

SNC-LAVALIN INC.

1111, West Georgia, suite 900 Vancouver (BC) Canada V6E 4M3 Tel: (604)662-3555 Fax: 604(648)-6412

Vancouver, November 20th, 2014

Mr. Peter Espig
HULDRA SILVER INC.
Suite 610 – 837 West Hastings Street
Vancouver, BC V6C 3N6

Subject: 2014 Dam Safety Inspection - Huldra (Old Craigmont) Mine, Merritt, BC

Final Report

Our file: 623839-0000-4GER-0001-00

Dear Mr. Espig,

Attached please find the 2014 Dam Safety Inspection (DSI) final report for the tailing dams at the Huldra (Old Craigmont) mine site. Please forward a copy of this report to the site personnel for their review and follow-up.

This report concludes that, based on our visit and the information available, the dams of this mine site seem to be performing satisfactorily. The next DSI should be carried out in 2015, as per British Columbia (BC) Ministry of Energy and Mines requirements. Furthermore, a formal review of the consequence classification of the dikes is required and such a review is part of the mandate of the 3rd Party Review of the present DSI report required by the August 18, 2014 BC Chief Investigator's Orders.

Yours sincerely,

SNC LAVALIN INC.

Surinder Garewal, P. Eng.

Project Manager

Sustainable Mine Development

Mining and Metallurgy

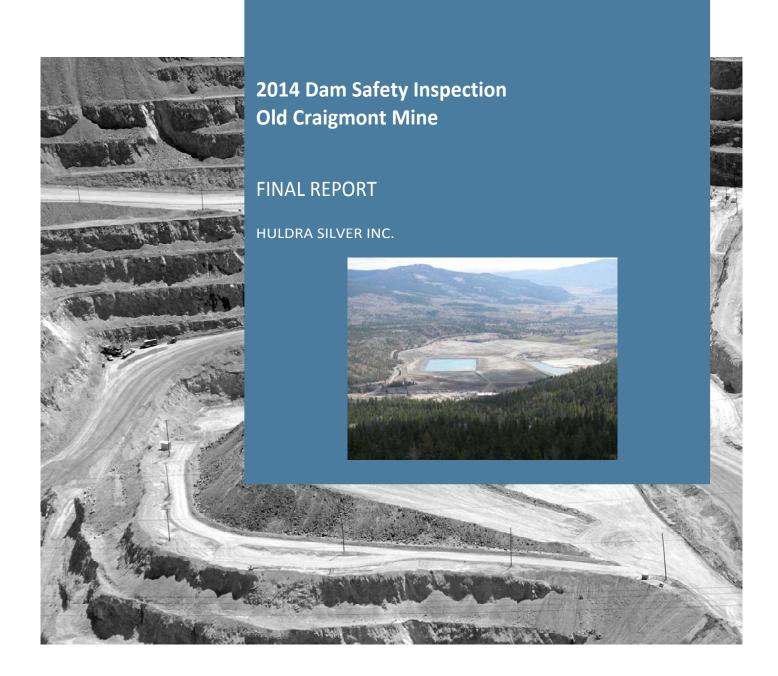
SG/kc

Distribution:

3 copies

Mr. Peter Espig (Huldra)





MINING AND METALLURGY | SUSTAINABLE MINING DEVELOPMENT

11 | 20 | 2014

REPORT > ORIGINAL
Rev. 00 > Internal ref. 623839-0000-4GER-0001 > Volume 1/1



LIST OF REVISIONS

Revis	Revision		Revised Remarks		Revised	Romarke
#	Prep.	Rev.	Date	pages	nemarks	
00	SG	DL	11-20-2014	All	Final Report	
	_		_			

NOTICE TO READER

This document contains the expression of the professional opinion of SNC-Lavalin Inc. ("SNC-Lavalin") as to the matters set out herein, using its professional judgment and reasonable care. It is to be read in the context of the agreement dated October 16, 2014 (the "Agreement") between SNC-Lavalin and Huldra Silver Inc. (the "Client") and the methodology, procedures and techniques used, SNC-Lavalin's assumptions, and the circumstances and constraints under which its mandate was performed. This document is written solely for the purpose stated in the Agreement, and for the sole and exclusive benefit of the Client, whose remedies are limited to those set out in the Agreement. This document is meant to be read as a whole, and sections or parts thereof should thus not be read or relied upon out of context.

SNC-Lavalin has, in preparing estimates, as the case may be, followed accepted methodology and procedures, and exercised due care consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that there is a high probability that actual values will be consistent with the estimate(s). Unless expressly stated otherwise, assumptions, data and information supplied by, or gathered from other sources (including the Client, other consultants, testing laboratories and equipment suppliers, etc.) upon which SNC-Lavalin's opinion as set out herein are based have not been verified by SNC-Lavalin; SNC-Lavalin makes no representation as to its accuracy and disclaims all liability with respect thereto.

To the extent permitted by law, SNC-Lavalin disclaims any liability to the Client and to third parties in respect of the publication, reference, quoting, or distribution of this report or any of its contents to and reliance thereon by any third party

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report



TABLE OF CONTENTS

		Page	
EXE	CUTIVE SUMMARY		
1.0	INTRODUCTION	1	
2.0	DESCRIPTION OF THE TAILINGS FACILITIES	3	
2.1	Documentation Provided by Huldra	3	
2.2	Plan and representative cross sections	3	
2.3	Summary of past years' construction (2013-2014)	4	
2.4	Nature of the Tailings vs AMD Potential	4	
2.5	Consequence Classification of the Dikes	4	
2.6	Engineer of Record (EOR)	4	
3.0	DAM SAFETY INSPECTION VISIT	5	
3.1	UPPER TAILINGS FACILITY (UTF)	5	
3.2	HULDRA TAILINGS STORAGE FACILITY (HTSF)	5	
3.3	WEST TAILINGS FACILITY (WTF)	6	
3.4	LOWER TAILINGS FACILITY (LTF)	6	
3.5	EXPANDED TAILINGS FACILITY (ETF)	7	
4.0	WATER MANAGEMENT	7	
4.1	Climate	7	
4.2	Water Balance	7	
4.3	Freeboard and storage availability	8	
4.4	Water Discharge System	8	
4.5	Seepage Occurrence and Water Quality	8	
4.6	Surface Water Control and Surface Erosion		
5.0	DAM SURVEILLANCE		
5.1	OMS Manual		
5.2	Instrumentation	9	
5.3	Routine Inspection	9	
2014 [Dam Safety Inspection – Huldra Mine Site	Original -V.00	
2014/1	11/20 623839-0000-4GER-0001	Technical Report	

SUSTAINABLE MINE DEVELOPMENT



5.4	Annual DSI	9
5.5	Dam Safety Review	9
6.0	RECOMMENDATIONS	10
7.0	LIMITATIONS	11
8.0	PERSONNEL	12
9.0	REFERENCES	13

LIST OF APPENDICES

Appendix A: Tailings Dam Inspection Forms – Huldra Mine SIte

Appendix B: Selected Site Photographs

Appendix C: Site Plan Drawing and Cross Sections

2014 Dam Safety Inspection	Original -V.00	
2014/11/20	623839-0000-4GER-0001	Technical Report



EXECUTIVE SUMMARY

A Dam Safety Inspection (DSI) of the tailings management facilities at the Huldra (Old Craigmont) mine site was carried out and this DSI report has been prepared to meet the requirements of the British Columbia Ministry of Energy and Mines 2013 Guidelines for Annual DSI reports.

a) Classification of the dam(s) in terms of Consequence of Failure in accordance with Table 2-1 of the CDA Dam Safety Guidelines (2007).

