

May 27, 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, 4114-4th Avenue
PO 2703, Whitehorse, YT, Y1A 2C6

Attention: Erik Pit, Type II Project Manager

Re: Mount Nansen Water Resources Investigations – Field Memo: May 12 to 14, 2015

The following memo is a brief field update from EDI’s mid-May 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.

Trip Dates:	May 12 - 14, 2015
EDI Field Staff:	Jane Bachman, Scott Dilling, Dawn Hansen and Danny Skookum
Weather conditions during monitoring:	conditions were clear, sunny, calm to light winds and daytime high air temperatures from 8 to 14°C
Any changes to project scope, schedule or budget:	None. All sampling and monitoring was conducted within scope.
Additional Comments:	Recent placer mining staking observed (extensive flagging and staking) immediately adjacent to WQ/H-VC-UMN site in the Victoria Creek valley. Staking was not observed on the previous trip.
Wildlife Sightings:	None.
Site concerns (safety):	On the Mount Nansen road near the trail access to WQ/H-VC-UMN there is a trap line sign visible at the roadside. A caribou leg (bait) was wired to a tree at ground level several meters away from the trap line sign. The leg appeared to be left from winter.



Table 1. Summary of hydrometric program tasks completed during the May 12-14, 2015 sampling event.

HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
ATM-VC5	None	Barometric logger was downloaded and re-programmed to 15 min intervals. The Mount Nansen weather station provides backup barometric logger data for the hydro network; the weather station is not transmitting and therefore a temporary back up logger was installed.
H-DC-DX+105	Volumetric	A salt tracer measurement was collected. There was moderate flow with near-bank full conditions. No vegetation was located in channel.
H-DC-D1b	None	Channel conditions not suitable for measurement.
H-DC-B	Salt Tracer	Salt tracer measurement was collected. There was only minor ice present on the stream bank near the bridge.
H-DC-M WEIR	Salt Tracer	Accumulated sediment was observed in the weir pond. No visible ice damage to the weir. Substantial ice sheets still present in the valley upstream and downstream of the weir.
H-DC-R	Volumetric, Salt Tracer	Stilling well, staff gauge and level logger installed. A salt tracer was conducted in the main channel, and a volumetric measurement was used to estimate flow in a secondary side channel on the north side of the valley.
H-VC-U	ADV	A new stilling well, staff gauge and level logger were installed approximately 5 m upstream of the 2014/15 location. Benchmarks remain unchanged.
H-BC	None	No discharge estimate possible due to channel braiding and avulsion due to ice conditions; a series of five significant channels and waterfalls were present upstream of the station contributing flow to Victoria Creek upstream of VC-U. A minor proportion of flow enters Victoria Creek at normal confluence location.
H-PW	Volumetric	Volumetric measurement was collected from the outflow pipe.
H-VC-DBC	ADV	Downstream cobble point bars were visible. Channel appears stable, and there was no evidence of high water marks above the banks.
H-VC-UMN	ADV	Velocity-area measurement was conducted approximately 25 m upstream of stilling well where it was possible to safely wade in the channel.
H-VC-R	ADV	Sediment accumulated at the base and inside the well; the logger was raised 3.6 cm. Investigated possible new locations for stilling well; no suitable location was found. Stilling well will remain in place until water levels recede and the channel morphology is more visible. Numerous side channels were active at the time of the site visit.
H-SEEP	Volumetric	Volumetric measurement collected in addition to reading of the flow meter in the seepage pond shack. Readings on the flow meter were fluctuating; Denison indicated there may be something stuck in culvert or pump.
H-TP	SG	Staff gauge was wetted (1.169 m)



HYDROLOGY

Station	Hydrometric Measurement Type	Notes & Comments
H-PC-DSP	Volumetric	Volumetric measurement was collected. Good flow was present out of the culvert and all ice had melted.



Table 2. Summary of water quality program tasks completed during the May 12-14, 2015 sampling event.

