ITH

WASTE MANAGEMENT PLAN

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Prepared for:
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TABLE OF CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

EGT Northwind Limited (EGT NW) is continuing to pursue opportunities for the construction of the Inuvik to Tuktoyaktuk Highway Project (ITH), linking Inuvik and Tuktoyaktuk by road. In 2009/2010 EGT procured contracts and successfully constructed an access road from Tuktoyaktuk to gravel source 177 which is located approximately 20 kilometers south east of the community of Tuktoyaktuk. The 177 Access Road followed the ITH right of way with the plan to upgrade the access road to highway standards in the future should the ITH project come to fruition. In 2012 EGT and 2103 EGT NW procured and successfully completed borehole drilling plans in numerous potential gravel sources, stream crossings and right of way locations in an effort to identify gravel sources, complete bridge designs and monitor permafrost along the ITH right of way. In 2013 EGT NW conducted or is in the process of conducting bathymetric surveys, bear den surveys, fish habitat surveys, rare plant and archeological surveys.

EGT NW is planning for the eventual construction of the ITH starting in the fall of 2013 with an estimated completion date of November 2016.

The proposed construction project will include but are not limited to:

- Construction of winter access roads to gravel quarries; overland and ice roads
- Construction of ice pads for camps
- Transport and storage of fuel
- Overburden stripping in gravel quarry's
- Drilling and blasting activities
- Installation of non-woven geotextile fabric
- Surveying and engineering works
- Road embankment construction
- Culvert installations
- Bridge installations
- Erosion and drainage programs
- Wildlife monitoring activities
- Environmental monitoring activities

EGT NW also plans to conduct further geotechnical drilling in coming years to secure and obtain better knowledge of existing and potential gravel sources.

1.2 CONTACT INFORMATION

The ITH Project will be operated by:

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1.3 PROJECT LOCATION

The ITH Project is approximately 140 kilometers of road construction following the proposed ITH right of way (ROW) tracking NNE towards Tuktoyaktuk from Inuvik within the Inuvialuit Settlement Region crossing federal lands but predominately on Inuvialuit private lands.

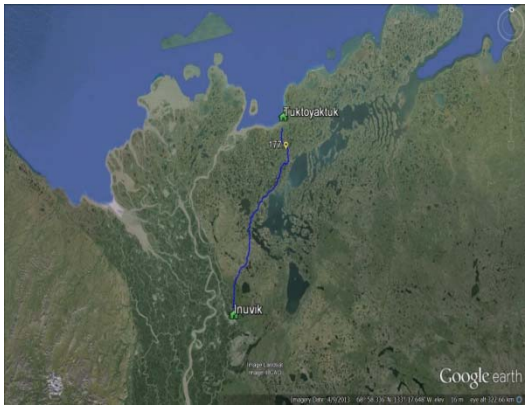


Figure 1. Location of ITH ROW

EGT NW is planning to operate a remote skid mounted camp at the gravel quarry's approximately 20 kilometers apart along the ITH right of way as the project proceeds.

1.4 PROPONENTS PRINCIPLE

This waste management plan incorporates the basic principles of waste management, source reduction, reuse, recycle/recover, treatment and disposal. EGT NW is committed to conduction operations within the accepted environmental standards of the construction industry. These methods are important to the construction industry in reducing the environmental footprint of operations.

- Source reduction is the elimination or decrease of the volume or toxicity of waste by adopting practical methods such as using alternative materials or processes. This can be achieved by material elimination, inventory control and management, material substitution, process modification and improved housekeeping, maintenance and training.
- Reuse is achieved by using a product more than once for the same application or different purposes. Reusing material such as certain food and beverage containers, pallets etc can reduce the amount of waste generated.
- Recycling of products that typically have one use is an excellent method of reducing the volume of waste generated at a worksite, sorting products so they can be managed in bulk eliminates the need for additional handling and allows for different products to be managed by efficient recycling processes.
- Waste treatment is used to reduce the volume, mass and/or toxicity of the material prior to disposal due to contaminants contained within the waste. There are a number of treatment options including biological and physical processing which may be used separately or combined to be the most effective and efficient.
- Disposal of waste is the final option for waste management. When disposing of waste, the type of waste, volume, location and final containment must be considered. The waste disposal options available to this project include landfills, solid waste sites, and municipal sewage lagoons. The physical and chemical characteristics as well as the regulatory requirements and liability associated with disposal may limit which options are available for waste disposal.

1.5 PURPOSE OF THE PLAN

EGT NW has prepared the following Waste Management Plan for all wastes associated with pre-construction and construction activities of the Inuvik to Tuktoyaktuk Highway Project. The WMP will apply to the Developer and all associated Project contractors involved in the generation, treatment, transferring, receiving, and disposing of waste materials for the project. This plan will be effective immediately and throughout the pre-construction and construction phases of the project.

