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November 28, 2014

Al Hoffman,
Chief Inspector of Mines
Ministry of Energy and Mines

Re: 2014 Dam Safety Inspection Report for Teck Highland Valley Copper

Under cover of this letter, please find the 2014 Dam Safety Inspection (DSI) reports for the four tailings facilities at Highland Valley Copper and the results of the third-party review. The DSI reports were prepared by the Engineer of Record, Klohn Crippen Berger (KCB) and the DSIs were subsequently provided third-party review by Mr. Terry Eldridge, P.Eng. of Golder Associates Ltd.

Highland Valley Copper is committed to ensuring the safe operation of its four tailings facilities and accompanying dam structures. Our active tailings facilities are inspected daily by qualified technical staff in accordance with the requirements set out by our Engineer of Record in our Operation, Maintenance and Surveillance (OMS) manual. DSIs are conducted on an annual basis and detailed Dam Safety Reviews are conducted by a third-party engineer every five years. HVC also has a Tailings Review Board comprised of independent experts, which meets several times per year to conduct a third party review of design, operation and maintenance of our tailings facilities.

As outlined in the DSI reports and confirmed by the third-party review, no immediate safety or stability concerns were noted for any of Highland Valley Copper's tailings storage facilities and accompanying dam structures. Further, these documents confirm that our monitoring and surveillance practices meet or exceed industry standards. The independent review has also confirmed the current assigned Consequence Classifications for all tailings and auxiliary dams.

All tailings dams with a failure consequence classification of high, very high or extreme have been evaluated for dam break and inundation, and have an emergency preparedness and response plan (EPRP) in place. The EPRP for the Highland Tailings Storage Facility (L-L and H-H dams) was subjected to a full scale test in 2012, and table-top tests for all tailings facilities were performed on October 17 & 18, 2014. These tests involved local and provincial emergency response agencies. Additionally, the reviews indicated that all information was up-to-date and consistent with current CDA guidelines and current standards of practice. The updated dam break and inundation study, EPRP and a summary of the EPRP tests have also been included in this submission to the Chief Inspector of Mines.

No Priority 1 (immediate safety or stability concerns) items were identified in the DSI by the Engineer of Record. Items marked as Priority 2 were identified as non-urgent, but pertaining to long term dam safety. Priority 3 recommendations were identified as non-urgent and not expected to result in a dam safety issue. Recommendations marked as Priority 4 were identified by the Engineer of Record as opportunities to further meet industry best practices, but timeline for completion is more than one year.

Earlier in 2014, changes were made to the dam consequence classifications, based on inundation studies performed in 2013/14. Four of the six Priority 2 recommendations relate to confirming design as a result of the change in dam consequence classification. Several recommendations pertaining to maintenance and/or opportunities to further develop leading industry practices (Priority 3 and 4, respectively) were also identified in the DSI reports, the details of which are contained in Appendix 1.

There were no recommendations resulting from the independent review of the DSIs.

We have carefully reviewed and are taking steps to address each recommendation as required, according to the priorities established by our Engineer of Record, as summarized in Table 2 and Appendix 1.

At Highland Valley Copper, we are focused on meeting the highest standards of safety for communities, employees and the environment. Annual Dam Safety Inspections are one component of the comprehensive systems and procedures we have in place for the safe operation and monitoring of our tailing facilities. These systems follow industry best practices, including guidance provided by the Canadian Dam Association and the Mining Association of Canada.

Please do not hesitate to contact me if you have any further questions regarding the operation, maintenance and monitoring of our tailings facilities.

Sincerely,

Chris Dechert
General Manager, Highland Valley Copper

cc: Diane Howe, Ministry of Energy and Mines
George Warnock, Ministry of Energy and Mines
Heather Narynski, Ministry of Energy and Mines
Chris Anderson, Teck
Jeff Hanman, Teck

Recommendations and Action Items

Table 1: General Description of Priority Recommendations

Priority	Description
1	A high probability or actual dam safety issue considered immediately dangerous to life, health or the environment, or a significant regulatory concern
2	If not corrected, could likely result in dam safety issues leading to injury, environmental impact or significant regulatory action; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.
3	Single occurrences of deficiencies or non-conformances that alone would not be expected to result in dam safety issues.
4	Best Management Practice as a suggestion for continuous improvement towards industry best practices that could further reduce potential risks. This typically includes ongoing construction items within the appropriate construction cycle.

