First Nations engagement in mine closure: Sä Dena Hes mine decommissioning and reclamation

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Abstract

The Sä Dena Hes mine, which produced lead and zinc concentrates, is located approximately 70 km north of the Town of Watson Lake, Yukon Territory, Canada and lies within the traditional territory of the Liard First Nation. The decision to enter the site into permanent closure was made in 2013. Under the mine’s licenses, reclamation must be substantially completed by 31 December 2015. Teck Resources Limited retained Amec Foster Wheeler Environment & Infrastructure in 2013 to carry out the implementation of Teck’s closure plan. The involvement of First Nations personnel was one of the main project priorities.

During the short 2013 construction season, First Nations personnel worked over 60% of all on-site man-hours. The bulk of construction activities needed to be completed in 2014 to prepare for final reclamation activities to be carried out in 2015 during the final construction period. The strategy for completing the aggressive 2014 project phase within a limited timeframe included engaging larger general contractors that could handle the large scopes of work with stipulations during the tendering process of required First Nations engagement as part of the contractor selection process. Some of the site works, including items such as road maintenance and pipeline removal, were specifically left out of tender packages and awarded directly to local First Nations contractors to further promote their engagement in the project. Other First Nations engagement included hiring environmental monitors and first-aid attendants. The 2014 season saw more than 50% of all Teck-contracted man-hours on-site worked by First Nations personnel. Overall, First Nations personnel have worked 53.2% of all man-hours (26,754 out of 50,242 total man-hours) on Teck-contracted project aspects.

1 Introduction

The Sä Dena Hes (SDH) Mine, located approximately 70 km north of the Town of Watson Lake in Canada’s Yukon Territory, is a lead/zinc mine that operated between August 1991 and December 1992. The detailed decommissioning and reclamation plan (DDRP, hereafter referred to as the closure plan) for the SDH mine site was developed and submitted to the Yukon Ministry of Mineral Resources and Water Board for approval. The closure plan addresses the socio-economic expectations of maximising the use of local resources to complete the project and promote the region’s economy (Teck, 2013). The decision was made to enter the SDH mine into permanent closure in January 2012, and the final closure plan was submitted and approved in July 2013. The project needs to be completed by 31 December 2015, as the existing Type “A” water license QZ99-045 and quartz mining production license QML-0004 expire at that time.

The SDH mine decommissioning and reclamation project is the first major reclamation project of its kind to be carried out in the Yukon Territory by a private mining company (rather than completed by the territorial government). The owner, Teck Resources Limited (Teck), retained Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) to implement the closure plan for the site within the license expiry timeframes. The site lies within the traditional territory of the Liard First Nation, making engagement of local First Nations personnel a project priority and a key component of its successful execution.

With the project approval not granted until summer 2013, only minor works could be carried out during that construction season. Since the 2015 season is reserved primarily for final reclamation activities such as revegetation and site access road decommissioning efforts, the bulk of decommissioning and reclamation
activities needed to be carried out in 2014 to ensure the project was completed on schedule. In order to accomplish the work within the established timeframe while maximising the use of local resources, a strategic approach was developed: general contractors would bid on the project with the understanding that the inclusion of First Nations personnel would be a key component of the selection process. Certain site works would purposely be left out of major works contracts to allow First Nations the chance to complete these works.

To date, the implementation approach has proven effective in completing the scope of work outlined in the closure plan. During this time, engaging local First Nations resources has remained a priority. The final stages of the SDH mine decommissioning and reclamation project will be executed in 2015. A similar implementation approach will continue to be used during the final reclamation activities to ensure the project objective of engaging First Nations personnel is maintained.

2 Site description and background

2.1 Site description

The SDH mine is currently owned by a joint venture between Teck (50% ownership) and Pan Pacific Metal Mining Corp. (a wholly owned subsidiary of Korea Zinc, 50% ownership). Teck is the operator under the joint venture agreement. Formerly a zinc/lead mine, most of the mineral occurrences range in elevation from 1200 m to 1500 m above sea level. Prior to decommissioning and reclamation activities, on site features included mill infrastructure, tailings management facilities, mine workings including open pits and underground portals, waste rock dumps, electrical infrastructure, and tailings and water supply pipelines.

