## 7.0 PHOTOGRAPHS

**Photograph CD-1895: From Sta. 40+670/-15 m, looking E. Compaction of the geosynthetics tie-in material at El. 145 m with a 10-tonne smooth-drum compactor with vibration (4 passes) from Sta. 40+670 m to 0+950 m (approx.).**

# QA DAILY REPORT

**DATE** July 8th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 7TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 8°C, cloudy.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- The fog causes a visibility issue on the roads and on the dikes. Reduce driving speed and keep safety distances between vehicles. Make sure to be visible by the equipment operators.
- The rain is an issue, the muddy and very slippery ground causes a high risk of slips and falls. Extra caution must be applied when walking or driving on wet surfaces.
- It was reminded to wear the proper PPE and to report any incident as soon as possible.
- A blast is planned at 18:30 at Pit E.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The Portable Nuclear Gauge was received on site today. It is locked with chains in a locked container near SANA storage pad.

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- Due to the level of the South Cell supernatant pond, it is impossible to access the upstream side of SD3 from the ground. The erosion protection offers too narrow a platform for the articulated trucks to access the work area. The rockfill layer is being widened before construction works on SD3 can resume.
- The access to SD3 was reworked.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream | ■ Placement of IV rockfill in the water up to El. 142m with an excavator from Sta. 20+785 m to 20+730 m, at the bottom of the upstream slope of SD3 to widen the rockfill layer and allow access to the erosion protection. The material is of good quality and is well graded. |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
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**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
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## 6.0 PHOTOGRAPHS

**Photograph SD3-317: From Sta. 20+800/-22 m, looking E. Reworking of the access to SD3.**


**Photograph SD3-318: From Sta. 20+710/-24 m, looking SE. Placement of IV rockfill in the water up to El. 142m with an excavator from Sta. 20+785 m to 20+730 m, at the bottom of the upstream slope of SD3 to widen the rockfill layer and allow access to the erosion protection.**

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# QA DAILY REPORT

**DATE** July 9th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 8TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 11°C, cloudy.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- A blast is planned at 12:00 at km 24 of Amaruq road.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager reiterated that the maximum particle size acceptable for the fine rockfill of the erosion protection is 500 mm.
- The widening of the rockfill layer at the bottom of the upstream slope of SD3 to allow access to the erosion protection was completed.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream | ■ Placement of IV rockfill in the water up to El. 142m with an excavator from Sta. 20+730 m to 20+610 m, at the bottom of the upstream slope of SD3 to widen the rockfill layer and allow access to the erosion protection. The material is of good quality and is well graded.<br>■ Placement of a 1 m thick (approx.) lift of fine IV rockfill over the compacted till in the upstream slope from El. 142 m to 144 m with an excavator from Sta. 20+600 m to 20+610 m. The material is of good quality and is well graded. |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
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## 6.0 PHOTOGRAPHS

**Photograph SD3-319: From Sta. 20+740/-31 m, looking SE. Placement of IV rockfill in the water up to El. 142m with an excavator from Sta. 20+730 m to 20+610 m, at the bottom of the upstream slope of SD3 to widen the rockfill layer and allow access to the erosion protection.**


**Photograph SD3-320: From Sta. 20+620/-67 m, looking E. Placement of a 1 m thick (approx.) lift of fine IV rockfill over the compacted till in the upstream slope from El. 142 m to 144 m with an excavator from Sta. 20+600 m to 20+610 m.**

