



### **APPENDIX D**

**Construction Summary Report Rock Storage Facility - Interim Till Plug** 



### CONSTRUCTION SUMMARY REPORT ROCK STORAGE FACILITY – INTERIM TILL PLUG

AGNICO-EAGLE MINES LIMITED MEADOWBANK GOLD PROJECT

**OCTOBER 30<sup>TH</sup>, 2013** 

#### **EXECUTIVE SUMMARY**

The construction of the Interim till plug at Meadowbank was conducted from August 26th 2013 and September 1st 2013. The till plug is located on the upstream side of the access road to the North Cell Ditches, between the Waste Rock Storage Facility (RSF) and the NP2 lake. The till plug is designed and constructed as a zoned earth fill structure intended to block seepage coming from the RSF to go into NP2 lake and facilitate seepage collection on the upstream side.

Work carried out during construction of the till plug included excavation of soft sediment, till placement and water seepage control work. This construction report issued by AEM presents the general construction procedure.

As-Built data have been sent to the Tailings Storage Facility (TSF) designer for integration of the structure in the North Tailings Cell revised design.

#### **DOCUMENT CONTROL**

Document Version	Date	Revised Section	Revision
Draft	2013-09-30		
Final	2013-10-30		

### CONSTRUCTION SUMMARY REPORT ROCK STORAGE FACILITY – INTERIM TILL PLUG

#### **TABLE OF CONTENT**

SECTION	۱ 1.0 - IN	TRODUCTION	1
SECTION	N 2.0 - SC	OPE	2
SECTION	N 3.0 - DE	ESIGN AND TECHNICAL SPECIFICATIONS	2
3.1	FILL N	MATERIALS AND PLACEMENT SPECIFICATIONS	2
	3.1.1	Zone 1 – NPAG Rockfill	3
		Zone 1A - Fine Rockfill (0-200 mm)	
		Zone 2 –Till	
SECTION	N 4.0 - C0	DNSTRUCTION ACTIVITIES AND DESCRIPTION OF THE WORK	5
4.1		DEWATERING AND SEEPAGE CONTROL	
4.2		SITION LAYER OF ZONE 1A FINE ROCKFILL ALONG THE ROAD	
4.3	EXCA	VATION OF THE TRENCH BELOW THE ROAD	6
4.4		2 TILL PLACEMENT IN THE EXCAVATION AND ALONG THE ROAD	
4.5		1A FINE ROCKFILL PLACEMENT OVER THE TILL AS EROSION	
		ECTION	
SECTION	N 5.0 - Q0	CONTINUITY TESTING AND RESULTS	7
5.1		NSPECTION AND PROCEDURE REVIEW	
SECTION	N 6.0 - OF	PERATION AND MONITORING	8
SECTION	N 7 0 - SI	JMMARY AND CLOSURE	۶

#### **APPENDIX**

APPENDIX A Selected Construction Photos

APPENDIX B As-Built Drawings

### CONSTRUCTION SUMMARY REPORT ROCK STORAGE FACILITY – INTERIM TILL PLUG

#### **SECTION 1.0 - INTRODUCTION**

The Portage Rockfill Storage Facility (RSF) at Meadowbank is located in the north portion of the main mine site, adjacent to the Tailing Storage Facilities (TSF). The Rockfill Roads (RF1 and RF2) along the west side of the RSF are part of the TSF North Cell. The North Cell Diversion Ditches (Diversion Ditches) are located around the North Cell to keep freshet surface drainage water from contacting the RSF and the TSF. The East ditch flows through Lake NP-2 and connects to Lake NP-1. Figure 1 presents the general arrangement of the TSF and RSF.

During an AANDC Water License inspection on July 29th and 30th 2013, it was observed that red colored seepage from the northwest side of the RSF was seeping through the road perimeter into Lake NP-2. Samples were taken by both the Inspector and AEM staff (split sample). Analysis results from this sampling were received by AEM on August 16th, 2013. The results received shown that the water collecting in the sump behind the waste dump and that seeped to NP-2 could originate from the supernatant tailing water.

To avoid further contamination of the Lake NP-2, design and construction of an interim till plug was undertaken by Agnico Eagle Mines (AEM). This construction was aimed to reduce the amount of seepage reported to NP-2 lake and to increase the pumping of the seep water contained within the sump. This construction is considered as a first step emergency action and further investigation will be undertaken to assess, prevent and control possible seepage from the TSF and RSF.

Following assessment of the situation, future permanent structures might be constructed if required. The interim plug structure might be incorporated to the permanent containment structure.

The construction work for the till plug was done by Fernand Gilbert Limited (SANA) under the supervision of AEM. The construction surveillance was done by AEM representatives. Survey of the work was completed by AEM.

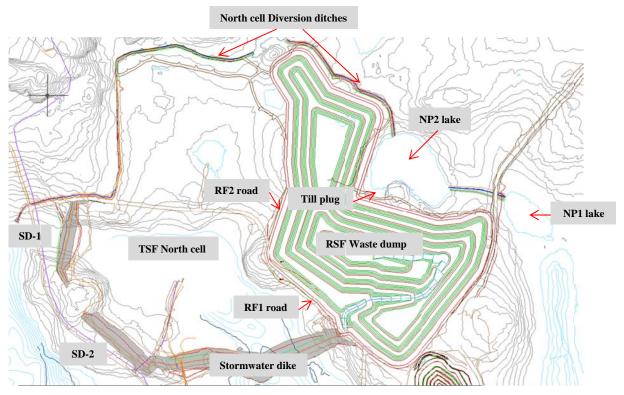


Figure 1: General arrangement of the TSF and RSF

#### **SECTION 2.0 - SCOPE**

This construction summary report presents the general construction procedure for the till plug conducted between August 26<sup>th</sup> 2013 and September 1<sup>st</sup> 2013 at Meadowbank. Work procedures and construction steps are summarized in this report. A review of the proposed design and technical specifications is presented, followed by the description of construction activities. The site inspection during construction, operation and monitoring are then presented.

#### **SECTION 3.0 - DESIGN AND TECHNICAL SPECIFICATIONS**

Design and Technical Specifications were elaborated by AEM Engineering prior to the start of the till plug construction and are resumed in the following section. Typical sections from the original design are available in Figure 2.

#### 3.1 FILL MATERIALS AND PLACEMENT SPECIFICATIONS

The construction of the till plug includes three different zones of material. The requirements for each zone are described below.

#### 3.1.1 Zone 1 – NPAG Rockfill

- The selected fill material consists of waste clean blasted rock from Portage/Goose pit composed of non-potentially acid generating (NPAG) rocks;
- The existing road along NP2 Lake and the RSF includes NPAG Rockfill material.

#### 3.1.2 Zone 1A - Fine Rockfill (0-500 mm)

- The selected fill material consists of waste clean blasted rock (0-500 mm) from Portage/Goose Pit and is composed of NPAG rock;
- No topsoil, unsuitable organic soils, snow, ice are allowed in this zone;
- Lift thickness specified: 500 mm to 1 000 mm before compacting;
- Compaction achieved during placement with excavator bucket.

