

Progress on Audit Recommendations as of Q3 2024

Strategic Environmental Issues	Recommendations (Summary)	PT-FI Response	Status/Timing
Tailings	1. Continue reporting the performances in mg/L unit for total suspended solids for non-tailings sediment monitoring, giving a better picture of efficacy of the sediment control operations.	PT-FI will continue to comply with Tailings Management Roadmap requirements including sediment control from non-process sources (e.g., Wanagon Overburden Stockpile, Underground Drainage, Grasberg Drainages).	Recommendation Implemented
	2. Since the underground mines will be expanded in the future with the development of Kucing Liar, it is recommended to further develop appropriate and efficient methods to control the sediment from these potential underground mine total suspended solids (TSS) sources.	<p>Subsequent to the audit, PT-FI received technical approval regarding wastewater from Ministry of Environment and Forestry (MoEF) (No. S1253/PPKL/PPA/PKL.1.2/13/1/2024). The discharges from AB1 and AB2 tunnels meet the TSS requirements as stipulated in the technical approval document and regulated by the MoEF. Sediment pond clean-up is regulated by the Tailings Roadmap and PT-FI continues to meet those requirements.</p> <p>The ModADA sediment model is updated with the latest mine plan, including TSS flows through the system from non-tailings sources (e.g., sediments from UG).</p>	Recommendation Implemented
	3. There are still challenges for Pandan Lima and Kelapa Lima monitoring points to comply, particularly for TSS, with the environmental standard, and it is recommended to study the most appropriate location for new points of compliance in the downstream of ModADA which could be managed to comply with effluent standard for copper and gold mining activity. The result of this study should be discussed with MoEF to seek the possibility for replacement	<p>Studies and options, such as a K5-P5 monitoring line instead of fixed points or the use of monitoring points in the Arafura sea, were discussed with regulatory authorities. A K5-P5 monitoring line has been incorporated into the Tailings Management technical approval document.</p> <p>As noted in the recommendation, thorough studies continue as part of the Tailings Management Roadmap.</p>	Recommendation Implemented

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	<p>of Pandan Lima and Kelapa Lima as points of compliance. A thorough study on the potential management strategies and impacts to the surrounding environment, mitigation, and management during the operational phase as well as post closure is on-going as part of the Tailings Management Roadmap.</p>		
	<p>4. The occurrence of pyritic materials will increase the potential for acid rock drainage in the ModADA if not managed properly. A thorough study on the potential management and mitigation strategies (including contingencies) to prevent impacts to the surrounding environment during the operational phase as well as post closure is necessary and underway.</p>	<p>Numerous studies are ongoing, including groundwater modeling, leach column tests, sampling and testing of high pyritic areas and detailed analyses of each. These studies will be continued through the end of PT-FI's operating permit.</p>	<p>Recommendation Implemented</p>
	<p>5. High rainfall conditions and potential earthquakes are outside the TRMP's direct control and must continue to be addressed with robust levee designs that use acceptable and defensible storm and earthquake parameter return intervals.</p>	<p>Levee planning framework is in place to address short-term levee building needs. LOM provisional design plans are completed as a long-term target, and regular updates are incorporated as new geotechnical information becomes available.</p>	<p>Recommendation Implemented</p>

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	<p>6. TRMP should continue to strategically direct tailings flow to low areas in the ModADA using their swamp excavator fleet. Highest priority should be to infill areas of ponded water in contact with the levee embankment. This recommendation will result in both improved tails retention and increased levee embankment stability. <i>(Reference Tailings Management Roadmap Section II – Handling of Material in ModADA, [5] The increase of tailings retention, [c] Filling of depressed areas)</i></p>	<p>TRMP continues to direct tailings flow into depressions and other low areas in the ModADA in order to increase tailings retention.</p>	<p>Recommendation Implemented</p>
	<p>7. The placement, operation, and maintenance of spur dikes to direct tailings flow away from the levee embankment toe should continue. These spur dikes can be unarmored (i.e., without rip-rap protection), with periodic inspection and repair if scour or erosion occurs. These spur dikes serve two primary purposes. First, they force the tailings river away from the levee embankment and second, they create lower energy depositional environments immediately downstream of the spur dike structure. Use of Dolos in strategic areas versus managing scour through widened crest widths or placement of sacrificial spur dikes should also remain as alternative scour protection methodology and will require a tradeoff around effectiveness, cost, and availability. <i>(Reference Tailings Roadmap Section II – Handling of Material in ModADA, [5] The increase of tailings retention, [b] Spur dikes and groins)</i></p>	<p>Spur dikes continue to provide sufficient scour protection and improve sediment retention. PT-FI has an annual plan to add additional spur dikes. Over 20 spur dikes have been installed and continue to be an effective means to direct tailings flow away from the levees.</p>	<p>Recommendation Implemented</p>