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# QA DAILY REPORT

**DATE** July 10th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 9TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 17°C, sunny.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- Yesterday, a pickup passed a haul truck on the west road without calling at the radio. It was reiterated to never pass a haul truck on the west road and, where acceptable, to always call on the radio when passing a vehicle.
- A blast is planned at 12:45 at Vault Pit.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The design change for the erosion protection cover on SD3 required geotextile type Texel 934 or equivalent. The mechanical properties of the only geotextile available on site, TenCate Mirafi S1600, are inferior to those of the Texel 934, thus the is not considered equivalent. The alternative that was accepted by the Designer to protect the LLDPE geomembrane was to replace the layer of Texel 934 by two layers of TenCate Mirafi S1600. It should be noted that the use of two layers of geotextile is not a recommended practice as the two layers may slip on each other.
- The QA Manager observed many particles larger than 300 mm in the low quality till sieved with the bucket of the excavator (0-50 mm) on SD3 at the beginning of the shift. It was reiterated that the sieving operation aims to remove particles of size over 50 mm. The bigger particles were removed with an excavator on SD3.

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SANA foreman transferred the information to the operator of the excavator sieving and loading the till at the E5 stockpile.

- As the excavator as enough waiting time between the loading of each articulate truck and to simplify the placement of the till on the erosion protection cover, the till is installed as a single 0.5 m thick lift of low quality till (0-150 mm) rather than 0.5 m of low quality till (0-50 mm) followed by low quality till (0-300 mm). With the presence of the two layers of geotextile, low quality till (0-150 mm) is acceptable. A close follow up is required by the QA and QC personnel to assure that no oversize particle or any particularly sharp rock is laid against the slope.
- The QA Manager reiterated that articulated trucks and excavator can only circulate above the LLDPE geomembrane if a minimum of 2 m of material covers the LLDPE geomembrane.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Water management | ■ The water ponding at El. 142m on the compacted sieved till layer of the upstream toe liner tie-in at approx. Sta. 20+620 m to 20+630 m was pumped. |
| Upstream | ■ Installation of two layers of geotextile on the upstream slope 3H:1V between El. 142 m and 143 m (approx.) from Sta. 20+610 m to 20+800 m.<br>■ Placement of the first lift of low quality till (0-150 mm) from El. 142 m to 142.5 m from Sta. 20+610 m to 20+715 m. |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

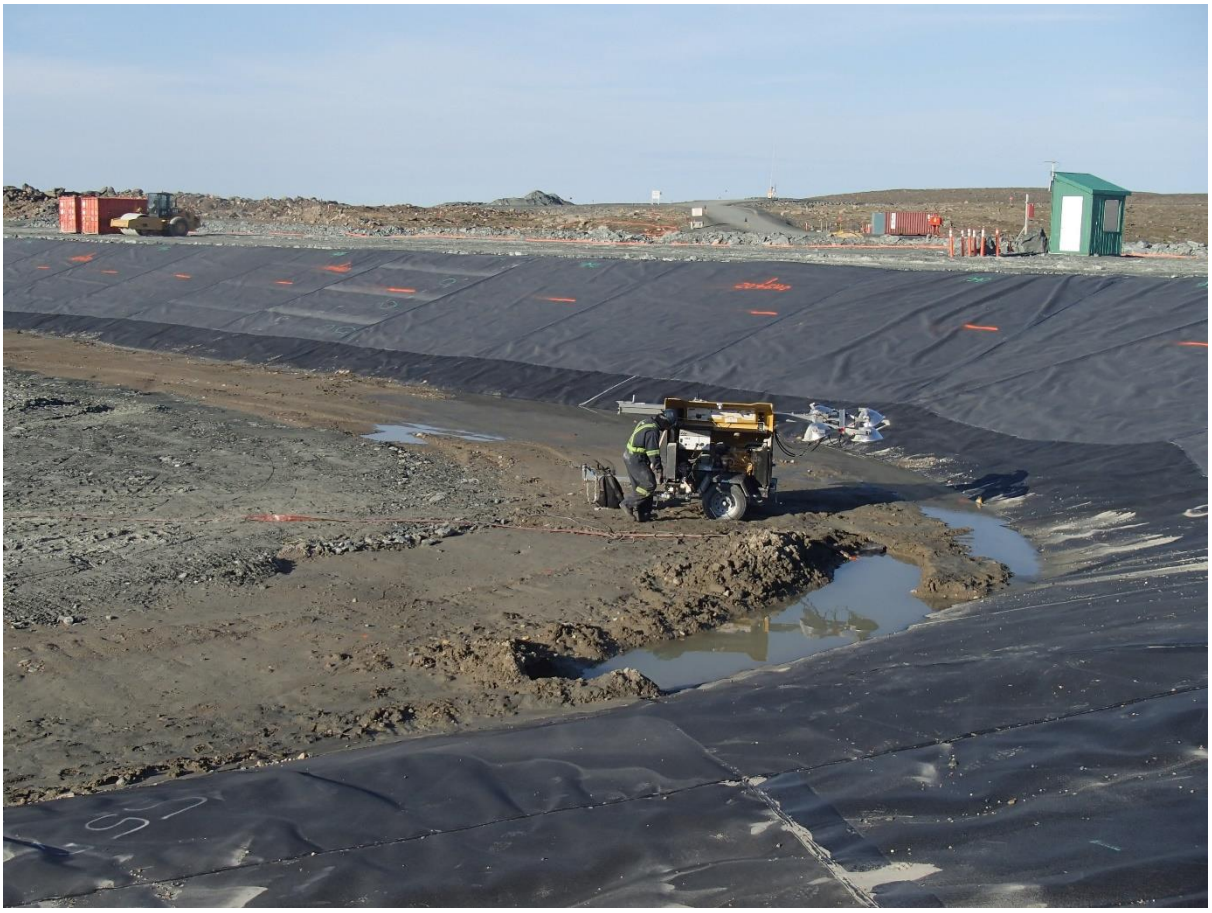
**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## 6.0 PHOTOGRAPHS



