

Annual Quartz Mining Licence Report for 2024

Property Sä Dena Hes Mine
Company Sä Dena Hes Operating Corporation
 c/o Teck Resources Limited
Permit # QML-0004

Date March 3, 2025

Executive Summary

The Annual Reclamation Report for 2024 for the Sä Dena Hes (SDH) mine site was prepared by Teck Resources Limited on behalf of Sä Dena Hes Mining Corporation, as required in accordance with Yukon Quartz Mining Licence QML-0004. This annual report describes the status and applicable progress of closure and reclamation related activities at the Sä Dena Hes Mine in 2024.

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake in the Yukon Territory and is owned by the Sä Dena Hes Mining Corporation which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

Permanent closure and decommissioning activities commenced in 2013 and were completed in 2015. Reclamation activities conducted at the site included applying a simple cover constructed of natural glacial till materials to most mine disturbed areas. This cover was constructed to limit the release of contaminants to the air, water and land. Surface contouring and vegetation have been completed for protection against water erosion. A revegetation program was implemented once the cover system was finished in 2015.

Monitoring of surface water and groundwater quality was completed in 2024 in accordance with Water Use Licence QZ16-051. Overall, the 2024 water quality monitoring program did not identify any signs of deteriorating water quality at the receiving environment station downstream of the mine site and no follow-up management measures were deemed necessary.

Routine physical work conducted at the site in 2024 included maintaining culverts along the site access road and addressing beaver activity that occurred in the Sediment Retention Structure. Non-routine physical work was completed at site in support of the planned upgrade of the North Embankment of the Tailings Management Area (TMA) and was focused on the clearing of brush along the access trail to where the site's borrow material is sourced (former Reclaim Dam borrow pit).

An Annual Facility Performance Review (AFPR) was completed for the TMA, which indicated that the North Embankment is currently stable and functioning in accordance with design parameters. Both the Sediment Retaining Structure (SRS) and North Drainage Channel were also functioning in accordance with their design parameters.

The 2024 geotechnical inspection indicated that other geotechnical structures on site are stable and are functioning in accordance with the closure design.

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1.0 Introduction

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake in the Yukon Territory and is owned by the Sä Dena Hes Mining Corporation which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

Teck submitted notice to begin “Permanent Closure” to the Ministry of Energy, Mines and Resources (EMR) on February 17, 2012. The Detailed Decommissioning and Reclamation Plan (DDRP) (Teck, 2012) (Teck, 2013) was revised to plan for permanent closure. Permanent closure and decommissioning activities were carried out in 2014 and in 2015. A final DDRP was submitted in August 2015 (Teck, 2015) to account for amendments issued in 2014 and 2015. In 2015 Teck amended the Quartz Mining Licence (QML-0004), which expires on December 31, 2040. The current status of the site is Permanent Closure and Reclamation.

The objectives of the decommissioning and reclamation plan included the following:

- Protect public health and safety;
- Implement environmental protection measures that minimize adverse environment impacts;
- Land use is commensurate with surrounding lands;
- Monitor post-closure conditions to assess effectiveness of closure measures for the long term.

Reclamation activities conducted at the site included applying a simple cover constructed of glacial till materials to most mine disturbed areas. This cover limits the release of contaminants to the air, water and land and provides a medium for revegetation. Surface contouring and vegetation have been completed for protection against water erosion. A revegetation program was implemented once the cover system was finished in 2015.

The Yukon Water Board regulates water management of the mine site. Water Use Licence QZ16 051 addressing permanent closure came into effect on April 1, 2017 and expires on December 31, 2040. Teck retains a Surface Lease 105A10-011 on the property that was renewed in 2021 and expires in 2041.

2.0 2024 Decommissioning and Reclamation Activities

The QML and Water Use Licence both require post-reclamation environmental monitoring, physical/geotechnical inspections, and maintenance of constructed/engineered structures to be completed in accordance with the Environmental Monitoring, Surveillance and Reporting Plan (EMSRP) (Alexco, 2017) and Adaptive Management Plan (AMP) (Alexco, 2018).