As reported by AMEC (2013), based on a preliminary review of consequence classification presented in Klohn Crippen (2005), the tailings facilities are classified as "Low" but formal classification of Dykes 1, 2, 3 and 4 has not been completed. Given the changes between the 1999 and the 2007 CDA Guidelines, a formal review of the consequence classification is required but based on our observations should probably lead to a confirmation of the "Low" category.

b) Significant changes in instrumentation and/or visual monitoring records.

According to AMEC (2013), there was one (1) remaining piezometer and seven (7) monitoring wells being monitored monthly by AMEC staff. Only four of the monitoring wells (MW-01 through MW-04) located on the crest of the Upper Tailings Facility are still monitored monthly by Huldra and only for quality control. The piezometer (PZ-07-04) was not found and is not monitored anymore; based on AMEC (2013), it was only read once between 2011 and 2012 and it was found to be dry. Monitoring wells M1, M2 and W2 located south of the Lower Tailings Facility downstream toe were not found and are not monitored either.

c) Significant changes to dam stability and/or surface water control.

The Huldra Tailings Storage Facility (TSF) located within the Upper Tailings Facility has operated as the "active" site tailings storage facility from November 2012 to 2013 while all the other tailings facilities were inactive. The Huldra TSF is now also inactive.

The zone where AMEC (2013) observed marks of active water seepage from Stumbles Creek into the western slopes of the West Tailings Facility was dry at the time of the 2014 DSI visit and the marks could not be observed.

d) For major impoundments, as defined in Part 10 of the Code, a current Operation, Maintenance and Surveillance (OMS) Manual is required. The annual report shall indicate the latest revision date of the OMS manual.

AMEC (2013) report that they developed with Craigmont Mines Ltd. an OMS Manual "Craigmont Mine, Tailings Storage Facility, Operations, Maintenance and Surveillance Manual" which was

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



completed in October 2012. It is unclear if it has been updated for Huldra Mine but it has not been provided to SLI for the 2014 DSI as the site in now inactive. Based on discussions with Mr. Len Haukeness of Huldra, it is seems that the manual is adequate and is being adhered to by site personnel.

e) For tailings dams classified as High, Very High, or Extreme Consequence, an Emergency Preparedness Plan (EPP) is required. The annual report shall indicate the latest revision date of the EPP document.

AMEC (2013) report that an Emergency Preparedness Plan (EPP), dated March 5, 2012, has been prepared by Craigmont Mines Ltd. It is unclear if it has been updated for Huldra Mine but it has not been provided to SLI for the 2014 DSI.

f) Scheduled date for the next formal Dam Safety Review in accordance with Table 5-1 of the CDA Dam Safety Guidelines (2007). Formal Dam Safety Reviews are required every 5 to 10 years (depending on consequence classification) and differ from annual dam safety inspections. The requirements for Dam Safety Reviews are included in Section 5 of the CDA Dam Safety Guidelines. Dam Safety Reviews may be conducted by the Engineer of Record with third party review, or by an independent third party with involvement of the Engineer of Record.

No date for a formal dam safety review based on the CDA guidelines has been established by Huldra Mines Ltd. but according to CDA 2007 Guidelines (Table 5-1), a Dam Safety Review is not required for "Low" consequence dams. However, the consequences of failure should be reviewed periodically, since they may change with downstream development. A formal review of the classification of all the dykes of the Huldra (Old Craigmont) Mine is recommended. If the classification increases, a Dam Safety Review could be required at that time.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



1.0 INTRODUCTION

SNC-Lavalin Inc. (SLI) has been retained by Huldra Silver Inc. (Huldra) to carry out a Dam Safety Inspection (DSI) of the tailings management facilities at their mine located in Lower Nicola near Merritt, British Columbia. The mine is currently not in operation and is at the site of the previously operating Craigmont mine.

The DSI was carried out by Mr. S. Garewal, P.Eng. of SLI, accompanied by Mr. Len Haukeness of Huldra on October 30 and 31, 2014.

The inspection comprised:

- Review of previous DSI report;
- Detailed visual inspection of tailings dams, including adjacent tailings beaches and downstream dam toe areas; and
- Stumbles Creek Diversion ditch and adjacent areas.

This report presents the results of the dam inspection and relevant recommendations. The key observations are noted in the report and are presented in the dam inspection forms in Appendix A. Representative photographs are shown in Appendix B. General site drawings (referenced from previous studies) are included in Appendix C.

This DSI report is intended to meet the requirements of the British Columbia Ministry of Energy and Mines (2013) Guidelines for Annual DSI reports as described in Table 1-1.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



Table 1-1 - DSI Content relative to 2013 BC Guidelines

Information required by BC 2013 Guidelines	Location in 2014 DSI	
1. Executive Summary	Beginning of the report	
2. Summary of past years' construction (if any) with a description of any problems and stabilization	Section 2.3	
3. Plan and representative cross sections	Section 2.2 and Appendix C	
4. Site photographs	Appendix B	
	Section 3.0 Specific dykes inspection data	
	Appendix A – Inspection Forms	
5. Review of climate data		
6. Water balance review.		
7. Freeboard and storage availability (in excess of the design flood)	Section 4.0 Water Management	
8. Water discharge system, volumes, and quality		
9. Seepage occurrence and water quality		
10. Surface water control and surface erosion		
11. Instrumentation review	Section 5.0 OMS Manual and Dam surveillance	
	Section 6.0 Recommendations	

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



2.0 DESCRIPTION OF THE TAILINGS FACILITIES

The Huldra mine site is located in Lower Nicola near Merritt, British Columbia. The following structures collectively make up the Huldra tailings facilities:

- Upper Tailings Facility (UTF)
- Huldra Tailings Storage Facility (HTSF)
- West Tailings Facility (WTF), including Stumbles Creek Diversion (SCD) ditch and adjacent areas
- Lower Tailings Facility (LTF)
- Expanded Tailings Facility (ETF)

2.1 Documentation Provided by Huldra

The following documentation was provided by Huldra to SLI:

- AMEC (2013): 2012 Annual Report (including April 2013 DSI visit)
- Canadian Royal Mining Cie (2012) HTSF Preliminary drawing to be issued for construction
- AMEC (2011): Design Report for the New Tailings Cell

The following usual information was not provided by Huldra:

- The closure plan for the different tailings facilities except for the HTSF which is included in the AMEC (2011) design report;
- Operations Manual or Emergency Plan for the site;
- Monitoring data were not provided;
- Written and photographic records of periodic inspections recommended by AMEC (2013) for assessing the evolution of erosion gullies.

2.2 Plan and representative cross sections

Locations of the above listed structures are indicated in the site plan drawing in Appendix C. No representative cross-sections of the different dykes forming the tailings facilities were provided to SLI by Huldra except for the as-built drawings of Dyke 4 that can also be found in Appendix C.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



2.3 Summary of past years' construction (2013-2014).

The Craigmont copper mining operation was closed in 1982, but the mine has been operated since to produce magnetite for the coal industry. Craigmont Mines Ltd. ceased to operate in November 2012. Huldra purchased all of the shares of Craigmont Holdings Ltd. on May 5, 2011. Construction of the Huldra Tailings Storage Facility located within the UTF took place during 2012. The facility was put into commission in November 2012. All permits at Craigmont Mine were taken over by Huldra Properties Inc. in April 2013. Huldra mine operated from November 2012 to 2013.

The mine is currently not in operation. The Huldra TSF has been most recently used, until the mine operations have ceased. The remaining tailings facilities have not been used by Huldra and have been out of operation since 2012.