**Photograph SD3-321: From Sta. 20+610/-56 m, looking SW. Water ponding at El. 142m on the compacted sieved till layer of the upstream toe liner tie-in at approx. Sta. 20+620 m to 20+630 m was pumped.**

**Photograph SD3-322: From Sta. 20+625/-63 m, looking W. Installation of two layers of geotextile on the upstream slope 3H:1V between El. 142 m and 143 m (approx.) from Sta. 20+610 m to 20+800 m.**

**Photograph SD3-323: From Sta. 20+610/-43m, looking S. Placement of the first lift of low quality till (0-150 mm) from El. 142 m to 142.5 m from Sta. 20+610 m to 20+715 m.**

# QA DAILY REPORT

**DATE** July 11th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 10TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 25°C, sunny.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- A blast is planned at 12:45 at Portage Pit.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- AEM asked if the erosion protection cover could be raised to El. 143.5 m rather than 144 m. As the maximum water level elevation in the deposition plan is of 143 m, the minimum freeboard between the erosion protection cover crest would be 0.5 m. The question was transferred to the Designer.
- The QA Manager asked to pump the water ponding on the LLDPE geomembrane and the first compacted sieved till layer of the upstream toe liner tie-in at approx. Sta. 20+595 m to allow for the till to dry. As no portable nuclear gauge was present on site when the till layer thickness was corrected, compaction test will be required before construction of the upstream toe liner tie-in of the north abutment of Saddle Dam 3.
- The QC personnel measured some water content values with the Portable Nuclear Gauge in the low quality till stockpile at E5 and on the low quality till lift at El. 142.5 m every 20 m from Sta. 20+620 m to 20+740 m after placement on SD3, prior to the compaction. Four values were measured in the stockpile and ranged

from 8.6% to 9.8% with a 9.1% average. Seven values were measured on SD3 and ranged from 5.8% to 9.8% with a 7.7% average. These water contents suggest that adequate compaction can be achieved.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Water management | ■ The water ponding on the LLDPE geomembrane and the first compacted sieved till layer of the upstream toe liner tie-in at approx. Sta. 20+595 m was pumped. |
| Upstream | ■ Placement of a 0.5 m thick lift of low quality till (0-150 mm) from El. 142 m to 142.5 m from Sta. 20+715 m to 20+760 m.<br>■ Placement of a first 0.5 m thick lift of fine rockfill (0-500 mm) upstream of the low quality till from El. 142 m to 142.5 m from Sta. 20+610 m to 20+760 m. |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
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| | | | | | | |

