

May 14, 2015

EDI Job Number: 15-Y-0146

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

Attention: Erik Pit, Type II Project Manager

**Re: Mount Nansen Water Resources Investigations – Field Memo: Early-May Trip 2015**

The following memo is a brief field update from EDI’s early-May 2015 trip to Mount Nansen, as part of the 2015/16 Water Resources Investigations. This memo provides a record of site conditions and what tasks 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.

Trip Dates:	May 4-6, 2015
EDI Field Staff:	Dawn Hansen, Brett Pagacz and Danny Skookum
Weather conditions during monitoring:	Weather conditions were a mix of sun and cloud, light winds and temperatures above zero degrees (0 to 7°C).
Any changes to project scope, schedule or budget:	None. All sampling and monitoring was conducted within scope.
Additional Comments:	<p>Conditions were representative of early-spring, with many sites and stations now flowing and with higher water levels than the previous trip. Site has not reached peak flows yet. Peak freshet will likely occur in the following week. Ice cover has melted significantly since the last trip.</p> <p>Portions of Back Creek are now flowing over the ice and ground surface into Victoria Creek upstream of the regular confluence (at multiple locations); with potential impacts to the WQ-VC-U sample collected this trip.</p>
Wildlife Sightings:	Black Bear seen during drive from Carmacks to Mount Nansen Site.
Site concerns (safety):	None



**Table 1. Summary of hydrometric program tasks completed for the May 4-6, 2015 trip.**

**HYDROLOGY**

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger was downloaded.
H-DC-DX+105	Volumetric	Volumetric measurement was collected. Some ice upstream and downstream of sample site. Open lead at site.
H-DC-D1b	None	Still significant ice at station. Water flowing through multiple braided channels – not suitable for discharge measurement.
H-DC-B	Salt Tracer	Salt tracer measurement was collected. Water was flowing through main channel with only some ice present on right downstream bank. New well and staff gauge installed and measured (Latitude 62.04293, Longitude -137.11277), surveyed, and installed new Solinst Edge logger.
H-DC-M/ H-DC-M WEIR	None	The weir is still encased under the ice and overflow ice extends up and downstream of the weir pond. Some water from the diversion channel and seepage discharge is flowing under the ice, but in multiple braided channels and through various ice layers. Not suitable for measurement. Weir pond logger was downloaded.
H-DC-R	None	Not suitable for measurement, due to multiple braided channels running above and under ice surface.
H-VC-U	ADV	Water levels have increased from the April 2015 trip and there was more open water. Ice remains along the sides of the channel. Crew completed discharge measurements with ADV.
H-BC	None	Significant overflow ice is still present at the site. The entire stilling well was below the ice and there is no definition of the channel as the entire area is covered, including adjacent forested areas. Not suitable for measurement. Upstream of the station there is some melt water flowing across the valley area, and entering Victoria Creek in several spots upstream of the regular confluence.
H-PW	Volumetric	Volumetric measurement was collected from the outflow pipe.
H-VC-DBC	ADV	Water levels have increased from the April 2015 trip. Channel still covered in ice and snow in some sections. Conducted ADV cross section, downloaded logger, conducted staff gauge reading, and replaced logger with new Solinst Edge.
H-VC-UMN	ADV	Some of the ice downstream of the sample site has melted from the previous trip, however there may still be some backwater effect (impacting the stage recorded by the logger). Downloaded logger. Found suitable location for ADV cross section that appears to be unaffected by backwater effect.
H-VC-R	ADV	Channel was mostly ice covered in the vicinity of the station; however, some water was flowing through the small culvert and into the parking area near the station (similar to last trip). The amount of water in the parking lot was more than the April 2015 trip. ADV cross section was conducted in open water areas a few meters down from regular location. The water level logger was downloaded, staff gauge reading collected, and the logger was replaced with a new Solinst Edge logger.



## HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
H-SEEP	Totalizer, Volumetric	Volumetric measurement collected in addition to reading of the flow meter in the seepage pond shack. Overflow conditions continue to be observed downstream of the seep, extending upstream from H-DC-M.
H-TP	None	Staff gauge reading could not be completed, because the staff gauge is not in the water.
H-PC-DSP	Volumetric	Volumetric measurement was collected. Good flow was present out of the culvert.