2.4 Nature of the Tailings vs AMD Potential

The mine supplied magnetite to the Western Canadian coal industry by the recovery of magnetite from the mill tailings from the previous copper production operations of Craigmont Mines Ltd. After recovery of magnetite tailings were re-deposited into constructed tailings facilities. Therefore tailings are of variable nature - oldest being from copper extraction and the more recent from magnetite production. The tailings are now mostly dry (AMEC, 2011) and contained with no visible water except for two shallow water ponds in WTF and sealed HTSF.

No information on the potential for Acid Mine Drainage (AMD) was provided to SLI. The data from monitoring wells sampling was not provided so it is not possible to comment on the effect of the tailings facilities on the ground water quality.

2.5 Consequence Classification of the Dikes

As reported by AMEC (2013), based on a preliminary review of consequence classification presented in Klohn Crippen (2005), the tailings facilities are classified as "Low" but formal classification of Dykes 1, 2, 3 and 4 has not been completed. Given the changes between the 1999 and the 2007 CDA Guidelines, a formal review of the consequence classification is required but based on our observations should probably lead to a confirmation of the "Low" consequence classification.

2.6 Engineer of Record (EOR)

It is not clear who the present Engineer of Record (EOR) is for the site. Based on references presented in AMEC 2013 DSI report, the older dikes have been designed by Klohn up to 2005 (UTF and LTF dikes) and the newer ones by AMEC from 2006 to 2012 (Dikes 1 to 4 and Huldra TSF). SLI has not been involved in the design of the dikes of the Huldra tailings facilities.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



3.0 DAM SAFETY INSPECTION VISIT

The results of tailings dam inspections are presented in Tables A1 through A7 for the Huldra mine site dams (Appendix A). This format of dam inspection forms is consistent with previous DSI reports and other checklist forms used at other sites. Photographs of the main features of the tailings site have been taken and are presented in Appendix B.

No signs of slope instability, deformation, surface cracking or excessive/unexpected seepage have been observed at the dams forming the Huldra mine tailings impoundments. The conditions of the dams appear satisfactory.

Four instruments (monitoring wells) were observed and these are being monitored monthly by Huldra site staff.

3.1 UPPER TAILINGS FACILITY (UTF)

The UTF is located at the north end of the site, as shown on the site plan of Figure 1 of Appendix C. The UTF facility is inactive and consists of a perimeter dam and there is no water being retained inside. According to Figure 4 of AMEC (2013), the UTF is equipped with a rock filter dyke in its west corner but this was not observed.

The crest and slopes appear to be in good physical condition, with no signs of seepage or instability. A few locations had the freeboard between the tailings beach and the South Dam crest less than the recommended 1 m. Some erosion gulleys were noted on the downstream slopes, although these are not considered to have an effect on the stability of the structure. The more important gulleys like the one observed in South Dam (see photo 11) should be fixed so it will not worsen although it seems that any tailings or water flowing due to a potential dam failure would be contained in the LTF. The narrow but long gulley observed in the West Dam (photo 14) should be monitored to ensure it does not develop.

Reference DSI forms are Table A2, A3 and A4. Reference pictures are included as Photos 7 to 14.

3.2 HULDRA TAILINGS STORAGE FACILITY (HTSF)

Huldra had completed development of a new tailings facility (referred to as HTSF) within the Upper Tailings Facility, however this facility including tailings deposition is inactive as the mine is currently not in operation. The HTSF is a lined facility with an underdrainage system. There is no water recirculation as the mine is not in operation but the site is visited daily and the mine personnel could pump the water, if necessary. The surface water is reporting to a limited water

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20 623839-0000-4GER-0001		Technical Report



pond in its east portion. The facility appears to be in good physical condition with no signs of structural distress or seepage.

The spillway required for closure (AMEC, 2011) has not been constructed.

Reference DSI forms are Table A1 and reference pictures are Photos 1 to 6.

3.3 WEST TAILINGS FACILITY (WTF)

The WTF occupies the west portion of the site and is contained to the east by Dyke 4 (see site plan drawing). The facility has little water in the west portion, away from Dyke 4. It is not clear if the WTF is equipped with drainage structures like an underdrainage system or a closure spillway. At the event of an extreme flood or snowmelt, the WTF would collect any overflow from the UTF and the Stumbles Creek Diversion Ditch; capacity of this ditch is not known and should be reviewed along with the review of the consequence classification of Dyke 4.

The crest, downstream and upstream slopes appeared to be in good condition, with no signs of seepage or structural distress. The cracks observed in the 2013 DSI were not observed.

The WTF is contained to the west by the natural ground adjacent to the Stumbles Creek Diversion (SCD) ditch. At the time of this DSI the ditch was dry in this portion. The ditch appears to be in acceptable condition. The erosion marks noted by AMEC (2013) on the slope between the SCD and the WTF were not observed and the area was dry at the time of inspection.

The hillside on the west portion of the ditch along the middle of the WTF has a retrogressive slide area on a sloping terrain. This slide has also been identified in the previous DSI report by AMEC (July 2013). Water pipes (from old underground mine workings) in the slide area have been decommissioned and water has been diverted to flow to the SCD ditch at the south end of the site.

The slide does not appear to have expanded in area since the previous DSI reporting, however it should be noted that the area still seem to present the potential for further ground movement and should be investigated and studied in more detail as it could block the SCD ditch. From site discussions, it is understood that the BC Ministry of Energy and Mines has been notified of the landslide area.

Reference DSI forms are Table A5 and reference pictures are Photos 15, 16, 26, 27 (WTF) and 24, 25 (landslide).

3.4 LOWER TAILINGS FACILITY (LTF)

The LTF, located at the south end of the site, is bounded by a LTF South Dam, as shown on the site plan of Figure 1. At the time of the inspection, the facility was dry and inactive, and the Upper Reclaim Pond observed by AMEC (2013) in the southwest corner of LTF was dry. There were

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



locations where the freeboard between the tailings beach and the South Dam crest is less than 1 m.

South dam downstream slopes had a few small trees. Minor erosion gulleys were observed along the downstream crest. The remainder of the crest, downstream and upstream slopes appeared to be in good condition, with no signs of structural distress or seepage.

From site observation, it is not clear if drainage features are present.

Reference DSI forms are Table A6 and reference pictures are Photos 17 to 20.

3.5 EXPANDED TAILINGS FACILITY (ETF)

Dykes 1, 2 and 3 form the west and south boundaries of the ETF (see site plan). The east face of the ETF consists of tailings deposited against natural ground.

The ETF is out of service and dry. From site observation, it is not clear if drainage features are present.

Dykes 1, 2 and 3 appear to be in good condition with minor erosion gulleys, which are considered to be benign with respect to stability of the structures. The gulleys observed by AMEC (2013) do not seem to have evolved but their periodic monitoring is still recommended. No signs of distress were observed. The steep east face also mentioned in AMEC 2013 DSI report has been re-graded and sloped back.

Reference DSI forms are Table A7 and reference pictures are Photos 21 to 23 (ETF) and Photo 28 for the east face.

4.0 WATER MANAGEMENT

4.1 Climate

As per AMEC (2013), climate data from Environment Canada (Station 1125079 Merritt STP) indicates that average annual precipitation at the site is approximately 322 mm and according to the 1978 Hydrological Atlas of Canada, the mean annual lake evaporation is above 600 mm. The nearest snow course is Gnawed Mountain located northwest of the mine site which has an average snowpack of 110 mm water equivalent (Station IC19).

4.2 Water Balance

Tailings facilities at the site are currently not in operation and the tailings facilities are dry with very little water (precipitation) in two locations as indicated on Figure 1 of Appendix C. Tailings lines have been de-commissioned or removed.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20 623839-0000-4GER-0001		Technical Report



The water input is limited to precipitation. The water output is mainly due to evaporation and infiltration through the tailings beach inside the tailings facilities, to run-off on the dikes downstream slopes and in the periphery ditches.

