2013 Geotechnical Annual Review, Minto Mine, YT

Prepared for

Minto Explorations Ltd.

Prepared by

SRK Consulting (Canada) Inc.
1CM002.012.005
October 2013

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srk consulting

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1 Introduction

On September 10-12, 2013, SRK Consulting (Canada) Inc. completed a geotechnical inspection of the Minto Mine site (Figure 1). The purpose of the inspection was to document the physical condition of the site based on visual observations and to provide geotechnical assessment, noting potential signs of physical instability such as erosion, differential settlement, sloughing or bulging of material, seepage, and so on. The inspection is documented in the photographic compilation provided in Appendix A. This report summarizes the findings and recommendations.

This is the second year of geotechnical inspections of the site completed by SRK. The first inspection was completed in September 2012 (SRK 2012c). Previous inspections were completed by EBA Engineering Consultants Ltd. Their latest inspection was completed on August 25, 2011. The 2011 and 2012 inspection documents were reviewed by SRK before the site visit, and, where possible, were used to assess changes in condition and recent performance.

This report is in partial fulfillment of the requirements of the existing Water Licence QZ96-006, Amendment 8. Clause 82 of the water licence requires that physical inspections be completed after the spring thaw in May/June of each year and again before the onset of winter in September of each year. This report fulfills the September inspection requirements.

Source: Capstone Mining (http://capstonemining.com/s/Minto.asp)

Figure 1: Site Location

2 Conditions

The geotechnical inspection was completed by Peter Mikes, PEng, of SRK. Eamon Mauer of Minto Explorations Ltd. was SRK's primary contact for information about the activities during the past year.

Weather during the site inspection was sunny, with temperatures estimated at 5-15 °C. The site was generally dry, with wet patches in low-lying areas.

3 Scope

Table 1 provides a list of the facilities that were included as part of the inspection and a list of design reports and monitoring guidance documents that were used to guide the inspections. In addition, previous years' inspection reports were available for review before the site inspection.

As part of the inspection, instrumentation data was reviewed to check for indications of unusual performance or change in trends. Section 4 of this report presents a list of data reviewed, including the last data collection date.

Table 3.1: Facilities Inspected and Guidance Documents

Facility	Design Reports	Monitoring/Inspection Guidance Documents
Dry Stack Tailings Storage Facility (DSTSF)	EBA 2007. Geotechnical Design Report, Dry Stack Tailings Storage Facility, Minto Mine, Yukon. EBA File: 1200173. January 2007.	EBA 2011a. Revision 2011-1 Operation, Maintenance, and Surveillance Manual, Dry Stack Tailings Storage Facility, Minto Mine, YT. EBA File: W14101068.001. January 2011. OMS Manual includes operational inspection frequency and instrumentation triggers for action.
Mill Valley Fill Extension (MVFE)	EBA 2011b. Waste Rock and Overburden Management Plan, Phase IV Development, Minto Mine YT. EBA File: W14101068.015. September 9, 2011. EBA 2011c. Upstream Water Management for the Mill Valley Fill Expansion and Dry Stack Tailings Storage Facility. EBA File: W14101168.013. September 14, 2011.	None
Main Waste Rock Dump (MWD)	EBA 1998. Geotechnical Evaluation Proposed Main Waste Dump, Minto Project, Yukon Territory. EBA File: 0201-95-11509. April 1998.	None
Southwest Waste Dump (SWD)	EBA 2008d. Geotechnical Design Proposed Southwest Waste Dump, Minto Mine, Yukon. EBA File: W14101068.005. September 2008.	EBA 2008d contains minimum monitoring requirements for physical inspections, deformation surveys, and instrumentation monitoring. Instrumentation monitoring plan includes a schedule and threshold warning levels.
Reclamation Overburden Dump (ROD)	EBA 2008a. Geotechnical Design Proposed Reclamation Overburden Dump, Minto Mine, Yukon. EBA File: W14101068.004. February 2008. EBA 2010. Reclamation Overburden Dump Expansion Geotechnical Design Report. EBA File: W14101068.0040. June 29, 2010.	Performance monitoring and annual inspection requirements detailed in the EBA 2010 design report.

Facility	Design Reports	Monitoring/Inspection Guidance Documents
Ice-Rich Overburden Dump (IROD)	EBA, 2006a. Geotechnical Design Ice-Rich Overburden Dump, Minto Mine, Minto, YT. EBA file: 1200173. January 2006. EBA, 2007. Ice-Rich Overburden Dump Containment Berm Inspection Report, Minto Mine Site, Minto Yukon. EBA File: 1200173.001. June 19, 2007.	Long-term monitoring and annual inspection requirements are listed in the EBA 2006 design report.
Ore Stockpiles	none	none
Mill and Camp Site	EBA 1994. Geotechnical Evaluation Mill and Camp Site, Minto Project, Yukon. EBA File: 0201-11509. Dec. 1994.	none
Mill Water Pond (MWP)	Not available	EBA 1997. Construction Quality Assurance Manual for Waste Dumps, Tailings/Water Dam, Mill Water Pond, and Diversion Ditch, Minto Project, Yukon. EBA File 0201-95-11509. August, 1997.
Fuel Containment Facility	Not available	Not available
South Diversion Ditch (SDD)	EBA 2006b. Design Drawings, South Diversion Ditch & Collection Pond. IFC. July 2006. EBA 2012. Pipe Design for South Diversion Ditch Realignment, Minto Mine, YT. EBA File: W14101068.013. May 4, 2012. SRK 2013. South Diversion Ditch Realignment and Overflow Spillway. SRK Project No.: 1CM002.006.200, February 1, 2013.	None
Minto Creek Detention Structure (MCDS)	EBA 2011e. Minto Project: Minto Creek Detention Structure Seepage Monitoring Program. EBA File: W14101068.001. October 25, 2011.	EBA 2011e contains monitoring requirements including frequency, triggers, and responses.
Water Storage Pond Dam (WSP)	EBA 1995. Geotechnical Design Tailings/Water Dam, Minto Project, Yukon. EBA File: 0201-95-11509. Dec. 1995. EBA 2008b. As-built Construction Report, Water Retention Dam, Minto Mine, Minto, YT. EBA File: 1200173.001. April 2008.	EBA 2008c. Draft Operation, Maintenance and Surveillance Manual, Water Retention Dam, Minto Mine, Minto, YT. EBA File: W14101068.002. April 2008.
Big Creek Bridge	Not available	Not available
South Wall Buttress	EBA 2011f. Area 1 South Wall Buttress Design Report, Minto Mine, Yukon. EBA File: W141010668.012, July 2011.	None

4 Monitoring and Instrumentation Data

Table 4.1 lists instrumentation data reviewed as part of the inspection, with the date of the most recent data. Changes to the list of instrumentation compared to the last inspection are noted below the table. Instrumentation plots are provided in Appendix B. Data that has not been updated since the last geotechnical inspection is not included in the appendix.

Table 4.1: Summary of Instrumentation Data

Facility	Instrumentation Type	List of Reviewed Instrumentation	Last Reading Date
Dry Stack Tailings Storage Facility and Mill Valley Fill Extension (DSTSF and MVFE)	Survey Hubs[1]	DSSH06, DSSH10, DSSH12, DSSH14, DSSH15, DSSH17.	Sept 2013
	Inclinometers[2]	DSI-14, DSI-15, DSI-16, DSI-17, DSI-18, DSI-19, DSI-20, DSI-21	August 2013
	Piezometers	DSP-5A, DSP-5B, DSP-6A, DSP-6B	July 2013
	Ground Temperature Cables	DST-10, DST-11, DST-13, DST-14, DST-15	Sept 2013
Main Waste Rock Dump (MWD)	Inclinometers	MDI-1, MDI-2	Nov. 2012
South Waste Dump (SWD)	Survey Hubs	SWD-01, SWD-01A, SWD-02, SWD-03A, SWD-04A, SWD-05A	October 2013
	Inclinometers	SDI-1, SDI-2, SDI-3	Nov. 2012
	Piezometers	SDP-2, SDP-3, SDP-4	Sept. 2013
	Ground Temperature Cables	SDT-1, SDT-2, SDT-3, SDT-4	June 2013
South Wall Buttress	Survey Hubs	M73, M74, M75, M76, M79, M80, M81	October 2013
Mill Water Pond (MWP)	Survey Hubs[3]	MWPSH-1, MWPSH-2, MWPSH-3, MWPSH-4	May 2009
	Ground Temperature Cables	MWPT-1, MWPT-2	April 2012
Water Storage Pond Dam	Survey Hubs	WSP-1, WSP-3, WSP-4, WSP-5	October 2013
	Piezometers	WDP-2, WDP-3, WDP-3A, WDP-4, WDP-5, WDP-6, WDP-7, WDP-8, WDP-9, WDP-10	Sept. 2013
	Ground Temperature Cables	WDT-1, WDT-2, WDT-3, WDT-4, WDT-5, WDT-6, WDT-7, WDT-8	Sept. 2013

Note(s):

(1) Readings of DSSH06 have resumed starting June 2013; No readings on DSSH11 since March 2013 (destroyed).

(2) 13-DSI-13 was destroyed (sheared) – last reading on June 20, 2013.

(3) MWP survey hubs were removed with the last readings taken in 2009.