![Aerial view of Sä Dena Hes mine site, located 70 km north of the Town of Watson Lake, Yukon Territory, 2012](image)

Figure 1 Aerial view of Sä Dena Hes mine site, located 70 km north of the Town of Watson Lake, Yukon Territory, 2012

2.2 Site background

2.2.1 1962–2013

Exploration activities at the SDH mine began as early as 1962 and continued until construction of the mine site began in 1991. Between 1979 and 1982, diamond-drilling programs were carried out and estimates outlined 250,000 tonnes of zinc and lead mineralisation. During the mid-to-late 1980s, further geological and geochemical prospecting was conducted, and estimates suggested a zinc-lead-silver mineral inventory of
more than five million tonnes scattered among many areas. Further drilling was carried out in 1989, and this program refined the assessment of mineable reserves to 3.9 million tonnes at 11.5% zinc, 3.8% lead and 53 grams/tonne silver. Curragh Resources constructed the mine in 1991.

During the 16 months of production (August 1991 to December 1992), approximately 700,000 tonnes of ore were mined and processed. Production included approximately 120,000 tonnes of zinc concentrates with a grade of 59% zinc and 54,000 tonnes of lead concentrates at a grade of 77% lead. A sharp downturn in metal prices forced the mine to shut down in December 1992, when the site was put on a care and maintenance program. The current owners purchased the property in 1994.

In 2000, the first closure plan for the site was developed and subsequently updated as required under the mine’s licenses. The closure plan outlines the closure measures and objectives to be carried out for the site. The site remained in care and maintenance until 2013 subsequent to the approval of the closure plan. A full-time caretaker resided at the mine site to oversee the care and maintenance until 2013, when implementation of the decommissioning and reclamation activities began. The following is an excerpt from the closure plan detailing pertinent activities from the care and maintenance period:

*Teck held a Water License for the site, allowing the regulated volumes of water to be discharged from within the site’s Tailings Management Area to the environment. Teck also holds a Quartz Mine Production License for the site. The Company currently holds a Type A Water License QZ99-045, and Quartz Mine Production License (QML-0004) for quartz mining, both of which were issued in 2003 and expire on December 31, 2015. In 2005 and again in 2010, extensions to the Temporary Closure clauses were obtained for both Licences with the 2010 extension specifying that Temporary Closure ends on January 27, 2013. As of January 28, 2013, the site is deemed to be in “Permanent Closure” which requires implementation of the site closure plan. (Teck, 2013)*

Throughout the care and maintenance period, Teck was committed to involving First Nations and local community members in the site’s activities. In the closure plan for the site, Teck also committed to the continued involvement and engagement of First Nations and local community members throughout the reclamation activities at the site. Regarding First Nations and local community engagement on the site throughout the care and maintenance period and into closure:

*When the Sëa Dena Hes Operating Corporation purchased the Sëa Dena Hes Mine in 1994, the venture worked with Liard First Nation and formulated a Socio Economic Agreement that was to guide their joint relationship during the operation of the mine. Unfortunately, the mine did not reopen and remained dormant. Upon the decision to permanently close the Sëa Dena Hes Mine, Teck sought to update its relationship with the Liard First Nation. The intent of the relationship between the two parties is for both parties to obtain value from their relationship as well as the optimization of the economic opportunities within the Nation and locally in the Watson Lake area. (Teck, 2013)*

### 2.2.2 2013–present

The decision to enter the site into permanent closure was made in 2012. Under the mine’s licenses, closure must be completed by 31 December 2015: “Upon review and acceptance of this update to the DDRP, the plans contained will be implemented beginning in the summer of 2013 and will be substantially complete by December 31, 2015” (Teck, 2013).