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	<p>8. Pending approval of the current AMDAL, PT-FI should maintain their current action plan addressing tailings containment options and consequences. This plan identifies material transportation, stockpile sizes, Rate of Rise (RoR) impacts, freeboard management, as well as potential mangrove and social impacts from delayed containment provided by the structures.</p>	<p>We maintain our current action plan and continue to evaluate options and perform actions necessary to enhance and mitigate material transportation, stockpile sizes, RoR impacts, freeboard management, as well as potential mangrove and social impacts. AMDAL approval was received in August 2024.</p>	<p>Recommendation Implemented</p>
	<p>9. Following approvals, focus should be concentrated on areas of the mangrove protection structures (MPS) below both the East and West levee sections. It is realistic to assume that in the south extension area, the acceptable RoR required to avoid deformation and differential settlement may not initially allow the placement of adequate fill material to meet freeboard design parameters.</p>	<p>PT-FI received AMDAL approval in August 2024 and work immediately began on the MPS to raise in accordance with Government of Indonesia approvals. PT-FI has an active plan in place for adding material to the MPS over time to account for RoR estimations.</p>	<p>Recommendation Implemented</p>
	<p>10. Test fill options using a larger pioneer layer, geogrid and uncompacted fill should be benchmarked with empirical data collected by TRMP over the last several decades.</p>	<p>Test fill is currently in-progress within the southern MPS area, specifically at EMA-19. Results are expected in early-to-mid 2025.</p>	<p>Q2 2025</p>
	<p>11. It is recommended that PT-FI continue to evaluate the geotechnical stability of the New West Levee (NWL) and also address potential acid rock drainage (ARD) generation as required.</p>	<p>Geotechnical investigations at NWL are ongoing. Drilling is now complete and additional CPT and MASW surveys are expected to be completed in Q1 2025. Geotechnical models will be updated following these additional investigations.</p>	<p>Q1 2025</p>

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		12. The results of the LiDAR surveys should continue to be incorporated into the crest requirement calculations on a regular basis and also used to provide a database to inform the semi-quantitative risk analysis (SQRA). PT-FI's target should be to have accurate system wide survey data, at a minimum annually, and potentially on a 6-month basis in specific areas (e.g., annual LiDAR with semi-annual infill surveys).	<p>Annual LiDAR surveys have been implemented since 2022. The data will continue to be incorporated into the crest requirement calculations. Levee raises and freeboard analyses continue and planning outcomes are included in SQRA updates.</p> <p>Fixed-wing drone LiDAR was trialed to evaluate the potential for targeted interim LiDAR surveys. However, it was determined not viable due to close proximity to airport and line of sight limitations.</p>	Recommendation Implemented
		13. Maintain current monitoring program scopes and frequencies (CQA, instrumentation, LiDAR, observations). TRMP has demonstrated continual improvement in construction quality assurance over the five years. These programs should remain institutionalized and embedded in Standard Operating Procedures (SOPs) for TRMP. The test fills planned should be logistically situated as far south as practicable to simulate actual foundation conditions.	<p>Monitoring programs are maintained and updates to the monitoring SOP have been completed. TRMP continues to demonstrate continual improvement through efforts such as digitization and dashboards. In addition, satellite-based monitoring tools have been implemented and are on-going.</p>	Recommendation Implemented
Grasberg Open Pit Closure	Wanagon Overburden Stockpile Geotechnical Management and Water Management	1. Finalize the Surface Mine Detailed Closure Implementation Plan.	The Surface Mine Detailed Closure Implementation Plan (Grasberg Mine Closure Drainage Plan) continues to be drafted. We anticipate finalizing this plan by the end of 2024.	Q4 2024
		2. Continue to maintain resources and management attention to complete the WWSS project and ensure the successful stabilization of the LWOBS. It is recognized that the WWSS has been impacted by the geometry around the south knob and the ability to get equipment to the LWOBS to assess foundation conditions.	<p>Resources at Grasberg are currently focused on the WWSS stabilization project. We continue to refine detailed engineering designs based on sediment and foundation assessments. Resource planning continues to be evaluated and updated quarterly.</p>	Recommendation Implemented

