P.O. Box 119
Gjoa Haven, NU X0B 1J0
Tel: (867) 360-6338
Fax: (867) 360-6369

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

File No: NWB3PON0409

14 July 2004

Attention: Ruby Watson
Senior Administrative Officer
Hamlet of Pond Inlet
PO Box 180
Pond Inlet, NU X0A 0S0
FAX: (867) 899-8940
Email: asao@nv.sympatico.ca

RE: Sewage Treatment Lagoon Sub-Grade Drainage Modification (Part E, Item 1)

Dear Ms. Watson:

The Nunavut Water Board has reviewed the "Notice of Design Modification" documents submitted to the Board on June 7, 2004 in accordance with Part E, Item 1 of your water licence. These documents relate to proposed minor modifications to the sub-grade surface water drainage structure underneath the containment berms of the Hamlet of Pond Inlet sewage treatment lagoon. The NWB herein approves the submission as presented and reminds the Licensee that as-built engineered diagrams of the modifications referred to in the "Notice of Design Modification" documents are to be submitted to the Board within ninety (90) days of completion of the modification.

Should you require clarification in this matter do not hesitate to contact me.

Sincerely,

Original signed by:

Philippe di Pizzo
Executive Director

cc: Elizabeth Sherlock, DIAND Iqaluit
Constantine Bodykevich, DIAND Inspector
Colette Meloche, Environment Canada
Derrick Moggy, Department of Fisheries and Oceans