#### 3.1.3 Zone 2 - Till

- Natural till is obtained from stripping of the Goose Pit or excavation in the Central Dike;
- Non-dispersive soil, including glacial till or clay with fines (sieve # 200 or <0.075 mm) content of minimum 30%, moisture requiring from -2% to +2% of OMC (Optimum Moisture Content).</li>
- No topsoil, unsuitable organic soil, snow, ice, frozen lumps;
- Lift thickness specified: 300 mm to 500 mm before compacting;
- Compaction achieved during placement with excavator bucket.

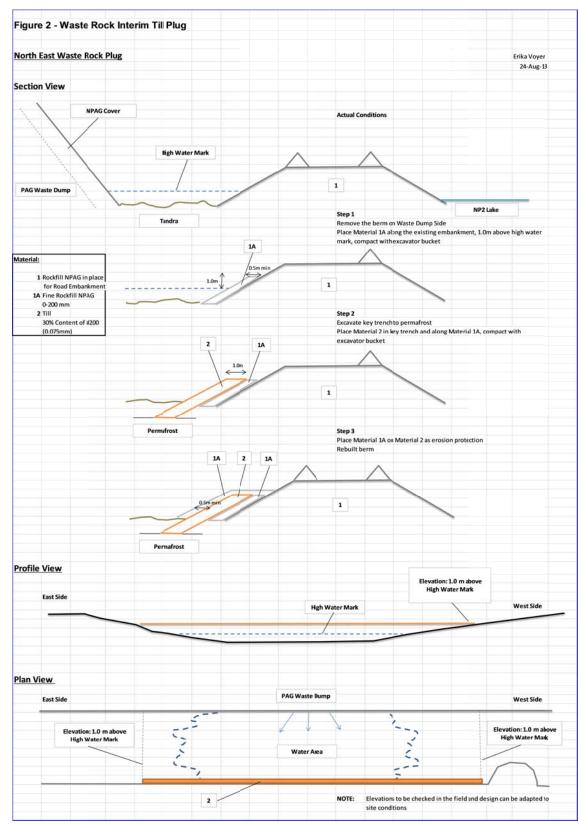


Figure 2: design drawings of the interim waste rock storage facility till plug to prevent seeping water from reaching NP-2 lake.

#### SECTION 4.0 - CONSTRUCTION ACTIVITIES AND DESCRIPTION OF THE WORK

The scope of work for the construction of the till plug conducted from August 26<sup>th</sup> 2013 to September 1<sup>st</sup> 2013 consists of activities listed in the following major work items:

- Sump dewatering and seepage control;
- Placement of the transition layer of Zone 1A "Fine Rockfill" along the road;
- Excavation of the trench below the road elevation;
- Zone 2 "Till" placement in the excavation and along the road;
- Zone 1A "Fine Rockfill" placement over the till as erosion protection.

These items are discussed in the following sections below.

Please note that in order to have the smallest section of the road exposed to seepage at any given time, all works was done in small section not wider than 3-4 meters. The steps followed were: preparation of the upstream slope, excavation of the foundation and till placement. Final cover for erosion protection placement over the till layer was done once before the end of the day. This sequence of events was also chosen to minimize the exposure time of the permafrost to the elements and prevent it to thaw. The concept of the design was to have a foundation composed of either bedrock or permafrost.

Selected photographs of the work progress taken throughout the construction program, showing various aspects of the construction work, are available in Appendix A.

As-built drawings are available in Appendix B.

#### 4.1 SUMP DEWATERING AND SEEPAGE CONTROL

The first step prior to all works in the area is to pump the seepage water from the two main channels out of the till plug area. In order to control the water level through the entire construction period, a water truck from SANA was hauling (as needed) 14,000 litres of seepage water and disposed of it in the tailings pond over the Stormwater dike. A 3" diesel pump (model Godwin CD103) was placed within the 2 main deepest channels to keep them as empty as possible to allow the working area to be as dry as possible for the beginning of the excavation. The pump was moved as the work progresses.



Figure 3: view of the 2 main channels and the pumping station after the completion of the works.

#### 4.2 TRANSITION LAYER OF ZONE 1A NPAG ROCKFILL ALONG THE ROAD

According to the design, a transition layer 1A needs to be put in place prior to the excavation and till placement along the entire upstream side of the road (on the RSF side). As the primary constituent material of the road was already fine NPAG soapstone, the 1A layer was replace by remodeling the in-situ material. The coarser material encountered was removed from the slope and the remaining finer soapstone was flattened and recompacted with the excavator bucket to create a 2 in 1 slope. The preparation of the road upstream slope began 1m above the high water marks left on the tundra after freshet, on both eastern and western abutments of the natural topographic low.

#### 4.3 EXCAVATION OF THE TRENCH BELOW THE ROAD

Excavation of the unfrozen deleterious material was realized with a CAT 345 excavator. The excavation depth was adapted according to the material encountered. Unfrozen tundra, soft till and/or sediments were removed until refusal either on frozen till or bedrock. The foundation exposed was then cleaned and approved by AEM representative before further works performed. The excavation depth over the entire length of the road was ranging from 0.5 to 2.5 m deep (averaging around 1.3m). The deepest portions that had been excavated were the 2 main seepage channels and the shallowest were the eastern and western abutments that were directly over bedrock. As suggested by the Environment department, the excavation debris was put in front of the trench to act as a first barrier against any extraordinary event that might happen in the

area. During the excavation, most of the water flooding the trench was flowing from the actual road structure itself and not from the tundra.

#### 4.4 ZONE 2 TILL PLACEMENT IN THE EXCAVATION AND ALONG THE ROAD

Once a zone of 4-5m wide was excavated and the foundation exposed and approved by the AEM representative, a till layer of at least 500mm was placed in the excavation and compacted with the shovel bucket. The selected till was chosen to meet the specifications presented in section 3.1.3. The till was coming from a stock pile that was built in 2012 for Central dike construction, hauled with 50T trucks and dumped in the slope where it was pick up and spread with the excavator. Prior to any till placement, all the material coarser than 150mm was automatically discarded by the operator.

#### 4.5 ZONE 1A FINE ROCKFILL PLACEMENT OVER THE TILL AS EROSION PROTECTION

Once the till layer was completed, a protective layer of fine filter has to be put in place to prevent any erosion of the layer. The selected material was fine soapstone that was hauled with 50T trucks from SANA. The rock was coming from Goose pit and dumped over the till blanket to be spread, placed and compacted by the excavator bucket. Every boulders or rocks over 500mm was discarded by the operator. The thickness of the protective layer was at least 500mm and has been adapted to the topography of the excavation.

#### **SECTION 5.0 - QC CONTINUITY TESTING AND RESULTS**

#### 5.1 <u>SITE INSPECTION AND PROCEDURE REVIEW</u>

AEM representatives routinely conducted visual observation of work procedure during the construction. Review of the work procedure was done on a daily basis and corrections were made if needed. Daily survey was conducted by AEM representatives for daily progress and to ensure that limits and grades were followed correctly during the construction. Photographs of the work progress were taken throughout the construction program recorded. Daily report for each shift work were issued and filed by AEM representatives. The foundation of the trench was also assessed, approved and surveyed by the AEM representative prior to all material placements but no report was filed on this activity.

