AGNICO EAGLE

MELIADINE GOLD PROJECT

FRESHET ACTION PLAN

MARCH 2019
VERSION 5

DOCUMENT CONTROL

Revision				Pages Revised	Remarks
#	Prepared by	Revised	Date		
01	AGNICO EAGLE	Internally	March 2016	All	
02	AGNICO EAGLE	Internally	March 2017	All	
03	AGNICO EAGLE	Internally	March 2018	All	
04	AGINICO EAGLE	Internally	December 2018	All	
05	AGNICO EAGLE	Internally	March 2019	All 2 3 5-6 9-10 13 Figure 1 Figure 2 Appendix A	Update to reflect transitional changes to Operations phase Include DCP-1 and DCP-5 in areas of risk during Freshet Update section 2.1.2/2.1.3 noting 5 evaporators and discuss SP3 Update Section 2.8, discuss time of pond construction. Update Section 3.1, discussion of SP3 and update on inspections. Update Section 3.6., 3.7, 4 to reflect changes in freshet management. Updated to include structure names Updated to include SP3 Update to include emulsion pad to inspection list

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1 INTRODUCTION

The purpose of this Freshet Action Plan (Plan) is to provide Agnico Eagle with specific management and mitigation measures to address and manage water associated with the freshet season (Freshet), a response plan and procedures to prevent and to minimize potential negative impacts to the surrounding environment at the Meliadine Site (Site).

The term freshet refers to spring thaw, which can result in inundation of floodplains. Freshet at Meliadine typically takes place between May 15 and July 30. In some years, Freshet can also happen in early fall, when freezing re-occurs (mid-October) and then thaws. There are areas at the Site that are vulnerable to excess water produced during Freshet; the objective of this document is to identify those areas, and to develop a plan with defined roles and responsibilities to manage excess water produced on site.

The following guiding principles are applicable to the Plan:

- To ensure that mine contact water from runoff or seepage is managed to prevent adverse environmental impacts;
- To ensure the health and safety of Agnico Eagle employees and contractors; and
- To ensure the Site is in compliance with the Nunavut Water Board (NWB) Type A Water Licence No.: 2AM-MEL1631 (Type A Licence).

The Plan identifies areas of risk during Freshet, risk management and the procedures necessary to address potential concerns.

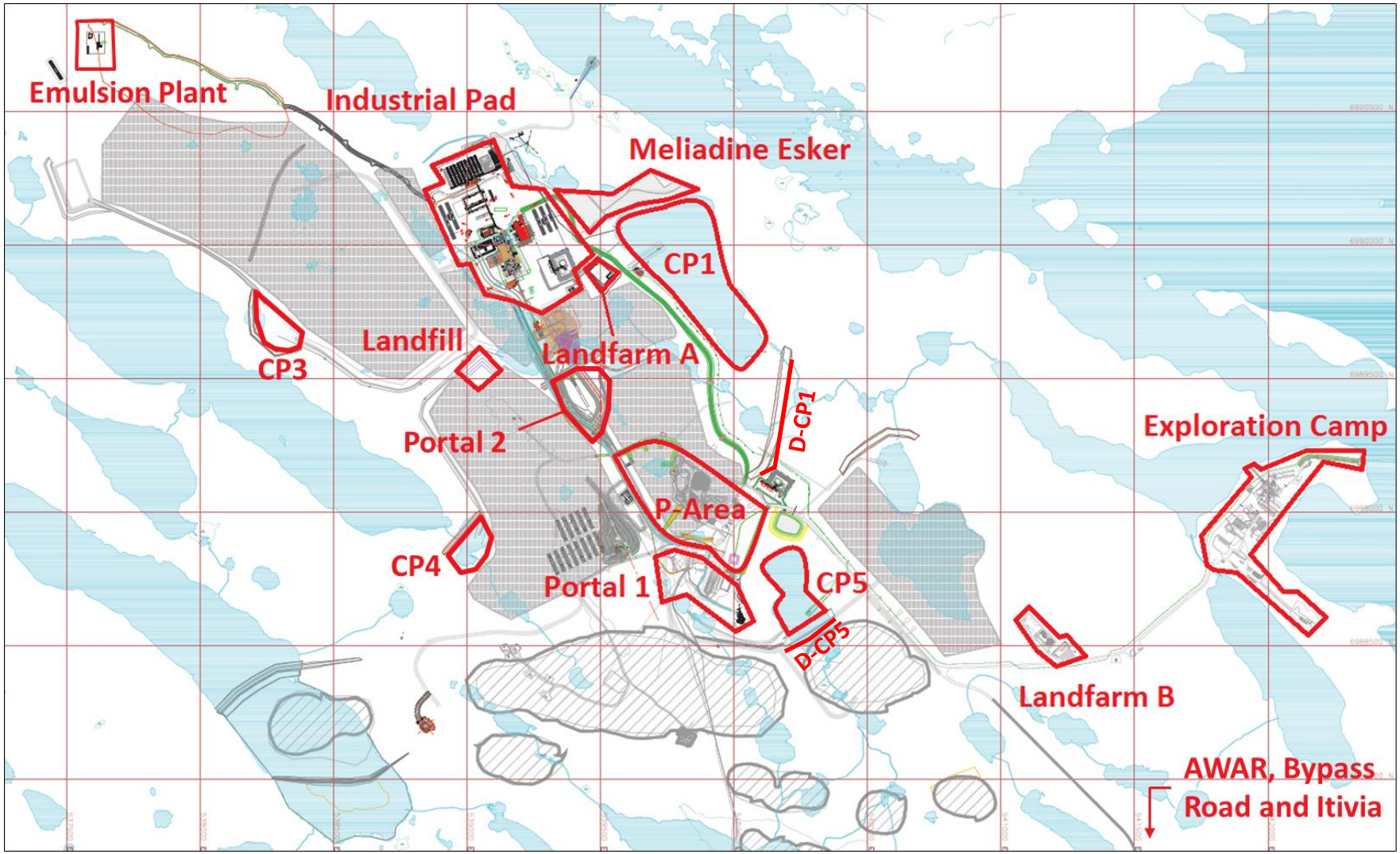
2 AREAS OF RISK DURING FRESHET

The key areas of risk during Freshet at the Site include the following:

- P-Area
- Portal 1 Sump 1 (Sump LV50)
- Portal 2 Sump 1 (Sump LV50)
- New (Type A) and old (Type B) Landfarms
- Landfill
- All Weather Access Road (AWAR) and Quarries along the road
- Infrastructure Areas; including the Exploration Camp area, Portal 1 & 2 and the Industrial Pad Areas
- Containment Pond 1 (CP1), Containment Pond 3 (CP3), Containment Pond 4 (CP4), and Containment Pond 5 (CP5)
- D-CP1 and D-CP5
- Meliadine Esker Quarry
- Bypass Road
- Itivia laydown and fuel handling facility (Itivia)

Identified areas of risk at Site are shown in Figure 1, and are described in the following section.

Figure 1: Site Plan View with Areas of Risk at Site during Freshet



2.1 P-AREA

The P-Area is the initial containment area identified for precipitation events; snow melt or Freshet water that has come in contact with mine waste rock or surface works in the area of the Underground Portals (contact water).

The P-Area includes three containment areas (Figure 2); P1 Containment Area (P1), P2 Containment Area (P2), and P3 Containment Area (P3) and has a cumulative capacity of 46,041 m^3. Periodic pumping to P1, from P2 and P3, is planned to manage water levels and to assist with active evaporation at P1.

2.1.2 P1

P1 is the largest containment of the three ponds that make up the P-Area (20,781 m^3). Precipitation, water drainage from the adjacent waste rock pile, and any water pumped from P2 or P3 will also be contained within P1. Five evaporators are installed at P1 to assist with active evaporation of water contained at P1 during the open water season at Site.

2.1.3 P2

P2 is directly adjacent and down-gradient to P1. P2 allows for additional contact water, precipitation and waste rock drainage water management with a capacity of 6,828 m^3. Additionally, P2 is the main containment area for water pumped to surface from underground Sump 1 (LV50). LV50 is the receptor of surface water that flows from the surface to Portal 1. Water from P2 is pumped to P1 to be actively evaporated.