For the Huldra TSF which is lined, infiltration is minimal and mine personnel are visiting the site daily and could pump out the water out if necessary.

4.3 Freeboard and storage availability

The minimal 1 m freeboard specification mentioned by AMEC (2013) appears reasonable given the climate data and the relatively dry state observed at the time of the inspection. Based on observations at the time of the inspection visit, the freeboard of the two water ponds was greater than 1 m and the storage capacity of all the tailings facilities appears to be sufficient to contain even an extreme flood but this should be confirmed by the survey of the dam crest and the water management structures (spillway, collection and diversion ditches).

4.4 Water Discharge System

No water is discharged from the site.

4.5 Seepage Occurrence and Water Quality

No seepages were observed at the periphery of the tailings facilities site.

4.6 Surface Water Control and Surface Erosion

The only surface water control structure is the Stumbles Creek Diversion Ditch. It was observed to be in relatively good condition and mostly dry. The only concern is the need to monitor the erosion of the upstream hill in the landslide.

5.0 DAM SURVEILLANCE

5.1 OMS Manual

A paper copy of the Tailings Storage Facility Operations, Maintenance and Surveillance Manual is kept on site. The manual has been prepared by AMEC in 2012. It was not provided to SLI for review. Based on discussions with Mr. Len Haukeness of Huldra, it seems that the manual is adequate and is being adhered to by site personnel.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



5.2 Instrumentation

Four monitoring wells (MW01, MW02, MW03, MW04) are in place on the dykes forming the UTF. It is understood that Huldra is taking monthly readings of these wells. Readings were not provided to SLI. According to Mr. Len Haukeness of Huldra, the water level in the wells is very deep. Measuring the water level in these wells before purging and sampling the ground water could confirm this information. The monitoring of water depth in the monitoring wells should be continued and provided for review as recommended previously by AMEC (2013).

5.3 Routine Inspection

Site personnel should observe the above areas during surveillance walkovers and any changes should be reported to the tailings dam Engineer of Record.

5.4 Annual DSI

The annual DSI should be performed in the Spring, early after snowmelt when vegetation at the toe of the dikes is not too developed and, when surface and ground water levels are at their highest levels.

5.5 Dam Safety Review

No date for a formal dam safety review based on the CDA guidelines has been established by Huldra Mines Ltd. but according to CDA 2007 Guidelines (Table 5-1), a Dam Safety Review is not required for "Low" consequence dams. However, the consequences of failure should be reviewed periodically, since they may change with downstream development. A formal review of the classification of all the dykes of the Huldra (Old Craigmont) Mine is recommended. If the classification increases, a Dam Safety Review could be required at that time.

2014 Dam Safety Inspection	Original -V.00	
2014/11/20	623839-0000-4GER-0001	Technical Report



6.0 RECOMMENDATIONS

Following is a summary of recommendations for all the tailings facility areas, to be carried out by site personnel:

- Periodic (monthly and following heavy precipitation or snowmelt) inspection of crest, upstream and downstream slopes and toe; in particular, the freeboard between any water pond or dry tailing surface and the minimum crest elevation of the periphery dykes should be checked to make sure it meets the minimal 1 m criteria;
- Photographs and written records of the periodic inspections should be maintained and provided before the DSI visit; this is especially important to assess on the evolution of the erosion gulleys;
- Monitoring of STD ditch (to ensure water flow) and adjacent landslide areas should be done periodically;
- Periodic (monthly) monitoring of instrumentation to be carried out: the measurement of the water depth in the monitoring wells before purging and sampling will provide valuable information;
- Any signs of potential distress / failures or movements shall be immediately communicated to the responsible personnel;
- Erosion gulleys should be removed by grading and smoothing off the slopes and crest areas; channelling of runoff waters in gravel ditches lined with geosynthetics at the main erosion sites could be considered as a long term solution;
- Trees and large vegetation should be removed from slope and crest areas;
- Maintenance of a 1 m freeboard (top of tailings to top of crest) should be done to insure sufficient water storage for potential extreme flood occurrence;
- The next DSI for the site should be carried out in 2015 (preferably early after snowmelt), and subsequent ones to be done as per the current requirements of the BC Ministry of Energy and Mines; and
- Based on the CDA 2007 Guidelines, a formal Dam Safety Review (DSR) is not required for "Low" consequence dams. However, a review of the consequence classification of all the dykes of the Huldra (Old Craigmont) tailings facilities is recommended.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20 623839-0000-4GER-0001		Technical Report



7.0 LIMITATIONS

The report contains observations of site conditions and interpretations of their causation and potential effects with respect to the behavior and performance of structures on the site. Site conditions will vary with time and may differ from those observed during the inspection; for this reason it is important that any significant variations in conditions be reported to SLI for evaluation, particularly if they may influence the conclusions and recommendations provided in this report. The inspection was conducted for the Huldra Mine Site as described herein and the observations, conclusions and recommendations are not applicable to any other site or for any purpose other than that specified.

Annual inspections are an essential part of good dam management practice and risk management. They serve to reduce the risk of failure or unacceptable behavior by identifying potential problems in the structures as well as their operation and surveillance. Inspections are necessarily limited in their time and scope and thus on their own do not assure stability or adequate performance. Accordingly, the conclusions and recommendations of this report are limited based on the information obtained.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20 623839-0000-4GER-0001		Technical Report



8.0 PERSONNEL

This report has been prepared by Mr. Surinder Garewal and reviewed by Dr. Denise Leahy.

We trust that this report is to your satisfaction. Should you have any questions, please do not hesitate in contacting the undersigned.

SNC LAVALIN INC.

Prepared by:

Surinder Garewal, P.Eng.

Project Manager - Geotechnical Engineer

Sustainable Mine Development

Mining & Metallurgy

SG/kc

Reviewed by:

Denise Leahy, P. Eng., Dr. Ing. Senior Geotechnical Engineer Sustainable Mine Development

Mining & Metallurgy

2014 Dam Safety Inspecti	on – Huldra Mine Site	Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report



9.0 REFERENCES

AMEC Environment & Infrastructure (July 2013), Craigmont Mine Tailings Management Facility, Lower Nicola, British Columbia, 2012 Annual Report.

AMEC Environment & Infrastructure (2011), Treasure Mountain Mine - Design Report for the New Tailings Cell at the Craigmont Mine Site. Report VE52037 to Huldra Holdings Limited. September 2011

Canadian Royal Mining Cie (2012), Treasure Mountain Project – Preliminary drawing to be issued for construction. June 2012.

Fisheries and Environnement (1978), Canadian Hydrological Atlas.