## 6.0 PHOTOGRAPHS


**Photograph SD3-324: From Sta. 20+680/-39m, looking S. Placement of a 0.5 m thick lift of low quality till (0-150 mm) from El. 142 m to 142.5 m from Sta. 20+715 m to 20+760 m.**


**Photograph SD3-325: From Sta. 20+610/-43 m, looking S. Placement of a first 0.5 m thick lift of fine rockfill (0-500 mm) upstream of the low quality till from El. 142 m to 142.5 m from Sta. 20+610 m to 20+760 m.**

# QA DAILY REPORT

**DATE** July 12th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 11TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 25°C, sunny.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- It was reminded to drink a lot of water to keep hydrated despite the heat.
- A blast is planned at 12:45 at Vault Pit.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- During the last construction season, the upstream slope of the compacted sieved till of the toe liner tie-in, at Saddle Dam 3 south abutment, was steepened to 2 Horizontal: 1 Vertical in order to save compacted sieved till quantity. The missing volume was fill with low quality till before placement of the filters and the fine rockfill. The upstream slope of Saddle Dam 3 remains unchanged at 3H: 1V.
- The compactor was sinking in the low quality till at El. 142.5 m from sta. 20+615 m to 20+635 m, when turning to follow the curve of Saddle Dam 3. As the water content measured with the portable nuclear gauge indicated a 6.1% water content, it was assumed that it was the underlying compacted sieved till layer that was too soft. Following discussion with the Designer, it was decided not to excavate the underlying till layer to prevent damaging the LLDPE geomembrane below the compacted sieved till. The surface of the low quality till at El. 142.5 m was corrected with the excavator and was then compacted with a with a 10-tonne

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smooth-drum compactor without vibration. The compaction was carried out perpendicularly to the longitudinal axe of Saddle Dam 3 to avoid the necessity to turn on the low quality till for the compactor.

- The IV rockfill stockpile north of Central Dike is almost empty. SANA foreman asked AEM to fill a new stockpile closer to Saddle Dam 3 to complete the construction of the fine rockfill layer of the erosion protection cover. SANA surveyor will estimate the missing quantities to help AEM for the provision of the rockfill.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream erosion protection cover | ■ Compaction of the 0.5 m lift of low quality till (0-150 mm) at El. 142.5 m with a 10-tonne smooth-drum compactor with vibration (4 passes) from Sta. 20+610 m to 20+615 m and from Sta. 20+635 m to 20+760 m.<br>■ Compaction perpendicularly to the longitudinal axe of Saddle Dam 3 of the 0.5 m lift of low quality till (0-150 mm) at El. 142.5 m with a 10-tonne smooth-drum compactor without vibration (4 passes) from Sta. 20+615m to 20+635 m.<br>■ Compaction of the 0.5 m lift of fine rockfill at El. 142.5 m with a 10-tonne smooth-drum compactor without vibration (4 passes) from Sta. 20+600m to 20+760 m.<br>■ Placement of a 0.5 m thick lift of low quality till (0-150 mm) from El. 142.5 m to 143 m from Sta. 20+610 m to 20+760 m. |
| Upstream toe liner tie-in – south abutment | ■ Placement of a first 0.5 m thick lift of 0-150 mm till along the existing compacted sieved till layer of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of the 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). |

| Activity or Area | Comments |
|---|---|
| | ■ Placement of the 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of the 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## 6.0 PHOTOGRAPHS


**Photograph SD3-326: From Sta. 20+820/-34 m, looking N. Placement of the 0.5 m thick lift of low class till, fine filter, coarse filter and fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+780 to 20+810 m.**

