

## **APPENDIX D**

### **Watson Lake Airport Permits**



## **Designated Office Evaluation Report**

**for**

### ***Watson Lake Airport – APEC 7 Remediation***

**Project Number: 2010-0085**

**Proponent: *Transport Canada***

**Assessment Completion Date: *May 18, 2010***

#### **Watson Lake Designated Office**

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## Summary

Transport Canada has proposed to excavate and treat contaminated soil at an Area of Potential Environmental Concern No. 7 (APEC 7) on Watson Lake Airport property. The period for Seeking Views and Information occurred from April 19<sup>th</sup> to May 3<sup>rd</sup>, 2010. Views and information on the project were submitted by the Yukon Government, Environment Branch. Water quality was identified as a valued component and I have determined that the project will have significant adverse effects to this value. I believe that the application of existing legislation (Appendix 2) as well as the mitigation measures proposed by the proponent (Appendix 1) is inadequate to eliminate, reduce or control the significant adverse effects of the project. Therefore I have recommended the mitigation measures identified below and on this basis the project may proceed.

## Outcome

The Watson Lake Designated Office, pursuant to section 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, recommends to the decision body that the project be allowed to proceed, subject to specified terms and conditions, as the Designated Office has determined that the project will have significant adverse environmental or socio-economic effects in or outside of Yukon that can be mitigated by those terms and conditions.

### The terms and conditions of the recommendation are as follows:

- In the event that the Land Treatment Unit soil is not deemed suitable for use as backfill, the proponent shall use clean material.
- The groundwater monitoring program shall encompass at least two annual sampling events, preferably during typical high and low water level periods.
- Soil and water samples shall be analyzed for all regulated CSR parameters for all contaminants of concern.

Issued by the Watson Lake Designated Office this 18<sup>th</sup> day of May, 2010.

For more information please contact:

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## TABLE OF CONTENTS

<b>PART A – INTRODUCTION</b>	<b>3</b>
<b>1.0 Project Description</b>	<b>3</b>
1.1 Proponent Information	3
1.2 Geographical Context	3
1.3 History	4
1.4 Project Details	5
1.5 Project Scope	6
<b>2.0 Environmental and Socio-economic Setting</b>	<b>6</b>
2.1 Physical Environment	6
2.2 Biological Environment	7
2.3 Socio-economic Environment	7
<b>3.0 Requirement for an Assessment</b>	<b>7</b>
<b>4.0 Scope of the Assessment</b>	<b>7</b>
<b>PART B – EFFECTS CHARACTERIZATION AND REASONS FOR RECOMMENDATION/REFERAL</b>	<b>9</b>
<b>5.0 Water Quality</b>	<b>9</b>
5.1 Overview	9
5.2 Project Effects	9
5.3 Cumulative Effects	11
<b>PART C – APPENDICES</b>	<b>12</b>
APPENDIX 1 – LIST OF KEY MITIGATIONS THE PROPONENT HAS COMMITTED TO UNDERTAKE	12
APPENDIX 2 – LIST OF RELEVANT NON-DISCRETIONARY LEGISLATION APPLICABLE TO THE PROJECT	13
APPENDIX 3 – LIST OF SUBMISSIONS MADE BY INTERESTED PERSONS AND OTHERS DURING THE ASSESSMENT	14

## PART A – INTRODUCTION

### 1.0 Project Description

#### 1.1 Proponent Information

The proponent for this project is Transport Canada. The contact person is Darryl Pederson, Superintendent, Contaminated Sites Management Program. The proponent's contact information is as follows:

9700 Jasper Avenue Northwest  
Edmonton, Alberta, T5J 4E6  
Phone: (780) 495-6046 Fax: (780) 495-4748

#### 1.2 Geographical Context

The project is located at the Watson Lake Airport, approximately 7 km northwest from the community of Watson Lake (Figure 1). The project consists of one Area of Potential Environmental Concern (APEC) located on the map below. Information about geographical coordinates, involved First Nation traditional territories, overlapping watersheds, and nearby waterbodies can be found in Table 1.



Figure 1: Project Location

Table 1: Project Location and Description

<b>Project coordinates:</b>	NW 60° 7' 17" N, 128° 49' 03" W NE 60° 7' 18" N, 128° 48' 59" W SE 60° 7' 16" N, 128° 49' 02" W SW 60° 7' 18" N, 128° 48' 58" W (Map Sheet: 105A)
<b>First Nation Traditional Territories Involved:</b>	Kaska – Liard First Nation, Ross River Dena Council
<b>Drainage Region:</b>	<i>Major Drainage Area:</i> Arctic Drainage Area <i>Sub Drainage:</i> Upper Liard <i>Sub-Sub Drainage:</i> Head Waters Liard
<b>Nearby Waterbodies:</b>	Watson Lake – 1 km south of project location Windid Lake – 1.2 km north of project location

### 1.3 History

The airport has been in use since the 1930's, and in 1941 construction commenced on the Watson Lake Airport. The US military used the airport during the Second World War. After the war the Royal Canadian Air Force purchased the airport from the US military, and in 1957 the airport operation and responsibilities was transferred to Transport Canada.

As a condition of the 1996 *Arctic "A" Airport Transfer Agreement* between the Yukon Government and Transport Canada, the regulatory non-compliant environmental issues which existed prior to the airport transfer are to be remediated to an acceptable standard.

Transport Canada has undertaken a series of environmental investigations at the Watson Lake Airport to determine the remediation work required to meet acceptable standards (a list of investigations can be found in YESAB document # 2009-0111-25-1). Authorities were given a six year- period from the transfer of property to identify any areas of concern beyond those that were identified in the baseline studies that formed parts of the above mentioned *Agreement*. Several APECs (Area of Potential Environmental Concern) were identified as requiring remediation, including APEC 7. Since then, several projects have been undertaken by Transport Canada to begin remediation of these APECs such as the installation of a Land Treatment Facility/Unit and groundwater monitoring wells at the Airport. Other related projects assessed by YESAB include:

- Contaminated Sites: Watson Lake Airport AEC 10 (project # 2007-0101)
- Land Treatment Facility: Watson Lake Airport (project # 2007-0113, and 2008-0150)
- Watson Lake Airport Landfill Capping (project # 2009-0111)

### APEC 7

#### *Soil and Groundwater Studies*

APEC 7 is identified as the Former CP Maintenance Garage located in the southwest section of the airport. Previous studies and investigations have been conducted to determine the extent of the groundwater contamination and the soil contamination. In 2001 activities included the excavation of 1 borehole, and 16 test pits to assess the soil quality in the known area of hydrocarbons to determine the extent of the impact soil. It also included the assessment of groundwater quality and the drinking water supply. It was found that that concentration of petroleum hydrocarbon constituents exceeded the applicable Yukon CSR AW standards. The soil sampled for polycyclic aromatic hydrocarbon (PAH) was below standard and that the groundwater sampled contained concentrations of petroleum hydrocarbon constituents and PAH's exceeding Yukon CSR standards. It was also found that the depth of groundwater table to be 1.3m bgs (below ground surface).

In 2002 a Phase I site assessment was completed by Franz Environmental Inc. at the Watson Lake Airport for the area identified as APEC 7. The contaminants of concern (CoC) were found to be light extractable petroleum hydrocarbons (LEPH) and volatile petroleum hydrocarbons (VPH) in the soil and ethylbenzene, EH, LEPH, naphthalene, phenanthrene, iron and manganese in the groundwater. The hydrocarbon-impacted soil was reported to be approximately 3000m<sup>3</sup> and the average depth to be 0.1 m bgs to 1.5m bgs. It was recommended at that time that further studies be required to characterize the full extent of the groundwater hydrocarbon plume as well as the implementation of a post remediation phase monitoring program. The report also suggested that other geochemical parameter indicators such as elevated dissolved iron and manganese concentrations supported that biodegradation of hydrocarbons was in effect.

In 2003 Franz Environmental Inc. completed a Phase III site assessment and reported that arsenic was found during soil sampling and VPH, LEPH and phenanthrene were identified in the groundwater sampling. It was recommended that further assessment be required to characterize the full extent of the groundwater hydrocarbon plume. Activities included the installation of 8 new wells and a remedial action plan to further delineate the area followed by excavation and ex-situ treatment in the spring of 2003

Investigations in 2005 saw the advancement of 4 boreholes and the installation of monitoring wells to delineate the previously identified contamination. A number of recommendations were given in EBA's *Supplemental Environmental Investigations Watson Lake Airport, Watson Lake Yukon* (document # 2010-0085-006-1), including additional investigations to determine the extent of the hydrocarbon plume.

No phase separated liquid hydrocarbons were encountered during a 2006 investigation at the monitoring wells sampled at APEC 7 however, a moderate hydrocarbon sheen and hydrocarbon odors were detected during groundwater purging and sampling in two wells.

#### *Utilities*

In 2005 EBA also conducted a detailed utility assessment to identify the active or abandoned underground utilities that would need to be considered when planning for remedial activities. The underground utilities found include 4 sewer lines, 1 septic tank, 1 abandoned water line, 1 electrical service to the septic tank, and 1 electrical and communications line. Further details can be found in the report titled *Supplemental Environmental Investigations Watson Lake Airport, Watson Lake Yukon* (document # 2010-0085-006-1).

#### 1.4 Project Details

The proposed project activities include two phases and a groundwater monitoring program. These two phases are: 1) LTU (Land Treatment Unit) maintenance, and 2) excavation and infill of APEC 7.

##### *Phase 1*

Phase 1 will include sampling, turning of soil, and excavation of the remediated soils within the LTU, if possible, and its stockpiling. Excavation of the remediated soil will create the space needed for the contaminated soils that will be deposited from the APEC 7 site when excavation begins. Sampling will include a comprehensive soil-sampling program for the LTU to ensure the soil meets the remediation criteria for closure of the LTU. Sampling will include sending 20 composite soil samples from the LTU and 4 water samples from the LTU sump and surrounding groundwater monitoring wells, if applicable, to a laboratory for analysis.

##### *Phase 2*

Phase 2 will include the excavation of 7300 m<sup>3</sup> of contaminated soil at APEC 7 in two stages and the infill of the excavated site with the previously remediated LTU soil. Excavation will be broken up into two stages during two working seasons. In the first season, 3700m<sup>3</sup> of contaminated soil from the APEC 7 site will be excavated. Soils will be transferred to the LTU for remediation. At this point, approximately half of the soils will be excavated. The excavated area will then be lined with an impermeable geomembrane to prevent water infiltration from precipitation and hence eliminate the sub-surface flow of contaminants.

During the second season, the geomembrane will be removed and the remaining 3600m<sup>3</sup> of contaminated soil will be excavated and placed into the LTU for remediation. After all contaminated soils have been removed from the site, the excavation at APEC 7 will then be backfilled with the previously remediated soil from within the LTU. The fill will be compacted, and then seeded with native vegetation. The area will be restored to its natural condition once the work has been completed.

In the event that the treatment of the LTU soil is not completed by the time backfill is required (i.e. the soil contained within the LTU is not remediated to CSR criteria), the project contractor will be responsible to find local sources of fill. In addition, if the soil in the LTU is not ready to be removed to make space for the newly excavated soil, there will be some space available for soil within the LTU regardless. There is also a third, separate, licensed cell located on airport property which can be used for temporary stockpiling, if need be. The proponent has assured that infrastructure is available on site to properly store and treat all contaminated soils.

#### *Groundwater Monitoring*

Groundwater monitoring will include a comprehensive sampling program. This program will include sampling of the previously installed groundwater monitoring wells surrounding APEC 7 to estimate the rate of natural attenuation of the groundwater contamination. This sampling will include at minimum:

- The sampling and chemical analysis of a minimum of 15 groundwater samples collected from selected monitoring wells which had exhibited one or more exceedances of applicable CSR guidelines during previous monitoring programs.
- Comparison to the previous analytical results and Yukon CSR guidelines to determine the transport and fate of the contaminants of concern.

#### 1.5 Project Scope

The scope of the project for this assessment has been determined to be as follows:

The principal activity of this project is the excavation and treatment of contaminated soil at an APEC 7 on Watson Lake Airport property. The project is scheduled to occur over 2 years and commence in the summer of 2010.

#### *Activities include:*

- Maintenance of the existing LTU on airport property
- Excavation and transfer of approximately 7300 m<sup>3</sup> of contaminated soil from APEC 7 to the LTU for remediation and maintenance
- Back-filling of APEC 7 with previously remediated soil
- Re-vegetation
- Use of heavy equipment

## **2.0 Environmental and Socio-economic Setting**

### 2.1 Physical Environment

The propose project is located within the Liard Basin Ecoregion on the north shore of Watson Lake approximately 7 km northwest of Watson Lake town center. The ecoregion is composed of boreal forest including lodge pole pine, white and black spruce and aspen. The airport is surrounded by bush, forest and wetlands on three sides of the property.

The hydrological groundwater flow for the APEC 7 site has been determined to flow towards Watson Lake (document #2010-0085-005-1). The calculated groundwater velocity ranges from less than 2m/year to 40m/year and the estimated groundwater travel time to Watson Lake, which is approximately 160 m away, ranges from 5 to 100 years. The APEC 7 site is also located immediately adjacent to an underground reservoir for the airport's drinking water supply.