2014 Dam Safety Inspection – Huldra Mine Site		Original -V.00
2014/11/20	623839-0000-4GER-0001	Technical Report

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A1: Inspection Form – Huldra Tailings Storage Facility

OBSERVED FEATURES	YES	No	Рното	COMMENTS	
				DATE	OCTOBER 30, 2014
				WEATHER	Partly cloudy, 8 ℃
1.0 Tailings Beach (west portion)	·				
1.1 Evidence of Sinkholes		\boxtimes			
1.2 Water Adjacent to Dam				East portion – very low water level	
1.3 Other Unusual Conditions		\boxtimes	1		
2.0 Upstream Dam Slope (lined)					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking					
2.6 Mark of High Pond Level					
2.7 Vegetation		\boxtimes			
2.8 Slope Visually Uniform					
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs	\boxtimes		2	Minor repairs	to liner
3.0 Dam Crest	·				
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion	\boxtimes		6	Minor erosion	gulleys
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal			3		
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope					
4.1 Erosion Protection		\boxtimes			
4.2 Evidence of Erosion		\boxtimes			
4.3 Evidence of Movement		\boxtimes			
4.4 Evidence of Sloughing		\boxtimes			
4.5 Evidence of Cracking		\boxtimes			
4.6 Signs of Phreatic Surface		\boxtimes			
4.7 Evidence of Seepage		\boxtimes			
4.8 Seepage Clear					
4.9 Evidence of Contamination					
4.10 Vegetation		\boxtimes			
4.11 Slope Visually Uniform	\boxtimes		4		
4.12 Other Unusual Conditions		\boxtimes			
4.13 Evidence of Repairs		\boxtimes			
5.0 Downstream Toe					
5.1 Toe Drain Exists					
5.2 Toe Drain Working Well					
5.3 Toe Ditch Exists		\boxtimes			
5.4 Flow in Toe Ditch		\boxtimes			
5.5 Other Seepage		\boxtimes			
5.6 Seepage Clear					
5.7 Evidence of Contamination					
5.8 Evidence of Vegetation Kill		\boxtimes			
5.9 Soft Toe Condition		\boxtimes			
5.10 Evidence of Boils		\boxtimes			
5.11 Other Unusual Conditions		\boxtimes	5		
5.12 Evidence of Repairs		\boxtimes			
6.0 General					
6.1 SCF(s) at this dam					
6.2 Decant Structure at this dam					
2014 Dam Safety Inspection – Huldra Mine Site 2014/11/20 623839-0000-4GER-0001					Original - V.00 Technical report
020000 0000 70211-0001					1 de l'illoui Topoit

6.3 Embedded/buried structures			
6.4 Spillway at/next to this dam		\boxtimes	
6.5 Pipelines at this dam		\boxtimes	
6.6 Evidence of ARD			
6.7 Crest Accessible by Truck	\boxtimes		
6.8 Public Access to Dam		\boxtimes	
6.9 Other Unusual Conditions		\boxtimes	
7.0 Instrumentation			
7.1 General State			
7.2 Adequate Identification			
7.3 Well Protected			
Notes: 1. Most recent dam (lined) 2. Tailings line deactivated 3. No tailings disposal			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A2: Inspection Form – Upper Tailings Facility (North Dam)

OBSERVED FEATURES	YES	No	Рното		COMMENT
				DATE	OCTOBER 30, 2014
				WEATHER	LIGHT SHOWERS, 10 ℃
1.0 Tailings Beach			•		
1.1 Evidence of Sinkholes		\boxtimes			
1.2 Water Adjacent to Dam		\boxtimes		No water – dry	/ facility
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes	8		
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level					
2.7 Vegetation		\boxtimes			
2.8 Slope Visually Uniform	\boxtimes				
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest	·		•	·	
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion		\boxtimes			
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal					
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.1 Erosion Protection	4.0 Downstream Dam Slope (towards Stumbles Creek Diversion)					
4.3 Evidence of Movement □ □ 4.4 Evidence of Sloughing □ □ 4.5 Evidence of Cracking □ □ 4.6 Signs of Phreatic Surface □ □ 4.7 Evidence of Seepage □ □ 4.8 Seepage Clear □ □ 4.9 Evidence of Contamination □ □ 4.10 Vegetation □ 9 4.11 Slope Visually Uniform □ □ 4.12 Other Unusual Conditions □ □ 4.13 Evidence of Repairs □ □ 5.0 Downstream Toe □ □ 5.1 Toe Drain Exists □ □ 5.2 Toe Drain Working Well □ □ 5.3 Toe Ditch Exists □ □ 5.4 Flow in Toe Ditch □ □ 5.5 Other Seepage □ □ 5.5 Other Seepage Clear □ □ 5.7 Evidence of Contamination □ □ 5.8 Evidence of Vegetation Kill □ □ 5.10 Evidence of Boils □ □ 5.11 Other Unusual Conditions □ □	4.1 Erosion Protection	\boxtimes			Some rip-rap	
4.4 Evidence of Sloughing	4.2 Evidence of Erosion		\boxtimes			
4.5 Evidence of Cracking	4.3 Evidence of Movement		\boxtimes			
4.6 Signs of Phreatic Surface	4.4 Evidence of Sloughing		\boxtimes			
4.7 Evidence of Seepage □ 4.8 Seepage Clear □ 4.9 Evidence of Contamination □ 4.10 Vegetation □ 4.11 Slope Visually Uniform □ 4.12 Other Unusual Conditions □ 4.13 Evidence of Repairs □ 5.0 Downstream Toe □ 5.1 Toe Drain Exists □ 5.2 Toe Drain Working Well □ 5.3 Toe Ditch Exists □ 5.4 Flow in Toe Ditch □ 5.5 Other Seepage □ 5.6 Seepage Clear □ 5.7 Evidence of Contamination □ 5.8 Evidence of Vegetation Kill □ 5.9 Soft Toe Condition □ 5.10 Evidence of Boils □ 5.11 Other Unusual Conditions □ 5.12 Evidence of Repairs □ 6.0 General □ 6.1 SCF(s) at this dam □ 6.2 Decant Structure at this dam □	4.5 Evidence of Cracking		\boxtimes			
4.8 Seepage Clear	4.6 Signs of Phreatic Surface		\boxtimes			
4.9 Evidence of Contamination □ □ 4.10 Vegetation □ 9 4.11 Slope Visually Uniform □ □ 4.12 Other Unusual Conditions □ □ 4.13 Evidence of Repairs □ □ 5.0 Downstream Toe □ □ 5.1 Toe Drain Exists □ □ 5.2 Toe Drain Working Well □ □ 5.3 Toe Ditch Exists □ □ 5.4 Flow in Toe Ditch □ □ 5.5 Other Seepage □ □ 5.6 Seepage Clear □ □ 5.7 Evidence of Contamination □ □ 5.8 Evidence of Vegetation Kill □ □ 5.9 Soft Toe Condition □ □ 5.10 Evidence of Boils □ □ 5.11 Other Unusual Conditions □ □ 5.12 Evidence of Repairs □ □ 6.0 General □ □ 6.1 SCF(s) at this dam □ □ 6.2 Decant Structure at this dam □ □	4.7 Evidence of Seepage		\boxtimes			
4.10 Vegetation □ 9 4.11 Slope Visually Uniform □ □ 4.12 Other Unusual Conditions □ □ 4.13 Evidence of Repairs □ □ 5.0 Downstream Toe □ □ 5.1 Toe Drain Exists □ □ 5.2 Toe Drain Working Well □ □ 5.3 Toe Ditch Exists □ □ 5.4 Flow in Toe Ditch □ □ 5.5 Other Seepage □ □ 5.6 Seepage Clear □ □ 5.7 Evidence of Contamination □ □ 5.8 Evidence of Vegetation Kill □ □ 5.9 Soft Toe Condition □ □ 5.10 Evidence of Boils □ □ 5.11 Other Unusual Conditions □ □ 5.12 Evidence of Repairs □ □ 6.0 General □ □ 6.1 SCF(s) at this dam □ □ 6.2 Decant Structure at this dam □ □	4.8 Seepage Clear					
4.11 Slope Visually Uniform □ 4.12 Other Unusual Conditions □ 4.13 Evidence of Repairs □ 5.0 Downstream Toe 5.1 Toe Drain Exists □ 5.2 Toe Drain Working Well □ 5.3 Toe Ditch Exists □ 5.4 Flow in Toe Ditch □ 5.5 Other Seepage □ 5.6 Seepage Clear □ 5.7 Evidence of Contamination □ 5.8 Evidence of Vegetation Kill □ 5.9 Soft Toe Condition □ 5.10 Evidence of Boils □ 5.11 Other Unusual Conditions □ 5.12 Evidence of Repairs □ 6.0 General 6.1 SCF(s) at this dam □ 6.2 Decant Structure at this dam □	4.9 Evidence of Contamination					
4.12 Other Unusual Conditions □ 4.13 Evidence of Repairs □ 5.0 Downstream Toe 5.1 Toe Drain Exists □ 5.2 Toe Drain Working Well □ 5.3 Toe Ditch Exists □ 5.4 Flow in Toe Ditch □ 5.5 Other Seepage □ 5.6 Seepage Clear □ 5.7 Evidence of Contamination □ 5.8 Evidence of Vegetation Kill □ 5.9 Soft Toe Condition □ 5.10 Evidence of Boils □ 5.11 Other Unusual Conditions □ 5.12 Evidence of Repairs □ 6.0 General 6.1 SCF(s) at this dam □ 6.2 Decant Structure at this dam □	4.10 Vegetation	\boxtimes		9		
4.13 Evidence of Repairs	4.11 Slope Visually Uniform	\boxtimes				
5.0 Downstream Toe 5.1 Toe Drain Exists 5.2 Toe Drain Working Well 5.3 Toe Ditch Exists 5.4 Flow in Toe Ditch 5.5 Other Seepage 5.6 Seepage Clear 5.7 Evidence of Contamination 5.8 Evidence of Vegetation Kill 5.9 Soft Toe Condition 5.10 Evidence of Boils 5.11 Other Unusual Conditions 5.12 Evidence of Repairs 6.0 General 6.1 SCF(s) at this dam 6.2 Decant Structure at this dam	4.12 Other Unusual Conditions		\boxtimes			
5.1 Toe Drain Exists	4.13 Evidence of Repairs		\boxtimes			
5.2 Toe Drain Working Well	5.0 Downstream Toe					
5.3 Toe Ditch Exists	5.1 Toe Drain Exists					
5.4 Flow in Toe Ditch	5.2 Toe Drain Working Well					
5.5 Other Seepage 5.6 Seepage Clear 5.7 Evidence of Contamination 5.8 Evidence of Vegetation Kill 5.9 Soft Toe Condition 5.10 Evidence of Boils 5.11 Other Unusual Conditions 5.12 Evidence of Repairs 6.0 General 6.1 SCF(s) at this dam 6.2 Decant Structure at this dam	5.3 Toe Ditch Exists					
5.6 Seepage Clear	5.4 Flow in Toe Ditch					
5.7 Evidence of Contamination	5.5 Other Seepage		\boxtimes			
5.8 Evidence of Vegetation Kill 5.9 Soft Toe Condition 5.10 Evidence of Boils 5.11 Other Unusual Conditions 5.12 Evidence of Repairs 6.0 General 6.1 SCF(s) at this dam 6.2 Decant Structure at this dam	5.6 Seepage Clear					
5.9 Soft Toe Condition	5.7 Evidence of Contamination					
5.10 Evidence of Boils	5.8 Evidence of Vegetation Kill					
5.11 Other Unusual Conditions \Boxed{\Boxed} 5.12 Evidence of Repairs \Boxed{\Boxed} 6.0 General \Boxed{\Boxed} 6.1 SCF(s) at this dam \Boxed{\Boxed} 6.2 Decant Structure at this dam \Boxed{\Boxed}	5.9 Soft Toe Condition		\boxtimes			
5.12 Evidence of Repairs	5.10 Evidence of Boils		\boxtimes			
6.0 General 6.1 SCF(s) at this dam 6.2 Decant Structure at this dam	5.11 Other Unusual Conditions		\boxtimes			
6.1 SCF(s) at this dam G.2 Decant Structure at this dam	5.12 Evidence of Repairs		\boxtimes			
6.2 Decant Structure at this dam	6.0 General				•	
	6.1 SCF(s) at this dam					
2014 Dam Safety Inspection – Huldra Mine Site Original - V.00	6.2 Decant Structure at this dam		\boxtimes			
2014 Dam Satety Inspection – Huldra Mine Site						0
2014/11/20 623839-0000-4GER-0001 Technical report						