APPENDIX B

Photos of Sewage Lagoon Rehabilitation

Photo # 1.
Laying down Bentomat ST GCL

Photo # 2.
Construction of French drain

Photo # 3.
Rip-rap along berm

Photo # 4.
Manhole

Photo# 5.
Excavation of sub-drains

Photo # 6.
Anchor trench

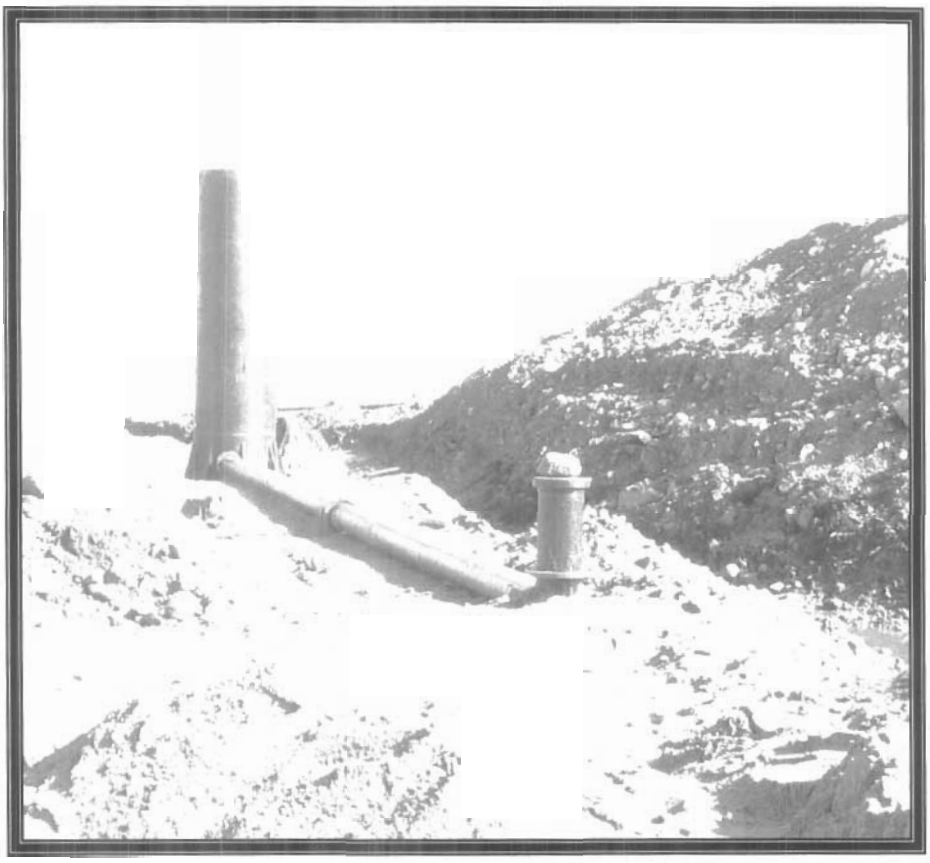

Photo # 7.
Control Structures

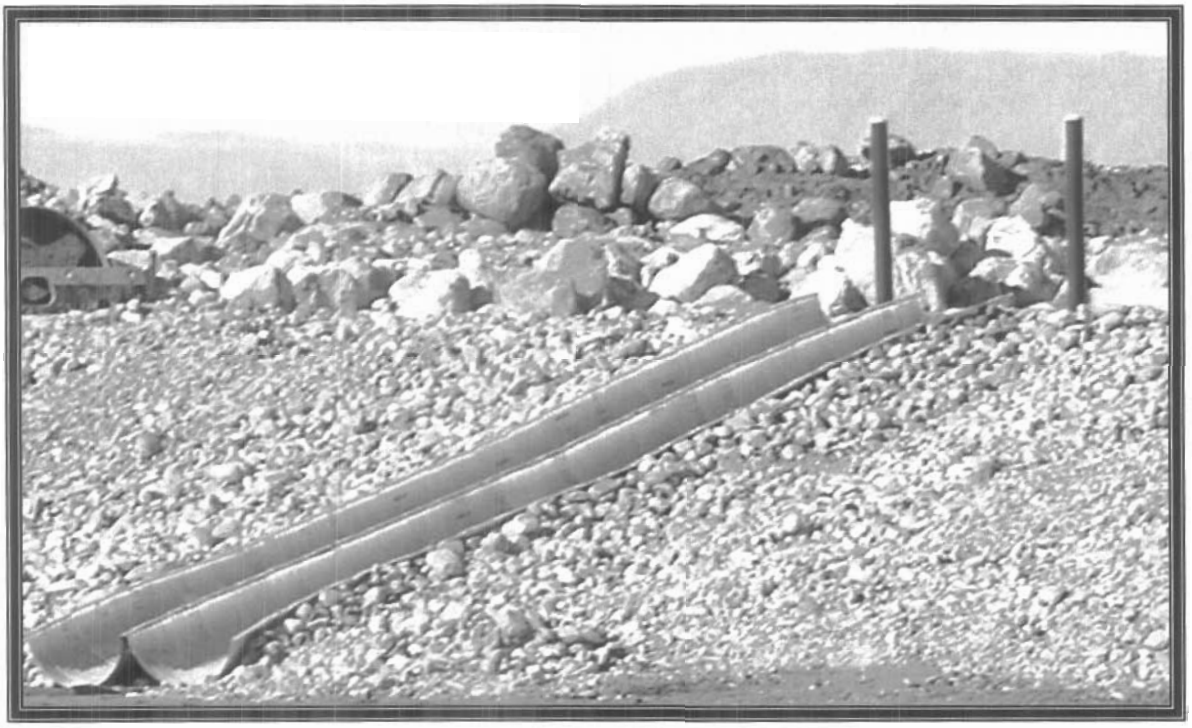

Photo #8.
Offload Chute

APPENDIX C

Sample O & M Log Sheets

Sewage Treatment Facility
Pond Inlet, NU
Daily Maintenance Log

Item	Date:					
1	Record volume of sewage collected from holding tanks					
2	Clean up spills immediately and report to 24-Hour Spill Line, if applicable					
3	Clear snow from road, truck pad and disposal area, if required					
4	Other comments					
5						
6						
7						
8	Initials					

Sewage Treatment Facility
Pond Inlet, NU
Weekly Maintenance Log

Item	Date:					
1	Inspect berms, dykes and drainage courses					
2	Remove non-sewage floating materials from the lagoons					
3	Inspect truck and cell discharge locations for significant erosion					
4	Pick-up wind blown materials which have migrated from solid waste facility					
5	Monitor down gradeint inspection ditch for seepage.					
6	Other comments					
7						
8						
9						
10	Initials					

APPENDIX D

Specifications for Bentomat ST Liner

[GCL PROPERTIES]

Bentomat® ST Certified Properties

TR-404bm - CETCO Reference Number
5-29-98

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY, $ft^2(m^2)$	REQUIRED VALUES
Bentonite Swell Index[1]	ASTM D 5890	1 per 50 tonnes	24 mL/2g min.
Bentonite Fluid Loss[1]	ASTM D 5891	1 per 50 tonnes	18 mL max.
Bentonite Mass/Area[2]	ASTM D 5993	40,000 ft^2 (4,000 m^2)	0.75 lb/ft^2 (3.6 kg/m^2)
GCL Grab Strength[3]	ASTM D 4632	200,000 ft^2 (20,000 m^2)	90 lbs (400 N)
GCL Peel Strength[3]	ASTM D 4632	40,000 ft^2 (4,000 m^2)	15 lbs (65 N)
GCL Index Flux[4]	ASTM D 5887	Weekly	$1 \times 10^{-8} m^3/m^2/sec$
GCL Permeability[4]	ASTM D 5084	Weekly	$5 \times 10^{-9} cm/s$
GCL Hydrated Internal Shear Strength[5]	ASTM D 5321	Periodic	500 psf (24 kPa) typical

Bentomat "ST" is a reinforced GCL consisting of a layer of sodium bentonite between a woven and a non-woven geotextile which are needle-punched together.

Notes

[1] Bentonite property tests performed at CETCO's bentonite processing facility before shipment to CETCO's GCL production facilities.

[2] Bentonite mass/area reported at 0 percent moisture content.

[3] All tensile testing is performed in the machine direction, with results as minimum average roll values unless otherwise indicated.

[4] Index flux and permeability testing with deaired distilled/deionized water at 80 psi (551 kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 925 gal/acre/day. This flux value is equivalent to a permeability of 5×10^{-9} cm/sec for typical GCL thickness. The last 20 values prior to the last production date of the supplied GCL may be provided.

[5] Peak value measured at 200 psf (30 kPa) normal stress. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.

1500 W. Shure Dr., Arlington Heights, Illinois 60004 USA / +1 800.527.9948 / tel +1 847.392.5800 / fax +1 847.577.5571

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