The approved closure plan schedule included three construction seasons; however, internal and external project approvals were only received in summer 2013, which required the schedule to be compressed. Following the decision to enter the site into permanent closure, Teck’s legacy properties division hired Amec Foster Wheeler to perform project management, procurement and construction management services, and to provide health, safety and environmental oversight associated with the implementation of Teck’s approved closure plan for the site. Site services Teck requested also included emergency medical transportation (EMT) services complying with regulatory requirements associated with working in isolated workplaces, as well as surveying services that would be carried out on-site. To fulfil the requirements, Amec
Foster Wheeler employed two primary sub-contractors. Polar Medical Services was contracted to carry out the remote first-aid services at the mine site, including establishing and maintaining a first-aid room, providing an EMT vehicle and providing first-aid attendants. The first-aid attendants also assisted with site security and served to document and control personnel accessing the site on a daily basis over the course of the project. Amec Foster Wheeler also partnered with Yukon Engineering Services (YES) in a sub-contractor role. YES, based out of Whitehorse, provided on-site surveying and inspection services over the course of the project. The addition of YES to the project team was also beneficial because of the firm’s firsthand local knowledge of the area, including the climate and socio-economic environment, and familiarity with the local general contractors that would be participating in the delivery of the services during the execution of work at the site.

In implementing the project, Teck made it clear to Amec Foster Wheeler that engagement of First Nations personnel was a top project priority. This message aligns with commitments made in the approved closure plan:

*Teck’s approach to working with the Liard First Nation in 2013 and into the future will be based upon the solid working relationship established and maintained between Teck and the LFN to date.*

*As part of the ongoing consultation with LFN, including the ecological and human health risk assessment processes, traditional land uses and values will be incorporated into the end land use activities considered. (Teck, 2013)*

The general strategic model for the project was developed in 2013, and local First Nations contractors were hired to carry out minor reclamation works prior to the majority of construction activities taking place in 2014. In 2014, Teck and Amec Foster Wheeler worked together to develop an implementation methodology and strategy that addressed the need to hire local community members to contribute to the successful execution of the project. The 2014 project phase was carried out on multiple concurrent fronts. A large on-site management team was provided to oversee the implementation of the closure plan. Owing to scheduling considerations and the large scope of many of the objectives, general contractors with the capacity to carry out the work needed to be hired. Inclusion of First Nations personnel in the project was a major consideration during contractor selection and the tendering process. Certain site works were purposely left out of major works contracts to ensure small local contractors were engaged in the project and had the opportunity to complete these works.

For the purposes of this project, First Nations engagement is defined as follows:

\[
\frac{\text{First Nation workforce hours}}{\text{Total workforce hours}} = \% \text{ First Nations engagement}
\]

The level of engagement is presented as a percentage using this calculation.

3 **Overview of construction**

The SDH mine closure plan, dated March 2013, details the closure plan for the mine and associated infrastructure. The key reclamation activities associated with the project are as follows:

- demolish and dispose of site infrastructure;
- seal underground mine workings;
- re-slope waste rock dumps;
- dewater and remove two dams;
- decommission, cap and reclaim the tailings management facility;
• cap and re-vegetate mine facilities;
• final closure works related to the reclamation and closure of the mine site.

As presented in Section 2, the original closure plan implementation schedule was for three seasons, but since the final submission/approval was delayed, the schedule was compressed. A short construction window was available in 2013, but the majority of the work needed to be carried out in 2014 and 2015.

3.1 Implementation strategy and methodology: 2013 phase

3.1.1 Construction work

In 2013, following receipt of the necessary approvals, a limited demolition and water pumping program was carried out near the end of the construction season (12 September to 10 October). Key work activities were carried out that would prepare the site for the majority of the work to take place in 2014. Work included demolition of the mill camp facilities and office complex as well as associated on-site landfill operations. Pumping of water within the tailings management area was also performed during this time. The pumping operations carried out in 2013 were critical to the success of the 2014 construction season, as they reduced the number of days of pumping required in 2014. Discharge of water from the tailings facility is only permitted for 90 cumulative days on an annual basis and is limited by a maximum hourly discharge volume; hence the importance of doing as much pumping as possible in 2013.