Table 2: DSI Recommendations and Planned Actions for HVC Tailings Facilities

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Highland Tailings Storage Facility: L-L Dam	**DSI-LL-08 (2014)** I10-6 and the nearby SAA12-1 on the VBB both indicate D/S movement in an area where previous instruments have also shown steady but slow d/s movement due to consolidation of the underlying lacustrine sediments below the starter dam (cumulative estimated about 430 mm over 30 years. About 70% of this movement occurred in the initial 20 years following starter dam construction, about 20% in the next 10 years, and less than 10% of the total movement in the last 5 years). This consolidation related strain is the reason the Valley Buttress Berm was built. The trend is slowing as expected but should continue to be reviewed.	2	Review trends that show slow but anticipated downstream movement in inclinometers I10-6 and SAA12-1 on the VBB.	Initiate by September 2015
Highland Tailings Storage Facility: Reclaim, Seepage and Slimes Ponds	**DSI-SP-01 (2014)** The total useable capacity of the seepage and slimes collection ponds is only approximately estimated due to infilling and excavation of slimes and changes to the pond configurations, as are the required IDF inflow. We recommend that IDF and pond capacities are reviewed to assess the overall seepage collection capacity and identify any potential deficiencies.	2	Review IDF and pond capacities to assess the overall seepage collection capacity and identify any potential deficiencies.	Complete by December 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Highmont Tailings Storage Facility: Highmont TSF	**DSI-HD-06 (2014)** Based on changed consequence classification the stability of Highmont Dam should be reviewed.	2	Based on changed consequence classification, the stability of Highmont Dam will be reviewed.	Complete by December 2015
Highmont Tailings Storage Facility: Highmont TSF	**DSI-SD-03 (2014)** Flood storage assessments for all seepage dams Significant or higher to be completed	2	Flood storage assessments for all seepage dams Significant or higher to be completed.	Initiate by July 2015
Bethlehem No. 1 Tailings Storage Facility: Bethlehem Main Dam	**DSI-BTSF1-02 (2014)** Update stability review (previously KC 1996) as Dam No. 1 was then classified as Significant. This is a repeat of a recommendation from the AMEC DSR. The update should include: ▪ Updated survey and current phreatic surfaces; ▪ An updated assessment of seismic ground motions. ▪ Static and pseudo-static stability analyses with deformation estimates. This may trigger the need for an investigation program and finite element modeling to assess liquefaction potential and seismic deformations. ▪ Stability review of dam section where rockfill crest was excavated based on updated survey information.	2	Update stability review as Dam No. 1 based on changed consequence classification.	Initiate by July 2015
Bethlehem No. 1 Tailings Storage Facility: Reclaim Pond R3 (R3 Dam)	**DSI-R3-01 (2014)** The left side downstream dam slope is over-steepened and seepage at toe could be evidence of elevated piezometric levels which could reduce effective strength. The seepage is clear and there is no indication of soil erosion or transport of fines material. To improve drainage and improve stability, add granular fill or fine rock fill to the toe of R3 Pond.	2	Add granular fill or fine rock fill at the toe of R3 Dam (left side).	Complete by September 2015

Appendix 1: DSI Priority 3 and 4 Recommendations and Planned Actions for HVC Tailings Facilities