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		3. Address the residual staining in the Kaimana Stockpile and complete limestone capping accordingly.	Remaining sulfide materials in Kaimana were removed in Q2 2022. Significant grading work has been completed and a limestone sub-grade material has been placed in the area. The final limestone cap, grading and drainage pathways are being constructed per the applicable SOP prior to reclamation of the area.	Recommendation Implemented
		4. Progress re-shaping and placement of limestone covers on all dumps and exposed material to mitigate any localized surface ARD loads as well as lower oxygen ingress and potential ARD generation in the underlying overburden.	PT-FI has established a multi-department taskforce to monitor and address potential ARD generation. Short and long-term plans are routinely updated following analysis of the data collected by the taskforce. Sloping of stockpiles and LWOBS benches and the placement of limestone covers continues according to the SOP – GRS 8.1 – 03 Overburden Management on exposed overburden stockpiles.	Recommendation Implemented
		5. While the Wanagon drain zone hydrogeologic model suggests it is not necessary to maintain the WDD after closure is complete, the Audit Team recommends maintaining the WDD as an active and operating dewatering and additional depressurization system for the Wanagon OBS for as long as conditions might be practical.	Hydrogeology and GRS teams will continue to maintain the WDD as long as conditions might be practical / safe.	Recommendation Implemented
		6. Construction of the lower Wanagon toe buttress is anticipated in 2027-29. This structure will require a detailed design to ensure the buttress is keyed in the abutting foundation sidewalls and that the foundation floor is free of weak foundation material. Any weaker materials will need to be removed prior to the construction of the LWOBS buttress. Upon completion of access, planned geophysical and geotechnical	The road to LWOBS 3200L was completed Q4 2022. Geophysical and geotechnical analyses continue including modeling using ground penetrating radar. Geotechnical data is collected and groundwater levels are monitored using piezometers in this area. These analytical data are used by our contractor, Stantec, to evaluate and revise the technical design plans and will continue until LWOBS closure.	Recommendation Implemented

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		investigations will provide information key to project design and execution.		
		7. PT-FI is currently executing a groundwater piezometer plan, and maintaining the schedule to install, maintain and monitor each well should remain a priority. The predictive groundwater models currently indicate a significant portion of the flow within the drain zone occurs in unsaturated flow near the base of the OBS. Functioning and reliable piezometers will be necessary to confirm the phreatic level in the OBS relative to the designed drain system, including above and below groundwater pinch points (i.e., the 3,775 and 3,505 lower rock lip) identified in modelling.	<p>This program is already executed and with an additional 3 pore pressure monitoring systems on LW3200 during geotechnical investigation drilling in Q1 2023.</p> <p>PT-FI Hydrogeology regularly evaluates the piezometer placement, construction, and modeling results with our consultants, CNI and Stantec, as part of the peer review process and quality control. This system is expected to include pore pressure concerns in the design process to ensure that the slope remains stable in the long term.</p>	Recommendation Implemented
		8. Continue to refine the hydrologic mass balance of the Upper, Middle and Lower Wanagon OBS important to further validate and predict groundwater flows. This balance should be used in conjunction with the piezometers as they are installed to calibrate the water balance model.	PT-FI's Hydrogeology team continues to refine the overall Wanagon OBS hydrologic mass balance. Additional weirs are planned to ensure that the overall mass balance can be verified by actual and continuous measurement for modeling calibration, in addition to the piezometers.	Recommendation Implemented

