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PT J Resources

International Cyanide Management Code - Recertification Audit Bakan Gold Mine

Summary Audit Report

November 2023

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International Cyanide Management Code - Recertification Audit Bakan Gold Mine Summary Audit Report

PT J Resources

WSP
Lvl 3, Mia Yellagonga Tower 2, 5 Spring St
Perth WA 6000
PO Box 7181
Cloisters Square WA 6850

Tel: +61 8 9489 9700
Fax: +61 8 9489 9777
wsp.com

Rev	Date	Details
A	1/11/2023	Summary Audit Report

	Name	Date	Signature
Prepared by:	R Seebach	1/11/2023	
Reviewed & Approved by:	F Nijman	1/11/2023	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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1 Summary Audit Report

1.1 For Operational Gold Mines

Name of Mine:	PT J Resources Bolaang Mongondow (JRBM)
Name of Mine Owner:	PT J Resources Nusantara
Name of Mine Operator:	PT J Resources Nusantara
Name of Responsible Manager:	Demang Rangga Brata
Address:	Jln. Jhony Suhodo No. 41, Lingkungan IV, Kel. Kotabangun Kotamobagu Timur - 95712
State/Province:	Sulawesi Utara
Country:	Indonesia
Telephone:	+62 085 7210 24871
Email:	demang.rangga@jresources.com

1.2 Operation Location Detail and Description

1.2.1 PT J Resources Nusantara

PT J Resources Nusantara (JRN) as a subsidiary of PT J Resources Asia Pasifik Tbk. (J Resources) is an Indonesian owned intermediate gold producer with production capacity of approximately 250,000 ounces per annum.

1.2.2 PT J Resources Bolaang Mongondow Gold Mine (JRBM)

PT J Resources Bolaang Mongondow (JRBM) is a subsidiary of JRN and holds a Contract of Work (CoW) covering 58 150 ha in two separate land blocks; the Bakan Block and North Lanut Block, both in North Sulawesi Province, Indonesia. The Bakan Block contains the Bakan gold mine (Bakan) that has been in production since December 2013.

The operation is located in North Sulawesi, approximately 5 km southeast from the nearest community Bakan and approximately 18 km South from the larger city of Kotamabago.

Bakan is an open pit mine that uses a dynamic heap leach approach suitable for high sulphidation, epithermal, low-grade oxide ores. Solid cyanide is delivered to site in plastic bags within wooden boxes. The processing method uses pregnant solution absorption though the method of Ion Exchange Resin in the Column. The detoxification process involves the Sulphidation, Acidification, Recycle and Thickening (SART) method by using Na_2S, H_2O_2 (for cyanide destruction), H_2SO_4 and flocculant. JRBM has reported that the operation has a production capacity of 4 000 000 tonnes per annum. Subsequent modifications to the plant since the last audit include the installation of an additional four detoxification vessels between September 2021 and April 2022.

1.3 Auditors Findings

The JRBM Gold Mine is:

☒ in full compliance with

☐ in substantial compliance with

☐ not in compliance with

The International Cyanide Management Code

No significant cyanide incidents or cyanide exposure and releases were noted as occurring during the audit period. This operation has not experienced any compliance issues during the previous three-year audit cycle.

1.4 Auditor Information

Audit Company: WSP Australia Pty Ltd (WSP)

Audit Team Leader: Rudi Seebach (ICMI Lead Auditor)

Email: rudi.seebach@wsp.com

Name and Signature of other Auditors:

Table 1.1 Name and Signature of Other Auditors

Name	Position	Signature	Date
Rudi Seebach	ICMI Lead Auditor		1/11/2023
Frank Nijman	ICMI Technical Specialist		1/11/2023

The Recertification Audit site visit was conducted over 2 days between 18 and 19 May 2023.

1.5 Auditor Attestation

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 (ICMI) and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the Recertification Audit. I further attest that the Recertification Audit was conducted in a professional manner in accordance with the International Cyanide Management Code's *Mining Operations Verification Protocol* (June 2021) and using standard and accepted practices for health, safety, and environmental audits.

2 Principles and Standards of Practice

2.1 Principle 1 – Production and Purchase

2.1.1 Standard of Practice 1.1

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 1.1
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 1.1, requiring the operation purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

The invoices and delivery records for sodium cyanide retained by JRBM for the audit period demonstrate that all sodium cyanide was purchased from Orica Australia Pty Ltd (Orica) Yarwun through this period. Orica Yarwun was re-certified as being fully compliant with the Code on 17/09/2020.

2.2 Principle 2 – Transportation

2.2.1 Standard 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.

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

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 2.1 requiring that cyanide transporters implement appropriate emergency response plans and capabilities and employ adequate measures for cyanide management.

JRBM's contract with its cyanide producer and transporter requires that the transportation of cyanide be certified under the Code. Cyanide is transported from the Orica Production facility in Yarwun Australia.

The operation has chain of custody records identifying all elements of the supply chain (producer and transporter) that handle the cyanide brought to its site. Chain of custody documents were reviewed, Orica supply chain transports from Gladstone Queensland to the Port of Surabaya, then by PT Energy Logistics to the mine. Both of these supply chains are certified under the ICMI Transportation code.

2.3 Principle 3 – Handling and Storage

2.3.1 Standard of Practice 3.1

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 3.1
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.1; design and construct unloading, storage and mixing facilities consistent with sound accepted engineering practices, quality control/quality assurance procedures, spill prevention, and spill containment measures.

Facilities for unloading and storing cyanide have been designed and constructed in accordance with sound and accepted engineering practices for these facilities.

Unloading and storage areas are located away from people and surface waters. Additionally, the operation is located approximately 5 km from the nearest community Bakan and approximately 18 km south from the larger city of Kotamabago. Based on these distances, the operation has not considered it necessary to evaluate the potential for releases to surface water and/or human exposure.

No liquid cyanide is unloaded at JRBM.

There are systems in place to prevent overfilling of mixing tanks. JRBM uses both automated and manual level indication on the cyanide mixing tank.

The pneumatic valve is inspected as part of the Cyanide Mixing Facility Inspection Form. This form is completed prior to a mixing event.

The Fix Plant Department carry out regulator inspections confirming the automated level to the manual level to verify both are reading accurately. The level sensors at all facilities are inspected on a six-monthly basis. The maintenance is managed through its maintenance management system (SAP). A review of records confirmed the sensors have been maintained during the audit period.

The secondary containments for cyanide storage and mixing tanks are constructed of materials that provide a competent barrier to leakage. This was confirmed during the site inspection and review of as-built drawings.

Site inspection confirmed that the cyanide mixing tanks and warehouse facilities are located on a concrete surface that can prevent seepage to the subsurface. The mixing tanks and warehouse have been designed and constructed to sit on concrete slab footings. The cyanide boxes are stored under a roof, off the ground on pallets within a locked warehouse that prevents contact with water.

