

January 21, 2016

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: January 12 - 13, 2016 - DRAFT**

The following memo is a brief field update from EDI's January 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.

<b>Trip Dates:</b>	January 12 - 13, 2016
<b>EDI Field Staff:</b>	Scott Dilling, Joel MacFabe and Danny Skookum
<b>Weather conditions during monitoring:</b>	Conditions for the three days included air temperatures from -10 to -6°C, with clear skies to light snow and calm to light wind conditions.
<b>Any changes to project scope, schedule or budget:</b>	None. All sampling and monitoring was conducted within scope. The trip took two days versus the typical three days, as the number of sites/stations is reduced in the winter (resulting in some savings to the project). The next trip is scheduled for February 15-16, 2016.
<b>Additional Comments:</b>	Conditions were representative of mid-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 existing direct read cable installed on the logger at H-DC-M WP was working properly during the site visit and did not need to be replaced. The replacement cable that was recently purchased will no longer be needed for the project and will not be charged as such.
<b>Wildlife Sightings:</b>	None.
<b>Site concerns (safety):</b>	None.



**Table 1. Summary of hydrometric program tasks completed and station conditions during the January 12-13, 2016 sampling event.**

<b>HYDROLOGY</b>		
<b>Station</b>	<b>Hydrometric Measurement Type</b>	<b>Notes &amp; Comments</b>
ATM-VC5	None	A new barometric logger was installed at the station. The old logger was removed from site due to concerns about sensor drifting.
H-DC-DX+105	Volumetric	Volumetric measurement was collected. Water level low with lightly turbid water. Channel is covered with thin layer of ice and snow.
H-DC-D1b	None	Channel is frozen to bed for winter period.
H-DC-B	None	Channel is frozen to bed for winter period. Ice approximately 0.55 m thick.
H-DC-M-WP	Salt Tracer	Salt tracer completed for discharge estimate. Water level low. Weir pond covered with thin layer of ice. Logger successfully downloaded using existing direct read cable (no new cable required at this time). Extensive overflow ice upstream of weir pond.
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. Water level low with clear water. Several small open leads upstream and downstream of station. Logger downloaded.
H-BC	None	Channel is frozen to bed – no water present. Station likely frozen to substrate for winter period.
H-VC-DBC	ADV	Velocity-area discharge measurement completed using an ADV. Water level low with clear water. Channel covered with ice. Logger downloaded.
H-VC-UMN	ADV	Velocity-area discharge measurement completed using an ADV. Channel covered with a layer of thin ice. Logger downloaded.
H-VC-R	ADV	Velocity-area discharge measurement completed using an ADV. Poor channel conditions for ADV discharge measurement. Water level low with clear water. Channel covered in ice. Overflow ice upstream and downstream of the culvert at the road crossing. The overflow ice has not yet reached the hydrometric station. Evidence of recent flow beyond extents of active part of channel. This station will remain in place until spring 2016 to collect concurrent data with H-VC-R+290. Logger data was downloaded.
H-VC-R+290	ADV, Salt Tracer	Salt tracer measurement and velocity-area discharge measurement using an ADV were completed. Water level low with clear water. Channel covered in ice and snow. Logger was downloaded.
H-SEEP	Volumetric	Volumetric measurement collected in addition to reading the flow meter in the seepage pond shack. Ice buildup inside culvert. 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 January 12-13, 2016 sampling event.**

**WATER QUALITY**

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-SEEP	Yes	Moderate flow rate from pipe. Ice build-up inside culvert. LC50 sample collected.
WQ-TP	Yes	Low water level in pond with light turbidity. Entire pond covered with ice 0.45 m thick.
WQ-DC-DX	No	Channel is frozen to bed for winter period.
WQ-DC-DX+105	Yes	Low flow with light turbidity. Minimal algae growth in channel. Entire channel covered by a layer of thin ice.
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	Low flow with light turbidity. Thin ice cover and deep snow. Extensive overflow ice upstream of weir pond (has not reached weir pond or WQ site).
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. Entire channel covered with thin layer of ice and snow.
WQ-VC-DBC	Yes	Low flow in channel with clear water. Two small open leads downstream of sample site. Thin layer of ice at sample location.
WQ-VC-UMN	Yes	Low flow with clear water. Variable, thin ice with no open leads.
WQ-VC-R	No	Extensive overflow ice upstream of road crossing prevented sample collection at this site until spring 2016. The remaining winter samples will 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. No open leads in vicinity of sample site.
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.
<b>Quality Assurance/Quality Control Samples</b>		
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



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## WATER QUALITY

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Site	Sampled? (Yes/No)	Notes / Explanations
		filtered and preserved as instructed. Collected at WQ-VC-DBC.
Travel Blank	Yes	Samples were provided by the lab and were transported to and from site.

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