EGT NW anticipates being awarded a contract for the construction of the ITH and as such our plan for construction requires significant land and water use which will require Land Use Permits from both AANDC and ILA along with a Type A Water License. These permits regulate the use of land and water resources as well s the deposit of waste as they pertain to this construction

project. The construction phase will consist of embankment construction, developing staging areas for camps and equipment, pit development, ice roads over land and frozen water bodies, as well as temporary camp and required water and waste water systems.

A relevant and up to date Waste Management Plan is necessary for projects requiring land and water use permits. This plan has been prepared for the NWT Water Board and is being submitted by EGT NW to address the requirements and conditions of the NWT Water board.

1.6 REGULATORY REQUIREMENTS

The following regulations are brief summaries of the legislation that affects the handling, transport and disposal of waste.

Federal

Canadian Environmental Protection Act 1999 (CEPA 1999) distinguishes between hazardous waste and hazardous recyclables in order to provide flexibility for dealing with materials that can be recycled. It is also based on a number of principles which includes the polluter-pay principle where producers and users of harmful substances, pollutants and wastes have a responsibility for bearing the costs associated with the safe use and disposal of these substances and wastes.

Particular regulations have been developed under the authority of CEPA 1999 that impact waste management. These include the inter-provincial movement of Hazardous Waste Regulations.

This regulation came into effect in August 2002 and replaced the provisions for movement of waste that were formerly regulated by the federal Transportation of Dangerous Goods Act (TDGA). Under this regulation duties for the waste generator of hazardous waste include:

- During transport, the Movement Document shall be kept in the location required for shipping documents under TDGA Regulations.
- The waste generator or the waste consignor shall send the required copies of the Movement Document with the waste transporter, and send the required copy to the appropriate authority of the territory.
- The consignee shall complete Part C of the Movement Document and shall ensure that the appropriate copies of the completed document are distributed to the appropriate authority of the territory.
- The consignor, each authorized carrier and the consignee shall retain a copy of the Movement Document for a period of two years after the hazardous waste is received by the consignee at their principal place of business in Canada.

The latest version of the federal Transportation of Dangerous Goods (TDGA) and regulations came into force in 2002 and is formally called the Plain Language version. TDGA regulates the transportation of dangerous goods in Canada. The hazard classifications were the basis of the current hazard definitions for wastes. The 2002 Plain Language version of TDGA removed references to waste manifesting used to track waste movements. The revision also removed

several distinct waste classes from TDGA. Wastes must still be classified under TDGA for shipment.

Northwest Territories

The Environmental Protection Act, in force since 1988, prohibits discharges of contaminates into the environment. It also enables officials to create regulations, guidelines and permits and to enforce the regulations. There are several regulations promulgated under the Environmental Protection Act. Otherwise, many guidelines have been issued to cover various components of waste management. Most of the guidelines have not been updated since 1998. They are administered by the Environmental Protection Service (EPS) of the department of Environment and Natural Resources (GNWT – ENR).

Guideline for Industrial Waste Discharges in the Northwest Territories: This was developed for the disposal of residual waste, both solid and liquid, from industrial operations in the NWT. It was authored by the Environmental Protection Service (EPS). This guideline sets the standards for industrial wastes that are suitable for landfills in the NWT.

Municipal Solid Wastes Suitable for Open Burning: The NWT has prohibited the open burning of wastes including Municipal Solid Waste (MSW) and used oil in the development of waste management guidelines. However, the NWT allows burning of paper products, paperboard packaging and untreated wood waste where alternative methods of disposal or recycling are not feasible.

Northwest Territories Water Act: The Act became effective in 1992 and regulates the water in the Northwest Territories in designated areas. It does not cover waters in designated federal parks. The act enables regulations and the Northwest Territories Water Board to support the Act. The Act defines waste as:

- Any substance that, if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of the water to an extent that is detrimental to its use by people or by animals, fish or plant, or
- Water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in the previous bullet.
- Any substance or water that, for the purposes of the Canada Water Act, is deemed to be waste.
- Any substance or class of substances prescribed by regulations.
- Water that contains any substance in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed by regulations.
- Water that has been subjected to a treatment, process or changed prescribed by regulations.

Except in accordance with the conditions of a license or as authorized by regulations no one shall deposit or permit the deposit of waste:

- In any waters in a water management area.
- In any other place under conditions in which the waste, or any other waste that results from the deposit of that waste, may enter any waters in a water management area.

The Northwest Territories Waters Regulations is enabled by the Northwest Territories Water Act and provides the details for management of wastes. Any industrial activity other than mining and milling, including hydrostatic testing, the exploration for, and production and transportation of oil and gas and cooling systems, are covered by this regulation.