#### **SECTION 6.0 - OPERATION AND MONITORING**

Since the completion of the works, the water level is closely monitored by the both Environment and Engineering departments. A staff gauge has been placed at the seepage location to determine and visually quantify the water level increases. A visual daily inspection of the area is done after to ensure we keep the level as low as possible. Whether the water became too high, the Mine department or SANA is advise and a water truck is sent to the area to pump the water and dispose of it in the tailings pond. This operation will be continued until weather permitting in fall 2013 and will be restarted as soon as freshet begins in 2014.

#### **SECTION 7.0 - SUMMARY AND CLOSURE**

The construction of the interim till plug was conducted between August 26<sup>th</sup> and September 1<sup>st</sup> 2013. Construction was completed in accordance with the requirements of the construction design elaborated by AEM.

During the course of the work, one (1) field change was made to the proposed design to optimize the construction activities.

A visual monitoring program consisting of frequent field visit by the Geotechnical team was put in place to insure the integrity of the structure. As part of their normal routine, a water sampling campaign, of both upstream and downstream sides of the structure, is conducted by the Environment department.

APPENDIX A Selected Till plug Construction Photos



Figure 1: Excavation of the active layer until reaching the permafrost. Between 0.5 and 3.8 m were required to reach proper foundation.



Figure 2: excavation of the foundation to permafrost / bedrock). The width of the trench at the bottom was at least one bucket wide. Note the excavated material is discarded on the upstream side.



Figure 3: till placement with the excavator bucket and compaction.



Figure 4: preparation of the transition NPAG on the roadside. Once excavation completed, soapstone was flattened and compacted before any till placement. Note the coarser material discarded from the till (red arrow).



Figure 5: final till placement over an entire section after 1 day of work. The till is flattened and compacted before any rockfill placement.



Figure 6: Final placement of soapstone rockfill protective layer (1A) over the till, once compacted.



Figure 7: water accumulation along the side of the road before works begin. View of the eastern channel.



Figure 8: water accumulation along the side of the road before works begin. View of the western channel.

