operational Constraints" developed by BGC Engineering, dated January 2024. This document is updated every year.

The Goldsim water balance considers tailings deposition rates into the TMA, which are updated monthly in the model. A bathymetric and beach survey is conducted twice a year at the TMA pond to evaluate consolidation of the tailings. The water balance uses an Environmental Design Flood (EDF) which is the 30-day, 1:100-year rainfall (between November and May) plus snowmelt event. The TMA dams allow for a freeboard to contain the EDF without any discharge to the environment. As such, at no point in time must the maximum operating water level exceed the EDF freeboard allowance. The maximum operating water level in the TMA is 1 meter (3 feet) below the spillway to ensure the environmental design storm can be contained with no discharge through the spillway. The TMA is operated as a zero direct discharge facility. The water balance model uses weather data from a weather station located at the mine site (Porcupine weather station) and one external station located at Timmins airport that is managed by Environmental Canada. The Porcupine weather station has been collecting data since 2012 and measures the following parameters: wind speed and direction, temperature, relative humidity, precipitation, and snow depth. Evaporation is calculated. The weather station has not been calibrated for the recertification period. The TMA is located and constructed in such a way that it does not receive surface run-on from up-gradient watershed. The TMA only receives water through rainfall and snow that falls directly in the reclaim pond and beaches of the TMA. This water input is included in the model. The water balance model takes into account conditions of freezing and thawing within the TMA. This variable becomes critical to manage potential water shortages during the winter season. The model does not consider solution losses in addition to evaporation as the TMA operates as a closed circuit. Seepage from the toe of the TMA is collected and pumped

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back to the reclaim water pond. The model also considers water losses related to unrecovered seepage not captured by the seepage pumping systems. The model considers increasing seepage collection gradually every year until 2026. The model does not include the effects of potential power outages as Porcupine has emergency backup generators on site which will avoid any effects on water balance activities. The potential scenario of overflow contingencies due to power outages is unlikely to occur. Water treatment and water discharges are considered in the water balance. The ETP has an effective treatment capacity of 21,600 m³/day and usually discharges from July to October. The water balance allows to prepare water treatment projections for future months and considers different treatment scenarios for the following years. The water balance model includes the surface area of beaches which is accounted for in the tailing management controls.

Porcupine conducts frequent inspections to the TMA and monitoring activities to ensure these facilities are operated according to the design criteria, following the inspection program included in the OMS manuals. Mill operators conduct daily inspections (5 times per day) on the TMA, including conditions of dams and seepage ponds. The auditors reviewed inspections records and verified that inspections to the TMA facilities are conducted in a consistent manner. Freeboard in the TMA is surveyed on a monthly basis. The auditors reviewed data for the recertification period and verified that 1 meter of freeboard was maintained at all times. A bathymetric survey is conducted twice a year at the TMA pond, to evaluate consolidation of the tailings. The engineer of record also conducts an annual inspection of the TMA.

The water balance uses an Environmental Design Flood (EDF) which is the 30-day, 1:100-year rainfall (between November and May) plus snowmelt event. The TMA dams allow for a freeboard to contain the EDF without any discharge to the environment. As such, at no point in time must the maximum operating water level exceed the EDF freeboard allowance. The maximum operating water level in the TMA is 1 meter (3 feet) below the spillway to ensure the environmental design storm can be contained with no discharge through the spillway. The TMA is operated as a zero direct discharge facility. The auditors reviewed data for the recertification period and verified that 1 meter of freeboard was maintained at all times at the TMA. Freeboard varied between 2 and 7 meters. In the case of the Mill reclaim water pond, the maximum operating level is set at 97%. The auditors reviewed data for the recertification period and verified that levels were generally maintained below 97%, except for 3 occasions, but the operation lowered the level and avoided any overflow from this pond.

Porcupine has a weather station on site that collects precipitation data on a daily basis. This weather station has been in operation since 2012. Data collected is used to compare the results to design assumptions and to calibrate the water balance model. The water balance model is updated and calibrated every six months using weather data, bathymetry data and climate change guidance provided by Newmont. The water balance model has not indicated any need to revise the design assumptions or operating practices for the recertification period. Current on-site measurements in general correlate well with the initial assumptions of the water balance. The water balance projections are revised as necessary based on actual data, such as bathymetric surveys and flows collected in the seepage ponds. The auditors reviewed on-site

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meteorological monitoring data. Porcupine maintains the information in an Excel spreadsheet, which is then uploaded into Goldsim every 6 months. The records are complete.

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

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


Discuss the basis for the Finding/Deficiencies Identified:

Porcupine does not operate the TMA or other areas of open waters with WAD cyanide concentrations above 50 mg/L. The TMA reclaim water pond is maintained well below the 50 mg/L WAD cyanide. The OMS Manual includes a requirement to maintain WAD cyanide levels below 50 mg/L at the point of final discharge to ensure compliance with the Code. In addition, the "Cyanide Reduction Process Operation Guideline" outlines how WAD Cyanide concentrations on tailings are reduced to levels below 45 mg/L prior to discharge to the TMA. Porcupine takes 2 composite samples per day at the final tails drop box. For the recertification period, only 5 samples had WAD cyanide values above 50 mg/L, which represents one-off events that were controlled by the site. The auditors also reviewed weekly data of WAD cyanide concentrations at the TMA reclaim water pond for the recertification period and found that all the values were below 50 mg/L.

Water quality at the TMA reclaim pond is monitored on a weekly basis for WAD cyanide. Samples are taken at the reclaim pumphouse. A review of monitoring results for the recertification period indicated a maximum WAD cyanide concentration of 22.4 mg/L. Porcupine takes 2 composite samples per day at the final tails drop box, which is representative of the tails that will be deposited through the spigots. For the recertification period, only 5 samples had WAD cyanide values above 50 mg/L, which represents one-off events that were controlled by the site. There have been no wildlife mortalities related to cyanide management in the TMA facilities for the recertification period.

Porcupine has been successful at preventing wildlife mortalities related to cyanide facilities. The WAD cyanide values are well below the recommended value of 50 mg/L. Regardless of the low WAD cyanide concentrations in the TMA, formal inspections for wildlife mortalities are conducted on a daily basis. Porcupine maintains a wildlife sighting and mortality register. Any wildlife mortalities are reported to the Environment department. The auditors reviewed the wildlife mortalities register and there were no mortalities related to cyanide.

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

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

Discuss the basis for the Finding/Deficiencies Identified:

Porcupine discharges process treated water to the South Porcupine river from the ETP plant. Water discharges are monitored at the outlet of the ETP pipeline. The maximum cyanide concentration allowed in water discharges has been established at 0.12 mg/l Total cyanide. The ETP usually discharges from July to October each year. For the recertification period, there were no ETP discharges in 2021 and 2022. The ETP discharged in 2023 and samples were taken 3 times per week. Maximum WAD cyanide values reported was 0.15 mg/L, which is well below 0.5 mg/L.


Porcupine ETP discharges has to comply with permit limits at monitoring Station 4, which is the final station before the discharged water leaves the site and is located in the South Porcupine river downstream of the point of discharge of the ETP. Station 4 corresponds to the limit of the established mixing zone. Concentrations of free cyanide were reviewed for the recertification period. The concentration of free cyanide did not exceed the 0.022 mg/L standard at Station 4. The maximum free cyanide value recorded in this period was 0.019 mg/L with an average value of 0.0025 mg/L. Water quality samples were analyzed by Testmark, an external lab located in Timmins. The auditors verified quality control and quality assurance information from the laboratory.

The design of the TMA did not consider a liner at the bottom of the facility. The TMA is designed to seep water through the toe of the dams. Seepage from the TMA is collected and contained in seepage collection ponds and pumped back to the reclaim water pond. Currently there are 7 seepage collection with pump back stations and 10 seepages that are not collected or pumped back to the process. Porcupine indicated that these seepages are pumped due to the high content of metals and acute toxicity and not necessarily due to cyanide concentrations. Water quality data from the 17 seepages are monitored to detect presence of cyanide. Seepages with free cyanide values that frequently exceed 0.022 mg/L are pumped back to the process. Porcupine has a plan in place to collect and pump back all seepages in the next two years.