4.1 Dry Stack Tailings Storage Facility

Movements in the DSTSF were first identified in early 2009. A detailed assessment and history of the physical stability associated with these movements is provided in the letter report “Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall” (SRK 2012a).

The Mill Valley Fill Extension was designed to mitigate the movement and construction of the facility, which began in January 2012 and was nearly completed by March 2013. In the spring of 2013, a geotechnical drilling program was completed at the DSTSF. It included the installation of nine inclinometers, four piezometers, and five ground-temperature cables.

Ground temperature profiles from the functional instrumentation are provided in Figures 1 and 2 of Appendix B. Temperature profiles from previous instrumentation that have malfunctioned are included in the "2012 Geotechnical Annual Review" (SRK 2012c). The profiles indicate that warm permafrost is present at all locations of the instrumentation, except in the lower portions of DST-11 and DST-13. DST-11 is located near the crest of the DSTSF, while DST-13 is located approximately 300 m east of the DSTSF in an undisturbed location.

Piezometer water levels are presented in Figure 3 of Appendix B. The temperature profiles indicate the sensors are likely in frozen ground, and as a result, may not be accurate. In addition, barometric pressure was not recorded when a piezometer reading was collected. Barometric pressure is required in the calculation of the water elevations. The piezometric data assumes an estimated barometric pressure.

Profiles and time-displacement plots from the recently installed inclinometers are presented in Figures 4 to 5 in Appendix B. Initial inclinometer results (Table 3) within the DSTSF show continued movement in the same north-northwest direction as the results from previous inclinometers. The highest velocity is 2.8 mm/day at DSI-13, which is located at the centre of the DSTSF near the crest. This inclinometer has now been destroyed (sheared off), with the last reading taken on June 20, 2013.

Survey hub movement data is presented in Figures 6 of Appendix B. Movement rates have been constant in 2013 since construction of the DSTSF and MFVE was completed. Hub velocities range from 1.5 mm/day at DSSH11 to 3.0 mm/day at DSSH12.

4.2 Main Waste Dump

Two inclinometers, MDI-1 and MDI-2, are located at the Main Waste Dump. Profiles and time displacement plots are presented in Figure 7 of Appendix B. Previous readings from both inclinometers indicate some past movement towards the Main Pit. The MDI-1 profile indicates current movement with past movement of MDI-1 near the surface (within the rock fill and sand till fill) is confirmed by site representatives to be the result of a Cat 777 haul truck driving over the instrument location in May 2010. Past movement of MDI-2 is also within rock fill and has been the result of the removal of the rock fill that was placed between the instrument location and the Main Pit (EBA 2011g).

No additional inclinometer readings have been collected since the previous inspection.

4.3 Southwest Waste Dump

The minimum requirements for the monitoring frequency and instrumentation threshold warning levels are noted in the design report (EBA 2008d). The monitoring requirements were developed before the observation of deformation movements and the installation of additional instrumentation to monitor the movements.

A detailed assessment and history of the physical stability associated with the Southwest Waste Dump (SWD) movements are provided in the letter report "Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall" (SRK 2012b).

The temperature cables, inclinometers, and piezometers installed at the SWD are intended to monitor foundation conditions along the toe of the slope. Survey hubs were also installed in March 2011 to monitor surface movements along the southeast perimeter.

Survey hub movement data is presented in Figure 8 of Appendix B. There is observed movement at all hub locations. Movements in the northeast corner of the dump (SWD-1, SWD-1A, SWD-2, and SWD 2A) were previously reported to be related to the movements of the south wall of the Main Pit (EBA 2011d). The movement of these hubs has generally slowed in 2013, which may be related to the south wall buttress construction. Movement rates of the survey hubs further to the south have also increased at different points throughout the past year. These movements are believed to be related to the placement of additional waste materials on the dump. The largest movement during the summer 2013 was 1.1mm/day at SWD-03A, below an active dumping area.

Inclinometer plots including profiles and time displacement graphs for the SWD are presented in Figures 9 and 10 of Appendix B. The last inclinometer reading available was taken in November 2012. As a result, there is no data available to investigate the increase in movement at the south end of the SWD.

Ground temperatures for the SWD are presented in Figures 11 and 12 of Appendix B. The profiles indicate that warm permafrost is present at all locations of the instrumentation,

Instrumentation readings have been collected infrequently at the SWD. Given the recent increase in movement, a minimum monthly collection frequency should be established.

4.4 Mill Water Pond

Instrumentation at the MWP (Mill Water Pond) consists of survey hubs and ground temperature cables. Locations of the instrumentation are shown in Figure 14 of Appendix A.

The last survey of the survey hubs (MWPSH-1 to 4) was completed in 2009. Previous inspection reports note that the hubs have been removed. Settlement surveys are required as part of the CQA manual (EBA 1997) under Water Use Licence QZ96-006 and are included in Appendix 7 of that document. The CQA recommends a minimum quarterly survey frequency for the first year and, depending on results, biannually thereafter. It is recommended that the hubs be reinstalled and monitored monthly until consistent results are obtained. The frequency can then be reduced to biannual.

No ground temperature data has been recorded since April 29, 2012. The pond monitoring program (EBA 1997) states that the reading frequency was to be re-evaluated after the third year of service. Up to April 2012, readings were generally recorded monthly. It is recommended that readings be taken at least quarterly because the data to date indicates that the active layer continues to deepen.

4.5 South Wall Buttress

The initial indication of movement in the Main Pit south wall was observed by Minto in April 2009. A waste rock buttress was subsequently designed and is in the process of construction. A detailed assessment and history of the physical stability associated with the Main Pit south wall is provided in the letter report "Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall" (SRK 2012b).

Survey hub movement data for the Main Pit south wall is presented in Figure 13 of Appendix B. The data indicates that the movement rates have significantly decreased, and are generally showing a decelerating trend. A summary of the survey hub movement rates is provided in Table 4.2. Velocities during the first half of 2013 were approximately 50% less than the 2012 average velocities. Velocities have continued to decrease during the summer of 2013, with the exception of M74. The M74 displacement increased by 0.2 m between two readings taken on June 10 and Oct 24, 2013. It is possible that the movement it may be due to local disturbance as a result of construction of a new haul road nearby, and continued monitoring is recommended to confirm.

Table 4.2: Main Pit South Wall Survey Hub Summary

Time Period	Number of Survey Hubs	Average Velocity (mm/day)	Velocity Range (mm/day)
January to December 31, 2012	7	1.56	0.2 to 2.6
January 1 to June 10, 2013	7	0.77	0.1 to 1.2
June 10 to October 17, 2013	6	0.54	0 to 1.5

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4.6 Water Storage Pond

Instrumentation within the dam at the WSP (Water Storage Pond) consists of eight ground temperature cables, thirteen vibrating wire piezometers, and five survey hubs. Survey hub movement data is presented in Figure 14 of Appendix B. No significant movement was observed.

Ground temperature and piezometric data are presented in Figures 15 to 18 of Appendix B. All temperature sensors are above zero and continue to show a warming trend.

5 Results and Recommendations

Findings of the inspection are documented in the photographic compilation of figures in Appendix A. Nineteen figures provide a record of observations across the site.

A summary of the recommendations is provided in Table 5.1. Recommendations with a high priority for action are highlighted.

Table 5.1: Summary of Recommendations

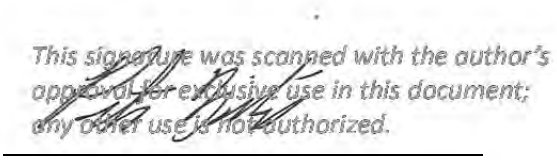
Area	Appendix A Figure #	Recommendation
General	-	At facilities where monitoring guidance is in place, insufficient data collection has generally taken place in past year. In view of this situation, a site-wide geotechnical monitoring plan should be created that details: • Inspection and instrumentation monitoring frequencies, • Roles and responsibilities of personnel assigned to monitor the facility and ensure safe operations and conditions, • Surveillance procedures and requirements, • Inspection and Instrumentation criteria (triggers) that require action, • Operation/emergency procedures in case the instrumentation triggers are reached.
	-	Record barometric pressures when collecting vibrating wire piezometers readings to allow for accurate calculation of pore pressures.
Dry Stack Tailings Storage Facility & Mill Valley Fill Extension	2	Regrade the DSTSF overburden surface to promote runoff once the final cover design has been determined and cover the remaining areas of exposed tailings on the south edge of the facility.
	3	The area of settlement on the Mill Valley Fill Extension should be regraded and filled in.
Main Waste Dump	5	As part of regular site inspections, continue to monitor the slough location and the area where tension cracks were noted in the 2011 and 2012 inspections. Check for signs of additional movement or instabilities.
Southwest Waste Dump	-	Complete reading of the survey hub and slope inclinometers on at least a monthly and bimonthly basis, respectively, and continue monitoring ground movement rates. Notify SRK of any other observations or increases in movement that indicate a significant change in dump performance or dump stability.
	6	One large ponded area of water was noted. Before placing the next lift, regrade this area to promote runoff.
	7	Continue to monitor erosion at the culvert outlet located near the W-15 Detention Structure and maintain a photographic record to inspect for changes in condition.
	7	Continue to monitor sediment accumulation in the culvert at the inlet and outlet. Maintain a photographic record to inspect for changes in condition.
Reclamation Overburden Dump	8	Install a rip-rap channel down the slope to minimize slope erosion. Regrade areas near the exiting erosion channels to direct runoff to the rip-rap channel.
	8	Monitor the ponded water to ensure that the 40 m offset from the dump toe is maintained as stipulated in the design report (EBA 2008a).
	8	Survey dump toe annually to confirm that it is within the permitted boundary.
Mill and Camp Site	12	Regrade the area above the erosion channels on the camp pad to promote runoff away from these areas.