6.3 Embedded/buried structures			
6.4 Spillway at/next to this dam		\boxtimes	
6.5 Pipelines at this dam		\boxtimes	
6.6 Evidence of ARD			
6.7 Crest Accessible by Truck	\boxtimes		
6.8 Public Access to Dam		\boxtimes	
6.9 Other Unusual Conditions		\boxtimes	
7.0 Instrumentation			
7.1 General State	\boxtimes		MW 1 (monitoring well)
7.2 Adequate Identification	\boxtimes		
7.3 Well Protected	\boxtimes		
Notes:			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A3: Inspection Form – Upper Tailings Facility (South Dam)

OBSERVED FEATURES	YES	No	Рното		COMMENT
				DATE	OCTOBER 30, 2014
				WEATHER	CLOUDY, 10 ℃
1.0 Tailings Beach	•	•		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1.1 Evidence of Sinkholes					
1.2 Water Adjacent to Dam		\boxtimes		No water – dry fa	acility
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope	•	•			
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion					
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing					
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level					
2.7 Vegetation		\boxtimes			
2.8 Slope Visually Uniform	\boxtimes				
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest					
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion		\boxtimes			
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal			10		
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope						
4.1 Erosion Protection		\boxtimes				
4.2 Evidence of Erosion						
4.3 Evidence of Movement		\boxtimes				
4.4 Evidence of Sloughing	\boxtimes		11	Big gulley		
4.5 Evidence of Cracking		\boxtimes				
4.6 Signs of Phreatic Surface		\boxtimes				
4.7 Evidence of Seepage		\boxtimes				
4.8 Seepage Clear						
4.9 Evidence of Contamination						
4.10 Vegetation	\boxtimes		10			
4.11 Slope Visually Uniform						
4.12 Other Unusual Conditions		\boxtimes				
4.13 Evidence of Repairs		\boxtimes				
5.0 Downstream Toe						
5.1 Toe Drain Exists		\boxtimes				
5.2 Toe Drain Working Well						
5.3 Toe Ditch Exists		\boxtimes				
5.4 Flow in Toe Ditch		\boxtimes				
5.5 Other Seepage		\boxtimes				
5.6 Seepage Clear						
5.7 Evidence of Contamination						
5.8 Evidence of Vegetation Kill						
5.9 Soft Toe Condition						
5.10 Evidence of Boils		\boxtimes				
5.11 Other Unusual Conditions		\boxtimes				
5.12 Evidence of Repairs		\boxtimes				
6.0 General						
6.1 SCF(s) at this dam		\boxtimes				
6.2 Decant Structure at this dam		\boxtimes				
2014 Dam Safety Inspection – Huldra Mine Site Original - V.00						
2014/11/20 623839-0000-4GER-0001 Technical report						

6.3 Embedded/buried structures				
6.4 Spillway at/next to this dam		\boxtimes		
6.5 Pipelines at this dam		\boxtimes		
6.6 Evidence of ARD		\boxtimes		
6.7 Crest Accessible by Truck	\boxtimes			
6.8 Public Access to Dam		\boxtimes		
6.9 Other Unusual Conditions		\boxtimes		
7.0 Instrumentation				
7.1 General State				
7.2 Adequate Identification	\boxtimes		7	MW 2, MW 4 (monitoring wells)
7.3 Well Protected	\boxtimes			
Notes:				
1. Facility is dry on both sides (upstream				

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A4: Inspection Form – Upper Tailings Facility (West Dam)