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		<p>9. PT-FI’s ability to act on predicted block cave behavior will have notable influence on lower Wanagon OBS management. Continued observation, mapping, and modelling of block caving as it relates to the Wanagon OBS, followed by appropriate mitigation plans that can be quickly implemented, is recommended.</p>	<p>The prediction of subsidence follows the results of the general strain analysis from GeoEngineering Division's Subsidence Transition Committee (STC). The technical design and planning of the LWOBS takes into account the subsidence trend and is updated when new models of the subsidence zone are available.</p>	<p>Recommendation Implemented</p>
Underground Mining Operation		<p>1. To the degree practicable maximize underground water pumping to Amole Drift and use in the mill to reduce sediment discharges from AB 1 and AB 2 tunnels.</p>	<p>Operations and Underground teams have already installed a pumping system from GBC LPS to Amole and currently pump around 9000 GPM to the mill.</p> <p>Subsequent to the audit, PT-FI received technical approval regarding wastewater from MoEF (No. S1253/PPKL/PPA/PKL.1.2/13/1/2024). The discharges from AB1 and AB2 tunnels meet the TSS requirements as stipulated in the technical approval document and regulated by the MoEF. Sediment pond clean-up is regulated by the Tailings Roadmap and PT-FI continues to meet those requirements.</p>	<p>Recommendation Implemented</p>
		<p>2. Further assess various technologies which might be used in conjunction with sediment traps to further decrease the TSS underground discharge.</p>	<p>We have assessed various technologies and brought in consultants to review options for increased sediment retention. As noted in the audit report, many of the projects evaluated are not feasible due to space limitations. As new technologies become available, we will evaluate and implement if applicable.</p> <p>Subsequent to the audit, PT-FI received technical approval regarding wastewater from MoEF (No. S1253/PPKL/PPA/PKL.1.2/13/1/2024). The discharges from AB1 and AB2 tunnels meet the TSS requirements as stipulated in the technical approval document and regulated by the MoEF. Sediment pond clean-up is regulated by the Tailings Roadmap and PT-FI continues to meet those requirements.</p>	<p>Recommendation Implemented</p>

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Water Quality	<p>1. A noted increase and subsequent decrease in dissolved copper concentration in ModADA surface waters appears associated with the processing of stockpiled ore. This demonstrates the importance of ore stockpile management and should be considered in future stockpiling and processing plans (i.e., minimizing the duration of ore stockpiling) with the expansion of underground mining operations.</p>	<p>With the closure of the Grasberg pit in 2019 and depletion of the low-grade stockpiles in 2020, we do not anticipate future stockpiling and processing of ore at Grasberg.</p>	<p>Recommendation Implemented</p>
	<p>2. Proactive management and monitoring of the Kwamki lake levels is important subsequent to further excavation of the drainage channel to ensure maintaining the design 1 m lowering of water levels, especially in view of the increasing trend in sulphate concentrations in ModADA.</p>	<p>The Kwamki lakes project is currently lowering the remaining lake by 1m to continue reducing retention times in the lakes. Additional projects (i.e., channel widening, hyacinth harvesting) continue to enhance the flow of surface water through the lakes.</p>	<p>Q1 2025</p>
Waste Management (Hazardous [B3] Waste Management)	<p>1. Existing SOPs on waste management issued between 2019 – 2020 need to be updated to align with the change of the PT-FI department responsible for waste management and reflect changes outlined in, Government Regulation no. 22 year 2021.</p>	<p>PT-FI has reviewed and revised waste management SOPs to align with PT-FI responsible department changes and reflect changes outlined in Government Regulation no. 22 year 2021.</p>	<p>Recommendation Implemented</p>
	<p>2. Ensure that a CoC is always generated by any user prior to waste transfer to waste transfer point (WTP) or temporary hazardous waste storage (THWS). Increase training and awareness of waste handlers and environmental inspectors, including examination to demonstrate competency.</p>	<p>PT-FI has conducted waste management workshops for lowland and highland generators of B3 waste. The workshops provided increased awareness of environmental commitments and procedures, provided refresher training on B3 management and identified opportunities for additional support.</p> <p>Based on workshop recommendations, PT-FI has successfully implemented a more robust waste management training for</p>	<p>Recommendation Implemented</p>