4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

- The operation is: in full compliance
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not in compliance with Standard of Practice 4.6


Discuss the basis for the Finding/Deficiencies Identified:

The Mill is designed and operated to manage seepage and protect groundwater quality. The entire Mill area, including the cyanide offloading and storage area, is contained within a reinforced concrete pad surrounded by curbs, parapets, and stem walls, which provide a competent barrier to seepage. The concrete floor is sloped to drain solution into common sumps and then pump the solution back into the process circuit. All process tanks at the Mill are secured to solid, reinforced concrete pedestal-type foundations and are contained within concrete berms with good condition concrete flooring. This foundation and floor system serves to prevent any seepage from the tank bottoms from entering the ground. The main facility that may contribute to seepage is the TMA. The TMA dams have been constructed using rockfill shells, filter materials (sand), low permeability containment material (clay) and/or a 60-mil textured HDPE (High Density Polyethylene) geomembrane, sandwiched into protective geotextiles. Long beaches are maintained to minimize seepage through the dams. The design of the TMA did not consider a liner at the bottom of the facility. The TMA is designed to seep water through the toe of the dams. Seepage from the TMA is collected and contained in seepage collection ponds and pumped back to the reclaim water pond. Currently there are 7 seepage collection with pump back stations and 10 seepages that are not collected or pumped back to the process. There are no specific applicable groundwater water quality standards. Groundwater quality data is compared to Ontario drinking water quality standards for free cyanide (0.2 mg/L). There are 37 groundwater wells around the TMA that are monitored quarterly for Total, WAD and free cyanide. Results of analysis of the wells for the recertification period were well below Ontario drinking water standards (0.2 mg/L). The maximum value reported for free cyanide was 0.02 mg/L. The Mill reclaim water pond has only one liner. There are no groundwater monitoring wells around this pond. This pond is located next to the inactive Dome open pit. Groundwater will drain towards the pit. Porcupine has a plan to install a second liner and LCRS in the summer months of 2024.

As indicated in previous audit reports, there are no recognized beneficial uses of groundwater beneath or immediately downstream of the operation. The Canadian government has not established a WAD cyanide standard in groundwater. Golder (2016) identified 29 water wells located within a 3 km radius of the site (which is considered a conservative extent of potential effects). Golder concluded that the majority of the domestic and public water supply wells are north of the North Porcupine River, which is likely to act as a groundwater divide. There are no specific applicable groundwater water quality standards. Groundwater quality data is compared to Ontario drinking water quality standards for free cyanide (0.2 mg/L). There are 37 groundwater wells around the TMA that are monitored quarterly for Total, WAD and free cyanide. Results of analysis of the wells for the recertification period were well below drinking water standards. The maximum value reported for free cyanide was 0.02 mg/L. Half of the wells had cyanide values above the detection limit

The Dome Mill does not undertake paste backfilling for mining operations. However, an associated mine (Hoyle Pond) utilized paste backfill from the T1 Tailings Facility that received

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tailings from the Dome Mill facility. The Code defines “process solution” as any solution with 0.5 mg/L WAD cyanide or greater, and since the T1 tailings solution contains less than 0.5 mg/L WAD cyanide, the use of tailings as backfill is not within the scope of this audit.

4.7 Provide spill prevention or containment measures for process tanks and pipelines.


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

Discuss the basis for the Finding/Deficiencies Identified:

Porcupine has implemented spill prevention and containment measures for processing facilities. These facilities have remained unchanged since the previous recertification audits. The entire Mill is contained within a concrete pad surrounded by curbs and walls, providing a competent barrier to seepage. All tanks containing cyanide have secondary containments including the cyanide mixing and holding tanks, leach and CIP tanks, barren tank, loaded solution tank, and reclaim water tank. The containments are constructed of cast-in-place reinforced concrete. The concrete floor is sloped to drain to concrete sumps, where any spills will be pumped back to the process. The sump pumps are included in the preventive maintenance routes. The leach tanks are located outdoors and have 110% secondary containment capacity. Snow accumulated is not removed in the winter months. In the spring, accumulated water is either drained into the mill or pumped back to the leach tanks. The operation has determined that snow/ice accumulation does not compromise the required containment capacity during the winter months. The volume and moisture content of the snow is immaterial to the overall capacity. Weekly inspections still occur in winter months for integrity, for the walls and on any exposed or available sections of the containment floors. Leaks on snow would be immediately visible and should any leaks occur in winter the containment would be steam cleaned and emptied. A thorough inspection of the containment is performed in the spring after the snow melts. The secondary containment systems are inspected weekly as part of the containment inspections program. There are ultrasonic level indicators installed on the cyanide mixing and holding tanks that are continuously monitored from the control rooms. The auditors observed that the concrete containment systems were generally in good condition at the time of the audit. In 2019, Porcupine conducted a secondary containment assessment. The “New Containment Construction report” dated December 2019 included a series of improvements that Porcupine implemented to ensure that secondary containments of process tanks meet the 110% requirement of the largest tank.

As stated in the last recertification audit report, secondary containments for cyanide offloading, storage, and process tanks are sized to hold a volume of at least 110% of the largest tank within the containment and piping draining back to the tank with additional capacity for the design storm event. The secondary containment volume calculations were reviewed and deemed as sufficient. Furthermore, those containments have remained unchanged since the last recertification audit.

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The entire mill area is contained within concrete pads surrounded by curbs and walls, providing a competent barrier to seepage. The concrete floor is sloped to drain to concrete sumps, where any spills or rainwater will be pumped back to the process. In addition, the Mill building is connected through an overflow gravity pipe to the basement of the ABC building for additional overflow capacity. The cyanide offloading platform drains inside the secondary containment of the Mill building. Any release from the cyanide tanks will be contained within the secondary containment and pumped back to the process. Secondary containments for tanks containing cyanide solution are also inspected weekly for integrity and capacity. During the field visit, the secondary containments were observed to be generally free of any fluids or materials stored within them.

Porcupine has dedicated pumps within secondary containment collection areas that remove solutions and return them into the process circuit. The pumps have automatic level sensors to keep the secondary containments free of water. The automatic pumps are included in the preventive maintenance program. There is no discharge of cyanide-containing water from the secondary containment areas as the secondary containments are not designed to discharge into the environment. As stated in the Code, no specific written procedures are necessary as the containment systems have sumps and dedicated pumps and piping to return solutions to the production process.

Porcupine has implemented spill prevention and/or containment measures for cyanide process solution pipelines. These facilities remain largely unchanged since the initial certification audit and the previous recertification audits. At the Mill, Porcupine has implemented spill control and/or containment measures for cyanide process solution pipelines to collect leaks and prevent releases to the environment. All cyanide pipelines are located within the secondary containment of the Mill. No pipelines are located outside of containment. There are no buried pipelines. Cyanide pipelines, including the ones from the cyanide offloading and storage area, are inspected weekly as part of the routine inspections by Mill personnel and are also included in the preventive maintenance program. The tailings and reclaim water pipeline corridor are located within a dirt trench that does not have a plastic liner. To meet the requirements of the Code, Porcupine has implemented several spill prevention measures that were verified by the auditors, including: Differential flow monitoring, which is monitored through the HMI (Human-Machine Interface) system to detect any change in pressure in the pipes and take action as needed. There are two SOPs (Mill Tailings Pipelines and Mill Reclaim Water Pipelines) that require constant inspection of the pipelines (5 times a day) and provide details on emergency response actions. In case the differential flow monitoring is not working, Porcupine is required to implement a more frequent inspection program (every 2 hours); video cameras (with infrared) located at strategic locations; preventive maintenance programs of valves and pipes; annual pipeline inspection which is conducted by a contractor; nondestructive tests for the tailings pipeline, which is conducted every 5 years. In terms of containment measures for the TMA corridor, the dirt trench where the tailings and water reclaim pipeline are located drains into the emergency drain pond. Also, a section of the pipelines that crosses the Porcupine creek has a pipe-in-pipe configuration that ultimately reports into the emergency drain pond. At the TMA, tailings lines are located within the footprint of the TMA. Releases from a line break would be captured within the TMA. During

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the recertification period there was a spill of reclaim water in December 2021, which was controlled on time, reported, and cleaned up. It was considered not significant, and as such it was not reported externally.