## 2.2 Biological Environment

Typical boreal forest wildlife may be found in the area including moose, bear, wolf, beaver, muskrat, snowshoe hare, water fowl, grouse and other bird species. Most of the work will be completed in the Watson Lake Airport boundaries on previously disturbed land and is not likely to impact wildlife populations in the area. Watson Lake hosts lake trout, burbot, white fish, northern pike and arctic grayling.

## 2.3 Socio-economic Environment

The proposed project is located in the Liard First Nation Kaska traditional territory. The project area is located approximately 7 km from the community of Watson Lake. The lake's northern shore has residential infrastructure including several bed and breakfast establishments and small business. Locals and visitors enjoy recreational activities in and around the lake for hiking, fishing, swimming, and boating. The proposed project has the potential to provide local individuals and contractors with employment opportunity for the duration of the project life.

## 3.0 Requirement for an Assessment

An assessment by the Designated Office is required under the following circumstances:

1. An activity is proposed to be undertaken that is listed in Schedule 1 of the Assessable Activities, Exceptions and Executive Committee Projects Regulations (Activity Regulations) and not excepted;

The proponent proposes to undertake activities listed in part 8 item 2 of the Activity Regulations, specifically:

*“Removing, containing or any other activity intended to reduce the exposure of human beings, animals and plants to, materials containing a contaminant found on a contaminated site”*

2. The project is being undertaken in the Yukon; and
3. A federal agency or federal independent regulatory agency is the proponent or receives an application for financial assistance for the activity.

Decision bodies and authorizations have been identified based on information in the project proposal and information submitted to the Designated Office during the assessment.

Decision Body	Authorization(s) Required	Act or Regulation
Yukon Government	Authorization to work on a Designated Contaminated Site	<u>Environment Act, Contaminated Sites Regulation</u>

Table 1: Decision Body(s) and Authorizations Required

## 4.0 Scope of the Assessment

This assessment considers the project scope as described above and how it relates to valued environmental and socio-economic components of the area. Comment submissions assist in identifying these components and the potential significant adverse effects this project may have on them

For the purpose of this assessment, I considered information contained within the EBA Engineering Consultant Report - *Supplemental Environmental Investigation, Watson Lake Airport, Revised 2005* (document # 2010-0085-006-1). This report provided project information on environmental issues, recommended remedial actions and cost estimates for the 10 APECs at the Watson Lake Airport, including APEC 7.

Yukon Government, Environment Branch provided comments and recommendations regarding soil and water quality, and regulatory reminders. They are concerned with the project's potential environmental effects related to contaminant release due to the excavation of contaminated soils, and spills during excavation, storage and transport of contaminated soils. These concerns will be further discussed in Section 6.0 Environmental Quality. The regulatory reminders are listed below for the proponent. Please note that it is the responsibility of the proponent to ensure that all appropriate permits/authorizations are acquired.

Regulatory reminders as stated by Yukon Government, Environment Branch:

- Authorization is required from the Environmental Programs Branch prior to removal of any material from the LTU.
- A relocation permit is required prior to the removal of soil, water or sediment with concentrations above the Contaminated Site Regulations (CSR) standards from the airport property. Please contact the Environmental Programs Branch for further information and an application form.
- A special waste permit will be required for the generation, storage, handling, transport or disposal of any type of special waste in amounts that exceed the thresholds in the *Special Waste Regulations*. If excavation activities result in the generation of material deemed to be special waste, this material will need to be directed to a facility permitted to accept those types of wastes. Special wastes include soils with a total hydrocarbon concentration equal to or greater than 30,000 ppm total petroleum hydrocarbons or metals contaminated soil deemed to be special wastes based on TCLP analyses. All shipments of special waste must be accompanied by a manifest noting the permit numbers of the generator, transporter and receiving locations. It should be noted that the proponent currently holds a land treatment facility permit for the treatment of non-special waste hydrocarbon contaminated soil. The proponent would need to obtain an amendment to this permit to allow for the acceptance and treatment of special waste hydrocarbon contaminated soils.
- Previous site assessment work indicates that metals contaminated soils above CSR standards may be encountered during excavation activities. The proponent is not currently permitted to accept soils contaminated with metal concentrations above CSR standards into the LTF. Prior to acceptance of metals contaminated soils, an amendment to the LTF permit would be required. Please note that final disposal options for soils contaminated with metals concentrations above CSR standards are limited and may require relocation to an out-of-territory disposal facility.
- The proponent is required to report all spills of substances and amounts listed in the Spills Regulations. Spills can be reported to the local Conservation Officer or to the 24-hour Spills Line at (867) 667-7244 (collect calls are accepted). Notwithstanding the regulated thresholds, Environment Yukon encourages proponents to report all spills, regardless of quantity, as under the Environment Act a spill is "a release of a substance that is abnormal in quantity or quality in light of all the circumstances of the release". Reporting all spills therefore ensures that the proponent has met their obligation to report under section 133 of the Environment Act. The Environmental Programs Branch requires that all spills are assessed and remediated in accordance with the Contaminated Sites Regulation and its protocols and standards, including proper delineation of the affected area and appropriate confirmatory sampling to demonstrate that the chosen remedial option has been effective.

After taking into account the matters referred to in section 42 of the Act, the Designated Office has identified the valued environmental and socio-economic components (VESEC) for consideration in this assessment:

1. Water Quality

## PART B – EFFECTS CHARACTERIZATION AND REASONS FOR RECOMMENDATION/REFERAL

### 5.0 Water Quality

#### 5.1 Overview

Water quality is an important indicator for environmental health, drinking water, aquatic life and recreational use for waterbodies. Water is a major pathway by which human and all life-forms can be exposed to chemicals and pathogens. Investigative studies by the proponent has indicated that groundwater from APEC 7 is up-gradient to surface water and potential potable water sites.

Water samples collected within the project area from 1995 to 2004 found the following contaminants of concern underground: VPH (Volatile Petroleum Hydrocarbons), LEPH, and phenanthrene.

I have considered the following potential project effects on water quality:

- Contamination of surface and groundwater.

I have determined that the project will result in significant adverse effects to water quality that can be adequately reduced with the application of recommended mitigations. The rationale used to determine the significance of project effects on the valued component is discussed in the following sections.

#### 5.2 Project Effects

The project may potentially affect water quality by contaminant loading of groundwater, surface water and potable water sources. Potential impacts from contaminant leaching and pollution run off from contaminated soils may have a significant adverse effect on water quality. Some of the known soil and water contaminants that are associated with the proposed project include, but not limited to: automobiles, engines, diesel fuel, gasoline, hydraulic fluids, batteries, coolants, pesticides, metals, asbestos, and lubricants.

##### *Contaminant Leachate*

Contaminated leachate occurs when water percolates through decomposed landfill waste that may contain chemicals, toxic material, heavy metals, dissolved organic matter; inorganic macro components and organic compounds. Leachate containing toxic chemical contaminants may enter ground water or nearby surface water impacting local and downstream water quality, drinking water and aquatic life.

##### *Contaminated Soils*

Known soil contaminants associated with the project include, but are not limited to: arsenic, chromium, copper, lead, tin, zinc, diesel fuel, gasoline, hydraulic fluids, coolants, lubricants, solvents, heavy metals and cleansers. These substances may enter the nearby waterbodies through precipitation and during spring freshet.

Deleterious substances, specifically chemical contaminants, can cause immediate death to vegetation, fish and wildlife if a lethal dose is received. Chemical contaminants in sub-lethal dose can affect the long-term survival and/or reproductive success of organisms. Bioaccumulation of chemical contaminants can result in effects that may take a long time to observe and affect organisms throughout the foodweb, including humans. Chemical contaminants are known carcinogens to human and wildlife receptors.

##### *Conclusions of EBA's 2005 Investigations*

EBA's investigations summary of the project area concludes that there is groundwater containing concentrations of tested parameters at concentrations above the CSR (AW) or (DW) standards at APEC 7. *EBA Hydrogeological Assessment*, has established that APEC 7 is hydraulically up-gradient of potable water sources. Groundwater LEPH concentrations exceed the AW standards at APEC 7. Groundwater benzo(a)pyrene concentrations exceed the DW standards at APEC 7.

EBA's general recommendations for continued environmental management of the site include:

- Identify any underground utilities such as electrical lines, sewer lines, etc.
- Remove hydrocarbon-impacted soils and remediate them in a land treatment facility on the airport site.
- Use submersible pumps or vacuum pumps to remove (contaminated) groundwater or product seepage that accumulates in the excavations.
- Collect for disposal any product, and treat the contaminated groundwater. Discharge the treated water to the subsurface at a strategic location to be determined by a qualified contaminant hydrogeologist.
- Once the contaminated soil has been removed from the excavation, the excavation should be filled using clean granular fill and compacted as required for the intended use of the excavated area.
- Following source removal, continued ground monitoring is necessary to confirm that contaminated groundwater is not migrating toward Watson Lake.
- A risk assessment should be completed to assess the viability of allowing the quality of ground water to attenuate naturally.
- Additional monitoring of wells downgradient of the leading edge of the ground water contaminant plume. Management strategy must include long-term groundwater monitoring and sampling program.

#### *Proponents Remediation Plan*

The proponent's remediation plan can be found in Section 1.4 Project Details of this report. Within this plan, the proponent discusses a groundwater monitoring program, wherein samples of well water will be analyzed by a laboratory for contaminants of concern. However, within the comments provided by the Yukon Government, Environment Branch, they included a recommendation that the groundwater monitoring program encompass at least two annual sampling events, preferably during typical high and low water level periods. They continued by stating that this would allow the characterization of seasonal variability of groundwater quality. Considering that the groundwater monitoring program, as indicated in the Form 1, constitutes the minimum amount of sampling, and natural seasonal variability of groundwater quality, I have concluded that this is a favorable recommendation.

In the event that the soil in the LTU is not suitable for use as backfill for the excavated APEC 7 site, the proponent indicated that local sources of fill will be used to complete the backfilling portion of the project. In order to reduce any further contamination, the backfill should contain only clean material.

#### *Significance Determination*

I have considered groundwater flow in the area, the location of APEC 7, and its distance to the nearest surface water and potable water sources. Due to the short distance between the contaminated site, Watson Lake and the Airport's underground reservoir, there is the potential for water contamination. I have also considered the impermeable geomembrane which is intended to inhibit infiltration between the field seasons and reduce contaminated leachate. However it will not prevent precipitation infiltration from the sides of the cover area nor reduce groundwater migration from up-gradient areas. Contamination of water sources may therefore also occur.

The effects on water quality represent an adverse effect, for which I have considered the relevant non-discretionary legislation applicable to this project (listed below) and the proponent's key mitigations (Appendix 1). I have determined that the project will result in significant adverse effects to water quality. These effects can be mitigated by the application of the mitigation measures listed below.

*Applicable non-discretionary legislation includes:*

- Environment Act, Contaminated Sites Regulations
- Environment Act, Special Waste Regulations

### *Recommended Mitigation*

The following mitigation measures shall be complied with in order to mitigate effects of the proposed project, as they relate to water quality.

- In the event that the Land Treatment Unit soil is not deemed suitable for use as backfill, the proponent shall use clean material.
- The groundwater monitoring program shall encompass at least two annual sampling events, preferably during typical high and low water level periods.
- Soil and water samples shall be analyzed for all regulated CSR parameters for all contaminants of concern.

### *Residual Effects*

Residual effects of the proposed project may include contaminated soil run-off and contaminant leaching into surface and groundwater impacting water quality. However, it is anticipated that implementation of the mitigations provided will reduce the likelihood and occurrence of significant residual effects.

### 5.3 Cumulative Effects

Existing activities within the area includes airport operations, residential, recreational, and on-going remediation work at the airport. I am aware of seven past projects for which a proposal was submitted to the Designated Office for assessment, including geo. testing, LTU installation and operation, and landfill capping.

Effects from existing and proposed activities in the area on water quality may include point and nonpoint contaminations from the airport and the residential area on the northern lake shore. Information within *EBA Supplemental Environmental Investigations, Watson Lake* report has identified hydrocarbon loading into the lake. Transport Canada has indicated that they will continue implementing further remediation measures for the airport and continue monitoring programs.

I am satisfied that the residual effects from the project are not significant and adverse after compliance with non-discretionary legislation and implementation of the proponent's proposed mitigation measures, the recommended mitigation measures above as well as future remediation by Transport Canada. I conclude that the project will not, in combination with the effects of existing activities, result in significant adverse cumulative (environmental or socio-economic) effects.

## **PART C – APPENDICES**

### **APPENDIX 1 – LIST OF KEY MITIGATIONS THE PROPONENT HAS COMMITTED TO UNDERTAKE**

The following is a compilation of the key mitigations proposed by the proponent and noted in this report and in the project proposal (document # 2010-0085-002-1):

- An impermeable geomembrane will be used to cover the excavation between field seasons to mitigate infiltration from precipitation and sub-surface flow of contamination.
- A small amount of fuel will be located onsite and will be contained within a tank on a truck. A spill kit will be onsite during excavation and an emergency spill response procedure will be identified prior to work.
- Equipment will be properly maintained to minimize the emission of exhaust and noise, release of lubricants and fuel during the investigation phase.
- Schedule activities during normal working hours to minimize noise effects.
- A health and Safety Plan will be in place prior to project commencement. Hazards and mitigation measures will be identified and Personal protective equipment will be used during work.
- Proper signage and fencing should be used to ensure safe working conditions in the project area.
- Contain dust and use of non-toxic dust control measures.
- Identify and avoid areas identified on Schedule 1 of the Species at Risk Act (SARA) or local government regulated species.
- The contractor will liaise with the Airport Authority to ensure that there is little to no impact to airport operations through an Airport Plan of Operations. There is not anticipated to be any interruptions to the airport however if impacts are unavoidable then a NOTAM would likely be issued by the airport for the project site. (The definition of NOTAM as identified in the NAV CANADA "Canadian NOTAM Procedures Manual" is defined as a notice distributed by means of telecommunication containing information concerning the establishment, conditions or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.)