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Highland TSF (Overall)	**DSI-Highland-01 (2014)** Due to recent and planned ongoing changes to mill processing and through put, the tailings rheology may change, and the shape of the delta and the volume of the operating decant may change from design basis assumptions. This should be reviewed as changes to mill operations proceed.	4	Complete the fine grind study. If the tailings rheology changes, compare delta survey to previous surveys.	Status to be reviewed December 2015
	DSI-Highland-02 (2014) The water balance for the reservoir is being updated. KCB should review this water balance when available, to allow ongoing evaluation of the operating pond volumes.	3	Update Water Balance at Highland TSF based on site wide water balance results and provide to KCB for inclusion in TSF construction planning.	Initiate by December 2015
L-L Dam	**DSI-LL-01 (2014)** Flatten / regrade sections of over steepened sand fill above the beach between the south abutment and Station 2+400. This may take multiple construction seasons as the beach, the barges and the pond locations are established or re-established.	3	Flatten / regrade sections of over steepened sand fill above the beach between the south abutment and Station 2+400. This may take multiple construction seasons.	Status to be reviewed December 2015 (This work is underway)
	DSI-LL-02 (2014) In 2014, snow melt runoff from the dam crest resulted in several minor washouts in sand fill on the downstream side of the dam: from the crest at the southern limit of the NBB, and from the top of the SBB at its southern limit. Most of these sections were repaired with cycloned sand or sand and gravel placed mechanically. Minor gullies remain on the downstream sand slope where the downstream slope is too steep to allow for regrading. These will be repaired during the next sequence of downstream hydraulic sand placement. They do not currently represent a dam safety concern.	3	Minor gullies remain on the downstream sand slope where the downstream slope is too steep to allow for regrading. These will be repaired during the next sequence of downstream hydraulic sand placement. The DSI states that this is not a dam safety concern.	Status to be reviewed December 2015 (to be addressed when hydraulic sand fill commences in these areas)
	DSI-LL-03 (2014) Seepage and surface runoff along the toe of the south dam runs down the south valley slope and is causing erosion. The ditch line at the toe should be reinstated to control erosion.	3	Seepage and surface runoff along the toe of the south dam runs down the south valley slope and is causing erosion. The ditch line at the toe will be reinstated to control erosion.	Complete by December 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
L-L Dam	**DSI-LL-04 (2014)** In August 2014, a section of the north dam was sprayed with a trial dust suppression product (Eco-Mulch - see photo in Appendix I). The mulch focuses runoff at the toe of the dam causing erosion of the sand and gravel blanket. The eroded areas require repair. We understand removal of the Eco-Mulch began in mid-October 2014 and that Teck does not intend on continuing use of this product.	3	Remove Eco-Mulch and Repair surface erosion at toe of dam.	Complete by December 2015
L-L Dam	**DSI-LL-05 (2013)** The low-level-outlet was decommissioned in 2013, and the upstream dry well was covered in dam fill in 2014. The downstream outlet pipe (backfilled with concrete) is currently exposed, and an inverted filter is to be constructed over the outlet as the south dam construction continues.	3	An inverted granular filter will be constructed over the downstream outlet pipe. This is part of the on-going dam construction.	December 2015
L-L Dam	**DSI-LL-06 (2014)** The instrumentation suite at the L-L Dam is adequate but has suffered damage in recent years, and the program to update and install additional piezometers and inclinometers should continue. This process will span multiple construction seasons.	4	Continue the ongoing process and installation of inclinometers and piezometers. This process will span multiple construction seasons.	Status update in 2015 DSI (ongoing multi-year program)
L-L Dam	**DSI-LL-07 (2014)** Piezometers P02-1, P02-2 and P02-3, located in the bedrock trench under the south abutment rose up to 4.5 m and should be monitored closely in 2015 (not classified as a yellow alert).	4	Monitor piezometers P02-1, P02-2 and P02-3, located in the bedrock trench under the south abutment due to rise of up to 4.5 m (not classified as a yellow alert), and subsequent decrease.	Status update in 2015 DSI
L-L Dam	**DSI-LL-09 (2014)** Inclinometers with measurable water levels should be reviewed to determine which should be included for monitoring of piezometric alert levels.	4	Review inclinometers with measurable water levels to determine which should be included for monitoring of piezometric alert levels.	Status update in 2015 DSI
L-L Dam	**DSI-LL-10 (2014)** The surface water line leading from the Reclaim Pond to the impoundment crosses the dam centreline at ~El. 1257 m. The required dam height for 2014 is El. 1255.5 m, therefore the dam is currently in compliance, however the water line will have to be moved and the till core tied in across this location in 2015 (KCB, 2014).	3	Move the reclaim water line to allow construction of dam fill above El. 1257 m. This is part of on-going dam construction.	Fall 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
L-L Dam	**DSI-LL-11 (2014)** From the south abutment (~Stn. 0+950) to Stn. 1+100, the till core has been raised with a 7 m upstream offset from the centreline of the dam, while maintaining its full width of 15.24 m. This was caused by the inability of the old Cyclone House to deliver downstream sand to the area, which is used to support the till core. The till core can be re-established in 2015 when downstream sand placement resumes in this area. The configurations of the current core and future widened core pose no threat to dam safety.	3	Complete downstream sand placement and build additional till core next to offset, from the south abutment (~Stn. 0+950) to Stn. 1+100. According to the DSI the configurations of the current core and future widened core pose no threat to dam safety.	Begin re-instatement of core along centreline in 2015 (this may be ongoing for several years)
L-L Dam	**DSI-LL-12 (2014)** Ponding of water draining from the north abutment is occurring on the north side of the NBB, where some sand fill has covered the drainage blanket. This ponding has caused siltation on the u/s face of the drainage blanket. Establish better drainage in this area. This may involve either a drainage ditch or a tie-in to the existing NBB under-drainage system	3	Review options to improve drainage and design and implement improvements.	December 2015
L-L Dam	**DSI-LL-13 (2014)** Short term yellow alert levels were observed at P89-4 and I10-5 during May and June, after which levels dropped to below yellow alert. These are currently unexplained and considered anomalous, and these piezometers should be monitored closely. However, P89-4 has frequently been reported as plugged then not plugged. The functioning of these instruments should be evaluated.	3	Monitor and review piezometric response in P89-4 and I10-5 where short-term anomalous levels were observed during May and June 2014. Piezometric levels dropped in July 2014. Instruments will be tested for proper functioning.	Update status in 2015 DSI
L-L Dam	**DSI-LL-14 (2014)** Variances in sand fines content were noted in 2014. If similar variances are found in 2015, increased sampling and testing should be conducted and effect on sand permeability and drainage reviewed.	3	If increased fines content in sand used in dam construction is observed in 2015 increase sampling and testing and review effect on sand permeability and drainage.	Ongoing, to be reviewed through 2015.