At Porcupine there is only one pipeline that could pose a risk to surface water and is the tailings pipeline corridor, including both the tailings and reclaim water pipelines that crosses the Porcupine creek. Both pipelines are double walled (pipe-in-pipe). Should there be any leakage of these lines, they would be contained in the “outside” pipe and drained into the emergency drain pond that is located close to the creek and will direct any potential spill from the upper part of the dirt trench and avoid impact to surface waters. When required, the content of this pond is returned to the TMA. The pumps at the emergency drain pond are included in daily inspections conducted by Mill personnel and also included in the preventive maintenance program.

As stated in previous audit reports, all cyanide storage and process tanks are constructed of coated carbon steel placed on concrete foundations. Liquid cyanide pipelines are constructed of stainless steel while cyanide solution pipelines are constructed of carbon steel or HDPE. All these materials are compatible with high pH cyanide solutions. All tanks and pipes were well supported and in good condition.


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

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

Describe the basis for the Finding/Deficiencies Identified:

During Porcupine’s initial certification audit in 2010, QA/QC programs were found to be adequate to confirm that cyanide facilities were constructed according to accepted engineering principles, standards, and specifications. Where no original QA/QC documentation was available during the original construction period, cyanide facilities were inspected by a professional engineer, remediated as required and signed-off as suitable to protect against cyanide releases and exposure. Porcupine has retained the letter from Porcupine Engineering Services (PES) dated July 9th 2010, that concluded that the continued operation of these facilities within established parameters will protect against cyanide exposures and releases. Porcupine has also conducted QA/QC program for construction of cyanide facilities between 2010 and 2021 including several raises of the TMA dam and the implementation of a concrete platform on the thickener in 2015. Porcupine has implemented QA/QC programs for new cyanide facilities constructed during the recertification period. New facilities constructed since the last recertification audit include rising of the No.6 TMA dam in 2022, installation of a barren bleed line in 2022 and a cyanide drop point to A2 leach in 2022.

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As Porcupine was not able to provide evidence of the QA/QC activities conducted during construction of cyanide facilities prior to the initial certification audit in 2010, nor as-built certifications for cyanide constructions; consultant Porcupine Engineering Services (PES) was retained to conduct a review of cyanide facilities and issued a report that would provide assurance that the continued operations within established parameters will provide protection against cyanide exposures and releases. Porcupine provided to the auditors the letter from Porcupine Engineering Services (PES) dated July 9th, 2010, which addressed the suitability of materials and adequacy of soil compaction for earthworks, such as tank foundations and earthen liners, and for construction of cyanide storage and process tanks. For new facilities constructed during the recertification period, QA/QC programs addressed the suitability of materials and adequacy of soil compaction for earthworks including fabrication material certificates and technical specifications for HDPE drainage products, geo-synthetic, liners, piping, electrical and mechanical instrumentation. QA/QC reports also include non-destructive test logs, destructive test logs, vacuum tests, pre-weld tests, destructive sample tests, and repair controls.


For construction of cyanide facilities between 2010 and 2021 Porcupine has retained QA/QC reports for raises of the TMA dam (2014/2015, 2017 and 2021) and the implementation of a concrete platform on the thickener in 2015. For the cyanide facilities built since the last recertification audit, the auditors reviewed the following documents in electronic version: Construction Record report for dam raise No.6 TMA developed by BGC Engineering, dated May 2022, that included QA/QC for material testing, foundation approvals and survey control; QA/QC report for construction of barren bleed line developed by Propipe contractor, dated May 2022, that included drawings or the installation of this pipe; QA/QC report and Nondestructive test for cyanide drop point to A2 Leach developed by Propipe contractor, dated December 2022, that included installation of two cyanide reagent pipelines from Leach A1 to Leach A2.

Qualified engineering companies performed the QA/QC inspections and reviews during construction of the cyanide facilities at Porcupine and prepared the final construction reports certifying that the facilities were constructed in accordance with the design drawings and technical specifications. The auditors reviewed the records of construction reports that were available, including as-built drawings. As-built drawings were properly stamped by a qualified engineer. For cyanide facilities constructed during the recertification period, qualified engineering companies performed the QA/QC inspections and reviews during construction and prepared the final construction reports and as-built drawings certifying that the facilities were constructed in accordance with the design drawings and technical specifications.

4.9 Implement monitoring programs to evaluate the effects of cyanide use on wildlife, and surface and groundwater quality.

The operation is: in full compliance
 in substantial compliance

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not in compliance with Standard of Practice 4.9

Describe the basis for the Finding/Deficiencies Identified:

Porcupine has two monitoring procedures: "Surface water and seepage sampling" procedure and "Groundwater sampling" procedure, both dated July 2023. These procedures address monitoring requirements related to surface water, seepage, and groundwater. These procedures describe the requirements for preparation for sampling, field water quality measurements, groundwater well sampling, sample documentation, calibration of sampling equipment, field data collection, collection and preservation of samples, chain of custody, and transportation. Groundwater and surface water monitoring data is maintained using the Monitor Pro software database. Porcupine uses a GIS (Geographic Information System) to manage the location of monitoring stations for surface, seepage and groundwater. Wildlife sightings are recorded during daily facility inspections by Mill personnel and during weekly tailings management area inspections conducted by Environmental personnel around the TMA dam and pipeline. Water monitoring activities are conducted by Porcupine Environmental department personnel and by contractors for groundwater. Samples are sent to TestMark Laboratories in Timmins, which is ISO17025 certified.

Qualified personnel of Porcupine environmental department prepare and update the sampling procedures on an annual basis. Staff in charge of preparing the plan are suitably qualified, with many years of experience in environmental management and in mining activities. The plan is updated by an environmental coordinator, and it is ultimately revised and approved by the Environmental superintendent, which has more than 10 years of experience in environmental matters in mining and water monitoring. The procedures are usually reviewed and updated every year, or when there have been significant changes in the operations. Analytical protocols for environmental samples are provided by Test Mark laboratories in Timmins. The auditors reviewed letters of certification and website documentation to verify compliance.

The Analytical and Monitoring Requirements Register defines the schedule and frequencies for monitoring activities. Groundwater samples are collected quarterly (3 times a year, as during the winter months it is not possible to collect samples). TMA seepage samples are collected on a weekly basis. ETP discharges are sampled 3 times per week. Surface water varies from weekly during ETP discharges and monthly for Station 4. The register also lists the cyanide species to be analyzed (Total Cyanide, WAD cyanide and free cyanide). The surface, seepage and groundwater sampling procedures include protocols on how the samples should be taken, preservation techniques, equipment calibration, quality assurance / quality control requirements, chain of custody procedures and shipping instructions. Examples of completed chain-of-custody records showing proper use of the forms were reviewed. Maps showing the monitoring locations with respect to cyanide facilities were also reviewed by the auditors.

Porcupine documents sampling conditions on field data sheets. Data collected in the field include date and time of sample, the sampler, weather conditions, sampling method, field parameters, static water levels, depth of water and purge volume (for wells). A comments section is used to

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document abnormal sampling conditions as well as wildlife activity and anthropogenic influences, if applicable. Completed monitoring field forms were reviewed by the auditors and verified that these conditions are being registered consistently.

Porcupine conducts monitoring at frequencies adequate to characterize surface and groundwater. Groundwater samples are collected and analyzed on a quarterly basis, while ETP discharges, surface water and seepages are collected on frequencies that vary from 3 times per week, weekly and monthly. The frequencies have been defined based on local regulations and permits requirements. Records were available and reviewed by the auditors for sampling and monitoring activities. The frequencies of the monitoring activities were deemed to be appropriate by the auditors. The presence of wildlife at the TMA is inspected on a daily basis. It is the professional opinion of the auditors that Porcupine conducts wildlife monitoring at a frequency adequate to identify any issues and implement changes in a timely manner.

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

Standards of Practice


5.1 Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife, livestock, and the environment.