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	Readings on the flow meter were fluctuating; Denison indicated there may be something stuck in culvert or pump.
WQ-TP	Yes	The pond had 50% ice coverage. Water level was very low; staff gauge read 0.169 at 18:20 on 13 May.
WQ-DC-DX	Yes	Channel is now largely ice-free. The flow level was moderate with light turbidity.
WQ-DC-DX+105	Yes	Small amounts of ice/snow remain at the site on right bank; water flow was high, and water was clear.
WQ-MS-S-03	Yes	All ice melted at site; water level was moderate. Wire was noted in channel upstream of sample site.
WQ-MS-S-08	No	Site was frozen – not suitable for sampling.
WQ-MS-S-A	Yes	Opportunistic mill seep sample; sample collected at same site as last trip and there was considerably more flow than noted on the previous trip.
WQ-MS-S-B	Yes	There was a moderate – high amount of slow at this seep; none was noted on the previous sample trip. Flow appears to be coming from below/at mill building.
WQ-DC-D1b	Yes	Site is largely ice-covered with water was within and under ice. A significant amount of water flows outside the confined banks due to remaining presence of ice in channel.
WQ-DC-B	Yes	Channel mostly open, with some ice along right downstream bank. Flow was moderate-high and clear.
WQ-DC-U	Yes	Sample taken from open channel in middle of stream near regular location. Ice of variable thickness (0 – 50 cm) still present at site.
WQ-DC-R	Yes	Discontinuous ice present on site; some water flowing over ice. Water level was moderately high.
WQ-CH-P-13-01	Yes	Flow at this site was moderate/high; the flow was not confined, and therefore could not be estimated.
WQ-DESS-01	Yes	Water levels had increased from previous week, and a sample was collected. The flow was not confined, and therefore could not be estimated.
WQ-DESS-02	No	A small amount of water was available for sampling; water was clear.
WQ-DESS-03	Yes	Water levels had increased from previous week, and a sample was collected. The flow was not confined, and therefore could not be estimated.
WQ-ORE	Yes	Small seep, with water flowing down the road leading into the Pit. Flow was low, and water was moderately turbid.
WQ-L1	partial	Ice and small amount of water present. Collected only partial sample.
WQ-L2	partial	Ice and small amount of water present. Collected only partial sample.



WATER QUALITY

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-LW-SEEP-01	No	Seep was dry.
WQ-NW-SEEP-02	Yes	Approximately 4 L of water was collected between 8:02 May 13 and 07:35 May 14.
WQ-WR-SEEP-A	No	Seep is dry.
WQ-WR-SEEP-B	No	Ground is moist, but no evidence of flowing water.
WQ-BC	Yes	Flow is braided throughout the area due to high flows and continued presence of ice (30 cm thick) that remains in the Back Creek channel. Sample collected from open water lead next to regular sample site.
WQ-VC-U	Yes	Sample collected from regular location. Flow levels were very high. Samples likely affected by Back Creek which continues to Victoria Creek in several areas upstream of the regular confluence.
WQ-VC-DBC	Yes	Sample collected from regular location. Water level was very high, but flow remained within bank confines.
WQ-VC-UMN	Yes	Sample collected from regular location. Water levels were high, and water was entering creek from RDB approximately 40 m upstream of sample site.
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 were high; nearby side channels now wetted.
WQ-PC-U	Yes	Water flowing with no ice present at sample site.
WQ-PC-D	Yes	Ice/snow remains on RBD, but all snow and ice melted from LDB. Water level in the creek was high.
WQ-PC-WR	Yes	New seep identified at base of road embankment 35 m downstream of culvert near adit.
WQ-ADIT-SEEP	No	No water present at sampling site.
Quality Assurance/Quality Control Samples		
Field Replicate 1	Yes	Collected from WQ-PC-D
Field Replicate 2	Yes	Collected from WQ-VC-DBC
Field Replicate 3	Yes	Collected from WQ-DC-D1b
Field Blank	Yes	Sample bottles filled with deionized water supplied by ALS; samples were filtered and preserved as instructed.
Travel Blank	Yes	Samples provided by lab and were transported to and from site.