These mitigations are important because they help to mitigate significant adverse effects of the project. I have confidence that the proponent will implement these mitigations and I expect that the decision body and regulators will ensure that these activities are undertaken as proposed.

**APPENDIX 2 – LIST OF RELEVANT NON-DISCRETIONARY LEGISLATION APPLICABLE TO THE PROJECT**

The following is a notation of the key legislation and associated sections that I believe are relevant to this project. These provisions help to ensure that significant adverse effects do not occur. Note that this list is not intended to be a comprehensive list of all the relevant legislation that applies to this project. Rather it is a reflection of the legislation that was discussed in this report. I have confidence that the proponent will adhere to this legislation, and I expect that the decision body and regulators will enforce the legislation.

Legislation	Key Provisions (by part or section number)
<i>Environment Act</i>	<u>Contaminated Sites Regulations</u>
<i>Environment Act</i>	<u>Special Waste Regulations</u>

**APPENDIX 3 – LIST OF SUBMISSIONS MADE BY INTERESTED PERSONS AND OTHERS  
DURING THE ASSESSMENT**

Name of Person or Party	Type of Submission	YOR Document Number	Date Submitted
Yukon Government	Comment	2010-0085-040-1	May 3, 2010



**Yukon Environmental & Socioeconomic Assessment Act  
Final Decision Document**

This consolidated document meets the requirements of a Decision Document as set out in the *Yukon Environmental & Socioeconomic Assessment Act*

**Decision Document Issued By**

<b>YG Decision Body:</b>	<b>Department of Environment</b>
<b>Other Decision Body:</b>	<b>Transport Canada</b>
<b>First Nation Decision Body(ies):</b>	N/A

**Project**

<b>Project Name:</b> Watson Lake Airport APEC 7 Remediation	YESAA File Number: 2010-0085
<b>Proponent Name:</b>	Transport Canada
<b>Project Description:</b>  excavate Transport Canada proposes to and treat contaminated soil at Area of Potential Environmental Concern No. 7 (APEC 7) on Watson Lake Airport property.	

**Other Decision Bodies**

<b>Other Decision Body Consultation:</b>	<i>[list decision bodies consulted, where applicable]</i> Transport Canada
<b>Consolidated Decision Document:</b>	<input type="checkbox"/> N/A <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes

**Decision**

Pursuant to YESAA s. 75, 76 and 80, the decision bodies have considered the YESAA assessment of this project and:	
	a) Accept the following recommendation (inserted below)
	b) Rejects the following recommendation (inserted below) for the following reason(s):

<b>X</b>	<p>c) Vary the recommendation (inserted below) as follows for the reason(s) specified:</p> <p>The Watson Lake Designated Office, pursuant to section 56(1)(b) of the <i>Yukon Environmental and Socioeconomic Assessment Act</i>, recommends to the decision body that the project be allowed to proceed, subject to specified terms and conditions, as the Designated Office has determined that the project will have significant adverse environmental or socio-economic effects in or outside of Yukon that can be mitigated by those terms and conditions.</p> <p><b>The following term and condition is varied:</b></p> <ul style="list-style-type: none"> <li>• The groundwater monitoring program shall encompass at least two annual sampling events, preferably during typical high and low water level periods.</li> </ul> <p><b>Varied to:</b></p> <ul style="list-style-type: none"> <li>• The groundwater monitoring program shall encompass at least one annual sampling event.</li> </ul> <p><b>Rationale:</b></p> <p><i>Extensive groundwater monitoring and characterization has been previously conducted at this site; groundwater will continue to be monitored as part of the annual site-wide groundwater monitoring program. Based on previous groundwater monitoring and characterization efforts, one annual sampling event is sufficient for continued monitoring of groundwater quality within the vicinity of APEC 7.</i></p> <p><b>The following terms and conditions remain unchanged:</b></p> <ul style="list-style-type: none"> <li>• In the event that the Land Treatment Unit soil is not deemed suitable for use as backfill, the proponent shall use clean material.</li> <li>• Soil and water samples shall be analyzed for all regulated CSR parameters for all contaminants of concern.</li> </ul>
----------	--

**Dates**

<b>Project Recommendation Issued:</b> May 18 <sup>th</sup> , 2010	<b>Decision Document Issued:</b> May 31, 2010
--	--

**Recommendation Received From**

Designated Office	<b>X</b>	Location: Watson Lake
Executive Committee		
Panel		a) Panel of the YESAB
		b) CEAA Panel
		c) Joint Panel (YESAB and other assessment body)

**Authority**

By signing below, the Decision Bodies have exercised their authority as per YESAA s. 75 or s. 76 to issue a decision document on this project.

**Yukon Government**

Name: Bryan Levia

Position: Manager, Monitoring and Inspections,  
Environmental Programs Branch

Signature: *Bryan Levia*  
Original signed by [Delegated YG Decision Body]

Date: 10/05/10

**Transport Canada**

Name: Doug Soloway

Position: Superintendent, Environmental Assessment  
Management Program, Environmental  
Affairs

Signature: *D. Soloway*  
Original signed by [Doug Soloway], Transport Canada]

Date: 31/05/10

**Copies Forwarded to (as required by YESAA s. 81):**

- |   |                                 |
|---|---------------------------------|
| <input type="checkbox"/> Other Decision Bodies                    | Transport Canada _____          |
| <input checked="" type="checkbox"/> Project Proponent             | _____                           |
| <input checked="" type="checkbox"/> Development Assessment Branch | <u>Executive Council Office</u> |
| <input checked="" type="checkbox"/> YESAB Designated Office       | <u>Watson Lake</u>              |
| <input type="checkbox"/> YESAB Executive Committee                | [when applicable] _____         |
| <input type="checkbox"/> Minister Environment (Canada)            | [when applicable] _____         |
| <input type="checkbox"/> Yukon Surface Rights Board               | [when applicable] _____         |
| <input type="checkbox"/> Yukon Water Board                        | [when applicable] _____         |
| <input type="checkbox"/> Land Use Planning Commission:            | [when applicable] _____         |
| <input type="checkbox"/> Independent Regulatory Agency            | [when applicable] _____         |
| <input type="checkbox"/> Other Body/Person as Required            | [list] _____                    |

# YESAB

Yukon Environmental and  
Socio-economic Assessment Board

## Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal

Project Number: 2014-0146

**Proponent:** Transport Canada

**Assessment Completion Date:** November 4, 2014

Watson Lake Designated Office

PO Box 294

Watson Lake, YT Y0A 1C0

Tel: (867) 536-4040

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## Summary

Transport Canada (the Proponent) is proposing to renew the Land Treatment Facility (LTF) Permit for the continued operation of the LTF within the boundaries of the Watson Lake Airport. The operation of this LTF provides non-commercial, multi-use treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport. Project activities include use of heavy equipment; acceptance, storage and treatment of soil contaminated with hydrocarbons; inspection, maintenance and testing of the geo-membrane liner; sampling and performing analytical testing of soil and water; mechanical turning of soils; amendment of soils with fertilizers; stockpiling of treated soils for future use on airport property; and decommissioning of the site. The proposed project is anticipated to continue for 14 more years.

The Designated Office sought views and information on the Project from October 6 to November 3, 2014. Initially, the seeking views and information period was set to end on October 20<sup>th</sup>; however, an extension request for an additional 2-week period was received by the Decision Body (YG, Environment) and was granted. YG, Environment and YG, Health and Social Services submitted comments.

One valued component was identified: environmental quality. The Designated Office has determined that the Project will have significant adverse effects to this valued component that can be mitigated. Compliance with existing non-discretionary legislation, application of the Proponents' mitigations (Appendix A) as well as the recommended mitigation measures (listed below) are adequate to mitigate the significant adverse effects of the Project. The Designated Office therefore, recommends that the Project be allowed to proceed subject to specified terms and conditions.

The Decision Body, Government of Yukon, Environment, Environmental Programs, will review the Recommendation and the accompanying reasons described in this Evaluation Report. The Decision Body will issue a Decision Document within 37 days, as prescribed under s. 2 of the *Decision Body Time Periods and Consultation Regulations* that will either, a) accept the recommendation, b) vary the recommendation, or c) reject the recommendation.

## Assessment Outcome

Under s. 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, the Watson Lake Designated Office recommends to the Decision Bodies that the Project be allowed to proceed, subject to specified terms and conditions. The Designated Office determined that the Project will have significant adverse environmental and socio-economic effects in or outside Yukon that can be mitigated by those terms and conditions.

### The terms and conditions of the recommendations are as follows:

1. The Proponent shall familiarize themselves with Yukon invasive species and how to manage them by referring to the Yukon Invasive Species Council (YISC) document entitled *Why Should I Care About Invasive Species?* This document is available at: [http://www.yukoninvasives.com/pdf\\_docs/WhyshouldIcare2011\\_sm.pdf](http://www.yukoninvasives.com/pdf_docs/WhyshouldIcare2011_sm.pdf).
2. To prevent the spread of invasive plants, all heavy equipment and vehicles shall be clean and free of seed and plant material prior to entering the project area.

## **Watson Lake Designated Office Evaluation Report**

Watson Lake Airport LTF – Permit Renewal – 2014-0146

3. The Proponent shall report the presence of any invasive plants that are listed on the website ([http://www.yukoninvasives.com/pdf\\_docs/plants\\_all\\_invasives.pdf](http://www.yukoninvasives.com/pdf_docs/plants_all_invasives.pdf)) to the Government of Yukon by email ([invasives@gov.yk.ca](mailto:invasives@gov.yk.ca)) or to the Regional Biologist in Watson Lake or Mayo.
4. If seeding is required, the Proponent shall contact Government of Yukon, Compliance, Monitoring and Inspections for further information on appropriate seed mixes or collection of local seed.

For more information, please contact:

**Name:** Kathie Thibaudeau

**Title:** Manager, Designated Office

**Watson Lake Designated Office**

## Table of Contents

<b>1.0</b>	<b>Requirement for an Assessment .....</b>	<b>1</b>
<b>2.0</b>	<b>Project Description.....</b>	<b>1</b>
2.1	PROPONENT INFORMATION .....	1
2.2	GEOGRAPHICAL CONTEXT.....	2
2.3	PROJECT HISTORY .....	3
2.4	PROJECT DETAILS .....	7
2.5	PROJECT SCOPE .....	10
<b>3.0</b>	<b>Environmental and Socio-economic Setting .....</b>	<b>10</b>
3.1	PHYSICAL ENVIRONMENT .....	10
3.2	BIOLOGICAL ENVIRONMENT.....	11
3.3	SOCIO-ECONOMIC ENVIRONMENT .....	11
<b>4.0</b>	<b>Scope of the Assessment.....</b>	<b>12</b>
4.1	VIEWS AND INFORMATION SUBMITTED.....	12
4.2	CONSIDERATION OF SIGNIFICANCE .....	12
4.3	CONSIDERATION OF CUMULATIVE EFFECTS.....	13
4.4	OTHER MATTERS CONSIDERED .....	13
4.5	VALUED ENVIRONMENTAL AND SOCIO-ECONOMIC COMPONENTS (VESEC).....	14
<b>5.0</b>	<b>Environmental Quality .....</b>	<b>15</b>
5.1	OVERVIEW .....	15
5.2	PROJECT EFFECTS – EFFECTS CHARACTERIZATION .....	15
5.2.1	Release of Contaminants.....	15
5.2.2	Introduction of Invasive Species .....	18
5.2.3	Relevant Proponent Commitments .....	18
5.2.4	Relevant Non-discretionary Legislation .....	19
	The Designated Office has considered the requirements of the following: .....	19
5.2.5	Significance Determination .....	20
5.3	RESIDUAL EFFECTS .....	21
5.4	CUMULATIVE EFFECTS.....	21
<b>6.0</b>	<b>Conclusion of the Assessment .....</b>	<b>22</b>
	<b>Appendix A Relevant Proponent Commitments .....</b>	<b>23</b>
	<b>Appendix B References.....</b>	<b>25</b>

## PART A. BACKGROUND

Part A provides the context and background information required for the assessment of the Project. Section 1.0 identifies the requirement for an assessment under the *Yukon Environmental and Socio-economic Assessment Act*, while Sections 2.0 and 3.0 provide information and baseline data for the Project and project area. Section 4.0 identifies the scope of the assessment, including matters that were considered in evaluating the significance of potential effects of the Project.