The mixing tank is installed in the roofed plant area that is open on all four sides to allow for ventilation and is located approximately 50 m away from normally occupied areas. Solid cyanide is contained in the delivery packaging (plastic bags within wooden boxes). The boxes are stored within a locked warehouse that is vented through manual extractor fans on the roof.

The cyanide mixing tank is located within a greater fenced area. A locked, manned gate prevents unauthorised access to the area. The cyanide storage warehouse is locked to prevent unauthorised access. It is also located in fenced area which is locked and manned by security personnel to prevent access. Access to JRMB is prevented by its security checks and manned entrances.

The cyanide mixing tank is bunded separately from all other reagents preventing mixing with incompatible materials. The cyanide storage warehouse is also bunded and enclosed to preventing mixing with incompatible materials. It is a dedicated cyanide storage area.

2.3.2 Standard of Practice 3.2

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 3.2
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 3.2; operate unloading storage and mixing facilities using inspections, preventative maintenance, and contingency plans to prevent or contain releases and control and respond to worker exposures.

Procedures are in place and implemented to prevent empty cyanide containers from being used for any purpose other than holding cyanide. Plastic bags are to be rinsed with water three times. The effluent is collected in the mixing tank bund area and into the sump which is pumped back into the tank.

Polishing water is tested after the third rinse to check cyanide levels are below 0.5 ppm prior to placing bags back into the empty cyanide boxes for transportation to the Temporary Storage Place (TSP). All used boxes are then collected and transported to the waste rock dump by dump. Empty cyanide bags are disposed at an offsite hazardous waste facility by a waste contractor.

Cyanide boxes are not returned to the vendor.

The main mixing procedure is the Task Procedure – Mixing Sodium Cyanide this procedure details the tasks involved with each step and how to manage hazards. They detail the steps necessary to transport cyanide boxes and mix cyanide solution; and the operation of all valves and couplings associated with mixing the solid cyanide and transferring the solution safely and correctly.

A three monthly inspection is undertaken on equipment in the Processing plant. This includes pumps, mixing agitators, electric motors, air compressors, crane hosts, valves and cyanide facility couplings. Working Instruction – Cyanide Flow Valve Replacement – Cyanide Area is a procedure which details cyanide flow valve replacement activities. The Fixed Plant Supervisor and Process Plant Supervisor undertake trials of the valve replacement prior to the valve being operated. The replacement is recorded in the fixed plant maintenance database.

Task Procedures have been developed covering the transport of the containers within site, de-stuffing of the container and mixing and storing cyanide.

The main transport procedures involve mobilization from warehouse to plant process using forklift. The procedures detail the tasks involved with each step and how to manage hazards. Only one box is transported at a time with the forklift from the warehouse to the mixing area. Cyanide boxes are stacked three high within locked cyanide storage warehouse.

There are specific procedures for spills to the environment detailed in the Cyanide Emergency Response Plan (CERP) to inform timely and safe clean up of spills. Task procedures list the required measures and personal protective equipment (PPE) requirements for each task. The procedures covers timely cleanup of solid and/or liquid cyanide spills during mixing operations and spills or release into secondary containment.

The Auditor observed cyanide box mobilisation and mixing onsite, and it was confirmed that personnel used PPE correctly and that there was always a second Operator observing who was removed from the mixing; additionally, the Area Supervisor was further away in the “safe area” conducting planned task observations. There was always a second spotter during transport also. Dye is added by the manufacturer. Infields evidence was sighted. The Cyanide Mixing Task

Procedure indicates that the Process Supervisor is involved in supervising and observing cyanide mixing activities from a safe area.

2.4 Principle 4 – Operation

2.4.1 Standard of Practice 4.1

Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

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

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.1; implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative maintenance procedures.

Written management and operating plans or procedures have been developed for areas of the operation that involve cyanide solutions greater than 0.5 mg/L weak acid dissociable (WAD) cyanide.

J Resources has developed Corporate Standard Operating Procedures for key cyanide related tasks. JRBM has then developed site specific Standard Operating Procedures and Task Procedures for common tasks and uses Job Safety Analysis (JSA) for assessing and documenting steps and controls for non-routine activities. The JSA process is also used as an assessment tool to evaluate low level changes in the management of change process.

Task Procedures have been developed for cyanide related activities from transport of the product, operation, mining, management of the pads (ploughing, trenching), decontamination and contingency planning. The Task Procedures detail the hazards, PPE and actions to be taken to undertake the task in a safe manner and prevent exposure.

The operation has plans and procedures that identify the assumptions and parameters on which the facility designs were based and any applicable regulatory requirements to prevent or control cyanide releases and exposures consistent with applicable requirements. There are no surface water diversions at the Operation.

The internal memo *Pengaturan Dosing Sianida Di Leachpad* is a key document that lists the blending strategy for the ore, irrigation rates for each ore type; and pH and cyanide ppm requirements for each pond. This memo was issued by the Process Manager to all process plant operators.

The operation has plans or procedures that describe the standard practices necessary for the safe and environmentally sound operation of the facility including the specific measures needed for compliance with the Code, such as water management, inspections and preventative maintenance activities. Key Corporate standard operating procedures (SOPs) and JRBM specific Task Procedures and Work Instructions outline the specific measures for Code compliance including operation of the facility and inspections.

All process and pond pumps, pipes, valves and tanks are registered within a yearly Preventative Maintenance Spreadsheet. Specific maintenance tasks and associated frequencies have been assigned for each item. The tasks and frequencies were initially set by the Maintenance Planners using the recommendations contained within the equipment manuals. The tasks and frequencies were later adjusted based on observations made when conducting the tasks as well as experience gained from Work Orders raised from inspections.

The Change Management procedure outlines the principles and process for use at JRBM to manage proposed changes on site. Once the requirement for Change Management is identified. The proposed changes must go through the Approval Sheet process. This process incudes objectives of new design; hazard identification, risk assessment and controls;

Review by key departments; figures and diagrams of change. Approved projects are recorded on the Management of Change Register

The Emergency Response Plan (ERP) for the site also provides detailed procedures with regards to upsets involving cyanide details procedures for situations related to upsets in the operation of the facility. The Decommissioning Plan details the process of cessation of operations and decontamination. The Environmental Manager, who has a key role in crisis management and emergency response, advised that in the case of the temporary closure or cessation of processing the decommissioning plan would be referred to. Site procedures also contain contingency information. During long-term shut-down or cessation of operation the risks of cyanide would be managed based on the Cyanide Facilities Decommissioning Plan. This plan addresses the decontamination of equipment, management of cyanide on site (both solid and liquid) as well as activities for the long-term protection of ground and/or surface water.

The operation does inspect cyanide facilities on an established frequency sufficient to assure and document that they are functioning within design parameters. All process and pond pumps, pipes, valves and tanks are registered within yearly Preventative Maintenance Spreadsheets (mechanical and electrical). Specific maintenance tasks and associated frequencies have been assigned for each item. Frequencies are daily, weekly, monthly and 3-monthly.