The following summarizes the activities with details further discussed within the subsequent sections:

- Surface Water and Groundwater Quality Monitoring/Sampling
 - Bi-monthly/quarterly surface water and groundwater monitoring and sampling was conducted from January to December as per the Water Use Licence QZ16-051.
- Terrestrial Monitoring
 - Photographs were taken at the eight permanent photo hubs that were installed in 2020 to add to the annual record. The next vegetation monitoring program event is scheduled for 2026.
- Aquatic Resources Monitoring
 - Aquatic resources monitoring is a biennial program under QZ16-051 that occurred in August 2024 and will take place again in 2026.
- Physical/geotechnical inspections
 - Spring and fall routine site inspections of physical/geotechnical features were completed by Teck and the site caretaker.
 - The 2024 Annual Facility Performance Review of the Tailings Management Area and annual geotechnical inspections of other mine areas were completed by the Engineer of Record (EoR) for the TMA in July 2024. As per the QML-0004, the associated annual inspection reports were submitted in September 2024.
- Maintenance of the site access road and constructed/engineered structures on the mine site, including:
 - Inspection of access road culverts and installation of guarding to prevent the placement of debris by beavers;
 - Minor repairs of items noted during annual facility performance inspections, in 2024 this involved the removal of debris placed by beavers at the SRS spillway.

3.0 2025 Decommissioning and Reclamation Activities

Over the course of 2025 Teck will continue to carry out site inspections and complete maintenance to correct any issues that may be identified. Additionally, the post closure monitoring as outlined in the EMSRP and AMP will be conducted in 2025 as per the Water Licence issued in April 2017.

On March 1, 2024, Teck submitted a Project Plan to Yukon Energy, Mines and Resources (EMR) to complete an upgrade to the North Embankment of the Tailings Management Area (TMA). This upgrade has been initiated to fulfill a recommendation from the Engineer of Record (EoR) to prevent future overtopping events caused by ponded snowmelt water, similar to the erosion event that occurred in 2022. In July 2024, Teck received approval from EMR to complete pre-development activities for this project. Correspondingly, pre-development work was completed in September and included clearing of vegetation along a former access trail to the site's source of borrow material (former Reclaim Dam borrow) as well as test pitting investigation at the existing quarry located at KM17 of the site access road.

Pending the receipt of authorization to complete the North Embankment upgrade Teck will be completing the construction activities throughout Q2 and Q3, which will be followed by restoration planting activities in 2026 to fully conclude the project.

4.0 Effectiveness of the Remediation Measures

All of the physical remediation and revegetation activities for the site were completed in 2015. Based on observations made during current monitoring programs, the remediation measures that have been carried out appear to be effective. Most of the site's engineered structures remain to be in good condition with no signs of movement or erosion with the exception of a few small areas identified in previous reports and the previously noted observation of erosion beneath the SRS spillway. Erosion beneath the spillway does not impede the functionality of the structure, but it will require reconstruction if it is not decommissioned before 2028. Teck currently intends to decommission the SRS and will complete planning throughout 2025 to advance this work in subsequent years.

5.0 Map showing the status of all decommissioning and reclamation activities

All the physical remediation and revegetation activities were completed in 2015. In the 2015 Annual Report, several drawings were included within the AMEC 2015 As-built report. Due to the limited physical work completed in 2024 there are no updated maps included within this report.

6.0 Inspection of Engineered Structures

6.1 TMA

The 2024 inspection of the structures and features associated with the Tailings Management Area was completed by SRK Consulting (SRK) on July 9 and 10, 2024. The inspection report *2024 Annual Facility Performance Report – SDH Tailings Management Area, dated September 2024*, (SRK, 2024) was submitted to EMR in September 2024.

The report presents SRK's observations of the following structures and features of the Tailings Management Area (TMA), identifies any deficiencies and provides recommendations where appropriate:

- North Embankment
- Tailings Cover
- North Drainage Channel
- Sediment Retaining Structure (SRS)

The 2024 inspection indicated that the North Embankment is currently stable and functioning in accordance with design parameters. It was also noted that there were no signs of instability following the repairs that were made to the North Embankment following the erosion event that occurred in 2022.

Additionally, the inspection noted that both the Sediment Retaining Structure (SRS) and North Drainage Channel were also functioning in accordance with their design parameters, though the AFPR noted minor maintenance needed at the SRS that was, in turn, completed in the following weeks (see recommendation 2024-2).