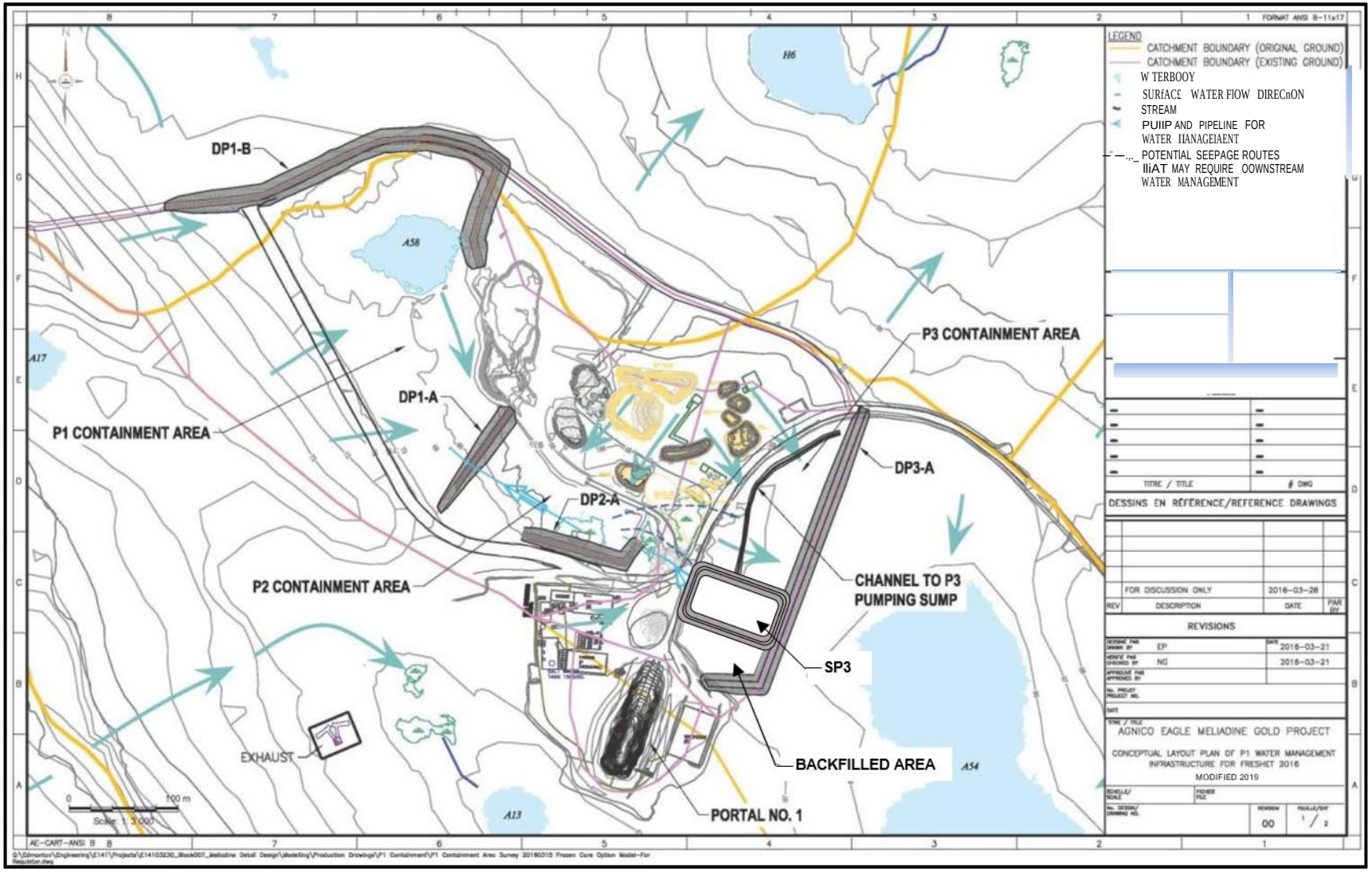
2.1.3 P3

P3 is down-gradient to P1 and P2. P3 contains surface runoff from the surrounding portal entrance surface area, precipitation, and inflow water from Waste Rock Storage Facility 2 (WRSF2) and temporary ore piles to the north-northwest of P3. Snow removed from the selected areas at the Site throughout winter months, will be directed to P3. Water from P3 is pumped to P1 to be actively evaporated.

2.1.4 SALINE POND 3

Saline Pond 3 (SP3) will be constructed within the containment area of P3 and will have a minimum storage capacity of 5000 m^3. The design of the containment structure will use an elevated dike approximately 2 m higher than the adjacent road surface. As such, runoff water in this area should not flow into SP3, but is expected to be contained by the remaining containment area of P3.

Figure 2: P-Area Plan View



2.3 PORTAL 1 SUMP 1 (LV50 SUMP)

LV50 is located 50 meters below grade (mbg) and is the first sump, closest to the entrance of Portal 1. Snowmelt and surface run-off that flows to the portal entrance (the lowest elevation at the Site), down the underground haulage ramp to sump LV50, is pumped from LV50 to the P-Area. The overall capacity for Portal 1 Sump 1 is 29 m^3. Water pumped from Portal 1 Sump 1 to P2 is measured with a volumetric flow meter and recorded daily.

2.4 PORTAL 2 SUMP 1 (LV50 SUMP)

LV50 is located 50 meters below grade (mbg) and is the first sump, closest to the entrance of Portal 2. Snowmelt and surface run-off that flows to the portal entrance, down the underground haulage ramp to sump LV50 is pumped from LV50 to Channel 1. The overall capacity for Portal 2 Sump 1 is 55 m^3. Water pumped from Portal 2 Sump 1 to Channel 1 is measured with a volumetric flow meter and recorded daily.

2.5 LANDFARM

The Type A Licence Landfarm is located adjacent and east of the Industrial Site Pad and is designed to receive soils, rock, snow, and ice contaminated with petroleum hydrocarbons. This will include light hydrocarbons such as diesel and gasoline (Agnico Eagle 2016). It was assumed that an annual volume of 500 m^3 of contaminated ice and snow would require management and the landfarm has been designed to account for this volume.

The Landfarm has geotextile liners and is filled with soil. Water that pools, collects or flows from the Landfarm needs to be collected for monitoring and treated before it is discharged to CP1.

2.6 ALL WEATHER ACCESS ROAD (AWAR)

The All-Weather Access Road (AWAR) was built in 2013 to connect the Site to the hamlet of Rankin Inlet. The road is approximately 23.8 km long with twenty-two water crossings; three bridge crossings and nineteen culverts installed (Figure 3).

2.7 INFRASTRUCTURE AREAS

Infrastructure Areas represent buildings, pads and towers installed at the Site and include the Industrial Pad, Exploration Camp, and Emulsion Plant (Figure 1).

2.8 CP1, CP3, CP4 AND CP5

Engineered water containment dikes constructed in 2017 at lakes A54 and H17 were developed as CP5 and CP1, respectively. The dikes are designed to contain contact water within the footprint of the Site and prevent pollution provisions of the *Fisheries Act*. Both CP1 and CP5 will be used for Site contact water and snow and ice collection prior to Freshet. CP1 and CP5 are illustrated in Figure 1 and discussed in Section 4 of this report.

CP3 and CP4 are containment ponds designed to collected runoff from the Tailings Storage Facility (TSF) area and Waste Rock Storage Facility 1 (WRSF1) area, respectively. CP3 construction was completed in Q4 of 2018 and CP4 construction is scheduled to be complete prior to freshet 2019. CP3 and CP4 design plans implement engineered thermal protection berms. Maximum operating levels within CP3 and CP4 are such that D-CP3 and D-CP4 will not be required to retain water (see Water Management Plan).

2.9 BYPASS ROAD

The Bypass Road is a 5.9 km access road that provides a means to divert site-related traffic around the community of Rankin Inlet. The Bypass Road spans from the northwest margin of Itivia to km 2.9 on the AWAR (Figure 4).

2.9 ITIVIA

Itivia is located in Rankin Inlet and is accessed by Site from the AWAR and Bypass Road. In combination with the Bypass Road, Itivia is intended to support the Site to divert site-related traffic around the community of Rankin Inlet. Itivia is also used for fuel storage and as a laydown area for barge shipments. The location of Itivia is shown on Figure 3 and the plan view of the Itivia Site is presented as Figure 5. A culvert is installed to divert runoff around the Itivia Site and to allow passage of run-off from the Itivia laydown area (Figure 5).

