ENVIRONMENTAL DYNAMICS INC.

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November 29, 2016

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: Emilie Hamm, A/Project Manager

RE: Mount Nansen Water Resources Investigations – Field Memo: November 7-9, 2016 - FINAL

The following memo provides a record of the activities conducted during EDI's November 2016 trip to Mount Nansen; sampling conducted as part of the 2016/17 Water Resources Investigations. This memo provides a record of site conditions and tasks that were completed at each hydrometric station and water quality site. 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:	November 7-9, 2016
EDI Field Staff:	Joel MacFabe, Gabriel Rivest, Danny Skookum
Weather conditions during monitoring:	Air temperatures ranged from -5 to 1°C, with light snow to clear skies.
Any changes to project scope, schedule or budget:	None. All sampling and monitoring was conducted within scope.
Additional Comments:	Site conditions were reflective of early winter; water levels were low to moderate. Seeps and small streams were frozen.
Wildlife Sightings:	No wildlife was observed.
Site concerns (safety):	None.

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

HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger downloaded.
H-PC-DSP	None	Ice build-up inside culvert and channel frozen to bed.
H-DC-DX+105	Salt Tracer	Salt tracer discharge measurement completed. Channel generally covered with thin layer of ice (0.01 m thick) and snow.
H-DC-D1b	None	Stream frozen to bed. Multiple layers of overflow ice with total thickness 0.3 m.
H-DC-B	None	Stream frozen to bed with layers of overflow ice. Conditions not suitable for discharge measurement. Stilling well and logger removed from station.
H-DC-M-WP	Salt Tracer/ Volumetric	Concurrent salt tracer and volumetric discharge measurements completed.
H-DC-R	None	Overflow ice at site, with water flowing between layers of ice. Conditions not suitable for discharge measurement. Stilling well and logger removed from station.
H-VC-U	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded. Ice up to 0.07 m thick along banks.
H-VC-DBC	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded. Channel covered with ice up to 0.15 m thick.
H-BC	None	Channel frozen to bed – no water present. Stilling well and logger removed from station.
H-VC-UMN	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded. Ice up to 0.1 m thick covering channel.
H-VC-R+290	ADV	Velocity-area discharge measurement completed using an ADV. Logger downloaded. Channel covered with ice up to 0.15 m thick with several open water leads.
H-SEEP	Volumetric	Volumetric measurement collected in addition to reading the flow meter in the seepage pond shack. Seepage pond covered with ice.
H-TP	None	Low water level. Pond covered with 0.2 m thick ice.

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

WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-SEEP	Yes	Ice build-up at pipe outlet. Moderate flowrate with lightly turbid water.
WQ-TP	Yes	Low water level with clear water. Pond covered with ice 0.2 m thick.
WQ-DC-DX	No	Site frozen to substrate.
WQ-DC-DX+105	Yes	Moderate flow rate with lightly turbid water. Thin ice (0.01 m thick) and snow covering channel.
WQ-DC-D1b	No	Site frozen to substrate.
WQ-DC-B	Yes	Low flow rate with lightly turbid water. Multiple layers of overflow ice and total thickness of 0.65 m.
WQ-DC-U	Yes	Unable to detect water at usual sampling location. Sampled collected downstream of road, near H-DC-R station. Low flow with lightly turbid water. Channel covered with ice up to 0.04 m thick.
WQ-DC-R	Yes	Moderate flow with lightly turbid water. Channel covered with ice up to 0.07 m thick.
WQ-VC-U	Yes	Moderate flow rate with clear water. Channel covered with ice up to 0.04 m thick.
WQ-VC-R+150	Yes	Moderate flow rate with clear water. Channel covered with ice up to 0.05 m thick.
WQ-VC-DBC	Yes	Moderate flow rate. Ice 0.07 m thick covering channel. Open water leads upstream of sample site.
WQ-VC-UMN	Yes	Moderate flow rate with clear water. Channel generally covered with ice up to 0.1 m thick.
WQ-BC	No	Thin layer of ice above dry channel bed – no sample collected.
WQ-PC-U	No	Overflow ice with no detectable flow – no sample collected.
WQ-PC-D	No	Site frozen to substrate.
WQ-CH-P-13-01	No	Overflow ice with no detectable flow – no sample collected.
WQ-NW-SEEP-02	No	Site frozen. No evidence of recent flow; pipe outlet is dry.
WQ-PW	Yes	Moderate flow rate with clear water. Minor ice accumulation downstream of pipe outlet.

Quality Assurance/Quality Control Samples

Site	Sampled? (Yes/No)	Notes / Explanations
Field Replicate 1	Yes	Collected at WQ-DC-U-r.
Field Replicate 2	Yes	Collected at WQ-DC-DX+105-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.