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

Describe the basis for the Finding/Deficiencies Identified:

Porcupine has an approved Closure Plan dated 2010. Draft Closure Plans were developed and submitted in 2018 and 2021 but were not approved by relevant government agencies. An updated December 2023 Closure Plan (Dome Mine Closure Plan Amendment) is currently under development by consultant WSP and will be submitted this year for approval by relevant government agencies. The 2023 Closure plan includes the requirements of the Cyanide Code, as well as references on decommissioning activities that will be conducted. The current life of mine is until 2036. The 2023 Closure Plan includes activities such as decontamination of equipment, neutralization of process solution, and management of surface water and groundwater. The plan considers that decontamination activities will be conducted in accordance with the SOP "Cyanide Pre-work" and that rinsed water from decontamination activities will be treated in the ETP. Process solutions and reclaim water from the TMA will be treated in the ETP and discharged to the environment. Water treatment is expected to last 100 years. There is no

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solid cyanide storage at Porcupine and as such, it is not considered as a reclamation item in the closure plan. Decommissioning activities include all the necessary steps to bring the facility's components to a safe, chemically stable condition, such that they do not present a risk to people, wildlife or the environment due to their cyanide content.

The 2023 Closure Plan includes a general implementation schedule, which will continue being refined as Porcupine approaches the closure period. Closure activities including decontamination and demolition of cyanide facilities are expected to occur over a four-year period following mine closure (between year 2 and year 5). TMA closure is planned to start in year 5 after mine closure. Decommissioning of the Mill and its ancillary facilities, including the Mill reclaim water pond, is scheduled to take place in the first three years following mine closure. The Mill and associated pumps, piping, vessels, and other ancillary equipment will be dismantled, decontaminated, and removed. Seepage collection and water treatment in the ETP is expected to last 100 years.

Porcupine has an internal commitment to update the Closure Plan (including decommissioning activities) every 3 years to follow Newmont requirements. There is no regulatory requirement to update the plan on a certain frequency, unless there is a material change in the mining facilities. The auditors reviewed the 2018 and 2021 draft versions of the Closure Plan. During the recertification period, Porcupine developed an updated version of the Closure Plan (2023 Closure Plan). In addition, Newmont corporate office requires its operations, including Porcupine, to review and update its Asset Retirement Obligation (ARO) cost estimation for the mine, including cyanide facilities decommissioning costs. These costs are reviewed and updated every quarter and submitted to the corporate office, where it is audited financially by an external party.


5.2 Establish a financial assurance mechanism capable of fully funding cyanide-related decommissioning activities.

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

Describe the basis for this Finding/Deficiencies Identified:

Porcupine has developed cost estimates for full funding of third-party implementation of reclamation and decommissioning activities described in the reclamation plan. Cost estimates utilize the "Standardized Reclamation Cost Estimator" (SRCE), a cost-estimating model used by Newmont. The cost estimates include third party unit costs, local equipment rental rates, costs for engineering design, contingency, insurance, performance bond, contractor profit, and agency indirect costs. ARO cost estimation includes cyanide facilities decontamination and decommissioning costs. These costs are reviewed and updated annually and submitted to the corporate office, where they are audited financially by an external party. Closure costs are

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calculated using WSP unit rates and are presented in Appendix K of the Closure Plan. The closure cost is estimated in Canadian Dollars (CAD) \$ 152 million, including decommissioning activities.

Porcupine has an internal commitment to update the Closure Plan (including decommissioning activities) every 3 years to follow Newmont requirements. There is no regulatory requirement to update the plan on a certain frequency, unless there is a material change in the mining facilities. The current closure cost presented in the 2023 plan for financial assurance is CAD\$ 152 million. In addition, Porcupine updates annually its Asset Retirement Obligation (ARO) cost estimate, including cyanide facilities decommissioning costs, which is reported to Newmont corporate office. The 2023 ARO cost estimate is CAD\$ 320 million.

Porcupine has delivered to the Ministry of Mines one Irrevocable Standby Letter of Credit issued by Scotiabank, dated July 2010, for a total of CAD\$ 66 million, under Goldcorp Canada Limited. After Newmont acquisition of Goldcorp, a surety bond was obtained with Zurich bank in 2020 for the same amount (CAD\$ 66 million). This amount covers current decommissioning costs of cyanide facilities. Once the 2023 Closure Plan is approved, an additional surety bond will be issued for CAD\$ 86 million to complete the total closure cost of CAD\$ 152 million.

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

Standards of Practice

6.1 Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.


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

Describe the basis for the Finding/Deficiencies Identified:

Porcupine has established Standard Operating Procedures (SOPs), Operating Guidelines, related checklists and fatality risk management protocols to ensure that worker exposure to cyanide is minimized and/or controlled when performing tasks as unloading, plant operations, entry into confined spaces, and equipment decontamination.

The Cyanide Pre-work meeting is initiated any time a work order for a cyanide system is entered into the maintenance system. The meeting is intended to document the discussions and procedures related to doing work on cyanide systems and includes Personal Protective

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Equipment (PPE), safety equipment, need for emergency response personnel, and other work permits that may be required. The procedure also includes provisions for decontamination of equipment prior to being worked on, verification of the decontamination, returning the system to service, and decontamination of any used parts/equipment as well as tools used in the work.

The site recently completed an audit of the Cyanide Pre-work procedure as it related to decontamination of equipment. The audit was initiated due to the fact reclaim water is used to flush equipment the cyanide concentration of any flushed equipment cannot be brought below the reclaim water CN level (approximately 10 ppm free cyanide). The site collected data on various tasks throughout the mill using personal HCN monitors and conducted a risk assessment. The results of the data gathering and risk assessment show that workers are not exposed to hazardous levels of HCN when doing routine tasks throughout the facility while using or working on systems containing reclaim water. The site also utilizes fixed HCN monitors which would alert workers to any exposure to HCN in an area.

All procedures and instructions are detailed and contain the risks involved with each task and adequately describe safe work practices. These documents also describe task specific PPE. Work permit systems have been developed for more general activities which apply across various areas of the plant. These include, for example, lock out/ tag out/try out, hot work and confined space entry.

The site has a non-routine task procedure for tasks that either do not have an existing procedure or a procedure that hasn't been performed in the last 6 months. This process involves a meeting between the employees doing the work, the safety department, the worker safety representative, and the area supervisor. During this meeting the procedure for the task is developed and agreed to by all parties. If something changes during the performance of the task the operators are instructed to safely stop work and re-convene the team to discuss the changes. This meeting would also include the Cyanide Pre work meeting described in the SOPs above.


Procedures were reviewed and found to be sufficiently detailed to enable a safe operation and to minimize worker exposure. Verification also included worker interviews while conducting field inspections.

PGM-POL-ALL-SAF-0006 "Personal Protective Equipment Policy" describes the general Personal Protective Equipment (PPE) that is required for various areas of the site. The auditor verified that operating procedures provide a listing of required PPE to prevent and/or minimize worker exposure to cyanide and/or cyanide containing solutions.

Observations during the audit confirmed that hard hat, rubber boots, rubber gloves, chemical suits, face shields, handheld two-way radio, and HCN personal monitors were in use for tasks that were performed at the cyanide offload area.

Information discussed during the Cyanide Pre-work meeting also includes PPE to be worn during the task being discussed. The auditor reviewed several examples of cyanide pre-work meetings

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that were conducted over the audit period and found them to be detailed and considered methods to minimize worker exposure.

Finally, each worker is given a 5-Point Card every shift which documents the operator's pre-work inspection for the shift and any changes to the area throughout the worker's shift. The cards also include areas for the supervisor to review the information with the worker and sign off on the work that has been or is being completed.

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

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

Describe the basis for the Finding/Deficiencies Identified:

Porcupine has determined the pH levels for cyanide solutions in plant operations to be 11.2 in the leach and Carbon-in-Pulp (CIP). The operation has pH sensors in the circuit with a low alarm point at 10.6 and a low-low alarm point at 10.2. These alarms alert the control room operator to a low pH in the circuit. Operators also take samples throughout the operation every 3 hours and test the sample for pH to compare to the readings of the pH sensors. If the pH begins to decline in any part of the circuit the control system automatically adjusts the lime addition in that part of the circuit to bring the pH back to setpoint.


