

August 31, 2009

*Via email and Xpresspost*

Mr. Richard Dwyer  
Licensing Administrator  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0  
Phone: (867) 360-6338

Dear Mr. Dwyer,

**Re: July 2009 Monitoring Program Summary Report**

As required by Water license 2AM-MEA0815 Part I Item 25, please find the July 2009 Monitoring Program Summary Report enclosed.

Should you have any questions regarding this submission, please contact me directly at 819-759-3700 ext. 814 or via email at [stephane.robert@agnico-eagle.com](mailto:stephane.robert@agnico-eagle.com).

Regards,



Stéphane Robert  
Environment Superintendent

*Encl (1)*

*cc: Kevin Buck, Indian and Northern Affairs Canada  
David Abernethy, Indian and Northern Affairs Canada  
Andrew Keim, Indian and Northern Affairs Canada  
Stephen Hartman, Kivalliq Inuit Association*



## MEADOWBANK GOLD PROJECT

# **Monitoring Program Summary Report**

**July 2009**

Type A Water License 2AM-MEA0815

## TABLE OF CONTENTS

<b>SECTION 1 •</b>	<b>BACKGROUND .....</b>	<b>1</b>
<b>SECTION 2 •</b>	<b>WATER QUALITY MONITORING.....</b>	<b>2</b>
2.1	AWPAR Monitoring.....	2
2.2	Dewatering of Second Portage Arm.....	2
2.3	Dike Monitoring.....	5
<b>SECTION 3 •</b>	<b>WATER MANAGEMENT.....</b>	<b>8</b>
3.1	Water Usage.....	8
3.2	Sewage Treatment Plant Monitoring .....	8
<b>SECTION 4 •</b>	<b>SPILL MANAGEMENT SUMMARY .....</b>	<b>9</b>

## LIST OF TABLES

Table 2.1: Monitoring Results Dewatering at TPL July, 2009 .....	3
Table 2.2: Monitoring Results Dewatering at SPL July, 2009 .....	3
Table 2.3: Monitoring Results Dewatering pH and Aluminum July, 2009 .....	4
Table 2.4: Bay-Goose TSS Monitoring – Routine Stations July 28 – 31, 2009 .....	6
Table 2.5: Bay-Goose TSS Monitoring – High Value Habitat Stations July 28 – 31, 2009.....	7
Table 3.1: July 2009 Water Consumption .....	8
Table 3.2: July 2009 STP Effluent Results.....	8
Table 4.1: Summary of July 2009 AEM Internal Spill Reports .....	9

## LIST OF FIGURES

Figure 2.1: Bay-Goose Dike Monitoring Stations .....	5
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## **SECTION 1 • BACKGROUND**

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As required under Part I, Item 25 of Type A Water License 2AM-MEA0815, this report documents the water management, monitoring activity and analytical monitoring along the AWPAP and mine site for the month of July 2009.

It should be noted that the Meadowbank Project is in the construction phase and is not scheduled to commence operations until early 2010. Consequently many of the license specified reporting locations or requirements are associated with facilities that are not yet constructed and thus reporting cannot be fully initiated until these facilities are constructed and commissioned.

The dewatering of the northwest arm of Second Portage Lake continued into July. During this phase of construction no other water has been pumped, discharged or transferred, rather all site contact run-off are contained and directed to the Stormwater Management Pond (Tear Drop Attenuation Pond). The monitoring points covered by this monthly report will expand as the facilities are constructed. Additionally, for the NWB to review, Section 4 summarizes the AEM internal spill reporting for July.

## **SECTION 2 • WATER QUALITY MONITORING**

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### **2.1 AWPART MONITORING**

Similar to June, monitoring results in July did not indicate any water quality issues that have a potential to impact nearby receiving environments (i.e. turbidity below 1 NTUs at all crossings). Turbidity was monitored at least weekly at and near the R02 Compensation area. A plume of turbidity with average values of 10 NTUs subsided in the first week of July as discharge and water levels decreased. Water quality monitoring upstream and downstream of R02 bridge (approximately 250 m downstream of R02 Compensation), did not demonstrate water quality concerns to the receiving environment.

Water samples were collected on July 21, 2009 at all HADD crossings upstream (reference) and downstream of the bridge crossing to assist in the monitoring of the bridge structures and related erosion.

Water quality samples were collected on July 21, 2009 at Quarry 4 (flooded quarry that is a permanent lake), and Quarry 7 and 20 (where water quality was identified in 2008 as having low pH) and in representative contact pools where these materials may have been used.

### **2.2 DEWATERING OF SECOND PORTAGE ARM**

The dewatering of the northwest arm of Second Portage Lake continued in July. All of the dewatering pumps were shut down on July 9 because the Turbidity monthly mean (15 NTU) was reached. The monthly mean for Total Suspended Solids (TSS) was 6 mg/L. The pumps will likely not be restarted until the treatment plant (actiflo) is in operation.