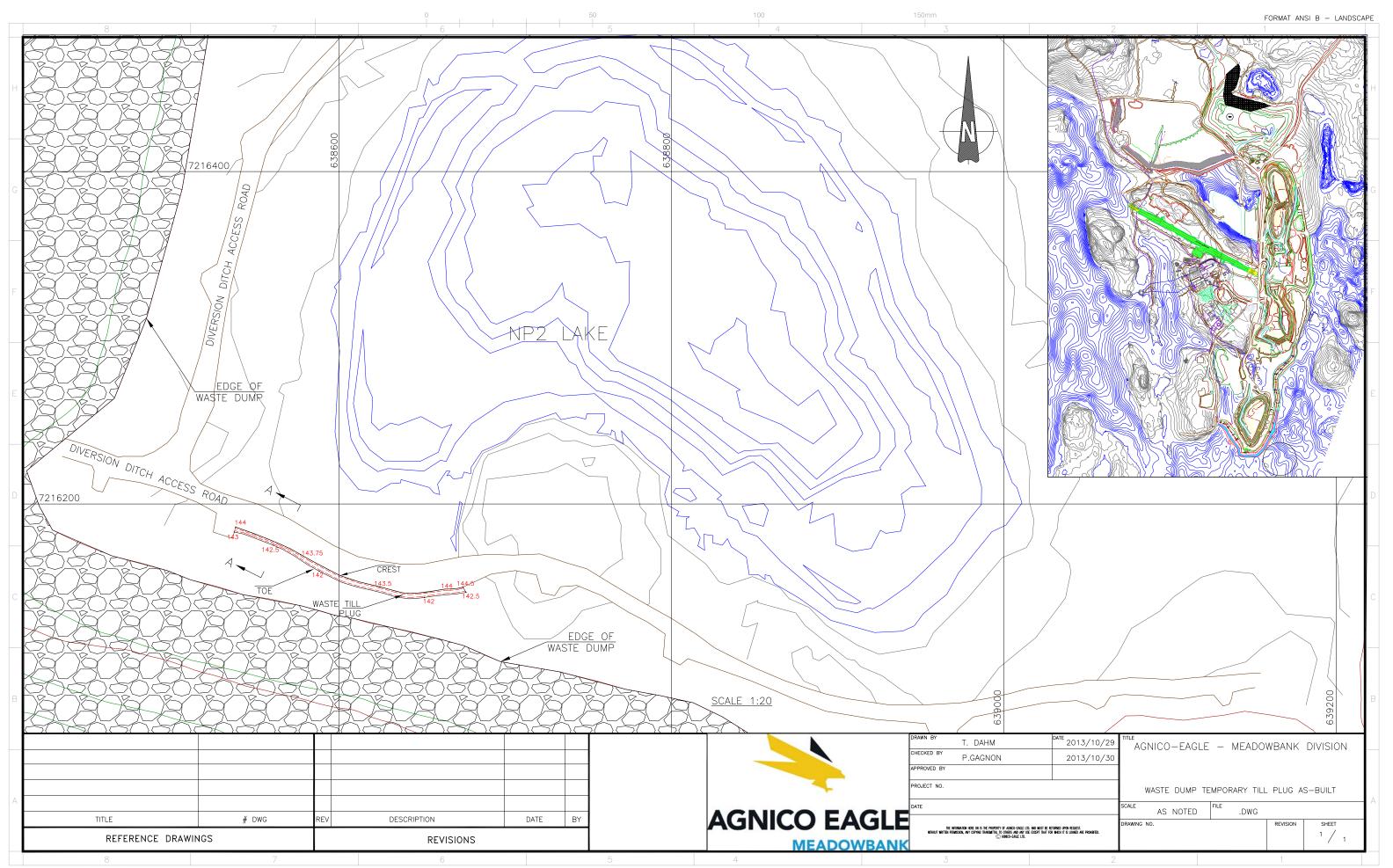


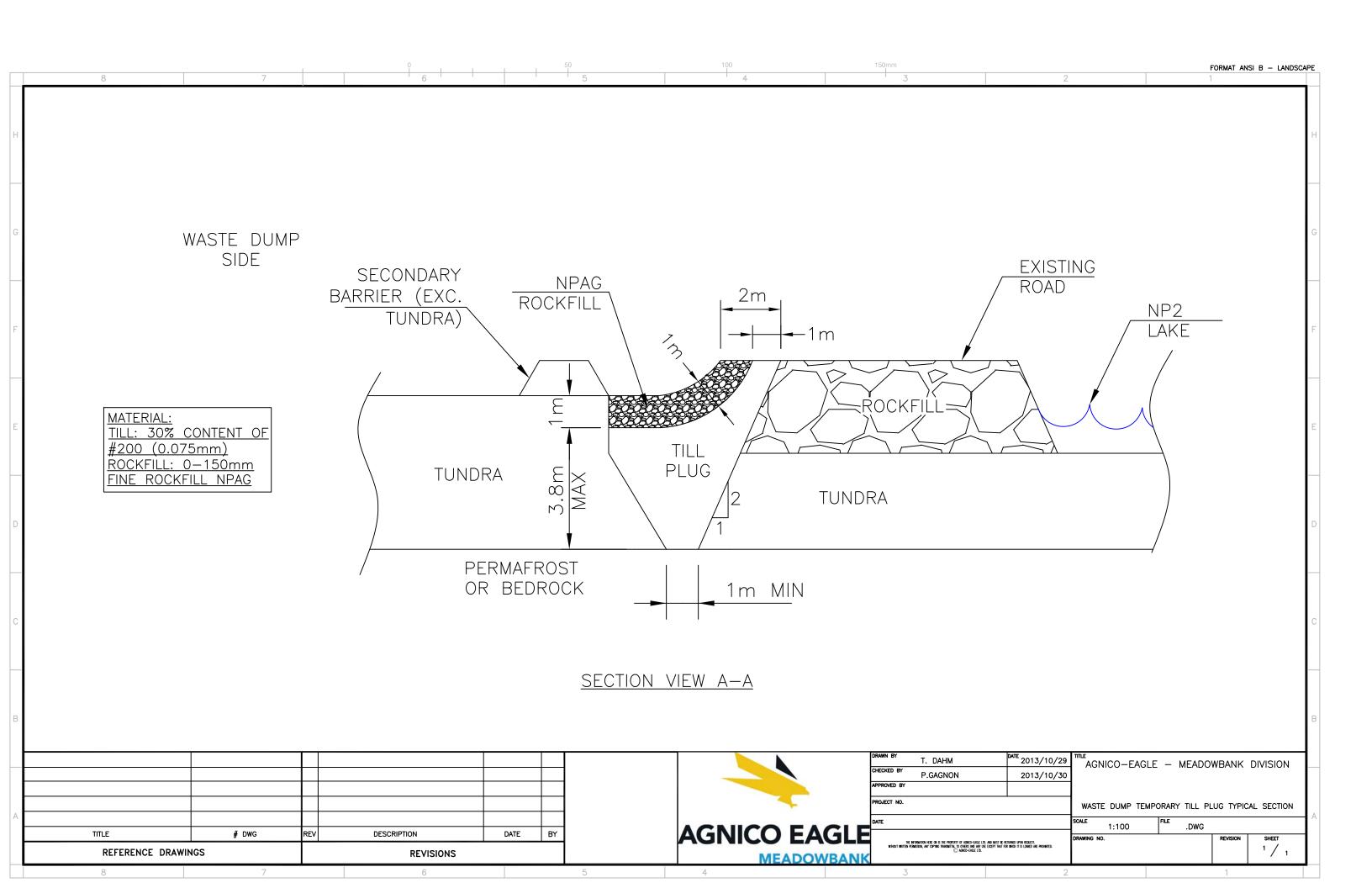
Figure 9: water control during the construction. A small 3" electric pump and a 3" diesel pumps were used.



Figure 10: photo of the final result of the entire till plug from West to East. The actual pumping station and the 2 active seepage channels are visible on the eastern abutment.

APPENDIX B As-built drawings









### **APPENDIX E**

TSF Deposition Plan 2013-Update 2013-10-17





## North Cell TSF model guideline

#### **GUIDELINE**

- Avoiding ice accumulation on the dike liner;
- Prevent tailings beach to reach the reclaim barge;
- Reclaim water pond maximum elevation of 148m;
- A minimum of two days per month of discharge by the by-pass of the booster pump is assumed for maintenance activities;
- Tailings beach to reach elevation 150m;
- Limit as much as possible deposition at the north end of the tailings pond during winter to reduce risk of freezing pipe;
- Raise beach on RF1 and RF2 to prevent tailings water from seeping out of the North Cell;
- Raise beaches on all external structures such as the roads around the tailings pond to prevent reclaim water from seeping towards the diversion ditches.

# South Cell TSF model guideline

#### **GUIDELINE**

- Avoiding ice accumulation on the Central Dike liner;
- Prevent tailings beach to reach the reclaim barge;
- A minimum of two days per month of discharge by the by-pass of the booster pump is assumed for maintenance activities;
- Modelization of phase 1 of this cell, closure of this cell to be determined.

## **Model Parameters and assumptions**

#### **ASSUMPTIONS**

- Deposition points will be moderately mobile in time (i.e. we can extend them on the tundra, and retract them as we deposit tailings throughout time);
- Ice formation in the reclaim pond during winter months follow the ice model table.
- Deposition points are added towards the end of life of the cell for closure purposes;

#### **PARAMETERS**

- The water balance used in this model assumes reclaim flow changes in function of season: summer 70 m³/h fresh water (FW) & 380m³/hr reclaim water (RW), and winter 90 m³/h FW & 360 m³/h RW;
- The model assumes a tailings dry density and a water balance that incorporates ice entrapment of 1.21t/m<sup>3</sup> for both the North and South Cell;
- Sub aerial tailings slope set at 0.5% for both North and South Cell
- Sub aqueous tailings slope set at 2.3% for the North cell (obtained from summer 2013 bathymetric analysis) and 4% for the South Cell (taken from the 2012 Golder Deposition plan of the North Cell) as this value seems to better represent the start of a new cell.

Ice Model		
Month	Ice thickness (m)	
<b>J</b> anuary	1.1	
February February	1.5	
March	1.8	
<mark>Apr</mark> il	1.8	
May	1.1	
June	0	
July	0	
August	0	
September	0	
October	0.2	
November	0.5	
December	0.8	
	-	

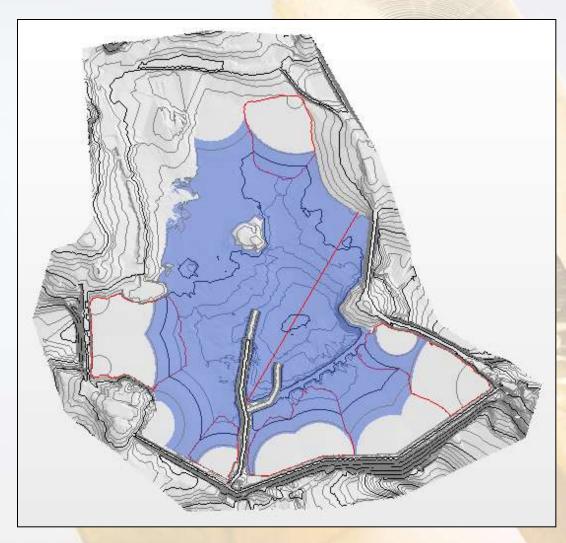
# TSF deposition plan schedule

#### North and South Cell deposition phases

Period	Active Cell – Phase	Description	
Current – September 2014	North Cell – Phase 1	- Bring the North Cell to the beginning of the winter 2014; the decreasing size and volume of the pond adversely affects the amount of free water due to ice formation, thus the North Cell cannot be closed off during the 2014/2015 winter.	
October 2014 – June 2015	South Cell – Phase 1 - South Cell deposition during the winter m		
July 2015 - September 2015	North Cell – Phase 2	- North Cell closure	
September 2015 – End of mine life	· South Cell - Phase / I		



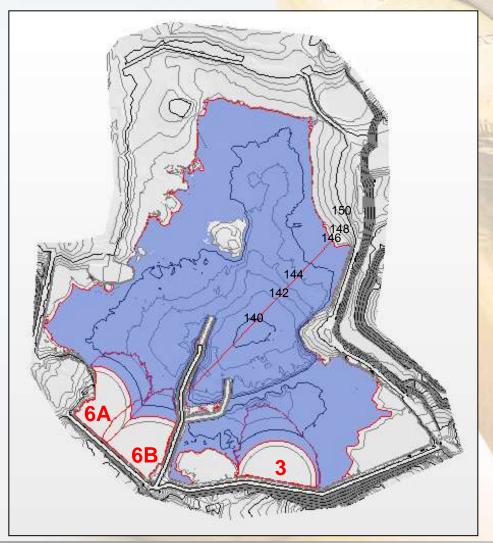
### **Section View Plot**



A section view along the alignment shown on the diagram will be included for each month. This will show a section view plotted on an elevation graph to show the change in pond topography across the reclaim water barge area. Left limit of the chart represents the barge area and as you look to the right on the graph you are going towards deposition point 7 (North-eastern direction).