### 1.0 REQUIREMENT FOR AN ASSESSMENT

The purpose of the proposed project is the renewal of the Land Treatment Facility Permit for the continued operation of the land treatment facility (LTF) within the boundaries of the Watson Lake Airport. While several activities are likely to be undertaken in conjunction with this Project, under s. 47 of the *Yukon Environmental and Socio-economic Assessment Act*, the Project is subject to an assessment by the Watson Lake Designated Office due to the following circumstances:

- The proposed activity is listed in column 1 of Schedule 1 of the *Assessable Activities, Exceptions and Executive Committee Projects Regulations* (Activity Regulations); and not listed in column 2 as excepted. The proponent proposes to undertake activities listed in Part 8, item 1 of the Activity Regulations. The specific activity is listed as:  
*“Construction, operation, modification, decommissioning or abandonment of a land treatment facility.”*
- Is proposed to be undertaken in the Yukon; and
- A federal agency or federal independent regulatory agency is the proponent or receives an application for financial assistance for the activity.

**Table 1: The Decision Body and the triggering authorizations required for the Project.**

**This information is based on the project proposal and other information submitted to the Designated Office during the assessment.**

Decision Body	Authorization Required	Act or Regulation
Government of Yukon, Environment, Environmental Programs	Land Treatment Facility Permit	<i>Environment Act, Contaminated Sites Regulation</i>

### 2.0 PROJECT DESCRIPTION

#### 2.1 Proponent Information

The Proponent for this Project is Transport Canada. The contact person for the purposes of this assessment is Anita Champagne Gudmundson, Superintendent – Contaminated Sites who can be contacted at the following:



## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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Phone: 204-983-3388

Fax: 204-983-5048

Email: [Anita.ChampagneGudmondson@tc.gc.ca](mailto:Anita.ChampagneGudmondson@tc.gc.ca)

### 2.2 Geographical Context

The Project is located within the property boundary of the Watson Lake Airport, within the municipal boundaries of Watson Lake. Figure 1 and Table 2 provides details regarding the project location and geographical context.

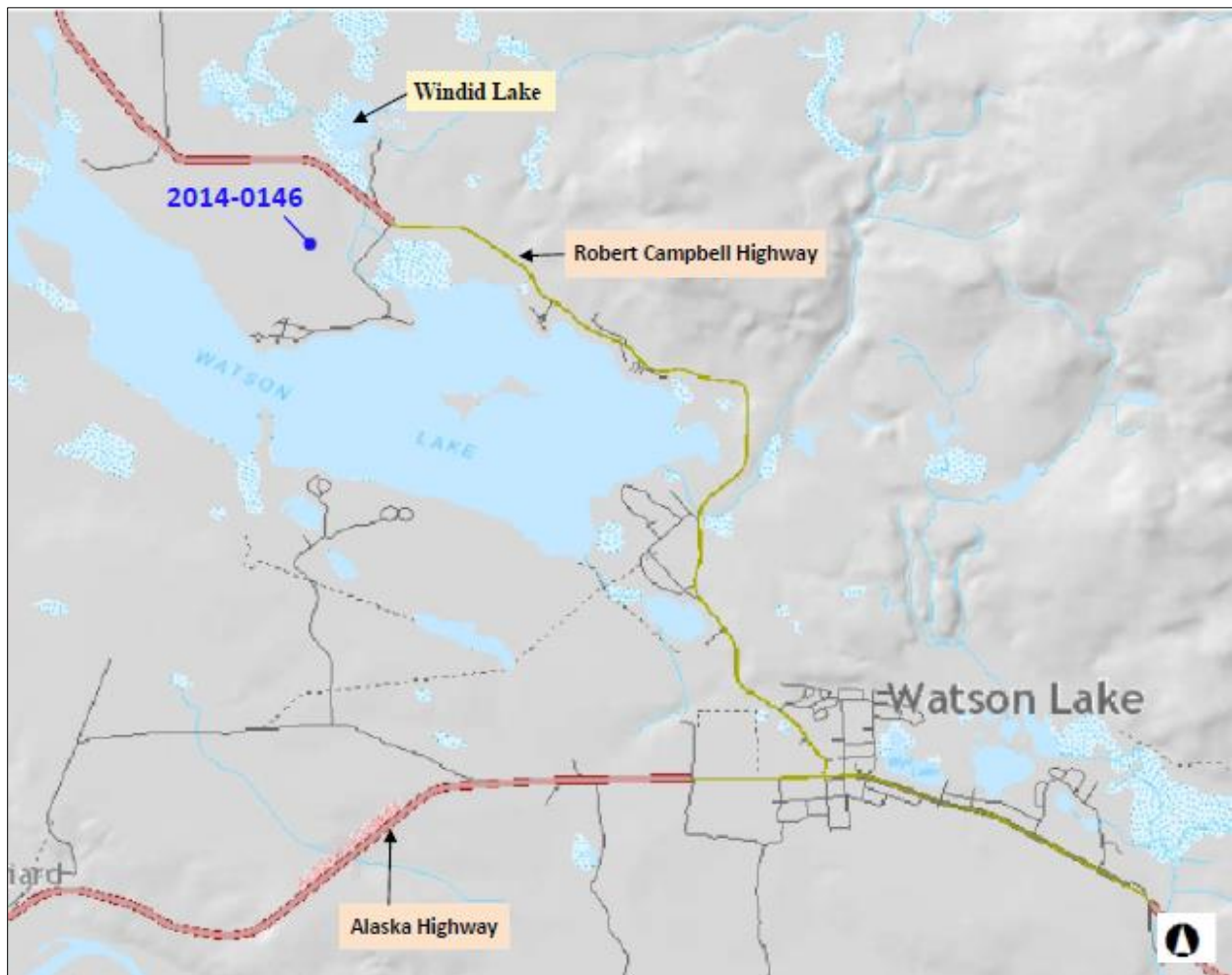


Figure 1: Project Location

**Table 2: Project location, coordinates and geographical parameters**

<p><b>Project Coordinates:</b> Map Sheet: 105A/02</p>	<p><b>UTM</b> Zone 9 NW 510147E 6664944N NE 510208E 6664990N SW 510164E 6664923N SE 510225E 6664965N <b>Degrees, Minutes, Seconds</b> NW 60° 7' 17.04" N 128° 49' 2.64" W NE 60° 7' 18.48" N 128° 48' 58.68" W SW 60° 7' 16.32" N 128° 49' 1.56" W SE 60° 7' 17.76" N 128° 48' 57.6" W <b>Decimal Degrees</b> NW 60.1214° N 128.8714°W NE 60.1218° N 128.8163°W SW 60.1212° N 128.8171°W SE 60.1216° N 128.816°W</p>
<p><b>First Nation Traditional Territories Involved:</b></p>	<p>Liard First Nation Ross River Dena</p>
<p><b>Drainage Region:</b></p>	<p><i>Major Drainage Area:</i> Arctic Drainage Area <i>Sub Drainage Area:</i> Upper Liard <i>Sub-sub Drainage Area:</i> Headwaters Liard</p>
<p><b>Nearby Watercourses or Waterbodies:</b></p>	<p>Watson Lake</p>

### 2.3 Project History

The following information has been taken from the project proposal<sup>1</sup>.

The airport has been in use since the 1930s and in 1941, construction began on the Watson Lake Airport. The United States military used the airport for shipping aircraft to Alaska during the Second World War.

<sup>1</sup> YOR 2014-0146-001-1

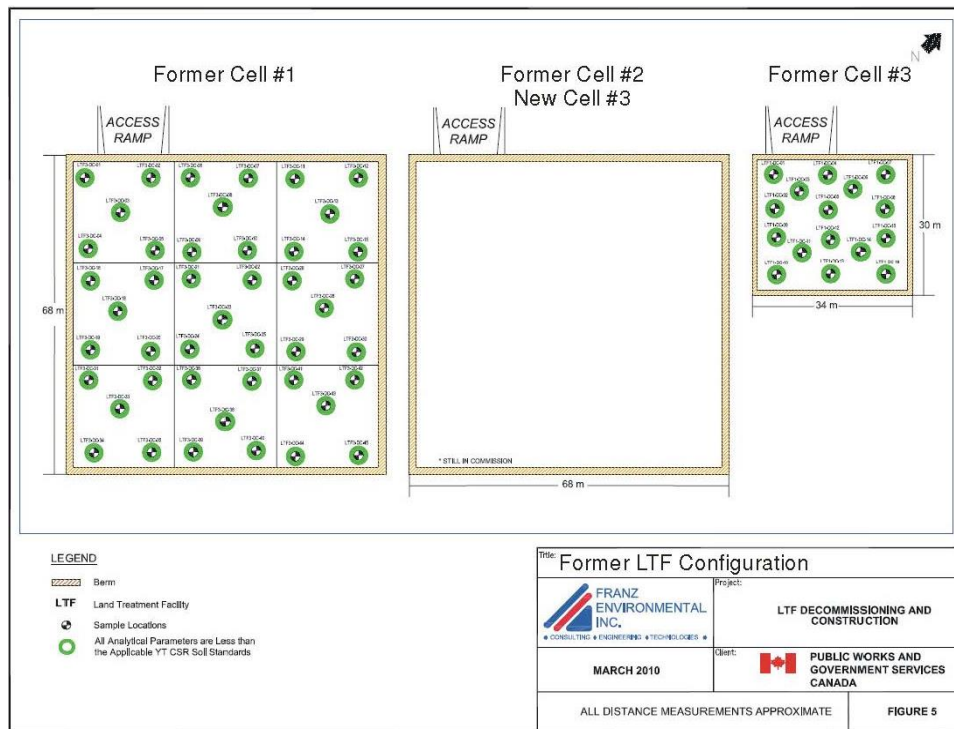
## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

After the war, the United States sold their properties at the airport to the Royal Canadian Air Force and in 1957, the responsibility of the airport operation was transferred to Transport Canada.

A condition of the Arctic A Airport transfer agreement between Government of Yukon (YG) and Transport Canada, is that the environmental issues that existed prior to the airport transfer, are to be remediated as well as any items identified by Government of Yukon within six years of the transfer date.

The LTF at the Watson Lake Airport has been operated by Transport Canada since 2001. The facility was initially constructed to treat contaminated soils from the airport fire training area site. The original construction was a two cell (68 m x 68 m each) treatment facility lined with geo-membrane. During remediation of the above-mentioned sites, discovery of additional quantities of contaminated soils necessitated the construction of a third geo-membrane lined cell (30 m x 34 m) to accommodate the quantities of the newly discovered contaminated soils (Figure 2). Several treatment programs were conducted at the LTF and a final confirmatory soil sampling program was carried out in 2006; the results confirmed that the soil from the cells were suitable for relocating outside of the LTF. A total volume of approximately 2 855 m<sup>3</sup> was relocated and stockpiled.



**Figure 2: Original cell construction (as provided by the Proponent<sup>2</sup>)**

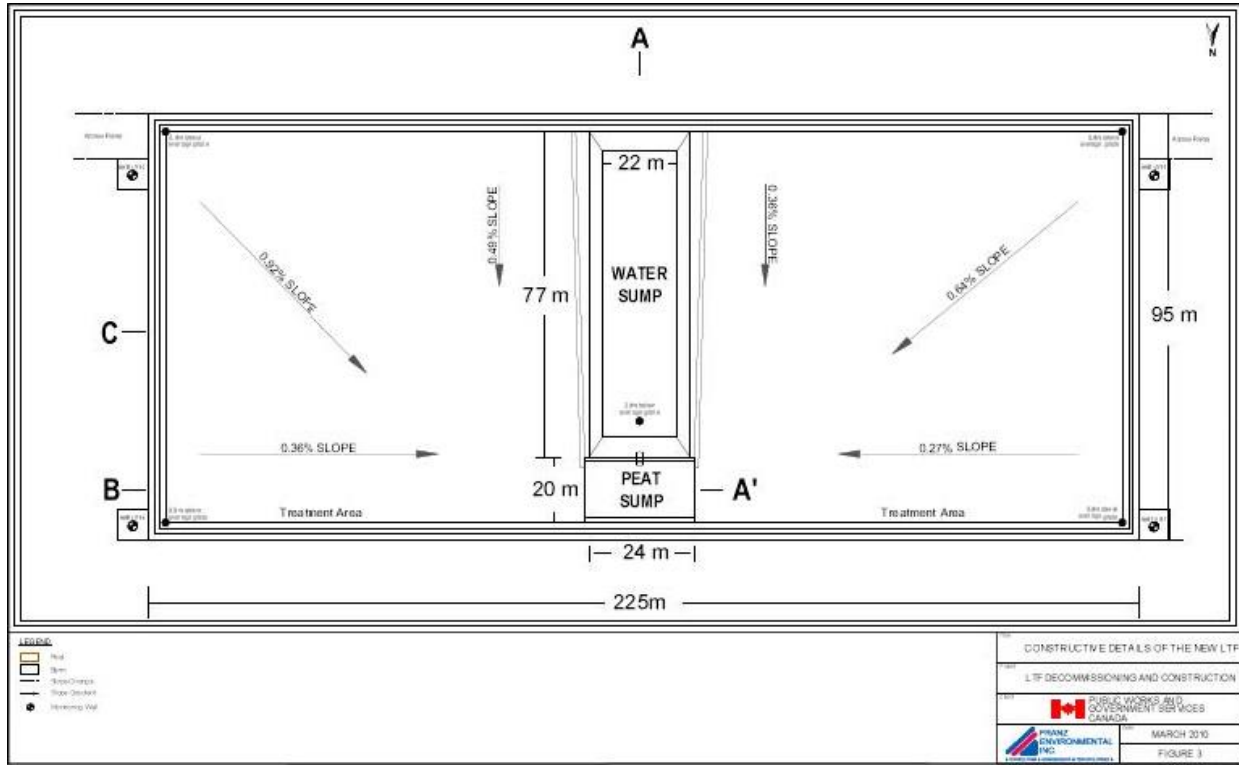
In 2009, designs for the construction of a new LTF that would handle the future requirements of Transport Canada, were developed (Figure 3). This design included the construction of a new two-celled LTF and the decommissioning of two of the previously operated cells (cell #1 and #3). The new LTF would be constructed with a treatment area of 19 800 m<sup>2</sup> and would include a 77 m x 22 m sump and a 24 m x

<sup>2</sup> YOR 2014-0146-004-1

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

20 m peat treatment area. Two of the previously operated cells would be decommissioned as they would no longer be required and cell #2 would remain to act as a stockpile cell in the event that capacity was achieved at the new cells.