The results for dewatering at Third Portage Lake (TPL) and Second Portage Lake (SPL) respect the maximum monthly mean effluent quality limits (15 mg/L for TSS, 15 NTU for turbidity, 1.5 mg/L for Aluminum and 6 to 9 for pH). Tables 2.1 through 2.3 list the July monitoring results.

Type A Water License 2AM-MEA0815  
July 2009 Monitoring Program Summary Report

**Table 2.1: Monitoring Results Dewatering at TPL July, 2009**

Date	Intake 1		Intake 2		Intake 3		Intake 4		TPL Outlet		All Pumps Not Running	All TPL Water Intake Pumps			
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L					
7/1/2009											x			12.59	5.20
7/2/2009											x			12.59	5.30
7/3/2009											x			12.59	5.40
7/4/2009											x			12.59	5.51
7/5/2009	18.30	8.00	17.70	8.00								18	8.0	12.96	5.56
7/6/2009	16.30	7.00	14.30	8.00								15	7.5	13.29	5.67
7/7/2009	21.50	7.00	21.90	9.00					1.45			22	8.0	14.01	5.88
7/8/2009	16.90	7.00	19.80	6.00								18	6.5	14.38	5.99
7/9/2009	21.40	8.00	22.30	8.00								22	8.0	14.83	6.16

**Table 2.2: Monitoring Results Dewatering at SPL July, 2009**

Date	Intake 5		Intake 6		SPL Outlet		All Pumps Not Running	All SPL Water Intake Pumps			
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean
	NTU	mg/L	NTU	mg/L	NTU	mg/L					
7/1/2009							x			14	4.8
7/2/2009							x			14	4.8
7/3/2009			9.84					9.84		14	4.8
7/4/2009			9.8	4				9.80	4.0	14	4.8
7/5/2009			10.3	5				10.30	5.0	14	4.8
7/6/2009			12	7				12.00	7.0	15	4.9
7/7/2009					3.41	2	x				
7/8/2009							x				
7/9/2009							x				

**Table 2.3: Monitoring Results Dewatering pH and Aluminum July, 2009**

Date	Intake 1		Intake 2		Intake 3		Intake 4		Intake 5		Intake 6	
	pH	Total Al	pH	Total Al	pH	Total Al	pH	Total Al	pH	Total Al	pH	Total Al
	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L
7/6/2009	6.87	0.457	6.92	0.416							6.88	0.407

## 2.3 DIKE MONITORING

The following preparation work was completed for the turbidity monitoring that will be conducted during the construction of the Bay-Goose dike:

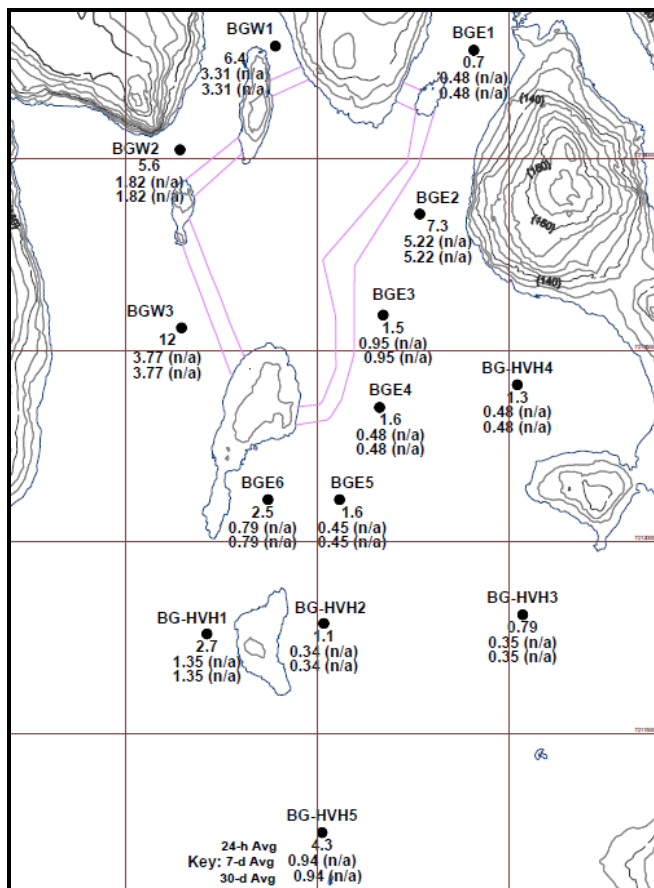
1. Sediment traps were installed in TPL and in SPL (19).
2. Baseline turbidity and water quality assessment was completed on TPL.
3. Routine turbidity monitoring stations were set-up.