A review of the control system trend indicated that the control system has functioned well over the audit period. Declines in pH were observed in the operating data but were corrected quickly by the operating system and operators. A review of the Leach/CIP shift logs showed operators are routinely taking samples and recording the results of the pH and the adjustments to the lime circuit.

Calibrations for the pH probes are performed once per week. The calibration rounds are generated utilizing the SAP system and results are also recorded in SAP as well as a spreadsheet kept by the Instrumentation department. Calibration records were reviewed by the auditor.

Porcupine has identified that workers could be exposed to cyanide solution at any point in their process excluding the crushers. This is due to reclaim water being used throughout the process which has an approximate cyanide concentration of 10 ppm free cyanide (concentration varies with season).

PGM-POL-ALL-SAF-0006 "Personal Protective Equipment Policy" describes the minimum personal protective equipment (PPE) required when doing general work around the mine site.

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Porcupine utilizes a Cyanide Pre-work procedure for work on cyanide systems that prescribes the appropriate personal protective equipment for various situations when working around cyanide systems.

Porcupine uses 14 fixed HCN gas monitors throughout the facility located at strategic areas where potential exposure to HCN gas is elevated. The detectors have an advisory alarm level of 2.0 ppm and a high-level alarm at 4.7 ppm. When an advisory alarm level is triggered, workers are to evacuate the immediate area to an area where gas monitors indicate the concentration of HCN gas is below 2.0 ppm, then the workers are to contact the area supervisor and develop a plan to safely investigate the cause of the elevated HCN gas levels. When the high-level alarm is activated, personnel are expected to evacuate the immediate area until the alarm is investigated and cleared, depending on the location this may involve a partial evacuation of the mill building. The alarms are also tied to the process control system and alarm in the control room. Readouts for the alarms are also located at the mill entrance near the cyanide offload so that operators can monitor gas levels inside the facility while performing a cyanide offload. Porcupine also utilize portable personal gas monitors for tasks that present a higher risk of cyanide exposure. These tasks are identified using the Cyanide Pre-work procedure which will inform the operators if a portable monitor is required as the procedure is followed. During cyanide offloads both the offload operator and truck driver are required to wear portable personal gas monitors. Portable personal gas monitors have the same alarm levels as fixed monitors with the same expected response to alarm levels. Fixed monitors are calibrated by the instrumentation technicians every three months versus a manufacturer's recommendation of every 6 months. Work orders are generated automatically by SAP and given to the technicians to complete. Records of the calibration are kept in both hard copy and electronic format (spreadsheet) as well as within the SAP system. Portable monitors are calibrated monthly by a third-party technician. Records of tests and calibration activities both for fixed and portable HCN gas monitors were reviewed by the auditor covering the recertification period. The contract with the third-party calibration company was also reviewed and included cleaning, calibration, and regular maintenance.

The auditor verified during the field inspection that appropriate signage is displayed at the plant entrance, milling circuit and throughout the various facilities to alert personnel of the presence of cyanide, access restrictions and the required PPE for the area. This includes signage at the tailings facility and Effluent Treatment Plant as well as all observed entrances into the milling and leach facilities. In addition to identification of cyanide areas and PPE requirements, signage is also used to restrict eating. The site is a tobacco free property and has signage indicating no tobacco allowed both on the site and within cyanide facilities. "No Open Flame In the Presence of Cyanide" signs are installed around the cyanide holding and mixing tanks where the highest likelihood of an explosive level of hydrogen cyanide gas build up would be.

Porcupine uses high-strength sodium cyanide solution from Cyanco. The cyanide arrives on site dyed red for easy identification. The contract with Cyanco states that any cyanide delivered to site will be dyed and the dye is verified by the offload operator prior to offload by inspecting the

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safety data sheet and bill of lading. Porcupine also maintains red dye on site and has procedures to add the dye should cyanide arrive un-dyed.

Porcupine has installed several fixed safety showers, eyewash stations and fire extinguishers throughout the Process plant and milling circuit where there is a potential for exposure to cyanide.

Safety showers, eyewash stations and fire extinguishers are identified on a map and are also checked as part of pre-work inspection checklists. Safety Showers and eyewash stations are checked each day to ensure that they are operational and that water flows are adequate. All fixed shower and eyewash stations are tied to the municipal water system and have regulated pressure and temperature. The auditors randomly checked showers and eyewash stations during the site inspection to verify functionality and appropriate response to shower alarms. Pre-work inspection sheets were also verified by the auditors.

Sodium Bicarbonate fire extinguishers are verified monthly by the Process Operations Team. They are strategically located throughout the operation. The auditors checked fire extinguishers to confirm they are an acceptable type for use with cyanide. Each fire extinguisher has a monthly check tag that is punched to indicate the extinguisher has been inspected.

Porcupine has established a color coding for concentrated cyanide solution as purple/white. This was observed by the auditor following the cyanide flow from the cyanide offload area to the feeding points for the leach tanks and gravity concentrate leach unit.

Process pipelines and tanks within the mill facility and pipelines to/from the tailings management area (tailings and reclaim water) that contain cyanide or cyanide solution are labeled to enable plant personnel to identify its content and flow direction. Labeling is typically located at places of frequent access by personnel, and at a reasonable distance to be able to track the lines and identify contents.

Porcupine contracts with a third party SDS database to keep and maintain the SDS sheets for the site. The SDS database can be accessed from the sites internal network on any computer, externally through a link, or from operator kiosks set up in the control room. Hard copies of the SDS were available from several sources at the time of the audit but were not in a 'controlled' format. SDS are available in English which is the predominate language of the workforce.

Porcupine follows PGM-PMP-ALL-SAF-0001 "High Level Incident Investigation Guide" which describes that in the event of an incident, how it will be notified, and how the staff proceed to control the situation. Subsequently, the investigation of the incident is done to identify root causes and ensure that corrective actions are determined. All incidents that involve cyanide are deemed a minimum of a "Level 3" incident and investigated accordingly.

During the recertification Porcupine recorded a total of 20 incidents that involved cyanide with the majority being small spills/releases that were easily controlled or evacuation alarms due to high HCN somewhere in the process facility. None of these incidents was considered severe

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and the highest was rated as a Moderate impact. Each incident has appropriate investigations, ratings, and corrective actions associated with it. Several incident investigation reports for incidents (both involving cyanide and not involving cyanide) were reviewed. The investigation reports were found to be detailed and complete and detailed corrective actions to avoid similar incidents in the future.

6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

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

Summarize the basis for this Finding/Deficiencies Identified:

Porcupine has oxygen, resuscitators, and cyanide antidote kits available in the Emergency Response Decontamination room next to the Assay Lab and near the cyanide offload area as well as in the nurses station located in the Administration building. Cyanide antidote kits kept onsite are the Cyanokit and contain all necessary supplies to administer the antidote. Only the nurse on site can administer the Cyanokit. Prior to any work on concentrated cyanide systems being performed onsite workers must contact and confirm that a nurse is on site and will be for the duration of the work. Basic first aid supplies are generally located in the same areas as the Cyanokits and additional supplies are available on emergency response vehicles.


All employees carry radios which can be used in case of emergency for communication. All emergency response personnel also have access to a cell phone app which can be used to monitor an emergency and communicate during the emergency when necessary.

Cyanokits are sealed with plastic seals either on the zippers of the bag the cyanokit is stored in or on the cabinet the kits are stored in. All cyanokits are stored in temperature-controlled areas within the manufacturers recommended storage temperature range. Cyanokits are inspected monthly by the nurse on site and the emergency response coordinator.

All other emergency response equipment is inspected on at least a monthly basis, but usually on a weekly basis by the emergency response coordinator. The inspection form includes frequency and specifics around what the inspector should be looking for.