Figure 3: AWAR Map Showing Water Crossing Location

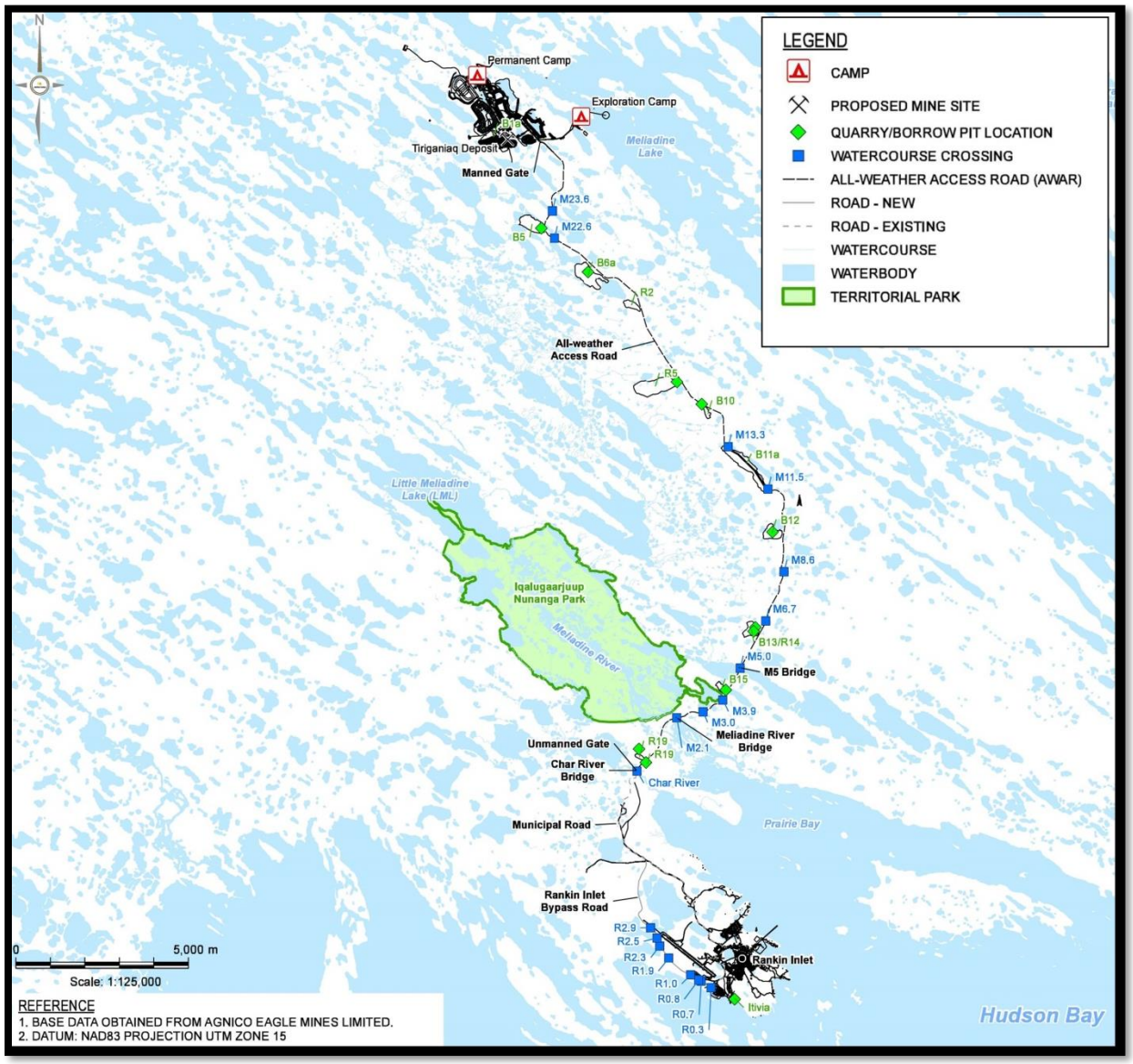
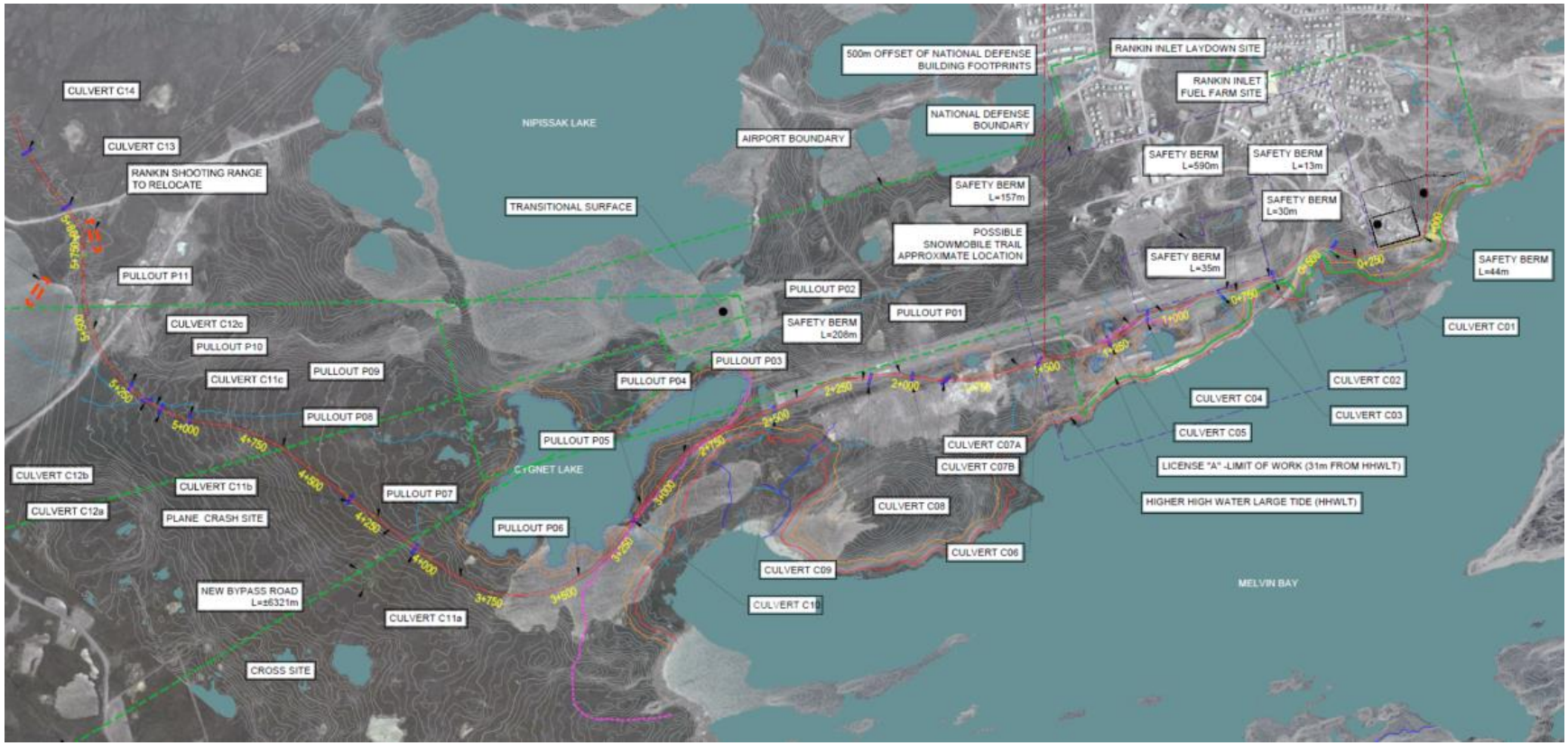


Figure 4: Bypass Road and Culvert Locations



3 FRESHET RISK MANAGEMENT

Managing the risks prior to Freshet is a primary objective at Site. Planning and preparing before Freshet alleviates some of the risk from excess water that may suddenly occur, and ensures compliance with applicable regulations. This is managed by removing water (pumping) at containment pond areas prior to winter freeze (fall) to allow for increased capacity from precipitation, snow and ice removal on roads, road water crossings, culverts, ditches, and select containment ponds after winter freeze and before Freshet (winter and spring).

Risk management for the Site areas during Freshet are described below and Appendix A presents the Freshet Action Plan Procedure for preparation prior to, during and after Freshet. Section 4 describes snow management at Site and Appendix B presents the Snow Management procedure.

3.1 P-AREA RISK MANAGEMENT

The following management practices are maintained at the P-Area during Freshet and are described in more detail in Appendix A:

- Water levels will be monitored. The water level will not exceed the maximum design elevation in any of the three containment ponds (P1, P2 or P3). P3 water levels will be kept as minimal as possible to keep water from affecting the base of Saline Pond 3 (SP3), which will be constructed in the southwest portion of P3 prior to freshet 2019 (see Water Management Plan for details).
- Agnico Eagle will conduct daily visual inspections of the P-Area. These will include visually monitoring the base of the downstream side of dikes DP1-B and DP3-A (see Figure 2) for seepage, sedimentation deposition, and erosion. If seepage or water with increased total suspended solids (TSS) is noted during inspections, water will be sampled, contained, and pumped back to the P-Area. These volumes pumped will be recorded and documented.
- Agnico Eagle will conduct weekly structural inspections of the dikes and note observed seepage. Inspections will also include monitoring the base of SP3 for settling, slumping and cracking.
- Weekly thermistor readings within P-Area berms will be taken and assessed by Engineering to monitor the potential for seepage through the containment berms.
- Active evaporation from use of the evaporators will contribute to managing the quantity of water contained at P-Area.
- Weekly water sampling during Freshet.