The dike construction began on July 27. The turbidity is measured twice daily at routine stations plus every few days at broader stations. Figure 2.1 shows the location of the monitoring stations. The double turbidity curtains retained the TSS and the limits were respected. At the end of July, the TSS values for the Bay-Goose dike construction were:

- 24 hr: 1 to 11 mg/L (limit 50 mg/L)
- 30 days: 0.61 to 4.5 mg/L (limit 15 mg/L)

Tables 2.4 and 2.5 summarize the daily results for the routine and high value habitat monitoring stations.

**Figure 2.1: Bay-Goose Dike Monitoring Stations**





Type A Water License 2AM-MEA0815  
July 2009 Monitoring Program Summary Report

**Table 2.4: Bay-Goose TSS Monitoring – Routine Stations July 28 – 31, 2009**

	Station	BGW1				BGW2				BGW3			
	Time Period	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg
Date of Analysis	Time of Analysis												
7/28/2009	22:00	0.86	0.38 (n/a)	0.38 (n/a)	0.38 (n/a)	0.32	0.27 (n/a)	0.27 (n/a)	0.27 (n/a)	0.29	0.28 (n/a)	0.28 (n/a)	0.28 (n/a)
7/29/2009	20:00	3.67	2.35	1.48 (n/a)	1.48 (n/a)	0.55	0.42	0.35 (n/a)	0.35 (n/a)	0.26	0.26	0.27 (n/a)	0.27 (n/a)
7/30/2009	20:00	4.77	4.14	2.33 (n/a)	2.33 (n/a)	2.10	1.55	0.59 (n/a)	0.59 (n/a)	1.17	0.95	0.47 (n/a)	0.47 (n/a)
7/31/2009	22:00	6.69	6.45	3.31 (n/a)	3.31 (n/a)	6.05	5.61	1.82 (n/a)	1.82 (n/a)	17.95	12.32	3.77 (n/a)	3.77 (n/a)

	Station	BGE1				BGE2				BGE3			
	Time Period	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg
Date of Analysis	Time of Analysis												
7/28/2009	22:00	0.52	0.39 (n/a)	0.39 (n/a)	0.39 (n/a)	0.30	0.28 (n/a)	0.28 (n/a)	0.28 (n/a)	0.25	0.25 (n/a)	0.25 (n/a)	0.25 (n/a)
7/29/2009	20:00	0.56	0.40	0.39 (n/a)	0.39 (n/a)	5.79	3.32	1.99 (n/a)	1.99 (n/a)	1.35	0.84	0.57 (n/a)	0.57 (n/a)
7/30/2009	20:00	0.49	0.44	0.42 (n/a)	0.42 (n/a)	11.43	6.84	4.43 (n/a)	4.43 (n/a)	1.16	1.13	0.81 (n/a)	0.81 (n/a)
7/31/2009	22:00	0.71	0.70	0.48 (n/a)	0.48 (n/a)	12.32	7.32	5.22 (n/a)	5.22 (n/a)	1.78	1.52	0.95 (n/a)	0.95 (n/a)

Type A Water License 2AM-MEA0815  
July 2009 Monitoring Program Summary Report

	Station	BGE4				BGE5				BGE6			
	Time Period	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg
Date of Analysis	Time of Analysis												
7/28/2009	22:00	0.28	0.26 (n/a)	0.26 (n/a)	0.26 (n/a)	0.29	0.28 (n/a)	0.28 (n/a)	0.28 (n/a)	0.22	0.21 (n/a)	0.21 (n/a)	0.21 (n/a)
7/29/2009	20:00	0.28	0.25	0.26 (n/a)	0.26 (n/a)	0.28	0.28	0.28 (n/a)	0.28 (n/a)	0.24	0.23	0.22 (n/a)	0.22 (n/a)
7/30/2009	20:00	0.33	0.29	0.26 (n/a)	0.26 (n/a)	0.28	0.27	0.28 (n/a)	0.28 (n/a)	0.34	0.27	0.22 (n/a)	0.22 (n/a)
7/31/2009	22:00	2.18	1.62	0.48 (n/a)	0.48 (n/a)	2.47	1.60	0.45 (n/a)	0.45 (n/a)	3.26	2.46	0.79 (n/a)	0.79 (n/a)

**Table 2.5: Bay-Goose TSS Monitoring – High Value Habitat Stations July 28 – 31, 2009**

	Station	BG-HVH1				BG-HVH2				BG-HVH3			
	Time Period	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg
Date of Analysis	Time of Analysis												
7/28/2009	22:00	0.28	0.22 (n/a)	0.22 (n/a)	0.22 (n/a)	0.23	0.22 (n/a)	0.22 (n/a)	0.22 (n/a)	0.34	0.26 (n/a)	0.26 (n/a)	0.26 (n/a)
7/29/2009	20:00	0.29	0.28	0.25 (n/a)	0.25 (n/a)	0.24	0.23	0.23 (n/a)	0.23 (n/a)	0.34	0.30	0.28 (n/a)	0.28 (n/a)
7/30/2009	20:00	3.33	2.34	0.64 (n/a)	0.64 (n/a)	0.22	0.22	0.23 (n/a)	0.23 (n/a)	0.29	0.27	0.27 (n/a)	0.27 (n/a)
7/31/2009	22:00	3.21	2.68	1.35 (n/a)	1.35 (n/a)	1.52	1.06	0.34 (n/a)	0.34 (n/a)	1.00	0.79	0.35 (n/a)	0.35 (n/a)