3.1.2 First Nations involvement strategy

The 2013 work phase was executed by awarding work activities directly to local First Nations contractors. This was done following a pre-project meeting in the town of Watson Lake that involved the Teck project manager, the Amec Foster Wheeler project manager, the Amec Foster Wheeler construction manager and the owners of two local First Nations contractors. Teck/Amec Foster Wheeler (hereafter referred to as the construction management team) had prepared a list of work activities that needed to be accomplished in 2013, and these two contractors were invited to the meeting with the construction management team to discuss the work and their availability to carry out the work. The work primarily involved heavy equipment with some labour to support the effort for pumping operations and pipeline removal. The construction management team presented the work activities to the two contractors and requested a collaborative effort between them to accomplish the work. Following the meeting, both contractors provided a rate schedule for their equipment. The work was carried out on a time and materials basis using these rates, and the construction management team used every effort to use equipment from both contractors to execute the work. Additionally, Amec Foster Wheeler, through sub-contractor Polar Medical, was able to engage members of the Liard First Nation to carry out first-aid attendant/site security services for the duration of the 2013 construction program.

Additionally, Teck finalised a formal communication and engagement plan in 2013 that included updating the community with meetings, funding traditional knowledge studies and forming a project working group. The traditional knowledge studies involved providing funding to the community to gather knowledge from the elders and to identify trails, traditional uses of the area, including those involving plants and animals, and potential end land uses for the mine site. The information gathered was also important for completing the human health and ecological risk assessment studies undertaken to guide the overall remediation of the mine site.

3.2 Implementation strategy and methodology: 2014 phase

3.2.1 Construction work

Owing to the requirement to implement the closure plan activities by the end of 2015, the work schedule was compressed and included critical path tasks that needed to be completed in 2014. The activities scheduled for the 2015 construction season are primarily revegetation and road removal efforts across all
site locations. This meant that construction works identified for 2014 had to be completed in the limited six-month construction season. This would ensure that reclamation was sufficiently advanced to permit final tasks to be executed in 2015 prior to the expiration of the site licenses.

The 2014 component of the decommissioning and reclamation project involved a large scope of work to be accomplished. Reclamation activities in 2014 included:

- dismantling and salvage operations, including demolition of the mill and associated infrastructure;
- decommissioning of tailings management area including removal of dam structures, development of a rock quarry for production of rip rap, construction of drainage channels and capping tailings areas;
- permanently sealing mine workings, infilling open pits and reshaping waste rock dumps;
- decommissioning and removal of all electrical infrastructure;
- decommissioning of all on-site tanks not associated with the mill dismantling and salvage operations;
- other site activities including, but not limited to, capping the mill site once the infrastructure had been removed, road maintenance, removal of pipeline, demolition of shacks, landfill operations, general site clean-up and construction of helipads.

The 2014 construction program included several critical path challenges. Water accumulated within the tailings management area needed to be discharged within a 90 cumulative day timeframe, and pumping could only be carried out to a specified maximum hourly discharge. If pumping was not completed within this timeframe, the remainder of the works could not be completed. To ensure the pumping was completed, penalties for loss in pumping production were built into the contract documents such that the contractor was required to maintain a minimum hourly discharge and would be monetarily penalised for lost time associated with pumping. Additionally, the contractor was to provide a full set of backup equipment. The isolation of the site meant breakdowns would result in significant overall delays to the construction schedule, which could not be tolerated owing to the overall critical path nature of the 2014 construction season. Portal closures and construction of reinforced concrete caps over vertical vent shafts needed to be completed in an extremely tight construction window. This work needed to be completed in 2014 to ensure revegetation and road decommissioning could be carried out in 2015. Substantial completion dates with associated penalties for delays were incorporated into the contracts to ensure the contractors adhered to the project schedule. Other schedule challenges included completing the removal of the mill and associated infrastructure by mid-season to allow concrete breaking and reshaping efforts to be carried out. Additionally, all exposed tailings needed to be covered with clean dam fill material before winter to ensure vegetation efforts could be undertaken early in 2015.

One of the primary activities in 2014 was the dismantling and salvage operation of the mill and associated infrastructure. Teck was able to avoid demolition and landfilling of the facilities by selling the assets. The nature of the sales contract meant the mill purchaser was the construction manager in charge of collecting assets and removing them from the work site. The mill purchaser was only on-site to collect assets and did so under its own management and direction.

