Environment Canada **Environnement Canada**

123 Main Street. Suite 150
Winnipeg, Manitoba
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Nunavut Water
rd
001
Public Registry

Wednesday, October 03, 2001 file: 8001-132-E40

Dionne Filliatrault
Technical Advisor
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NT, X0E 1J0

INTERNAL
PC
LA
OM
TA

subject: **Annual report 2000 - NWB Permit NWB4EUR9904**

Reference is made to the above mentioned license and your letter dated March 1, 2001. Environment Canada undertook commencing in 2000 a number of undertaking to fulfill the objectives of the NWB licence. This included but has not been limited to:

- Establishment of a surveillance network program. (report attached)
- Development of abandonment and Restoration Plan for the West Airstrip Landfill. (report attached)
- Development of new procedures for wastewater disposal.
- Installation of freshwater water consumption meter.
- Increased usage of cleaning products which reduce the environmental impact of wastewater.

Your letter of March 1, 2001 highlighted three issues: water use, wastewater disposal and total silver content. Comments on each of the issues follows:

Our standard operating procedures include monitoring of stream runoff to schedule capture of freshwater when levels of TSS are at their lowest. This is done to ensure we minimize the impact of suspended solids on the freshwater lagoon and subsequent impact on water quality.

A water consumption meter was installed during the Summer of 2000 but subsequently failed. A new meter was installed and collection of reliable date was instituted in February of 2001. Actual reading combined with added water conservation measures will result in a reduction of water usage and subsequent impact to the runoff stream.

Procedures for discharge from the sewage lagoon have been modified to allow for slower discharge during two events. The first took place on August 21, 2000 and the second on August 22, 2000. The attached report details the analytical results.

Although not required we are still monitoring for total silver.

Sincerely,

Dave Law
Chief
Atmospheric Monitoring Division

attach

Public Works and Government Services Canada
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March 6, 2001

Environment Canada
Prairie and Northern Region
123 Main Street, Suite 150
Winnipeg, Manitoba
R3C 4W2

Attention: Brock Goalen

Subject: Eureka Lagoon Annual Discharge Event Report – March 2001

Introduction

The wastewater lagoon at the Eureka Weather Station is a single cell, long retention lagoon. It is discharged once per year near the end of the open water period. Grey water is released to the ocean in Slidre Fjord near Eureka Sound.

The collection of wastewater throughout the Station is by gravity. All piping is within warm portions of the facility. The wastewater is collected in a storage tank located below the floor on the south side of the station. The collected wastewater is intermittently pumped to the lagoon when the liquid in the holding tank reaches a preset level.

Discharge Event

The total volume of the wastewater lagoon is estimated at 2090 m^3. The amount of wastewater within the lagoon was below average in 2000 due to a decrease in activity at the Weather Station and the installation of low flow showerheads and toilets.

In 2000, discharge of the lagoon occurred on August 21-22. The volume of water discharged from the lagoon was estimated at 1325 m^3. A late summer discharge was selected to provide maximum treatment opportunity for the wastewater within the lagoon. Also, sufficient time before freeze-up was required in order to complete the discharge and replace the containment berm. Discharge from the lagoon on August 21st began at 1930 and was shut-down at 2400. Pumping resumed the following morning at 900 and was completed by 1200.

Sample Analyses

The wastewater was sampled during the discharge event twice. Selected results and sampling times can be seen on Table 1.

Table 1: Selected Results from the Lagoon Wastewater Discharge August 21-22, 2000

Sample Number	Location	Time of Sampling	BOD_5 mg/L	Total Suspended Solids, mg/L	Ammonia (N) mg/L	Fecal Coliforms cfu/100 mL
EWW-1, 2000	Outlet, initial	Aug 21	52	108	4.48	460
EWW-2, 2000	Outlet, final	Aug 22	56	**1120**	4.48	520
Nunavut Water Board Water Discharge Criteria			100	120	NDC	NDC

NDC – No Discharge Criteria

The wastewater samples analyzed met most requirements set by the Nunavut Water Board. The Total Suspended Solids for EWW-2 exceeded the maximum allowable discharge concentration of 120 mg/L.

Recommendations

Some improvement in discharge quality may be achieved through the addition of a primary settling cell before the large treatment/storage cell. Even higher quality effluent could be maintained by the use of a mechanical wastewater treatment plant, such as a rotating biological contactor. If the population at the Weather Station increases to numbers greater than an average of 15 persons per day, additions to the current system should be considered. It is recommended that the sampling program continue in 2001/2002 during the lagoon discharge event.