In the summer of 2010, the construction of the new LTF and the decommissioning of two of the previous cells (cell #1 and #3) were completed. This work included the following activities:

- utility clearances;
- disposal of organic debris from the clearing and grubbing of trees and brush;
- surveying the layout;
- LTF base preparation, construction of the berms, sumps, peat sump and access ramps;
- installation of the 30 mil hydrocarbon-resistant liner and placement of protective ballast layer of sand;
- installation of Geo-Textile marker layer above ballast to protect liner;
- placement of ballast layer above Geo-Textile marker;
- installation of monitoring wells;

<sup>3</sup> YOR 2014-0146-004-1

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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- decommissioning of the former LTF (cells #1 and #3);
- removal/disposal of the liner once all soil has been relocated;
- removal of access ramps and berms;
- soil sampling from the soil underneath the liners; and
- re-instatement, re-grading and re-seeding of all the disturbed areas on site.

The operation of the facility began with the treatment of soils and water from remedial works conducted at the Watson Lake Airport. The proposed operation has been, and will continue to be a non-commercial multi-use treatment facility, used for treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport.

Several projects have been previously submitted for assessment under YESAA for proposed works at the Watson Lake Airport (Table 3). These projects are related to the proposed project and therefore, a brief summary is provided below.

**Table 3: Previous projects submitted for assessment under YESAA for proposed works at the Watson Lake Airport**

Project Number	Project Title
2007-0101	Contaminated Sites: Watson Lake Airport APEC 10
2007-0113	Land Treatment Facility: Watson Lake Airport
2008-0088	Land Treatment Facility: Watson Lake Airport
2008-0150	Land Treatment Facility: Watson Lake Airport
2009-0073	Watson Lake Airport – Studies and Investigations at 14 APECs
2009-0111	Watson Lake Airport Landfill Capping
2010-0085	Watson Lake Airport – APEC 7 Remediation
2011-0307	Watson Lake Airport LTF – Permit Renewal

Project # 2007-0101 proposed to undertake remedial works at the refuelling site (Area of Environmental Concern - AEC 10). The activities included site preparation; silt fence/curtain installation; excavations and remediation of shoreline, access road, and area around refuelling facility; stockpiling and transportation of contaminated soils to a treatment facility; monitoring; and risk assessment/management. An assessment was completed with the recommendation that the project be allowed to proceed subject to terms and conditions.

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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Project # 2007-0113 proposed the construction and operation of a land treatment facility at the Watson Lake Airport for the purposes of treating hydrocarbon-contaminated soils originating from the airport property. An assessment was completed with the recommendation that the project be allowed to proceed subject to terms and conditions. A decision document was not issued for this project as Transport Canada discontinued the project as they were considering other options. The project did not proceed.

Project # 2008-0088 was submitted for assessment. As the project was previously assessed (#2007-0113), the project was cancelled from the assessment process.

Project # 2008-0150 proposed the same activities as project # 2007-0113; however, the location within the Watson Lake Airport boundaries had changed thereby requiring a new assessment. The outcome of the assessment was a recommendation to allow the project to proceed subject to terms and conditions.

Project # 2009-0073 proposed to undertake studies and investigations at 14 Areas of Potential Environmental Concerns (APEC). Proposed activities included groundwater monitoring, drilling of boreholes for monitoring wells, groundwater sampling, soil and lake sediment collection, and electromagnetic surveying. It was determined that this project as proposed was not assessable and therefore an assessment was not conducted.

Project # 2009-0111 proposed the installation of low permeability compact soil covers over the landfill areas to inhibit infiltration and reduce potential leachate generation. Areas would then be covered with topsoil and reseeded. The outcome of the assessment was a recommendation to allow the project to proceed subject to terms and conditions.

Project # 2010-0085 proposed the excavation and treatment of contaminate soil at APEC 7. The outcome of the assessment was a recommendation to allow the project to proceed subject to terms and conditions.

Project #2011-0307 proposed the renewal of the LTF Permit for the continued operation of the LTF at the Watson Lake Airport, which provides non-commercial, multi-use treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport. The outcome of the assessment was a recommendation to allow the project to proceed subject to terms and conditions.

Project #2011-0307 proposed the renewal of the LTF Permit for the continued operation of the LTF at the Watson Lake Airport, which provides non-commercial, multi-use treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport. The outcome of the assessment was a recommendation to allow the project to proceed subject to terms and conditions.

### 2.4 Project Details

The following is a summary of the operations at the LTF as described in the project proposal<sup>4</sup>.

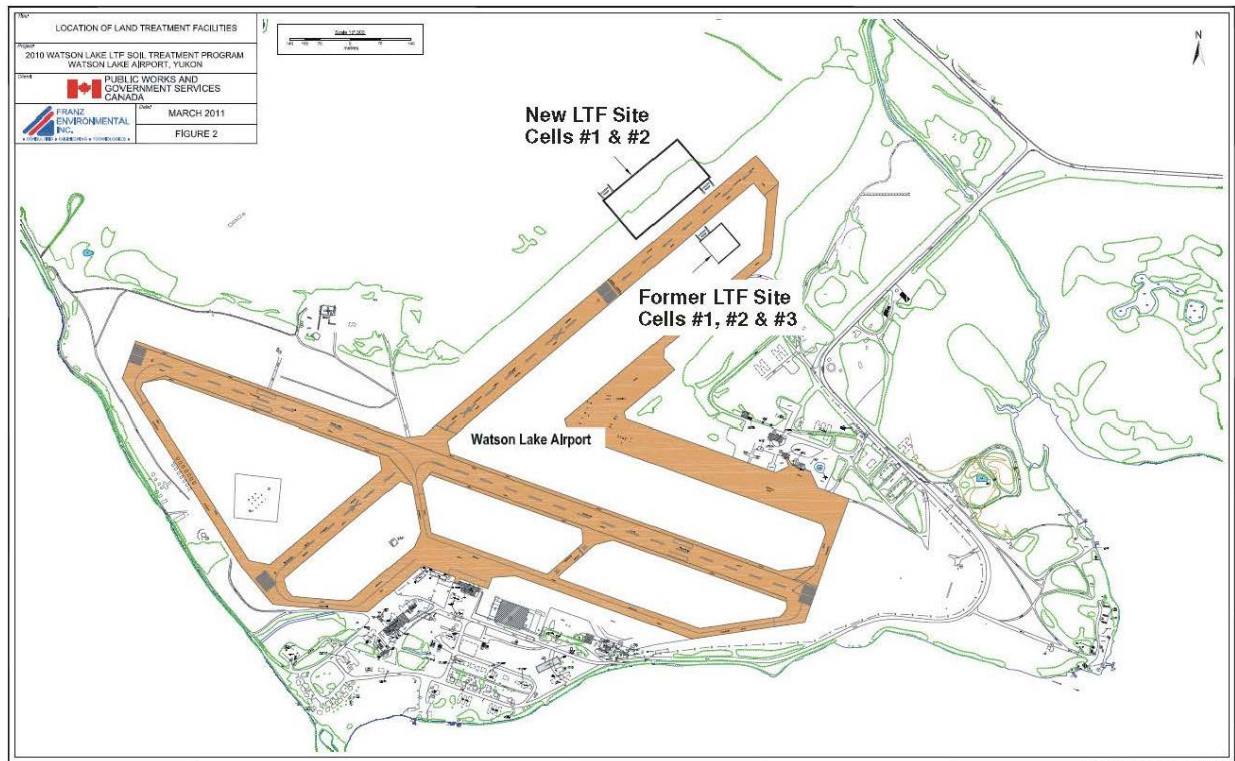
The LTF is designed for the treatment of soils, specifically for the remediation of hydrocarbon contaminated soils, primarily from lands of the Watson Lake Airport. The facility consists of three cells. Cells #1 and #2 are areas designed to treat contaminated soil. Cell #3 is used primarily as a stockpile area for staging of materials once cells #1 and #2 are at capacity. As treatment activities within cells #1 and #2 continue, soils are transferred from cell #3 to cells #1 and #2 (Figure 4).

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<sup>4</sup> YOR 2014-0146-001-1

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146



**Figure 4: Location of the LTF. Cells #1 and #2 are located at the area labelled “New LTF Site” and Cell #3 is located in the area labelled “Former LTF Site” (as provided by the Proponent<sup>5</sup>)**

Water within the facility is controlled via a geo-membrane liner and a common sump located between cells #1 and #2. Water within the cells flows to a peat pre-treatment sump before entering the main sump (see Figure 3 in Section 2.3).

When contaminated material is identified, the material will be accepted at the facility once analytical data on samples of the material is received and it is verified that the material is treatable at the LTF and a Relocation Permit is obtained prior to material being transported, or received at the LTF. In the event satisfactory analysis has not been provided, the LTF may still accept the material if prior arrangements have been made (including the issuance of a Relocation Permit) and there is space available to segregate the material until analytical testing can be conducted. Soils are covered when transported to the site to prevent the escapement of contaminated materials.

When contaminated soils arrive on site, they are placed into one of the three cells. Contaminated soils are placed directly into treatment cells #1 and #2 if space permits. If the treatment cells have reached capacity, any additional quantities of soils delivered to site are placed into the stockpiling cell (cell #3) until space is available in the treatment cells. Soils that require segregation are placed in a separate area of the stockpiling cell until satisfactory analysis has been completed. All materials arriving on site are analyzed in accordance with YG, Environment’s Protocol #3: *Soil Sampling Procedures at Contaminated*

<sup>5</sup> YOR 2014-0146-004-1

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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*Sites* to ensure the materials meet the criteria for treatment within the LTF. The analysis is conducted by a laboratory certified by the Canadian Association of Environmental Analytical Laboratories and reviewed to confirm acceptability for treatment at the LTF.

Treatment of material in the LTF occurs through natural bioremediation of the soils and is enhanced through the use of mechanical tilling which is carried out by utilizing an agricultural cultivator, or disc, pulled by either a tracked bulldozer or agricultural tractor. Tilling is used to aerate the contaminated soil in layers of 0.4 m and upon confirmation of successful treatment, each layer of treated material is removed from the LTF. Depending on the rate of remedial activities, the natural bioremediation of the soils may be enhanced with amendments in the form of high-nitrogen fertilizer (e.g. 46:0:0). Fertilizer will be applied to the sump water, which will be continuously applied to the soil to maintain moisture (as defined as soils with a moisture content that is 2% below optimum soil moisture) and soil workability. Unused fertilizer will be securely stored onsite.

When contaminated soil is believed to be remediated, it is tested in accordance with YG, Environment's Protocol #11: *Sampling Procedures for Land Treatment Facilities* in order to verify that the appropriate standards for contaminant concentrations in the *Contaminated Sites Regulation* (CSR) have been met. Once verified, a request is made for authorization to remove the materials. Representative (a combination of grab samples from throughout the soil to be representative), confirmatory samples will be taken (one for every 50 m<sup>3</sup> if the material is destined for a site with agricultural land use, or one sample for every 100 m<sup>3</sup> if the land use at the destination is not agricultural). These samples will be analyzed as per YG, Environment's Protocol #5: *Petroleum Hydrocarbon Analytical Methods and Standards*. If there is reason to believe that contaminants other than petroleum hydrocarbons may be present in the soil, the samples will be analyzed for those parameters as well.

Once confirmatory samples indicate that the contaminant levels in the soil to be removed are below the standards that apply at the proposed receiving location as specified in the CSR, the results are submitted to YG, Environment, Standards and Approvals section, along identification of the receiving location, for approval. The material is only removed from the LTF once the written approval is received from the Standards and Approvals section. The treated layer is loaded into trucks and the material is stockpiled at a designated stockpile area within 500 m of the LTF site. The material is stockpiled to the maximum height as directed by the permit and is less than 4 m above the pre-existing grade. Treated material is placed in concise piles in the stockpile area such that it does not encroach onto the LTF berms or extend past the fenced site perimeter.

### *Decommissioning*

The expected life span of the LTF is for another 14 years; however, the facility may be decommissioned earlier based upon successful completion of treatment activities resulting from Transport Canada's obligations in regards to its property transfer.

Once treatment requirements are completed and the LTF is no longer required, a closure plan will be submitted to YG, Environment, Environmental Programs Branch for approval before work begins to decommission the facility. The plan will include a schedule for decommissioning; the results of sampling demonstrating the contaminant levels in all soil being treated in the LTF; details of the proposed



## **Watson Lake Designated Office Evaluation Report**

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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disposition of remaining soil; a description of the intended future use of the site; and a description of how the site will be restored or prepared for its future uses.