Area	Appendix A Figure #	Recommendation
	12	In addition to the surface regrading, fill the channel by the carpenter's shop with rip-rap or a half culvert to provide a path for the water to drain. In place of the surface grading, consider constructing a small ditch near the slope crest to direct runoff to the drop channel or half culvert.
Mill Water Pond	-	Re-establish survey hubs and collect monthly data until results are consistent. Reduce monitoring frequency to biannual thereafter.
	-	Resume ground temperature cable readings with a minimum quarterly monitoring frequency.
	13	Patch tears in the liner system the next time that a liner crew is on site. Fill the voids under the tears before patching.
	13	Continue to monitor the condition of the liner under the by-pass pipe supports.
	14	Clean out sediments accumulated in the surface runoff ponds and culverts.
South Diversion Ditch	16	Remove ditch obstructions such as road fill, vegetation, GCL to increase the flow capacity.
	16	Cover the exposed liner as per the channel design.
	16	Complete an as-built survey of the pipe intake structure and overflow spillway and confirm that the spillway is constructed to design.
	16	Remove the three large boulders at the overflow spillway and replace with traffic pylons.
Minto Creek Detention Structure	17	Continue annual monitoring for further signs of instability or seepage on the downstream slope of the MCDS.
Water Storage Pond Dam	18	Continue regular monitoring of the dam, noting specifically the clarity of the seepage and flow exiting the stilling basin and the seepage rate through the weir.
	18	The discharge point of the water (from the pit, water treatment plant, etc.) influences the seepage pump data at W-3 in the seepage pump house. Options to obtain accurate seepage measurements should be explored such as moving the discharge point a further downstream of the pump house. The issue should be resolved prior to 2014 spring melt.
	18	Review and update the Operation, Maintenance, and Surveillance Manual for the dam.
Big Creek Bridge	19	Continue regular annual monitoring of sediment accumulation in the culverts. If sediments continue to accumulate, clean them out.
South Wall Buttress	20	Continue regular monitoring of the surface cracking at the west end of the buttress maintaining a photographic record to inspect for changes in condition. Following completion of the buttress, additional survey hubs should be installed along the crest to monitor movement.

Note(s):

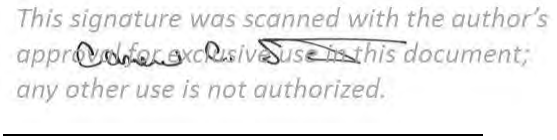
(1) High priority actions are highlighted in blue.

This report, "2013 Geotechnical Annual Review, Minto Mine, YT", was prepared by



Peter Mikes, PEng
Senior Consultant

and reviewed by



Cam Scott, PEng
Principal Consultant

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

6 References

EBA 1994. Geotechnical Evaluation, Mill and Camp Site, Minto Project, Yukon. EBA Engineering Consultants Ltd. File Number: 0201-11509. Dec.

EBA 1995. Geotechnical Design Tailings/Water Dam, Minto Project, Yukon. EBA Engineering Consultants Ltd. File Number: 0201-95-11509. Dec.

EBA 1997. Construction Quality Assurance Manual for Waste Dumps, Tailings/Water Dam, Mill Water Pond, and Diversion Ditch, Minto Project, Yukon. EBA Engineering Consultants Ltd. File Number: 0201-95-11509. Submitted to Minto Explorations, Ltd. Aug.

EBA 1998. Geotechnical Evaluation, Proposed Main Waste Dump, Minto Project, Yukon Territory. EBA Engineering Consultants Ltd. File Number: 0201-95-11509. Apr.

EBA 2006a. Geotechnical Design, Ice-Rich Overburden Dump, Minto Mine, Minto, YT. EBA Engineering Consultants Ltd. File Number: 1200173. Jan.

EBA 2006b. Design Drawings, South Diversion Ditch and Collection Pond. IFC. EBA Engineering Consultants Ltd. July.

EBA 2007. Ice-Rich Overburden Dump Containment Berm Inspection Report, Minto Mine Site, Minto, Yukon. EBA Engineering Consultants Ltd. File: Number 1200173.001. June 19.

EBA 2008a. Geotechnical Design, Proposed Reclamation Overburden Dump, Minto Mine, Yukon. EBA Engineering Consultants Ltd. File Number: W14101068.004. Feb.

EBA 2008b. As-Built Construction Report, Water Retention Dam, Minto Mine, Minto, YT. EBA Engineering Consultants Ltd. File Number: 1200173.001. Apr.

EBA 2008c. Draft Operation, Maintenance, and Surveillance Manual, Water Retention Dam, Minto Mine, Minto, YT. EBA Engineering Consultants Ltd. File Number: W14101068.002. Apr.

EBA 2008d. EBA Engineering Consultants Ltd., 2008. Geotechnical Design, Proposed Southwest Waste Dump, Minto Mine, Yukon. EBA Engineering Consultants Ltd. File Number: W14101068.005. Sept.

EBA 2010. Reclamation Overburden Dump Expansion Geotechnical Design Report. EBA Engineering Consultants Ltd. File Number: W14101068.0040. June 29.

EBA 2011a. Revision 2011-1 Operation, Maintenance, and Surveillance Manual, Dry Stack Tailings Storage Facility, Minto Mine, YT. EBA Engineering Consultants Ltd. File Number: W14101068.001. Jan.

EBA 2011b. Waste Rock and Overburden Management Plan, Phase IV Development, Minto Mine YT. EBA Engineering Consultants Ltd. File Number: W14101068.015. Sept. 9.

EBA 2011c. Upstream Water Management for the Mill Valley Fill Expansion and Dry Stack Tailings Storage Facility. EBA Engineering Consultants Ltd. File Number: W14101168.013. Sept. 14.

EBA 2011d. Southwest Waste Dump – 2011 Annual Review, Minto Mine, YT. EBA Engineering Consultants Ltd. File Number: W14101068.037. Oct. 6.

EBA 2011e. Minto Project: Minto Creek Detention Structure Seepage Monitoring Program. EBA Engineering Consultants Ltd. File Number: W14101068.001. Oct. 25.

EBA 2011f. Area 1 South Wall Buttress Design Report, Minto Mine, Yukon. EBA Engineering Consultants Ltd. File Number: W14101068.012. July 2011.

EBA 2011g. Main Waste Dump – 2011 Annual Review, Minto Mine, YT. EBA Engineering Consultants Ltd. File Number: W14101068.037. Sept. 30.

EBA 2012. Pipe Design for South Diversion Ditch Realignment, Minto Mine, YT. EBA Engineering Consultants Ltd. File Number: W14101068.013. May 4.

Minto Mine 2012a. Minto Mine Water Licence QZ96-006, Dry Stack Tailings Storage Facility Deformation Monitoring Plan and Report. Nov.

Minto Mine 2012b. Minto Mine Water Licence QZ96-006, Mine Waste Structures—Deformation Monitoring Plan and Report. Dec.

SRK 2012a. Letter Report: Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall. Prepared for Minto Exploration, Ltd. SRK Consulting (Canada) Inc. Project Number 219500.050. Nov. 19.

SRK 2012b. Letter Report: Detailed Review of Foundation Performance at the South Waste Dump and Stability of the Main Pit South Wall. Prepared for Minto Exploration, Ltd. Vancouver (BC). SRK Consulting Canada) Inc. Project Number: 219500.050. Nov. 19.

SRK, 2012c. 2012 Geotechnical Annual Review, Minto Mine, YT. Prepared for Minto Exploration Ltd. Vancouver (BC). SRK Consulting (Canada) Inc. Project Number: 1CM002.006.400. Nov.

SRK 2013. South Diversion Ditch Realignment and Overflow Spillway. Vancouver (BC). SRK Consulting (Canada) Inc. Project Number: 1CM002.006.200. Feb. 1.

Appendix A: Photographic Report

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2013 Orthophoto.

Inspection Area Number

srk consulting
VANCOUVER

CAPSTONE MINING CORP.
MINTO MINE
OPERATED BY MINTO EXPLORATIONS LTD.

Fall 2013 Geotech Inspection

Minto Mine 2013
Geotechnical Inspection Areas

Job No: 1CM002.012.05
Filename: Minto 2013 Fall Inspection.pptx

Minto Mine

Date: October 2013
Approved: PHM
Figure: 1

1 Dry Stack Tailings Storage Facility – Tailings Cover

- Approximately 2 to 4 meters of overburden has been placed over the tailings surface as a temporary cover that was designed with 2% grade to drain to the north. Most of the material was placed during the past winter.
- There are a significant number of thaw bulbs, surface cracking and differential settlement throughout the cover, which can be expected as the overburden due to the winter placement.
- A small ponded area is present at the south end of the cover. The cover in the vicinity is very soft and unable to be walked on.