The inspections are guided by inspection sheets that prompt the inspector to check specific items on specific pumps, valves, pipes and tanks within the area being inspected. Daily checks are observation only for any obvious faults by the operators. Monthly and 3-monthly are completed by electrical and mechanical operators combined. Any observations requiring follow up actions are raised on Work Orders.

There are also inspection checks completed for each shift. Should there be an issue identified, it is either immediately corrected or a Work Order is raised. Tanks holding cyanide solutions are inspected for structural integrity and signs of corrosion and leakage. JRBM has adopted relevant Preventative Inspection frequencies all tanks containing cyanide solution. In addition to scheduled maintenance inspections, the body of the mixing tank is checked as part of routine operator inspections.

JRBM inspects secondary containments for their integrity, the presence of fluids and their available capacity, and to ensure that any drains are closed to prevent accidental releases to the environment. This is conducted and recorded as part of routine operator checks.

A manual leak detection system is installed under every pond containing cyanide solution. Included within the daily operator inspection sheets is the requirement check for leaks of the pond liner. Groundwater monitoring bores are installed around the perimeter of the ponds. These are monitored every quarterly.

Pumps, pipes, valves and tanks of key cyanide areas are listed on the relevant daily inspection sheets. These are conducted and recorded three times a shift as part of routine operator checks. Freeboards for the ponds are inspected on a daily basis at least once a shift to confirm that they are still within the design limits.

Inspections are documented, including the date of the inspection, the name of the inspector, and any observed deficiencies. The nature and date of corrective actions are also documented, and records are maintained. All documentation reviewed contained the name of the inspector, the reviewer of the inspection form, and the date of the inspection.

The check sheets and log sheets document deficiencies and include a description of the deficiency and immediate corrective action. Records are retained as hard copy. Examples were provided for the Auditors review.

Preventive maintenance programmes are implemented, and activities documented to ensure that equipment and devices function as necessary for safe cyanide management. JRBM has determined what equipment is critical in preventing releases and exposures and included it in its preventative maintenance and inspection schedules.

Excel schedules are used to track preventative maintenance activities. A review of preventative maintenance schedules of cyanide critical equipment confirmed that preventative maintenance inspection reports had been developed and scheduled for all cyanide critical equipment, including tanks holding Cyanide solutions, pumps etc. Records of maintenance were also reviewed.

JRBM has five backup generators in good condition. The generators are part of the operation's general inspection process as well as undergoing yearly work safety examination by a third party.

2.4.2 Standard of Practice 4.2

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.2
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.2: introduce management and operating systems to minimise cyanide use, thereby limiting concentrations of cyanide in mill tailings.

JRBM has implemented a program to determine the appropriate cyanide addition rates to the heap leach. They implemented the Cyanide Consumption Optimization program: daily monitoring to compare injection concentration to leach result (to optimize gold recovery versus cyanide use).

The geologists provide prediction of ore quantities and grade to plan the requirements for cyanide. The Senior Metallurgist confirmed that the original test work was completed in 2014 and in 2016, directing the management for each ore type. The additional leach test work for each ore type was recorded in excel spreadsheets.

The new test work revised dosing requirements and heap leach pad management. The revised measurements listed in the internal memorandum *Pengaturan dosing sianida di leachpad* (setting dosing cyanide in leach pad). This procedure lists the cyanide limits for each ore type (oxide, high grade and transition) at each leaching stage (primary, secondary and reploughing).

It also lists all the required cyanide and pH concentrations for each pond. This procedure was communicated by the internal memorandum, *Strategi pengaturan CN di leachpad* which provides operation strategies for setting cyanide doses in the leach pads for both Metallurgists and Operators.

JRBM has implemented the strategy to control its cyanide addition: Pengaturan dosing sianida di leachpad (Setting dosing cyanide in leach pad). This procedure lists the cyanide limits for each ore type (oxide, high grade and transition) at each leaching stage (primary, secondary and reploughing).

This procedure requires two-hour sampling from two hourly sampling of the pH and CN (ppm) as well as flow and totalizer at various locations. Locations include pumps, header tanks and individual cells. This checklist also records pond levels and cyanide tank levels. An example of dosing of Cyanide to the various cells and heap leach pads by the operations team was reviewed.

2.4.3 Standard of Practice 4.3

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

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

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.3; implement a comprehensive water management program to protect against unintentional releases.

The water balance has been developed based on the minimum and maximum levels of each pond determined through an assessment of pond volumes, allowing for an amount of freeboard applicable to the site conditions and management strategies. The water balance is probabilistic as there is inherent variability and uncertainty in the prediction of precipitation patterns.

The JRBM Water Balance considers the following inputs in a reasonable manner for the site setting:

a) Solution application rates applied to the heap leach. This is based on the current application rates determined by Senior Metallurgist and Process Plant Manager.

b) 100-year 24-hour storm event, calculated by hydrologist. 1 in 100-year average recurrence indicator (ARI) of 265 mm with the assumption of rain for 12 hours of 22.1 mm / h.

c) Precipitation data have been collected from site weather conditions stations since the operations commencement. Evaporation has not been included and due to the humid location is not a factor that would affect the water balance.

d) The ponds are constructed at a higher level to prevent runoff entering, except for the Surface Water Pond (SWP) which is designed to capture runoff.

e) Freezing and thawing conditions would not occur at this operation.

f) The model conservatively considers no other solution losses than evaporation.

g) It is designed for a worst-case scenario when there is no power and no detox facility. JRBM has four backup generators with a total capacity of 4,500kWh to operate the critical components at the cyanide facilities in the event of a power outage. The Process Manager advised that should there be a power failure, and the pumps fail, solution will flow through gravity into the SWP and then into the Polishing Pond as a second backup. Both ponds are lined.

h) Capacity for the detox system has been included. The Water Balance identifies when the Detox is required to be run and for what capacity.

The high-density polyethylene (HDPE) liner prevents interaction between groundwater and leach solutions. The facility does not have any tailings storage facilities.

JRBM has designed and operates their ponds with adequate freeboard based on the Water Balance and related calculations. JRBM has implemented procedures which incorporate inspection and monitoring activities to implement water balance and prevent overtopping of the ponds.

On the walls of the ponds there are markings showing low and high allowable levels. Every two hours during a shift the Operators visually inspect the level of the ponds which is reported to the Plant Supervisor. The Plant Supervisor includes the pond levels in the daily plant supervisor report. This was observed during the site inspection.

JRBM uses a site-specific rainfall gauge, both manual and automatic rain levels are recorded. The Senior Metallurgist confirmed that if significant changes in rain data is recorded the model will be revised and updated.