This report is meant to provide a summary of the activities conducted during the 2000 lagoon discharge event. We trust the information presented herein is suitable for your current needs. If you require additional information in relation to this project, please do not hesitate to contact us.

Respectfully Submitted,
PWGSC – Environmental Services

Prepared by:

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March 31, 2001

Post-it™ Fax Note 7671E	Date 01/04/02	# of pages ▸ 10
To Brock Goalen	From Giselle Cotts	
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Attn: Brock Goalen

Re: Eureka Surveillance Network Program 2000

In accordance with the requirements of Water License NWB4EUR9904, issued by the Nunavut Water Board on March 29, 1999, please find attached the results of the Surveillance Network Program (SNP). The SNP required the collection of samples from three locations at the Eureka Weather Station. The locations and results are outlined below.

EUR-1 Raw water supply prior to treatment

One water sample was collected from the water reservoir on August 4, 2000. This sample was analyzed by Analytical Services Laboratory in Vancouver, British Columbia, for nitrate, nitrite and the BTEX parameters. The analytical results are located in Appendix A. The results are summarized in Table 1.

Table 1: EUR-1 Analytical Results

Parameter	Reservoir
Benzene (mg/L)	<0.0005
Toluene (mg/L)	<0.0005
Ethylbenzene (mg/L)	<0.0005
Xylene (mg/L)	<0.0005
Nitrate (mg/L)	0.018
Nitrite (mg/L)	0.003

Canada

EUR-2 Runoff from the Solid Waste Disposal Facilities

The runoff from this location was to be sampled annually during periods of flow. Logistical difficulties were experienced in transporting sample bottles to the site. By the time the bottles arrived in Eureka, the runoff period had ended. No samples were collected at this location in 2000.

To prevent this from occurring again, sample bottles are being sent to the site in April 2001.

EUR-3 Runoff discharge from the Sewage Lagoon, just prior to entering the ocean

The annual discharge from the Sewage Lagoon occurred on August 21-22, 2000. The estimated volume of water discharged was 1325 m^3. Samples were collected at the beginning (EWW-1) and end (EWW-2) of the discharge period. They were sent to Enviro-Test Laboratories in Edmonton, Alberta, for analysis. The analytical results are summarized in Appendix A. The results are summarized in Table 2.

Table 2: EUR-3 Analytical Results

Parameter	Nunavut Guidelines[1]	EWW-1	EWW-2
BOD (mg/L)	100	52	56
pH	6-9	9.1	9.2
Total Suspended Solids (mg/L)	120	108	1120
Nitrate-Nitrite (mg/L)	--	<0.1	<0.1
Total Phenols (mg/L)	--	0.017	0.028
Sodium (mg/L)	--	274	260
Magnesium (mg/L)	--	45.8	45.4
Total Silver (mg/L)	0.1	<0.005	<0.005
Faecal Coliform (CFU/100ml)	--	460	520
Conductivity (uS/cm)	--	1810	1850
Ammonia Nitrogen (mg/L)	--	4.48	4.48
Oil and Grease (visual)	No visible sheen	No sheen	No sheen
Sulphate (mg/L)		215	217
Potassium (mg/L)	--	23.1	23.7
Calcium (mg/L)	--	56.5	53.1

[1] As outlined in the water license

Both the collected samples marginally exceeded the Nunavut water license requirements for pH. In addition, the sample collected at the end of the discharge

had a total suspended solids concentration of 1120 mg/L. The elevated total suspended solids may have been caused by a disturbance to the bottom of the lagoon during discharge. It is not believed to be representative of the discharge quality.

Should you require any additional information regarding the 2000 SNP, please do not hesitate to contact me at 780-497-3839.

Sincerely,

Giselle Cotta

Giselle Cotta
Environmental Engineer
Environmental Services

Appendix A:

Analytical Results

RESULTS OF ANALYSIS - Water

File No. L9740

Sample ID		Reser-voir
Sample Date		00 08 04
ASL ID		*6*
Nutrients		
Nitrate Nitrogen	N	0.018
Nitrite Nitrogen	N	0.003
Non-halogenated Volatiles		
Benzene		<0.0005
Ethylbenzene		<0.0005
Toluene		<0.0005
meta- & para-Xylene		<0.0005
ortho-Xylene		<0.0005
Volatile Hydrocarbons (VH6-10)		<0.1
VPH		<0.1

Remarks regarding the analyses appear at the beginning of this report.
Results are expressed as milligrams per litre except where noted.
< = Less than the detection limit indicated.
VPH = Volatile Petroleum Hydrocarbons.