Activities carried out in 2024 to address recommendations outlined in the most recent TMA Annual Facility Performance Review include:

- 2024-2: SRS - Debris placed by beavers against the inlet of the spillway observed during the AFPR inspection was removed and a tool to prevent/redirect beaver activity in the pond was installed for the remainder of the open water season and removed before freeze-up. The beavers were not observed in the pond following the debris removal.
- 2024-3: TMA – The Operation, Maintenance and Surveillance manual for the TMA was revised with updated contact information and the addition of protocols for the use of a remote surveillance camera for monitoring of the North Embankment.

The recommendations and timelines (highlighted in bold text) from the 2024 TMA Annual Facility Performance Review (AFPR) that remain open/in-progress include:

- 2022-3: North Embankment – Drainage channel blockages on cover during snowmelt resulted in formation of a pond adjacent to embankment, and the pond overtopped the North Embankment, forming an erosion gully on the dam. Modify the embankment to eliminate this risk in the future.

Teck is addressing this recommendation as part of the North Embankment Upgrade project. A Project Plan was submitted to EMR for review in March 2024 and Teck received authorization to complete pre-development activities that occurred in September 2024. Pending the receipt of authorization to complete the North Embankment upgrade Teck will be completing the construction activities throughout Q2 and Q3, which will be followed by restoration planting activities in 2026 to fully conclude the project.

- 2023-1: North Embankment – Install a new seepage monitoring station near the embankment toe as part of North Embankment Upgrades

Teck has incorporated the installation of a new seepage monitoring station as part of the North Embankment Upgrade project. Installation will be completed in 2025, pending final approval of the Project Plan by EMR.

- 2023-2: North Embankment – To improve the understanding of the contributions of seepage through the embankment and from groundwater recharge, consider installing additional piezometers in the tailings upstream of the embankment and in the embankment fill and foundation in the downstream slope of the embankment

Teck has incorporated the installation of additional piezometers into the scope of the North Embankment Upgrade project. Installation will be completed in 2025, pending final approval of the Project Plan by EMR.

- 2023-3: Tailings Cover – Reduce the amount of ponding on the tailings cover and provide engineered protection where required along drainage pathways.

The North Embankment Upgrade project design includes the placement of fill in the area adjacent to the south of the embankment to prevent/reduce ponding and the installation of erosion protection along the drainage pathways. These portions of the project will be completed in 2025, pending final approval of the Project Plan by EMR.

- 2023-4: SRS – Create and execute a plan to decommission the SRS by 2028.

Teck will be planning and scoping for the decommissioning of the SRS throughout 2025 with plans to complete a design in 2026.

- 2024-1: North Embankment – Replace the NDW-4A piezometer with a new vibrating wire piezometer in accordance with the locational instructions of the Engineer of Record.
Teck has incorporated the installation of a replacement piezometer for NDW-4A as part of the North Embankment Upgrade project scope. Installation will be completed in 2025, pending final approval of the Project Plan by EMR.

6.2 Other Geotechnical Structures

The 2024 geotechnical inspection of the following engineering structures, work, and installations was completed by SRK Consulting (SRK) on July 9 and 10, 2024:

- Main Zone and Jewelbox Ore Zones: Pits, Waste Rock Dumps, and Portals
- Burnick Ore Zone Waste Rock Dumps and Portals (1200 and 1300)
- The South Drainage Channel and Camp Creek Drainage Channel
- The North Creek Channel that was reclaimed following decommissioning of the North Creek Dike and Second Crossing of the North Creek
- The Landfill area.

The inspection report *2024 Annual Geotechnical Inspection, Sä Dena Hes Mine, Watson Lake, Yukon dated September 2024*, (SRK., 2024a) was submitted to EMR in September 2024.

The 2024 geotechnical inspection indicated that all structures and features listed above are stable and functioning in accordance with the closure design parameters. No actions or recommendations arose out of this inspection.

7.0 Results of Studies and Monitoring Programs

7.1 Water Licence Monitoring

The water quality standards and monitoring requirements are managed under Water Licence QZ16-051 Effective Date April 1, 2017 with the expiry date of December 31, 2040.

The licence describes the water quality monitoring program for post closure monitoring, which is the applicable program for the current status of the SDH (Permanent Closure and Reclamation). The water quality program outlines the sampling sites, frequency and required water quality parameters.