2.4.4 Standard of Practice 4.4

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM applies solution in a manner designed to prevent ponding and limit overspray. The Surface Water Pond and Polishing ponds are not netted as they contain <50 mg/L WAD cyanide. The site implemented a continued improvement program to reduce WAD CN in the leach pad by reducing the cyanide dosing and therefore reducing WAD CN in the ponds. Independent WAD CN test results confirmed WAD CN below 50 mg/L in the ponds.

JRBM can demonstrate that open waters do not exceed 50 mg/L WAD cyanide. The Surface Water Pond and Polishing ponds are not netted as they contain <50 mg/L WAD cyanide. The site implemented a continued improvement program to reduce WAD CN in the leach pad by reducing the cyanide dosing and therefore reducing WAD CN in the ponds. Independent WAD CN test results confirmed WAD CN below 50 mg/L on the ponds.

Maintaining a concentration of less than 50 mg/L WAD cyanide is observed to be preventing significant wildlife mortality. JRBM conducts daily inspection on cyanide facilities to inspect ponds condition including any wildlife. The Environmental Manager reported that no wildlife mortalities have been reported. Daily inspections for the audit period confirm that no wildlife mortalities.

JRBM applies solution in a manner designed to prevent ponding and limit overspray. The operation has developed an internal memorandum that details the strategies for both the metallurgist and operations to implement. Supporting this is Task Procedure – Transfer Cyanide to the HLP. This address actions to prevent ponding.

There was no significant ponding observed during the site visit. Ponding and overspray is checked as part of the daily check lists and recorded on the log sheets.

2.4.5 Standard of Practice 4.5

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.5
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.5; implement a comprehensive water management program to protect against unintentional releases.

Following the detox and Polishing process, water from the polishing pond can be directly discharged to the environment via Compliance Point 2 (CP2). Cyanide concentrations from CP2 are less than 0.5 mg/L.

JRBM has obtained a wastewater discharge permit that has defined the mixing zone area. The South Bolaang Mongondow District Office of the Lingkingan Hidup Regency "Determination of Addition 1 Location Monitoring" defines the existing monitoring point S. Cabang Dumagin (North: 63237, East: 647546) as the approved mixing zone.

Monitoring results indicated that the WAD cyanide concentration was < 0.005 mg/L. JRBM does not have an indirect discharge to surface water.

2.4.6 Standard of Practice 4.6

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.6
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.6; implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of groundwater.

JRBM has implemented preventative maintenance and monitoring measures to manage seepage to protect the beneficial uses of the groundwater beneath and/or immediately downgradient of the operation.

All leach pads are lined with HDPE liner to prevent seepage. Each pond is double lined and has leak detection and monitoring system installed between the liners.

Seepage is also monitored quarterly through the groundwater bores (six bores) surrounding the mine site.

JRBM has installed 6 monitoring bores, bore GW3 is located downgradient of the polishing pond. On a quarterly basis, JRBM conducts groundwater monitoring which is analysed by an independent laboratory.

Referring to Government Regulation (GR) 82/2001, the limit criteria for total cyanide concentration is 0.02 mg/L. Ground water monitoring results show cyanide concentrations to be below detect (<0.005mg/L). The method used for setting detection limits is WI-(ID)-(EHS)-LA062 (FIA).

The operation does not use mill tailings as underground backfill. The operation advised there are no defined beneficial use of groundwater in the area and monitoring indicates there is no cyanide impacts to groundwater.

2.4.7 Standard of Practice 4.7

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.7
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.7; Provide spill prevention or containment measures for process tanks and pipelines.

JRBM has spill containment measures for all of the cyanide-related storage, mixing and process tanks.

The secondary containments of the Process Plant, Ponds and Detox Area have all been designed and constructed with secondary containment measures. All tanks have been designed and constructed with solid concrete bases under the tank floor.

The above containments were observed to be in good condition and suitable for use. The auditors also reviewed design, as-built documentation and signed Technical Note during the certification audit confirming they were built as construction requirements.

Subsequent modifications include the installation of an additional four detoxification vessels between September 2021 - April 2022. The auditors reviewed records of construction reports for the modifications, which included signed as built drawings and a technical note signed by the JRBM Engineer (Civil Projects and Structure) confirming construction.

JRBM has adequately sized spill containment measures for all of the cyanide-related storage, mixing and process tanks.

Calculations have been completed for all secondary containment onsite confirming that all bund areas comply with the requirement of *"... more than one tank is stored, the system must be capable of storing 110% of the biggest container's capacity or 25% of the total tank capacity within the bund, whichever is the greater."*

JRBM has implemented procedures to prevent discharge to the environment of any cyanide solution or cyanide-contaminated water that is collected in the secondary containment area. The Process Manager has confirmed that the measures implemented include the following:

- All leach pads are double lined and bunded.
- All ponds double lined. A manual leak detection system is between the two liners, collecting and monitoring for any leakage. These are monitored weekly.
- The cyanide mixing tank sump is pumped directly back into the tank.
- All other sumps and drainage are constructed to be either pumped back into the vessel tanks or be allowed to gravity feed to the Barren Leach Solution Pond (BLS) or SWP. The gravity drainage systems, which connect the containment sumps with the ponds, consists of High Density Polyethylene (HDPE) pipelines.

Any liquid contained in bunds are pumped via a sump with a automatic liquid detector to the ballast pond. Water contained in the ballast pond is not discharged to the environment but pumped back to the process plant. The level detector is set at 80cm of the top the facility and will automatically pump back to the plant for processing.

JRBM has constructed all pipelines with spill prevention and containment measures to collect leaks and prevent releases.

Pipes containing cyanide with a solution greater than 0.5 mg/L outside the plant bunded areas been double wrapped with HDPE liner. Checklists for all areas include the requirement for examination of leakage on the liner in the pond. All pipework is inspected for visual signs of leaks three times a shift. This was confirmed during the site inspection. Checklists for all areas include the requirement for examination of leakage on the liner in the pond. All pipework is inspected for visual signs of leaks.

Areas where cyanide pipelines present a risk to surface water have not been specifically evaluated for special protection needs. Instead, JRBM has double wrapped all pipes containing cyanide with a solution greater than 0.5 mg/L with HDPE liner. Cyanide tanks and pipelines are constructed of materials compatible with cyanide and high pH conditions. Materials used include carbon steel, glass flake epoxy and high-density polyethylene, which are suitable for the conditions.

2.4.8 Standard of Practice 4.8

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.8
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 4.8 requiring that operations implement QA/QC procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

QA/QC programs have been implemented for cyanide facilities. During the Certification Audit in 2018 it was verified that quality management programs had been implemented during the original construction of the cyanide facilities. QA/QC records have been retained.

Subsequent modifications include the installation of an additional four detoxification vessels between September 2021 - April 2022. The auditors reviewed records of construction reports for the modifications, which included signed as built drawings and a technical note signed by the JRBM Engineer (Civil Projects and Structure) confirming construction.