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			generators at site with the assistance of the Learning and Organization Development division.	
		3. Address management of change (MoC) SOP updates to encompass the identification, handling and reporting of hazardous waste and contaminated soil generated from GRS surface mine decommissioning activity.	Decommissioning activities are subject to the MoC process as stated in PT-FI's MoC SOP. Identification, handling and reporting of hazardous wastes are included in SOP – E 8.1 – 04 Hazardous Waste Management.	Recommendation Implemented
		4. Maintain relevant records on the type and quantity of hazardous waste generated and contaminated soils excavated, as well as status of disposal.	PT-FI reports the type and quantity of all hazardous wastes, including wastes generated during demolition activities, to the Government. When B3 or potential B3 wastes are identified during the MoC process, Environmental, Facilities Town Management and Solid Waste Management departments evaluate and manage the wastes according to applicable SOPs. PT-FI has hired a third-party consultant to evaluate waste streams by reviewing relevant records on the type and quantity of hazardous wastes.	Q4 2024
Waste Management (Hazardous Waste Management)	Operation Maintenance and Contractor Workshop in Highland Observation	1. Conduct socialization and training for waste handlers in highland shops operation to improve awareness by and ensure consistency of safe storage of B3 containers, including the filling of used oil cubes and appropriate waste labelling.	PT-FI has conducted waste management workshops for lowland and highland generators of B3 waste. The workshops provided increased awareness of environmental commitments and procedures, provided refresher training on B3 management, and identified opportunities for additional support. Based on workshop recommendations, PT-FI has successfully implemented a more robust waste management training for generators at site with the assistance of the Learning and Organization Development division.	Recommendation Implemented

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		2. Additional training of new personnel and more frequent environmental inspections may be required to maintain consistency of waste management practices.	<p>Based on waste management workshop outcomes, PT-FI has successfully implemented a more robust program to monitor and improve consistency of waste management practices, including training of new waste handlers.</p> <p>The Environmental Department has implemented several new inspection initiatives including environmental representation in Management Inspections, more frequent informal facility inspections by EQMS, and additional inspections, training and knowledge-sharing with divisional safety, health and environmental representatives.</p>	Recommendation Implemented
		3. Ensure the integrity of oil and lubricant storage locations is maintained.	The auditors observed grasses growing in cracks in the containment at the Surabaya refueling station. PT-FI has removed the grasses and conducted routine inspections to ensure the integrity of the containment is maintained.	Recommendation Implemented
		4. Improve practices of used oil storage in the Tera Shop and improve WTP area.	PT-FI has improved practices of used oil storage at the Tera Shop. Routine inspections are conducted as a control to ensure continued adherence to the Used Oil Management SOP.	Recommendation Implemented
	Mill Concentrating and Underground Mining	1. Record all generated B3 waste from Fire assay lab both fire assay waste and used dust filter	Concentrating Division has ensured that the fire assay lab records all generated B3 wastes, including fire assay waste and used dust filter, before being transported to WTP Likupang.	Recommendation Implemented
	Solid Waste Management	1. Include criteria for waste transfers from generator to transporter (e.g., rejection by transporter if waste container is improperly labelled or packaged) and specification for transporter’s truck (e.g., provision of spill kits) in the relevant	Self-checklists for waste generators, WTP operators, and THWS operators have been created and referenced in the relevant SOP to provide specific steps to properly manage, label, and package waste prior to being transported.	Recommendation Implemented

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		SOP.		
	Light Industrial Park (LIP)	1. Improve the competency of wastewater operators through training and testing	PT-FI has provided training for wastewater operators at the Acetylene plant with additional focus on pH monitoring requirements. In-field evaluations are conducted to ensure competency.	Recommendation Implemented
	Dewatering Plant (DWP)	1. Finalize the Training Need Analysis (TNA) for environmental training, accounting for mandatory training as required by the national competency standard (SKKNI) regulation, covering personnel in the roles of air pollution controller (PPU), wastewater pollution controller (PPA) and hazardous waste controller (POLB3). Based on TNA results, PT-FI may set up a competency mapping and annual training program.	PT-FI will finalize the training need analysis (TNA) for environmental training, accounting for mandatory training as required by the national competency standard (SKKNI) regulation, covering personnel in the roles of air pollution controller (PPU), wastewater pollution controller (PPA) and hazardous waste controller (POLB3). Based on TNA results, Environmental will prepare a competency mapping and annual training program with Learning & Organizational Development (LOD).	Q4 2024
	Hospitals (Tembagapura and Kuala Kencana)	1. Lesson learned of Covid-19 outbreak should be incorporated into the medical waste management SOP in preparedness for unwanted conditions in the future. Contingency planning is needed in case medical waste transport or transfer is interrupted.	PT-FI currently has updated the Medical Waste Management SOP with lessons learned from the Covid-19 outbreak.	Recommendation Implemented
Waste Management (Non-Hazardous Waste Management)	Solid Waste Handling	1. The current 2017 waste management plan gives projections through 2020. The plan should be updated with 2021 waste stream audit results and consider production projection to prepare adequate waste management infrastructure.	PT-FI has hired a third-party consultant to assist in the updating of the waste management plan. On-site work has begun with results available in early-to-mid 2025.	Q1 2025