**Photograph SD3-327: From Sta. 20+610/-43 m, looking S. Compaction of the 0.5 m lift of low quality till (0-150 mm) at El. 142.5 m with a 10-tonne smooth-drum compactor with vibration (4 passes) from Sta. 20+610 m to 20+615 m and from Sta. 20+635 m to 20+760 m.**

**Photograph SD3-328: From Sta. 20+610/-43 m, looking S. Compaction perpendicularly to the longitudinal axe of Saddle Dam 3 of the 0.5 m lift of low quality till (0-150 mm) at El. 142.5 m with a 10-tonne smooth-drum compactor without vibration (4 passes) from Sta. 20+615m to 20+635 m.**

**Photograph SD3-329: From Sta. 20+610/-43 m, looking S. Placement of a 0.5 m thick lift of low quality till (0-150 mm) from El. 142.5 m to 143 m from Sta. 20+610 m to 20+760 m.**

# QA DAILY REPORT

**DATE** July 13th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 12TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 24°C, sunny.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.
- Coactivity with the plane on the Saddle road: the arrival of the plane will now be announced on the MBDyke radio channel for the truck to stop to prevent generation of dust on the airfield.
- It was reminded to drink a lot of water to keep hydrated despite the heat.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The IV rockfill stockpile north of Central Dike was emptied. The Pit B ultramafic (UM) rockfill stockpile is now being used for the fine rockfill layer of the erosion protection cover on SD3.
- Portable nuclear gauge compaction tests were completed on the compacted sieved till below the LLDPE geomembrane in the north abutment of SD3 around Sta. 20+595 m, El. 143.3 m, installed on June 8th, when no PNG was available on site.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream erosion protection cover | ■ Placement of a second 0.5 m thick lift of fine rockfill (0-500 mm) upstream of the low quality till (0-150mm) from El. 142.5 m to 143 m from Sta. 20+610 m to 20+760 m.<br>■ Compaction of the 0.5 m lift of low quality till (0-150 mm) at El. 143 m with a 10-tonne smooth-drum compactor with vibration (4 passes) from Sta. 20+610 m to 20+615 m and from Sta. 20+635 m to 20+760 m.<br>■ Compaction perpendicularly to the longitudinal axe of Saddle Dam 3 of the 0.5 m lift of low quality till (0-150 mm) at El. 143 m with a 10-tonne smooth-drum compactor without vibration (4 passes) from Sta. 20+615m to 20+635 m.<br>■ Compaction of the 0.5 m lift of fine rockfill at El. 143 m with a 10-tonne smooth-drum compactor without vibration (4 passes) from Sta. 20+610 m to 20+760 m. |
| Upstream toe liner tie-in – south abutment | ■ Placement of a first 0.5 m thick lift of compacted sieved till over the LLDPE geomembrane on the upstream toe liner tie-in with an excavator from Sta. 20+775 m to 20+800 m.<br>■ Placement of a second 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m.<br>■ Placement of a second 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 to 20+800 m. |

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| #44 (PNG) | 2018-07-12 | 2018-07-12 | Compacted sieved till | SD3 (in place) 20+599.7/-48.3 m El. 143.3m | Dry density | 2181 |
| | | | | | Water content (PNG) | 8.5% |
| #45 (PNG) | 2018-07-12 | 2018-07-12 | Compacted sieved till | SD3 (in place) 20+599.0/-47.3 m El. 143.3m | Dry density | 2226 |
| | | | | | Water content (PNG) | 9.4% |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## 6.0 PHOTOGRAPHS

**Photograph SD3-330: From Sta. 20+610/-43 m, looking S. Placement of a second 0.5 m thick lift of fine rockfill (0-500 mm) upstream of the low quality till (0-150mm) from El. 142.5 m to 143 m from Sta. 20+610 m to 20+760 m.**

**Photograph SD3-331: From Sta. 20+610/-43 m, looking S. Compaction of the 0.5 m lift of low quality till (0-150 mm) at El. 143 m with a 10-tonne smooth-drum compactor with vibration (4 passes) from Sta. 20+610 m to 20+760 m.**