- Photo (a) shows the DSTSF surface from the north east corner. The pink box near the center of the photo is a protective cover for a recently installed inclinometer.
- Photo (b) shows the south edge of the DSTSF. Tailings remains exposed at surface on the south slope of the facility adjacent to the Tailings Diversion Ditch. Water was observed to be impounded against the DSTSF on the south side of the facility at various locations. Seep locations and areas where the water was observed to flow beneath the tailings are noted on Figures 4 and 5. The water can be attributed to melting snow, recent precipitation and from water not captured by, or flowing under, the tailings diversion ditch.
- Photos (c) and (d) show the tailings cover surface in the soft areas noted on the aerial photo below.

Recommendations

- The recently placed overburden material was placed during winter and has experienced differential settlement due to thawing of frozen materials over the summer. It is recommended that the area be graded as required to promote runoff.
- The remaining areas of exposed tailings should be covered and the uphill area south of the DSTSF should be regraded as required to control surface drainage, avoid ponding, and limit infiltration of water into the tailings as per Clause 36 and 37 of the water license QZ96-006, Amendment 8.

2013 Orthophoto

Photograph vantage point

srk consulting
VANCOUVER

CAPSTONE MINING CORP.
MINTO MINE
OPERATED BY MINTO EXPLORATIONS LTD.

Fall 2013 Geotech Inspection

Dry Stack Tailings Storage Facility

Job No: 1CM002.012.05

Filename: Minto 2013 Fall Inspection.pptx

Minto Mine

Date: October 2013

Approved: PHM

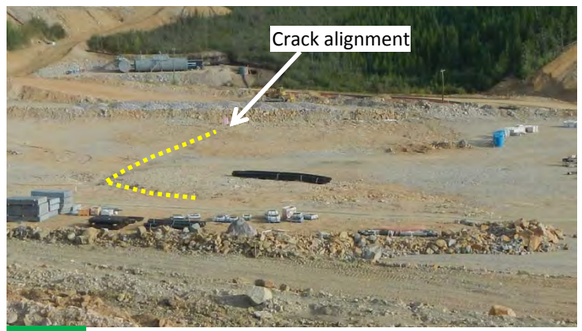
Figure: 2

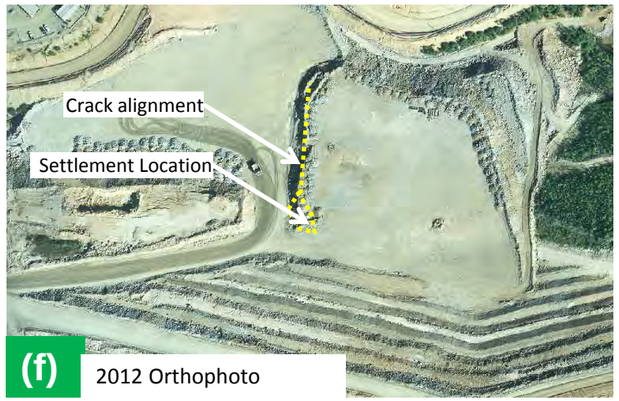
1 Dry Stack Tailings Storage Facility – Waste Rock Shell & Mill Valley Fill

- Photos (a) and (b) show the condition of the waste rock shell and slopes. The slopes appear consistent with original placement: no signs of slumping, bulging or tensions cracks were observed.

- Photos (c) to (e) show an area of differential settlement and cracking on the Mill Valley Fill Extension.
  - The area of settlement at the south end of the crack measures 15m x 22 m with a depth of up to approximately 0.6 m.
  - The locations are plotted below over the 2013 orthophoto as well as the 2012 orthophoto (Photo (f)).
  - Comparison of the settlement and crack alignment to the 2012 surface has shown that the alignment corresponds to the crest of a lift of the Mill Valley Fill Extension that has since been filled in.
  - The settlement and cracking is believed to be caused by differential settlement between the two lifts placed at different times. The newer lift may be settling within the coarser material at the older outer bench face. If the new lift was placed during winter, snow may have also been present on the slope that has now melted.

Recommendations
- The settlement area should be graded and filled in.





Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Dry Stack Tailings Storage Facility
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: 3

1 Dry Stack Tailings Facility – Tailings Diversion Ditch

Source: 2013 Orthophoto

Photograph vantage point

- Since the May 2013 inspection, the eastern portion of the Tailings Diversion Ditch is being upgraded as per the EBA design outlined in the memo, “Upstream Water Management for the Mill Valley Fill Expansion and Dry Stack Tailings Storage Facility” dated 2011.
- At the time of the inspection, a road was being constructed along the new alignment in the downstream (eastern) portion of the channel. The TDD was blocked at the location noted in photo (b) and flow is directed into a 0.49 m diameter pipe to old eastern portion of the ditch shown in photo (d).
- In general, the remaining western portion of the berm and ditch upstream of the pipe intake was functional, with conditions similar to those observed in previous inspections. No signs of instability other than minor tension cracking along the berm side of the ditch over a significant length of the ditch.

(a) An energy dissipation area at the upstream portion of the ditch at the end of a 3” pipeline from the South Diversion Ditch Area. The rip-rap in the ditch is underlain by layers of geotextile and liner. The area remains unchanged compared to 2012 photographs.
(b) View of the temporary ditch block and pipe intake.
(c) View of the eastern portion of the ditch downstream of the new road construction. Conditions along the old eastern portion of the ditch remain the same as previous inspections with the ditch not functioning effectively.
(d) View of the new road construction looking east.

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Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	**Dry Stack Tailings Storage Facility**
		Date: October 2013 / Approved: PHM / Figure: **4**

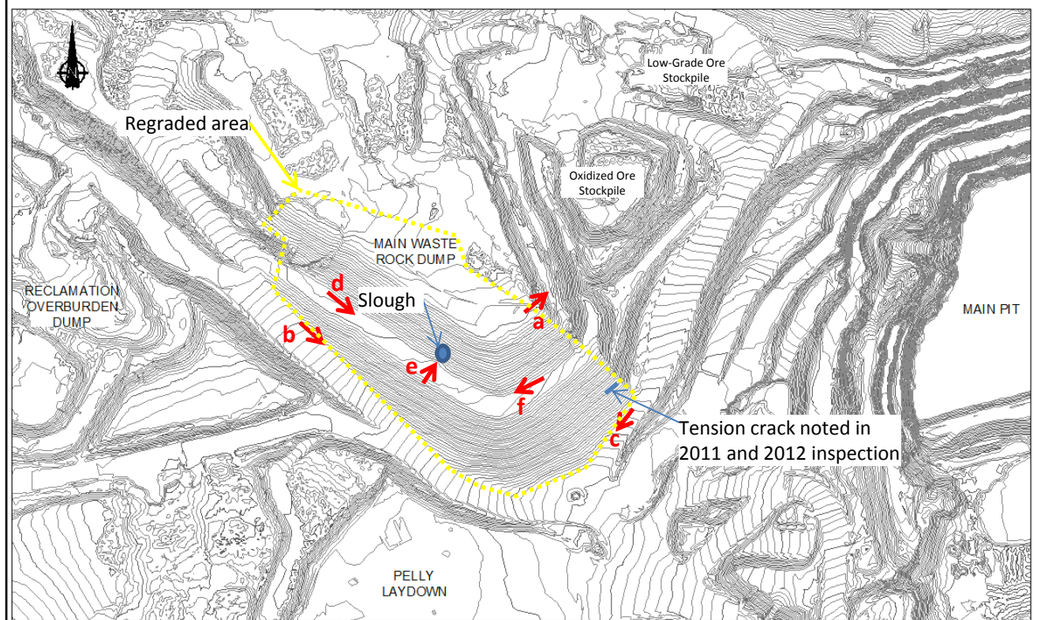
2 Main Waste Rock Dump

- Reclamation activities at the dump were completed between 2011 and 2012 with re-contouring of portions of the dump slopes. The regraded area is noted in the plan below. The regraded slopes have been covered and revegetated with different vegetation prescriptions placed on different portions of the cover.
- The tension crack noted in the 2011 and 2012 inspection at the location noted in the plan below was not observed during two 2013 inspections. The crack may have been hidden by vegetation or self-healed.

- Photo (a) view of the Oxidized Ore Stockpile. The tension crack observed near the crest during the spring 2013 was not observed during this inspection.
- Photos (b) and (c): View of the dump toe. Minor rills and gullies are present at the base of the regraded slope where vegetation is not yet established. No signs of instability were observed.
- Photo (d) shows the mid-bench toe.
- Photo (e) shows the small surficial slough noted in previous 2012 and spring 2013 inspections. The slough is contained within the cover material. Minor bulging is present at the base of the slope. No action is required.
- regraded slopes and vegetation growth on the south end of the dump.
- Photo (f) shows regraded slope at the south end of the dump.

Recommendations

- The slough, as well as the area where tension cracks were noted in the 2011 and 2012 inspections should continue to be monitored as part of regular site inspections for signs of additional movement or instabilities.



Source: Figure 1, EBA letter "Main Waste Rock Dump – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	**Main Waste Rock Dump**
		Date: October 2013 / Approved: PHM / Figure: **5**

3 Southwest Waste Dump

2013 Orthophoto

Photograph vantage point

- The construction method of the dump is described in the 2011 annual review as follows: "Minto is utilizing a series of benches and setbacks during dump construction. Benches of finer grained non ice-rich waste have been constructed back of the overall crest of the facility. These benches are being and will continue to be capped with coarse waste rock until the ultimate dump dimensions are achieved. Therefore, the exterior slope will be constructed with coarse waste rock only."

