Abandonment and Restoration Plan for Chesterfield Inlet Landfarm

Version 1.0

Created May 2012

Effective till October 2017

Stantec Project # 144901145

GN Project # 10-3018

Prepared for:

Government of Nunavut
Community and Government Services,
Box 490, Oomilik Building
Rankin Inlet, NU,
X0C 0G0

Prepared by:

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11, May, 2012

File: 144901145

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Attn: Phyllis Beaulieu

Re: Proposed Landfarm Abandonment & Restoration Plan

Dear Phyllis,

Please find enclosed the Abandonment & Restoration Plan as required for the Water Licence Application submitted on behalf of the Government of Nunavut, Community and Government Services. This Plan is intended to be a stand alone document and meets all requirements for an Abandonment and Restoration Plan for the construction of the proposed landfarm.

If you have any questions regarding this plan please don't hesitate to contact us

Sincerely,

STANTEC ARCHITECTURE LTD.,

Arlen Foster, EIT

Civil / Environmental Engineering

Table of Contents

1 Introduction

1.1 INFORMATION OF THE LICENSEE

Government of Nunavut
Community and Government Services
Box 490, Oomilik Building
Rankin Inlet NU,
X0C 0G0
(867) 645-8100

1.2 INFORMATION OF 24 HOUR CONTACT

Department of Community & Government Services
Petroleum Products Division
Regional Director CGS Kivalliq Region
(867) 645-8153
(867) 645-3625

1.2.1 Effective Dates & Revisions

Abandonment and Restoration Plan Effective Date:

1. May 11, 2012

Abandonment and Restoration Plan Revision Date:

1. None

1.3 COMMUNITY INFORMATION

The Hamlet of Chesterfield Inlet, or Igluligaarjuk, Nunavut with a population of 332 people is located at latitude 63 degrees 20 minute north and longitude 90 degrees 42 minutes west. It lies on the south shore of Chesterfield Inlet and on the west shore of Hudson Bay. In relation to other communities, Chesterfield Inlet is 101 Km northeast of Rankin Inlet.

Chesterfield Inlet's topography consists of sand to gravel landscape with low granite outcrops and inland lakes. It is located on a low and narrow coastal strip at elevation of 10 meters. Vegetation is typical arctic tundra and consists of mosses, lichens and grasses. The elevation at Chesterfield Inlet, at the airstrip is approximately 25m above sea level. Chesterfield's average annual precipitation consists of 14.6 cm of rainfall and 112 cm of snowfall. Mean high in July is 13.1 degrees with a mean low of 4.6 degrees. In January, mean high is -27.8 degrees and a mean low of -35.2 degrees.

The Chesterfield Inlet Fuel Facility is being upgraded. As part of the upgrade, approximately 150 cubic metres of hydrocarbon-contaminated soils must be removed from the site and remediated. Contaminated soils will be remediated in a lined engineered landfarm.

The landfarm will be located adjacent to the existing Solid Waste Site. It will be accessed from the same road. The Government of Nunavut in consultation with the Hamlet of Rankin Inlet selected the site.

1.4 GENERAL DESCRIPTION OF PROPERTY

The site for the landfarm is located in the area of:

(Lat/Long) 63º 20' 46" N, 90º 45' 10" W

(UTM) Easting 612,460m, Northing 7,026,122m

(Map sheet number 55O7) near the Hamlet of Chesterfield Inlet's Solid Waste Site.

See Appendix A for drawings and site maps.

1.5 LANDFARM DECOMMISSIONING

Once the landfarm is determined that it is no longer required, the decommissioning process will begin. All the remediated soil within the landfarm must meet the CCME requirements for PHC in commercial use before the soil can be used. Once soil meets CCME requirements it can be removed from the landfarm.

When it is determined that that land farm is to be decommissioned, the following will take place:

- The berms and access ramp will be tested on a 10 metre grid for compliance with PHC in commercial soils;
- Any water in the sump will be vacuumed out for disposal in an approved manner;
- The liner will be removed and disposed in the municipal landfill;
- The area under the liner will be tested on a 10 metre grid for compliance with PHC in commercial soils;
- Excess soil will be removed; and
- The area graded to positive drainage that follows the existing ground.

1.6 TESTING PLANS

For sampling we will be using the GN Commercial Standards for Petroleum Hydrocarbons (PHCs) in Soils (mg/kg soil) that were developed from the National CCME standards

GNWT Commercial Standards for Petroleum Hydrocarbons (PHCs) in Soils (mg/kg soil)									
	Particle Size	Benzene	Toluene	Ethyl-benzene	Xylene	F1 (C_6-C_{10})	F2 (C_{10}-C_{16})	F3 (C_{16}-C_{34})	F4 (>C_{34})
Under building <1.5m	Coarse	5.0	20	0.8	17	310	1700	NA	NA
	Fine	5.0	20	0.8	17	4600	25000	NA	NA
Under building >1.5m	Coarse	5.0	20	0.8	17	340	1800	NA	NA
	Fine	5.0	20	0.8	17	4900	26000	NA	NA
Eco-soil <1.5m	Coarse	5.0	20	0.8	17	330	760	1700	3300
	Fine	5.0	20	0.8	17	660	1500	2500	6600
Eco-soil >1.5m	Coarse	5.0	20	0.8	17	700	2000	3500	10000
	Fine	5.0	20	0.8	17	1000	3000	5000	10000

1.6.1 Testing During Initial Soil Remediation

After the contaminated soil from the tankfarm has been deposited in the landfarm it should be tested monthly to monitor progress. The testing should be done in a representative manner and using field testing procedures. Once the levels of hydrocarbons in the soil have dropped to be within CCME standards final Compliance samples should be taken and sent to accredited laboratory for analysis.