QA/QC programs address the suitability of materials, adequacy of soil compaction for earthworks, and installation of geomembrane liners. QA/QC documentation describe the parties involved, QA/QC activities and testing, design modifications, and as built drawings. For the elements where full QA/QC documents were not available a suitably qualified JRBM Engineer provided confirmation that the facility was constructed in accordance with the design drawings.

JRBM has retained appropriate documentation for the applicable cyanide facilities.

JRBM confirmed that QA/QC testing documentation for the facilities were reviewed and approved by licensed professional engineers.

For the elements where full QA/QC documents were not available a suitably qualified JRBM Engineer provided confirmation that the facility was constructed in accordance with the design drawings.

2.4.9 Standard of Practice 4.9

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 4.9
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with Standard of Practice 4.9; implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface, and groundwater quality.

JRBM has developed written standard procedures as well as referring to Corporate (JRN) procedures for monitoring activities.

- The following written procedures and records were observed:
- Monitoring, Analysis and Reporting of Waste water and Air Quality
- JRBM Environmental Monitoring Plan Environmental Monitoring Records, monitoring activities are conducted JRBM
- Environmental Test Report, sample analysis conducted by third party laboratory
- Equipment checklist, including inspection of environmental aspects JRBM engages SGS to conduct laboratory analysis and for regulatory environmental reporting purpose (RKL/RPL) on quarterly basis.
- Wildlife monitoring procedure

Sampling and analytical procedures have been developed by appropriately qualified personnel in the Environmental Health and Safety (EHS) Department. JRN issued a corporate level procedure for sampling and monitoring which needs to be referred by site operation (including JRBM).

For JRBM site specific, the procedures were developed by the Environment Supervisor and Superintendent. The monitoring program is also aligned with the approved environmental management and monitoring documents (RKL/RPL) as a sub set document of Environmental Impact Assessment (EIA).

Personnel that were involved in the development of the operation's sampling analytical protocols include qualifications in water testing and sample taking, water pollution control and waste water processing operation.

JRBM sampling and monitoring procedure describes the compliance point, sampling point and the sampling frequency. The procedure also details sampling methodology, containers, tools and equipment, sample identification, sample storage, preservation and holding time.

JRBM engages third party laboratory SGS for the environmental monitoring. JRBM lists sampling conditions and procedures in writing as part of the sampling collection sheets.

The auditor in his professional opinion believes that the operation conducts monitoring at frequencies adequate to characterize the medium being monidtored and to identify changes in a timely manner.

2.5 Principle 5 – Decommissioning

2.5.1 Standard of Practice 5.1

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 5.1, requiring that a decommissioning plan is developed and implemented for effective closure of cyanide facilities to protect human health, wildlife and livestock.

JRBM has developed a Cyanide Facilities Decommissioning Plan for Bakan which supplements the Mine Closure Plan (Rencana Penutupan Tambang – RPT).

The Plan details the actions to be taken at cessation of operations and addresses the cyanide facilities that consist of:

- Storage, handling cyanide and mixing tank,
- Vessels
- Pipe lines
- Gold room facilities
- Detox plant facilities
- Cyanide ponds (BLS, Pregnant Leach Solution Ponds (PLS), SWP, Polishing Pond)
- Leach pad facilities

The Plan also includes details on purpose, scope, cyanide facilities, decommissioning strategy, implementation and costs. The implementation actions are conceptual due to the life of mine but are considered to be commensurate for the remaining life of mine.

The Cyanide Facilities Decommissioning Plan contains an implementation schedule for decommissioning activities. As the planned mine life is currently until 2025, the schedule is conceptual. The schedule details activities at various stages until 2029

JRBM reviews their decommissioning procedures for cyanide facilities during the life of the operation and revises them as needed. The Mine Closure Plan was developed in 2013 and reviewed in January 2022.

The Cyanide Facilities Decommissioning Plan also provides for review of cost estimates.

2.5.2 Standard of Practice 5.2

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 5.2, requiring that operation establish an assurance mechanism capable of fully funding cyanide related decommissioning activities.

The operation has established a Cyanide Facilities Decommissioning Plan aligning with the Mine Closure Plan (MCP). The Cyanide Facilities Decommissioning Plan contains an implementation schedule for decommissioning activities with associated cost estimate for implimentation. The cost estimate has been developed in accordance with the Calculation of Post-Mining Documents approved by the Ministry of Energy and Mineral Resources by calculating costs by third parties.

JRBM reviews their decommissioning procedures for cyanide facilities during the life of the operation and revises them as needed. The Mine Closure Plan was developed in 2013 and reviewed in January 2022. The operation reviews and updates its decommissioning cost estimates at least every five years, as per the Cyanide Decommissioning Plan since 2017.

JRBM has established a financial mechanism approved by the applicable jurisdiction to cover the estimated costs for cyanide-related decommissioning activities as identified in its decommissioning and closure strategy. Facility decommissioning guarentee payment receipts were evident.

2.6 Principle 6 – Work Safety

2.6.1 Standard of Practice 6.1

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 6.1
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

The operation is in FULL COMPLIANCE with the Standard of Practice 6.1 requiring the operation to identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce, and control them.

JRBM has developed more than 100 operational procedures related to cyanide tasks that describe how to minimise worker exposure. JRBM undertakes HIRA (Hazard Identification Risk Assessment and Control) for all areas to include staging, storage, process plant, HLP, laboratory, detox, hauling, water treatment and fieldwork activities. The risks identified are then assessed whether a work instruction (WI) or task procedures (TP) is required to be developed. The assigned risks category guides to what risks needed to be addressed in each procedure.

All cyanide related tasks are allocated a category rank of very high (AA), high (A) and therefore require development of a procedure. JRBM has specific procedures for all cyanide related activities. Each procedure details the task scope; PPE required; task steps for preparation and implementation of the task. The Task Procedure Clean out Cyanide Mixing Tank requires that a signed confined space entry permit is in place prior to an operator entering the mixing tank.

At the end of each task, for activities with high or very high ratings, there is discussion about the activity and any comments which will be put on the Planned Task Observation (PTO), recording both the positive and negative findings. JRBM conducts training or socialisation to ensure workers are understand the procedures. Workers' comments are welcomed and discussed. Inputs are also collected from the PTO. From 2020 to 2022 there were over 50 suggestions for corrective action.

2.6.2 Standard of Practice 6.2

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 6.2
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 6.2, requiring that an operation operates and monitors cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

The operation has determined the appropriate pH for limiting the evolution of hydrogen cyanide (HCN) gas during mixing and production activities. JRBM has a target pH of 10-12. JRBM undertakes sampling every two hours to confirm the target pH.