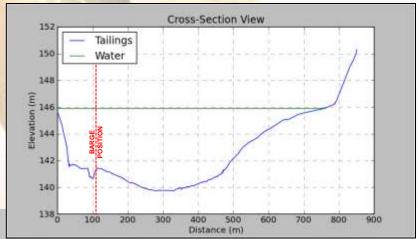
# North Cell TSF deposition plan From 09/16/2013 to 09/30/2013

Duration	<b>Deposition Point</b>	Tonnes
7	6B	76,120
5	3	60,725
3	6A	35,488



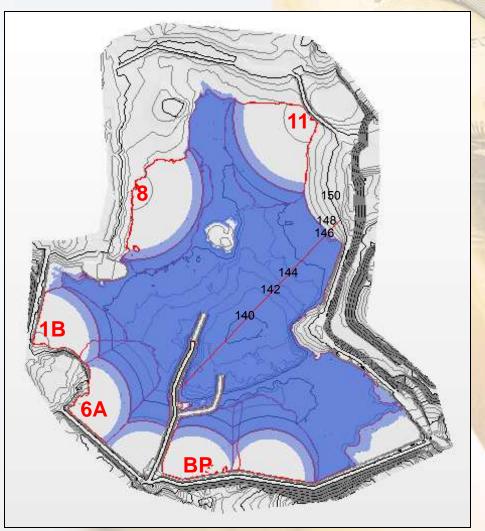
MODEL INPUT		
Water Balance Volume (m³)	1 455 036	
Ice thickness (m)	0.00	
Tonnes (t)	172 177	

MODEL RESULTS		
Pond volume (m³)	1 416 508	
Pond depth (m)	6.248	
Pond elevation (m)	145.903	
Min pond ele (m)	139.655	
Ice thickness (m)	0	
Unfrozen water elevation (m)	145.903	
lce volume (m³)	0	
Ice ratio (%)	0	
Transfer from South Cell (m³)	o	



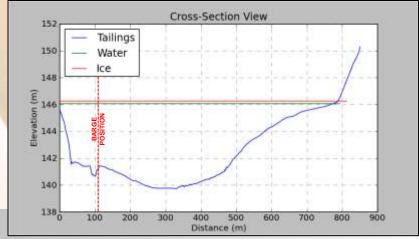
# North Cell TSF deposition plan October 2013

Duration	<b>Deposition Point</b>	Tonnes
3	BP	43,009
3	6A	35,470
3	3	38,009
5	1B	56,733
12	11	145,711
5	8	66,857



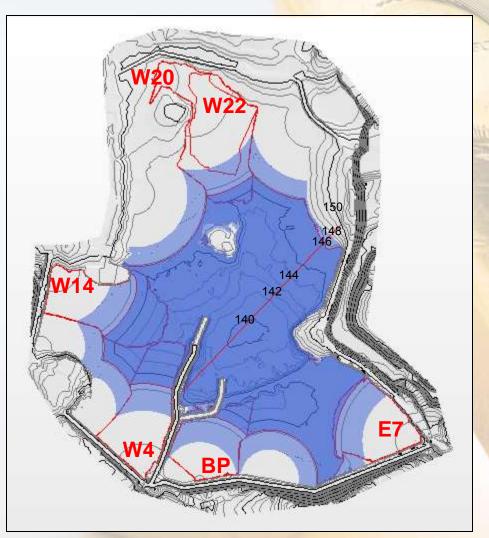
MODEL INPUT		
Water Balance Volume (m³)	1 503 962	
Ice thickness (m)	0.20	
Tonnes (t)	363,600	

MODEL RESULTS		
Pond volume (m³)	1 362 552	
Pond depth (m)	6.608	
Pond elevation (m)	146.263	
Min pond ele (m)	139.655	
Ice thickness (m)	0.186	
Unfrozen water elevation (m)	146.077	
lce volume (m³)	141 410	
Ice ratio (%)	9%	
Transfer from South Cell (m³)	140 000	



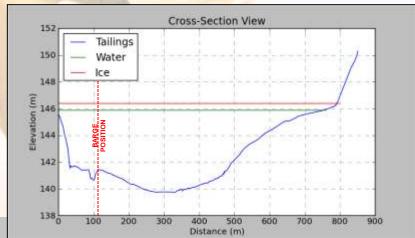
### North Cell TSF deposition plan November 2013

Duration	<b>Deposition Point</b>	Tonnes
2	BP	20,474
5	W22	51,004
5	W20	55,385
6	W14	71,786
6	W4	71,875
3	E7	27,937



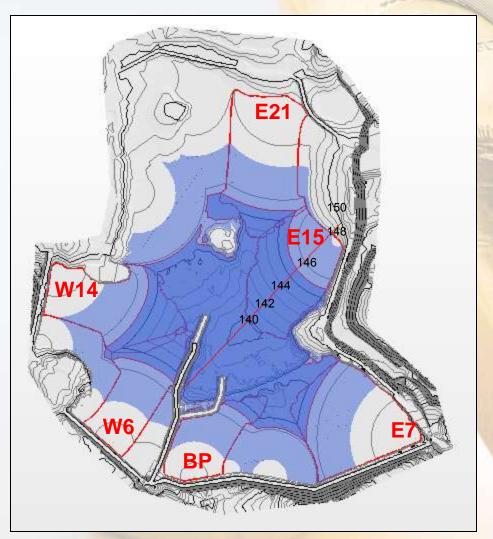
MODEL INPUT	
Water Balance Volume (m³)	1 443 996.00
Ice thickness (m)	0.50
Tonnes (t)	321 180

MODEL RESULTS		
Pond volume (m³)	1 122 802	
Pond depth (m)	6.735	
Pond elevation (m)	146.390	
Min pond ele (m)	139.655	
Ice thickness (m)	0.50	
Unfrozen water elevation (m)	145.890	
lce volume (m³)	321 194	
Ice ratio (%)	22%	
Transfer to South Cell (m³)	0	



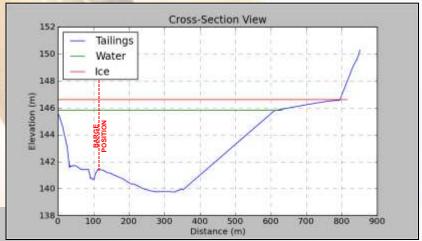
# North Cell TSF deposition plan December 2013

Duration	<b>Deposition Point</b>	Tonnes
2	BP	23,445
5	E7	70,165
6	W18	70,259
6	W12	70,252
6	E21	71,365
4	E15	47,694