As required by Licence QZ16-051, water quality data is reported quarterly to the Yukon Territory Water Board. The 2024 monitoring results are discussed in the annual report prepared by Ensero Solutions entitled *Sä Dena Hes – 2024 Annual Report Yukon Water Licence QZ16-051 dated March 2025* (Ensero Solutions, 2025). The report provides an analysis of data from the water monitoring program and is included as Appendix B. Surface and groundwater water quality monitoring conducted under the AMP are also included in the water licence monitoring requirements. The AMP describes a means of interpreting data to indicate if water quality is changing from conditions observed over the past 20 years. The plan also describes when and how changes in water quality require a response.

In 2024, samples from all the required water quality monitoring stations met the standards in licence QZ16-051 for all water quality parameters at stations MH-11, MH-12 and MH-15. In 2024, there were also no AMP threshold trigger at the surface water stations, but multiple AMP ST1 triggers and one ST2 trigger were identified at the mine source groundwater wells. All AMP exceedances in 2024 were attributed to seasonal variation, analytical variability, and/or anomalous measurements. Overall, the 2024 water quality monitoring program did not identify any signs of deteriorating water quality at the receiving environment stations

7.2 Aquatics Resource Monitoring

The biennial aquatics resource monitoring program was completed in August 2024 and the results are included in the 2024 Water Licence report.

The next biennial aquatics resource monitoring program is scheduled for 2026.

7.3 Vegetation Monitoring

In 2015, a total 27,000 plugs were planted of *Salix alaxensis*, *S. bebbiana*, *S. barclayi*, *S. planifolia* and *Populus balsamifera* were installed in several discrete areas throughout the reclaim, south pond, north pond and mill areas. The remaining open areas of these sites were planted with approximately 70,000 alder (*Alnus viridis crispa*) plugs. The alder were planted at a much lower density than the other tree species.

The fifth year of revegetation monitoring was conducted in 2020 by Laberge Environmental Services. The detailed results of the monitoring are included in the attached report entitled “*Revegetation Monitoring at the Reclaimed Sä Dena Hes Mining Site, 2020*” dated January 2021 (Laberge, 2021). The next revegetation monitoring event will occur in 2026, coinciding with the scheduled terrestrial ecological risk assessment program. Between these monitoring events annual photos are taken to document changes. Eight permanent photo hubs were established in 2020 throughout the revegetated areas and photos are taken at these hubs each summer. The locations of the photo hubs (Table 7.1) are displayed in Figure A.1 in Appendix A. Photographs were taken of each site in 2024 and are included in Appendix A.

Table 7.1 Locations of Permanent Photo Hubs, July 2020

Hub #	Latitude	Longitude	Site Description	Bearing (°)
PH-1	60.53885o	128.85624o	At Revegetation sign at the North Embankment	70 to 80
PH-2	60.53144o	128.85213o	North end of South tailings facility near VMP-2; near old access road	360 view
PH-3	60.52005o	128.87726o	Jewel box, at MW13-02 and GP3	346
PH-4	60.54871o	128.85471o	Landfill at MW14-02	360 view
PH-5	60.53388o	128.85292o	South end of north tailings facility near VMP-4	5 and 65
PH-6	60.52305o	128.86575o	Mill area near access road	360 view
PH-7	60.52457o	128.84914o	Reclaim and Borrow pit G – near osprey nest	360 view
PH-8	60.55294o	128.87687o	Burnick, GP-6 & MW13-06	220

VMP – Vegetation monitoring plot; GP – Grass monitoring plot

8.0 Invasive Plants

There were no formal assessments of invasive plants completed in 2024. It is expected the areas that were previously identified as containing invasive species will decrease in size as individual plants continue to be removed manually. Similar to past observations, the most common invasive species encountered was *Crepis tectorum*, (narrowleaf hawksbeard) and was generally found sporadically along the roadsides within the study area and has increased near monitoring plot VMP-9 at the landfill site (Laberge, 2021). As the alders increase in size on site, the hawksbeard should eventually die off. These areas continue to be monitored, and any individual invasive plants discovered across the site are hand-pulled to limit the expansion of the species beyond manageable limits.

9.0 Spills and Accidents

There were no reportable spills or accidents in 2024.