Where the potential exists for significant cyanide exposure, the operation uses both fixed and portable monitoring devices to confirm that controls are adequate to limit worker exposure to HCN gas. A fixed monitor is located above the cyanide mixing tank and the requirement for a portable monitor is listed as part of the JSA/TP PPE requirements. The 4.7 ppm alarm is a warning alarm to notify the operators. Operators are instructed to report the alarm to their supervisor, ensure they wear adequate breathing protection and to investigate the cause of the alarm. The 10 ppm alarm is to alert the operator to leave the area immediately.

JRBM determines calibration schedule for all equipment (personal, fixed and portable gas detectors) based on manufacturers requirements. Calibration records were observed to be retained for at least 2 years. Warning signs have been placed where cyanide is used advising workers that cyanide is present and that smoking, open flames and eating and drink are not allowed. The signage also stipulates the PPE that must be worn when working in the area. Signage was observed to be located at entrances to the plant areas and on fencing to storage areas. as well as at the Heap Leach facilities (leach pad and process pond). Signage was clear and legible and in the language of the workers.

Showers, low-pressure eyewash stations and dry-powder fire extinguishers are strategically located throughout the operation in the cyanide areas. Both the shower and eyewash stations and fire extinguishers are included in the relevant area inspection checklists.

Unloading and storage area, mixing and process tanks are identified to alert workers of their contents. Piping containing cyanide are identified to alert workers of their contents, and the direction of cyanide flow in pipes is designated. Material Safety Data Sheets (MSDS) are translated in Bahasa Indonesia and kept at the location where cyanide is managed. Copies of the MSDS were observed at the cyanide storage warehouse and cyanide mixing area.

Procedures are in place, to investigate and evaluate cyanide exposure incidents to determine if the operations programmes and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need revising. Procedures are in place to investigate and evaluate cyanide exposure incidents to determine if the operations programmes and procedures to protect worker health and safety, and to respond to cyanide exposures, are adequate or need revising. Should there be a cyanide incident the operation would implement its Incident Information, Reporting and Investigation System Procedure. No cyanide-related incidents occurred during 2022 and 2023, but the site has reported and investigated non-cyanide related incidents during the period of the ICMC recertification.

2.6.3 Standard of Practice 6.3

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 6.3
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 6.3, requiring that an operation develops and implements emergency response plans and procedures to respond to worker exposure to cyanide.

The operation has necessary response and communication equipment readily available for use at cyanide unloading, storage and mixing locations including radio and emergency oxygen supply. In the event of an emergency, personnel are instructed to raise the alarm via the emergency radio channel or the emergency phone number. These contact points are manned 24 hours a day by the Emergency Call Centre. Technical and manual alarms are installed to inform the employees.

JRBM has in place onsite equipment for emergency response situation. The equipment is stored in the Site Clinic and at the Emergency Response Team (ERT) Base Control room. The operation does inspect its first aid equipment regularly to ensure that it is available when needed. Cyanide antidotes are stored as directed by their manufacturer and replaced on a schedule to ensure that they will be effective when needed. JRBM conducts inspections against the emergency equipment, completed inspection forms were observed.

HCN antidotes are kept in cool temperature. Their expiry is tracked along with other medical supplies stored on site. The antidote was in date. Oxygen is checked daily. The operation has developed specific written emergency response

plans or procedures to respond to cyanide exposures. The operation has one overarching document that is implemented in the event of a release of cyanide, the emergency response plan (ERP). The ERP addresses potential accidental releases of cyanide. It is required to be regularly updated following employees' comments and discussion post simulation or mock drills

The operation does have its own on-site capability to provide first aid or medical assistance to workers exposed to cyanide. The emergency response team are the primary responders to an emergency, but all processing personnel are instructed in the actions to take in the event of a cyanide exposure. The Paramedic will always accompany the ERT to an emergency with casualties. The ERT also has the capability to provide basic cyanide first aid including decontamination and the administering of oxygen. The Cyanide Poisoning Emergency Response procedure details the necessary response to cyanide exposure through ingestion, inhalation and absorption through the skin and eyes.

JRBM has a fully stocked medical clinic with oxygen, cyanide antidote kit and an ambulance. The clinic is staffed 24 hours/day with professional doctor, and paramedic staff. The operation has on-site capabilities to treat all cyanide exposures. As such, patients are unlikely to require transfer off site to other medical facilities. However, if this is required, the patient would be transferred by ambulance to one of the regional hospitals for treatment (30 minutes trip to hospital in Kotamobagu).

JRBM has developed procedures, and has agreements, to transport workers exposed to cyanide to locally available qualified off-site medical facilities where required. JRBM has established a health service agreement with Siloam International Hospital; as well as meetings with other local hospitals confirming their role in a cyanide emergency.

2.7 Principle 7 – Emergency Response capabilities.

2.7.1 Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.1 requiring an operation to prepare detailed emergency response plans for potential cyanide releases.

The operation has implemented one overarching document, the Emergency Response Plan (ERP) that includes the procedures and provisions for preparedness and response to cyanide emergencies.

The ERP addresses 10 potential scenarios related to accidental releases of cyanide. It is also the primary reference for responding to emergencies. The ERP describes specific response actions appropriate to the emergency situations such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures as well as supply clean water to communities if cyanide spills are suspected contaminated the surface water.

The ERP outlines how the alarm for a cyanide emergency is raised internally. The ERP also details the process to activate Emergency Response Team (ERT) and how to conduct medical evacuation of site personnel off the site. The ERP includes the provision of first aid response to cyanide poisoning using the antidotes. Doctor and paramedics know how and when the antidote is administered. They are also involved in the emergency drills.

The ERP considers both on-site transportation emergencies and the physical form of cyanide (solid sodium cyanide). The site receives cyanide in solid form packaged in a wooden box with double layer of plastic packaging inside from a certified producer. Off-site Transport emergencies are managed under the Code certified transporters emergency management plan and the site would provide assistance as requested.

The ERP details the possible emergency situation related to on-site transport activities as well as the ERT's response actions the following scenarios:

— Cyanide poisoning procedure

— Solid sodium cyanide spills to water

— Contained and uncontained spills

The ERP describes specific response actions appropriate to the emergency situations such as clearing site personnel and potentially affected communities from the area of exposure, use of cyanide antidotes and first aid measures as well as supply clean water to communities if cyanide spills are suspected contaminated the surface water.

The ERP outlines how the alarm for a cyanide emergency is raised internally and the requirement to barricade and clear personnel upwind. It also discusses the requirement to implement the emergency communications plan if communities need notification. The ERP also details the response to cyanide poisoning including, washing/flushing, use of high-flow oxygen and administration of assessment and treatment with antidotes, if required.

JRBM has developed procedures, and has agreements, to transport workers exposed to cyanide to locally available qualified off-site medical facilities where required. JRBM has established a health service agreement with Siloam International Hospital as well as meetings with other local hospitals confirming their role in a cyanide emergency.

2.7.2 Standard of Practice 7.2

Involve site personnel and stakeholders in the planning process.