**Photograph SD3-332: From Sta. 20+775/-23 m, looking SE. Placement of a first 0.5 m thick lift of compacted sieved till over the LLDPE geomembrane on the upstream toe liner tie-in with an excavator from Sta. 20+775 m to 20+800 m.**

# QA DAILY REPORT

**DATE** July 14th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 13TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 12°C, cloudy and windy.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The compaction tests for PNG number 44 to 47 were based on the Central Dike reference board of 2017, as no reference board had been completed yet this year.
- The QC Personnel completed a reference board on the second lift of compacted sieved till in the south abutment upstream toe liner tie-in at Saddle Dam 3. The second lift was thus compacted with 8 passes of a 10 tonne smooth-drum compactor with vibrations. The optimum compaction would have been reach with 4 passes.
- Following discussions with AEM, the depressions in the surface between SD2 and SD3 will be filled with low quality till up to El. 145 m to limit water pounding and runoff in this area during freshet.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream toe liner tie-in – south abutment | ■ Placement of a second 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 m to 20+800 m.<br>■ Compaction of the first 0.5 m thick lift of compacted sieved till of the upstream toe liner tie-in with a 10-tonne smooth-drum compactor with vibration from Sta. 20+775 m to 20+800 m, only where no LLDPE geomembrane lies underneath the layer. The material was tested with PNG.<br>■ Compaction of the second 0.5 m thick lift of fine filter, coarse filter and fine rockfill on the upstream toe liner tie-in with a 10 tonne smooth-drum compactor with vibrations (4 passes) from Sta. 20+775 m to 20+800 m.<br>■ Placement of a second 0.5 m thick lift of compacted sieved till on the upstream toe liner tie-in with an excavator from Sta. 20+770 m to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (8 passes) only where the LLDPE geomembrane lies at least 0.5 m underneath the layer. The material was tested with PNG.<br>■ Placement of a third 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of a third 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of a third 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The |

| Activity or Area | Comments |
|---|---|
| | lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of a third 0.5 m thick lift of compacted sieved till on the upstream toe liner tie-in with an excavator from Sta. 20+790 m to 20+810 m. The lift is not completed and was not compacted yet. |

Note : The elevation of the second lift of fine and coarse filters and fine rockfill corresponds to the elevation of the first lift of sieved till, as the first lift of filters and rockfill were placed along the existing compacted sieved till layer of the upstream toe liner tie-in.

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| #46 (PNG) | 2018-07-13 | 2018-07-13 | Compacted sieved till | SD3 (in place) 20+791.5/-35.8 m El. 143.7 m | Dry density | 2228 |
| | | | | | Water content (PNG) | 5.9% |
| #47 (PNG) | 2018-07-13 | 2018-07-13 | Compacted sieved till | SD3 (in place) 20+782.6/-37.6 m El. 143.3m | Dry density | 2195 |
| | | | | | Water content (PNG) | 6.2% |
| #48 (PNG) | 2018-07-13 | 2018-07-13 | Compacted sieved till | SD3 (in place) 20+785.4/-33.3 m El. 143.9 m | Dry density | 2154 |
| | | | | | Water content (PNG) | 8.5% |
| #49 (PNG) | 2018-07-13 | 2018-07-13 | Compacted sieved till | SD3 (in place) 20+788.8/-32.9 m El. 144.1 m | Dry density | 2133 |
| | | | | | Water content (PNG) | 9.4% |
| #50 (PNG) | 2018-07-13 | 2018-07-13 | Compacted sieved till | SD3 (in place) 20+792.2/-33.1 m El. 144.3 m | Dry density | 2129 |
| | | | | | Water content (PNG) | 5.9% |