- During the Spring 2013 inspection, tension cracks were observed in the southern end of the dump in the location noted on the plan and noted in photo (b). Since the last inspection, the area has been graded and the cracks are no longer visible. The cracks were offset from the crest by approximately 5 m and extend over a distance of 60 m in total. The crack is 20mm wide at the widest location.
- No signs of instability (slumping, bulging, tension cracks, differential settlement) were observed. Erosion was observed at the outlet of the culvert located north east of the dump (see Figure 8).
- Construction of the dump appears to be in accordance of the method described above.
- Safety berms were present throughout the dump.
- Ponded water was observed in one location (Photo (a))

Recommendations

- Prior to placement of the next bench in the ponded water area, the area should be graded to promote runoff and drain the water.
- Crests on the larger lifts should be monitored
- Equipment should not stored within 5m of the crest.

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Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	**Southwest Waste Dump**	
		Date: October 2013	Approved: PHM / Figure: **6**

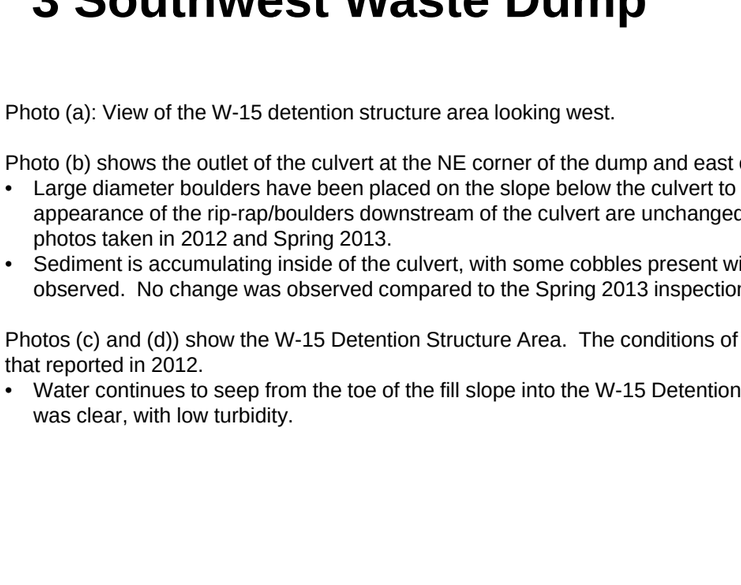
3 Southwest Waste Dump

Photo (a): View of the W-15 detention structure area looking west.

Photo (b) shows the outlet of the culvert at the NE corner of the dump and east of the Pelly Laydown area.
- Large diameter boulders have been placed on the slope below the culvert to mitigate erosion. The appearance of the rip-rap/boulders downstream of the culvert are unchanged compared to previous photos taken in 2012 and Spring 2013.
- Sediment is accumulating inside of the culvert, with some cobbles present with diameters up to 8 inches observed. No change was observed compared to the Spring 2013 inspection.

Photos (c) and (d)) show the W-15 Detention Structure Area. The conditions of the area are the same as that reported in 2012.
- Water continues to seep from the toe of the fill slope into the W-15 Detention Structure Area. The water was clear, with low turbidity.

Recommendations
- Continue monitoring of sediment accumulation in the culvert and erosion at the outlet. A photographic record should be maintained to inspect for changes in condition.



Source: 2013 Orthophoto

Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Southwest Waste Dump
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 · Approved: PHM · Figure: 7

4 Reclamation Overburden Dump

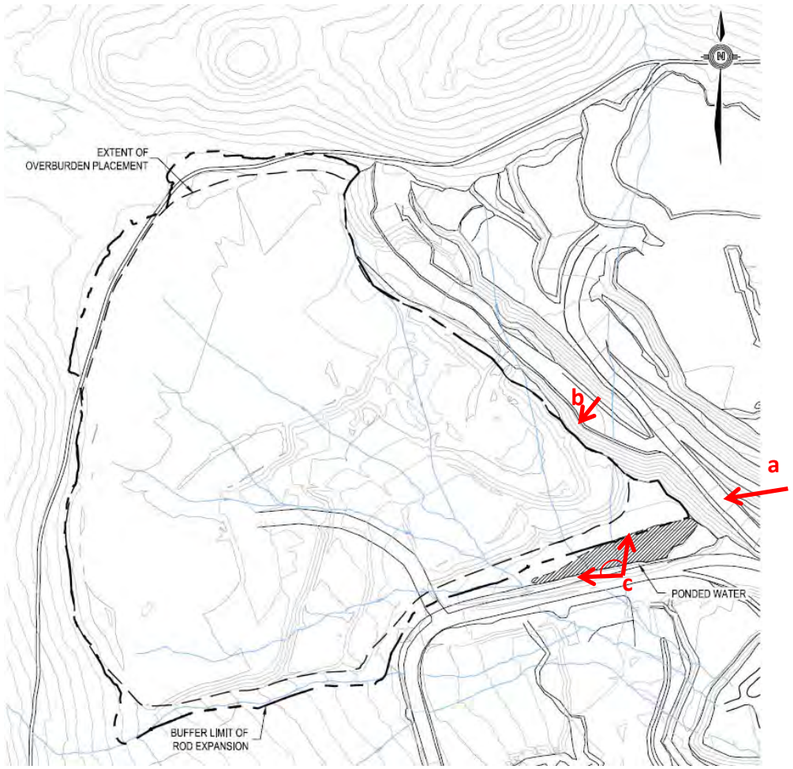
- Conditions of the dump are similar to conditions reported in the 2012 and spring 2013 site inspections. Slumping, settlement and tension cracks are expected in the dump as it is constructed with frozen overburden with thawing expected.
- There is localized slumping of the perimeter slope. Discontinuous tension cracks and differential settlement observed along the perimeter crest. Ground undulation is typically 0.3 m and is prevalent throughout the facility.

- Photos (a) and (c) provide an overview of the ROD and the ponded water adjacent to the Dyno Access Road southeast of the ROD. Two small erosional channels were observed (circled in yellow) to be in similar condition as reported in previous inspection.

Recommendations

Recommendations are the same as those mentioned in the last two years inspections:

- Installation of a rip-rap channel down the slope to minimize slope erosion. Areas near the exiting erosion channels should be regraded to direct runoff to the rip-rap channel.
- Monitoring of the ponded water to ensure that the offset from the dump toe is maintained as stipulated in the design report.
- The toe of the dump should be surveyed annually to confirm it is within the permitted boundary.



Source: Figure 1, EBA letter "Reclamation Overburden Dump – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Reclamation Overburden Dump
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: **8**

5 Ice Rich Overburden Dump

- A containment berm constructed of coarse waste rock is present on the north, east and south sides of the dump.
- Since the previous inspection in May 2013, additional waste rock has been placed outside of the berm up to the berm crest elevation as part of the Southwest Waste Dump Expansion (Zero and Low Grade Waste).

- Photos (a) and (c) shows the material placed inside of the berm.
- Photo (b) shows the newly placed waste material outside of the berm.

- No signs of instability were observed along the containment berm.
- No pooled water was observed against the berm. A minor amount of pooled water was observed during the freshet inspection and it appears that water inside of the berm is still able to drain through the berm to the outside of the facility.

Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Ice Rich Overburden Dump
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: 9

6 Ore Stockpiles

- The ore stockpile area was investigated briefly in passing. All slopes appeared in good condition: no slumping, bulges, cracks, or other signs of instability were observed.

Photograph vantage point

Orthophoto taken in 2011

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Ore Stockpiles
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 | Approved: PHM | Figure: **10**

7 Mill and Camp Site

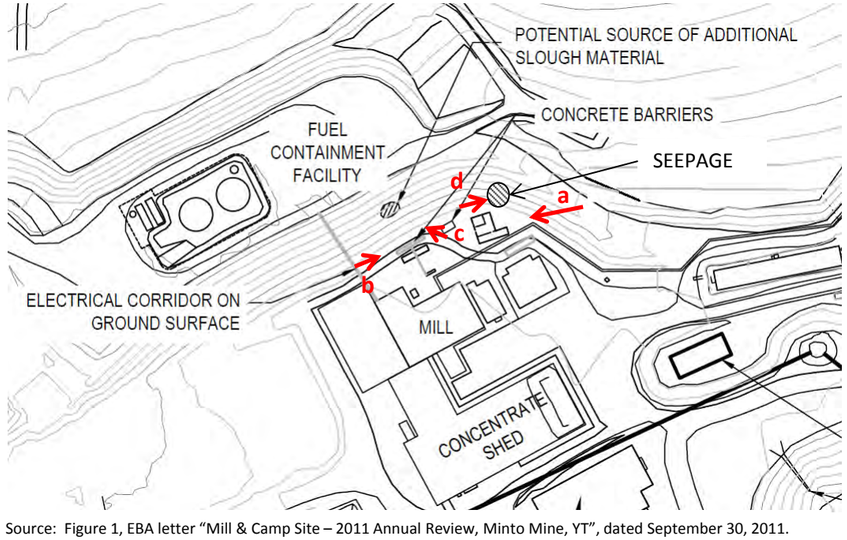
Conditions of the mill area are the same as those reported in the 2011 to Spring 2013 site inspections.

a) Slope above the main mill site appears stable.
- Safety berms at the top of the slope are in good condition.

b) West end of the mill slope looking east. Eroded sand/gravel is generally present at the base of the slope with occasional cobbles/boulders up to 300 mm.

c) As noted in previous inspections, a small slough is present near the center of the slope approximately 10 m east of the electrical corridor. The 2012 inspection noted some larger rocks that have raveled down the slope and the concrete barriers at the toe were approaching the capacity for containment. The area around the concrete barriers appear to have been cleared with the large rocks removed.

d) East end of the mill slope looking east. Two small seeps observed at the same location as noted in previous inspections. The seep location is noted in the plan below.



