**Recommendations and Action Items**

Table 1: Description of Priority Rankings

| 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: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities

| Number | Facility | Description | Priority Ranking | Comments/Photo References/Report Page Reference | Date First Recommended | Recommended Completion Date |
|---|---|---|---|---|---|---|
| 2012-1 | TMF-2 | Additional survey monuments are recommended for installation on those portions of the TMF-2 Dam where slope re-grading and reclamation soil cover placement are largely complete. A monument should be installed to replace the El. 1010 m bench monument at Sta. 0+250 m that was destroyed. | 3 | Sections 4.3, 4.3.3<br>Drawing 2014-DSI-02 | 2012 annual review report | Q4 2014 |
| HML RESPONSE | | Instruments were not installed last year due to extensive reclamation efforts underway encompassing the entire western crest and exposed beach area. Suitable survey monuments will be installed as per BGC specifications. | | | | December 4, 2014 |
| 2012-2 | TMF-2 | A program for installation of additional piezometers in the foundation of the TMF-2 Dam, within the tailings upstream of the dam, and within the till starter dam fill upstream of the vertical core section should be developed, for implementation in 2015. | 3 | Section 4.2.4 | 2012 annual review report | Q3 2015 |
| HML RESPONSE | | HML awaits technical guidance from BGC on the details of this program and plans to install these piezometers in conjunction with other instrumentation installations required in 2015. | | | | TBD (Q3 2015) |
| 2014-1 | TMF-2 | The amount of settlement experienced by the TMF-2 Dam since its completion in 2007 should be evaluated by comparison of annual crest surveys. | 4 | Appendix B (Section B.4.1) | Current | Q2 2015 |
| HML RESPONSE | | HML willprovide the information in a table for BGC evaluation. | | | | Q2 2015 |
| 2014-2 | TMF-2 | It is recommended that TMF-2 impoundment drainage be reviewed based on updated topography, the potential for water under Inflow Design Flood (IDF) conditions being impeded from flowing to the MZO pit be evaluated. If drainage could be impeded to the degree that water could pond against the TMF-2 Dam, remedial measures and/or viable contingency plans need be implemented | 3 | Section 5.1.2 | Current | Q1 2015 |
| HML RESPONSE | | If allowed to proceed with the Temporary Stockpile to the north of TMF-3, drainage from the stockpile and the terrain above will be directed to the MZO pit via the access ramp to the dumping area. Further, the pond area on the northern limits of TMF-2 will be backfilled in 2015 to form the base of the next stage of Low Grade Ore Stockpiling. Current drainage is to a sump adjacent to the crest of the pit, where excess water is collected and pumped around to other storage areas. In order to reduce the risk of excess water build-up in conjunction with the inability to maintain pumping operations, a ditch with the appropriate base elevation will be installed leading to the crest of the MZO pit. This ditch will provide passive drainage into the MZO pit . Final design forthcoming. | | | | Q1 2015 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2012-3 | East Dam | A geotechnical investigation at the left abutment of the East Dam including core drilling and packer testing to evaluate a grout curtain is required, once the MZO pit wall in that area is at its final configuration. | 3 | Appendix B<br><br>(Section B.6.3.2) | 2012 annual review report | Q3 2016 |
| HML RESPONSE | | This investigation is planned for 2016. | | | | Q3 2016 |
| 2012-4 | East Dam | It is recommended that a weir be installed downstream of the East Dam (between the East Dam toe and the EZP) and monitored to replace the one installed in 2009 and subsequently damaged. | 3 | Section 7.3 | 2012 annual review report | Q2 2015 |
| HML RESPONSE | | A weir will be installed as per Recommendations in 2015. EZP slide cover construction may require it`s removal/relocation in the future. | | | | Q2 2015 |
| 2012-5 | East Dam | Crest survey monuments are recommended for installation on the East Dam. | 3 | Section 4.4<br><br>Drawing 2014-DSI-14 | 2012 annual review report | Completed |
| HML RESPONSE | | Prisms are installed and have been read multiple times. There was likely a miscommunication as the survey information is lumped in with the monitoring information for the pit rock wall monitoring, which is sent to a different consulting group for analysis. Readings were separated out and sent forth to BGC, who have analyzed them. Their response is in the final copy of the 2014 DSI. | | | | Ongoing |
| 2013-1 | EPPD | As EPPD dam is now largely complete, the routing and design for the closure spillway from the EZP impoundment should be evaluated and developed. | 4 | Appendix B<br><br>(Section B.6.5) | 2013 annual review report | Q3 2015 |
| HML RESPONSE | | Ongoing design and discussions are underway in conjunction with the closure plan preparation. | | | | Ongoing |
| 2013-2 | EPPD | Reading of the survey monuments installed in 2013 should commence immediately as per the frequency prescribed in the OMS manual. | 3 | Section 4.6.2 | 2013 annual review report | Q4 2014 |
| HML RESPONSE | | As stated in the body of the report, prisms have been installed, with multiple sets of initial readings done, but with the survey station subsequently having to be removed due to reclamation efforts.. Reclamation efforts have gotten to the point where the survey station has been re-installed and will not need to be moved . | | | | Ongoing |