ENVIRO-TEST CHEMICAL ANALYSIS REPORT

Lab ID	Sample ID / Test Description	Result	D.L.	Units	Extracted	Analyzed	By
L16205-1	EUREKA LAGOON-EWW-1, 2000						
Sample Date:	21-AUG-00						
Matrix	WATER						
	Total As, Se, Sb and Hg						
	Antimony (Sb)-Total	0.0006	0.0004	mg/L		30-AUG-00	MD
	Arsenic (As)-Total	0.0029	0.0004	mg/L		30-AUG-00	MD
	Mercury (Hg)-Total	<0.0002	0.0002	mg/L		30-AUG-00	MD
	Selenium (Se)-Total	0.0046	0.0004	mg/L		30-AUG-00	MD
	Routine Water: major ions, F, Fe & Mn						
	Iron (Fe)-Extractable	0.25	0.06	mg/L		29-AUG-00	EC
	Manganese(Mn)-Extractable	0.12	0.02	mg/L		29-AUG-00	EC
	Chloride (Cl)	372	1	mg/L		29-AUG-00	LDD
	Fluoride (F)	0.22	0.05	mg/L		31-AUG-00	PTT
	Nitrate+Nitrite-N	<0.1	0.1	mg/L		28-AUG-00	LDD
	pH, Conductivity and Total Alkalinity						
	pH	9.1	0.1	pH		29-AUG-00	PTT
	Conductivity (EC)	1810	0.2	uS/cm		29-AUG-00	PTT
	Bicarbonate (HCO3)	170	5	mg/L		29-AUG-00	PTT
	Carbonate (CO3)	36	5	mg/L		29-AUG-00	PTT
	Hydroxide	<5	5	mg/L		29-AUG-00	PTT
	Alkalinity, Total	198	5	mg/L		29-AUG-00	PTT
	Ion Balance Calculation						
	Ion Balance	102		%		30-AUG-00	
	TDS (Calculated)	1100		mg/L		30-AUG-00	
	Hardness	322		mg/L		30-AUG-00	
	ICP metals and SO4 for routine water						
	Calcium (Ca)	53.6	0.5	mg/L		30-AUG-00	MOR
	Potassium (K)	23.1	0.1	mg/L		30-AUG-00	MOR
	Magnesium (Mg)	45.8	0.1	mg/L		30-AUG-00	MOR
	Sodium (Na)	274	1	mg/L		30-AUG-00	MOR
	Sulfate (SO4)	215	0.5	mg/L		30-AUG-00	MOR
	Metals-Total						
	Silver (Ag)	<0.005	0.005	mg/L		30-AUG-00	MD
	Aluminum (Al)	0.25	0.01	mg/L		30-AUG-00	MD
	Boron (B)	0.20	0.05	mg/L		30-AUG-00	MD
	Barium (Ba)	0.012	0.003	mg/L		30-AUG-00	MD
	Beryllium (Be)	<0.002	0.002	mg/L		30-AUG-00	MD
	Calcium (Ca)	56.5	0.5	mg/L		30-AUG-00	MD
	Cadmium (Cd)	<0.001	0.001	mg/L		30-AUG-00	MD
	Cobalt (Co)	<0.002	0.002	mg/L		30-AUG-00	MD
	Chromium (Cr)	0.005	0.005	mg/L		30-AUG-00	MD
	Copper (Cu)	0.037	0.001	mg/L		30-AUG-00	MD
	Iron (Fe)	0.577	0.005	mg/L		30-AUG-00	MD
	Potassium (K)	24.1	0.1	mg/L		30-AUG-00	MD
	Magnesium (Mg)	42.2	0.1	mg/L		30-AUG-00	MD
	Manganese (Mn)	0.121	0.001	mg/L		30-AUG-00	MD
	Molybdenum (Mo)	<0.005	0.005	mg/L		30-AUG-00	MD
	Sodium (Na)	239	1	mg/L		30-AUG-00	MD
	Nickel (Ni)	0.008	0.002	mg/L		30-AUG-00	MD
	Phosphorus (P)	4.98	0.05	mg/L		30-AUG-00	MD
	Lead (Pb)	<0.005	0.005	mg/L		30-AUG-00	MD
	Tin (Sn)	<0.05	0.05	mg/L		30-AUG-00	MD
	Strontium (Sr)	0.287	0.002	mg/L		30-AUG-00	MD