Source: Figure 1, EBA letter "Mill & Camp Site – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

↗ Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Mill and Camp Site
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: **11**

7 Mill and Camp Site

a) & b) Slope above the main camp site appears stable.
- Eroded sand/gravel is generally present at the base of the slope with occasional cobbles/boulders up to 300 mm.

c) Since the spring inspection, this slope has been further excavated as part of camp expansion. No signs of instability in this area.

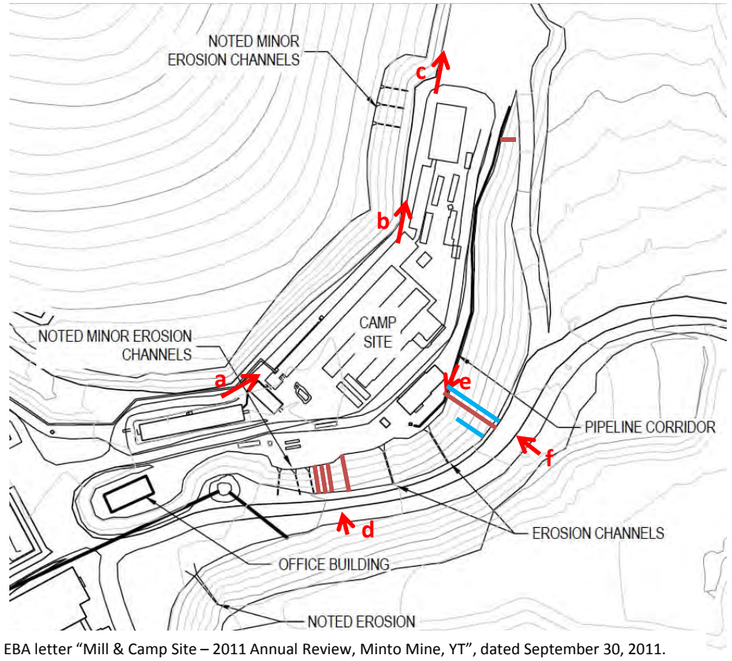
d) Erosion channels present south of the camp site pad near the flags. No changes compared to the photographs taken during the 2012 and Spring 2013 inspections.

e) & f) Erosion channels present south of the camp site near the carpenters shop. Conditions are similar to the spring 2013 inspection. Compared to 2012, the scarp of the erosion channel appears to have receded and undercuts the utilidor. Actions are required to prevent further erosion of the area.

Note: Since the 2011 inspection, fill was placed below the main access road as part of the Mill Valley Fill pad that have covered over the erosion channels noted in the figure below.

Recommendations

- The area above the erosion channels on the camp pad should be regraded to promote runoff away from the channels.
- The channel by the carpenter's shop should be filled with rip-rap or a "half culvert to provide a path for the water to drain". It appears that no action has been taken in the past year and that further erosion channels have developed.
- It is recommended that these actions be completed in the following year. In place of the surface grading, a small ditch could be constructed near the slope crest to direct runoff to the drop channel or half-culvert.



Source: Figure 1, EBA letter "Mill & Camp Site – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

Erosion Channels added in 2011 site visit

Erosion Channels added in 2012 site visit

Erosion Channels added in Spring2013 site visit

srk consulting VANCOUVER

Job No: 1CM002.012.05

Filename: Minto 2013 Fall Inspection.pptx

CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.

Minto Mine

Fall 2013 Geotech Inspection

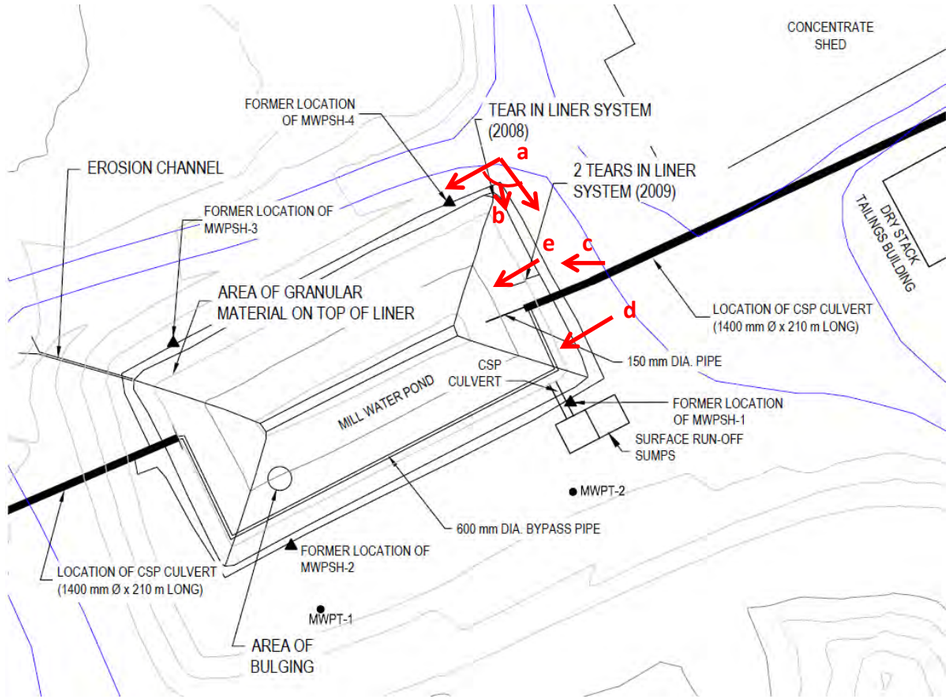
Mill and Camp Site

Date: October 2013 | Approved: PHM | Figure: **12**

8 Mill Water Pond

Conditions of the Mill Water Pond are unchanged compared to the 2012 and Spring 2013 inspection.

a) Panoramic view of the mill pond. Tears in the liner system are the same as that reported in the previous inspection. No new tears or liner defects were observed.
b) View of the tear in the liner at the north corner of the pond. The tear is approximately 1m in length and first noted in the 2008 inspection.
c) Two tears in the liner midway along the northeast edge of the pond. These tears were first observed in the 2009 inspection. The largest tear is approximately 1.5m in length and is parallel to the slope. The smaller tear (white arrow) is approximately 0.5m in length and is orientated across the slope. A void is present beneath the slope that in previous EBA inspections has been noted to be increasing in size due to water penetration from surface.
d) View of the south east side of the pond and by-pass pipe.
• The bypass pipe and metal clamps are resting on pieces of plywood, while the 2011 review notes that they were resting directly on the liner. Placement on plywood is an improvement, but particular attention should be made at each support for liner damage in future inspections.
e) View of the inlet culvert on the east side of the pond with a small flow of water entering the pond.



Photograph vantage point

Source: Figure 1, EBA letter "Mill Water Pond – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Mill Water Pond
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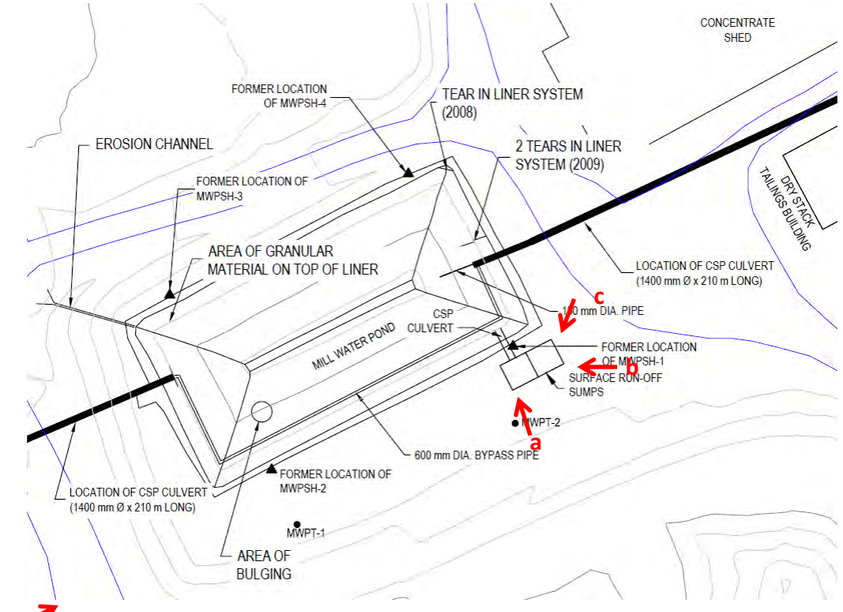
8 Mill Water Pond

- Photos show the condition of the surface runoff ponds south east of the mill water pond. Conditions are unchanged compared to the 2012 and spring 2013 inspections.
- There are significant sediments in both ponds, each culvert, and outside the ponds to the east. It is recommended that each pond/culvert be cleaned.

