



Date May 3rd 2013
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Water Resources Officer, Kitikmeot Region
Aboriginal Affairs and Northern Development Canada
Nunavut Regional Office
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Your Ref Inspection of Water Licence 2BE-HAK0915, April 23-24 2013
Our Ref Hackett River Exploration camp

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Bonjour Eva,

As a follow-up of your Inspection Report of April 26th on your recent visit at Hackett River Exploration Camp, please find below, in Table 1, the results of the water use from our camp activities in March and April 2013. The more detailed results are available in the attached spreadsheet.

In summary, total volumes (calculated from direct flow measurements) of water used on a daily basis at the Hackett River Exploration Camp (at all drill sites and at the camp) during the drilling period (starting March 14th) varied between 11 and 182 m³/d for an average of 89 m³/d.

Fine tuning of water management practices at camp have allowed a sharp decrease (about 40%) in water use from March to April 2013 (from 104 to 64 m³/d). This improvement in water management practices at site is illustrated by the steady conditions observed in the last 23 days of April, showing an average water use of 48 m³/d. Measures used to optimize water use at the drill sites are described in greater details in the attached memo (May 2nd 2013).

Should you need more info, please do not hesitate to contact me at your convenience.

Best Regards

Robert Prairie

Xstrata Zinc Canada
Director, Ecological Effects Assessment



cc: P. Beaulieu
D. Hamel / P. Lessard / S. Burgess

Table 1
Daily water volumes measured at Hackett River Exploration Site, March – April 2013

Date	Water used at camp*	Water used by Saw Room	Water pumped from lakes for drills	Water returned to lakes	Water Used by drills	Total water used by Hackett Exploration site
24-Feb-13	5.7					6
25-Feb-13	2.8					3
26-Feb-13	4.3					4
27-Feb-13	3.6					4
28-Feb-13	1.6					2
1-Mar-13	2.3					2
2-Mar-13	3.4					3
3-Mar-13	0.0					0
4-Mar-13	1.9					2
5-Mar-13	1.9					2
6-Mar-13	3.8					4
7-Mar-13	4.6					5
8-Mar-13	1.5					2
9-Mar-13	3.9					4
10-Mar-13	2.9					3
11-Mar-13	2.7					3
12-Mar-13	3.8					4
13-Mar-13	3.8					4
14-Mar-13	5.7		77		83	89
15-Mar-13	8.9	1.7	68		79	89
16-Mar-13	6.7		159		166	173
17-Mar-13	4.2		177		181	186
18-Mar-13	8.4		170		178	187
19-Mar-13	4.8	1.7	164		171	177
20-Mar-	5.7		120		126	131

13						
21-Mar-13	7.2		121	12	116	123
22-Mar-13	3.2		135	48	90	93
23-Mar-13	8.3	1.7	185	92	104	113
24-Mar-13	5.0		200	124	82	87
25-Mar-13	9.3		210	171	48	57
26-Mar-13	6.8		233	192	48	55
27-Mar-13	6.7	1.7	205	173	41	49
28-Mar-13	8.0		232	198	41	49
29-Mar-13	7.0		135	95	47	54
30-Mar-13	11.3		214	181	44	55
31-Mar-13	7.4		185	99	93	100
1-Apr-13	5.7	1.7	263	162	109	116
2-Apr-13	2.8		241	158	86	89
3-Apr-13	4.3	1.7	233	149	91	96
4-Apr-13	8.8		247	141	115	124
5-Apr-13	10.6		204	154	61	71
6-Apr-13	10.3		309	186	133	144
7-Apr-13	6.2		332	236	103	109
8-Apr-13	9.5	1.7	265	241	35	46
9-Apr-13	8.9		275	240	44	53
10-Apr-13	1.7		251	243	9	11
11-Apr-13	7.4		237	221	23	31
12-Apr-13	6.1	1.7	193	181	20	27
13-Apr-13	7.3		241	208	40	47
14-Apr-13	7.7		252	214	46	54
15-Apr-13	8.8	1.7	225	180	56	66
16-Apr-13	8.8		226	179	56	65
17-Apr-13	7.4		250	217	41	48
18-Apr-13	9.0		281	264	27	36

19-Apr-13	6.9	1.7	290	270	29	37
20-Apr-13	8.7		231	199	40	49
21-Apr-13	7.3		301	267	41	48
22-Apr-13	8.7		293	271	30	39
23-Apr-13	12.7	1.7	192	144	63	77
24-Apr-13	7.4		258	242	24	31
25-Apr-13	9.2		284	249	45	54
26-Apr-13	8.3		281	245	44	52
27-Apr-13	9.6		296	254	52	61
28-Apr-13	7.6		301	249	52	60
29-Apr-13	15.9		191	164	28	44
30-Apr-13	11.9		258	213	46	58

Note: Water pumped from Camp Lake to the camp is estimated at 20-30 m³/d which ensures that the line is kept unfrozen. We are currently developing a flow monitoring program of the water pumped from and returned to Camp Lake.