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Landfills		<p>2. Cleaner production indicators i.e., waste prevention, energy efficiency, recycling and material recovery target and achievements should be reported systematically. PT-FI should develop their objectives from compliance to beyond compliance targets.</p>	<p>Regarding energy efficiency programs, PT-FI has an Energy Management Team, which includes members from several divisions, including the environmental division. In Q4 2023 and Q1 2024, PT-FI contracted a 3rd party to perform an Energy Audit. Results from the audit are assisting the Energy Team in developing cleaner production goals, evaluating and monitoring current energy efficiency programs, and developing action plans to achieve GHG emissions reduction targets.</p> <p>Regarding waste minimization, PT-FI has hired a third-party consultant to assist in the updating of the waste management plan, which includes evaluation of waste streams and 3R (reduce, reuse, and recycle) programs.</p>	Recommendation Implemented
		<p>1. Conduct socialization and training to improve Solid Waste Management (SWM) operators' and inspectors' awareness regarding various type of hazardous waste including used chemical containers.</p>	<p>PT-FI conducted waste management workshops for lowland and highland generators of B3 waste. Representatives of SWM attended the workshops, which increased awareness of environmental commitments and procedures, provided refresher training on B3 management and identified opportunities for additional support.</p>	Recommendation Implemented
		<p>2. Develop SOP for handling various metal scrap, spare part materials and other non-hazardous waste in MP73 Yard 6, including formal procedures regarding material types, storage, status, and notification procedures. Formal handover of Yard 6 from GRS Earth Work Department to Ore Flow Department is necessary to have clear accountability for the area owner. Clear layout and demarcation for storage items and the provision of gate and fence surrounding this area are required.</p>	<p>Clear roles and responsibilities at Yard 6 have been incorporated into SWM and Operations Maintenance SOPs. Signage has been posted to denote the responsible department and a gate has been installed.</p>	Recommendation Implemented

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	Oil-Water Separator (OWS)	1. Prevent stormwater flow from entering the Surabaya Fuel Station OWS through provision of separated drainage or other practicable means.	A new drainage scheme was implemented to reduce storm water flow into the OWS.	Recommendation Implemented
Reclamation and Biodiversity	Reclamation and Revegetation Activities	1. As follow-up to the previous audit recommendation, a comprehensive analysis and synthesis of existing reclamation monitoring data should be conducted in order to better understand the biological and physical phenomena of reclamation.	The PT-FI Environmental Division implemented a new method of collecting field data to capture more granular reclamation and biodiversity information from the highlands area. The new method captures additional biological and physical data that could improve our reclamation plantings and management decisions on reclamation planning. We are planning to implement a similar method of collecting field data in the lowlands area of PT-FI's operations. PT-FI recently entered into a cooperation agreement with the Gadjah Mada University (UGM) to study success criteria for reclamation programs which includes biophysical data collection and data analysis.	Q4 2025
		2. Monitoring of post-mining reclamation success in terms of ecological function (as stated in 300K RPL) should include measurement of a parameter to demonstrate ecological processes of nutrient cycling and energy flow, e.g., through monitoring of soil fauna/arthropod community.	PT-FI recently entered into a cooperation agreement with the UGM to study success criteria for reclamation programs which includes biophysical data collection and data analysis. PT-FI will continue to work with UGM to analyze for nutrient cycling and to determine the best ways to monitor post-reclamation success in terms of ecological function.	Q3 2025
		3. Routine analysis of substrate/soil samples is needed to systematically monitor the changes in reclamation site condition and capacity to support vegetation growth.	Soil monitoring is routinely conducted at reclamation sites to analyze long-term changes in soil nutrient content. Soil monitoring data is currently reported in the RKL-RPL report to the government. PT-FI continues to identify and evaluate opportunities to improve methodology and analysis in regards to this program and additional programs involving post-reclamation success in terms of ecological function (see above findings).	Recommendation Implemented