10.0 Wildlife-related Incidents and Other Accidents

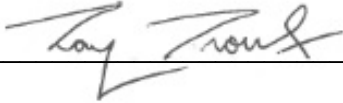
There were no wildlife-related incidents or other accidents reported in 2024. There is continued beaver activity in the area resulting in the periodic deposition of material in water conveyance structures (i.e., culverts). Response measures include the clearing of the material and, when deemed necessary, trapping of the beavers by the owner of the trapline that encompasses the site within the harvest season.

11.0 Site Improvements to address Sediment and Erosion

Following the erosion event that occurred on the North Embankment in 2022 a recommendation was made by the facility's EoR to raise the dam's crest to prevent future overtopping events caused by pooled water arising from the spring melt. An engineered design for this enhancement was developed in 2023 and a Project Plan was submitted to Yukon Energy Mines and Resources (EMR) for review in March 2024. In July 2024 Teck received authorization from EMR to complete pre-development activities that, in turn, were completed in September 2024. Pending the receipt of authorization to complete the North Embankment upgrade Teck will be completing the construction activities throughout Q2 and Q3 2025, which will be followed by restoration planting activities in 2026 to fully conclude the project.

12.0 Closing

I trust this report meets the requirements under Part 5, Section 11.4 of QML-0004. Please contact Ray Proulx at (250) 467-3194 or Ray.Proulx@teck.com if you have any questions regarding this report.



Ray Proulx, B.Sc.
Ray Proulx, Site Manager
Teck Legacy Properties

13.0 References

Alexco. (2017). *Sa Dena Hes Mine – Environmental Monitoring, Surveillance and Reporting Plan, June 28, 2017.*

Alexco. (2018). *Sa Dena Hes Mine - Post-Reclamation Adaptive Management Plan, dated February 12, 2018.*

Ensero Solutions. (2025). *Sä Dena Hes – 2024 Annual Report Yukon Water Licence QZ16-051 dated March 2025.*

Laberge. (2021). *Revegetation Monitoring at the Reclaimed Sä Dena Hes Mining Site, 2020, prepared by Laberge Environmental Services, dated January 2021.*

SRK. (2024). *2024 Annual Facility Performance Report - SDH Tailings Management Area, prepared by SRK Consulting (Canada) Inc., dated September 2024.*

SRK. (2024a). *2024 Annual Geotechnical Inspection, Sä Dena Hes Mine, Watson Lake, Yukon, prepared by SRK Consulting (Canda) Inc., dated September 2024.*