3.2.2 First Nations involvement strategy

The construction management team developed a work breakdown strategy for completing the Teck-controlled aspects of the 2014 phase of the project within the limited timeframe while attempting to maximise the local First Nations workforce. The strategy involved engaging general contractors who were capable of handling large scopes of work and using a contractor selection process that took into account the extent of involvement and inclusion of First Nations labour. To ensure maximum First Nations engagement was achieved, tender documents indicated that favourable consideration would be given to tenders containing “meaningful” First Nations content. It was indicated that bidders were encouraged to provide
employment opportunities for local First Nations equipment and resources. In their bid submissions, contractors were required to supply plans demonstrating their efforts to fill positions with First Nations personnel, indicating the types and quantities of such resources they would use and explaining how they intended to use these resources in the execution of the work, and to provide documentation supporting these commitments.

In the tender documents, it was stated that letters of recommendation from local First Nations leadership would be given additional consideration. It was indicated that, upon award, the contractor would be required to provide confirmation of the use of the resources outlined in the bid by providing the names of personnel and the types of equipment required. It was stated that if the contractor were unsuccessful in acquiring First Nations engagement prior to the bid submission date, the contractor would, at a minimum, explain its efforts to do so and provide supporting phone logs or communication records. It was indicated that the contractor would only be relieved of the commitments to First Nations engagement if the resources declined to participate post-award or were unable to execute the work required as determined by the construction management team.

During the analysis of all bid submissions for these large contracts, careful consideration was given to the commitment to First Nations engagement. Each contractor received a score for its proposed level of commitment, which contributed to the overall scoring of each contractor’s bid.

Another key component to successfully engaging First Nations personnel was the decision to leave some of the site works out of the scope of the larger contracts. These works were awarded directly to local First Nations contractors. The on-site work activities set aside for direct award included:

- road maintenance;
- concrete breaking at mill site;
- mill site capping and shaping;
- removal of pipeline;
- landfill maintenance;
- decommissioning of monitoring wells;
- installation of erosion protection materials;
- construction of helipads for future monitoring;
- demolition of site exploration camp infrastructure and other small shacks;
- reclamation of a dyke;
- general site clean-up.

These work activities were specifically chosen as items that could easily be left out of the larger contracts. These items were awarded directly to the same First Nations contractors who conducted work in 2013, as discussed in Section 3.1. These work items were chosen for several strategic reasons. The road maintenance activity was an ideal item for the local First Nations personnel to take care of because site access roads were shared by several of the general contractors. To avoid disputes between contractors executing the larger scopes of work regarding who should be maintaining the road (grading, watering, etc.), this task was given to the First Nations contractors. It was indicated in the various tender documents that this task would be taken care of by “others” (in reference to First Nations personnel). In the event that substantial road maintenance was required in certain areas or that all First Nations contractors were busy on other tasks, a piece of equipment could be used by one of the larger general contractors, and time spent on this activity was simply billed by the hour. However, First Nations personnel generally performed the road maintenance.

Another strategic example of work provided to First Nations contractors was landfill maintenance. All permitted waste was hauled to the on-site landfill for deposition. Most of the waste came from demolition
of small shacks and structures, removal of damaged pipeline, debris from historical mining operations and so on. This material was taken to the landfill, where the First Nations contractors carried out landfill operations. In the event that general contractors encountered debris while executing contracted work, they could notify management personnel, and the First Nations contractors on-site were equipped to handle the situation.

Another project aspect awarded to First Nations contractors was the breaking of concrete at the mill site. Once the mill infrastructure demolition materials were removed from the site to be salvaged or hauled to the landfill for deposition, First Nations contractors were also responsible for capping the remaining foundations and shaping the cap. The First Nations contractors rented a hydraulic hammer to carry out breaking of concrete foundations and walls at the mill site. First Nations labour forces were also provided appropriate respirator fit testing and training to allow them to enter the work area during demolition of concrete and to suppress dust using a water truck while fully clothed in appropriate personal protective equipment (PPE). Once the concrete breaking was complete, the remaining foundations required a minimum 1 m of capping material to be placed and shaped overtop of them. This work kept the First Nations heavy equipment busy for a period of more than a month.

