June 18, 2010 Transmitted via e-mail.

Bryan Rayner
Water Resource Officer
Indian & Northern Affairs Canada NRO
PO Box 100, Iqaluit, NU X0A 0H0

Dear Mr. Rayner:

RE: Summer 2010 Oily Storm Water Treatment Strategy for Milne Bulk Fuel Storage Facility, Baffinland Iron Mines Corporation (BIM) – Mary River Project

The attached documents developed by AMEC Earth and Enviromental (AMEC) provide the design basis overview for the upgrades to the oily water treatment system for the Milne Inlet bulk fuel storage facility.

The treatment process utilized in 2008 and 2009 involved oil water separation and treatment using adsorbent clay and granular activated carbon media. As you are aware, during 2009, the existing treatment system was overloaded by the degree of contamination in the stormwater, inefficient oil water separation and insufficient media capacity.

In response to this situation, AMEC was retained late last year to study and improve the existing system so that that it would provide sufficient pretreatment upstream of the treatment system. The overall goal was to improve the pre-treatment aspect of the system so that the final treated effluent would be suitable for direct discharge to the environment. The enhanced treatment system incorporates two additional pretreatment steps after the oil water separation step, and prior to the contact media step. The new steps include dissolved air floatation (DAF) and filtration utilizing fine-pore membranes (nanofiltraiton). The DAF and nanofiltration steps are physical in nature and do not involve the addition of any chemical reagents.

The enhanced system for 2010 consists of portable components and does not include any permanent infrastructure. A small temporary lined area has been constructed to ensure that any overflow from the process ends up back in the contained area of the facility. This liner and other components can be removed at the conclusion of the program.

To treat the large volume of oily water contained in the facility (estimated 3.5 million litres), a direct discharge configuration to Milne Inlet is necessary. A robust field and laboratory monitoring and sampling system will be implemented that will provide early warning of a potential upset condition that could lead to an environmental non-compliance. Two field screening processes (field infrared (IR) instrument and chemical oxygen demand (COD)) have been established and tested in the laboratory, determined to be effective, and will therefore be utilized for ongoing process monitoring.

In consideration of the anticipated actual flow rate (average of 60-70 L/min) and total volume to be pumped of around 3.5 million litres, a regulatory effluent discharge sampling frequency of one representative sample per 200,000 L of released effluent is proposed. The regulatory effluent discharge samples will be submitted to an external laboratory (Exova Accutest in Ottawa) for analyses of parameters as outlined in the water licence for MRY-7 including benzene, toluene, ethylbenzenes, lead, and oil & grease. QA/QC samples will be collected in accordance with our QA/QC water sampling plan.

In addition to the above, operating process control samples will be collected and analyzed on-site utilizing our IR and COD field instrumentation system. The samples will be collected at the following locations and scheduled intervals (refer to attached PDF):

- four hours - NF effluent tank and final discharge,
- 12 hours - O/W Exit – Equalization Tank, NF feed tank, clay exit, DAF effluent),
- three days – Clay trains 1 through 4, drum 1 outlet
- weekly – GAC trains 1 through 4, drum 1 outlet

The monitoring frequency has been established based on conservative estimates of breakthrough times developed by means of bench scale testing, scale up tests, and on-site experience from 2008 and 2009. The monitoring strategy will minimize the risk of non-compliant water from being discharged. The schedule is subject to minor revision based on ongoing system process performance. The field monitoring schedule may be reduced somewhat based on consistent and acceptable process control results.

During system startup, an increased number of samples will be collected and analyzed to confirm correlation between the field and laboratory analytical results prior to starting continuous discharge. Samples would be collected every four hours for the first two or three days. Once the system has stabilized and consistently meets regulatory requirements for water licence parameters, notification would be provided, and direct discharge would commence. An AMEC EIT will be on site during the treatment program to ensure that the system is operating properly and that compliance of final effluent is met.

Start-up of the treatment system is anticipated as early as June 28. **This letter fulfills the requirement for notification of effluent discharge from the Milne bulk fuel storage facility as stated in Part D, Section 7 of our Water Licence 2BB-MRY0710.**

We trust that the information provided herewith is sufficient to support our intention to direct discharge treated stormwater effluent from the Milne bulk fuel storage area. Please do not hesitate to contact the undersigned by e-mail at jim.millard@baffinland.com should you have any questions or require any additional information.

Yours truly,
Baffinland Iron Mines Corporation

James Millard, M.Sc., P.Geo.
Senior Environmental Superintendent

Attach: Design Basis Overview of oily water treatment system, by AMEC, dated May 2010.
Process Flow Diagram for oily water treatment system by AMEC, dated May 2010.

cc: Richard Dwyer, NWB
Stephen Bathory, QIA

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TITLE:	DESIGN BASIS - OVERVIEW	DOC. NO.:	PJM-FOR-000003	REV.	0

PROJECT NAME:	Baffinland Oily Water 2010	PROJECT NO.:	TR1643
CLIENT:	Baffinland Iron Mines	AREA NO.:	Milne Inlet

DESIGN BASIS

1.0 INTRODUCTION

This document summarizes the design basis for the upgrades to the oily water treatment system at Baffinland Iron Mines Milne Inlet facility.