Generally, decommissioning will include removal of the liner and disposal at an approved facility; confirmatory sampling underneath the liner; backfilling and grading at the site; and re-vegetating to pre-disturbed conditions. Once the LTF has been fully decommissioned, the monitoring wells will be decommissioned, as the purpose of the wells is to ensure there is no leakage from the LTF.

### **2.5 Project Scope**

Transport Canada is proposing to renew the Land Treatment Facility Permit for the continued operation of the LTF within the boundaries of the Watson Lake Airport. The operation of this LTF provides non-commercial, multi-use treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport. The proposed project is anticipated to continue for 14 more years.

#### **Project Activities:**

- Acceptance, storage and treatment of soil contaminated with hydrocarbons
- Inspection, maintenance and testing of the geo-membrane liner
- Sampling and performing analytical testing of soil and water
- Mechanical turning of soils
- Amendment of soils with fertilizers
- Stockpiling of treated soils for future use on airport property
- Decommissioning of the site

## **3.0 ENVIRONMENTAL AND SOCIO-ECONOMIC SETTING**

### **3.1 Physical Environment**

#### ***Setting***

The Project is located within the boundaries of the Watson Lake Airport. The airport is located on the north shore of Watson Lake (the waterbody), approximately 7 km northwest of the Watson Lake town center. The airport is bounded by bush, forest, and wetlands on the north and east sides of the property and the lake on the south and west sides of the property. The Robert Campbell Highway is located to the north-northeast. The LTF is located within the secured, fenced airport grounds.

#### ***Geology and Permafrost***

The Proponent has noted in the proposal that most of the area is underlain by sedimentary rock, consisting of shale, slate, conglomerate, limestone, chert, argillite and dolomite and to a lesser extent, metamorphic rocks.

#### ***Water Drainage and Nearby Waterbodies***

There are no surface waterbodies within 100 m of the LTF; the nearest waterbody is Watson Lake to the south and Windid Lake to the north (across the Robert Campbell Highway). Windid Lake drains to Watson Lake through Windid Creek. Watson Creek drains from its western end into Watson Lake and

## **Watson Lake Designated Office Evaluation Report**

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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then into Liard River, which eventually discharges into the in the MacKenzie River. Local drainage on the airport is controlled by local shallow ditches.

Groundwater monitoring indicates that the groundwater flows to the southwest, towards Watson Lake. According to the YESAB GeoLocator mapping program, Watson Lake is >1000 m from the project site.

### **3.2 Biological Environment**

#### ***Vegetation***

The Project falls within the Liard Basin Ecoregion<sup>6</sup>. The vegetation in the area is composed of boreal forest species such as black and white spruce, lodgepole pine, aspen, various shrubs, and brush.

#### ***Wildlife***

Wildlife in the area includes moose, grizzly and black bear, wolves, lynx, fox, snowshoe hare, beaver, marten and other furbearers, waterfowl, raptors, grouse, and other bird species. The site overlaps with a wildlife key area for bald eagle summer reproduction habitat (Jun-Aug). However, the site is located in the boundaries of the Watson Lake Airport on previously disturbed land. The site itself is fenced and does not provide wildlife habitat and as such, wildlife movement through the general area is largely limited.

#### ***Fish***

The nearest waterbody is Watson Lake, which supports fish species such as whitefish, northern pike, lake trout, Arctic grayling, and burbot.

### **3.3 Socio-economic Environment**

#### ***Nearby Communities***

The Project is located within the boundary of the Watson Lake Airport, approximately 7 km northwest of the Watson Lake town centre. Public access to the project area is restricted.

#### ***First Nations***

The Project is located within the traditional territories of the Liard First Nation (LFN) and the Ross River Dena (RRD).

#### ***Administrative Boundaries and Other Land Use Activities***

The Project falls within trapping concession #367; however, the site is within the fenced boundaries of the airport and therefore, will not affect trapping efforts. Aside from commercial and residential areas along the shoreline of Watson Lake, the lake is also used for various recreational uses such as fishing and water sports.

#### ***Nearby Development***

To the southeast of Watson Lake, there is residential development and to the west, there are three residential properties along the shore of Watson Lake. To the north of the Project, on the north side of the Robert Campbell Highway near Windid Lake, there is a residential area. Additionally, there are uses such as personal and commercial air traffic, aircraft maintenance, storage hangers, float plane docks, BC Fire Base, etc.

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<sup>6</sup> Yukon Ecoregions Working Group, 2004

## **4.0 SCOPE OF THE ASSESSMENT**

The scope of assessment is determined by considering the activities described in the Project Scope and, based on consideration of the matters set out in Section 42(1) of the *Yukon Environmental and Socio-economic Assessment Act* (YESAA), identifying the VESECs that may be affected by those project activities.

The Designated Office sought comments from interested parties during the seeking views and information period, which was from October 6 to November 3, 2014. Initially, the seeking views and information period was set to end on October 20<sup>th</sup>; however, an extension request for an additional 2-week period was received by the Decision Body (YG, Environment) and was granted.

Comments were submitted by YG, Environment and YG, Health and Social Services. Comments submitted during the assessment assisted the Designated Office in identifying valued components and understanding the potential effects that the Project may have on them.

### **4.1 Views and Information Submitted**

YG, Environment and YG, Health and Social Services have no concerns with the project activities.

### **4.2 Consideration of Significance**

In order to mitigate a potential adverse effect, the Designated Office must first find significance. In addressing what may constitute a “significant” adverse effect, the Designated Office considered the following factors:

**Magnitude:** This refers to the magnitude of the effect. Low magnitude effects may have no impact, while high magnitude effects do have an impact.

**Probability:** The likelihood that an adverse effect will occur.

**Geographic Extent:** This refers to the extent of change over the geographic area of a project. The geographic extent of effects can be local or regional. Local effects may have a lower impact than regional effects.

**Duration and Frequency:** This refers to the length of time the effect lasts and how often the effect occurs. The duration of an effect can be short term or long term. The frequency of an effect can be frequent or infrequent. Short term and/or infrequent effects may have a lower impact than long term and/or frequent effects.

**Reversibility:** This refers to the degree to which the effect is reversible. Effects can be reversible or permanent. Reversible effects may have lower impact than irreversible or permanent effects.

**Context:** This refers to the ability of the environment to accept change. For example, the effects of a project may have an impact if they occur in areas that are ecologically sensitive, with little resilience to imposed stresses.

### **4.3 Consideration of Cumulative Effects**

With regards to cumulative effects, subsection 42(1)(d) of the *Yukon Environmental and Socio-economic Assessment Act* (YESAA) instructs Designated Offices to consider:

42(1)(d) the significance of any adverse cumulative environmental or socio-economic effects that have occurred or might occur in connection with the project or existing project in combination with the effects of:

- I. Other existing projects for which proposals have been submitted under subsection 50(1), or
- II. Other existing or proposed activities in or outside Yukon that are known to the Designated Office, Executive Committee or panel of the Board from information provided to it or obtained by it under the Act.

In the situation where the Designated Office determined that there would be no residual effects of the proposed project on a specific value then a cumulative effects assessment (for that value) was not necessary.

### **4.4 Other Matters Considered**

#### ***Consideration of Health and Safety***

Consideration was given to effects of the project activities on health and safety. Exposure to petroleum hydrocarbon contaminated soil, water, vapour or dust, and on-site traffic patterns may adversely affect health and safety. The Project is located within the secured airport boundaries and the general public will not be subject to exposure. Potential health and safety effects are limited to worker/contractors who work at the LTF. Part 2 (General Conditions), item 4 of the LTF permit (#24-010) requires all associated personnel receive the appropriate training for the purposes of carrying out the requirements of the permit<sup>7</sup>. The Proponent has also indicated that a Health and Safety Plan will be in place prior to beginning the Project; and hazards and mitigation measures will be identified and personal protective equipment will be utilized<sup>8</sup>. Additionally, the requirements of the *Occupational Health and Safety Act* (R.S.Y. 2002, c. 159) and associated regulations reduce, eliminate, or control potential impacts to worker safety. Further, the Proponent has noted that once the contract is awarded, the consultant will liaise with the Airport Authority to ensure that there is little to no impact to airport operations through an Airport Plan of Operations; interruptions to the airport are not anticipated.

Therefore, further consideration of affects to health and safety are not addressed in this assessment.

#### ***Consideration of Wildlife***

Consideration was given to effects of the Project on wildlife. Direct contact with contaminated soils and/or liquids may have adverse effects to wildlife health. The site is within the fenced airport boundaries and does not provide wildlife habitat and as such, wildlife movement through the general area is largely limited. The presence of large pools of water on the surface of the treatment cells and foraging areas within the site may attract waterfowl and other birds to the area. Physical contact with petroleum hydrocarbon contaminants may adversely affect waterfowl and other birds. Part 4 (Facility Maintenance), item 3 of the LTF permit requires the Proponent to take all reasonable measures to ensure that wildlife, including waterfowl, is not attracted to the site<sup>9</sup>. As the LTF is within the fenced boundaries of the Watson

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<sup>7</sup> YOR 2014-0146-005-1

<sup>8</sup> YOR 2014-0146-001-1

<sup>9</sup> YOR 2014-0146-005-1

## **Watson Lake Designated Office Evaluation Report**

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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Lake Airport and with compliance with the condition of the LTF permit mentioned above, the potential effects to wildlife will be reduced, eliminated or controlled. Therefore, consideration of effects to wildlife is not addressed further.

### ***Consideration of Valued Environmental and Socio-economic Components***

The proposed project consists of the continued operation of the permitted LTF within the boundary of Watson Lake Airport. Improper management, containment, storage or treatment of materials has the potential to adversely affect the environment if contaminants (in soil or water) enter into the environment. The mobile equipment proposed for movement of material to and within the LTF has the potential to release deleterious substances into the environment. The effect of release of contaminated soil or water and the release of deleterious substances on environmental quality is considered in Section 5.0, Environmental Quality.

### **4.5 Valued Environmental and Socio-economic Components (VESEC)**

The following valued environmental and socio-economic components (VESEC) are the specific values that have been identified by the Watson Lake Designated Office as being adversely affected by the Project:

Environmental Quality (Section 5.0)

## **PART B. ASSESSMENT AND REASONS FOR RECOMMENDATION**

Part B of this evaluation report presents the effects assessment of the Project on valued components identified in Section 4.0. For each valued component, an overview of the value is provided followed by the effects characterization analysis. Where relevant, measures to reduce significant adverse effects of the Project on the valued component are identified. The effects characterization ends with a conclusion on the key findings of the assessment.

### **5.0 ENVIRONMENTAL QUALITY**

#### **5.1 Overview**

The Project may adversely affect environmental quality in the area. Specific values related to environmental quality that have the potential to be affected by project activities include soil, water and vegetation. Project activities have the potential to contaminate soil, water and vegetative resources through the introduction of contaminants and deleterious substances into the environment and through the introduction of invasive species during the transport of contaminated soils to the LTF and/or during the operations of the LTF, and through the use of heavy equipment. The following potential project effects on environmental quality have been considered:

- release of contaminants into the surrounding environment; and
- introduction of invasive species.

The Designated Office has determined that the Project will result in significant adverse effects to environmental quality such that further mitigation is required. The following sections describe the rationale used to determine the significance of project effects on environmental quality.

#### **5.2 Project Effects – Effects Characterization**

##### 5.2.1 Release of Contaminants

Contamination of the surrounding environment can affect the productivity of terrestrial habitats, harm vegetation and wildlife, and pollute water sources. Contamination may affect the long-term survival of organisms or populations within the area and, in high enough concentrations, be lethal. Furthermore, bioaccumulation of chemical contaminants can result in effects that may take a long time to be observed and affect organisms throughout the food web, including humans. Correct handling, storage and disposal of petroleum waste therefore, plays an important role in ensuring contamination is kept to a minimum.

##### *Transportation*

The transportation of contaminated material to the LTF may lead to contamination of the surrounding environment through improper loading procedures or escape of materials during transport. Materials will only be accepted at the site if a Relocation Permit has been issued for the material by YG. The Proponent has indicated that the standard practice for transportation of materials includes the use of a suitable cover to prevent the escape of any contaminated soil, truck tailgates to be inspected for a proper seal; and vehicle tires cleaned and inspected to minimize the tracking of contaminated material.

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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### *Operation Activities*

The operation of the LTF may result in the accidental release of contaminants into the environment. This could occur through the use heavy equipment, improper facility maintenance, or through the improper intake, handling or removal of contaminated soils. The purpose of the LTF is to remediate contaminated soils and therefore, by virtue of its function, the project site has a high concentration of contaminated soils and thus an increased potential of contaminating the surrounding environment through spills or leaks within the LTF.

The placement of excessive amounts of contaminated soils within stockpiles or through inadequate separation from other stockpiles and/or berms within the cells may lead to some of the contaminated material spilling over the cell berms. Too much material within a cell will reduce the free space within the cell, which may make it difficult to adequately and successfully turn the soils, causing the material to spill over into the surrounding environment and/or slow the remediation process down. There is also a likelihood for spills of contaminated soils and liquids to occur during the relocation of materials. Failure to clean up spills or contain effluent spills could result in the contamination persisting for a period of time as well as affecting the survival of vegetation and aquatic resources in the area. It was noted by the Proponent that fertilizer may be added to the treatment cells to enhance soil remediation. The release of fertilizer into the surrounding soils may also result in contamination of the terrestrial and aquatic environment. The Proponent has indicated that unused fertilizer will be securely stored on-site.