If an emergency occurs, such as the dikes/berms indicating compromised integrity, Agnico Eagle will discharge the water to CP5.

If CP5 does not have the capacity for water from the P-Area, water will be diverted to Saline Pond 1 (SP1) or to the Underground Water Stope for storage until a system for suitable water treatment to meet the Type A Licence and/or MMER discharge criteria. Water may also be diverted to Saline Pond 2 (SP2), pending the commissioning of the facility.

3.2 PORTAL 1 SUMP 1 RISK MANAGEMENT

If the P-Area becomes filled to capacity and LV50 sump needs to be pumped, the water from LV50 will flow down gradient to the Underground Water Stope.

3.3 LANDFARM RISK MANAGEMENT

If there is any excess water collected at the Landfarm during freshet and treatment is not immediately possible, the excess volume will be transferred to the contaminated snow cell located in the Northeast extent of P1. If the snow cell is at capacity and the Landfarm contains excess water, the water will be sampled and, pending acceptable results, the water will be moved to CP1. If results do not allow transfer to CP1, water will be stored in totes until treatment is possible.

In the event that the water sample results do not allow transfer to CP1, potential treatment methods are as follows:

- Oil/water Separator
- CI Agent E-VAC Waste Water Filter System
- Carbon Filter System

If a suitable treatment cannot be completed, the water will be shipped south in totes or bladders for disposal in a certified disposal facility.

3.4 AWAR, BYPASS ROAD AND CP3/CP4 ACCESS ROAD RISK MANAGEMENT

The following management practices are maintained to ensure the integrity of the AWAR, Bypass Road and CP3/CP4 access roads before and during the Freshet and are described in further detail in Appendix A:

- Large culverts will be heated/steamed as necessary to allow the free flow of Freshet water.
- Prior to Freshet, water crossings and culverts will have snow removed from ice surface on the up and downstream side of the crossing to allow free flow of water.
- Visual inspections of AWAR will be undertaken as to the structural integrity of the abutments and road integrity by the E&I Supervisor.
- Weekly (minimum) written inspections throughout freshet and daily during excessive rainfall response including TSS transport, culvert/crossing function, flow rates, and integrity of roads will be completed by the Environment Department in conjunction with the E&I Department.

If soil erosion or ground surface scouring are observed, the E&I Department will be notified for repairs. TSS barriers, silt fences, straw logs or other sediment control methods will be implemented as required.

3.5 INFRASTRUCTURE AREAS

Risk management practices for the main Infrastructure Areas at the Site during Freshet are described in the following sections.

3.5.1 CAMP PADS AND SURROUNDINGS

Risk management practices are maintained at the Exploration Camp, Main Camp and surrounding camp areas as follows:

- Clearing off ice and debris from culverts prior to and during freshet;
- Daily visual inspections for excessive water pooling. If pooled water is observed to flow into a water body, a water sample will be collected and monitored for TSS. Follow-up samples will be collected on a weekly basis thereafter;
- Daily visual inspections for snowmelt runoff. If runoff is observed to flow into a water body, a water sample will be collected and monitored for TSS. Follow-up samples will be collected on a weekly basis thereafter;
- Daily visual inspections to ensure flow through culverts and along channels is not impeded; and

- TSS transport will also be monitored at the culvert beside the garage that flows straight to Meliadine Lake. This area will be monitored for TSS, and preventative measures (install straw wattles and/or booms) will be installed to prevent deleterious substances from entering Meliadine Lake.

3.5.2 INDUSTRIAL PAD AND ACCESS ROAD

The following management practices are maintained to ensure the integrity of the industrial pad and access road:

- This area will be monitored for turbidly and preventative measures (install straw wattles and/or booms) will be implemented to prevent deleterious substances from entering Meliadine Lake.

3.6 CP1, CP3, CP4, CP5, AND QUARRIES

Risk management practices for CP1, CP3, CP4, CP5, the Meliadine Esker and Quarries include discharging/pumping the water prior to winter freeze to be treated and/or discharged as per the Type A Water Licence and the Water Management Plan. If water is observed to be flowing or ponding, it will be sampled to ensure deleterious substances and TSS is not released to surrounding water bodies (Part I, Item 11 of the Type A Water Licence). Inspections of CP1, CP3, CP4 and CP5, and associated water management structures or thermal protection berms, will be conducted following Part E Item 15 of the Type A Water Licence and Section 3.12 of the Water Management Plan.

The south side of D-CP5 acts as a natural sump due to it formerly being part of Lake A54, and has the potential to impound water against the rear-side of D-CP5. To mitigate potential impact of any impounded water against the dike, snow will be removed from the downstream slope/toe of D-CP5. Daily inspections will be performed at this location and pumping rates will be maintained to ensure potential impacts are mitigated.

Culvert 3, which is designed to connect flow from Channel 1 to CP1, is prone to blockage due to its elevation relative to CP1 and due to drifting of snow along the roadside. Culvert 3 will be cleared mechanically and/or thermally prior to freshet to ensure flow from Channel 1 to CP1. Culvert 3 will be monitored daily during freshet to ensure flow passage is maintained.

3.7 ITIVIA

The following management practices are maintained to ensure the integrity of Itivia and the Bypass Road:

- The culvert installed between the Itivia laydown and the existing laydown areas (Figure 4) will be cleared of snow and ice prior to freshet and will be monitored closely for TSS transport;
- Rip rap was installed around the culvert to control erosion and a decantation sump will be maintained downstream to collect suspended sediment;
- The upstream and downstream extents of the culvert area will be monitored for turbidity and preventative measures (install straw wattles and/or booms) will be implemented to prevent deleterious substances from entering Hudson's Bay; and
- Weekly water sampling at locations of runoff.

4 SNOW MANAGEMENT

Proper snow management during the winter contributes to risk mitigation from excess water during Freshet and prevents possible environmental impacts. *The Snow Management Procedure* (Procedure Number MEL-ENV-0017) (Appendix B) presents the plan to efficiently manage snow at the Site.

Snow that is collected and moved from the fuel farm, landfarm, the area surrounding the Portal 1 and Portal 2 entrances, waste rock piles and surrounding P-Area will be moved and collected at P3. During construction of SP3, snow and ice within the southwest portion of P3 will be moved to P2. Snow and ice from the other areas at the Site are removed from roadways with a snow blower or plow and /or collected and transported to the CP1 or CP5. Figure 6 illustrates the locations for snow collection during the winter and prior to Freshet. Figure 7 illustrates the snow management and storage areas for Itivia.