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.2 requiring an operation to involve site personnel and stakeholders in the cyanide emergency response planning process.

JRBM has involved its workforce and stakeholders, including potentially affect communities, in the cyanide emergency response planning process. Mechanisms to consult with the workforce and the onsite medical staff who are the main stakeholders for cyanide related emergencies include emergency drills, toolbox meetings, socialisation and planned task observations.

Given that the operation is remote from communities, accordingly specific response actions for communities from an emergency event on site are not anticipated. Awareness for the potentially affected communities (i.e. local workers) are delivered through information and communication programs which form part of the workforce training.

JRBM has engaged an external provider (Medika Plaza) for medical assistance onsite (including in case of cyanide exposure) and for evacuation to a nearby hospital or to Jakarta (if required).

JRBM has also engaged with regional hospitals who may assist in a cyanide emergency confirming that they understand their role, cyanide risks and have the required equipment.

2.7.3 Standard of Practice 7.3

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.3 requiring an operation to designate appropriate personnel and commit necessary equipment and resources for emergency response.

The elements of the ERP and procedures include:

- General Manager (GM) as the Emergency Management Team (EMT) Leader and the EHS Manager as the Emergency Commander.
- The ERP identifies the roles of EMT Leader, EMT Member, Emergency Commander, Captain ERT, Security, Doctor, Paramedic, Technician / Safety Rep, Cyanide Coordinator.
- Each member has responsibility to support and participate in an emergency as defined in the duty cards and described in the listed scenarios.
- Minimum training requirements for emergency responders.
- Call-out procedures and 24-hour contact information for the coordinators and response team members.
- Duties and responsibilities of the coordinators and team members.
- List emergency response equipment, including personal protection gear, available along transportation routes and/or on site.

— Procedures to inspect emergency response equipment to ensure its availability.

The external responder (Medika Plaza) that will provide medical evacuation by land or by air and hospitals for further medical treatment. The external responders detailed within the plan are Medika Plaza and hospitals. Medika Plaza will provide medical evacuation by land and by air and hospitals will provide further medical treatment where necessary. Due to the remote location, no other response actions by external parties are envisaged. JRBM established a contract agreement with the Medika Plaza and a Health Service Agreement to confirm the services required if needed.

2.7.4 Standard of Practice 7.4

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.4 requiring an operation to develop procedures for internal and external emergency notification and reporting.

JRBM emergency documentation includes procedures and contact information for notifying management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency. In the event of an emergency, personnel are instructed to raise the alarm via the emergency radio channel or the emergency phone number.

All external communication is directed by the Crisis Management Team (CMT) Leader. Allowing the EMT Leader to manage the onsite emergency. JRBM has mechanisms in place for external communication, which is the responsibility of the CMT, this is detailed in the ERP. The CMT can delegate communications with government, stakeholders and mass media to the Emergency Coordinator.

JRMB has a procedure in place (G.9.8/SUST/EHS/SOP/01 ICMC Implementation0 for notifying the ICMI of any significant cyanide incident. The Corporate Environmental Manager will notify the ICMI of a significant incident within 24 hours. During this ICMC recertification period no significant cyanide incidents have occurred.

2.7.5 Standard of Practice 7.5

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.5 requiring an operation to incorporate in response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.

The emergency response documentation describes specific remediation measures for:

— Recovery or neutralisation of solutions and solids

— Decontamination of soils and other contaminated media

— Management and/or disposal of spill clean-up debris

— Provision of an alternate drinking water supply.

The ERP prohibits the use of chemicals to treat cyanide that has been released into surface water.

As part of the treatment process with Sodium Hypochlorite, the ERP details the amount to be used for the size of spill. Sodium Hypochlorite is stored in the dedicated Dangerous Goods area away from incompatible materials. The ERP addresses environmental monitoring to identify the extent and effects of a cyanide release. For each procedure listed in the ERP there is the requirement to consult with the Environment Manager and the Process Manager in the recovery process and to test the soil content to confirm WAD cyanide is less than 0.5 ppm.

The Environment Manager confirmed that sampling methodologies, parameters and sampling locations would be confirmed through liaison with the Environment Manager.

2.7.6 Standard of Practice 7.6

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 7.6
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 7.6 requiring an operation to periodically evaluate response procedures and capabilities and revise them as needed.

JRBM reviews and evaluates the cyanide related elements of its emergency response plan for adequacy on a regular basis. The ERP has been regularly updated since its development.

During this ICMC recertification period no actual cyanide related incidents have occurred. However, in case of an actual accident the review of the adequacy of the emergency response plan would follow the same procedure as the review of a emergency drills.Mock emergency drills conducted are periodically to test response procedures for various cyanide exposure scenarios, and lessons learned from the drills are incorporated into the response planning. The emergency drills are conducted at varying scales and debrief reports are compiled following each exercise. There were four mock drills conducted in 2022. They address release and exposure scenarios and involve both on-site and external personnel.

In addition to the scheduled periodic review process, JRBM also uses desktop exercises and emergency drills as part of the consultation process to keep the plan current. Those involved in the exercises and debriefs provide feedback post drills. All feedback and information collected in the debrief is included in reviews of emergency procedure and related documentation. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. JRBM develops a Problem Identification and Corrective Action (PICA) list that feeds into the review process. Learnings and corrective actions are undertaken and shared to employees.

2.8 Principle 8 – Training

2.8.1 Standard of Practice 8.1

Train workers to understand the hazards associated with cyanide use.

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 8.1
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 8.1 requiring an operation to train all personnel who may encounter cyanide in cyanide hazard recognition.

JRBM trains all personnel who may encounter cyanide in Cyanide Introduction and Awareness Training. Cyanide awareness is covered in the Induction for visitors as part of the Site operation information. Further detail is included in the Basic occupational health and safety (OHS) induction, which all personnel need to complete.

The training and induction procedure require a refresh training for cyanide introduction and awareness refresher training is periodically conducted. JRBM has established a two-year refresher cycle for the Cyanide Awareness Training Program. Additionally, any employees leaving the site for more than 10 days should attend the EHS Refreshment Training Program when returning to the site.

JRBM has an electronic database for managing training and a review of training records for all personnel identified in the Training Need Analysis. This matrix indicates training type, schedule and the job roles or responsibility required to participate. Training records have been retained. JRBM has an electronic database that provides the training profiles for roles and holds training records. A review of training records for personnel.

2.8.2 Standard of Practice 8.2

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 8.2
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 8.2 requiring an operation to train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

JRBM train workers to perform their normal production tasks, including unloading, mixing, production and maintenance with minimum risk to worker health and safety and in a manner that prevents unplanned cyanide releases.

New starters complete a general induction that provides information on safety and the environment including hazard and risk assessment tools (J-SAFE Introduction). Practically, once process workers have completed the inductions they are teamed with an experience operator and provided on the job training. This is undertaken for at least three months until the new started is deemed competent by the Supervisor.