Conditions within Part 3 of the LTF permit speak to limiting the height at which material can be piled within the treatment cells, the construction of berms, and managing run-off within the cells. Compliance with these conditions will reduce the risk of contaminated material, run-off, or leachate from entering the surrounding environment.

Tears in the liner may result from burrowing animals, vegetation growth, contact with chemicals, and the inappropriate use of equipment during soil turning and LTF operation. This would release petroleum hydrocarbons into the soils below. Part 4 of the LTF permit requires regular inspections, maintenance, and repair of liners, berms, and other infrastructure.

Contaminants have the potential to enter the environment through surface runoff or via migration in groundwater to surrounding watercourses. This may occur if the contaminants travel through the soil until they reach the water table below. Three groundwater monitoring wells were installed up-gradient and 5 wells were placed down-gradient of the LTF<sup>10</sup>. Groundwater monitoring was conducted by the Proponent in the summer of 2014; however, the Proponent has not yet received the results from this testing<sup>11</sup>. A hydrological assessment for this Project was conducted in 2011<sup>12</sup>. Based on groundwater elevations, the groundwater is inferred to flow to the southeast, and therefore, Watson Lake is the closest aquatic receiving environment. Based on the calculations in the hydrogeological assessment, the shortest path to the lake is 900 m taking groundwater from the area of the LTF 60 years to reach Watson Lake. Samples taken and analyzed at this time were confirmed to have concentrations below detection limits and/or below the Yukon CSR Aquatic Life use standards.

### *Removal of Remediated Soil*

Soils that are improperly or incompletely treated and removed from the LTF for use as fill elsewhere could introduce contaminants into the surrounding environment at the receiving site. Part 8 of the LTF

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<sup>10</sup> YOR 2011-0307-006-1

<sup>11</sup> YOR 2014-0146-006-1

<sup>12</sup> YOR 2011-0307-006-1

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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permit requires confirmatory sampling and analytical results demonstrating that the material to be removed is suitable for use at the receiving site prior to obtaining removal authorization from YG, Environment. This ensures that soils treated at the LTF meet the standards outlined in the CSR. Soils removed after treatment will be authorized for use at appropriate sites (i.e. if soil can only be remediated to CSR industrial standards, it will not be used as residential or parkland fill). Part 8 of the LTF Permit speaks to the requirements of analytical testing demonstrating that the material is suitable for removal to the receiving site and that approval from YG, Environment is required prior to removal to the receiving site.

### *Decommissioning*

Part 5 of the project proposal notes that the continued operations of the LTF is expected to occur for fourteen more years. Once the facility is no longer required, it will be decommissioned. The Proponent has indicated that a full decommissioning plan will be submitted to YG, Environment for approval prior to decommissioning. Generally, decommissioning will include removal of the liner which will be disposed at an approved facility, confirmatory testing under the liner, backfilling and grading of the site, re-vegetating to pre-disturbed conditions, and decommissioning of the monitoring wells as they will no longer be required<sup>13</sup>. The purpose of the wells is to ensure there is no leakage from the LTF and once decommissioned and confirmatory sampling has occurred indicating that there is no leakage/contamination for the site through the liner, then they are no longer required.

### *Use of Equipment*

Activities are proposed to be undertaken with heavy equipment, such as a tracked-excavator, an agricultural cultivator, and a tracked bulldozer or agricultural tractor. The use of equipment to undertake project activities may result in the accidental release of deleterious substances. Deleterious substances associated with heavy equipment may include diesel fuel, gasoline, hydraulic fluids, coolants, lubricants, solvents and cleansers. The release of these substances may occur as a result of spills, leaks, refuelling, poor maintenance, accidents and/or malfunctions during the use of heavy equipment resulting in the contamination of terrestrial and/or aquatic ecosystems. The Proponent has indicated that fuels or oils will not be stored on-site and that the contractor hired to perform works at the site is responsible for providing a spill response plan and a spill kit while works are being carried out; no spill kit is on-site during the off season<sup>14</sup>. In addition, due to the nature of the Project, in the event of a fuel spill, the facility is equipped to effectively contain and remediate soils affected by the spill.

### *Spill Reporting*

A spill response plan was not provided; however, Part 10 of the LTF permit provides requirements for the management of spills, specifically the requirement of written emergency spill procedures, the availability of appropriate clean-up equipment, and spill reporting as per the *Environment Act* and/or the *Spills Regulations*. Additionally, the Proponent is required to report all spills of substances and amounts listed in the *Spills Regulations*. However, it should be noted that the *Spills Regulation* is a regulation formed under the *Environment Act* and therefore, the *Environment Act* supersedes these regulations. The *Environment Act*, Part II, section 132 defines a spill as,

*“a release of a substance (a) into the natural environment; (b) from or out of a structure, vehicle, or other container; and (c) that is abnormal in quantity or quality in light of all the circumstances of the release; or (d) in excess of an amount specified in the regulations”.*

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<sup>13</sup> YOR 2014-0146-006-1

<sup>14</sup> YOR 2014-0146-017-1



Therefore, the Designated Office notes that reporting all spills abnormal in quantity or quality will ensure that the Proponent meets their obligations to report under section 133 of the *Environment Act*.

### 5.2.2 Introduction of Invasive Species

In Yukon, invasive plant species of concern include white sweetclover, perennial sow-thistle, Canada thistle (also called creeping thistle), spotted knapweed, greater butter-and-eggs, foxtail barley, common tansy, Altai wild rye, oxeye daisy, scentless chamomile, leafy spurge, crested wheatgrass, smooth brome, quackgrass, reed canary grass, bird vetch, lucerne, Dalmatian toadflax and didymo algae<sup>15</sup>. Seeds of invasive plants, invasive plant material and soils potentially harbouring invasive plants can be introduced to work areas via tools and equipment from affected areas. Project activities with the potential to introduce invasive plant species include movement of soils to and from the site, reclamation activities (re-vegetation), and the use of tools and equipment that may be carrying invasive plant matter. The Proponent has indicated re-vegetation to pre-disturbance conditions is a part of the decommissioning plans<sup>16</sup>. As well, soil is brought to and from the site and the operations include the use of heavy equipment. If seeding is required as a part of re-vegetation methods, it is important to note that seed mixes used during reclamation activities often contain seeds from invasive plants. It is imperative that any required re-seeding is done with seed stock that contains only native species suitable for the location.

The overarching problem is that invasive species damage native ecosystems and reduce biodiversity, ultimately affecting environmental quality. Adverse effects resulting from the introduction of invasive plants include, but are not limited to, displacement of important native vegetation (used as forage and shelter by wildlife; as food and overhead cover by fish; and for nutritional, cultural and medicinal purposes by humans); alteration of soil chemistry; and/or loss of human enjoyment of the outdoors<sup>17</sup>. Although the location of the Project (within the boundaries of the Watson Lake Airport) prevents the use by vegetation as forage/shelter by wildlife (with some possible exceptions) and for use by humans for traditional activities, the seed stock resulting from any invasive species will spread to surrounding areas through such vectors as wind, attachment to motorized vehicles, etc.

Invasive plants can effectively out-compete native plants following disturbance events. General attributes of invasive plants include fast growth rates, prolific seed production, vegetative reproduction, irregular germination and an ability to produce toxins to limit grazing by animals. Once established, invasive plants are costly and difficult to remove<sup>18</sup>. Large seed banks can become established that spread invasive plants into other areas; it is crucial to recognize invasive plants and to take precautions to prevent the introduction of invasive plants to new areas.

### 5.2.3 Relevant Proponent Commitments

These identified commitments mitigate specific adverse effects of the Project and are instrumental in the Designated Office's significance determination. These commitments demonstrate the Proponent's efforts under section 42(1) of YESAA to consider adverse project effects and mitigation measures. These specific commitments mitigate adverse effects and in some cases, may surpass the requirements of non-discretionary legislation. For a full list of Proponents commitments, please refer to Appendix A.

- The use of a suitable cover to prevent the escape of any contaminated soil during transport.

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<sup>15</sup> Government of Yukon, 2007(a); YISC, 2010

<sup>16</sup> YOR 2014-0146-006-1

<sup>17</sup> YISC, 2010

<sup>18</sup> Matheus and Omtzigt, 2011

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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- Truck tailgates are inspected to insure proper seal.
- Vehicle tires are inspected and cleaned to minimize tracking of soils.
- Materials are segregated until analytical results are available.
- Unused fertilizer will be securely stored on-site.
- Once contaminated soil is remediated, it will be tested in accordance with Protocol 11: Sampling Procedures for Land Treatment Facilities in order to verify that the appropriate standards for contaminant concentrations in the CSR have been met and to support a request for authorization to remove the materials.
- Once confirmatory samples indicate that the contaminant levels in the soil to be removed is below the standards that apply at the proposed receiving location as specified in the CSR, the results will be submitted to the Standards and Approvals section of the Environmental Programs Branch for approval along with a request identifying the proposed receiving location. The request for removal will include the sample results as well as the date that the material was last tilled or turned. The material will only be removed from the LTF after receiving the written approval of the Standards & Approvals section.
- The material will be stockpiled to the maximum height as directed by the permit and the stockpiles will be less than 4 m above the pre-existing grade. The treated material will be placed such that it does not encroach onto the LTF berms or extend outside the fenced site perimeter.
- All equipment will be in proper running order in accordance with Transport Canada's contractual agreement with on-site contractors.
- Vapours are monitored on-site in accordance with the health & safety plan submitted by contractor working in the LTF. Photo Ionization Device is used to monitor vapours as required. Highly impacted soils with high vapour do not enter the LTF; these soils are brought to a licensed special waste facility off-site. Soil is wetted with water via the LTF sumps prior to tiling to increase the workability.
- Decommissioning is a requirement of the Permit that we have in place from Yukon Environment and a full decommissioning plan will be submitted for approval by Yukon Environment prior to decommissioning the LTF.

### 5.2.4 Relevant Non-discretionary Legislation

The Designated Office has considered the requirements of the following:

- *Environment Act*, specifically Part 9 (Release of Contaminants) and Part 11 (Spills);
- *Spills Regulations*, specifically sections 2 through 4, respecting spills of substances;
- *Contaminated Sites Regulation*, Part 5 respecting Land Treatment Facilities; and
- *Special Waste Regulations*, sections 2 through 4.

### 5.2.5 Significance Determination

In making a significance determination, the Designated Office considered the activities associated with the Project and the spatial extent and duration of those activities. Further, the Designated Office considered comments received during the seeking views and information period of this assessment, non-discretionary legislation and mitigations to which the Proponent has committed.

#### *Contamination*

The site is an operating LTF. If there is a spill or a release of a deleterious substance into the environment, the site is equipped to manage the spill effectively. There are no surface waterbodies within 100 m of the LTF. Spilled fuel and/or other contaminants therefore, have a low likelihood of reaching watercourses. In addition, the LTF cells are lined with geo-synthetic liner to prevent escape of water and contaminates. As such, the likelihood that ground/surface water quality would be affected by the release of deleterious substances is low. In terms of contamination of the environment, the Designated Office has considered the Proponent's commitments and the non-discretionary legislation in which the Proponent is required to comply and has determined that compliance with non-discretionary legislation and implementation of the Proponent's commitments will adequately reduce the projects effects on environmental quality in relation to contamination. As such, the Designated Office has determined the Project will not have significant adverse effects on environmental quality due to contamination.

#### *Invasive Species*

The Proponent indicates that re-vegetation to pre-disturbance conditions will occur as a part of decommissioning. The Project may have significant adverse effects on the valued component in relation to invasive plants. In making a significance determination, the Designated Office considered the project activities (particularly using equipment and the movement of soils to and from the site) as well as the Proponent's commitment to re-vegetate to pre-disturbed conditions. The Project involves the use of equipment that may have been used in other areas (within or outside Yukon) where they may have been contaminated with invasive species. As well, the transportation of soils and equipment to the site may result in invasive species being introduced.

The Designated Office has also considered that invasive species are prolific and once established, invasive species are both costly and difficult to remove. Invasive species can be persistent and will increase in magnitude over time. As well, non-discretionary legislation does not deal with invasive plants. Considering the low reversibility and long-lasting adverse effects associated with the introduction of invasive species, the Designated Office has determined the Project will have significant adverse effects on the valued component in relation to invasive plants and has determined that further mitigation is required.

The Designated Office has determined that the Project will result in significant adverse effects to the valued component resulting from invasive plants that can be adequately eliminated, reduced or controlled through the application of mitigation measures.

### **MITIGATION**

The following mitigation measures are specified to eliminate, reduce or control significant adverse effects of the Project relating to environmental quality.

1. The Proponent shall familiarize themselves with Yukon invasive species and how to manage them by referring to the Yukon Invasive Species Council (YISC) document entitled Why Should I

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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Care About Invasive Species? This document is available at:

[http://www.yukoninvasives.com/pdf\\_docs/WhyshouldIcare2011\\_sm.pdf](http://www.yukoninvasives.com/pdf_docs/WhyshouldIcare2011_sm.pdf).