HACKETT RIVER Exploration



To: Robert Prairie
Copy to: Denis Hamel, Normand Dupras
From: Pascal Lessard
Date: May 2nd, 2013
Subject: Water, Salt and Drill Cutting Management

Surface Drilling Program

The 2013 Hackett River drill program is designed to complete close to 56,000 m of surface diamond drilling. Exploration activities started mid-March and should extend to early September.

A total of 6 diamond drills are necessary to achieve this program. Diamond drill holes are located sometimes on lakes, at the beginning of the season, but mostly on land. Drill rigs are moved by dozer during the winter months and by helicopter as soon as the snow cover cannot allow mobile equipment to travel in the tundra without disturbing the environment.

A constant flow of water is necessary to execute any core drilling. Calcium Chloride is used to prevent the diamond drill hole to freeze since the Hackett River project is located in an environment where the permafrost is more than 500 metres deep.

Implemented

Recirculation system

A new water recirculation system has been installed on every rig in 2013. It is composed of three large plastic decantation tubs to clean the water and collect the "sludge" at the bottom of every tub. This system requires a second shack that is also use for storage and heated workplace. The recirculation system has the following advantage:

- Using less water
- Using less salt
- A better control on the sludge
- Discharging cleaner water

Water Meters

The amount of water used for the drilling operations is measure by a water meter installed at the drill. A second water meter is also installed to measure the total volume of water pumped. These two water meters are giving us the opportunity to see the real consumption of water by the drilling operations which is a small portion of what it is pumped.

Drill Site Inspection

Every drill site is inspected twice. The first inspection is a general inspection completed by the geologist. The site has to be clean (i.e. no debris of any kind) before proceeding to the next drill site. If the site is not clean, the drillers perform the required actions to ensure site is clean.

The second inspection, which is a detailed one, is performed by the GPS surveyor within 24h to 48h after the drill is moved out. A detailed inspection sheet is completed for every setup and pictures are taken. The paper copy of the detailed report is filed in camp and the digital copy on the Hackett River Xstrata server.

Water Source

The water source for every diamond drill hole is identified and registered (name of lake, coordinates) and the volume of water pumped is recorded at each diamond drill rig on a daily basis.

Fuel Drum

The fuel drums used for the drill rigs and pump shack are not transported to drill sites anymore. The fuel is now transferred from the fuel barrel to double wall fuel tanks in a controlled environment on Hackett river camp site. This is minimizing the potential fuel spill to the environment.

Implementing

Small Berms for Consumables and Sludge at Drill site

Salt and fuel tank at the drill sites or at the pump will be contained in small fuel berms. Every rig and water pump shack fuel tank will be equipped with these berms to contain any fuel or salt "leaks".

The sludge is transferred from the recirculation system to megabags outside of the drill shack. These sludge megabags will also have a small berm underneath and a tarp will be raised higher than the megabags sides to prevent any sludge "spill".



An important quantity of these small berms has been ordered and should be onsite shortly.

"Tarp" Under the Rig

A large heavy duty tarp will be installed underneath the rig in between the logs and the rig floor. The only opening of this "tarp" will be around the casing. This will prevent any oil or fuel spill and will greatly help in cleaning drill sites efficiently.

Investigating

Water Pump Capacity

The drill water pump has only one speed and is always pumping the same volume of water per day when operating. Tests will be performed to reduce the pumped volume of water pumped out of the water body. Test may be also done with other type of pump if necessary. Note that the flow of water from the pump to the rig has to be high enough to prevent the water line from freezing in winter conditions.

Hydraulic Cooling System

The drill rig hydraulic system needs water to cool down the fluids. We are currently investigating the option of using the re-circulated (clean) water coming out of the recirculation system to cool down the hydraulic system. This would have the effect of decreasing even more the volume of water used to drill.

Drill Cuttings pH & Dump Site Monitoring

Drill cuttings are now denser due the recirculation system put in place and can be easily disposed of in a natural depression. We are currently developing a monitoring program for these cuttings natural depression as well as developing a procedure to measure pH on cuttings.