**Table 2. Summary of water quality program tasks completed for the May 4-6, 2015 trip.**

## WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PIT-1	No	Sampling not scheduled for May – ice safety concerns.
WQ-PIT-2	No	Sampling not scheduled for May – ice safety concerns.
WQ-PIT-3	No	Sampling not scheduled for May – ice safety concerns.
WQ-SEEP	Yes	Conditions normal, water free flowing from pipe outlet. LC50 could not be collected due to lab not having sufficient fish stock for the test.
WQ-TP	Yes	The pond is covered in ice with some melt water on the surface. Chipped through multiple layers of ice to collect sample.
WQ-DC-DX	Yes	Ice covering sample site. Had to chip away ice to access water flowing beneath.
WQ-DC-DX+105	Yes	Some ice upstream and downstream of sample site. Open lead at site.
WQ-MS-S-03	Yes	Some ice upstream and downstream of sample site. Open lead at site.
WQ-MS-S-08	No	Site was frozen – not suitable for sampling.
WQ-MS-S-A	Yes	Opportunistic mill seep sample. Sample collected from narrow open channel present on slope down valley from mill (seep flows northwest to southeast across a bench). UTM 08V E 387951.8, N 6881103.4.
WQ-DC-D1b	Yes	Ice cover still at site. However, water was flowing under a thin layer at the sample location and was easily removed to expose water for sample collection.
WQ-DC-B	Yes	Channel mostly open, with some ice along right downstream bank.
WQ-DC-U	Yes	Sample taken from open channel in middle of stream near regular location. Stream is flowing over ice. Thick ice and snow still covering areas (stilling well top just exposed).
WQ-DC-R	Yes	Ice covering sample site. Had to chip away ice to access water. Good flow beneath ice.
WQ-CH-P-13-01	Yes	Small trickle of water present at sample site– suitable for collection. Similar flow to WQ-DESS-01.



## WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-DESS-01	Yes	Small trickle of water present at sample site – suitable for collection. Flow estimated at 0.22 L/s.
WQ-DESS-02	No	Frozen to substrate – not suitable for sampling.
WQ-DESS-03	Yes	Slow trickle of water present at sample site– suitable for collection. Flow estimated at 0.37 L/s.
WQ-ORE	Yes	Small seep, with water flowing down the road leading into the Pit – sample collected.
WQ-L1	Yes	Water in pipe with approximately 2 cm of ice on top. Layers of ice/slush present. Successfully collected sample with peristaltic pump. Total volume in L1 was 7.8 L (including samples).
WQ-L2	Yes	Water in pipe with ice plug on top. Successfully collected sample with peristaltic pump. Total volume in L2 was 8.8 L (including samples).
WQ-LW-SEEP-01	No	Frozen to substrate – not suitable for sampling.
WQ-NW-SEEP-02	Yes	Site covered with ~40 cm snow. Ice up to and creeping over the barrel. Placed Ziploc bag over pipe outlet on May 4, 2015 and returned to collect water sample on May 5, 2015. Approximately 1.1 L of water over a 19.7 hr period. There was not enough water to collect the cyanide or cyanate samples (all other samples were collected).
WQ-WR-SEEP-A	Yes	Opportunistic sample (UTM 08V E 388723.0, N 6881359.9 – flagged with yellow flagging) collected from water seepage at base of waste rock, approximately 15 metres south-southeast from WQ-LW-SEEP-01. No flow estimate possible, as seep is within a small depression that is recharged slowly from ground.
WQ-WR-SEEP-B	Yes	Opportunistic sample (UTM 08V E 388863.2, N 6881259.4 – flagged with yellow flagging) collected from water seepage at base of waste rock, approximately 170 metres south-southeast from WQ-WR-SEEP-A. Larger seep than WQ-WR-SEEP-A, flow estimate of 0.12 L/S.
WQ-BC	Yes	Still ice covered at regular sample location. However, creek was found flowing upstream of regular site, towards and into Victoria Creek upstream of the normal confluence – sample was collected.
WQ-VC-U	Yes	Sample collected from regular location. Flow levels have increased from the previous trip. Samples likely affected by Back Creek which is entering Victoria Creek in several areas upstream of the regular confluence.
WQ-VC-DBC	Yes	Sample collected from regular location. More open water and higher water levels than March 2015 trip. Water light grey in colour.
WQ-VC-UMN	Yes	Sample collected from regular location. Channel more open than previous trip.
WQ-VC-R	No	Winter samples are collected from the WQ-VC-R+150 site due to thick overflow ice at the WQ-VC-R site during the winter.
WQ-VC-R+150	Yes	Samples were collected from the regular winter sampling location - WQ-VC-R+150 (downstream of road crossing ~150 m). Flow levels had increased from the previous trip.
WQ-PW	Yes	Drinking water samples and bacteriological samples collected.
WQ-PC-U	Yes	Water flowing with no ice present at sample site. Thin ice over pond area just downstream.



---

## WATER QUALITY

---

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PC-D	Yes	Some ice and snow present on edges of channel.
WQ-ADIT-SEEP	No	No water present at sampling site. High amount of snow on north facing slope.
Quality Assurance/Quality Control Samples		
Field Replicate 1	Yes	Collected from WQ-VC-UMN-r.
Field Replicate 2	Yes	Collected from WQ-VC-R+150-r.
Field Replicate 3	Yes	Collected from WQ-DC-R-r.
Field Blank	Yes	Sample bottles filled with deionized water supplied by ALS. Filtered and preserved as instructed.
Travel Blank	Yes	Samples provided by lab and were transported to and from site.