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EDI Project No: 15Y0146

Assessment and Abandoned Mines Branch (AAM) K-149
Department of Energy, Mines and Resources, Yukon Government
Room 2C Royal Center, 4114-4th Avenue
PO 2703, Whitehorse, YT, Y1A 2C6

Attention: Erik Pit, Type II Project Manager

RE: Mount Nansen Water Resources Investigations – Field Memo: March 14-15, 2016 - DRAFT

The following memo is a brief field update from EDI's March 2016 trip to Mount Nansen; sampling conducted as part of the 2015/16 Water Resources Investigations. This memo provides a record of site conditions and tasks that were completed at each hydrometric station and water quality site (see attached tables). A detailed monthly report on the data collected during the trip will be provided once the water quality lab results are received and all data has been checked for quality assurance/quality control.

Trip Dates:	March 14-15, 2016
EDI Field Staff:	Dawn Hansen, Megan Sandford, and Danny Skookum
Weather conditions during monitoring:	Conditions for the two days included air temperatures from -11 to -2°C, with clear to overcast skies and calm wind conditions.
Any changes to project scope, schedule or budget:	None. All sampling and monitoring was conducted within scope. The March 2016 trip is the last field trip of the 2015-2016 contract. Based on the normal monthly schedule, the next trip should be **April 11-12, 2016**, pending a new contract being awarded.
Additional Comments:	Conditions were representative of late-winter, with lower water levels than the last trip and ice and snow present at all locations. Stations and sites along Pony Creek, Back Creek, and some areas of Dome Creek remain frozen to substrate for the winter period. The channel was frozen to bed at **H/WQ-DC-DX+105**. This has occurred in past years of the program in March. No samples or measurements could be collected.
Wildlife Sightings:	None.
Site concerns (safety):	Ice was present at many locations around the Mount Nansen site creating slippery conditions. Overflow ice overtopped the roadway at the Victoria Ccreek crossing. The road was cleared of ice prior to the arrival of the EDI crew (by DES).

Table 1. Summary of hydrometric program tasks completed and station conditions during the March 2016 sampling event.

HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger was downloaded.
H-DC-DX+105	None	Site was frozen to bed for the first time during the winter 2015-2016 period.
H-DC-D1b	None	Channel is frozen to bed for winter period.
H-DC-B	None	Channel is frozen to bed for winter period. Extensive overflow ice upstream of site.
H-DC-M-WP	None	Conditions not suitable for discharge measurement. Extensive overflow ice from the seepage discharge area covers weir pond. The stilling well with the level logger is frozen to bed. Logger could not be downloaded due to communication error (same issue as January and February) – the direct read cable will be replaced during spring melt (already purchased for program).
H-DC-R	None	Station frozen to substrate for winter period. Large amount of overflow ice both upstream and downstream of road crossing.
H-VC-U	ADV	Velocity-area discharge measurement completed using an ADV. Open lead along centre of channel upstream of well. Logger downloaded successfully.
H-BC	None	Channel is dry. No evidence of flow since last visit.
H-VC-DBC	ADV	Velocity-area discharge measurement completed using an ADV. Water level low. Channel covered with ice up to 0.15 m thick.
H-VC-UMN	ADV	Velocity-area discharge measurement completed using an ADV. Channel covered with a layer of thin ice. Logger downloaded successfully.
H-VC-R	None	Site not suitable for ADV or salt tracer measurement due to low flow and multiple channels beneath the ice. Extensive overflow ice upstream of road and beyond right bank. This station will remain in place until spring 2016 to collect concurrent data with H-VC-R+290. Logger downloaded successfully.
H-VC-R+290	ADV	Velocity-area discharge measurement completed using an ADV. Channel covered in ice and snow. Logger downloaded successfully.
H-SEEP	Volumetric	Volumetric measurement collected in addition to reading the flow meter in the seepage pond shack. Water flows freely from pipe outlet.
H-TP	None	Water level remains low. Bottom of staff gauges covered with snow with frozen ground below. No ice in vicinity of staff gauges.
H-PC-DSP	None	Channel is frozen to bed for winter period.
H-PW	Volumetric	Volumetric discharge measurement was collected at end of discharge pipe. Large amount of ice at pipe outlet.

Table 2. Summary of water quality program tasks completed and site conditions during the March 2016 sampling event.

WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-SEEP	Yes	Low flow rate from pipe with lightly turbid water. LC50 sample collected.
WQ-TP	Yes	Low water level in pond with clear water. Ice 0.70 m thick.
WQ-DC-DX	No	Channel is frozen to bed for winter period.
WQ-DC-DX+105	No	Site was frozen to bed for the first time during the winter 2015-2016.
WQ-MS-S-08	No	Dry for winter period.
WQ-DC-D1b	No	Site frozen to substrate for winter period.
WQ-DC-B	No	Site frozen to substrate for winter period.
WQ-DC-U	Yes	Variable ice thickness up to 0.3 m with some areas of soft, slushy ice. Channel poorly defined due to extensive overflow ice covering entire site. Low flow with light turbidity.
WQ-DC-R	No	Site frozen to substrate for winter period.
WQ-CH-P-13-01	No	Site frozen to substrate for winter period.
WQ-LW-SEEP-01	No	Dry for winter period.
WQ-BC	No	Dry for winter period. No evidence of flow since previous visit.
WQ-VC-U	Yes	Low flow in channel with clear water. Small open water lead downstream.
WQ-VC-DBC	Yes	Low flow in channel with clear water. Most of channel covered with 0.2 m of ice. Thin layer of ice at sample location (0.05 m).
WQ-VC-UMN	Yes	Low flow with clear water. Channel frozen to bed along left bank. Overflow ice along access trail.
WQ-VC-R	No	Extensive overflow ice upstream of road crossing prevented sample collection at this site until spring 2016. The remaining winter samples continue to be collected at the WQ-VC-R+150 location.
WQ-VC-R+150	Yes	This is the winter/early spring sampling location - samples collected at this site due to overflow ice buildup that was prohibitive for sampling at regular site (WQ-VC-R). Low flow in channel with clear water.
WQ-PW	Yes	Drinking water sample and bacteriological sample collected from pipe outlet. Typical buildup of ice at pipe outlet.
WQ-ADIT-SEEP	No	Dry for winter period.
WQ-PC-U	No	Site frozen to substrate for winter period.
WQ-PC-D	No	Site frozen to substrate for winter period.
Quality Assurance/Quality Control Samples		
Field Replicate 1	Yes	Collected from WQ-VC-UMN-r.
Field Replicate 2	No	Not required due to number of sites.
Field Blank	Yes	Sample bottles filled with deionized water supplied by ALS; samples were filtered and preserved as instructed. Collected at WQ-VC-R+150.
Travel Blank	Yes	Samples were provided by the lab and were transported to and from site.