	Station	BG-HVH4				BG-HVH5			
	Time Period	24h Max	24h Avg	7-d Ave	30-d Avg	24h Max	24h Avg	7-d Ave	30-d Avg
Date of Analysis	Time of Analysis								
7/28/2009	22:00	0.30	0.26 (n/a)	0.26 (n/a)	0.26 (n/a)	0.25	0.24 (n/a)	0.24 (n/a)	0.24 (n/a)
7/29/2009	20:00	0.30	0.28	0.27 (n/a)	0.27 (n/a)	0.26	0.26	0.25 (n/a)	0.25 (n/a)
7/30/2009	20:00	0.43	0.38	0.29 (n/a)	0.29 (n/a)	0.52	0.38	0.26 (n/a)	0.26 (n/a)
7/31/2009	22:00	1.48	1.29	0.48 (n/a)	0.48 (n/a)	6.23	4.35	0.94 (n/a)	0.94 (n/a)

## SECTION 3 • WATER MANAGEMENT

### 3.1 WATER USAGE

Under Water License 2AM-MEA0815, the total water consumption limit is 700,000 m<sup>3</sup>/year or 58,333 m<sup>3</sup>/month for the batch plant, domestic and milling water use. During the month, the number of people on site by day was 477. The total consumption of water for the camp, the batch plant and the mine site was 4,908 m<sup>3</sup> for the month, an average of 158 m<sup>3</sup> per day.

**Table 3.1: July 2009 Water Consumption**

	Water Usage (m <sup>3</sup> )
Batch Plant	264
Water Treatment Plant	2,299
Water for Dust Control	2,345
<b>Total for the site</b>	<b>4,908</b>

### 3.2 SEWAGE TREATMENT PLANT MONITORING

At the sewage treatment plant, two systems are now in operation (the Seprotech L333 and the two Little John LJ100s). Four water samples were taken at the effluents. The results showed the two sewage treatment plants are working well.

**Table 3.2: July 2009 STP Effluent Results**

Station: STP-OUT				
Parameter	7/6/2009	7/13/2009	7/20/2009	7/27/2009
NH3-NH4 (mg/L)	17.6	19.7	30.8	
BOD-5 (mg/L)	22	23	17	
COD (mg/L)	69	103	92	
TSS (mg/L)	49	80	30	
NO2-NO3 (mg N/L)	39.6	35.4	56.8	
pH	5.87	6.24	5.92	
P tot (mg P/L)	19.0	16.5	19.4	
Fecal Coliform (CFU/100mL)	4	16	16	16
Total Coliform (CFU/100mL)	<10,000	1,000	<100 000	<10,000
Atypical Colony (CFU/100mL)	1,130,000	49,000	2,600,000	1,560,000

## SECTION 4 • SPILL MANAGEMENT SUMMARY

During the construction phase as part of the Environmental Management System, AEM has developed a system of tracking spills on-site. Table 4.1 summarizes the AEM Internal spill reports for July.

**Table 4.1: Summary of July 2009 AEM Internal Spill Reports**

Date of Spill	Hazardous Material (Fuel, Oil, etc.)	Quantity	Location	Cause of Spill	Clean-up Action Taken	Reported to GN Spill Hotline
7/5/2009	Hydraulic Oil	2 L	South of Nahanni maintenance shop	Leak in hydraulic line connector	Contaminated soil placed in a drum and taken to the hazardous materials storage area	No
7/6/2009	Hydraulic Oil	Estimated 35 L	Behind the truck shop	Rough condition of the road caused equipment to fall off the machine	Dump truck used to move contaminated soil to Quarry 22	No
7/8/2009	Diesel Fuel	5 L	Tank farm	A pipe was leaking	Dump truck used to move contaminated soil to Quarry 22	No
Unknown	Hydraulic Oil	4 L	Cold Storage	Possibly excavator or drill	Contaminated soil was taken to the hazardous materials storage area	No
7/28/2009	Hydraulic Oil	4 L	Beside Reclaim Tunnel	Blown hydraulic hose	Contaminated soil was collected with heavy equipment and taken to Quarry 22	No
7/29/2009	Used Oil	50 L	Laydown 3	Transporting drum	Contaminated material was collected with heavy equipment and taken to Quarry 22	No