ENVIRO-TEST CHEMICAL ANALYSIS REPORT

Lab ID	Sample ID	Test Description	Result	D.L.	Units	Extracted	Analyzed	By
L16205-1	EUREKA LAGOON-EWW-1, 2000							
Sample Date:	21-AUG-00							
Matrix:	WATER							
		Metals-Total						
		Titanium (Ti)	0.007	0.001	mg/L		30-AUG-00	MD
		Thallium (Tl)	<0 05	0.05	mg/L		30-AUG-00	MD
		Vanadium (V)	0 003	0.001	mg/L		30-AUG-00	MD
		Zinc (Zn)	0.053	0.001	mg/L		30-AUG-00	MD
		Ammonia-N	4 48	0.05	mg/L		29-AUG-00	EK
		Biochemical Oxygen Demand	52	2	mg/L		25-AUG-00	PTT
		Chemical Oxygen Demand	320	10	mg/L		29-AUG-00	CMN
		Phenols (4AAP)	0.017	0.001	mg/L		29-AUG-00	SMB
		Total Suspended Solids	108	3	mg/L		29-AUG-00	RJP
L16205-2	EUREKA LAGOON-EWW-2, 2000							
Sample Date:	22-AUG-00							
Matrix:	WATER							
		Total As, Se, Sb and Hg						
		Antimony (Sb)-Total	0.0006	0 0004	mg/L		30-AUG-00	MD
		Arsenic (As)-Total	0 0031	0.0004	mg/L		30-AUG-00	MD
		Mercury (Hg)-Total	<0.0002	0.0002	mg/L		30-AUG-00	MD
		Selenium (Se)-Total	0.0057	0.0004	mg/L		30-AUG-00	MD
		Routine Water: major ions, F, Fe & Mn						
		Iron (Fe)-Extractable	0 23	0.06	mg/L		29-AUG-00	EC
		Manganese(Mn)-Extractable	0.12	0.02	mg/L		29-AUG-00	EC
		Chloride (Cl)	379	1	mg/L		29-AUG-00	LDD
		Fluoride (F)	0.22	0.05	mg/L		31-AUG-00	PTT
		Nitrate+Nitrite-N	<0 1	0.1	mg/L		28-AUG-00	LDD
		pH, Conductivity and Total Alkalinity						
		pH	9.2	0 1	pH		29-AUG-00	PTT
		Conductivity (EC)	1850	0.2	uS/cm		29-AUG-00	PTT
		Bicarbonate (HCO3)	166	5	mg/L		29-AUG-00	PTT
		Carbonate (CO3)	41	5	mg/L		29-AUG-00	PTT
		Hydroxide	<5	5	mg/L		29-AUG-00	PTT
		Alkalinity, Total	203	5	mg/L		29-AUG-00	PTT
		Ion Balance Calculation						
		Ion Balance	96.5		%		30-AUG-00	
		TDS (Calculated)	1100		mg/L		30-AUG-00	
		Hardness	320		mg/L		30-AUG-00	
		ICP metals and SO4 for routine water						
		Calcium (Ca)	53.1	0.5	mg/L		30-AUG-00	MOR
		Potassium (K)	23 7	0.1	mg/L		30-AUG-00	MOR
		Magnesium (Mg)	45 4	0.1	mg/L		30-AUG-00	MOR
		Sodium (Na)	260	1	mg/L		30-AUG-00	MOR
		Sulfate (SO4)	217	0.5	mg/L		30-AUG-00	MOR
		Metals-Total						
		Silver (Ag)	<0.005	0.005	mg/L		30-AUG-00	MD
		Aluminum (Al)	0.32	0.01	mg/L		30-AUG-00	MD
		Boron (B)	0.20	0.05	mg/L		30-AUG-00	MD
		Barium (Ba)	0.012	0.003	mg/L		30-AUG-00	MD
		Beryllium (Be)	<0.002	0.002	mg/L		30-AUG-00	MD