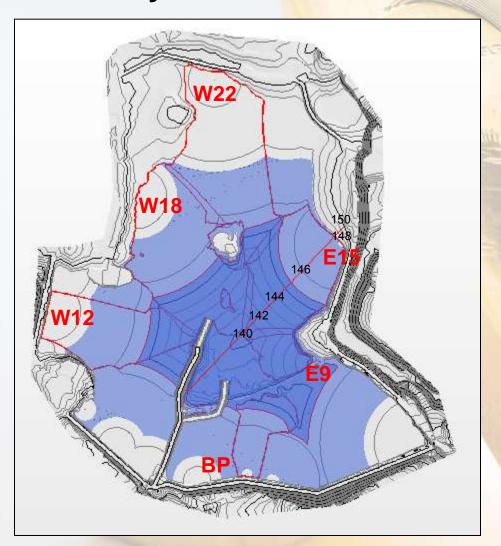
MODEL INPUT	
Water Balance Volume (m³)	1 372 715
Ice thickness (m)	1.10
Tonnes (t)	369,660

MODEL RESULTS		
Pond volume (m³)	887 636	
Pond depth (m)	6.869	
Pond elevation (m)	146.610	
Min pond ele (m)	139.741	
Ice thickness (m)	0.501	
Unfrozen water elevation (m)	145.798	
lce volume (m³)	485 079	
Ice ratio (%)	35%	
Transfer to South Cell (m³)	o	



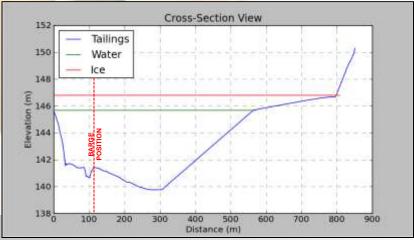
# North Cell TSF deposition plan January 2014

Duration	<b>Deposition Point</b>	Tonnes
2	BP	23,196
3	E9	34,873
8	W22	92,932
7	W18	81,366
4	W12	46,472
7	E15	81,419



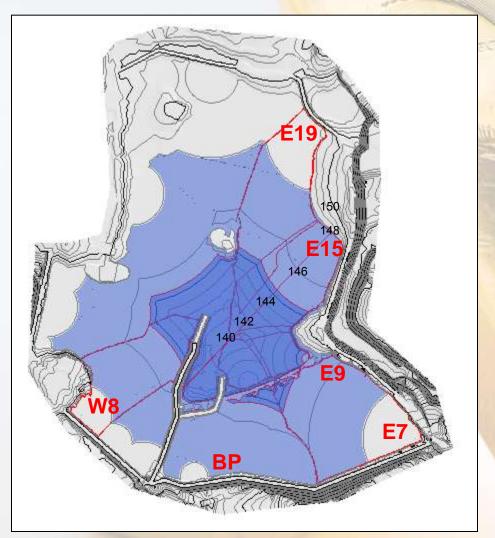
MODEL INPUT		
Water Balance Volume (m³)	1 300 648	
ce thickness (m)	1.10	
Tonnes (t)	360,995	
	3	

MODEL RESULTS	
Pond volume (m³)	669 758
Pond depth (m)	6.039
Pond elevation (m)	145.701
Min pond ele (m)	139.662
lce thickness (m)	1.11
Unfrozen water elevation (m)	146.809
lce volume (m³)	630 890
Ice ratio (%)	49%
Transfer to South Cell (m³)	O



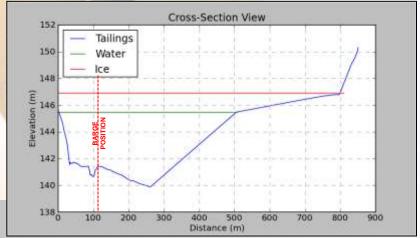
# North Cell TSF deposition plan February 2014

Duration	<b>Deposition Point</b>	Tonnes
2	BP	20,669
2	E9	20,665
4	E7	41,080
6	W8	62,027
8	E19	82,452
6	E15	62,077



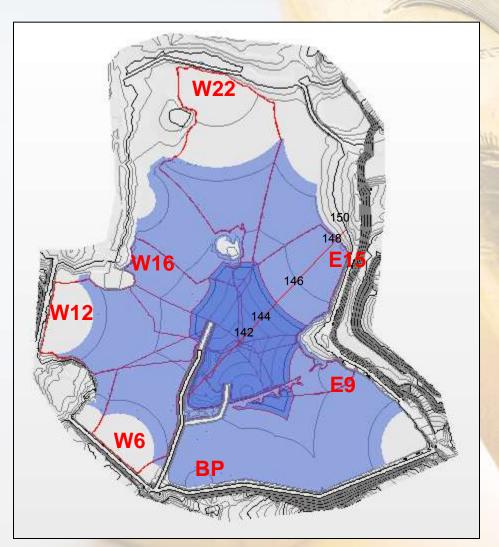
MODEL INPUT	
Water Balance Volume (m³)	1,185,974
Ice thickness (m)	1.50
Tonnes (t)	288,988

MODEL RESULTS		
Pond volume (m³)	459 343	
Pond depth (m)	7.029	
Pond elevation (m)	146.978	
Min pond ele (m)	139.874	
Ice thickness (m)	1.504	
Unfrozen water elevation (m)	145.474	
lce volume (m³)	797 203	
Ice ratio (%)	65%	
Transfer to South Cell (m³)	0	



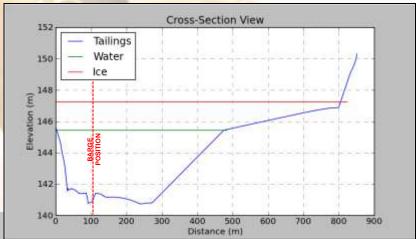
# North Cell TSF deposition plan March 2014

Duration	<b>Deposition Point</b>	Tonnes
2	BP	20,662
5	W22	58,960
6	W16	70,926
6	W10	70,984
4	E15	47,335
4	E9	47,188
4	W6	47,771



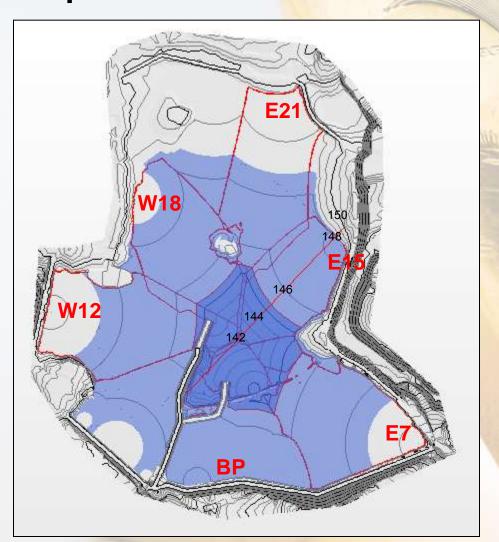
MODEL INPUT	
Water Balance Volume (m³)	1 163 247
Ice thickness (m)	1.80
Tonnes (t)	367,009

MODEL RESULTS		
Pond volume (m³)	309 900	
Pond depth (m)	6.728	
Pond elevation (m)	147.245	
Min pond ele (m)	140.517	
Ice thickness (m)	1.795	
Unfrozen water elevation (m)	145.450	
lce volume (m³)	853 347	
Ice ratio (%)	73%	
Transfer to South Cell (m³)	0	