1.6.2 Testing For Abandonment

Once the remediated soil has been deemed within the Standards of the CCME the abandonment can begin. While the berm is being removed samples will be taken and field tested to ensure the berm does not contain any contaminates. The Liner should be removed in sections and samples will be taken as the liner comes up. Representative samples will be taken from under the liner to test for contaminates. The liner is to be removed starting on the high side and moving towards the low side, (west to east). This is to ensure containment if any contaminants remain. Once the liner has been removed compliance samples will be taken and sent accredited laboratory for analysis.

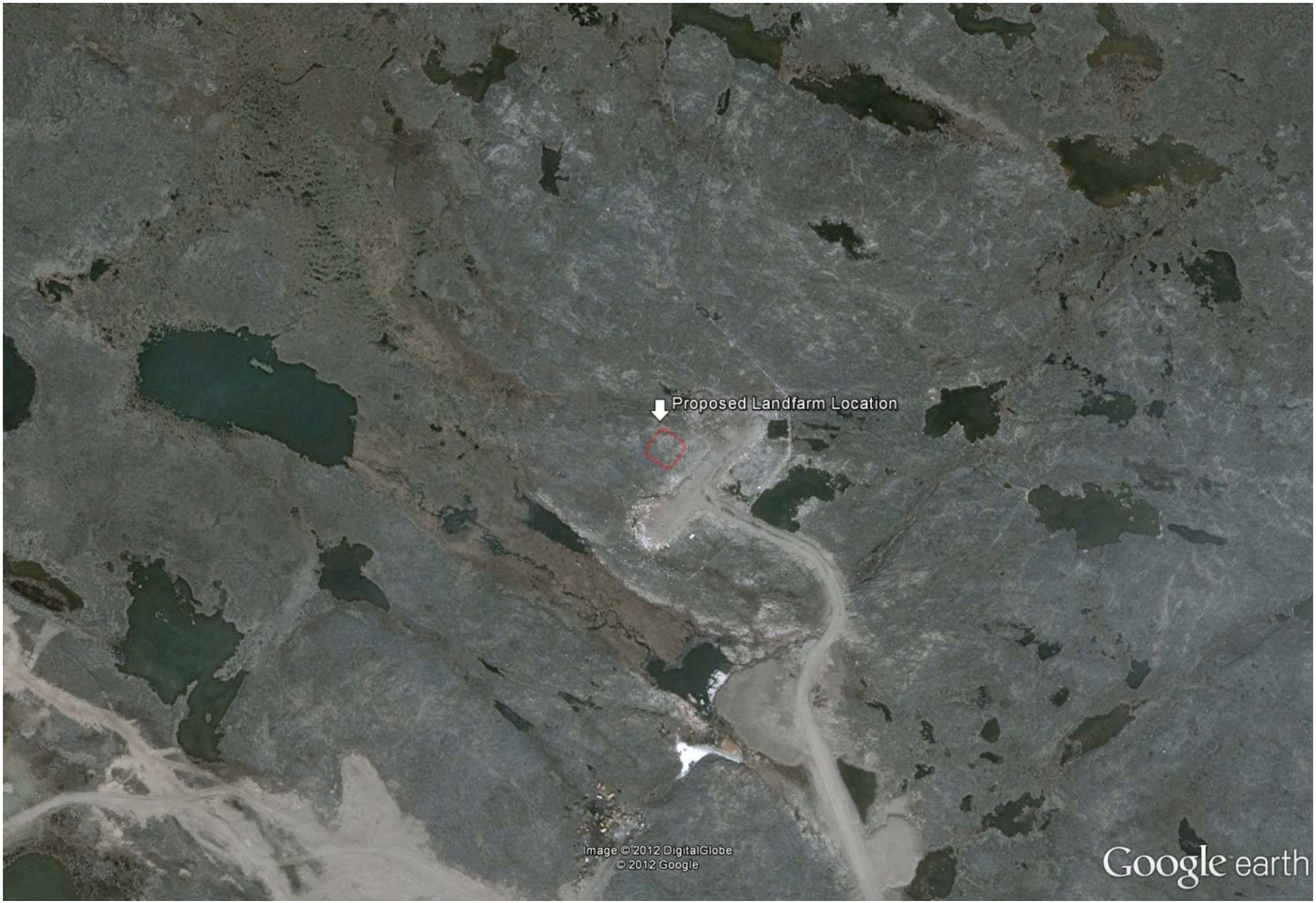
1.7 DISTURBED AREAS

Once all excess material has been removed from the site, the site can be returned to the natural state. The landfarm has an area of 750 SQ.M. This will be the limit of the excessive disturbed area. Outside the actual site there should be little disturbance consisting of mainly light vehicle tracks. The 750 SQ.M of the landfarm will be graded back to original ground. All remnants and foreign materials should be removed from the site as part of the Abandonment process. Once the natural grade is reached the site will be allowed to revegetate naturally.

1.8 REPORTING ON RECLAMATION

During reclamation, the GN, or Representative, will provide status reports to the NWB whenever a site visit is completed. The status report should include a daily field report with pictures and test results when possible. Daily field reports are the best way to keep all interested parties up to date on happenings.

Appendix A: Map



Google Earth Pro

feet 2000
meters 600