Personnel who work in the processing plant attend toolbox meeting to discuss potential hazards and controls required prior to conduct mixing activities referring to the Task Procedure. The training elements necessary for tasks involving cyanide are identified in training material.

Prior to performing work related with cyanide management, a toolbox meeting is conducted to discuss step by step task information contained in each procedure.

Employees involved in cyanide working activities must be found competent in each procedure prior to working unaccompanied. Supervisors or Foreman will supervise personnel to see whether they are able completing that task unaccompanied. Also, there is a training evaluation conducted to see whether employees aware the hazards and risks associated with cyanide handling.

JRBM assigns appropriately qualified and externally trained personnel to provide task training related to cyanide management activities. Supervisors are also being trained on the JSA and TP related to cyanide management to later discuss with their employees in the toolbox meeting. Refresher training on cyanide management is required every two years to ensure that employees continue to perform their jobs in a safe and environmentally protective manner. Induction programs that include cyanide introduction and awareness refresher training is also conducted for employees leaving the site for more than 10 days.

JRBM evaluates the effectiveness of cyanide training by testing, observation or other means. The trainer conducts pre and post-test to assess the employees' level of knowledge with regards to cyanide awareness training. The tests are scored and evaluated post training.

Records are retained throughout an individual's employment documenting the training they receive. The records include the names of the employee and the trainer, the date of training, the topics covered and if the employee demonstrated an understanding of the training materials. A sample of training files and review of paper files confirmed that records are retained.

2.8.3 Standard of Practice 8.3

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

	☒ **in full compliance with**	
The operation is	☐ in substantial compliance with	Standard of Practice 8.3
	☐ not in compliance with	

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 8.3 requiring an operation develop and implement emergency response plans and to rain appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

JRBM has developed JSAs and task procedures for response to cyanide spills during unloading, mixing and production. JRBM has also developed an ERP. All personnel working in the processing area attend the cyanide introduction and awareness training, which includes information on what to do if cyanide is released. The Task Procedures are discussed in separate training sessions for each TP.

JRBM also conducts emergency drills with regards to response in cyanide releases. Evaluation is performed to include checking on whether ERT gives appropriate response and follows reporting procedure. JRBM also conducts problem identification and corrective action (PICA).

Site cyanide response personnel, including unloading, mixing, production and maintenance workers, are trained in how to respond to cyanide exposure as well as in decontamination and first aid procedures. They participate in routine drills to test and improve their response skills. The ERT are the primary responders and undertake regular skills training (emergency drills). They are equipped with emergency equipment. Company doctor and paramedic are the main resources providing First Aid in emergency.

The ERT has regular training in both the theory and practical aspects of emergency response. Basic first aid and firefighting are provided for ERT. Practical training is included in the emergency drills (mock exercises).

JRBM made off-site Emergency Responders familiar with the ERP and emergency response roles to the extent necessary. JRBM coordinates with local fire brigades that would conceivably be involved in a response. A contract is in place with the Siloam Hospital in Manado and a guarantee letter with Medika Plaza for employees' medical support.

Refresher training for response to cyanide exposures and releases is regularly conducted. Cyanide awareness training that is completed every two years contains training on response to exposures and releases.

Simulated emergency drills are periodically conducted for training purposes (every three months). The drills cover both worker exposures and environmental releases. Four emergency drills have been conducted in 2022, specifically addressed cyanide tank rupture and cyanide exposure.

Cyanide emergency drills are evaluated from a training perspective to determine if personnel have the knowledge and skills required for effective response. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. The debrief process considers the key strengths and shortcomings from each exercise and the outcomes and required actions. JRBM develops a problem identification and corrective actions (PICA) list that feed into the review process. Learnings and corrective actions are undertaken and shared to employees.

Records are retained documenting the cyanide training, including the names of the employee and the trainer, the date of training and the topics. EHS department maintains training records in hard copy for the Emergency Response Team. A review of these training records showed that the records include names of the employee and the trainer, the date of training and the topics covered. The records also include any corrective actions required resulting from the evaluation post drills (PICA).

2.9 Principle 9 – Dialogue and Disclosure

2.9.1 Standard of Practice 9.1

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 9.1 requiring an operation to provide opportunity for stakeholders to communicate issues of concern regarding the management of cyanide.

JRBM provides opportunities for stakeholders to communicate issues of concern regarding the management of cyanide. The closest community lives in Bakan village of Lolayan District approximately an hour land trip from Kota Kotamobagu City in the north.

JRBM conducts socialization with communities such as village head, local regulators, employees' family, customary leaders and communities from surrounding villages within mining area who are gathered under the Community Discussion Forum (FDM) of Bolaang Mongondow and Bolang Mongondow Selatan Regencies. JRBM is actively involved regular meetings with FDM to present the cyanide awareness and information as well as addressing community feedback.

2.9.2 Standard of Practice 9.2

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

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

Summarise the basis for this Finding/Deficiencies Identified:

JRBM is in FULL COMPLIANCE with Standard of Practice 9.2 requiring an operation make appropriate operational and environmental information regarding cyanide to stakeholders.

JRBM has developed written descriptions of how their activities are conducted and how cyanide is managed. Referenced presentation materials are written in appropriate local languages and made available to communities and stakeholders.

JRBM's written descriptions of how their activities are conducted and how cyanide is managed is mainly documented in their Environmental Management Plan. Based on these procedures JRBM conducts socialization and induction to give understanding of cyanide management to communities and stakeholders. The presentation materials specifically provide information on:

- The International Cyanide Management Code
- J Resources Mining
- JRBM operations
- What is JRBM doing to reduce risks of cyanide exposure
- What is JRBM doing to prevent impacts of cyanide on the environment

Based on the discussions with the community relations department, it was considered that the illiterate proportion of the local population did not constitute a significant percentage. Consequently, verbal dissemination of material was not considered warranted. However, JRBM is actively involved in meetings during the Community Discussion Forum to present the cyanide awareness and information.

The presentation materials are prepared to include pictures, diagrams and supported with verbal communication to ensure messages are delivered. JRBM has the mechanisms to make information publicly available on the cyanide release or exposure incidents, where applicable. However, JRBM reported there was no incident related to cyanide release or exposure to date. The external team will directly communicate with local officials and the community in the event of a spill. The External Team will immediately communicate with local officials and immediately notify the community of cyanide exposure resulting in hospitalization or fatality.

3 Important Information

Your attention is drawn to the document titled – "Limitation Statement", which is included in Appendix A of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Limitation Statement document does not alter the obligations WSP has under the contract between it and its client.

Appendix A

Limitation Statement

Limitation Statement

This Report is provided by WSP Indonesia (PT Geotechnical and Environmental Services Indonesia) (*WSP*) for PT J Resources Nusantara (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 11 July 2022 and agreement with the Client dated 26 December 2022 (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

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