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EDI Project No: 16Y0089

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: April 26-28, 2016 - FINAL

The following memo is a brief field update from EDI's late-April 2016 trip to Mount Nansen; sampling conducted as part of the 2016/17 Water Resources Investigations. This trip represents the second of two spring freshet trips. This memo provides a record of site conditions and tasks that were completed at each hydrometric station and water quality site (see tables below). 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:	April 26-28, 2016
EDI Field Staff:	Jane Bachman, Scott Dilling, Alex Mischler and Danny Skookum
Weather conditions during monitoring:	Conditions for the two days included air temperatures from 2 to 11°C, with clear skies to light snow and calm wind conditions.
Any changes to project scope, schedule or budget:	None. All sampling and monitoring was conducted within scope. The late-April 2016 trip is the second field trip of the 2016/17 contract and is the second of two spring freshet monitoring trips. The next trip is scheduled for **May 9-11, 2016.**
Additional Comments:	Conditions were representative of spring freshet conditions, with at or near bankfull conditions along many channels, including Victoria Creek. Most snow around the Mount Nansen site has melted. Small patches of snow and overflow ice remain in shaded areas. Moderate amounts of ice remain along the Dome Creek stations.
Wildlife Sightings:	None
Site concerns (safety):	Danny Skookum injured his back while collecting a water sample on April 26, 2016. Denison Environmental Services (DES) and AAM were notified of the event. Danny remained onsite, resting his back at the Mount Nansen bunkhouse and left site with EDI on April 28, 2016. AAM was notified of this incident, and all necessary paperwork is being completed and filed.

Table 1. Summary of hydrometric program tasks completed and station conditions during the April 26 – 28, 2016 sampling event.

HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger was downloaded.
H-DC-DX+105	Volumetric	Volumetric measurement was collected. Patches of ice and snow upstream and downstream of sample site.
H-DC-D1b	None	Thick ice persists at station. Water flowing on top of ice and through ice layers – not suitable for discharge measurement.
H-DC-B	Salt Tracer	Salt tracer measurement was collected. Patches of ice and snow along south facing banks.
H-DC-M-WP	Salt Tracer	Salt tracer measurement was collected. Continuous logger is encased in sediment and does not provide representative measurement of water stages within channel. No survey completed due to sedimentation in weir pond. Patches of overflow ice upstream and downstream of weir pond.
H-DC-R	Salt Tracer	Salt tracer measurement was collected. All flowing water contained in usual single channel. Stilling well, staff gauge and continuous logger successfully installed.
H-VC-U	ADV	Velocity-area discharge measurement completed using an ADV. Bankfull conditions in channel. Logger downloaded successfully.
H-BC	ADV	Velocity-area discharge measurement completed using an ADV. Logger was successfully downloaded. No snow or ice in channel.
H-VC-DBC	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded successfully. No snow or ice in channel.
H-VC-UMN	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded successfully. No snow or ice in channel.
H-VC-R	None	No discharge measurement completed as H-VC-R+290 provides preferable channel conditions for measurement. This station will be removed during the next site visit. Logger downloaded successfully.
H-VC-R+290	ADV	Velocity-area discharge measurement completed using an ADV. Minor overland flow along left downstream floodplain. Channel free of 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. Thawed earth at bottom of staff gauges.
H-PC-DSP	Volumetric	Volumetric discharge measurement completed at culvert outlet. Minor ice along banks. No placer mining activity observed immediately upstream.
H-PW	Volumetric	Volumetric discharge measurement was collected at end of discharge pipe. This discharge was collected as a value-added component to determine if the data would assist in the Victoria Creek water balance. Because field crew was at the site to collect a water quality sample there was no additional time/cost associated.

Table 2. Summary of water quality program tasks completed and site conditions during the April 26 – 28, sampling event.

WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-SEEP	Yes	Moderate flow rate from pipe with moderately turbid water. LC50 sample collected.
WQ-TP	Yes	Low water level in pond with lightly turbid water. Augured hole through ice up to 0.25 m thick to collect sample.
WQ-DC-DX	Yes	High flowrate with light turbidity. Channel covered with ice 0.05 m thick.
WQ-DC-DX+105	Yes	High water level with light turbidity. Water overflowing banks downstream of sample site. Minor snow in vicinity of sample site.
WQ-DC-D1b	Yes	Low flowrate with clear water flowing on top of ice. Ice estimated to be 2 m thick.
WQ-DC-B	Yes	High flowrate with lightly turbid water. Minor anchor ice present along channel.
WQ-DC-U	Yes	Moderate flow with moderately turbid water. Minor ice along banks of channel.
WQ-DC-R	Yes	Moderate flow with lightly turbid water. Overflow ice upstream of sample site.
WQ-CH-P-13-01	Yes	Moderate flow with lightly turbid water. Small patches of ice and snow on slope face.
WQ-LW-SEEP-01	No	Site dry; no sample collected.
WQ-NW-SEEP-02	Yes	Ice in pool at pipe outlet. Plastic bag attached to pipe outlet to collect water; minimal flow as only 2.2 L collected over 9 hour period. Water was moderately turbid.
WQ-BC	Yes	High flow with high turbidity water. No snow or ice in channel.
WQ-VC-U	Yes	High flow with high turbidity water. No snow or ice in channel.
WQ-VC-DBC	Yes	High flow with high turbidity water. No snow or ice in channel.
WQ-VC-UMN	Yes	High flow with high turbidity water. No snow or ice in channel.
WQ-VC-R	No	Extensive overflow ice upstream of road crossing prevents sample collection at this site until spring 2016. The remaining winter/early spring 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). High flow in channel with highly turbid water. Water above right downstream bank.
WQ-PW	Yes	Moderate flow with clear water. Typical site conditions for the spring/summer period.
WQ-DESS-01	Yes	High flow with clear water. Minor ice along edges of channels (1 cm). Water flows along access road downstream of site.
WQ-DESS-02	No	Site dry; no sample collected.
WQ-DESS-03	No	Ponded water at site with no detectable flow; no sample collected.
WQ-ADIT-SEEP	No	No visible seepage or evidence of recent flows. Partial snow coverage along slope face.

WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PC-U	Yes	Moderate flow with lightly turbid water.
WQ-PC-D	Yes	High flow with highly turbid water. Channel braided at sampling site. Melt water flowing over road and along re-vegetated bank possible source of elevated turbidity.
Quality Assurance/Quality Control Samples		
Field Replicate 1	Yes	Collected at WQ-SEEP.
Field Replicate 2	Yes	Collected at WQ-DC-R.
Field Blank	Yes	Sample bottles filled with deionized water supplied by ALS; samples were filtered and preserved as instructed. Collected at WQ-PW.
Travel Blank	Yes	Samples were provided by the lab and were transported to and from site.