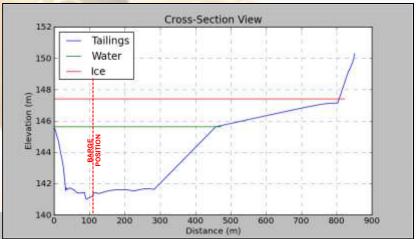
# North Cell TSF deposition plan April 2014





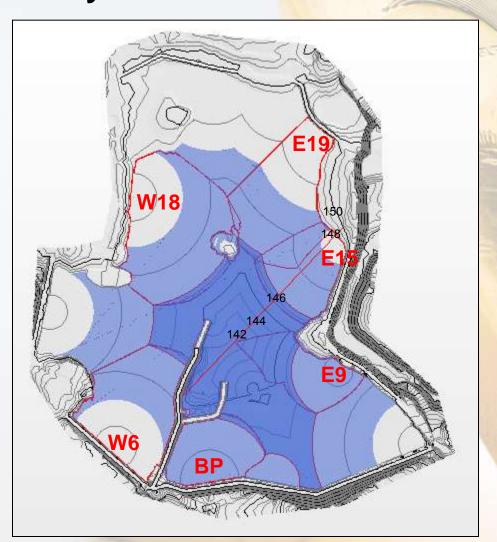
MODEL INPUT		
Water Balance Volume (m³)	1,054,214	
Ice thickness (m)	1.80	
Tonnes (t)	348,990	

MODEL RESULTS		
Pond volume (m³)	260 298	
Pond depth (m)	6.699	
Pond elevation (m)	147.411	
Min pond ele (m)	140.712	
Ice thickness (m)	1.780	
Unfrozen water elevation (m)	145.631	
lce volume (m³)	833 459	
Ice ratio (%)	76%	
Transfer to South Cell (m³)	o	



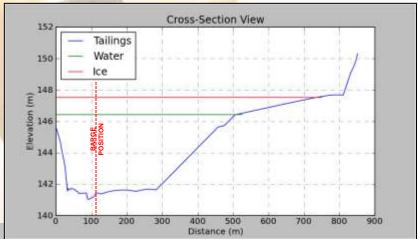
# North Cell TSF deposition plan May 2014

Duration	<b>Deposition Point</b>	Tonnes
2	BP	23,401
9	W18	93,536
6	W6	64,411
6	E19	64,344
4	E15	41,497
4	E9	41,577



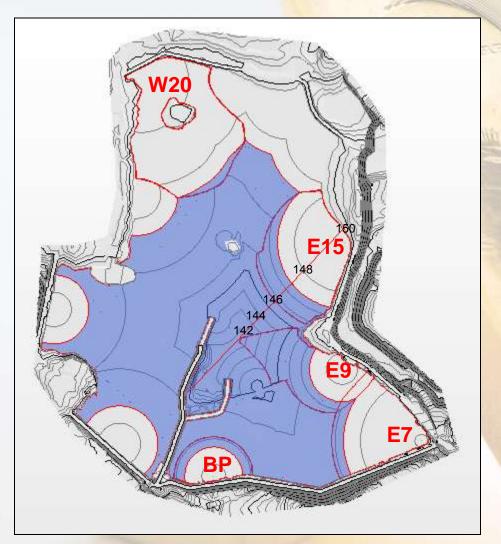
MODEL INPUT	
Water Balance Volume (m³)	1 044 070
Ice thickness (m)	1.10
Tonnes (t)	325,004

MODEL RESULTS		
Pond volume (m³)	412 777	
Pond depth (m)	6.047	
Pond elevation (m)	147.518	
Min pond ele (m)	141.471	
Ice thickness (m)	1.108	
Unfrozen water elevation (m)	146.410	
lce volume (m³)	631 293	
Ice ratio (%)	60%	
Transfer to South Cell (m³)	o	



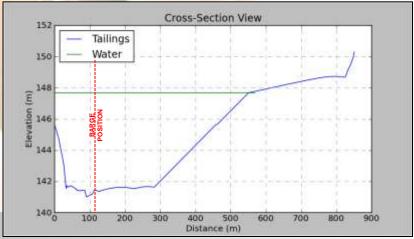
### North Cell TSF deposition plan June 2014

Duration	<b>Deposition Point</b>	Tonnes
2	BP	23,377
9	W20	105,309
4	E9	46,790
9	E15	70,141
6	E7	70,141

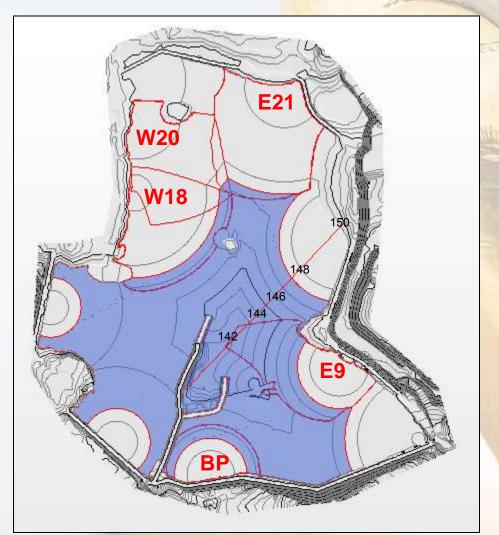


MODEL INPUT		
Water Balance Volume (m³)	1 059 689	
Ice thickness (m)	o	
Tonnes (t)	354 990	

MODEL RESULTS		
Pond volume (m³)	1 056 178	
Pond depth (m)	6.202	
Pond elevation (m)	147.682	
Min pond ele (m)	141.480	
Ice thickness (m)	0	
Unfrozen water elevation (m)	147.682	
lce volume (m³)	0	
Ice ratio (%)	0	
Transfer to South Cell (m³)	0	



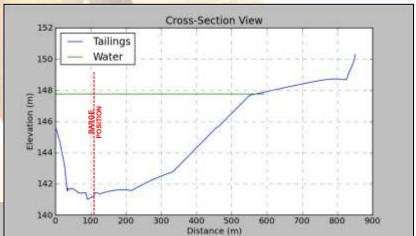
### North Cell TSF deposition plan July 2014



Duration	<b>Deposition Point</b>	Tonnes
2	BP	23,269
9	E21	104,342
6	E9	69,856
5	W20	58,066
9	W18	104,633

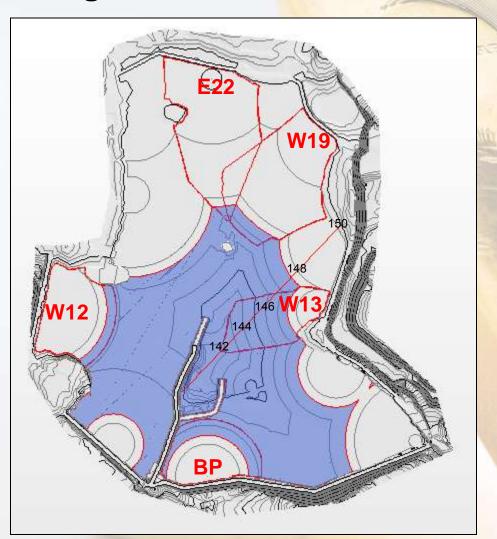
MODEL INPUT		
Water Balance Volume (m³)	999 244	
Ice thickness (m)	0	
Tonnes (t)	354,234	