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
L-L Dam	**DSI-LL-15 (2014)** Downstream sand at crest was mechanically placed as steep as ~1.5H:1V during the raise of the till core in 2013. Sections of this sand are steeper than the design slope but as the sand is well compacted and well drained these slopes are acceptable. Some re-work of this slope will be required as the downstream sand is raised, to ensure these slopes meet compaction/density requirements.	3	Downstream sand at crest was mechanically placed during the raise of the till core in 2013. These slopes, according to the DSI, are acceptable. Re-work the outer edge of this slope as additional sand is placed, to ensure these slopes meet compaction/density requirements.	Ongoing, to be reviewed through 2015
H-H Dam	**DSI-HH-01 (2014)** Review the global stability of H-H Dam at the location of the new retaining wall at the toe of the dam, above the H-H Pumphouse.	3	Review the global stability of H-H Dam at the location of the new retaining wall at the toe of the dam, above the H-H Pumphouse.	December 2015
H-H Dam	**DSI-HH-02 (2014)** Additional piezometers should be installed at the east and west abutment of H-H Dam. Installation updates began in 2013 and continued in 2014. Instrumentation replacement is a process that we anticipate will continue over multiple construction seasons.	4	Installation updates began in 2012 and will continue as part of a multi-year program.	Status update in 2015 DSI (ongoing multi-year program)
24 Mile Lake	**DSI-24M-01 (2014)** An erosion gully on the southwest corner of the pond adjacent to a haul road should be repaired by backfilling with coarse rock fill. If not arrested, gully erosion could affect the haul road. This is not a dam stability concern.	n/a	Repair an erosion gully on the southwest corner of the pond adjacent to a haul road by backfilling with coarse rock fill. According to the DSI this is not a dam stability concern.	To be determined by Teck (not a dam stability issue)
24 Mile Lake	**DSI-24M-02 (2014)** An OMS manual (or Standard Operating Procedure (SOP) Guide as suggested by AMEC 2012) is being developed and adopted for the 24 Mile Lake. An EPRP is in development and was reviewed as part of a table-top emergency response test held by HVC on October 17, 2014. The updated OMS/ERP should be reviewed in 2015.	4	The draft version of the Standard Operating Procedure (SOP) has been developed and adopted for the 24 Mile Lake. The final version will be implemented in 2015.	Complete by December 2015
24 Mile Lake	**DSI-24M-03 (2014)** A topographic and bathymetric survey of 24 Mile Lake should be conducted and compared to original ground to determine the depth of fill that forms the pond and depth of tailings in the pond.	4	A topographic and bathymetric survey of 24 Mile Lake will be conducted and compared to original ground in order to determine the depth of fill that forms the pond and depth of tailings in the pond.	Complete by 2016

