



PRIVILEGED AND CONFIDENTIAL

**WASTE MANAGEMENT PLAN  
NORMAN WELLS AIRPORT,  
NORTHWEST TERRITORIES  
AIRSIDE LAND TREATMETN UNIT**

Submitted to:



**Sahtu Land and Water Board**

Box 1

Fort Good Hope, NT X0E 0H0

Sahtu Land Water Board Water Licence, Type B, Number S17L8-003  
Sahtu Land Water Board Land Use Permit, Type A, Number S17X-004

Prepared by:

**BluMetric Environmental Inc.**

3108 Carp Road, PO Box 430

Ottawa, ON K0A 1L0

Project Number: 170518-02

February 2018



5 February 2018  
Project Number: 170518-02

Sahtu Land and Water Board Water Licence, Type B, Number S17L8-003  
Sahtu Land and Water Board Land Use Permit, Type A, Number S17X-004

Sahtu Land and Water Board  
Box 1  
Fort Good Hope, NT X0E 0H0

**Memorandum: Revised Waste Management Plan – Norman Wells Airport Airside Land Treatment Unit**

---

## Introduction

BluMetric Environmental Inc. (BluMetric™) has prepared this revised Waste Management Plan (WMP) on behalf of Public Services and Procurement Canada (PSPC) and Transport Canada (TC) for continued soil treatment and sampling activities within the Airside Land Treatment Unit (LTU) on the Norman Wells Airport property, in Norman Wells, Northwest Territories.

BluMetric has been retained by PSPC to develop this updated Waste Management Plan for the Norman Wells Airside LTU to meet the requirements set out in the SLWB Water Licence S17L8-003 that was issued to Transport Canada on December 5, 2017. BluMetric has supported the maintenance and sampling work that occurred at the facility in 2017 and provided contractor supervision for local contractor HRN Contracting who provides heavy equipment and operators to conduct work at the site. The BluMetric contract for the technical support and contractor supervision role for Norman Wells Airside LTU project ends on March 31, 2018. The work at the LTU is being completed on behalf of Transport Canada, the permittee and licensee.

Additionally, this revised WMP has been prepared to include the commencement of groundwater sampling activities being planned for the recently-installed monitoring wells located up- and downgradient of the LTU.

## Effective Date of Revised Waste Management Plan

This revised WMP is effective upon its approval by the Sahtu Land and Water Board.

Tel. 867-873-3500  
Fax. 867-873-3499

BluMetric Environmental Inc.

4916 49th Street, Yellowknife, Northwest Territories, Canada X1A 1P3  
Post Office Box 11086, Yellowknife, Northwest Territories, Canada X1A 3X7

[www.blumetric.ca](http://www.blumetric.ca)



## Company Information

BluMetric is an environmental consulting company that is dedicated to environmental stewardship and reducing environmental, health, and safety risks. BluMetric is committed to sustainable development and environmental protection through continual improvement of environmental practices. BluMetric promotes positive waste management through conservation activities that include source reduction, reuse, and recycling in all aspects of its business.

### Contact Information:

Public Services and Procurement Canada  
Western Region  
10025 Jasper Avenue  
Edmonton, AB T5J 1S6  
Project Manager: Michael Brownlee  
780-497-3640 (office)  
780-720-7748 (cell)

Transport Canada  
Prairie and Northern Region – Technical and  
Environmental Services  
344 Edmonton Street  
Winnipeg, MB R3B 2L4  
Project Manager: Melissa Fraser  
204-958-7280

BluMetric Environmental Inc.  
Physical address (courier packages):  
4916 49 Street  
Yellowknife, NT X1A 1P3  
Tel: 867-873-3500  
Fax: 867-873-3499

Postal address:  
P.O. Box 11086  
Yellowknife, NT X1A 3X7  
Project Manager: Andrea Jenney  
Senior Engineer  
(705) 525-6075 x25

Yellowknife Office Numbers  
Tel: 867-873-3500  
Fax: 867-873-3499

## Project Description

The LTU was designed to hold approximately 2500m<sup>3</sup> of PHC contaminated soil (Arcadis 2017). Dimensions of the facility are approximately 100m by 50m with a 0.5m berm surrounding the LTU. This area was compacted and lined with a synthetic geomembrane to prevent contaminants from leaching into the environment. No other specifics on the construction of the landfarm are available (including design drawings).

Three (3) monitoring wells were previously installed around the facility (one upgradient and two downgradient) to monitor possible groundwater impacts associated with the LTU. These wells became damaged and were replaced by three (3) new monitoring wells in January 2018.

In 2017, BluMetric was retained to complete soil sampling and treatment, liner repairs where required, groundwater and surface water sampling, and any other work related to the LTU, with the ultimate goal of successfully remediating the LTU soil and decommissioning the LTU.