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		4. PT-FI should maintain an inventory database of species and a management plan that includes monitoring for the possibility of invasive species (plant or animal) and the potential impact to local biodiversity.	PT-FI utilizes the Global Invasive Species database system for Indonesian flora and fauna and maintains an inventory. PT-FI has a biodiversity management plan that accounts for potential impacts to local biodiversity. Biodiversity management plans are reviewed annually and updated as needed to incorporate new biodiversity information.	Recommendation Implemented
		5. PT-FI should further assess the potential impact of subsidence on overburden stockpiles and how this in turn might affect reclamation and revegetation efforts and the eventual success of the actions taken.	Environmental Reclamation Division works with the Geoengineering Division to evaluate potential subsidence impacts on reclamation areas as new subsidence models are developed. Based on current inspections and digital elevation surveys, minimal impacts are expected in the Grasberg reclamation areas. These inspections and surveys continue and are valuable tools used by the Grasberg engineering and reclamation teams to determine if corrective actions or mitigation is needed.	Recommendation Implemented
	Biodiversity and Natural Ecosystems	1. A formal biodiversity strategy and action plan as currently written has not been fully executed owing to security concerns. PT-FI should proceed with plans to organize another biodiversity discussion forum/workshop in the near future. All action plans should consider and be in line with current developments at the national level, e.g., by keeping abreast of developments in the renewal process of IBSAP (Indonesia Biodiversity Strategy and Action Plan).	A formal workshop was conducted in December 2022 with our biodiversity consultant, PT Hatfindo, and included experts from Indonesian universities and research agencies to develop an updated 5-year Biodiversity Strategic Action Plan. PT-FI continues to work with our consultant to ensure methodologies are consistent with the IBSAP across PT-FI including reference plots in areas with security concerns. PT-FI has published a formal summary (Biodiversity Management at FCX) of its biodiversity management plan, which incorporates relevant national environmental regulations as well as internationally recognized practices. Management plans are annually reviewed and updated as needed to incorporate biodiversity developments.	Recommendation Implemented

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		<p>2. Activities in raising public awareness and education on biodiversity could be developed further, and facilities or programs which have experienced setbacks due to Covid protocols or other reasons should be revitalized. Maintain documentation of these efforts.</p>	<p>Due to Covid-19 gathering restrictions, PT-FI was unable to continue in-person environmental outreach in 2020 and 2021. An online education program was developed to continue outreach via internet presentations to students across Indonesia. When restrictions eased in mid-2022, PT-FI restarted in-person environmental awareness and education initiatives. While still below pre-pandemic levels, PT-FI was able to welcome several students and visitors to MP21, the Biodiversity and Reclamation Research Center. We will continue and look forward to developing new outreach programs and encourage visitors both virtually and in-person to learn about the reclamation and biodiversity programs at PT-FI.</p>	<p>Recommendation Implemented</p>
		<p>3. PT-FI should continue to demonstrate its commitment to biodiversity conservation by encouraging and supporting more scientific research into the biodiversity within the IUPK area, which is representative of much of the unique biodiversity along the Papua southern coast. Plans to restore the use of permanent plots curtailed owing to security concerns, is encouraged.</p>	<p>PT-FI will continue to work with organizations and universities to support scientific research of the endemic biodiversity within the PT-FI project boundaries.</p> <p>PT-FI has evaluated restoring the use of permanent plots curtailed owing to security concerns with safety and international experts. The 5-year Biodiversity Strategic Action Plan has been updated to reflect this evaluation.</p>	<p>Recommendation Implemented</p>
		<p>4. PT-FI has the opportunity to further contribute biodiversity data on a national level and set an example for other corporations in the private sector. The mechanism or procedure to contribute this data should align with policies and regulations concerning Indonesia’s national targets and global commitments in the Convention on Biological Diversity.</p>	<p>PT-FI will continue to meet compliance obligations set forth in our Mine Closure Plan and Environmental Permit regarding biodiversity monitoring. Opportunities to further research biodiversity within the PT-FI project area continue for national organizations and universities.</p>	<p>Recommendation Implemented</p>