OBSERVED FEATURES	YES	No	Рното	COMMENT	
				DATE	OCTOBER 30, 2014
				WEATHER	CLOUDY, 10 ℃
1.0 Tailings Beach	•	•		<u> </u>	
1.1 Evidence of Sinkholes					
1.2 Water Adjacent to Dam				Very little water	downstream at north end
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level					
2.7 Vegetation		\boxtimes			
2.8 Slope Visually Uniform		\boxtimes			
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest	·				
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion		\boxtimes			
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal			12		
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope					
4.1 Erosion Protection		\boxtimes			
4.2 Evidence of Erosion	\boxtimes		14	Gulley	
4.3 Evidence of Movement		\boxtimes			
4.4 Evidence of Sloughing					
4.5 Evidence of Cracking					
4.6 Signs of Phreatic Surface					
4.7 Evidence of Seepage					
4.8 Seepage Clear					
4.9 Evidence of Contamination					
4.10 Vegetation	\boxtimes		13	Some vegetat	tion
4.11 Slope Visually Uniform	\boxtimes				
4.12 Other Unusual Conditions		\boxtimes			
4.13 Evidence of Repairs		\boxtimes			
5.0 Downstream Toe					
5.1 Toe Drain Exists		\boxtimes			
5.2 Toe Drain Working Well					
5.3 Toe Ditch Exists		\boxtimes			
5.4 Flow in Toe Ditch		\boxtimes			
5.5 Other Seepage		\boxtimes			
5.6 Seepage Clear					
5.7 Evidence of Contamination					
5.8 Evidence of Vegetation Kill					
5.9 Soft Toe Condition		\boxtimes			
5.10 Evidence of Boils		\boxtimes			
5.11 Other Unusual Conditions		\boxtimes			
5.12 Evidence of Repairs		\boxtimes			
6.0 General			•		
6.1 SCF(s) at this dam		\boxtimes			
6.2 Decant Structure at this dam		\boxtimes			
	•	•		•	
2014 Dam Safety Inspection – Huldra Mine Site 2014/11/20 623839-0000-4GER-0001					Original - V.00
2014/11/20 023039-0000-4GER-0001					Technical report

6.3 Embedded/buried structures				
6.4 Spillway at/next to this dam		\boxtimes		
6.5 Pipelines at this dam		\boxtimes		
6.6 Evidence of ARD				
6.7 Crest Accessible by Truck	\boxtimes			
6.8 Public Access to Dam		\boxtimes		
6.9 Other Unusual Conditions		\boxtimes		
7.0 Instrumentation				
7.1 General State	\boxtimes			
7.2 Adequate Identification	\boxtimes		7	MW 3 (monitoring well)
7.3 Well Protected	\boxtimes			
Notes:				

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A5: Inspection Form – West Tailings Facility (Dyke 4)

OBSERVED FEATURES	YES	No	Рното	Соммент	
				DATE	OCTOBER 31, 2014
				WEATHER	CLOUDY, 9 ℃
1.0 Tailings Beach	·			'	
1.1 Evidence of Sinkholes					
1.2 Water Adjacent to Dam		\boxtimes		Very little water in northwest portion	
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level					
2.7 Vegetation				Minor	
2.8 Slope Visually Uniform	\square				
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest	·				
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion			26, 27	Minor (two loca	ations at north end)
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal	\boxtimes				
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope					
4.1 Erosion Protection		\boxtimes			
4.2 Evidence of Erosion	\boxtimes		27	Minor (one loc	cation)
4.3 Evidence of Movement		\boxtimes			
4.4 Evidence of Sloughing		\boxtimes			
4.5 Evidence of Cracking		\boxtimes			
4.6 Signs of Phreatic Surface		\boxtimes			
4.7 Evidence of Seepage		\boxtimes			
4.8 Seepage Clear					
4.9 Evidence of Contamination					
4.10 Vegetation	\boxtimes			Minor	
4.11 Slope Visually Uniform	\boxtimes				
4.12 Other Unusual Conditions		\boxtimes			
4.13 Evidence of Repairs		\boxtimes			
5.0 Downstream Toe					
5.1 Toe Drain Exists					
5.2 Toe Drain Working Well					
5.3 Toe Ditch Exists					
5.4 Flow in Toe Ditch					
5.5 Other Seepage		\boxtimes			
5.6 Seepage Clear					
5.7 Evidence of Contamination					
5.8 Evidence of Vegetation Kill					
5.9 Soft Toe Condition					
5.10 Evidence of Boils		\boxtimes			
5.11 Other Unusual Conditions		\boxtimes			
5.12 Evidence of Repairs		\boxtimes			
6.0 General					
6.1 SCF(s) at this dam		\boxtimes			
6.2 Decant Structure at this dam		\boxtimes			
2014 Dam Safety Inspection – Huldra Mine Site 2014/11/20 623839-0000-4GER-0001					Original - V.00 Technical report
2017/11/20 023035-0000-4GEN-0001					r confilical report

6.3 Embedded/buried structures			
6.4 Spillway at/next to this dam		\boxtimes	
6.5 Pipelines at this dam	\boxtimes		
6.6 Evidence of ARD			
6.7 Crest Accessible by Truck		\boxtimes	
6.8 Public Access to Dam		\boxtimes	
6.9 Other Unusual Conditions		\boxtimes	
7.0 Instrumentation			
7.1 General State			
7.2 Adequate Identification			
7.3 Well Protected			
Notes:			Photos 15, 16
1. Both sides are dry.			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX A

Table A6: Inspection Form – Lower Tailings Facility (LTF South Dam)

OBSERVED FEATURES	YES	No	Рното	COMMENT	
				DATE	OCTOBER 30, 2014
				WEATHER	Showers, 9 ℃
1.0 Tailings Beach				'	
1.1 Evidence of Sinkholes		\boxtimes			
1.2 Water Adjacent to Dam		\boxtimes			
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level					
2.7 Vegetation	\boxtimes			Some vegeta	ation
2.8 Slope Visually Uniform	\boxtimes				
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest	·				
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion		\boxtimes	18	Minor (one lo	ocation)
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal	\boxtimes		17		
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope					
4.1 Erosion Protection		\boxtimes			
4.2 Evidence of Erosion	\boxtimes		19	Minor (severa	l locations)
4.3 Evidence of Movement		\boxtimes			
4.4 Evidence of Sloughing		\boxtimes			
4.5 Evidence of Cracking		\boxtimes			
4.6 Signs of Phreatic Surface		\boxtimes			
4.7 Evidence of Seepage		\boxtimes			
4.8 Seepage Clear					
4.9 Evidence of Contamination					
4.10 Vegetation	\boxtimes		20	Some small tr	ees
4.11 Slope Visually Uniform	\boxtimes				
4.12 Other Unusual Conditions		\boxtimes			
4.13 Evidence of Repairs		\boxtimes			
5.0 Downstream Toe					
5.1 Toe Drain Exists					
5.2 Toe Drain Working Well					
5.3 Toe Ditch Exists	\boxtimes				
5.4 Flow in Toe Ditch		\boxtimes			
5.5 Other Seepage		\boxtimes			
5.6 Seepage Clear					
5.7 Evidence of Contamination					
5.8 Evidence of Vegetation Kill					
5.9 Soft Toe Condition					
5.10 Evidence of Boils		\boxtimes			
5.11 Other Unusual Conditions		\boxtimes			
5.12 Evidence of Repairs		\boxtimes			
6.0 General					
6.1 SCF(s) at this dam					
6.2 Decant Structure at this dam					
2014 Dam Safety Inspection – Huldra Mine Site 2014/11/20 623839-0000-4GER-0001					Original - V.00 Technical report
020000 0000 70211-0001					1 continual report

6.3 Embedded/buried structures			
6.4 Spillway at/next to this dam		\boxtimes	
6.5 Pipelines at this dam		\boxtimes	
6.6 Evidence of ARD			
6.7 Crest Accessible by Truck	\boxtimes		
6.8 Public Access to Dam		\boxtimes	
6.9 Other Unusual Conditions		\boxtimes	
7.0 Instrumentation			
7.1 General State			
7.2 Adequate Identification			
7.3 Well Protected			
Notes: 1. Dry facility. 2. Top of tailings almost at dam crest lev	⁄el.		