Through the remainder of 2018, the scope of work for the facility will include groundwater sampling at the newly-installed monitoring wells up- and downgradient of the LTU, soil aeration, and soil sampling.

## Site Description

The LTU was constructed in 2004; however, no drawings or as-built figures have been located for review.

As indicated above, the LTU is lined with a synthetic geomembrane to prevent leaching of contaminants into the subsurface. At the southern end of the LTU, there is a sump that was constructed to contain rain and/or snowmelt runoff from draining out of the LTU. The LTU measures approximately 108 metres by 50 metres and slopes from north to south.

The LTU is currently estimated to contain approximately 4,230 cubic metres (m<sup>3</sup>) of soil. The soil is formed into three windrows, totaling approximately 2,950 m<sup>3</sup>, and the remainder of the LTU has a covering of soil that is approximately 0.3 m thick that has been maintained to protect the integrity of the LTU liner. This volume of soil is estimated to be approximately 1,280 m<sup>3</sup>. There is one monitoring well (MW1) located upgradient of the LTU, and two monitoring wells (MW2 and MW3) located downgradient of the LTU.

The site features are shown on Figure 1 (attached).

## **Waste Management Goals and Objectives**

This revised WMP demonstrates that PSPC/TC has an appropriate plan in place to effectively manage the waste that is expected to be generated during the continued soil treatment and sampling within the LTU, and the groundwater monitoring well sampling activities at the Norman Wells Airport LTU.

The WMP objectives include consideration of environmental, social, and regulatory factors. For environmental factors, such as land, water, air, wildlife, and vegetation, the goal of the WMP is to ensure that no environmental factors are negatively affected by the continued work in and around the LTU. This would include minimizing the potential for a spill of potentially contaminated surface water to the adjacent ground surface as well as maintaining good housekeeping around the site to reduce the potential for solid waste to become windblown during the site operations.

For social factors, such as aesthetics, land use, economic impacts, and public interests, the goal of the WMP is to ensure that the project proceeds in such a manner as to continue to benefit the local community, including the use of local contractors for as much of the field work as is practicable. The use of local contractors and service providers in Norman Wells will benefit the community during the operation of the facility.

For regulatory factors, such as compliance with all applicable acts, regulations, authorizations, land-use permits, and water licences, the goal of this WMP is to ensure that the project proceeds in such a fashion as to remain compliant with the Water Licence (S17L8-003) and Land Use Permit (S17X-004) granted to Transport Canada for this site as well as all applicable territorial and federal legislation associated with site operations.

## **Waste Management Principles**

The following principles will be incorporated into the Norman Wells Airport LTU soil treatment and sampling, and groundwater sampling activities. All waste generated on-site is the responsibility of PSPC/TC and will be disposed of at the appropriate facilities based on the waste stream. The waste management program will attempt to minimize waste production by applying the principles of reducing the use of materials, reusing materials whenever possible, recycling materials, and recovering value from used materials.

## Waste Streams

BluMetric will ensure that separate waste types are segregated and disposed of at appropriate waste facilities as outlined in **Table 1**.

**Table 1: Segregated Waste Streams for the Project**

Waste Stream	Description	Handling Method	Disposal Method
Purged groundwater	Groundwater removed from the three monitoring wells as part of the development of the wells for sampling purposes. It is anticipated that approximately 18L of groundwater will be purged from the three wells during each sampling round.	Place the purged groundwater into a drum or drums with secondary containment.	Laboratory results of the drummed purge water will be compared to the discharge criteria detailed within the Water Licence. If water meets the applicable criteria, the SLWB & NWT ENR Inspector will be contacted for approval to discharge this water. If the purge water does not meet the discharge criteria, it will be shipped off-site for disposal at a licensed facility.
Ponded Surface Water within the LTU and LTU Sump Area	Water from precipitation and snow melt becomes ponded within the lined area of the LTU.	Ponded water will be sampled to determine if it meets the discharge requirements set out within the water licence. Levels of ponded water will be monitored as described in the Operations and Maintenance Plan to minimize the potential for an unauthorized discharge to surface. Tanks and totes may be used to store water while awaiting analytical results and regulatory permission to discharge.	In the event that the ponded water does not meet the criteria detailed in the water licence, on-site treatment methods will be considered to remove contaminants (i.e. hydrocarbons) depending on the overall quantity of water requiring disposal.