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Climate Change Related Issues	Air Quality and GHG	1. Conduct annual reporting of energy management implementation through POME application and receive POME certificate from MEMR as evidence that this reporting has been approved.	PT-FI will continue to report energy management through the POME application. PT-FI has completed years 2021, 2022 and 2023 reporting requirements.	Recommendation Implemented
		2. Add indicators for monitoring energy efficiency performance at the Mahaka Plant and DWP, i.e., energy consumption per unit product output at both facilities.	Following the 2024 Energy Audit, PT-FI has implemented several energy conservation programs. These programs include tracking Specific Energy Consumption at the mill, DWP and Mahaka. PT-FI continues to track used oil utilization and evaluate ways to improve used oil usage, further improve the quality and fuel-suitability of used oil, and reduce diesel consumption.	Recommendation Implemented
Regulatory Aspects		1. The issuance of the Job Creation Law No. 11 of 2020 as an amendment to the Environmental Protection and Management Law No. 32 of 2009 and its derivative regulations necessitates a proper and precise interpretation of the substance of the provisions. The new law as well as government regulations consists of many articles and are valid since the date of stipulations. For the sake of implementing recent regulations in a correct way PT-FI should engage in communications and dialogue to share the perceptions and interpretations about the regulations, both with the regulators and within PT-FI. Special consideration should be given to the substance of administrative and bureaucratic procedures and mechanisms, new nomenclatures, validity of the permits and their extension, criteria of changes	PT-FI's Environmental Division in the Jakarta office will continue dialogue and discussions with the Government of Indonesia regulators to determine applicability of new regulations. Internally we will work with the Government Relations and Legal Divisions to explore ways to better identify the applicability of new regulations.	Recommendation Implemented

Strategic Environmental Issues	Recommendations (Summary)	PT-FI Response	Status/Timing
	<p>regarding environmental approvals, the parties conducting supervision, and the criteria and standards of environmental quality.</p>		
	<p>2. PT-FI should continue to conduct dissemination process for better understanding of the new regulations on environmental protection and management to personnel from relevant departments, as continuation of the on-going PT-FI training and workshop program.</p>	<p>PT-FI’s Environmental Division in the Jakarta office will continue dialogue and discussions with the Government of Indonesia regulators to determine applicability of new regulations. Internally we will work with the Government Relations and Legal Divisions to explore ways to better identify the applicability of new regulations. PT-FI participates in GoI socialization workshops and focus group discussions to assist in developing internal memos and socializations</p>	<p>Recommendation Implemented</p>
	<p>3. Towards a continuous improvement in environmental management and monitoring related to the new regulations, updating and improvement of SOPs would be appropriate as guidance for operational activities and other operating and technical procedures.</p>	<p>PT-FI’s EMS, as certified as ISO 14001 compliant, and the Environmental Division continuously evaluates and improves SOPs per relevant regulations.</p>	<p>Recommendation Implemented</p>
	<p>4. In relation to the Decree of the Minister of Environment and Forestry No.SK991/Menlhk/Setjen/PLA.4/11/2021 on Approval for Environmental Evaluation Document of Changes to Business and/or Underground Mine Operation Activities That Have Been Running and That Have Not Been Covered in PT Freeport Indonesia 2018 Environmental Permit, PT-FI has undertaken the environmental management plan (RKL) and environmental monitoring plan (RPL)</p>	<p>Since early 2022, PT-FI has reported the implementation of the RKL and RPL as stipulated in the Decree of the Minister of Environment and Forestry No. SK 991/Menlhk/Setjen/PLA.4/11/2021 concerning Approval of Environmental Evaluation Documents for Changes in Underground Mining Businesses and/or Operational Activities that have been Underway and Not Covered in PT Freeport Indonesia's Environmental Permit Year 2018. The report has also been uploaded into the Environmental Electronic Reporting Information System (SIMPEL)</p>	<p>Recommendation Implemented</p>

Strategic Environmental Issues	Recommendations (Summary)	PT-FI Response	Status/Timing
	attached in this Decree in the implementation of RKL and RPL during 2022 as a supplement to the implementation report of RKL and RPL stated in Decree of the Minister of Environment and Forestry No. SK.546/Menlhk/Setjen/PLA.4/11/2018 until the issuance of the new environmental approval.		