Table 2: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities

| | | | | | | |
|---|---|---|---|---|---|---|
| 2012-6 | EPPD | A program for installation of piezometers, in the tailings and PAG rock shell upstream of the EPPD core zone, should be developed for implementation by 2016.<br><br>An additional piezometer should be installed at 0+600 adjacent to EPPD-2013-05/06 in 2014, along with two others piezometers 50 m to either side from the same elevation. | 4<br><br>3 | Section 4.6.3 | 2012 annual review report<br><br>Current | Q3 2015 |
| HML RESPONSE | | Awaiting the details of this program from BGC. Instrumentation installation is planned to be done in conjunction with instrumentation installation in other areas of the mine. | | | | TBD (Q3 2015) |
| 2014-3 | EPPD | A geotechnical investigation at the right abutment of the EPPD including core drilling and packer testing to evaluate a grout curtain to reduce seepage flows is recommended. Program can be carried out in conjunction with East Dam left abutment investigation (see 2012-3). | 3 | Section 4.6.1 | Current | Q3 2016 |
| HML RESPONSE | | Plan to complete this once detailed program is developed. | | | | TBD (Q3 2016) |
| 2013-3 | EPPD | An additional weir should be installed at the downstream toe of the EPPD to measure seepage rates at the toe. | 3 | Section 7.4 | 2013 annual review report | Q2 2015 |
| HML RESPONSE | | Weir will be installed in Spring/Summer 2015 | | | | TBD (Q2 2015) |
| 2014-4 | EPPD | Another weir, or alternative means of flow measurement (e.g. culvert and bucket with stopwatch) should be constructed for measurement of the seepage flow at Sta. 0+430 m. | 3 | Section 7.4 | Current | Q2 2015 |
| HML RESPONSE | | Appropriate measurement method will be determined and installed/initiated by Spring/Summer 2015 | | | | TBD (Q2 2015) |
| 2014-5 | EPPD | The white precipitate observed in wet areas along the eastern toe of the East Pit Plug Dam should be sampled and tested. | 4 | Photo 36, Appendix A | Current | Q1 2015 |
| HML RESPONSE | | White precipitate will be sampled, though may not have access by end of Q1 2015. Plan to complete this sampling and analysis as soon as access allows. | | | | Q2 2015 (access restriction) |
| 2014-6 | EPPD | The potential for installation of a weir at the first location of seepage from the EPPD toe should be investigated | 3 | Photo 29, Appendix A | Current | Q2 2015 |
| HML RESPONSE | | Investigation to assess the feasibility of installing a weir at this location will be done once access is restored in Spring/Summer 2015. | | | | TBD (Q2 2015) |

Table 2: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities

| | | | | | | |
|---|---|---|---|---|---|---|
| 2014-7 | TMF-3 | Additional piezometers should be installed in 2015 within the ultimate downstream toe of the TMF-3 dam prior to the next downstream shell extension. | 3 | Section 4.7<br><br>Drawing 2014-DSI-16 | Current | Q3 2015 |
| HML RESPONSE | | Part of the ongoing construction of the dam. Cannot practicably be completed until next phase of dam construction begins, so these proposed piezometers will be installed at that time. | | | | Q3 2015 |
| 2013-4 | TMF-3 | Blockages to the TMF-3 diversion channel, including debris in culverts and inlets, and leakage from plunge pools at creek junction locations, should be repaired to improve functionality of the channel. The option of installation of pipe inlets in the two main gullies entering the diversion and pipe flows to downstream of the haul road, where the diversion channel is functional, should be evaluated.. | 3 | Photo 91, Appendix A | 2013 annual review report | Blockages have been removed.<br><br>Diversion channel/plunge pool work: Q3 2015 |
| HML RESPONSE | | Further investigative work was done since the discovery of the ineffectiveness of the drainage ditch in 2013. Upgrades to reclaim and TRO discharge may negate the need to fix the entire length of ditch system., Instead installation of collection ponds at major drainages and then piping water to the southern extent of the above ground ditch may be a better solution. As stated, further work is required. | | | | Action TBD |
| 2013-5 | TMF-3 | HML does not currently measure:<br><br>• flow rates/volumes of reclaim water pumped from TMF-3 to the EZP impoundment west cell, and<br><br>• water pumped from the SC ponds to the TMF-3.<br><br>It is recommended that these flows be measured/tracked, to further understanding of the TMF-3 water balance. | 3 | Section 5.3.1 and 7.5 | 2013 annual review report | Q4 2014 |
| HML RESPONSE | | . HML has recently installed a flow meter on the TMF-3 reclaim line. Readings are taken daily and incorporated into the site water monitoring. Seepage Control (SC) ponds -6 and -7 both report to SC-8, which in turn is pumped back into TMF-3. Flow from SC-8 is tracked ,readings are also taken daily and incorporated into the site water monitoring | | | | Ongoing |