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Reclaim, Seepage and Slimes Ponds	**DSI-SP-02 (2014)** The V-notch weirs measuring flow from the UVD/LVD, Finger Drain #1 and Seepage Pond 1 should be regularly serviced such that water is free-falling downstream of the notch, and a non-turbulent, deep pond is maintained on the upstream side.	4	Remove vegetation and sediment accumulation from V-notch weirs.	Ongoing, provide status update in 2015 DSI
Reclaim, Seepage and Slimes Ponds	**DSI-SP-03 (2014)** Temporary Slimes Pond – The decant berm across the south end is unstable and experiencing cracking and sloughing and the east embankment (separating the Temporary Slimes Pond from Slimes Pond 1) appears to be loosely compacted, with several tension cracks. It is considered marginally unstable. We understand that the pond has been taken out of active use and is in the process of being decommissioned.	3	The Temporary Slimes Pond has been taken out of active use. This pond is in the process of being decommissioned.	(1) Take pond out of active use – COMPLETE. (2) Decommission Pond (December 2015)
Reclaim, Seepage and Slimes Ponds	**DSI-SP-04 (2014)** An OMS manual (or SOP guide as suggested by AMEC) is being developed and adopted for each of the active ponds at the toe of the L-L Dam, currently the Reclaim Pond, Slimes Pond 1 and Seepage Pond 2, including EPRP. The EPRP was reviewed as part of a table-top emergency response test held by HVC on October 17, 2014. The updated OMS/EPRP should be reviewed in 2015.	4	The OMS manual for each of the active ponds is in the process of being developed. The EPRP was reviewed as part of a tabletop emergency response test held by HVC on October 17, 2014.	December 2015
Reclaim, Seepage and Slimes Ponds	**DSI-SP-05 (2014)** Flow measurement weir should be installed for the new outlet pipe for Slimes Pond 2.	4	Flow measurement weir will be installed for the new outlet pipe for Slimes Pond 2.	December 2015
Reclaim, Seepage and Slimes Ponds	**DSI-SP-06 (2014)** Seepage Pond 2 - Minor erosion and cracking (3 to 20 cm long) was observed at the (less than) 3 m high outlet pipe embankment. The slope appears stable and this does not appear to be a stability concern, but should be monitored.	3	Seepage Pond 2 - Minor erosion and cracking (3 to 20 cm long) was observed at the (less than) 3 m high outlet pipe embankment. According to the DSI, the slope appears stable and this does not appear to be a stability concern. This slope will be monitored.	Ongoing in 2015. Review status for 2015 DSI
Highmont TSF	**DSI-HD-01(2014)** Review inflow flood routing assessments for all seepage dams to assess flood storage.	3	Review inflow flood routing assessments for all seepage dams to assess flood storage.	Complete by July 2016