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Table A7: Inspection Form – Expanded Tailings Facility (Dykes 1, 2, 3)

OBSERVED FEATURES	YES	No	Рното	COMMENT	
				DATE	OCTOBER 30, 2014
				WEATHER	CLOUDY, 10 ℃
1.0 Tailings Beach	•	•			
1.1 Evidence of Sinkholes					
1.2 Water Adjacent to Dam		\boxtimes			
1.3 Other Unusual Conditions		\boxtimes			
2.0 Upstream Dam Slope					
2.1 Erosion Protection		\boxtimes			
2.2 Evidence of Erosion		\boxtimes			
2.3 Evidence of Movement		\boxtimes			
2.4 Evidence of Sloughing		\boxtimes			
2.5 Evidence of Cracking		\boxtimes			
2.6 Mark of High Pond Level		\boxtimes			
2.7 Vegetation		\boxtimes			
2.8 Slope Visually Uniform	\boxtimes				
2.9 Other Unusual Conditions		\boxtimes			
2.10 Evidence of Repairs		\boxtimes			
3.0 Dam Crest	·				
3.1 Breach / Wash-out		\boxtimes			
3.2 Lateral Movement		\boxtimes			
3.3 Evidence of Settlement		\boxtimes			
3.4 Evidence of Cracking		\boxtimes			
3.5 Shoulder Erosion		\boxtimes			
3.6 Reduced Width		\boxtimes			
3.7 Crest Visually Horizontal	\boxtimes				
3.8 Other Unusual Conditions		\boxtimes			
3.9 Evidence of Repairs		\boxtimes			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

4.0 Downstream Dam Slope				
4.1 Erosion Protection		\boxtimes		
4.2 Evidence of Erosion	\boxtimes		Minor erosion	gulleys
4.3 Evidence of Movement		\boxtimes		
4.4 Evidence of Sloughing		\boxtimes		
4.5 Evidence of Cracking		\boxtimes		
4.6 Signs of Phreatic Surface		\boxtimes		
4.7 Evidence of Seepage		\boxtimes		
4.8 Seepage Clear				
4.9 Evidence of Contamination				
4.10 Vegetation		\boxtimes		
4.11 Slope Visually Uniform	\boxtimes			
4.12 Other Unusual Conditions		\boxtimes		
4.13 Evidence of Repairs		\boxtimes		
5.0 Downstream Toe				
5.1 Toe Drain Exists		\boxtimes		
5.2 Toe Drain Working Well				
5.3 Toe Ditch Exists		\boxtimes		
5.4 Flow in Toe Ditch				
5.5 Other Seepage		\boxtimes		
5.6 Seepage Clear				
5.7 Evidence of Contamination				
5.8 Evidence of Vegetation Kill				
5.9 Soft Toe Condition				
5.10 Evidence of Boils		\boxtimes		
5.11 Other Unusual Conditions		\boxtimes		
5.12 Evidence of Repairs		\boxtimes		
6.0 General				
6.1 SCF(s) at this dam				
6.2 Decant Structure at this dam				
2014 Dam Safety Inspection – Huldra Mine Site 2014/11/20 623839-0000-4GER-0001				Original - V.00 Technical report
020000 0000 70211-0001				1 confider report

	1	1	ı	
6.3 Embedded/buried structures				
6.4 Spillway at/next to this dam				
6.5 Pipelines at this dam				
6.6 Evidence of ARD				
6.7 Crest Accessible by Truck	\boxtimes			
6.8 Public Access to Dam				
6.9 Other Unusual Conditions				
7.0 Instrumentation				
7.1 General State				
7.2 Adequate Identification				
7.3 Well Protected				
Notes:				Photo 21- Dyke 1
1. Dry facility.	Photo 22- Dyke 3			
2. Top of tailings almost at dyke crest lev	Photo 23- Dyke 2			

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 1 of 15 Project 623839



Photo 1 – Huldra Tailings Facility (Inside Pond)



Photo 2 – Huldra Tailings Facility (Liner Repair)

2014 Dam Safety Inspe	ction – Huldra Mine Site	Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 2 of 15 Project 623839



Photo 3 – Huldra Tailings Facility (Crest and downstream slope)



Photo 4 – Huldra Tailings Facility (Crest and downstream slope)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 3 of 15 Project 623839



Photo 5 – Huldra Tailings Facility (Downstream Toe)



Photo 6 – Huldra Tailings Facility (Gulley in downstream slope)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 4 of 15 Project 623839



Photo 7 - Upper Tailings Facility (Monitoring Wells MW-2 and -4)



Photo 8 – Upper Tailings Facility (North Dam Upstream slope)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 5 of 15 Project 623839



Photo 9 – Upper Tailings Facility (North Dam Downstream Vegetation)



Photo 10 – Upper Tailings Facility (South Dam Crest)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 6 of 15 Project 623839



Photo 11 – Upper Tailings Facility (South Dam Downstream Gulley)



Photo 12 - Upper Tailings Facility (West Dam Crest)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 7 of 15 Project 623839



Photo 13 – Upper Tailings Facility (West Dam Downstream Vegetation)



Photo 14 - Upper Tailings Facility (West Dam Downstream Gulley)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 8 of 15 Project 623839



Photo 15 – West Tailings Facility (Dyke 4)



Photo 16 – West Tailings Facility (Dyke 4)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 9 of 15 Project 623839



Photo 17 – Lower Tailings Facility (Crest)



Photo 18 – Lower Tailings Facility (Erosion on Crest)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 10 of 15 Project 623839



Photo 19 – Lower Tailings Facility (Downstream)



Photo 20 – Lower Tailings Facility (Downstream Vegetation)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 11 of 15 Project 623839



Photo 21 – Expanded Tailings Facility (Dyke 1)



Photo 22 – Expanded Tailings Facility (Dyke 3)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 30th, 2014 Appendix B Plate 12 of 15 Project 623839



Photo 23 – Expanded Tailings Facility (Dyke 2)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 31st, 2014 Appendix B Plate 13 of 15 Project 623839



Photo 24 - Strumbles Creek Diversion Landslide



Photo 25 - Strumbles Creek Diversion Landslide

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 31st, 2014 Appendix B Plate 14 of 15 Project 623839



Photo 26 - West Tailings Facility (Dyke 4 Crest Erosion)



Photo 27 - West Tailings Facility (Dyke 4 Shoulder Erosion)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

APPENDIX B



2014 Dam Safety Inspection Huldra Mine Site October 31st, 2014 Appendix B Plate 15 of 15 Project 623839

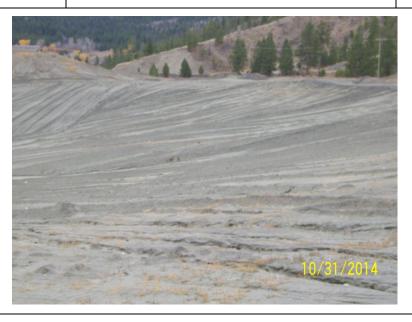


Photo 28 – Expanded Tailings Facility (East Face)

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

Site Plan Drawing and Cross Sections

APPENDIX C

2014 Dam Safety Inspection – Huldra Mine Site		Original - V.00
2014/11/20	623839-0000-4GER-0001	Technical report