Table 2: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities

| | | | | | | |
|---|---|---|---|---|---|---|
| 2014-8 | TMF-3 | The TMF-3 pond level should be kept to a minimum per the recommendations from BGC Memorandum “TMF-3 Filter Level and Pond Level” provided in Appendix J until the filters have been raised, beyond which time the pond should not be allowed to rise above the filter elevation.<br><br>The filters should be raised to, and maintained above, the TMF-3 pond level at all times. | 2 | Section 5.3 | Current | Q4 2014 |
| HML RESPONSE | | HML agrees completely that filters are to be advanced as soon as possible. The TMF-3 impoundment has been operated within BGC specifications the entire time. Filter raise has been given the highest construction priority. Tailings are regularly being deposited into the west cell in order to maintain low water levels in the TMF-3 pond. To keep the pond level low the NAG Quarry within TMF-3 is planned to be the primary tailings storage area during Winter/Early Spring 2015. Beyond the 2014 construction raise, filter zone will be raised along with any raise of the core of the dam .<br><br>It is recognized that additional water movement capacity is required to control water levels in TMF-3 and steps have been taken to ensure that proper water movement capability is available. One of the possible additions to water movement capability is the installation t of a system to pump 10,000 to 20,000 cubic metres per day from TMF -3 to TRO discharge .<br>. | | | | Filters to Pond water levels: Dec 2014; End of 2014 Construction: Jan 31, 2015 |
| 2014-9 | TMF-3 | It is recommended that a weir be installed downstream of the TMF-3 dam, upstream of SC-8 but as close to the toe of the dam as possible, to measure seepage flows. | 3 | Section 7.5 | Current | Q2 2015 |
| HML RESPONSE | | This recommendation needs to be discussed with BGC, as this location will soon be disturbed as a part of the ongoing raise(s). | | | | TBD |
| 2014-10 | TMF-3 | The piezometers installed at the downstream toe of the Saddle Dam should be protected and cables extended | 3 | Section 4.7 | Current | Q4 2014 |
| HML RESPONSE | | Part of ongoing construction. | | | | December 1, 2014 |
| 2014-11 | Low Grade Ore Stockpile | It is recommended that LGO stockpile slopes constructed steeper than slope criteria identified in AMEC (2012c) be re-graded to achieve the recommended design slopes | 3 | Section 4.8<br><br>Drawing 2014-DSI-02 | Current | Q4 2014 |
| HML RESPONSE | | A section of the southern extent, which is not built to the southern limits has been constructed at repose, rather than in benches. This will be corrected by mid December, 2014. There is some uncertainty regarding the steepened slopes in the NW area, as this is where we have come back in and removed stockpile material and sent on to the crusher. The uncertainty lies in whether or not we have to re-slope an exposed dig face in between extraction periods. We are also leaving repose sloped gullies between HGO and LGO stockpiles in order to differentiate between them. Will need to clarify some items with BGC. There are currently no stability issues with the stockpile at this time. | | | | Re-sloped Southern Extent: Dec 15, 2014; Other issues: Q2 2015 |

Table 2: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities

| | | | | | | |
|---|---|---|---|---|---|---|
| 2013-6 | SC Ponds and Weirs | Blockages to the SC-6 spillway inlet should be cleared. | 2 | Photo 81, Appendix A | 2013 annual review report | Completed |
| HML RESPONSE | | Blockage Cleared. | | | | Done |
| 2014-12 | SC Ponds and Weirs | SC ponds 1, 2, 3, 5 should be cleaned out of aquatic vegetation and woody debris and brush should be cut back from weirs. | 3 | Photos 10 to 13, Appendix A | Current | Q2 2015 |
| HML RESPONSE | | Will perform in Spring/Summer 2015. | | | | TBD (Q2/3 2015) |
| 2014-13 | SC Ponds and Weirs | Woody debris should be cleaned out from SC-4A pond and weir intake as it could block the weir or culvert spillway. | 2 | Photo 40, Appendix A | Current | Q4 2014 |
| HML RESPONSE | | Contract excavator in place to perform work in upcoming weeks. | | | | December 5, 2014 |
| 2014-14 | SC Ponds and Weirs | The condition of the SC-4A spillway chute Smartditch™ should be routinely monitored, with inspections no less frequently than twice per month. | 3 | Photo 46, Appendix A | Current | On-going |
| HML RESPONSE | | As conditions over the winter worsen with snow build-up, inspections may not be practical. Otherwise, inspections will occur as outlined. | | | | Ongoing |
| 2014-15 | SC Ponds and Weirs | In 2014 SC flows were provided as weekly measurements only. Daily flows measured by the data-logger, when available, should be provided to support these measurements. | 3 | Section 7.0 | Current | On-going |
| HML RESPONSE | | Will engage in discussions with BGC to determine when and how often this is required, in conjunction with the need to perform other necessary work in and about the mine. | | | | Ongoing |
| 2014-16 | SC Ponds and Weirs | The SC-6, 7 and 8 weirs are partially blocked with plywood. The plywood should be removed immediately. | 2 | Photos 81, 83 and 86, Appendix A | Current | Completed |
| HML RESPONSE | | Plywood has been removed. | | | | Done |

Table 2: Recommendations and Planned Action for Huckleberry Mines' Tailings Facilities