Porcupine has developed and maintained PGM-PLN-ALL-SAF-0001 "Emergency Preparedness and Response Plan" (ERP) which covers general emergency response plans and procedures for the site and includes several general plans for cyanide related incidents and facilities. The site has also developed PGM-PLN-ALL-SAF-002 "Emergency Response Plan Cyanide Specific Emergencies" which contains more specific plans and procedures for responding to cyanide

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specific emergencies. Both plans contain procedures for several potential emergencies and detail the protocols that should be used during the emergency such as: equipment needed, roles and responsibilities, spill response, fire response, first aid measures, recovery, and decontamination of the scene.

Porcupine has developed several procedures for emergency response personnel to respond to and treat cyanide exposures in conjunction with their medical director. These include Oxygen Therapy, Exposure to Toxic Gas/Fumes, Administration of Cyanokit, First aid for Cyanide Poisoning, and Cyanide Response Procedure. These procedures are all directed toward trained medical personnel and are periodically reviewed by on-site personnel as well as the area medical director. The Cyanide Response Procedure covers the responses for specific exposure routes including inhalation, ingestion, and skin/eye contamination.

To provide first aid and medical assistance to workers exposed to cyanide, Porcupine has one onsite nurses station. The nurses station is equipped with basic and advanced first aid supplies, a Cyanokit, and oxygen. The station is located in the Administration building and is staffed during dayshift on the weekdays.


First aid emergency response equipment includes an emergency response truck that is equipped with self-contained breathing apparatuses (SCBAs), emergency decontamination, and other rescue/recovery gear. The emergency response coordinator's truck also contains first aid/rescue equipment that can be utilized until the larger response truck arrives. Porcupine is also located close (approximately 15-minute drive) to the nearby town of Timmins and would request additional equipment or aid from the town as needed.

Porcupine maintains a list of active emergency response personnel and their skill level/training. The site also requires that all supervisors take a basic first aid training and offers the training monthly to all employees as well.

PGM-PLN-ML-SAF-0002 "Cyanide Specific Emergencies" contains sections detailing decontamination and transportation of workers exposed to cyanide. The site cannot transport workers itself and would call the local ambulance service to site. Site teams would thoroughly decontaminate the patient prior to transferring to the ambulance service. The ambulance service keeps a cyanide antidote kit on hand for their use and the Porcupine site would also send an antidote kit with the patient as a backup. Further transportation of the patient after they leave the site would be managed by local emergency services as needed.

Porcupine has informed local emergency services of the potential for cyanide exposure through several methods including: having the Chief of Staff of the local hospital review and provide comments on all medical plans/procedures, including the local Fire Chief in the review of all emergency response plans and procedures, and involving both entities as well as other external stakeholders in mock emergency response drills.

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

Standards of Practice

7.1 Prepare detailed emergency response plans for potential cyanide releases.

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

Describe the basis for the Finding/Deficiencies Identified:

Porcupine has developed three main plans/procedures to address potential cyanide incidents.

PGM-PLN-ALL-SAF-0001 “Emergency Preparedness and Response Plan” address all general emergencies on the site and defines the procedures to be followed in difference circumstances (Fire, spill, severe weather, etc.) and has a section to address both cyanide specific emergencies and tailings specific emergencies. The document also addresses roles and responsibilities for all potentially involved parties.

PGM-PLN-ALL-SAF-0002 “Emergency Response Plan Cyanide Specific Emergencies” addresses cyanide specific emergencies that may occur on site during transportation, offload, storage, and use. The plan includes equipment needed to respond to a cyanide related emergency, roles and responsibilities of involved parties, first aid measures for exposure, patient transportation, decontamination of patients and the scene, and recovery from the incident.

PGM-PRO-DOM-ML-0053 “Cyanide Response Procedure” contains a lot of the same information as the previously mentioned plans, but also contains information specific to the processing facilities such as evacuation and initiating the emergency response plan.

All three procedures were reviewed and found to be up to date and contain appropriate information for the site and other stakeholders to respond to emergencies. The procedures were reviewed and updated twice during the audit period (2021 and 2023).

“Operations, Maintenance and Surveillance Manual No. 6 Tailings Management Area” and PGM-PLN-ML-SAF-003 describe the monitoring of the TMA as well as the emergency response procedures should a failure of the facility occur. Porcupine does not have any heap leach facilities.

The sodium cyanide supplier for Porcupine is Cyanco. Agreements between Porcupine and Cyanco are in place, whereby these organizations and their sub-contractors are responsible for

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shipping cyanide to site. This responsibility extends to consideration of transport routes, storage and packaging, the condition of transport vehicles and response in the event of an emergency or release during transport. In the event of an incident involving cyanide transport near site, Cyanco may request assistance from the Porcupine Emergency Response Team, however the team would need to obtain permission for site management to respond to an emergency located off-site.

Porcupine has several ancillary procedures that are referenced in the general emergency response plan and the cyanide specific emergency response plan. Based on the level of severity of the situation, personnel are made aware of the level of evacuation zone that should be maintained. PGM-PRO-DOM-ML-0020 "Mill Evacuation Protocol" covers the evacuation of the mill and process areas. PGM-PLN-ML-SAF-003 "Porcupine No. 6 Tailings Management Area (TMA) Emergency Response Plan (ERP)" covers potential evacuation of the public in the event of a failure of the TMA in coordination with the City of Timmins Emergency Command.

Porcupine has developed several procedures for emergency response personnel to respond to and treat cyanide exposures in conjunction with their medical director. These include Oxygen Therapy, Exposure to Toxic Gas/Fumes, Administration of Cyanokit, First aid for Cyanide Poisoning. These procedures are all directed toward trained medical personnel and are periodically reviewed by on-site personnel as well as the area medical director.

7.2 Involve site personnel and stakeholders in the planning process.


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

Describe the basis for the Finding/Deficiencies Identified:

Porcupine solicits the input of its workforce in their emergency response planning documents. Mechanisms used by the operation to obtain input from workers include: post incident debriefs, the daily pre-work meetings/inspections, cyanide pre-work meetings, and the mock scenario debriefings. Interviews with site personnel by the auditor confirmed workers have the opportunity to provide feedback on the cyanide emergency response process.

During recent mock cyanide incident debriefings, Porcupine has involved external stakeholders including the City of Timmins Emergency Management personnel as well as City officials. The Fire Chief (who would also act as an incident commander in an emergency) for the City of Timmins participates in reviews of the Emergency Response Plans and signs off on portions of the plan that pertain to outside resources. Evidence of these reviews and sign offs were provided to the auditor. Porcupine also involves the Chief of Staff/Medical Director for the Timmins Hospital in developing protocols for treating and transporting patients exposed to cyanide.

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Porcupine has on-site capabilities for dealing with possible cyanide related incident scenarios and will take full responsibility for response to a cyanide release within the facility. Porcupine has also engaged with offsite medical facilities in Timmins regarding the potential to treat patients that have been exposed to cyanide.

Porcupine meets with community members and leaders in of the surrounding communities and First Nations on a regular basis to provide updates on site operation and projects. These meetings provide a venue for the site to communicate the risks associated with accidental cyanide releases.

Porcupine has also engaged the City of Timmins in mock emergency response drills that have included components of cyanide exposure or release. The site has worked with the City to improve both the site's and the city's response plans and procedures.

Porcupine's Emergency Response plan has sections that designates roles and responsibilities of external entities that may need to assist in the event of an emergency. These include the City of Timmins Emergency Management, City of Timmins Hospital, and City of Timmins Fire. Porcupine has also contracted with a third-party contractor for any hazardous material clean-up and disposal that may be needed during and after an emergency. External stakeholders that have responsibility in the Emergency Response Plan are engaged each time the Plan is updated and revised and must review and sign off on their relevant sections of the Plan.


7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.

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

Describe the basis for the Finding/Deficiencies Identified:

The Emergency Preparedness and Response Plan has roles and responsibilities defined for various persons that may be involved in an emergency response including supporting roles should the incident require. PGM-PLN-ALL-SAF-0001 "Emergency Preparedness and Response Plan" includes an Incident Commander position that will oversee an incident. The plan also indicates an Emergency Response Specialist who with liaise with the incident commander and be responsible for making arrangements to have any required resources prepared. The Emergency Response Specialist designates their own back-up should they be unavailable to respond to an emergency. Further responsibilities are delegated as needed based on Emergency Response Team (ERT) members on-site during the incident.

