

August 26, 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: August 18-20, 2015**

The following memo is a brief field update from EDI’s August 2015 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.

<b>Trip Dates:</b>	August 18 - 20, 2015
<b>EDI Field Staff:</b>	Scott Dilling, Dawn Hansen and Danny Skookum
<b>Weather conditions during monitoring:</b>	Conditions for the three days included air temperatures from 6– 17°C, with partly cloudy to overcast skies, some occasional rain, and calm to windy conditions.
<b>Any changes to project scope, schedule or budget:</b>	The schedule was originally for August 10-12, but was switched to August 18-20. The next trip is scheduled for Sept 14-16. This trip included additional sampling in the Upper Dome Creek/Mill Site area, where 7 additional samples were collected. These will be covered by the contingency fund in the budget.
<b>Additional Comments:</b>	Water levels appeared higher than last trip at most sites and stations. Back Creek had flow, along with WQ-DC-DX+105. Active placer mining construction works continues along Pony Creek, upstream of the WQ-PC-U site, resulting in high sediment loads downstream to the two water quality sites and one hydrometric station. The mine operator was pumping water out of a settling pond downstream at three hour intervals. The field crew removed the EDI boat from the pit lake and stored it back in the Ambulance Shed. EDI will remove the boat from the site during a subsequent trip.
<b>Wildlife Sightings:</b>	None.
<b>Site concerns (safety):</b>	None.



Table 1. Summary of hydrometric program tasks completed during the August 18-20, 2015 sampling event.

## HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger was downloaded.
H-DC-DX+105	Volumetric	Volumetric discharge estimate was made.
H-DC-D1b	Volumetric	Volumetric discharge estimate was made. Water continues to go to ground downstream of measurement site.
H-DC-B	Salt Tracer	Salt tracer measurement was collected.
H-DC-M WEIR	Volumetric, Salt Tracer	Volumetric discharge estimate made at downstream end of weir. All water flows through weir. Salt tracer measurement also collected for concurrent measurement.
H-DC-R	Volumetric, Salt Tracer	High flow and significant amount of instream vegetation. Water levels may be affected by higher pumping rates out of H-SEEP. Salt tracer measurement was collected concurrently with volumetric flow estimate.
H-VC-U	ADV	Velocity-area discharge measurement completed using an ADV. Water level moderate.
H-BC	Salt Tracer	Water flowing with highly turbid water. Salt tracer measurement was collected. Installed three new benchmarks at site, as ice from last winter affected the integrity of the existing benchmarks.
H-VC-DBC	ADV	Velocity-area discharge measurement completed using an ADV. Water level moderate, moderate turbidity from Back Creek influence.
H-VC-UMN	ADV	Velocity-area discharge measurement completed using an ADV. Water level moderate.
H-VC-R	ADV	Velocity-area discharge measurement completed using an ADV. Water level slightly higher than last trip with higher turbidity (may be result of recent rain and/or contributions from Back Creek flowing now).
H-SEEP	Volumetric	Volumetric measurement collected in addition to reading of the flow meter in the seepage pond shack. Note DES cleaned out pipe 2 days ago which resulted in higher flow rate than desired – they have since been adjusting/managing the rate.
H-TP	None	Water level very low. Staff gauges were above water level elevation – approximately 2.5 m of dry material behind staff gauges.
H-PC-DSP	None	No consistent flow through culvert, volumetric discharge estimate not possible. Placer mining operation not pumping water at time of station visit. High amount of sediment in weir pond and stilling well.
H-PW	Volumetric	Volumetric discharge estimate was made at end of discharge pipe.



Table 2. Summary of water quality program tasks completed during the August 18-20, 2015 sampling event.

## WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PIT-1	No	Removed from scope.
WQ-PIT-2	No	Removed from scope.
WQ-PIT-3	No	Removed from scope.
WQ-SEEP	Yes	Moderate flow rate from pipe; regular sample collected. Pipe recently cleaned out by DES. Has resulted in higher flow rate than desired, DES adjusting pump rate.
WQ-TP	Yes	Very low water level in pond. Light turbidity.
WQ-DC-DX	Yes	Water level moderate with some moderate turbidity.
WQ-DC-DX+105	Yes	Water level moderate with some light turbidity. Minimal algae growth in channel.
WQ-MS-S-03	Yes	Sampled as part of extra sampling (not scheduled for regular sampling). See section below for information.
WQ-MS-S-08	No	No surface flow, appeared to be some water deep in hole.
WQ-DC-D1b	Yes	Moderate flow in channel with light turbidity.
WQ-DC-B	Yes	Moderate flow in channel with moderate turbidity.
WQ-DC-U	Yes	Moderate flow in channel with moderate turbidity.
WQ-DC-R	Yes	Moderate flow in channel with light turbidity.
WQ-CH-P-13-01	Yes	High flows with very clear water. High water compared to last trip.
WQ-LW-SEEP-01	No	Seep was dry, no samples collected. No evidence of recent flow.
WQ-DESS-01	Yes	High flows with clear water. Recent rain over last few days likely contributed.
WQ-DESS-02	Yes	Low flows with clear water. Recent rain over last few days likely contributed, otherwise may have been dry.
WQ-DESS-03	Yes	Low flows with clear water. Recent rain over last few days likely contributed, otherwise may have been dry.
WQ-BC	Yes	Water level high with high turbidity. Likely related to placer mining operations upstream.
WQ-VC-U	Yes	Water levels moderate, with light turbidity. Higher turbidity water visible at confluence with BC downstream of sampling site.
WQ-VC-DBC	Yes	Water levels moderate, with moderate turbidity.
WQ-VC-UMN	Yes	Water levels moderate, with moderate turbidity. Thunder storm in area but no lightning.
WQ-VC-R	Yes	Water level moderate with moderate turbidity.
WQ-PW	Yes	Drinking water sample and Bacteriological sample collected from pipe outlet.
WQ-ADIT-SEEP	No	Seep dry, no samples collected.
WQ-PC-U	Yes	Flow high with very turbid water. Water being pumped from upstream



## WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
		settling pond for placer mining activity. Two pumps running at time of sampling.
WQ-PC-D	Yes	Flow level very low, creek had light turbidity, placer mine not pumping water from settling pond at time of sample collection.

### Quality Assurance/Quality Control Samples

Field Replicate 1	Yes	Collected from WQ-DC-B-r
Field Replicate 2	Yes	Collected from WQ-VC-R-r
Field Replicate 3	Yes	Collected from WQ-DESS-01
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 provided by lab and were transported to and from site.

### Additional Upper Dome Creek/Mill Site Investigations

WQ-MS-S-03	Yes	Moderate flow at site with significant algae growth along channel.
WQ-DC-8	Yes	Site is upstream of WQ-DC-D1b. Moderate flow, light turbidity, surrounding vegetation and sediment orange in colour.
WQ-DC-10	Yes	Site is downstream of WQ-DC-11 and MS-S-03. Moderate flow with clear water, orange colour deposits on substrate.
WQ-DC-11	Yes	Site is downstream of WQ-DC-12. Moderate flows, clear water.
WQ-DC-12	Yes	Site is downstream of WQ-DC-DX+105. Moderate flows, clear water.
WQ-DC-13	Yes	Site is upstream of WQ-DC-DX+105. Moderate flows, clear water.
WQ-DC-14	Yes	Site is upstream of WQ-DC-13. Moderate flows, clear water.
WQ-MS-S-A	No	Additional mill seep investigated, but seep was dry.
WQ-MS-S-B	No	Additional mill seep investigated, but seep was dry.