MODEL RESULTS	
Pond volume (m³)	994 558
Pond depth (m)	6.219
Pond elevation (m)	649 483
Min pond ele (m)	141.549
lce thickness (m)	0
Unfrozen water elevation (m)	147.768
lce volume (m³)	0
Ice ratio (%)	0
Transfer to South Cell (m³)	0



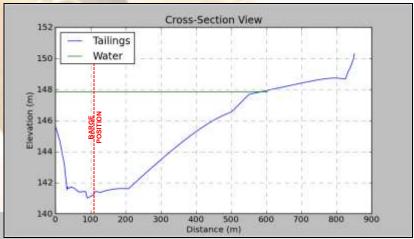
# North Cell TSF deposition plan August 2014



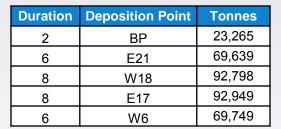


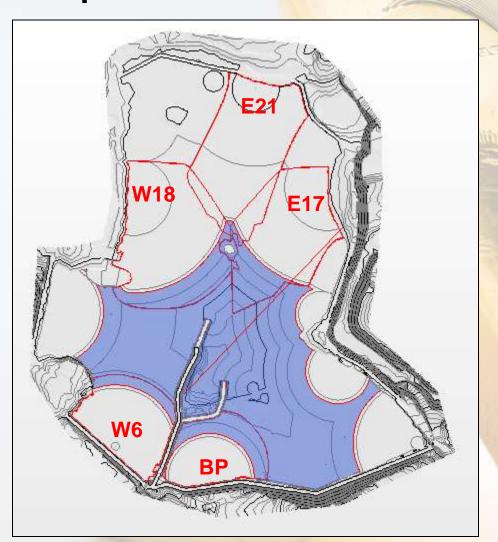
MODEL INPUT		
Water Balance Volume (m³)	1,197,430	
Ice thickness (m)	0	
Tonnes (t)	354,234	

MODEL RESULTS		
Pond volume (m³)	911,888	
Pond depth (m)	6.047	
Pond elevation (m)	147.855	
Min pond ele (m)	141.808	
lce thickness (m)	0	
Unfrozen water elevation (m)	147.855	
lce volume (m³)	0	
Ice ratio (%)	0	
Transfer to South Cell (m³)	O	



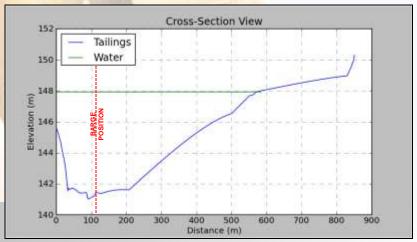
# North Cell TSF deposition plan September 2014





MODEL INPUT		
Water Balance Volume (m³)	892 523	
Ice thickness (m)	0.00	
Tonnes (t)	348,990	

MODEL RESULTS	
Pond volume (m³)	889 585
Pond depth (m)	6.423
Pond elevation (m)	147.939
Min pond ele (m)	141.516
Ice thickness (m)	0
Unfrozen water elevation (m)	147.939
lce volume (m³)	0
Ice ratio (%)	0
Transfer to South Cell (m³)	0



# **AGNICO EAGLE** agnicoeagle.com WORLD GOLD COUNCIL MEMBER agnicoeagle.com

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com

Africa + 27 11 254 4800 Asia + 86 21 6258 5522 Australasia + 61 3 8862 3500 Europe + 356 21 42 30 20 North America + 1 800 275 3281 South America + 56 2 2616 2000

solutions@golder.com www.golder.com

Golder Associés Ltée 1001 Blvd. de Maisonneuve West, suite 700 Montreal (Québec) H3A 3C8 Canada

T: +1 (514) 383-0990



Appendix 2
Assay road seepage update #4



December 10, 2013

RE: Update # 4 to Meadowbank Spill - Report #13-379 - Assay Lab Road Seep

To: AANDC, KIA, NWB, GN Conservation Officer.

Hello,

Please note this update on the Assay Road Seep which is in addition to the resume titled *Update 3 to Meadowbank Spill Report #13-379* that was submitted on November 19, 2013.

There has been no seepage of water and no further buildup of ice noted from the seep location since November 24, 2013. Based on the ice removal to date it can be confirmed that the initial estimate of 1 L/M is an accurate measure of flow from the seep. The Coordinates for the seep locations are attached in Table 1.

AEM held a meeting to update the Baker Lake hamlet council on November 28, 2013 in Baker Lake.

AEM has contracted EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company (EBA) and requested a proposal which is summarized below. AEM has accepted the proposal and the Phase 1 report is scheduled for completion around mid-January. EBA's scope of work for Phase 1 is as follows:

- 1. Review all relevant information, including the results of all probehole drilling and water chemistry testing results. Prepare recommendations for further drilling, sampling and testing if deemed to be required.
- 2. Review mill and assay building design drawings, of particular interest is the design of the floor, containment areas, sumps and foundations of these buildings. It will be important for us to understand fully where the leaks are happening. It would be preferred if the suspected leak sources could be marked on the mill building drawings before they are sent to us. In addition, any photos showing the identified cracking would be a big help in understanding where the main issues are thought to be.
- **3.** Review of any QA/QC testing information for the foundation preparations and structural backfill placement for the mill and assay buildings. Some of this information may be in EBA's files as we were providing QC testing services to the contractor during construction.
- **4.** Development of a suspected reason for the structural failure of the mill containment areas and sumps that has led to the release of process water into the environment.



5. Preparation of a brief report that discusses the findings of the above review. The report will also include recommendations and a timeline for work that could be carried out in Phase 2.

AEM will wait for recommendations from EBA prior to commencing any further drill programs or containment construction.

AEM also has a team of construction civil engineers and on site staff working on an action plan that will address repairs to containment structures within the mill. Repairs will move ahead after recommendations are received from EBA.

In the interim AEM continues with the short term action plan consisting of daily visual monitoring of the seep area, sampling and removal of accumulated ice if necessary, monthly sampling at an accredited lab (on site testing daily at our own lab) of the raw water from TPI (results negative thus far for parameters of concern - cyanide, copper, iron), monitoring the levels of the 3 monitoring wells located just outside of the mill in the flow path (levels stable since Nov 24) and active pumping of all containment areas (if necessary) within the mill (water pumped back into process). This will minimize and/or eliminate the leakage.

Should you have any questions or concerns please feel free to contact me at (867) 793-4610 ext. 6728 or by email at jeffrey.pratt@agnicoeagle.com.

Sincerely,

**Jeffrey Pratt** 

**Environmental Coordinator** Agnico Eagle Mines Ltd. Meadowbank Division (867) 793-4610 ext. 6728

ieffrev.pratt@agnicoeagle.com

CC: Kevin Buck - AEM Stephane Robert - AEM Marie-Pier Marcil - AEM

Table 1 - Seepage locations

Location Name	Northing	Easting
Assay Road Sample North	637909.6	7213851.9
Assay Road Sample South	637920.1	7213834.3
Assay Road Sample 2nd Berm	637899.4	7213875.9

Tel: 819-825-3744

Tel: 867-793-4610 Fax: 867-793-4611