2.0 OBJECTIVES OF THE PROJECT DESIGN BASIS

This project design basis describes the criteria by which the oily water treatment system will be designed and constructed, including:

- Process description
- Necessary basic material and chemical data
- Necessary environmental and site conditions to be met
- Major unit operations
- System infrastructure
- Operational Philosophy

3.0 PROJECT DESCRIPTION

Milne Inlet has a fuel dump for Jet A aviation fuel and P50 diesel fuel which are stored in flexible polymeric bladders. The bladders are arranged inside an earthen bermed area with a synthetic liner. The bermed area has collected seasonal stormwater and meltwater.

This stormwater is contaminated with some small amount of spilled fuels, and minor seepage from the bladders themselves. The contaminated stormwater must be treated prior to discharge to the natural environment.

In previous years, the existing treatment system was overloaded by the degree of contamination in the stormwater. This project is to provide sufficient pretreatment upstream of the existing treatment system so that the final treated water is suitable for discharge to the environment.

4.0 PROJECT OBJECTIVES

The successful design will satisfy the following requirements

- Total treatable volume 3,500,000 L
- Design flow of 30 USGPM / 114 L/min with 75% actual capacity
- 24/7 operation with 75% uptime
- Treated water must satisfy the following criteria:

Parameter	units	Regulatory Limit	Design Influent Concentration
Benzene	**ug/L**	**370**	Influent below regulatory limit
Toluene	**ug/L**	**2**	15 to 225
Ethylbenzene	**ug/L**	**90**	10 to 160
Lead	**ug/L**	**1**	influent not tested
Oil & Grease	**mg/L**	**15**	200

5.0 PROCESS DESCRIPTION

The treatment process will consist of the following general unit operations:

- Oil/Water Separator
- Dissolved Air Flotation
- Nano-filtration
- Clay adsorption
- Granular activated carbon adsorption

The overall treatment process is shown in the attached drawing, *PFD-01 Process Flow Diagram, Oily Water System*, and briefly described in the following sections.

Oil/Water Separator

Feed water will be from one of two sources: a) remaining untreated water from the 2009 season which is contained in bladders, and b) 2010 melt water from the berm area.

Feed water will be pumped to an oil/water separator to effect the first separation of the hydrocarbon and water phases. The separator will operate under gravity with a manual overflow weir. Any free-floating will accumulate at the top of the separator tank and removed to a small tank. The decanted fuel will be pumped from the intermediate tank to a storage bladder. The water phase will flow under baffles to a small tank before being pumped to the dissolved air flotation (DAF) system.

Dissolved Air Flotation (DAF)

The existing DAF at the Mary River site, that was used for PWSP polishing during the 2009 season will be redeployed to Milne Inlet to further affect free oil and grease removal from the contaminated stormwater. At Mary River, the DAF performance was improved through the use of aluminum sulphate (“alum”) as a coagulant and a polymer flocculant. The use of chemical coagulants and flocculants at Milne Inlet is not expected, although the system will have provision for chemical addition if needed.

The skimmed DAF float sludge will consist of a low-density, oil-rich foam phase that will be manually skimmed off the DAF surface to a small holding tank. The accumulated float material will be pumped to a storage bladder.

The DAF treated water will flow by gravity to the nano-filtration (NF) feed tank.

Nanofiltration (NF) Treatment

Three modular nano-filtration skids are being provided to removed emulsified oil and grease from the DAF treated water. These NF units are being provided by Techsolutions Environnement of Québec. The NF treatment is achieved through the use of a fine-pore membrane filtration process within each NF skid.

The NF units are fed at a high flow rate of approximately 40 usgpm each, producing a treated permeate of 10 usgpm each. The remaining 30 usgpm from each unit is returned to the NF feed tank. This recirculation causes the concentration of oil and grease in the NF feed tank to increase, and this tank must be constantly blown-down to avoid over-concentrating the oil and grease in the feed tank and risk compromising the membranes. This controlled blow-down is achieved using a "reject" pump and flowmeter.

The NF reject is pumped to a small tank before being pumped to a storage bladder.

The NF treated permeate water is discharged to the NF Effluent Tank. The tank's principal function is to act as a break tank prior to the adsorption treatment train, which are fed by a submersible pump in the tank.

Adsorbent Clay Media Bank

The existing adsorbent clay hydrocarbon treatment system will be upgraded and expanded to accommodate the volume of stormwater to be treated during the 2010 operating season. The option exists to utilize a combination of Organite and PM100 clay media. The clay media is effective at adsorbing heavy hydrocarbons such as oils and greases.