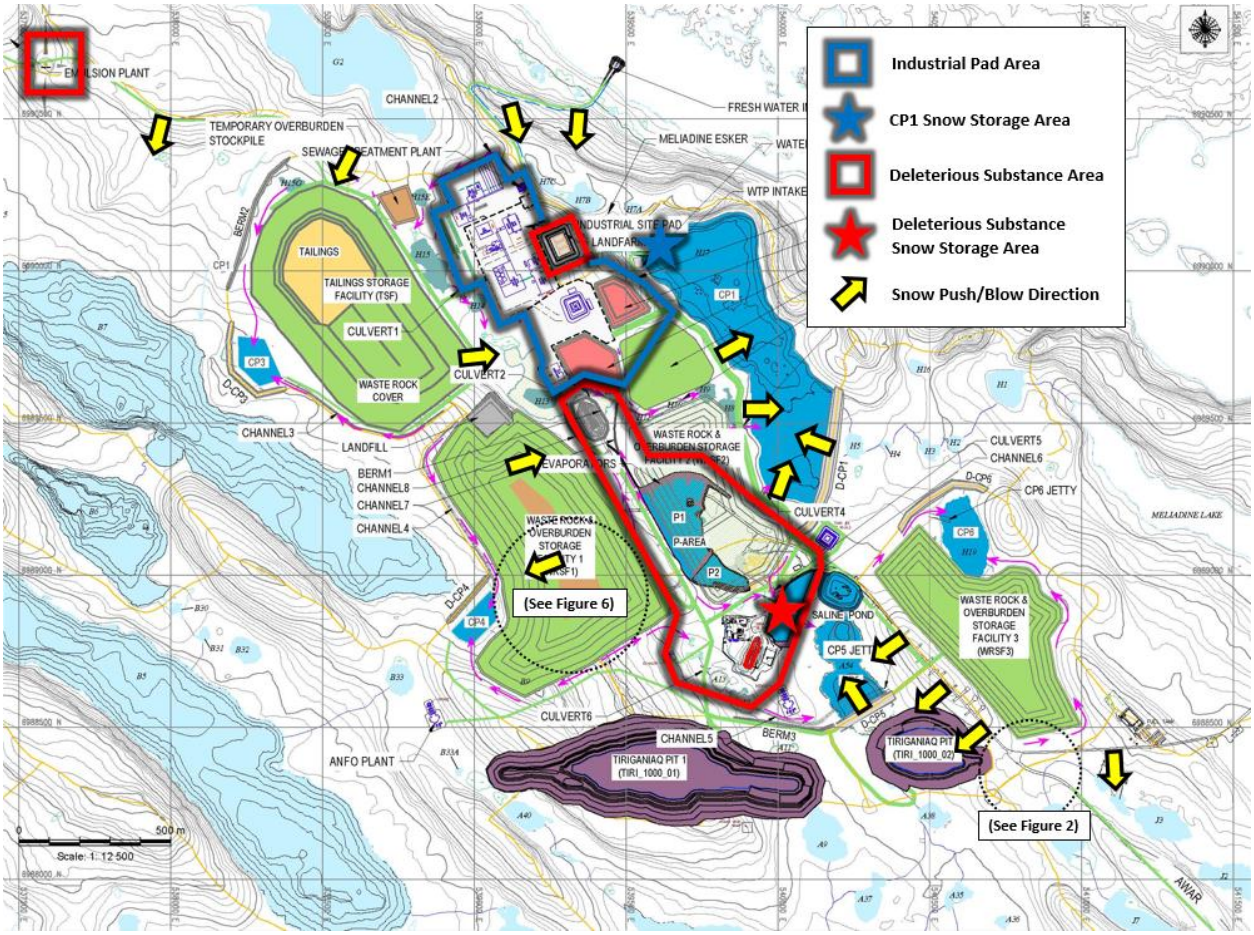


Figure 5: Snow Management Plan on Site

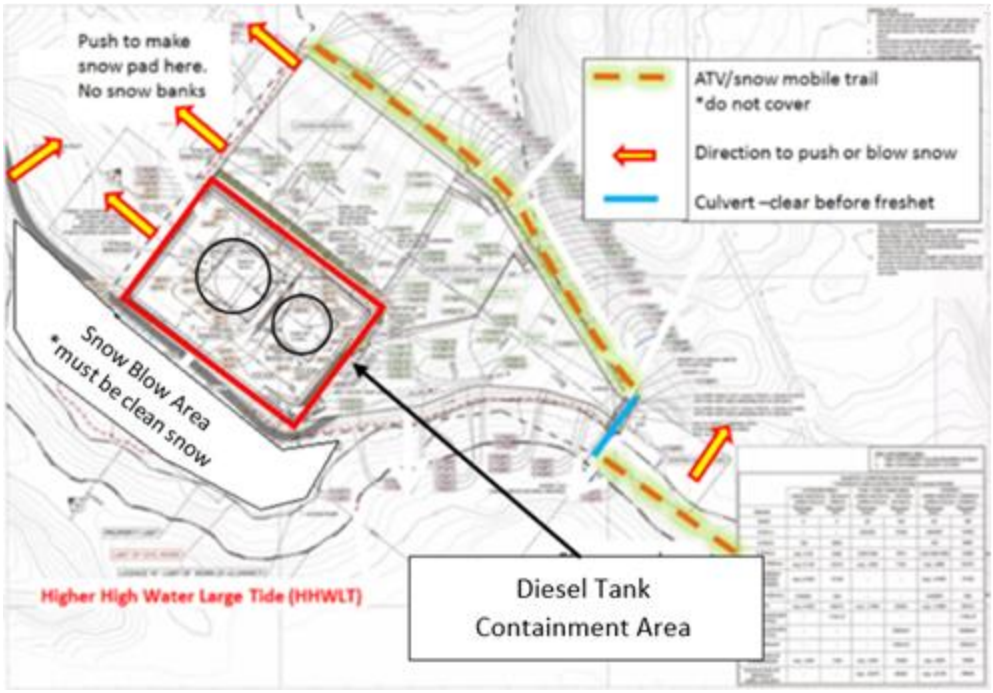


Figure 6: Itivia Snow Management Areas

5 REFERENCES

Agnico Eagle. 2015. Meliadine Gold Project: Landfarm Management Plan. Version 1. April 2015. 6513-MPS-15.

Agnico Eagle. 2016. Meliadine Gold Project: Water Management Plan. Version 2. March 2017.

Nunavut Water Board (NWB). 2015. Type A Water Licence No: 2AM-MEL1631.

APPENDIX A: FRESHET ACTION PLAN PROCEDURE

	DOCUMENT ID: MEL-ENV-Freshet Management Plan Procedure
People concerned: Agnico Eagle employees, contractors, visitors on the Meliadine site	**Effective Date: March 28, 2018**
This procedure corresponds to the required minimum standard. Each and everyone also have to comply with the rules and regulations of the Nunavut Government in terms of health and safety at work.	

Rev #	Date	Description	Initiator
1	2018-03-28	Change to Intelex Format	Matt Gillman
2	2018-12-14	Updated for 2019 Season	Matt Gillman
3	2019-03-12	Updated for 2019 Season, updated snow procedure spreadsheet to include D-CP5 and SP2	Matt Gillman

Objective:

- To provide a plan to prevent potential environmental incidents at the Meliadine Site (Site) caused by the freshet season (Freshet) by recognizing specific areas for risk at the Site, possible actions to be undertaken and the departmental responsibilities to address the required actions.

Definitions (If applicable):

Tool/Equipment Required	PPE Required
• N/A	• N/A

Procedure					
Winter and Spring – Preparation Prior to Freshet[1]					***Risks/ Impacts***
Area for Risk		**Action**	**Responsible Department**	**Approximate Dates**	
P-Area	P1, P2 & P3	• Snow must not be stockpiled to be greater than the containment capacity	Environment to coordinate with Energy & Infrastructure, Engineering and Construction	March - May	
AWAR, Bypass Road & CP3/CP4 Service Roads	Culverts	• Weekly Inspections	Environment	March - May	
	Major Crossings	• Snow and ice clearing[1], including ice and snow that may impede free water flow through culverts (including the culvert at Itivia) and at major water crossings • Effort is to be made to ensure road surface material is not removed during snow clearing. • Ensure snow is not stockpiled along roadside • Repairs (mark culvert locations, add armouring at downstream around culverts and bridges, replace pipe as needed, and document maintenance and repairs) • Monitor signs of erosion (especially downstream at culverts 14.9 and 16 Km on AWAR) • Notify the Environmental Department about any areas for concern[2, 3]	Energy & Infrastructure	Winter Freeze to May (start of thaw)	
	Overall Roads				
Industrial Pad & Emulsion Pad	Culverts	• Weekly Inspections	Environment		
	Channels and ditches	• Snow and ice clearing[1], including ice and snow that may impede free water flow through culverts and at major water crossings • Repairs any erosion • Notify the Environmental Department about any areas for concern[2, 3]	Energy & Infrastructure		
	Access Road				
Quarries		• Snow and ice clearing[1], including ice and snow that may impede free water flow through culverts and at major water crossings • Re-grade disturbed areas to provide appropriate drainage	Construction Environment (for Sampling)	Winter Freeze to May (start of thaw)	
D-CP5		• Snow will carefully be cleared from the downstream toe of D-CP5. • Care will be taken not to destroy pump control station	Energy & Infrastructure	2-3 weeks prior to freshet (late-April to early-May)	

Note:

[1] See the *Snow Management Procedure* (Procedure No.: MEL-ENV-0017) for additional information for snow removal at the Site.

[2] The Environmental Department will assess the area of concern and action will be undertaken to comply with the Nunavut Water Board (NWB) Water Licence No.: 2AM-MEL1631 (Licence)(i.e. collect field parameters or water samples for analysis of total suspended solids, turbidity, or any deleterious substance).

[3] Areas of concern are defined as high water areas on roads, near the up gradient opening of a culvert, flowing water with sediment, spills, wildlife, etc.

