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, 4114-4th 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.

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| **Trip Dates:** | August 18 - 20, 2015 |
| **EDI Field Staff:** | Scott Dilling, Dawn Hansen and Danny Skookum |
| Weather conditions during monitoring: | 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. |
| **Any changes to project scope, schedule or budget:** | 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. |
| **Additional Comments:** | 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. |
| **Wildlife Sightings:** | None. |
| **Site concerns (safety):** | None. |

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. |

1. 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 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. |