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The Emergency Preparedness and Response Plan includes roles and responsibilities for external responders and includes provisions to escort them onsite to an emergency if necessary. The site maintains open lines of communication with external responders and includes them on updates to the Plan as well as in mock drills and planning scenarios.

External entities identified within the Emergency Preparedness and Response Plan have been contacted and are aware of their responsibilities. Porcupine obtains the review and sign-off of the City of Timmins Fire Chief who would coordinate any emergency response efforts from the City of Timmins.

The Emergency Response Specialist maintains a list of all emergency response team (ERT) and their level of training. Contact information for ERT team members and site management is kept in an emergency response app that can be utilized during an emergency to communicate with the ERT. The Emergency Preparedness and Response Plan details the training that must be taken by ERT members including: SCBA usage, First Aid, Rope Rescue, and Confined Space Rescue.

The Emergency Preparedness and Response Plan contains information on the emergency response equipment on site as well as the location of the equipment. The type of rescue equipment on each piece of response equipment is also listed. The Porcupine Emergency Response Specialist is responsible for inspecting and maintaining emergency response equipment in a 'ready' state. The specialist maintains a checklist and records of the inspections of all emergency response equipment at the site.

7.4 Develop procedures for internal and external emergency notification and reporting.


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

Describe the basis for the Finding/Deficiencies Identified:

The Emergency Preparedness and Response plan contains procedures for notifying Porcupine personnel of an emergency and activating emergency response from external resources as necessary. The Emergency Preparedness and Response plan also contains procedures for notifying external entities and communities of a cyanide related incident. Newmont's Crisis Response procedures also designates individuals on the crisis response team that are to communicate with the media and local communities.

The "HS&S and S&ER Event Reporting & Investigation Procedure" contains event reporting procedures and timelines from the initial incident through the post-incident investigation. The procedures and timelines include notification to applicable regulatory agencies and assign the

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responsibility of ensuring timely notification to regulatory agencies to appropriate persons on the investigation team. Site management is responsible for overseeing the investigation and ensuring that all timelines for the investigation and response are met. The “HS&S and S&ER Event Reporting & Investigation Procedure” also includes provisions to notify ICMI of any significant cyanide incident and contains ICMI’s definition of a significant incident. Porcupine did not have any significant cyanide incidents during the audit period.

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

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

Describe the basis for the Finding/Deficiencies Identified:


PGM-PLN-ALL-ENV-0001 “Spill Prevention and Contingency Plan” contains the steps and procedures used to prevent, respond to, and clean up spills including the potential recovery of or neutralization of solutions and solids. Cyanide contaminated solids are disposed of in the Tailings Management Area if practical. Porcupine also contracts with a third-party contractor that specializes in hazardous waste clean-up and disposal if necessary. All contaminated soils or materials determined to be contaminated after sampling are to be excavated and disposed of within the tailings facility. Material not disposed of in the tailings facility is to be stored in a bag lined barrel or drum, labeled with contents, and disposed of by an appropriate third party.

Porcupine utilizes the municipal water system from the city of Timmins. The potable water distribution system on site is isolated from other process streams which minimizes the risk of potential contamination of the system. Bottled water is also readily available at the site should the municipal water system be disrupted in any way. The site also maintains several portable eyewash stations that can be used if the municipal water system is disrupted. The site has determined that cyanide release does not have a reasonable potential to adversely impact the municipal water supply.

Section 4.5 “Liquid Spill” of the Cyanide Specific Emergencies Plan specifically states that Sodium Hypochlorite (bleach), Ferrous Sulphate, or Hydrogen Peroxide are not to be used in the event of a cyanide spill.

Porcupine has established monitoring measures for affected areas in case of a cyanide spill under Section 11 “Cyanide Sampling and Disposal Plan” of the Cyanide Specific Emergencies Plan. This section describes the methodologies for developing a sampling plan and some of the factors that must be considered (precipitation) when developing the plan. It also goes into detail

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on different methodologies used in different areas (surface water, soil). The following are the cyanide parameters and methodology used: Total Cyanide <0.4 mg/L, WAD Cyanide <0.2 mg/L.

7.6 Periodically evaluate response procedures and capabilities and revise them as needed.

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

Describe the basis for the Finding/Deficiencies Identified:

PGM-PLN-ALL-SAF-0001 "Emergency Preparedness and Response Plan" and PGM-PLN-ALL-SAF-0002 "Cyanide Specific Emergencies" are reviewed on a an annual basis. A review of the revision history contained within the documents shows that reviews and updates are consistent.

Porcupine conducts annual mock drills based on likely release/exposure scenarios to test the response procedure, and incorporates lessons learned from the drills into its response planning. Records of these drills are kept with the Safety Department and were reviewed as part of the evidence. Documentation includes presentations on the incident used during the mock drill, lessons learned/debriefs from the drills, and mock incident reports that were prepared as part of the drill.


Porcupine also conducted a mock drill that included several external stakeholders. The drill was meant to simulate a breach in the tailings impoundment that would eventually inundate the nearby community. This drill was conducted in conjunction with the City of Timmins Emergency Response Manager and team and was used to evaluate both the cooperation between the site emergency response and the city emergency response as well as the city's ability to respond to an emergency of that magnitude.

There is a debrief conducted after each mock drill during which participants address deficiencies and update plans and procedures as needed. During the investigation process following incident there are lessons learned that are discussed in the investigation reports and assigned to people and/or departments for implementation. The auditor reviewed several examples of these documents and their follow-up ensuring that the lessons learned were incorporated into procedures or plans as appropriate.

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

Standards of Practice

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8.1 Train workers to understand the hazards associated with cyanide use.

- The operation is: in full compliance
 in substantial compliance
 not in compliance with Standard of Practice 8.1

Describe the basis for the Finding/Deficiencies Identified:

All personnel and contractors working for Porcupine receive formal training on cyanide awareness according to their position and tasks. Porcupine requires that all individuals working in the process area, including contractors and visitors, receive the Mine Site Orientation and that individuals accessing the Process Plant take an additional Mill Induction course. The Mill Training Specialist maintains a training matrix in excel for employees that details which training should be received depending on their job description and which training has been completed and on what date. The training matrix includes personnel that could potentially be exposed to cyanide. Contractors receive the same training as Porcupine personnel however this training is conducted online through the Norcat system. The auditor verified the cyanide training records of several workers that were interviewed during the field audit and verified that in all cases they have shown proof of training in Cyanide and in their specific tasks.


Refresher training is conducted for all personnel and contractors that could be exposed to cyanide. For other workers with functions and roles that do not require to be in contact with cyanide, the mine provides short refresher courses that include some power point slides on cyanide hazards. The presentation regarding Safe use of CN, includes: transport, storage, handling, risks associated with cyanide, signs and symptoms of cyanide exposure, PPE required, emergency action plans, and information on the International Cyanide Management Code. Verification was done by interview with training, environmental and process personnel, and review of training records.

The auditor verified that training records, including refreshers and cyanide hazard training for Health, Safety, Environmental, Emergency Response, Supply Chain personnel, the process plant operators and contractors are retained based on regulatory requirements, in the form of hard copies and an electronic version stored. Training records identify the trainer, trainee, topics covered, date and sign off sheet. This requirement was verified through review of a sample of records covering the recertification period.

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

- The operation is: in full compliance
 in substantial compliance

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not in compliance with Standard of Practice 8.2

Describe the basis for the Finding/Deficiencies Identified:

All personnel in job positions including processing, leaching, tailings management, and maintenance, receive training on how to perform their assigned tasks with minimum risk to worker health and safety. The training department maintains an up to date excel matrix with job specific training requirements. Each Procedure requires a signoff from a competent trainer prior to conducting that task. Porcupine trains employees using a peer-to-peer training program. Trainers do Job Task Observations (JTOs) or critical control verifications prior to the JTOs on trainees as they are trained and perform tasks. Trainees must be observed a minimum number of times by a trainer before they are certified to perform the task without supervision. Trainers are voluntary and are required to be signed off on the training material for a minimum of 1 year prior to accepting a trainee. The Province of Ontario also requires common core standards in mineral processing for all operators that include general knowledge of various circuits that could be present in a milling facility. These training classes are built and conducted by Porcupine but must maintain the minimum standards set forth by Ontario.