Spring and Summer – During Freshet or During Heavy Rainfall				*Risks/ Impacts*
Area for Risk	**Action**	**Responsible Department**	**Approximate Dates**	
P-Area				
P1, P2, and P3	• Daily visual inspection • Daily monitor and record water levels • Weekly written inspection • Water sampling	Environment	May - October	
	• If water levels or structural integrity of berms are observed to be compromised, immediate action is required. Notify Supervisor	Engineering		
	• P2 and P3 water volume should be kept as minimal as possible. Pumping of this water should occur regularly (daily) • Measure and record pumping volumes daily and report to Environment weekly	Energy & Infrastructure		
Evaporators	• Commission after sub-zero temperatures no longer occur • Operate as efficient as possible	Energy & Infrastructure		
DP1 and DP3 Trenches /Seep	• Install pump and flow meter at trench to collect seep • Pump water to respective containment area (P1 or P3) • Measure and record pumping volumes daily and report to Environment weekly	Energy & Infrastructure		
AWAR, Itivia, Bypass Road, CP3/CP4 Access Roads				
Culverts	• Inspections for free flow water through culverts and major crossings, pooling water on road, and integrity of road and abutments (Weekly (minumum) or after heavy rainfall between May and October and daily during peak flow) • Sample as required[2]	Environment	May - October	
AWAR Major Crossings	• Snow and ice clearing[1], including ice and snow that may impede free water flow through culverts and at major water crossings • Repairs and erosion/sediment control implementation • Notify the Environmental Department about any areas for concern [2, 3]	Energy & Infrastructure Environment (for Sampling)		
Overall Roads and Itivia				
Quarries	• Repairs and erosion/sediment control implementation • Re-grade disturbed areas to provide appropriate drainage • Notify the Environmental Department about any areas for concern [2, 3]	Construction Environment (for Sampling)		

Spring and Summer – During Freshet or During Heavy Rainfall			
New Camp Pad/Industrial Pad			
Culverts	• Daily inspections for free flow water through culverts and major crossings, pooling water on road, and integrity of road and abutments	Construction Environment (for Sampling)	May - October
Channels and Ditches Access Road	• Snow and ice clearing[1], including ice and snow that may impede free water flow through culverts and at major water crossings • Repairs and erosion/sediment control implementation • Notify the Environmental Department about any areas for concern [2, 3]	Construction Environment (for Sampling)	May - October
Infrastructure Pads			
Exploration Camp	• Daily visual inspections • Water sampling as required	Environment	May - June
Landfarm Structure	• Daily inspection of the landfarm retaining wall • Daily visual inspection for seepage • Collect a seepage water sample for hydrocarbon analysis. If seepage is present it should be immediately sampled and the seep be controlled. Whether by creating a sump and pumping back the water or by other methods.	Environment	
Landfarm	• Visually monitor excess water in containment area • Monitor seep (weekly) and collect water sample • Sample water according to the Licence	Environment	Mid-June and September
	• If excess water is present and cannot be treated immediately, sample in preparation for discharge to CP1		10 days prior to pumping
	• Once sample results have received, and if water is acceptable to be pumped to CP1 meets, water can be pumped to CP1 at a low flow to avoid erosion • Measure and record pumped volume	Energy & Infrastructure	Mid-June and September
Garage (Agnico Eagle)	• Install sump to contain excess water • Install straw wattles for sediment control on the other side of the road	Energy & Infrastructure	May
	• Daily monitoring of TSS and turbidity and possible contaminant runoff	Environment	May - June
Core Box Cemetery and Culvert	• Install straw wattles for sediment control on the other side of the road	Energy & Infrastructure	May
	• Daily monitoring of TSS and turbidity and possible contaminant runoff	Environment	May - June
Emulsion Plant Pad	• Weekly Inspections • Water sampling of runoff as required for ammonia, nitrates, turbidity and TSS	Environment	May - June
	• Daily visual inspection for pooling water and water run off form pad to tundra, if noticed immediately contact environment department	Dyno Nobel	

Note:

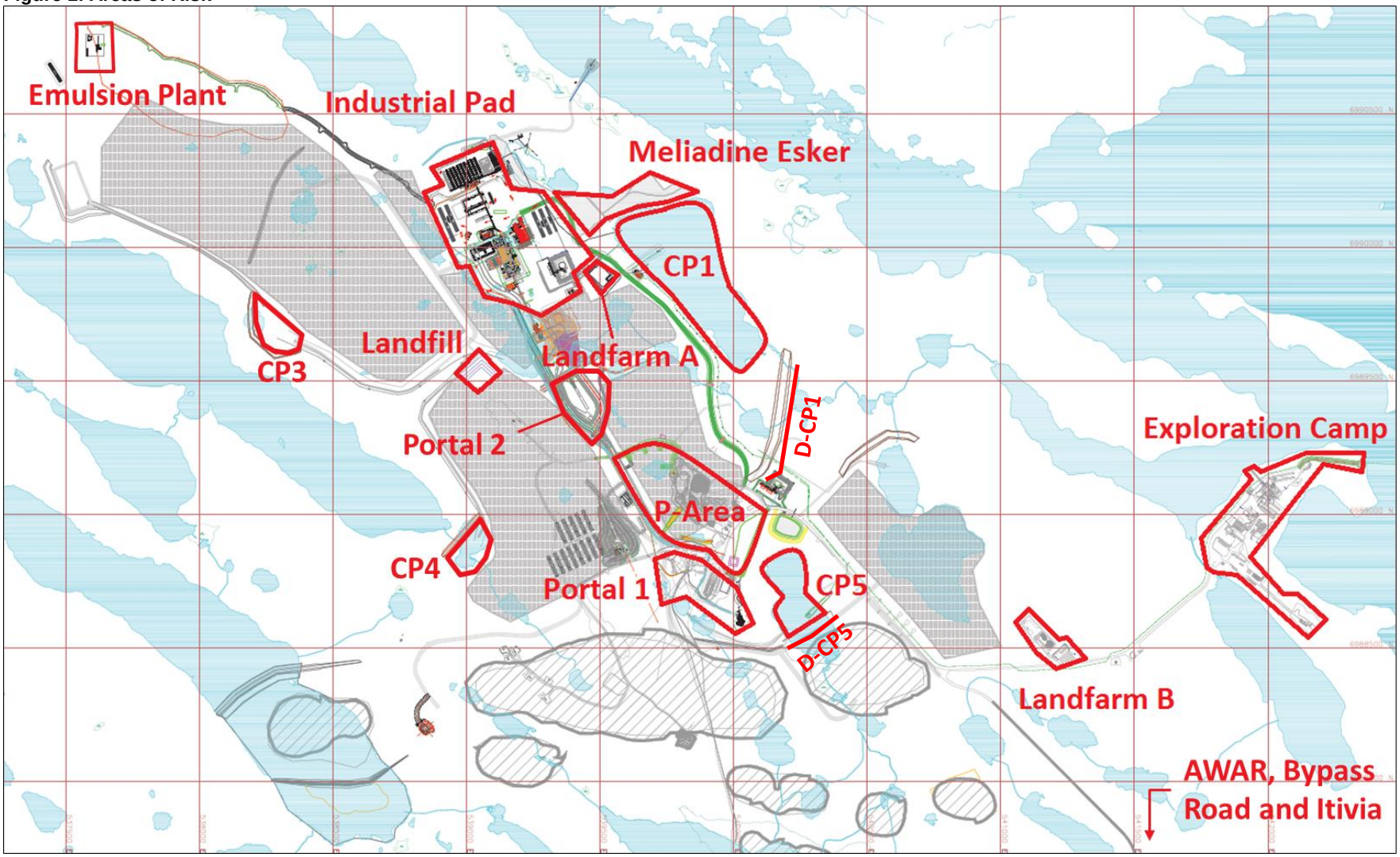
[1] See the *Snow Management Procedure* (Procedure No.: MEL-ENV-0017) for additional information for snow removal at the Site.

[2] The Environmental Department will assess the area of concern and action will be undertaken to comply with the Nunavut Water Board (NWB) Water Licence No.: 2AM-MEL1631 (Licence)(i.e. collect field parameters or water samples for analysis of total suspended solids, turbidity, or any deleterious substance).

[3] Areas of concern are defined as high water areas on roads, near the up gradient opening of a culvert, flowing water with sediment, spills, wildlife, etc.

Fall – Preparation Prior to Winter Freeze					*Risks/ Impacts*
Area for Risk		**Action**	**Responsible Department**	**Approximate Dates**	
LV50		• Survey water level and calculate water volume and provide to Environment, and/or • Measure and record flow meter volume prior to pumping and after pumping and provide to Environment • Remove pumps and prepare equipment for maintenance and winter storage	Mining	Prior to pumping to P2 (Late September)	
		• Pump to P2		Late September/Early October	
Lv75/Water Stope		• Pump to SP1, SP2 (pending approval), or SWTP		June - September	
P-Area	P2 and P3	• Pump water to P1 for active evaporation	Energy & Infrastructure	June - September	
	P1, P2 & P3	• Remove pumps and prepare equipment for maintenance and winter storage		At beginning of winter freeze	
	Evaporators	• Decommission for winter and prepare equipment for maintenance and winter storage		Prior to any sub-zero temperatures	
A8		• Move pump house/pump closer to Site		Late September	
CP1		• Weekly (during flow) or monthly (baseflow) written inspection • Water sampling	Environment	June - September	
		• Pump water to discharge at Meliadine Lake	Process Plant		
		• Remove pumps and prepare equipment for maintenance and winter storage		Late September/Early October	
Downstream D-CP1		• Pump water to CP1	Energy & Infrastructure	June - September	
		• Remove pumps and prepare equipment for maintenance and winter storage		Late September/Early October	
CP5/D-CP5		• Restrict vehicle access on D-CP5 to prevent instrument damage • Pump water to CP1/SWTP		Late September	
Downstream D-CP5		• Pump water to CP5		June - September	
		• Remove pumps and prepare equipment for maintenance and winter storage		Late September/Early October	
Saline Ponds		• Remove pumps and prepare equipment for maintenance and winter storage		First week of October	

Figure 1: Areas of Risk



Related Documentation (If applicable):
• 2018 Freshet Management Plan • MEL-ENV-0017 - Snow Management Procedure

References (If applicable):
• N/A

Authorization (Print Name)	
Approved: _____ Name JOHSC Worker Rep.	Date: _____
Approved: _____ Name Department Superintendent / Delegate	Date: _____
Approved: _____ Name Health & Safety Superintendent / Delegate	Date: _____

APPENDIX B: SNOW MANAGEMENT PROCEDURE

	DOCUMENT ID: MEL-ENV-Snow Management DRAFT
People concerned: All Departments	**Effective Date: 24 November, 2018**
This procedure corresponds to the required minimum standard. Each and every person must comply with the rules and regulations of the Nunavut Government in terms of health and safety at work.	