Recommendations

- The liner tears should be patched the next time a liner crew is onsite. For the liner tear noted in Photo (c), Figure 14, sand should be placed to fill the void beneath the tear.
- The liner condition beneath the bypass pipe supports should continue to be monitored.
- The sediments accumulated in the surface runoff ponds and culverts should be cleaned out.



Source: Figure 1, EBA letter "Mill Water Pond – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Mill Water Pond
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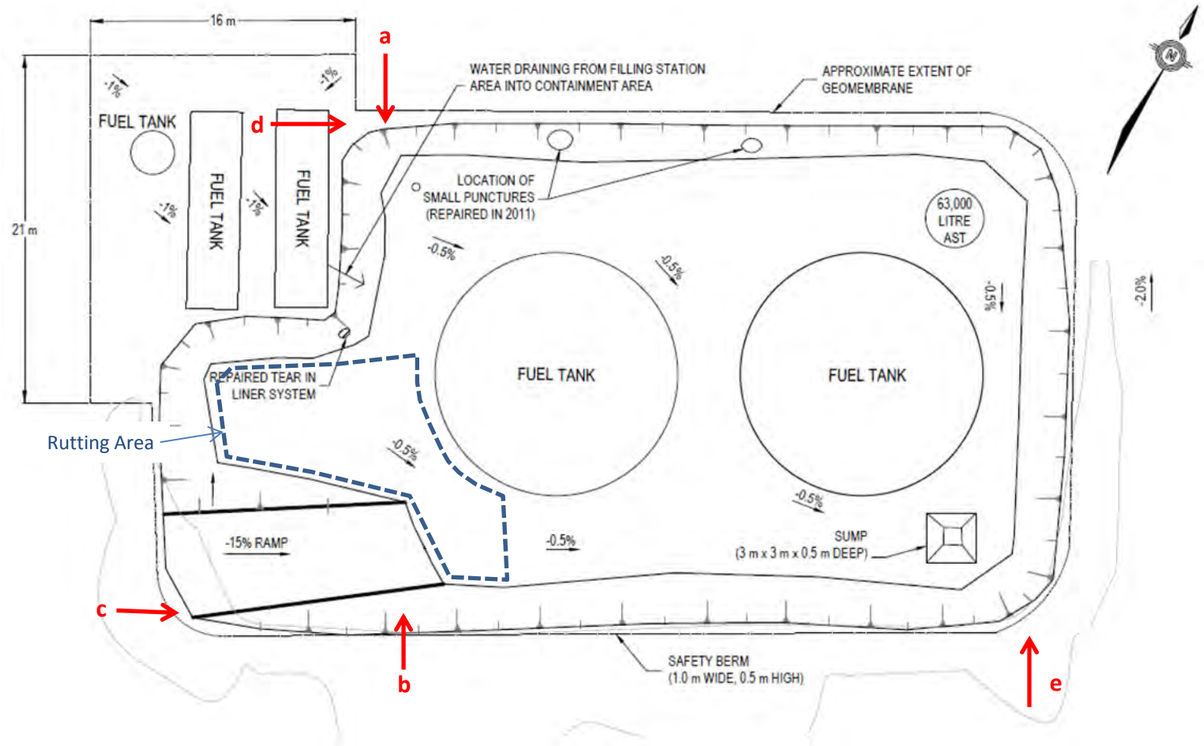
9 Fuel Containment Facility



Source: Figure 1, EBA letter "Fuel Containment Facility – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

Observations

- Photos (a) to (e) show the condition of the liner on each side of the facility.
- Conditions of the facility appear to be the same as reported in the 2012 review.
- No tears or defects in the liner were observed.
- Since the Spring inspection, the water level has lowered, with water only present in the sump in the SE corner of the facility. The facility appears to drain into containment area as per design.
- Additional ruts are present in the southern half of the facility. Rutting is significant (approximate 2-3 inches deep) between the two tanks where equipment was turning. No liner is exposed as a result of the trafficking.

Recommendations

- No actions required.
- the bedding layer over the geomembrane (150mm thick) was not meant for heavy equipment. Vehicle access should be limited to the occasional visit with low ground pressure equipment.

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection	
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	**Fuel Containment Facility**	
		Date: October 2013	Approved: PHM / Figure: **15**

10 South Diversion Ditch

Source: 2012 Orthophoto

Photograph vantage point

- The South Diversion Ditch was inspected between the areas shown in Photos (a) to (e) adjacent to the Airport Laydown area. The pipeline intake structure at the photo (c) location diverts water to the confluence area located near the Main Pit. The pipeline alignment was not inspected during the site visit.
- The lined ditch upstream of the intake structure was constructed to the design outlined in the "South Diversion Ditch Collection Pond IFC drawings, Figures SD1 through SD3, dated July 2007.
- Since the May 2013 inspection, an overflow spillway was constructed at the pipe intake based on the design outlined in the SRK memorandum entitled "South Diversion Ditch Realignment and Overflow Spillway" dated February 1, 2013. At this time, an as-built survey had not been reviewed to confirm that the spillway has been constructed to design.
- As noted in the last inspection, the UG Portal Access road has been raised within the last year. In the area noted in photo (d), rockfill from the construction has raveled down into the channel reducing the channel flow capacity.
- No signs of instability were noted along the side-slopes.

a) View of the inlet structure at the upstream end of the ditch. The Airport Access Road ditch can also been seen in the foreground.
b) View from the inlet structure looking downstream.
c) View of the inlet structure to two 16" HDPE diversion pipes and the overflow spillway. One of the HDPE pipes remains partially obstructed by rockfill. Three large boulders have been placed along the inlet to the spillway that likely limit its capacity. The spillway itself appears to be constructed to the design width (15m), and minimum depth (0.6m), however this has not yet been confirmed by an as-built survey.
d) View looking downstream. The impact of the road construction can be seen in the photo, the channel width has been reduced in areas (from the design base width of 1.8m down to near 1.0 m.
e) View looking downstream taken from approximately midway along the channel. Vegetation up to 6 feet in height has become established in the area.

Recommendations

- Ditch obstructions should be removed to increase flow to the design capacity. The noted obstructions include: road fill, vegetation, and GCL covering the HDPE pipe.
- All areas of exposed liner should be covered.
- An as-built survey of the pipe intake structure and overflow spillway should be completed to confirm that the spillway is constructed to the correct invert elevations, channel dimensions, and grades. The elevation of the airport access road should be included in the survey to ensure that flows up to the design event will enter the spillway prior to overtopping the road.
- The three large boulders at the overflow spillway should be removed (Safety berms are not required as the road height is less than 3m) The boulders are recommended to be replaced with safety pylons (or some other type of safety marker) that will not impede flow.

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		South Diversion Ditch
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: **16**

11 Minto Creek Detention Structure

- Significant surface cracking is present along the crest of the south and east side of the structure. No signs of instability were noted along the downstream slopes and no seepage was observed downstream of the MCDS.

- The seepage entering the MCDS from the Mill Valley Fill Extension (MVFE) was clear. There appears to be some sediment accumulation upstream of the structure, however, conditions along the flow path into the MCDS are similar compared to 2012 inspection photographs, and there are no sediments observed immediately downstream of the MVFE toe.

a) View of the Minto Creek Detention Structure (MCDS) looking southeast.
b) View of the downstream side of the MCDS. An overflow spillway can be seen in the center of the photo. Exposed GCL is present on the upstream side of the spillway. A large settlement crack is located on the north side of the spillway, measuring up to approximately 2 inches wide and 2 inches deep for a length of approximately 4m.
c) Close up of the exposed GCL on the south side of the spillway.
d) View of the south side of the MCDS looking west. Settlement cracking is evident along the mid-point of the crest.

Recommendations
- Continue regular annual monitoring for further signs of instability or seepage on the downstream slope of the MCDS.

Photograph vantage point

srk consulting VANCOUVER	CAPSTONE MINING CORP. MINTO MINE OPERATED BY MINTO EXPLORATIONS LTD.	Fall 2013 Geotech Inspection
		Minto Creek Detention Structure
Job No: 1CM002.012.05 Filename: Minto 2013 Fall Inspection.pptx	Minto Mine	Date: October 2013 / Approved: PHM / Figure: **17**

12 Water Storage Pond Dam

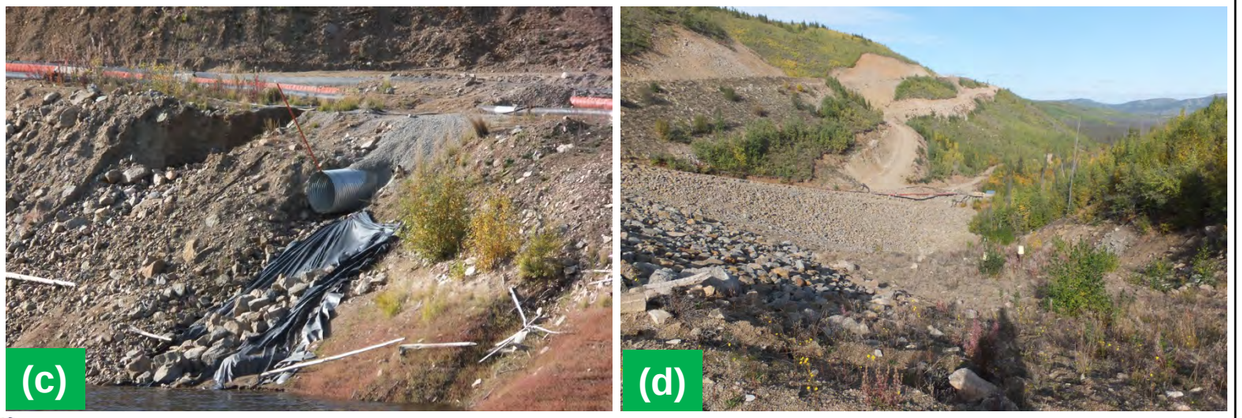
- Conditions of the dam are unchanged since the 2013 freshet inspection completed by SRK in May 2013. The WSP water level is significantly lower than the last inspection and was estimated to be approximately 711m.