2. To prevent the spread of invasive plants, all heavy equipment and vehicles shall be clean and free of seed and plant material prior to entering the project area.
3. The Proponent shall report the presence of any invasive plants that are listed on the website ([http://www.yukoninvasives.com/pdf\\_docs/plants\\_all\\_invasives.pdf](http://www.yukoninvasives.com/pdf_docs/plants_all_invasives.pdf)) to the Government of Yukon by email ([invasives@gov.yk.ca](mailto:invasives@gov.yk.ca)) or to the Regional Biologist in Watson Lake or Mayo.
4. If seeding is required, the Proponent shall contact Government of Yukon, Compliance, Monitoring and Inspections for further information on appropriate seed mixes or collection of local seed.

### 5.3 Residual Effects

Residual effects are those effects that remain following the application of non-discretionary legislation, Proponent's commitments and mitigations listed in this report. The Project may have residual effects on environmental quality relating to contamination of the surrounding environment due to the release of contaminants in the event of a containment failure or accident and introduction of invasive species. The Designated Office is satisfied that existing legislation, Proponent commitments and the recommended mitigations listed in this report are sufficient to ensure that the residual effects from the Project on environmental quality are not significant.

### 5.4 Cumulative Effects

A cumulative effect occurs when a residual effect interacts with effects from other projects or activities to form an effect larger than the residual effect in isolation. For consideration of cumulative effects on environmental quality, the Designated Office considered the temporal scope of the Project (14 years) and considered that residual effects have the ability to extend beyond this timeframe. For example, contamination from past projects may still be contributing to residual effects. The spatial scope includes the project footprint and may extend past where work is to be carried out, particularly in the case of introduction (and therefore potential spread) of invasive species or in the event of contamination to the environment.

Activities and existing developments in the area include the airport, associated infrastructure and related operations; remediation of contaminated soils; residential developments and associated activities such as the use of fuel for home heating; vehicle use on the Robert Campbell Highway and access roads; a gravel pit; and recreational activities such as boating and snowmobile/ATV use. Environmental quality may be affected by existing activities in the area through spills, leaks, accidents or malfunctions related to these activities. Additionally, invasive species may or may have been introduced through these activities including vehicle use, use of equipment, transport on aircraft, boats, recreational vehicles, etc.

#### ***Residual Effects Interaction and Significance***

The use of the LTF may result in discharge of contaminated water and/or material into the environment and introduction of invasive species. Compliance with non-discretionary legislation and the LTF permit; and implementation of the Proponents commitments and the mitigations recommended in this report, will ensure the residual effects of the Project are not significant or adverse. As such, the Designated Office has determined that this Project will not result in residual effects that, in combination with effects of other

## Watson Lake Designated Office Evaluation Report

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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projects for which proposals have been submitted or existing/and proposed activities, will cause significant adverse cumulative (environmental or socio-economic) effects.

### 6.0 CONCLUSION OF THE ASSESSMENT

The Watson Lake Designated Office has given full and fair consideration to information received during this assessment, as per s. 39 of YESAA. The Watson Lake Designated Office has also taken into consideration the matters referred to in s. 42(1) of YESAA.

Under s. 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, the Watson Lake Designated Office recommends to the Decision Bodies that the Project be allowed to proceed, subject to specified terms and conditions. The Designated Office determined that the Project will have significant adverse environmental effects in or outside Yukon that can be mitigated by those terms and conditions.

#### The terms and conditions of the recommendations are as follows:

1. The Proponent shall familiarize themselves with Yukon invasive species and how to manage them by referring to the Yukon Invasive Species Council (YISC) document entitled *Why Should I Care About Invasive Species?* This document is available at:  
[http://www.yukoninvasives.com/pdf\\_docs/WhysouldIcare2011\\_sm.pdf](http://www.yukoninvasives.com/pdf_docs/WhysouldIcare2011_sm.pdf).
2. To prevent the spread of invasive plants, all heavy equipment and vehicles shall be clean and free of seed and plant material prior to entering the project area.
3. The Proponent shall report the presence of any invasive plants that are listed on the website ([http://www.yukoninvasives.com/pdf\\_docs/plants\\_all\\_invasives.pdf](http://www.yukoninvasives.com/pdf_docs/plants_all_invasives.pdf)) to the Government of Yukon by email ([invasives@gov.yk.ca](mailto:invasives@gov.yk.ca)) or to the Regional Biologist in Watson Lake or Mayo.
4. If seeding is required, the Proponent shall contact Government of Yukon, Compliance, Monitoring and Inspections for further information on appropriate seed mixes or collection of local seed.

## **Appendix A      RELEVANT PROPONENT COMMITMENTS**

The following is a compilation of relevant commitments proposed by the Proponent that were considered by the Watson Lake Designated Office because they contribute to the mitigation of significant adverse effects of the Project. The inclusion of these commitments was essential to the final determination of whether a specific project effect was determined to be significantly adverse. The recommendation is based on the understanding that they will be reflected as terms and conditions of the Proponent's permit.

### **Environmental Quality**

- The use of a suitable cover to prevent the escape of any contaminated soil during transport.
- Truck tailgates are inspected to insure proper seal.
- Vehicle tires are inspected and cleaned to minimize tracking of soils.
- Materials are segregated until analytical results are available.
- Unused fertilizer will be securely stored on-site.
- Once contaminated soil is remediated, it will be tested in accordance with Protocol 11: Sampling Procedures for Land Treatment Facilities in order to verify that the appropriate standards for contaminant concentrations in the CSR have been met and to support a request for authorization to remove the materials.
- Once confirmatory samples indicate that the contaminant levels in the soil to be removed is below the standards that apply at the proposed receiving location as specified in the CSR, the results will be submitted to the Standards and Approvals section of the Environmental Programs Branch for approval along with a request identifying the proposed receiving location. The request for removal will include the sample results as well as the date that the material was last tilled or turned. The material will only be removed from the LTF after receiving the written approval of the Standards & Approvals section.
- The material will be stockpiled to the maximum height as directed by the permit and the stockpiles will be less than 4 m above the pre-existing grade. The treated material will be placed such that it does not encroach onto the LTF berms or extend outside the fenced site perimeter.
- Decommissioning is a requirement of the Permit that we have in place from Yukon Environment and a full decommissioning plan will be submitted for approval by Yukon Environment prior to decommissioning the LTF.

### **Noise**

- Notify potentially affected airport tenants when LTF will be active.

### **Air Quality**

- All equipment will be in proper running order in accordance with Transport Canada's contractual agreement with on-site contractors.
- Vapours are monitored on-site in accordance with the health & safety plan submitted by contractor working in the LTF. Photo Ionization Device is used to monitor vapours as required. Highly impacted soils with high vapour do not enter the LTF; these soils are brought to a

## **Watson Lake Designated Office Evaluation Report**

Watson Lake Airport LTF – Permit Renewal – 2014-0146

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licensed special waste facility off-site. Soil is wetted with water via the LTF sumps prior to tiling to increase the workability.

### ***Health and Safety***

- A Health and Safety Plan will be in place prior to project commencement.
- Hazards and mitigation measures will be identified and personal protective equipment will be used during work.
- Proper signage and fencing should be used to ensure safe working conditions in the project area.
- Once the contract is awarded the consultant will liaise with the Airport Authority to ensure that there is little to no impact to airport operations through an Airport Plan of Operations. There is not anticipated to be any interruptions to the airport; however, if impacts are unavoidable then a NOTAM would likely be issued by the airport for the project site.

## **Appendix B      REFERENCES**

All references to documents on the YESAB Online Registry (YOR) can be found by searching for the Project and document number on the YOR at <http://www.yesab.ca/registry>.

Matheus, P., and Omtzigt, T., 2012. *Yukon Revegetation Manual: Practical Approaches and Methods*. Mining and Petroleum Environment Research Group (MPERG).

Government of Yukon, 2007(a). *Yukon Invaders: Help Reduce the Spread of Invasive Plants in Yukon*. [http://www.yukoninvasives.com/pdf\\_docs/YukonInvadersBrochure2007\\_web.pdf](http://www.yukoninvasives.com/pdf_docs/YukonInvadersBrochure2007_web.pdf)

Yukon Ecoregions Working Group, 2004. *Ecoregions of the Yukon Territory: Biophysical Properties of Yukon Landscapes*. Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01. Summerland, British Columbia, Canada.

Yukon Environmental and Socio-economic Assessment Board, 2013. *Interactive maps of biophysical and socio-economic geographic data, May 2013*. Geo-locator Report for Project Location. <http://geolocator.yesab.ca/>

Yukon Invasive Species Council (YISC), 2010. *Why Should I Care About Invasive Species?* [http://www.yukoninvasives.com/pdf\\_docs/WhyshouldIcare2011\\_sm.pdf](http://www.yukoninvasives.com/pdf_docs/WhyshouldIcare2011_sm.pdf)



## Yukon Environmental & Socio-economic Assessment Act

### Decision Document

This document meets the Yukon government's requirements as a Decision Body as set out in the *Yukon Environmental & Socio-economic Assessment Act*.

### Project

**Project Name** Watson Lake Airport LTF - Permit Renewal **YESAB File Number** 2014-0146  
**Proponent Name** Anita Champagne Gudmundson  
**Company Name** Transport Canada

### Project Description

Transport Canada is proposing to renew the Land Treatment Facility Permit for the continued operation of the Land Treatment Facility (LTF) within the boundaries of the Watson Lake Airport. The operation of this LTF provides non-commercial, multi-use treatment of soils that have hydrocarbon contamination generated from the lands of the Watson Lake Airport. The proposed project is anticipated to continue for 14 more years.

### First Nations Consultation

The project occurs in the traditional territory of the Kaska Dena Council, Ross River Dena Council and Liard First Nation. The first nations did not provide comments during the Seeking Views phase of the assessment. No impacts on aboriginal rights were identified.

#### A. Consultation under YESAA section 74(2) Yes

Liard First Nation and Ross River Dena Council were sent formal consultation letters on the assessment recommendations, on November 26, 2014. The letters requested feedback by December 14<sup>th</sup>. No responses were received as of December 14th.

#### B. First Nations Consultation - General

Kaska Dena Council (an unsettled, non-Yukon based First Nation) was sent a formal consultation letter on the assessment recommendations, on November 26, 2014. The letter requested feedback by December 14<sup>th</sup>. No response was received as of December 14th.

### Decision

Pursuant to section 75, 76 and 80, the Yukon government has considered the assessment of this project and:

- Accepts the recommendation and the terms and conditions as follows:
- Rejects the recommendation and the terms and conditions as follows for the reason(s) specified:
- Varies the recommendation and the terms and conditions as follows for the reason(s) specified:

#### Rationale for Decision

Environment Yukon agrees that potential impacts of the project can be mitigated by proponent commitments and the new terms and conditions.

# Yukon Environmental & Socio-economic Assessment Act

## Decision Document

Term	Term & condition	Status	Reason
1	YESAB: The Proponent shall familiarize themselves with Yukon invasive species and how to manage them by referring to the Yukon Invasive Species Council (YISC) document entitled Why Should I Care About Invasive Species? This document is available at: <a href="http://www.yukoninvasives.com/pdf_docs/WhyshouldIcare2011_s">http://www.yukoninvasives.com/pdf_docs/WhyshouldIcare2011_s</a>	Agree	--
2	YESAB: To prevent the spread of invasive plants, all heavy equipment and vehicles shall be clean and free of seed and plant material prior to entering the project area.	Agree	--
3	YESAB: The Proponent shall report the presence of any invasive plants that are listed on the website ( <a href="http://www.yukoninvasives.com/pdf_docs/plants_all_invasives.pdf">http://www.yukoninvasives.com/pdf_docs/plants_all_invasives.pdf</a> ) to the Government of Yukon by email ( <a href="mailto:invasives@gov.yk.ca">invasives@gov.yk.ca</a> ) or to the Regional Biologist in Watson Lake or Mayo.	Agree	--
4	YESAB: If seeding is required, the Proponent shall contact Government of Yukon, Compliance, Monitoring and Inspections for further information on appropriate seed mixes or collection of local seed.	Agree	--

## Date

**Project Recommendation Issued** 2014-11-05

## Recommendation Received From

Designated Office - Watson Lake

## Authority

By signing below, the Yukon government has exercised its authority as per YESAA s.75 or s.76 to issue a decision document on this project.

**Name** Sherri Young

**Position** Director, Environmental Programs

**Phone** 867-667-5683

**Email** [Sherri.young@gov.yk.ca](mailto:Sherri.young@gov.yk.ca)

**Signature**



**Date**

December 17, 2014

Original signed by Environment

## Distribution

<b>Project Proponent</b>	Yes
<b>Other Decision Bodies</b>	No
<b>DAP Branch, Executive Council Office</b>	Yes

**Decision Document**

<b>YESAB Designated Office</b>	<b>Yes</b>
<b>YESAB Executive Committee</b>	<b>No</b>
<b>Minister Environment (Canada)</b>	<b>No</b>
<b>Yukon Surface Rights Board</b>	<b>No</b>
<b>Yukon Water Board</b>	<b>No</b>
<b>Land Use Planning Commission</b>	<b>No</b>
<b>Independent Regulatory Agency</b>	<b>No</b>
<b>Other Body/Person as Required</b>	<b>No</b>