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Highmont TSF	**DSI HD-02 (2014)** Incorporate the water balance for the Highmont TSF (under development by others), as appropriate for water management, into the OMS. Include estimates of pumping flows in the water balance.	3	Incorporate the site wide water balance (under development) results into water balance for the Highmont TSF, as appropriate for water management, into the OMS. Estimates of pumping flows will be included in the water balance.	Complete by December 2015
Highmont TSF	**DSI-HD -03 (2014)** The spillway channel has a buildup of debris and vegetation. The culverts that carry the spillway flow across the access road are partly infilled with sediment and there is rock fall that is partially blocking the spillway channel. These culverts and the channel should be cleared to ensure no further degradation of flow capacity occurs. The lower section of the spillway also has trees becoming established that could trap debris and should be removed.	3	Clean culverts and channel, including trees in the lower spillway, to ensure no further degradation of flow capacity occurs.	Initiate by September 2015
Highmont TSF	**DSI-HD -04 (2014)** The diversion pipeline from S3 and S5 is exposed near the crest of the Highmont dam. Fill cover should be provided to prevent damage from vehicles.	4	Cover the exposed diversion pipeline from S3 and S5 near the crest of the Highmont dam.	Complete by December 2015
Highmont TSF	**DSI-HD -05 (2014)** Complete a performance review of all instruments	4	Complete a performance review of all instruments.	Initiate by December 2015
Highmont TSF	**DSI-HD -07 (2014)** Investigate the reason for elevated piezometric level in P-N on Tailings Beach	3	In situ testing of existing instruments and review elevated piezometric levels (groundwater mound) at the southeast end.	Initiate by September 2015
Highmont TSF	**DSI-HD -08 (2014)** Perform bathymetric sounding of the tailing pond to determine the current pond volume and capacity.	4	Perform bathymetric sounding of the tailing pond to determine the current pond volume and capacity.	Complete by December 2015
S5 Seepage Dam	**DSI-S5 -01 (2014)** S5: When the S5 crest was raised in late 2013, loose fill was graded off the crest and loosely compacted on the downstream face. This loose fill has been subject to erosion gullies and local tension cracks. These areas should be repaired.	3	Regrade and recompact the loose fill on the downstream dam slope. Archeological study will be required prior to work.	Complete by December 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
S5 Seepage Dam	**DSI-S5 -02 (2014)** S5: Two seepage points were noted downstream of the embankment but cut tree debris and loose fill from the last dam raise make it difficult to evaluate the quantity of seepage. This area should be cleared to make it easier to monitor or measure seepage. Organic woody debris at the dam toe should be removed.	4	Re-establish seepage monitoring points by removing trees and debris. Archeological study will be required prior to work.	Complete by December 2015
S8 Seepage Dam	**DSI-S8-01 (2014)** S8: A slight bulge in the S8 embankment was noted along the downstream toe. This is not considered instability but should be monitored for change.	3	Monitor in 2015 and review status in the next DSI report.	Ongoing monitoring – Update in 2015 DSI.
All Seepage Dams	**DSI-SD -01 (2014)** A stability assessment of seepage dams should be conducted.	3	A stability assessment of seepage dams will be conducted due to the change in consequence classification.	Initiate by July 2016
All Seepage Dams	**DSI- SD -02 (2014)** Seepage dams S1, S2, S3, and S8 all have large trees becoming established on the dam slopes. These could impact the integrity of the embankment fill. Trees should be cut down at ground level and stumps carefully removed.	4	Trees to be cut down at ground level and stumps carefully removed.	Initiate by June 2016
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-01 (2014)** Re-survey all three dams to update the dam crest elevations and configurations of the downstream faces, especially Dam No. 1 where existing benches and ramps on the downstream face do not appear on the current drawings, and the Reclaim Pond R3 where some upgrade work has been recently constructed.	3	Re-survey all three dams to update the dam crest elevations and configurations of the downstream faces.	December 2015 (to be completed)
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-02 (2014)** Re-establish damaged survey monuments at Dam No. 1 and Bose Lake Dam and measure survey monuments at each dam twice in 2015.	3	Re-establish damaged survey monuments at Dam No. 1 and Bose Lake Dam and measure survey monuments at each dam twice in 2015.	December 2015 (to be completed)
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-03 (2014)** Update OMS to include regular monitoring of the location and condition of all identified depressions and sinkholes.	4	Update OMS to include regular monitoring of the location and condition of all identified old depressions and sinkholes.	Review status in 2015 DSI
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-04 (2014)** Complete a performance review of all piezometers in 2015 and prepare a decommissioning plan for non-functional instruments.	4	Complete a performance review of all piezometers and prepare a decommissioning plan for non-functional instruments. Assess the need for new instrumentation.	Initiate prior to December 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-05 (2014)** Re-survey the piezometers at all dams to establish coordinates based on the current site grid and confirm top of casing elevations. Incorporate the new piezometers in the tailings impoundment into the instrumentation monitoring suite for Bethlehem No. 1 TSF.	4	Re-survey the piezometers at all dams to establish coordinates based on the current site grid and confirm top of casing elevations. The new piezometers in the tailings impoundment will be incorporated into the instrumentation monitoring suite for Bethlehem No. 1 TSF.	Initiate prior to December 2015
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-06 (2014)** The 2015 OMS Manual should be updated according to the updated consequence classifications determined in 2014: The following should be included in the updated OMS: ▪ A quantification of alert levels for piezometers, seepage flows and pond levels to augment the current alert ranking for various events and visual observations. ▪ Adapt Monitoring frequency of pond levels, dam movement surveying, visual inspections and instrumentation reading by HVC and KCB personnel to reflect current activities. ▪ Include R3 (and R4 Reclaim Ponds and the Spawning Channel Reservoir if not covered elsewhere) in the OMS manual, or prepare a separate OMS manual for these structures.	3	The 2015 OMS Manual will be updated according to the updated consequence classifications determined in 2014. The following will be included in the updated OMS: ▪ A quantification of alert levels for piezometers, seepage flows and pond levels to augment the current alert ranking for various events and visual observations. ▪ Adapt Monitoring frequency of pond levels, dam movement surveying, visual inspections and instrumentation reading by HVC and KCB personnel to reflect current activities. ▪ R3 Dam.	December 2015 (to be completed)
Bethlehem No. 1 TSF (overall)	**DSI-BTSF1-07 (2014)** Prepare a water management plan in conjunction with other improvements at Trojan Dam, which clearly identifies when water should be diverted around Trojan Pond or pumped from Trojan to Bethlehem No. 1.	4	A water management plan identifying when water should be diverted around the adjacent Trojan Pond or pumped from Trojan to Bethlehem No. 1 will be completed	December 2015 (to be completed)
Bethlehem Dam No. 1	**DSI-BM-01 (2014)** An Environmental Design Flood (EDF) should be developed for the Bethlehem No. 1 TSF due to occasional copper and molybdenum concentration exceedances in the pond. This recommendation is taken from AMEC DSR.	3	An Environmental Design Flood (EDF) will be developed for the Bethlehem No. 1 TSF.	Initiate prior to December 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Bethlehem Dam No. 1	**DSI-BTSF1-03 (2014)** Repair surface gullying on the downstream slope of Dam No. 1. A repair program was started in 2011 and should continue and be completed prior to final decommissioning or in the case of significant additional erosion. The repaired gullies should be inspected following the spring freshet to check the effectiveness of the repair. These repairs are not urgent.	4	A repair program was started in 2011 and will continue and be completed prior to final decommissioning. According to the DSI, these repairs are not urgent.	Ongoing, multi-year program
Reclaim Pond R3 (R3 Dam)	**DSI-R3-02 (2014)** Re-grade the crest of R3 Dam.	4	Re-grade the crest of R3 Dam.	December 2015 (to be completed)
Reclaim Pond R3 (R3 Dam)	**DSI-R3-03 (2014)** A pool of water was observed in the energy dissipater at the end of R3 spillway channel which is either seepage water or surface runoff. The persistence of this ponded water and source should be reviewed.	4	A pool of water was observed in the energy dissipater at the end of R3 spillway channel which is either seepage water or surface runoff. The persistence of this ponded water and source will be reviewed.	Initiate prior to December 2015
Bose Lake Dam	**DSI-BLD-01 (2014)** Continue to monitor the cracking features, animal burrows and depressions on the upstream face of Bose Lake Dam and the tailings beach for changes during 2015, especially following the spring freshet. Repair these features by backfill and grading, followed by monitoring for re-activation.	3	Continue to monitor and repair animal burrows and related minor surface erosion upstream of Bose Lake Dam.	Complete backfill and repair by December 2015.
Bose Lake Dam	**DSI-BLD-02 (2014)** Remove vegetation along the Bose Lake Dam spillway channel.	4	Remove vegetation along the Bose Lake Dam spillway channel.	December 2015 (to be completed)
Bose Lake Dam	**DSI-BLD-03 (2014)** Re-grade the crest of Bose Lake Dam	4	Re-grade the crest of Bose Lake Dam	December 2015 (to be completed)
Bose Lake Dam	**DSI-BLD-04 (2014)** Continue to monitor flow around/through the fill around the culverts at the public road crossing downstream of Bose Lake Dam which carry the spillway flow. Currently seepage water is flowing under the culverts but there is no indication of instability or movement of fines.	4	Continue to monitor flow around/through the fill around the culverts at the public road crossing downstream of Bose Lake Dam which carry the spillway flow.	Status update in 2015 DSI