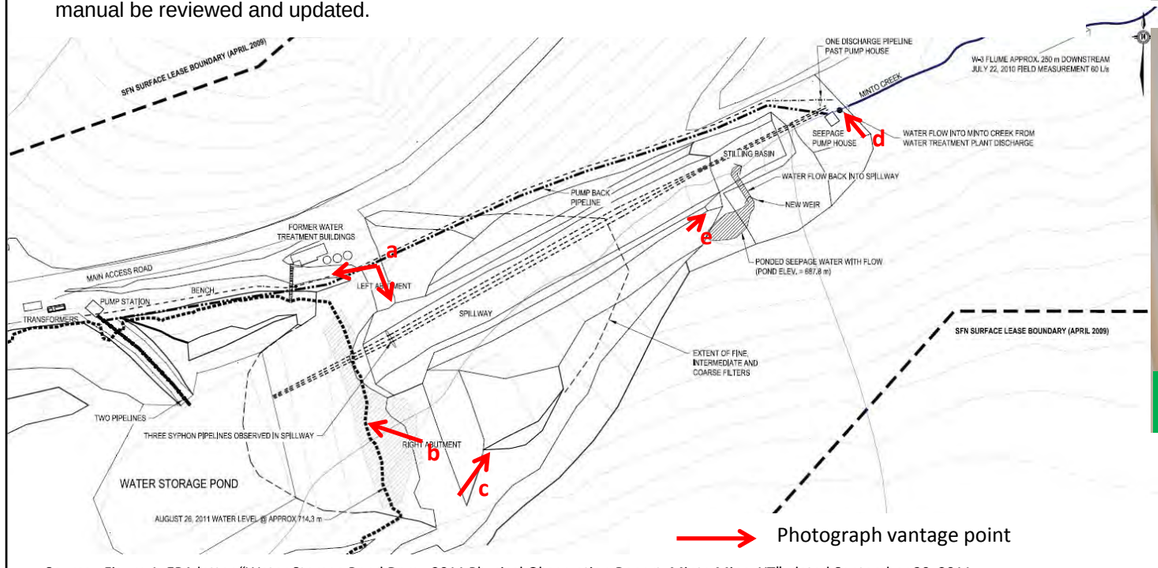
a) & b) View of the crest, upstream slope and south abutment. These areas (including the north abutment) show no signs of instability (settlement, bulging, slumping).
c) View of the culvert outlet and WSP bank immediately east of the water treatment building. The outlet was undercut with additional fill placed to secure the slope. Beneath the culvert, geotextile was placed and secured with rip-rap. The area appears unchanged compared to the 2013 freshet inspection.
d) View of the downstream slope and spillway. Three 200 mm diameter siphon pipelines are present in the spillway that run from the WSP to the pump house. No signs of instability, settlement or erosion were observed on the downstream slopes or abutment areas.
e) View of the stilling basin upstream of the seepage pump house. The seepage water was clear with no turbidity. No accumulation of sediments were observed.
f) View of the ponded seepage water at the downstream toe of the dam.

- Condition of the seepage water appears unchanged compared to the 2012 inspection.
- Water flow could not be heard in the rockfill adjacent to the seep.
- The water was clear with no turbidity. Rocks in the pond contain a thin coating of fine rusty-brown sediments. The sediments are thought to be due flushing of weathered rip-rap from local run-off on the downstream toe.
- A weir is present on the downstream side of the ponded seepage water to measure/monitor flow from the dam two. The estimated flow rate at the time of inspection was 1 L/s.

Recommendations

- Continue regular monitoring of the dam, noting specifically the clarity of the seepage and flow exiting the stilling basin, and the seepage rate through the weir.
- A review of the seepage pump data and the flow rates measured at W-3 in the seepage pump house indicates that the pump data is influenced by discharge from other sources (the pit, water treatment plant, etc.). Options to obtain accurate seepage measurements should be reviewed. One solution would be to move the discharge point of water a minimum of 20 m down stream of the sump. The issue should be resolved prior to 2014 spring melt
- The current version of the Operation, Maintenance, and Surveillance Manual for the dam was last updated in 2008. Many of the emergency contacts listed in the manual are out of date. It is recommended that the manual be reviewed and updated.





Source: Figure 1, EBA letter "Water Storage Pond Dam– 2011 Physical Observation Report, Minto Mine, YT", dated September 30, 2011.

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13 Big Creek Bridge


(a1)

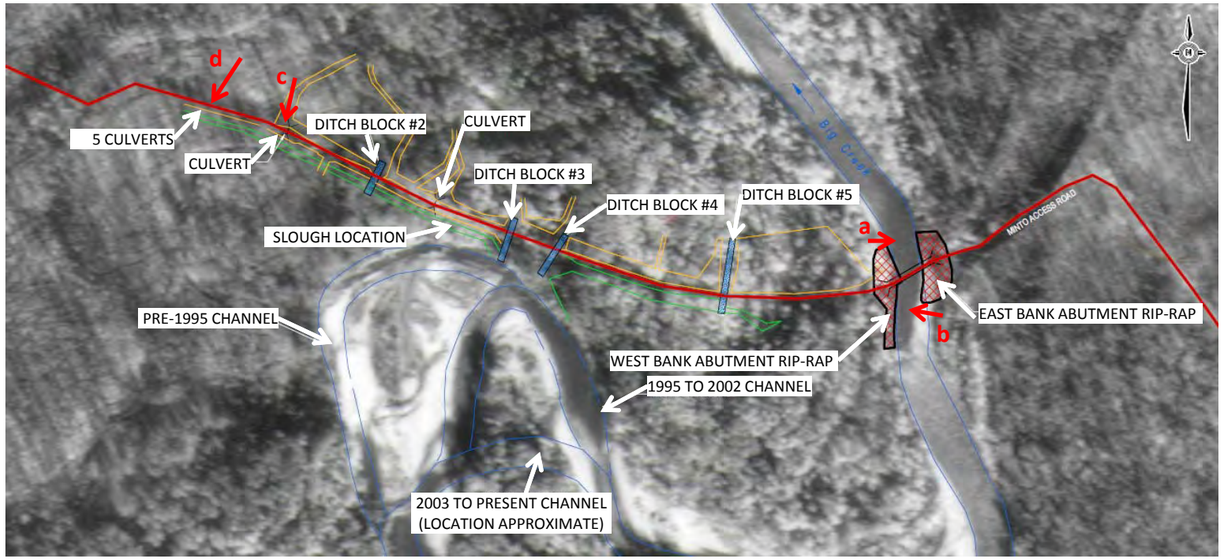

(a2)


(b1)


(b2)


(c)


(d)



Source: Figure 1, EBA letter "Big Creek Bridge– 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

- Photos (a) and (b) show east and west abutments, respectively. The bridge abutments and road approaches are in good condition, no signs of instability were observed.
- Consistent with the 2012 inspection, Ditch Block #1 (closure berm) has not been constructed, Ditch Blocks #2 through #5 are in good condition.

- Ditch Block #5 was overtopped during the on the south side of the rock. No damage or erosion was observed as a result of the overtopping.
- The first culvert west of the bridge is in satisfactory condition. The north end of the culvert has been dented by a large rock. It appears that a compacted bedding layer has not been placed outside the culvert.
- The slough located to the south east of the first culvert is unchanged compared to previous inspections and does not impede ditch flow.

- Photo (d) shows the downstream end of the 2nd culvert west of the bridge. A significant amount of accumulated sediment has been cleared/removed since the 2012 inspection. Sediment accumulation should continue to be monitored and cleaned out if sediments continue to accumulate.
- Photo (d) shows 5 culverts, each with diameter of 1.1 m. The culverts are in satisfactory condition, with no blockages at either end.

- The downed power pole that was observed during the spring inspection has been repaired.

Recommendations

- Continue regular annual monitoring of sediment accumulation in the culverts, and clean out if sediments continue to accumulate.

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14 South Wall Buttress

a) View of the Main Pit and South Wall Buttress taken from the north west corner of the pit.
b) Close-up of a tension cracking present on the west end of a lower interim bench of the buttress. This area has been blocked off and is inaccessible to equipment.

- At this time, the cause of the movement/instability is unclear.
- Survey hubs along the perimeter rim indicate that movements of the south wall continue to slow and are generally less than 0.2 mm/day.
- As this bench is placed over the slide debris from the south wall failure, the cracking may be due to settlement placed materials and/or slide material.

Recommendations

- The tension crack area should be continue to be visually monitored. A photographic record should be maintained to inspect for changes in condition.
- Following completion of the buttress, additional survey hubs should be placed along the crest to monitor movement.

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