First Nations labour crews were kept busy with miscellaneous site tasks including assisting in general site clean-up and pipeline removal. Because of the heavy traffic and demolition activities on-site, a small labour crew was tasked with driving the access roads daily and collecting debris that had fallen during hauling of material. This helped to keep the site clean and clear of debris as reclamation activities progressed. This also prevented stray material from causing any danger on roadways.

Teck also hired Liard First Nation personnel to act as environmental monitors. The monitors received training from consultants, which enabled them to monitor site activities from an environmental perspective as well as perform water quality sampling for comparison with regulatory criteria. The monitors also assisted consultants in carrying out soil investigations and other aspects of overall site monitoring where required. The monitors reported directly to Teck and kept the community apprised of site activities through their engagement in the project. Additionally, over the course of the 2014 construction phase, members of the Liard First Nation provided most of the first-aid attendant/site security services.

First Nations personnel worked more than 25,000 man-hours during the 2014 season. Throughout the season, the First Nations contractors gained valuable health and safety training and awareness through various programs conducted on site by Amec Foster Wheeler health and safety monitors and the rest of the construction management team. The team worked directly with the First Nations contractors to help promote a safe and healthy work environment and to assist them in becoming more knowledgeable about general safety, hazards and mitigation measures. Highlights from the season included conducting a respirator fit testing and training session with the First Nations contractors and attendance by at least one member of the construction management team during all First Nations contractors’ daily toolbox meetings to provide further insight and discussion topics related to safety.

3.3 Implementation strategy and methodology: Plans for 2015 phase

3.3.1 Construction work

The 2015 construction season will involve, at a minimum, the following activities:

- road decommissioning;
- re-vegetation;
- regrading and capping of disturbed site areas;
- other final reclamation efforts at various site locations.
3.3.2 **First Nations involvement strategy**

The 2015 construction program will be tailored so that First Nations contractors are again awarded much of the work directly. The scope of work planned for 2015 contains fewer critical path milestones and schedule constraints. Therefore, as much work as possible will be awarded to local First Nations workforces. It is projected that upwards of 75% of man-hours in 2015 will be worked by First Nations personnel.

4 **First Nations engagement**

Over the course of the reclamation project, First Nations engagement has been tracked by means of man-hours worked on-site. As discussed in Section 3.2, Teck was not able to control the level of First Nations engagement during the mill dismantling and salvage portion of the work executed in 2014. However, for all other work phases, significant effort was made to achieve the objective of employing as many First Nations personnel as possible. Table 1 breaks down the level of First Nations engagement by major work phase.

<table>
<thead>
<tr>
<th>Project aspect</th>
<th>First Nations engagement (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 2013 work</td>
<td>62.9</td>
</tr>
<tr>
<td>Mill infrastructure demolition and salvage (2014) — not Teck controlled</td>
<td>12.8</td>
</tr>
<tr>
<td>Tailings management area decommissioning (2014)</td>
<td>56.9</td>
</tr>
<tr>
<td>Mountain works and tank decommissioning (2014)</td>
<td>30.6</td>
</tr>
<tr>
<td>Smaller site work activities and other (2014)</td>
<td>83.3</td>
</tr>
<tr>
<td>Overall project to date</td>
<td>37.6</td>
</tr>
<tr>
<td>Overall project to date (excluding mill infrastructure demolition and salvage)</td>
<td>53.3</td>
</tr>
</tbody>
</table>

As shown in Table 1, the overall project-to-date percentage of First Nations engagement is 37.6%. However, the lowest contributor to First Nations engagement was the mill infrastructure demolition and salvage work, which saw only 12.8% engagement. This aspect of the project also contributed the largest number of man-hours out of all tasks listed in Table 1. To put this into perspective, thus far, 81,874 man-hours have been worked on the project, with 31,632 (38.6%) coming from the mill dismantling and salvage operations portion of the work. Because Teck was able to sell the mill infrastructure to allow it to be salvaged rather than demolished, limited requirements for First Nations engagement could be stipulated in this contract. The mill purchaser managed the dismantling and salvage of its purchased assets.