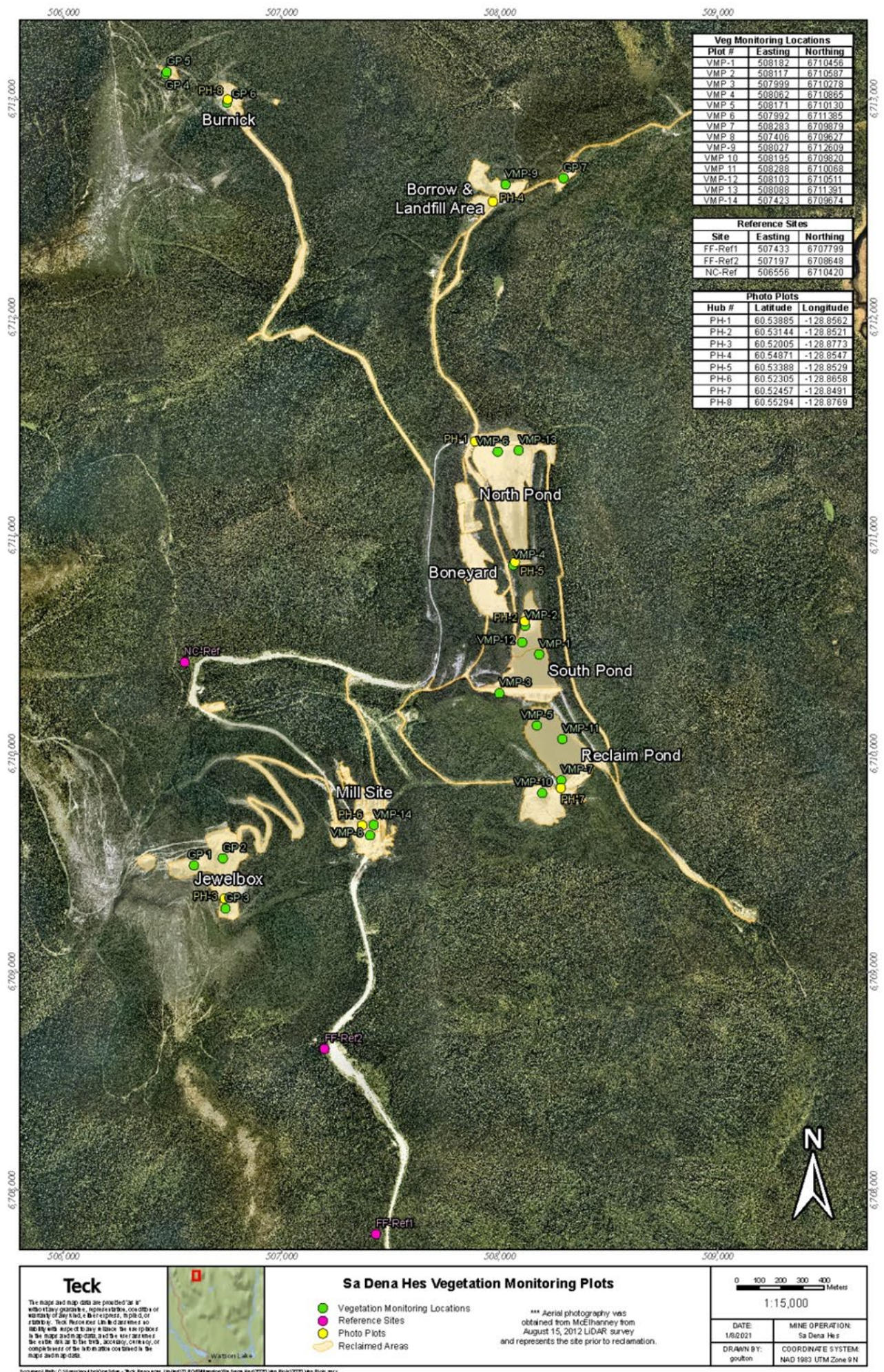
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Teck. (2013). *Sa Dena Hes Mine, Detailed Decomissioning and Closure Plan, March 2013 Update-Final, prepared by Teck Resources Limited .*

Teck. (2015). *Sa Dena Hes Mine, Detailed Decommissioning and Reclamation Plan August 2015 Update. Prepared by Teck Resources Limited, August 31, 2015.*

APPENDIX A
REVEGETATION MONITORING PLOTS AND 2024 PHOTOS

A.1 Revegetation Map



A.2 Photo Hub 1 – At Revegetation Sign at the North Dam/Embankment, 2024



North Dam and Tailing area looking east: Latitude 60.53885° Longitude 128.85624°



North Dam and Tailing area looking southeast

A.3 Photo Hub 2 – North End of South Tailings Area Near VMP-2, 2024



Looking North: Latitude 60.53144° Longitude 128.85213°



Looking South

A.4 Photo Hub 3 – Jewelbox Near GP3 and MW13-02, 2024



Looking South: Latitude 60.52005° Longitude 128.87726°



Looking Northeast



Looking East

A.5 Photo Hub 4 – Landfill at MW14-02 and VMP-9, 2024



Looking North: Latitude 60.54871° Longitude 128.85471°



Looking West



Looking South

A.6 Photo Hub 5 – South End of North Tailings Facility (VMP-4), 2024



Looking East: Latitude 60.53388° Longitude 128.85292°



Looking North

A.7 Photo Hub 6 – Mill Site, 2024



Looking North: Latitude 60.52305° Longitude 128.86575°



Looking South



Looking East



Looking West towards old crusher site

A.8 Photo Hub 7 – Former Reclaim Pond, 2024



Looking West to borrow pit: Latitude 60.52457° Longitude 128.84914°



Looking Southeast



Looking North

A.9 Photo Hub 8 – Burnick, GP-6, and MW13-06, 2024



Looking East towards three portal drains



Looking East waste rock dump: Latitude 60.55294° Longitude 128.87687°



Looking West rock dump

APPENDIX B
SÄ DENA HES – 2024 ANNUAL REPORT YUKON WATER LICENCE
QZ16-051 DATED MARCH 2025, PREPARED BY ENSERO SOLUTIONS
(Electronically Submitted as Separate File)