ENVIRO-TEST CHEMICAL ANALYSIS REPORT

Lab ID	Sample ID	Test Description	Result	D.L.	Units	Extracted	Analyzed	By
L16205-2	EUREKA LAGOON-EWW-2, 2000							
Sample Date: 22-AUG-00								
Matrix:	WATER							
		Metals-Total						
		Calcium (Ca)	57.1	0.5	mg/L		30-AUG-00	MD
		Cadmium (Cd)	<0.001	0.001	mg/L		30-AUG-00	MD
		Cobalt (Co)	<0.002	0.002	mg/L		30-AUG-00	MD
		Chromium (Cr)	0.008	0.005	mg/L		30-AUG-00	MD
		Copper (Cu)	0.036	0.001	mg/L		30-AUG-00	MD
		Iron (Fe)	0.530	0.005	mg/L		30-AUG-00	MD
		Potassium (K)	24.7	0.1	mg/L		30-AUG-00	MD
		Magnesium (Mg)	43.0	0.1	mg/L		30-AUG-00	MD
		Manganese (Mn)	0.121	0.001	mg/L		30-AUG-00	MD
		Molybdenum (Mo)	<0.005	0.005	mg/L		30-AUG-00	MD
		Sodium (Na)	247	1	mg/L		30-AUG-00	MD
		Nickel (Ni)	0.008	0.002	mg/L		30-AUG-00	MD
		Phosphorus (P)	5.14	0.05	mg/L		30-AUG-00	MD
		Lead (Pb)	<0.005	0.005	mg/L		30-AUG-00	MD
		Tin (Sn)	<0.05	0.05	mg/L		30-AUG-00	MD
		Strontium (Sr)	0.290	0.002	mg/L		30-AUG-00	MD
		Titanium (Ti)	0.068	0.001	mg/L		30-AUG-00	MD
		Thallium (Tl)	<0.05	0.05	mg/L		30-AUG-00	MD
		Vanadium (V)	0.004	0.001	mg/L		30-AUG-00	MD
		Zinc (Zn)	0.053	0.001	mg/L		30-AUG-00	MD
		Ammonia-N	4.48	0.05	mg/L		29-AUG-00	EK
		Biochemical Oxygen Demand	56	2	mg/L		25-AUG-00	PTT
		Chemical Oxygen Demand	270	10	mg/L		29-AUG-00	CMN
		Phenols (4AAP)	0.028	0.001	mg/L		29-AUG-00	SMB
		Total Suspended Solids	1120	3	mg/L		29-AUG-00	RJP

Methodology Reference

ETL Test Code	Test Description	Methodology Reference (Based On)
AS-TOT-HYD-ED	Arsenic (As)-Total	APHA 3114 C-AAS - Hydride
BOD-ED	Biochemical Oxygen Demand	APHA 5210 B-5 day Incub.-O2 electrod
CL-ED	Chloride (Cl)	APHA 4500 Cl E-Colorimetry
COD-ED	Chemical Oxygen Demand	APHA 5220 D-Micro Colorimetry
ETL-ROUTINE-ICP-ED	ICP metals and SO4 for routine water	APHA 3120 B-ICP-OES
F-ED	Fluoride	APHA 4500 F-C-Electrode
FE-EXT-HIGH-ED	Iron (Fe)-Extractable	APHA 3111 B - Atomic Absorption
HG-TOT-HYD-ED	Mercury (Hg)-Total	APHA 3112 B-AAS Cold Vapor
IONBALANCE-ED	Ion Balance Calculation	APHA 1030E
METAL-TOT-ED	Metals-Total	APHA 3120 B-ICP-OES
MN-EXT-HIGH-ED	Manganese(Mn)-Extractable	APHA 3120 B-ICP-OES
N2N3-ED	Nitrate+Nitrite-N	APHA 4500 NO3H-Colorimetry
NH4-ED	Ammonia-N	APHA 4500 NH3F-Colorimetry
PH/EC/ALK-ED	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
PHENOLS-CL	Phenols (4AAP)	EPA 420.2-Colorimteric
SB-TOT-HYD-ED	Antimony (Sb)-Total	APHA 3114 C-AAS-Hydride
SE-TOT-HYD-ED	Selenium (Se)-Total	APHA 3114 C-Auto Continuous Hydride
SOLIDS-TOTSUS-ED	Total Suspended Solids	APHA 2540 D-Gravimetric