However, for the Teck-controlled project aspects, which account for the other 50,242 man-hours on the project, First Nations engagement of 53.3% (26,754 man-hours) was achieved. Breaking down the data even further, during the limited 2013 construction season, only 2,548 man-hours were worked on-site. Of these, First Nations personnel worked 1,602 man-hours, for a percentage of 62.9%. In 2014, Teck-contracted work involved 47,694 man-hours, with 25,151 worked by First Nations personnel, for a percentage of 52.7%. In seeking to achieve one of its main objectives, Teck was able to achieve more than 50% First Nations engagement in these aspects of the project.

It is anticipated that the 2015 season will also see a very strong percentage of First Nations engagement, as the smaller scope of work planned will allow most of the work to be directly awarded to local contractors.
is forecasted that by the end of the project (fall 2015), Teck will have achieved First Nations engagement on the overall project of nearly 60%.

In achieving more than 50% engagement in the project aspects Teck could control, this closure plan objective was achieved. The critical 2014 phase of the reclamation project was also completed on schedule, and the site is now ready for final reclamation works to be carried out in 2015 prior to the expiration of the site’s licenses.

Reflecting on the implementation of the project to date, setting aside specific tasks for First Nations contractors to carry out was a positive project aspect. This provided a level of certainty for these contractors throughout the construction seasons that they would have work and be needed on a daily basis. The accelerated construction schedule resulted in the need to hire large general contractors to ensure work was completed within the specified timeframes. Comparing the Teck-controlled work with the non-Teck-controlled work (i.e. mill dismantling and salvage) shows the significance of establishing First Nations engagement requirements within tender documents for large contracts. When these requirements were implemented, Teck was successful in providing further employment opportunities to First Nations personnel beyond the work items specifically set aside for them. Teck held contractor interviews during the selection process evaluated contractors’ commitment to First Nations involvement. This helped to ensure positions for First Nations personnel throughout the course of the project.

An employment level of more than 50% First Nations personnel on Teck-controlled aspects of the project was achieved and was a contributing factor to the successful implementation of the aggressive 2014 construction schedule.

5 Conclusions

The SDH Mine was dormant for approximately 20 years before the decision to enter the site into permanent closure was made. The site lies within the traditional territory of the Liard First Nation. The SDH Operating Corporation has, throughout the existence of the mine site, worked collaboratively with the Liard First Nation. When the decision to enter the site into permanent closure was made, one of Teck’s primary objectives for implementing the approved closure plan was to engage First Nations personnel and local community members throughout the course of the project while being mindful of the critical path nature of the schedule.

Although the project will not be completed until fall 2015, the majority of work activities were completed by the end of 2014. To date, Teck has achieved more than 50% engagement of First Nations personnel on the project. To ensure completion within the schedule, a work breakdown structure was developed to tender the large work items to general contractors. However, the requirement for general contractors to employ First Nations personnel was set out in the tender packages, and heavy consideration was given to bidders that committed to a high level of such employment.

Another key approach to ensuring First Nations personnel were engaged in the project was to set aside many of the project work items (road maintenance, site clean-up, pipeline removal, etc.) that would be ideal for smaller contractors. First Nations contractors were awarded this work directly. This decision ensured that First Nations workforces would be involved throughout the duration of the project. This concept will continue throughout the remainder of the project in 2015.

In conclusion, efforts to complete the project within the scheduled timeframe, budget and limited Yukon construction windows, while maximising the engagement of First Nations personnel, have been successful to date. In 2015, with primarily smaller works planned, Teck will be seeking mostly First Nations efforts to see the project through to completion. By the end of the project, it is anticipated that First Nations personnel will have worked approximately 60% of all man-hours on-site.
Acknowledgements

Amec Foster Wheeler and Teck would like to acknowledge Iyon Kechika Contracting and James Magun Contracting, the local First Nations contractors that worked on-site to conduct all work in 2013 and that were on-site in 2014 to carry out the work items set aside from the tendered work. Amec Foster Wheeler and Teck would also like to acknowledge both of Amec Foster Wheeler’s sub-contractors used during the execution of the project: YES and Polar Medical Services. YES, based out of Whitehorse, Yukon, provided on-site inspection services and surveying services for the duration of the project. Polar Medical Services provided first-aid attendant personnel and an EMT vehicle, and established and maintained a first-aid room on-site for the duration of the reclamation efforts to-date. Both suppliers will continue in these roles through 2015.

References