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Bose Lake Dam	**DSI-BLD-05 (2014)** The pump well outflow to Bose Lake has become rusted and corroded, but remains serviceable at this time (Photo I-8). It will require replacement.	4	The pump well outflow to Bose Lake has become rusted and corroded. According to the DSI, the pipe remains serviceable at this time but will require replacement.	By 2017
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD-01 (2014)** Survey the dam to update current geometry and topography, confirm minimum dam crest elevation and minimum spillway invert level.	4	Dam will be surveyed to update current geometry and topography, confirm minimum dam crest elevation and minimum spillway invert level.	Complete by December 2016
Trojan Dam (Bethlehem No. 2 TSF)	**DSI TD-02 (2014)** Add this task to the OMS: Continue to monitor location and condition of the old sinkhole, as part of normal operations, maintenance and surveillance activities.	4	Add this task to the OMS: Continue to monitor location and condition of the old sinkhole, as part of normal operations, maintenance and surveillance activities.	Status to be reviewed December 2015
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -03 (2014)** Run falling head permeability tests in Piezometers P95-3 and P95-4 to verify status of these instruments.	4	Conduct falling head tests in piezometers P95-3 and P95-4	Discretionary
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -04 (2014)** Survey the piezometers to establish coordinates based on the current site grid and confirm top of casing elevations.	4	Survey the piezometers to establish coordinates based on the current site grid and confirm top of casing elevations.	Discretionary
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -05 (2014)** Complete a performance review of all piezometers in 2015 and prepare a decommissioning plan for non-functional instruments. Assess the need for new instrumentation.	4	Complete a performance review of all piezometers and prepare a decommissioning plan for non-functional instruments. Assess the need for new instrumentation.	Discretionary
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -06 (2014)** Establish alert levels for the installed piezometers.	3	Establish alert levels for the installed piezometers.	Complete by December 2015
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -07 (2014)** Prepare and test an EPRP. Test completed on October 17, 2014. EPRP to be updated by Teck HVC	3	Prepare and test an EPRP. Test completed on October 17, 2014. EPRP to be updated by Teck HVC	Test of EPRP completed October 2014. EPRP updated annually. CLOSED