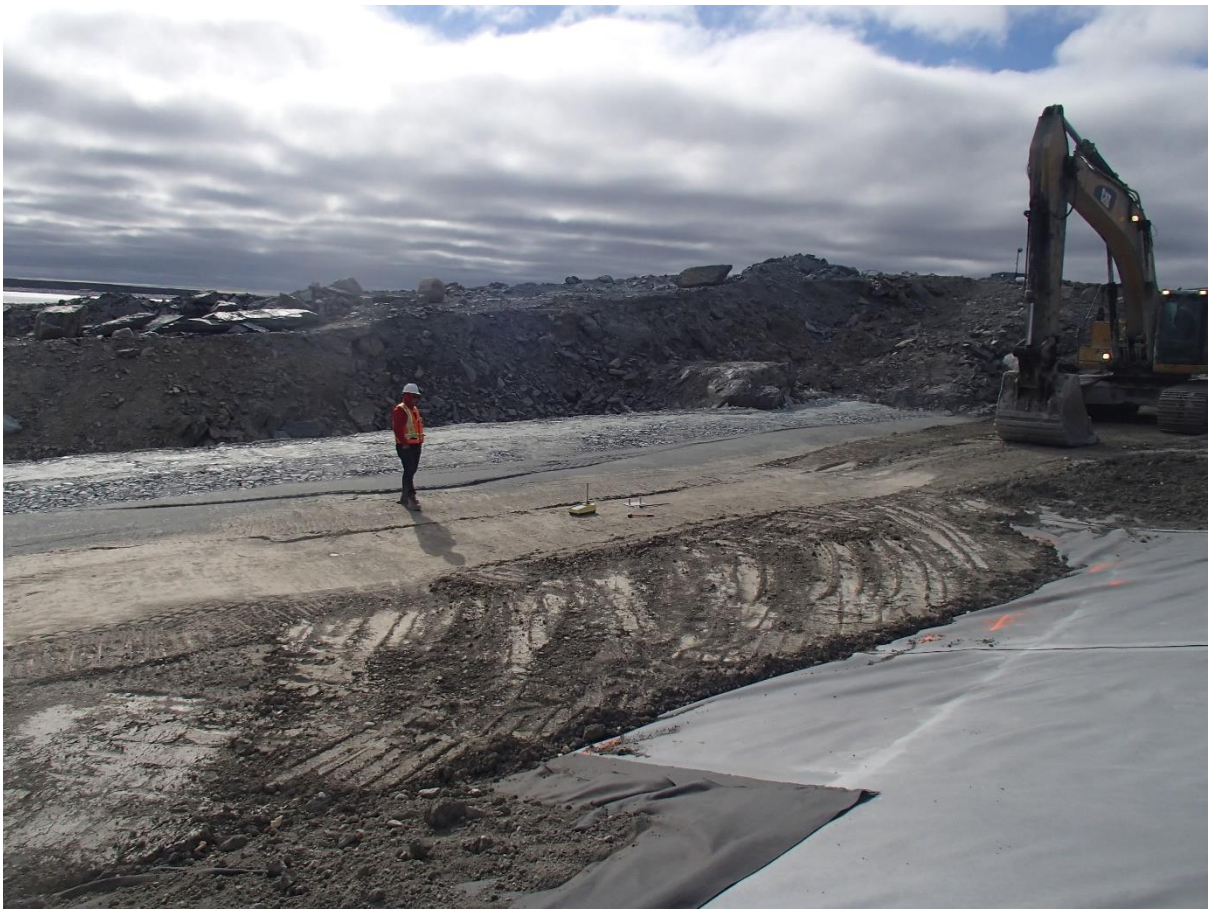
Note: The compaction tests for PNG number 46 and 47 were compared to the CD reference board of 2017, while number 48 to 50 were compared to the SD3 reference board of 2018.