Rev #	Date	Description	Initiator
1	2018-03-28	Change to Intelex Format	Matt Gillman
2	2018-09-30	Updated for next season	John Baechler Matt Gillman
3	2018-10-11	Updated to include changes to snow management methods at Itivia, bypass road, CP3 and CP4 access roads, and Itivia Gas Boy.	Dan Gorton John Baechler

Objective:

The overall purpose of the snow management procedure (SMP) is to provide an outline for snow management that will assist with preventing adverse environmental impacts to the Meliadine Project (Site) and to mitigate risks from excess water during the freshet season (Freshet).

Definitions (If applicable):

Snow pad area - an area where snow can be pushed and compacted over an existing structure, such as an access road or a rock pad.

Snow storage area - an area where snow can be taken from another area and stockpiled without causing a negative impact at the freshet.

Negative impact of snow melting during freshet - the transport of fine sediments or deleterious substances from Site to the natural environment, body of water, or within 31 m of a water body.

Tool/Equipment Required	PPE Required
• Snow blower • Shovel and haul truck • Grader	• Standard site PPE

Specific Training Requirements
• Equipment operator training

Procedure

Snow Removal at Meliadine Site

1. Prior to starting any snow removal, supervisors and snow removal equipment operators must discuss a removal plan based on the criteria outlined in this procedure.
2. If uncertain, supervisors or snow removal equipment operators must receive authorization from the Environment Department to move snow to a non-designated area. If access is required on dikes or berms, contact Engineering to ensure instrumentation is not damaged.
3. Supervisors must determine if the snow receiving location is:
   - Safe for the snow removal equipment operators
   - Outside a 31 m buffer zone around any water body
   - A designated snow storage area
   - A safety sensitive area
4. Designated snow storage areas are as follows (see Figure 1 in the Appendices):
   - Snow collected from areas of potential contact with contaminants (i.e. the Fuel Farm, Landfarm, Gas Boy, Emulsion Plant, Waste Rock Storage Facility 2 (WRSF2), areas surrounding the Portal 1 and Portal 2 entrances, and areas surrounding the P-Area) must be stockpiled in P3.
   - Clean snow from other areas at Site must be removed from roadways with a snow blower or plow, and/or collected and stockpiled at CP1.

5. The Fuel Farm, Gas Boy locations, Landfarm, and Itivia Diesel Tanks are safety sensitive areas. The valves and piping/hosing must be protected and available for inspection at all times. Snow must NOT be removed with a snow plow or heavy equipment. To improve safety and reduce risk of any contact with fuel tanks, valves, or equipment within these areas, snow must be removed by hand shovelling. The area surrounding the fuel tank valves must be carefully hand shovelled.
6. Snow accumulated at Channel 2 must be left to melt at freshet, as the use of snow removal or plow equipment can damage the geotextile that is installed.
7. Snow storage areas are not authorized along any roadways, including the All Weather Access Road (AWAR), and CP3 and CP4 service roads. Efforts must be made to ensure road surface material is not removed during snow clearing. Snow must be blown, plowed, or maintained as a snow pad area to reduce snow drifts across the road and allow for increased visibility. A level snow pad area may be created over the tundra provided that:
    - Clean snow is used for the pad construction
    - The surface is cleaned after use
    - Is not obstructing existing culverts, structures, or roadways
    - Is within the footprint of the mine
8. Snow storage areas are not authorized at the Exploration Camp. Snow must be maintained as a snow pad, as not to create long-term snow banks (Figure 2). Any snowbanks must be plowed and leveled.
9. Snow between the Main Camp dormitory wings must be removed to mitigate drifting against the wings, which creates confined space under the camp and wildlife habitats. (Figure 3).
10. Snow removed by Contractors at their designated worksite will be stockpiled at the worksite and subsequently removed by the Energy and Infrastructure department (E&I). E&I will collaborate with the Environment department to determine the correct location of the storage area if it is not outlined within this procedure.
11. Snow removal from the Tiriganiaq esker must be pushed or blown to the west side of the road running north-south. Snow from the Batch Plant must be padded on the north side, and any excess snow removed and stockpiled in the south end of P1 (Figure 4).

Snow Removal at Itivia Site

1. Snow storage areas are not authorized at the Itivia Laydown. Snow at the Laydown must be maintained as a snow pad area as not to create-long term snow banks. Any snowbanks must be plowed and leveled. Efforts must be made to ensure road surface material is not removed during snow clearing. The existing ATV/snowmobile trail must not be blocked by snow removal (Figure 5).

2. Snow along the bypass road will be removed by blowing. Operators will adjust the skid height of the snow blower to ensure a sufficient layer of snow remains to create an ice road. Operators will then scarify the road with a grader to improve traction. Sand will not be used along the Bypass road as the blown snow must be clean and free of debris.
3. Snow removal from the Itivia Diesel Tank Farm secondary contaminant area must not be done using heavy equipment as to not damage the installed synthetic liner.
4. Snow accumulated in the Gas Boy secondary containment is to be removed using suitable equipment, to maintain capacity for fuel spill mitigation. Diesel contaminated snow will be disposed of appropriately at the snow cell or landfarm.

Appendix:

Figure 7: Authorized Snow Removal and Snow Storage Areas

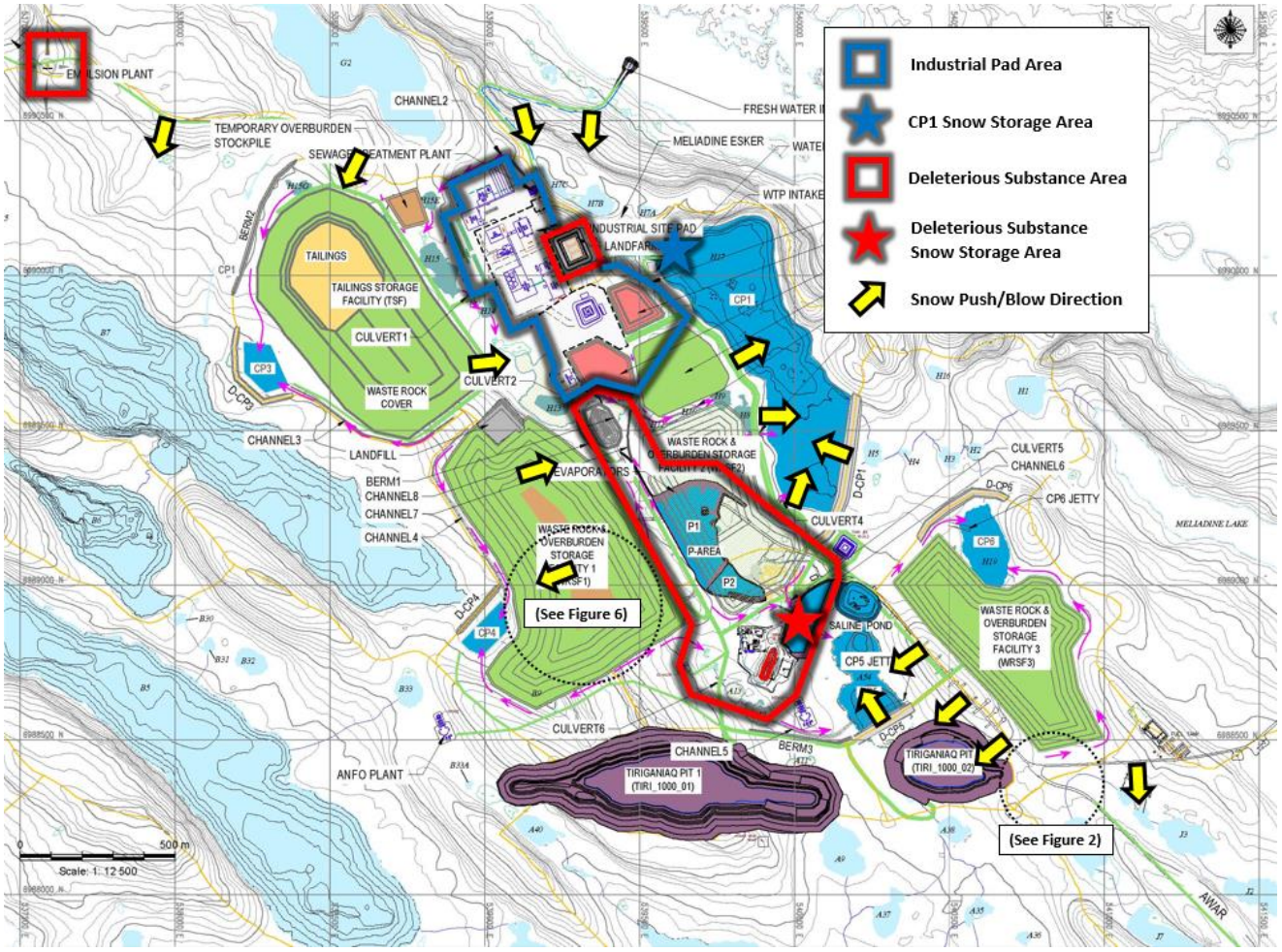


Figure 2: Exploration Camp Snow Pad Area and No Plow Zone Example

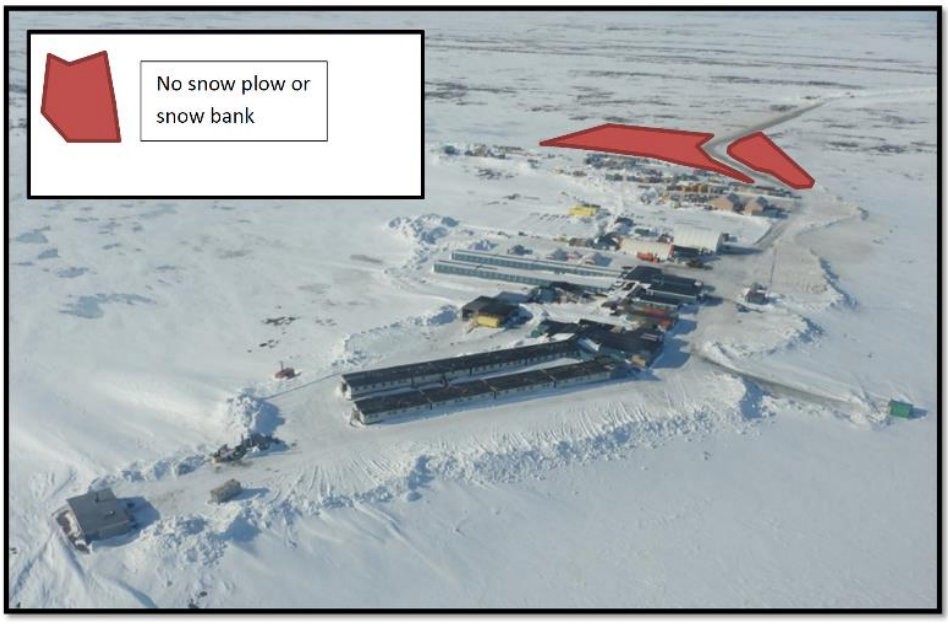


Figure 3: Snow removal from between camp accommodation trailers

Figure 4: Tiriganiaq Esker and Batch Plant Snow Removal Direction

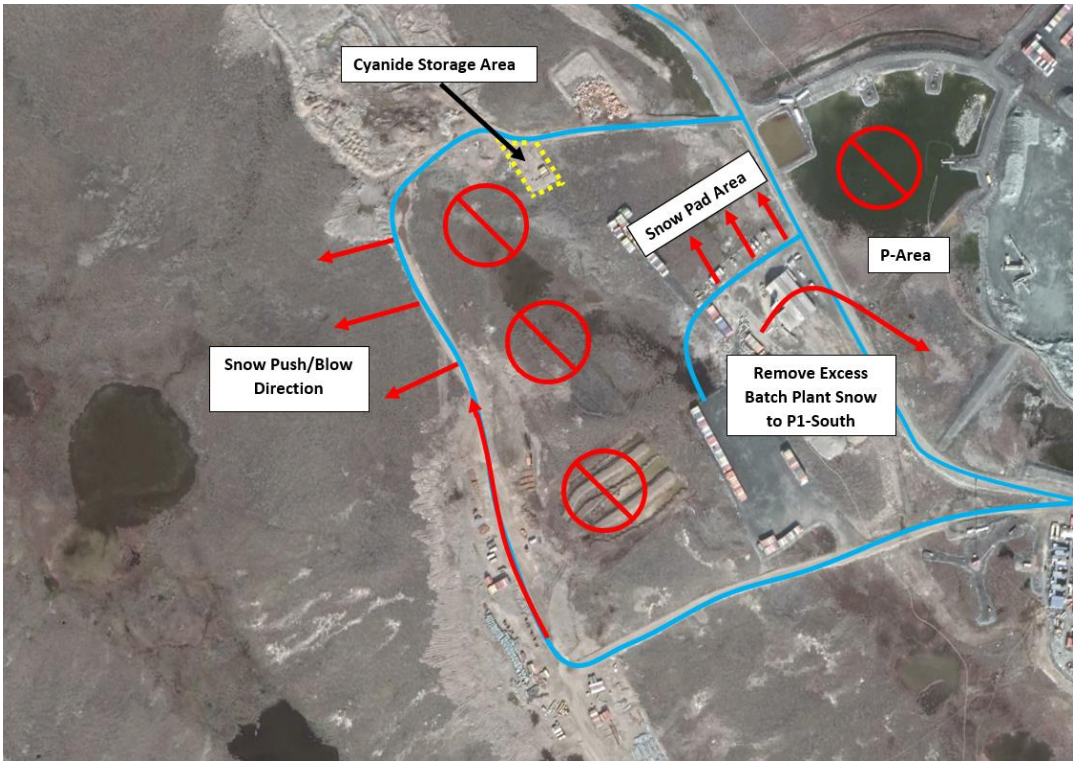
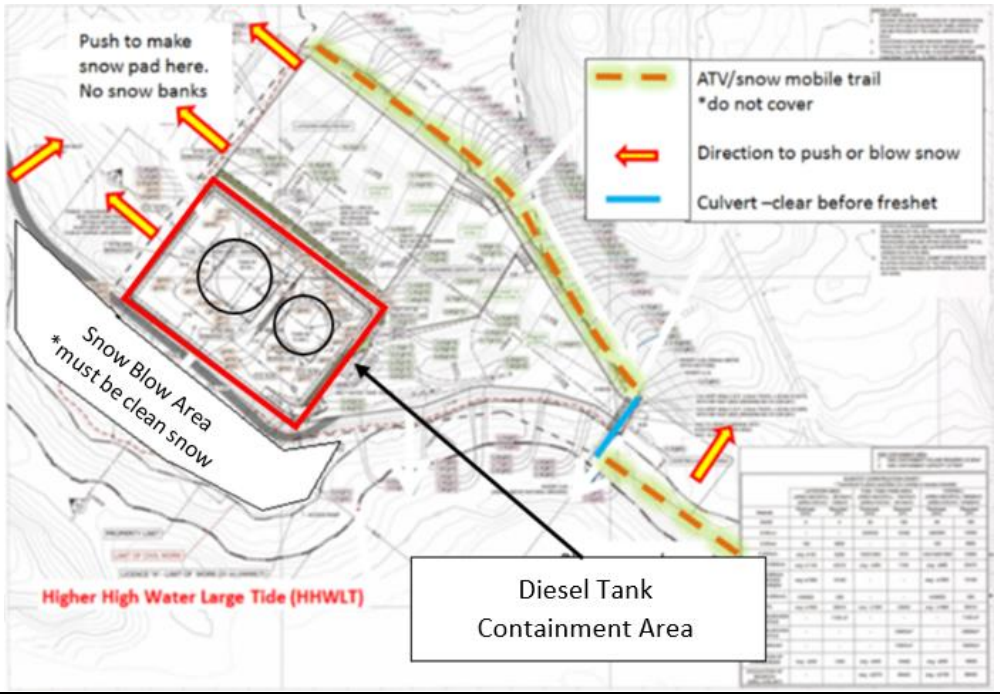


Figure 5: Itivia Snow Pad Area and ATV Access Trail



Authorization (Print Name)	
Approved: _____ Name JOHSC Worker Rep.	Date: _____
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