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Trojan Dam (Bethlehem No. 2 TSF)	**DSI-TD -08 (2014)** Review Trojan Dam stability for Very High consequence seismic and flood assumptions. The KC (1996) review was based on High classification assumptions. A stability review was also recommended by AMEC DSR. The stability update should include: ▪ updated survey and current phreatic surfaces; ▪ an updated assessment of seismic ground motion; ▪ conduct both static and pseudo-static analyses with deformation estimates. This may trigger the need for an investigation program and FLAC analysis (or similar finite element modeling) s to assess liquefaction potential and seismic deformations.	3	Due to changed consequence classification, review Trojan Dam stability. The stability update will include: ▪ updated survey and current phreatic surfaces; ▪ an updated assessment of seismic ground motion; and ▪ conduct both static and pseudo-static analyses with deformation estimates.	Initiated by September 2015
Trojan Dam (Bethlehem No. 2 TSF)	**DSI- TD -09 (2014)** Pond water levels were generally rising in the Trojan Pond prior to the recent implementation and improvement of a diversion channel above the pond. Based on the change in Consequence Classification, IDF estimates were revised by AMEC; these should be reviewed and incorporated into the water management plan/water balance. Teck should prepare a water management plan considering the diversion channel upgrades in conjunction with other improvements at Trojan Dam to regulate stream flows to or around Trojan Pond and/or pumped from Trojan to Bethlehem No. 1.	4	Based on the change in Consequence Classification, IDF estimates were revised by AMEC; these will be reviewed and incorporated into the water management plan/water balance. An updated water management plan considering the diversion channel upgrades in conjunction with other improvements at Trojan Dam will be prepared.	Status to be reviewed December 2015
Trojan Dam (Bethlehem No. 2 TSF)	**DSI- TD -10 (2014)** Based on the change in Consequence classification, prepare an Environmental Design Flood inflow estimate.	4	Based on the change in Consequence classification, an Environmental Design Flood inflow estimate will be prepared.	Initiate by January 2016
Trojan Dam (Bethlehem No. 2 TSF)	**DSI- TD -11 (2014)** Routing of the spillway flow should be addressed, and recommendations for upgrades to the spillway channel or downstream channel provided if needed. It is anticipated that some downstream channel improvements are required to allow spillway flow. As well, it is anticipated that some armour is required on the left bank of the spillway where a recent sand repair was conducted.	3	Review routing of spillway flow. Armour will be placed on the recently repaired left bank of the spillway.	Initiate by September 2015

Structure	DSI Recommendation	Priority	Teck HVC Planned Action	Timeline for Action
Trojan Dam (Bethlehem No. 2 TSF)	**DSI- TD -12 (2014)** Confirm the downstream outlet location of an old decommissioned corrugated steel culvert under the Trojan Dam, and establish a monitoring point for observations of seepage.	4	The downstream outlet location of an old decommissioned corrugated steel culvert under the Trojan Dam will be confirmed, and a monitoring point for observations of seepage will be established	Initiate by January 2016
Reclaim Pond R4	**DSI-R4-01 (2014)** KCB to Check / review the new spillway capacity on R4 pond.	3	Check and review the new spillway capacity on R4 pond.	Initiate by September 2015
Reclaim Pond R4	**DSI-R4-02 (2014)** Although not required due to the low consequence of R4, it would be best practice to include a Standard Operating Procedure for the R4 Pond within the Trojan OMS.	4	Although not required due to the low consequence of R4, it would be best practice to include a Standard Operating Procedure for the R4 Pond within the Trojan OMS.	Discretionary