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ETL Enviro-Test

A DIVISION OF ETL CHEMSPEC ANALYTICAL LIMITED

MICROBIOLOGICAL ANALYSIS REPORT

PWGSC-ENV. SERVICES
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EDMONTON, ALBERTA T5J 4E2
ATTN: JARED BUCHKO
PHONE: 780-497-3886
FAX: 780-497-3842

DATE: 2000-08-26
LAB. W. ORDER #: L16205
PROJECT: NOT SUBMITTED
PO #: 403909
SAMPLED BY: ENVIRONMENT CANADA
DATE SAMPLED: 2000-08-21 8pm & 22 1:30pm
DATE RECEIVED: 2000-08-25
DATE ANALYZED: 2000-08-25

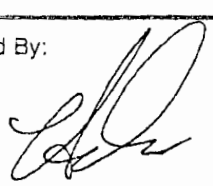
LAB ID	SAMPLE ID	TEST DESCRIPTION*	RESULTS	UNITS	ANALYST
L16205 – 1	EWW–1, 2000	MF – Total Coliforms	2,500	CFU/100 mL	SVN
Sample Type:	** Water	MF – Fecal Coliforms	460	CFU/100 mL	SVN
L16205 – 2	EWW–2, 2000	MF – Total Coliforms	4,800	CFU/100 mL	SVN
Sample Type:	** Water	MF – Fecal Coliforms	520	CFU/100 mL	SVN

Comments:

* The sample was collected four days before its arrival in the laboratory.
♣ The sample was collected three days before its arrival in the laboratory.
♠ Greenish sample contains *algae*.

*MF = Membrane Filtration, CFU = Colony Forming Unit, TNTC = Too Numerous To Count

Approved By:



MICRO_RPT ENV.CANADA Edmn. (AUG/2000

Eureka, Nunavut - High Arctic Weather Station

Abandonment and Restoration Plan for the West Airstrip Landfill

1. General:

.1 Eureka High Arctic Weather Station is located on the north side of Slidre Fjord, at the Northwestern tip of Fosheim Penninsula, Ellesmere Island. Eureka's co-ordinates are 79°59'41"N and 85°48'48"W. The site is accessed primarily by air with and all season air strip located about 1.5 km northeast of the weather station.

.2 The abandoned landfill, referred to as the West Airstrip Landfill is located approximately 100 meters from the northwest corner of the airstrip.

.3 NWB Licence No. NWB45UR9904, dated March 29, 1999, referred to the landfill, and requested an Abandonment and Restoration Plan.

2. West Airstrip Landfill:

.1 The west airstrip landfill is characterized as having an insufficient thickness of cover, which is evidenced by exposure of some debris at the surface.

3. Remediation:

.1 Remediation shall consist of placing a cap, such that all portions of the landfill are capped with a minimum of 1 meter cover.

.2 Thickness shall be measured, in place, after thawing and compaction have occurred.

.4 Methodology:

.1 Debris protruding above the surface shall be tramped down with a dozer. Larger pieces, if any, which cannot be tramped down are to be extracted and hauled to the active dump site.

.2 Extent of dump site is to be delineated, and probed to determine depth of existing cover. New cover to be added to any area with less than 1 meter cover.

.3 Cover material shall be obtained from a borrow source located approximately 2 km from the weather station, on the access road to the Astrolab.

.4 Cover material shall be ripped, loaded and hauled to the landfill site.

.5 Cover material shall be placed in two (2) lifts. Second lift shall not be placed until the first lift has thawed, been spread and compacted.

.6 All cover material shall be compacted using tracks of a dozer. Each area shall be subjected to a minimum of two passes of the dozer, at right angles to each other.

.7 The second lift shall be dozed to blend in with the surrounding area, after cover material has thawed. Final surface shall be shaped and compacted and left in a condition that snow melt will shed.

5. Quarry Site:

.1 The quarry site must be excavated in accordance with normal land use practices.

.2 On completion of the work, backslopes shall not exceed 2 horizontal to 1 vertical.

.3 excavations shall be levelled with a dozer.

6. Environmental Considerations:

.1 Access to the dump site shall be via existing surface roads.

.2 Equipment shall not traverse over tundra at times of the year when rutting or surface damage would occur.

7. Safety Considerations:

.1 Work will be undertaken in close proximity to an active runway. All personnel and equipment shall maintain clearance when aircraft are incoming or taking off.