Hard copies of all training records are available for every employee. The auditor randomly selected employee files and reviewed the training records and documents for several employees including operators, supervisors, and maintenance personnel. The auditor verified records of written evaluation/test for various tasks during the audit period. Management and training personnel are required to perform a certain number of JTOs each week in which the procedures for tasks are reviewed and workers completing the tasks are observed to see if they possess the required knowledge or if the procedures need to be updated in any way.


Detailed lists are provided for the trainer and trainee to sign off on for each task and circuit. These lists incorporate cyanide management and awareness of where cyanide is being used in the processes. Checklists for the Utility and Leach/CIP operators were reviewed.

Refresher training is conducted to all personnel and contractors that could be exposed to Cyanide. For other workers with functions and roles that do not require to be in contact with cyanide, the mine provides short refresher courses that includes some power point slides on Cyanide hazards.

To evaluate the effectiveness of training related to cyanide, the training sessions periodically evaluate the knowledge of the employee to demonstrate understanding of the material. A certificate of completion is undertaken after signing the relevant standard operating procedure to indicate understanding.

Training records for Porcupine are retained in hardcopy by the Mill Training Specialist. Records include the name of the employee, who provided the training, what topics were covered, and that the employee demonstrated sufficient knowledge in every topic to be considered trained. The

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auditor verified records of several different workers, finding in all cases records of procedure training.

8.3 Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

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

Describe the basis for the Finding/Deficiencies Identified:

The auditor verified that plant operators and maintenance personnel responsible for cyanide unloading, processing, and maintenance are trained in emergency procedures including scene size up, control of the scene and release (if safe), initiating the emergency response plan, and evacuating the area if necessary. Works are also trained to identify the signs and symptoms of cyanide poisoning. Operators were interviewed and demonstrated good awareness of what actions are to be taken in the event of cyanide release.


The Emergency Response Specialist, nurses and emergency response team (ERT) members are all trained in the Emergency Response Plan according to an annual training program and schedule which includes cyanide related emergency response and basic hazardous material training. The auditor verified the latest training matrix which compiles all the most recent trainings for ERT members.

All the Emergency Response Team members are all made up of supervisors and workers who have voluntarily committed to the program and trained in the use of necessary response equipment as self-contained breathing apparatus and suits, decontamination equipment, extraction equipment and firefighting equipment. Emergency responders are available on all shifts. Knowledge and competence level is tested through tests, field practice and drills.

Porcupine includes external responders such as the City of Timmins Fire Chief and Hospital Chief of Staff in its emergency response plan and has ensured that external responders are familiar with the risks associated with cyanide and cyanide management. This is done through coordinated mock drills and requiring signoff from external responders on the Emergency Response Plan. Records of emergency response training are retained on files by the Emergency Response Specialist.

The auditor verified training of ERT members conducted during the audit period, with topics including cyanide response management, first aid, use of portable HCN monitors, equipment decontamination, spill remediation, and others. In all cases, records have names of the employee, the date of training, the topics covered. Refresher training for cyanide events is

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conducted as part of the site training and emergency drills program. Training requirements from the training matrix are routinely monitored and refresher training is scheduled as required.

9. DIALOGUE AND DISCLOSURE: Engage in public consultation and disclosure.

Standards of Practice

9.1 Promote dialogue with stakeholders regarding cyanide management and responsibly address identified concerns.

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


Describe the basis for the Finding/Deficiencies Identified:

Porcupine maintains several avenues where stakeholders and the community can find or communicate with the site. The Hollinger Project Community Advisory Committee (HPCAC) is a group that includes regulators, cities, and residents that are interested in the Hollinger project and site in general. There are regular meetings including concerns and complaints that are passed along to the Porcupine site for resolution. The Indigenous Resource Development Agreement committee is made up of representatives of each of the four signatory communities in the area. The committee meets monthly, and the opportunity exists for stakeholders to present issues or concerns. The site presents presentations on spills/releases to the committee regularly including action plans to prevent the release from occurring again. Indigenous Advisory Committee in partnership with the city of Timmins serves as a venue for stakeholders to engage with the businesses in the area. The site maintains a relationship with the Friends of the Porcupine River Watershed to discuss any issues related to the Porcupine River Watershed as it relates to mining activities. The site hosts regular open houses with the First Nations communities in the area

Each of these venues would be appropriate for the site to engage community stakeholders on cyanide related information as appropriate. The auditors reviewed several examples of reports, and communications with community stakeholders.

In addition, the site prepares an annual fact sheet which contains information about the operation and water management for the area. An online community feedback for is available on Porcupine's website <https://operations.newmont.com/north-america/porcupine-canada> where community members can submit issues or concerns to the site. Community members can also engage the site via phone or email as necessary. Any contact received from the community is logged into a tracking spreadsheet kept by the External Relationships department and,

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depending on the nature of the complaint, entered the company's Enablon tracking system as well. Complaints received are followed up by the External Relations department with assistance from other departments as appropriate. Prior to closing out any complaints or contacts the site reaches out to the individual who made the original contact to solicit feedback.

Releases/spills containing cyanide are reported via PGM-FRM-ALL-ENV-0015 "External Environmental Incident Form" as determined by provincial and federal regulations. This form is provided to regulatory agencies and is also made available to the surrounding communities. The report contains information on the spill, the response, and the corrective actions going forward.

9.2 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

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


Describe the basis for the Finding/Deficiencies Identified:

Written descriptions of mining and processing activities are available through several avenues including on the Porcupine website (<https://www.newmont.com/operations-and-projects/global-presence/north-america/porcupine-canada/default.aspx>), in presentation to community stakeholders, in the Annual Sustainability Reports generated by Newmont, and in environment regulatory reports that can be readily accessed or supplied by/to the community. If specific requests are made by the community regarding information these requests would be entered into the tracking spreadsheet kept by the External Relations department and followed through on with assistance from other departments as necessary. Porcupine also initiates dialogue with its stakeholders in several ways including: the Hollinger Project Community Advisory Committee, the Indigenous Resource Development Agreement committee, the Indigenous Advisory Committee, the Friends of the Porcupine River Watershed, and regular open houses with First Nations communities in the area. The Annual Sustainability Reports generated by Newmont contains general information on environmental performance for the company as well as cyanide management.

Though the majority of the surrounding population are literate, Porcupine provides several presentations to various stakeholder groups on operations, environmental performance, and management plans.

Porcupine makes publicly available information on issues and exposures, as necessary, through public statements, regulatory reports, and the Annual Sustainability Report.

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During the recertification period, Porcupine has not experienced any major incidents involving cyanide that resulted in hospitalization, fatality, releases that left the mine site property, incidents resulting in significant adverse effects to health or environment, or any exceedances of applicable cyanide limits.


PGM-PLN-ALL-SAF-0001 “Emergency Preparedness and Response Plan” contains general information and procedures to be followed in the event of an emergency on site. The document describes the various classifications and levels of an emergency and what resources/teams are needed to manage the emergency. The plan includes provisions for communicating information about an emergency to the community and other stakeholders. PGM-PLN-ML-SAF-0002 “Cyanide Specific Emergencies” addresses procedures used in cyanide specific emergencies including communication to stakeholders.

Porcupine is required to report to all incidents to the Canadian authorities. This would include severe incidents involving hospitalization or fatalities as well as any release of hazardous materials resulting in potential adverse effects to the environment, to safety and health of workers or communities.

Spills/releases are reported to regulatory agencies via PGM-FRM-ALL-ENV-0015 “External Environmental Incident Form” as required by provincial and federal regulation. This form is also made available to stakeholders and the surrounding communities. Examples of this form were reviewed by the auditor.

Information regarding any spills/releases on site are communicated to the Indigenous Resource Development Agreement committee on a regular basis via presentation compiled by the site. This presentation is also available to any other stakeholders if requested.

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