Waste Stream	Description	Handling Method	Disposal Method
Soil Undergoing Treatment within the LTU	Hydrocarbon impacted soil was historically deposited within the Airside LTU. It is estimated that approximately 4200 m <sup>3</sup> of soil is currently deposited within the LTU. This soil is undergoing treatment within the LTU in preparation for decommissioning	Soil will be managed according to the Operations & Maintenance Plan that has been submitted to the SLWB under a separate cover.	Soil will only be allowed to leave the LTU if it meets the soil quality criteria as outlined in the SLWB Water Licence. Details on the handling of these soils are described in the Operations & Maintenance Plan for the facility under a separate cover. The objective is to treat the soil so that it could be used as fill or spread in place within the former LTU footprint, therefore minimizing the amount of soil requiring disposal at an off-site facility and minimizing the amount of waste soil generated from the site.
Domestic wastes (organic and non-organic)	Organic and non-organic waste, including packaging, garbage, and/or food scraps. These wastes will be generated by field personnel during that active season and are not anticipated to be more than 0.5 m <sup>3</sup> per week.	Place in appropriate waste containers at the end of each shift and dispose of waste off-site at the municipal landfill.	Domestic non-hazardous waste will be removed from the support truck at the end of each day and disposed of at the Town of Norman Wells solid waste facility. Any materials which can be recycled through available programs within the community will be segregated and directed to that program. Good housekeeping will be maintained at the site to ensure that no waste becomes windblown.

**Infrastructure Required for Waste Management**

The current configuration of the LTU is shown on Figure 1. It is estimated that approximately 4230 m<sup>3</sup> of soil is contained within the bermed area. No additional soil will be added to the facility as it is currently being treated to facilitate decommissioning.

The average annual precipitation for Norman Wells, NT is 171.7 mm of rainfall and 161.5 mm of snow (Environment Canada, 2017). The anticipated depth of snow on ground during the freshet is approximately 15 cm based on historical climate data. The volume of meltwater anticipated can be contained within the lined area but will be monitored as per the Operations and Maintenance Plan to ensure that no water tops the berm during the freshet and any potential storm events.

The soil sampling approach, distribution and analytical requirements for characterizing the soil quality within the LTU are detailed within the Operations and Maintenance Plan.

### **Effective Date of Revised Waste Management Plan**

This revised WMP is effective upon the Sahtu Land and Water Board's approval of this revised WMP.

### **Purpose and Scope**

This revised WMP addresses the procedures and policies for the safe and responsible handling, storage, and disposal of waste materials, which have served their original purpose and are scheduled for disposal.

If you have any questions, or require further assistance regarding the above Waste Management Plan, please feel free to contact the PSPC Project Manager at your convenience.

Yours sincerely,



Daniel Tucholski, B.A.  
Environmental Scientist



Andrea Jenney, P.Eng.  
Senior Engineer

Encl.

Figures: Site Plan

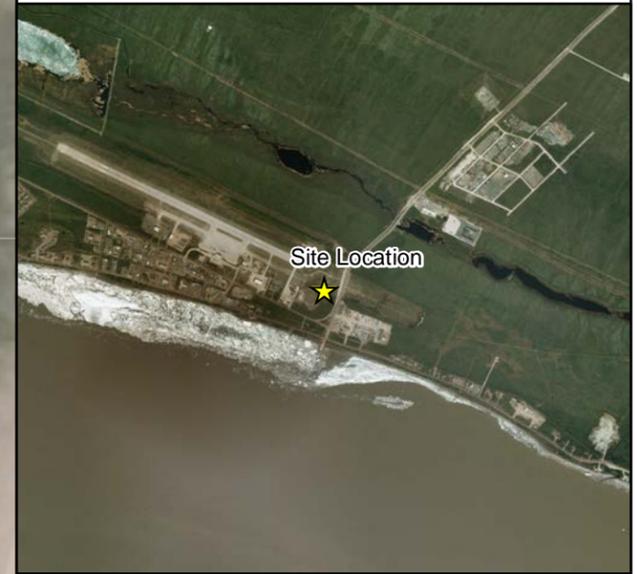
## FIGURES





**LEGEND**

- Proposed New Monitoring Well Location
- Land Farm Outline



1				
REV.	DESCRIPTION	YY/MM/DD	BY	CHK

**REFERENCES**  
 PROPRIETARY INFORMATION MAY NOT BE REPRODUCED OR DIVULGED WITHOUT PRIOR WRITTEN CONSENT OF BLUMETRIC ENVIRONMENTAL INC. DO NOT SCALE DRAWING.  
 THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.  
 Service Layer Credits: ESRI World Imagery

0 5 10 20 Meters  
1:600

Coordinate System: UTM NAD83 Zone 9

**CLIENT**  
Public Services and Procurement Canada

**PROJECT**  
Norman Wells Airport  
Airside Land Treatment Unit

**TITLE**  
Site Plan

4916 49th Street,  
PO Box 11086  
Yellowknife, NT, X1A 1P3  
TEL: (867) 873-3500  
FAX: (867) 873-3499  
Email: info@blumetric.ca  
Web: http://www.blumetric.ca

<b>PROJECT #</b> 170518	<b>DATE</b> December 21, 2017
----------------------------	----------------------------------

<b>DRAWN</b> GM	<b>CHECKED</b> KM	<b>FIGURE</b> 01	<b>REV</b> 0
--------------------	----------------------	---------------------	-----------------