

Follow Up Report: #18-378 August 19, 2018 MEL-14 TDS Concentration Criteria Exceeded

Description of Incident:

A sample of treated water from MEL-14 (final effluent sampling port prior to discharge to Meliadine Lake) was collected on August 19, 2018. Upon review of the laboratory analysis results, the total dissolved solids (TDS) concentration was found to be 1,430 mg/L which exceeded the permitted discharge limit of 1,400 mg/L.

As per the obligations under the Nunavut Water Board License 2AM-MEL1631, Part F, item 3 pursuant to subsection 12(3) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act., samples were collected for laboratory analysis to assess TDS concentrations and other water quality parameters during final effluent discharge at MEL-14. The laboratory results were received on September 13, 2018 and reviewed and reported on September 15, 2018. With regards to your question on reporting delay, due to the remote location and the extensive list of parameters that we sample for the Mel-14 sample, the delay in receiving results from the lab is generally 3-4 weeks. This is because the lab sub-contracts part of the analysis to their sister lab in Burnaby BC, so it can take a while for the sample to be received and processed.

Cause and Corrective Measures

The sample was collected at 10:30 am on August 19, 2018. During this time, there was an unscheduled power outage and effluent release had stopped at the effluent water treatment plant (EWTP). Water was not pumped through the sampling port located at MEL-14 during this time. The person that conducted the sampling was a summer intern student who has returned to school and the sampling conditions and confirmation of the location that the sample was collected has not been verified. Based on the field parameter monitoring, the power outage, review of laboratory results from previous and post sampling events, the TDS concentrations reported from the laboratory analysis for MEL-14 on August 19, 2019 are assumed to be not representative for the final effluent discharged the sampling port for MEL-14 to Meliadine Lake. It is possible that it was sampled from a port that was not treated and not discharging to Meliadine Lake.

Table 1 presents the operational report, which summarizes the monitoring results at the EWTP on August 19, 2018. Table 2 presents the daily volume effluents discharged at MEL-14 to Meliadine Lake in August 2018.

Training for all personnel responsible has been conducted to ensure that future MEL-14 sampling is always collected from the same location, after treatment when the power and pumps are working. In addition,

the Environment Department at Meliadine is currently implementing a data management system for laboratory results. Once it has been fully commissioned, it should mitigate delays with reporting criteria exceedances and improve the timing for requests that may be made if re-analysis is required at the laboratory.

Agnico eagle understands the importance to meet water quality discharge criteria without exceedances. All departments involved discussed the EWTP changes or updates daily in a morning water management meeting and the monitoring and comparisons of data was an important part of a decision-making process.

Table 1: August 19 EWT Operational Report:

Pay Shift Operator:		J. Roussy		Date:	Aug 19 2018		
light Shift Operator:				Weather Conditions D/S:			
				Weather Condition			
CTIFLO#1	7:00	8:00	10:00	12:00	14:00	16:00	18:00
lowrate (m3/hr)	400	400	D	250	200	170	
Total Suspended Solids (TSS) (mg/l) Actiflo ischarge (limit 15 mg/l)	3.43	4.25	0	3.7	3.6	4.44	
eed Turbidity (NTU)	50.93	43.9	W	29.18	25.45	23.45	
H	6.83	6.82	N	6.77	6.67	6.68	
Turbidity (NTU) Actiflo discharge	3.68	3.83		4.83	3.4	4.51	
Conductivity (ms/cm) EWTP Discharge ump	2073	2078	D	2173	2098	2142	
Cationic Polymer Set Point (mg/l)	1	1	0	1	1	1	
Coagulant Set Point (mg/l)	35	35	W	37	42	50	
Aicro-Sand Quantity (g/l)			N	is a			
roduction - ACTIFLO #1	6:00		18:00		Variances		
otaliser Flowrate (m3)	72670	0	729400		2700	2700	

Table 2: EWT Volume Compilation for August 2018

-	EWTP DAIL	OPERATIONA	AL REPORT					6	\		
AGNICO EAGLE)		
NUNAVUT		11 11 11 11 11							9		
NOWAYOT		D/S Volume			N/S	Volume		Day Total Vo	lume		
	CP1 Total	CP1	Meliadine	CP1 Total	CP1	Meliadine	CP1 Total	CP1	Meliadine Lake		
Day	Actifio	recriculated		Actiflo	recriculated		Actiflo	recirculated			
Luj	(m3)	Toomountou	(m3)	(m3)		(m3)	(m3)	(m3)	(m3)		
1-Aug	7.39	7	()	8.265		(110)	15,662		15,662		
2-Aug	7,10			7,885			14,990		14,990		
3-Aug	6,65			6,252			12,910		12,910		
4-Aug	7,075			7,968			15,043		15,043		
5-Aug	7.532			7.314			14,846		14.846		
6-Aug	6,72			6.151			12,876		12.876		
7-Aug	1.000			7,162			8,162			Numbers are estimated from time running at flow setpoints. Ran for 2 hours at ~ 500m3/hr	
8-Aug	1,00			7,102			0,102		0,10		
9-Aug	5.000	4.013	99	3 0	ri n	0 0	5.006	4,01	3 993	Total flow for the day was 5006m3 but only 993m3 reported to Meliadine in the afternoon. There was a bit that was discharged in the morning but could not be recon	
10-Aug	5.30				7.49	0 0	12,795				
11-Aug	3,36										
12-Aug	4.72										
13-Aug	4.19										
14-Aug	5,10										
15-Aug	3,099										
16-Aug	2,83										
17-Aug	2,10										
18-Aug	2.79										
19-Aug	2,78										
20-Aug	3,72										
21-Aug	3.08									77 Flow totalizer now programmed to reset every morning. 24hr result taken from totalizer Low production on D/S due to RO cleaning and conductivity riding the lim	
22-Aug	2.77									33 RO cleaning 5hrs, CP1 conductivity above 2,300, need both RO's constantly for EWTP to discharge in Mel	
23-Aug	1,613									RO cleaning 5hrs, CP1 conductivity above 2,300, Actiflow input flow down to 180m3/h	
24-Aug	1.77						3.547			CP1 conductivity 2400, very low permeate production from RO, windy, poor water quality at MF	
25-Aug	76						764			NO water from CP1, all water reporting to lake is from RO discharge	
26-Aug	53					0 0	537			RO to MEL 103m3/d, Changed to pump RO to CP1 via EWTP pump. Waiting for samples on RO discharge toxicity	
27-Aug	30				30	1 0	601	60		RO to CP1 using EWTP discharge pump (recirc) pipe	
28-Aug	192		-	0 192			384			RO 2 down for ~14hrs.	
29-Aug	18			0 181			362		2 (
30-Aug	55						117			Shutdow both RO 8am, permeate conductivity too high. Did not run overnight	
31-Aug	638.5	5 570	68.	638.5	57	68.5	1,277	1,14	0 137		
Total Volume (m	99.80)			21,31	4	207.841	55.08	4 152 757	Both RO online 4:30pm, Both RO down at 8:30pm issues.	