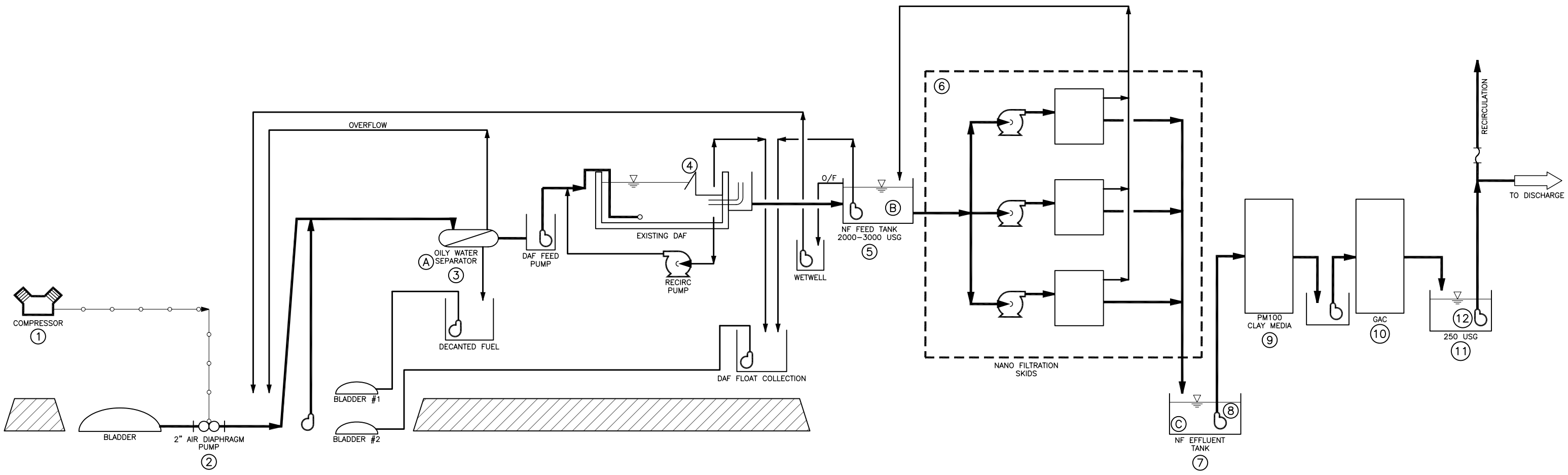
Granular Activated Carbon (GAC) Media Bank

The existing granular activated carbon (GAC) adsorption system will be upgraded and expanded to accommodate the volume of stormwater to be treated during the 2010 operating season. The GAC media is effective at adsorbing light hydrocarbons such as benzene and toluene.

Final Effluent Tank

The discharge from the GAC treatment will be directed to a final effluent tank prior to being pumped to the discharge point near Milne Inlet. This will be the sampling point for compliance purposes.

NUMBER	DESCRIPTION	FLOW (USGPM)		TEMP. (°C)		PRESS (PSI)		POWER (VOLTS)	POWER (AMPS)	COMMENTS
		MIN	MAX	MIN	MAX	MIN	MAX			
1	COMPRESSOR			0	20		125	115	15	
2	AIR DIAPHRAGM PUMP	20	40	0	20		20			
3	DAF FEED/EQ TANK	18	36	0	20		10			
4	DAF SUMP PUMP	5	10	0	20		10	115	15	
5	NF FEED TANK			0	20					
6	NANO FILTRATION SKIDS	90	120	0	20		200	600	20	
7	NF EFFLUENT TANK			0	20					
8	NF EFFLUENT SUMP PUMP	20	30	0	20		10	115	15	
9	PM100 CLAY MEDIA	20	30	0	20		5			
10	GAC	20	30	0	20		5			
11	250 USG TANK			0	20					
12	250 USG SUMP PUMP	20	30	0	20		10	115	15	



CAUTION: THIS PLAN MAY BE REDUCED 0 25mm 50mm ORIGINAL SCALE

NO.	REVISION	DATE	APRVD
2	ISSUED TO CLIENT	MAY 14/10	LD
0	PRELIMINARY	APR 30/10	JM

DRAWN	JR	MAY 2010
DESIGNED	JM	MAY 2010
CHECKED	LD	MAY 2010
REVIEWED	DE	MAY 2010

Baffinland Iron Mines Corporation

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PROCESS FLOW DIAGRAM

OILY WATER SYSTEM

BAFFINLAND IRON MINES 2010

DATE:	MAY 2010
SCALE:	N.T.S.
SHEET:	1 OF 1 SHEETS
PROJ No: TR1643	PFD–01

Filepath: I:\Peb\Geomatrix\2010\102371-D Baffinland Iron Mines (TR1643)\TR1640-PFDs.dwg
Plot Time: May 14, 2010 - 2:08pm, Plotted By: Dell Survey2