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## 6.0 PHOTOGRAPHS

**Photograph SD3-333: From Sta. 20+817/-29 m, looking N. Placement of a second 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+775 m to 20+800 m.**



**Photograph SD3-334: From Sta. 20+780/-26 m, looking SE. Compaction of the second 0.5 m thick lift of compacted sieved till and third lift of fine filter, coarse filter and fine rockfill of the upstream toe liner tie-in with a 10 tonne smooth-drum compactor with vibrations from Sta. 20+770 m to 20+800 m.**

# QA DAILY REPORT

**DATE** July 15th 2018 1897439-1576-TM-Rev0

**TO** Patrice Gagnon, Pier-Éric McDonald
Agnico Eagle Mines Ltd, Meadowbank Division

**CC** Frédérick Bolduc, Alexandre Lavallée

**FROM** Samuel Barbeau **EMAIL sbarbeau@golder.com**

**QA DAILY REPORT FOR JULY 14TH, 2018 – TSF SOUTH CELL CONSTRUCTION - MEADOWBANK (1897439)**

## 1.0 WEATHER

Temperature around 15°C, sunny and windy.

## 2.0 HEALTH AND SAFETY

- Dust is still an issue on the construction field; be vigilant by staying out of the dust cloud near construction activities and road circulation. Wear a mask in the lab.
- Coactivity on the dike: be aware of blind spots and safe spots, keep good communication and visual contact with the operators.

## 3.0 DISCUSSION AND DAILY CONSTRUCTION MEETING

During the daily construction meeting and during the day the following discussions were held:

- The QA Manager reiterated that the surface of the final lift will need to be profile with a slight slope towards the interior of the cell.

## 4.0 DESCRIPTION OF CONSTRUCTION WORK PERFORMED AND QA OBSERVATIONS

The QA activities by Golder are based on periodic inspections performed by the QA Engineer in order to monitor the construction activities and progress of the structure of the South Cell of the TSF. This report must be read in conjunction with the QC Report. The following tables summarize the progress and observations made for each structure.

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**Table 1: QA Observations for Saddle Dam 3**

| Activity or Area | Comments |
|---|---|
| Upstream | ■ Installation of two layers of geotextile on the upstream slope 3H:1V between El. 143 m and 144 m (approx.) from Sta. 20+610 m to 20+780 m. |
| Upstream toe liner tie-in – north abutment | ■ Placement of a first 0.5 m thick lift of compacted sieved till over the LLDPE geomembrane on the upstream toe liner tie-in with an excavator from Sta. 20+588 m to 20+599 m. The lift was not compacted yet as it was too humid. |
| Upstream toe liner tie-in – south abutment | ■ Placement of a third 0.5 m thick lift of compacted sieved till on the upstream toe liner tie-in with an excavator from Sta. 20+760 m to 20+810 m. The lift was not compacted yet as it was too humid.<br>■ Placement of a fourth 0.5 m thick lift of fine filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of a fourth 0.5 m thick lift of coarse filter on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes).<br>■ Placement of a fourth 0.5 m thick lift of fine rockfill on the upstream slope of the upstream toe liner tie-in with an excavator from Sta. 20+770 to 20+800 m. The lift was compacted with a 10 tonne smooth-drum compactor with vibrations (4 passes). |

Note : The elevation of the fourth lift of fine and coarse filters and fine rockfill corresponds to the elevation of the third lift of sieved till, as the first lift of filters and rockfill were placed along the existing compacted sieved till layer of the upstream toe liner tie-in.

## 5.0 SAMPLING, LABORATORY AND FIELD TESTING

Table 2 and Table 3 present the samples collected or tested by the QA and QC as well as PNG field results.

**Table 2: Samples taken by the QC**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

**Table 3: Samples taken by the QA**

| Sample ID | Date Sampled | Date Tested | Fill Material Type | Location (Station/Offset Elevation) | Test | Testing Result |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## 6.0 PHOTOGRAPHS

**Photograph SD3-335: From Sta. 20+815/-27 m, looking N. Placement of a third 0.5 m thick lift of compacted sieved till on the upstream toe liner tie-in with an excavator from Sta. 20+760 m to 20+810 m.**