2. WASTE TYPES

2.1 WASTE CHARACTERIZATION

Waste characterization is used in assessing the appropriate handling, treatment, transportation and disposal of the waste. Characterization is the assessment of the physical, chemical and toxicological properties of the waste product. These properties are used to determine the dangers relating to handling, storage, and transportation of the waste on public roads, as well as to determine the environmental consequences of the waste so that an appropriate disposal option can be determined. This allows the determination of a hazardous or non-hazardous waste. Waste transportation and disposal is regulated by the GNWT or Environment Canada and the receiving jurisdiction.

Regulated wastes include any waste material which is specifically regulated hazardous (in CEPA or through various guidelines issued by EPS or GNWT-ENR), and dangerous for transport (in CEPA and TDGA).

The following are properties that wastes may have that require additional personal protective equipment, and safe work procedures when handling, storing and disposing:

Ignitability

This will apply to liquids, solids or gases; however, the most common are liquids or solutions which have a flash point of 23^{o}C or below. Other materials included in this class are oxidizers which readily yield oxygen to support the combustion of organic materials, waste which can spontaneously combust, and flammable compressed gases. Examples of ignitable wastes include acetone, hexane, methanol, and isopropanol.

Corrosives

This classification applies to liquids only. A waste is corrosive if its pH is equal to or less than 2, or equal to or greater than 10. Liquids which corrode steel at rates greater than 6.35 mm/yr are also considered corrosive. Examples of corrosive waste include mineral acids, sodium, and potassium hydroxide.

Reactivity

This classification encompasses two types of hazards; physical and health. Wastes with reactive physical characteristics are those with the potential of reacting violently, presenting fire hazards, and/or capable of explosion at normal temperatures and pressures. Wastes with reactive health hazards are those which will release toxic or irritating vapors or fumes when mixed with water or acids. Examples are reactive laboratory wastes, such as sulphide solutions and water-reactive metals.

Toxicity

This classification includes those substances which are capable of causing acute, chronic or adverse effects in humans and/or the environment. Examples of toxic wastes include biocides, carcinogens and heavy metals such as lead, chromium and arsenic.

Generally, a waste is considered non-hazardous if it does not possess any of the above mentioned characteristics; however extreme caution must be used when following these guidelines. Although some materials do not fall into these hazard classes, they still may pose a threat to the environment or humans and should be handled accordingly. The following compounds could be considered in this class:

- Sulfur dioxide and other sulphur compounds
- Oxides of nitrogen compounds
- Carbon monoxide
- Organic compounds, in particular hydrocarbons (except methane)
- Heavy metals and their compounds
- Dust, asbestos, glass and mineral fibers
- Chlorine and its compounds
- Fluoride and its compounds

If doubt exists whether a material is a “hazardous waste” or a “dangerous good” consult with your supervisor or onsite health and safety representative.

2.2 WASTE TREATMENT METHODS

Incineration: Incineration is another means of reducing the mass and volume of waste, including paper products, domestic rubbish, and kitchen wastes. It is also a method used to prevent wildlife scavenging. It is important to segregate the plastics and heavy metals from normal waste to meet dioxin, furan and mercury standards. A two staged forced air, diesel fired incinerator with properly trained personnel should be used. Resulting Ash is packaged and sent out of the NWT, and can be disposed of at an approved landfill located out of the NWT.

Evaporation: Evaporation used to reduce the quantities of a waste that contains a fluid that can be readily evaporated at low temperatures [100^{o}C or less] such as water. Snow contaminated with hydraulic oil or motor oil from various equipment or vehicle spills are evaporated using a diesel fired evaporator to reduce volume. The resultant liquid is place in drums or tanks and either disposed of locally at a facility with an approved used oil burner or transported out of the NWT for recovery or disposal at an approved facility.

Physical Methods: Physical methods such as gravity separation, filtration and centrifugation are means of reducing solids and ease of handling liquid and solid wastes.

2.3 WASTE GENERATION TABLE

Attached as Appendix II, a detailed table includes a summary of wastes to be generated during the construction program. This table also includes the description of generation, estimated volumes, and addresses potential adverse environmental effects.

3. WASTE MANAGEMENT FOR THE ITH PROJECT

Various wastes are generated during the day to day activities associated with a construction camp. In remote locations such as those proposed to be set-up in or near gravel quarries along the ITH right of way it is essential that these wastes are handled, stored and managed in a safe and environmentally responsible manner. Remote sites often face additional logistics challenges that must be rectified prior to project commencement. This section of the plan will go into specific detail on the type of waste management options EGT NW will utilize for the construction phase of the ITH.

3.1 INCINERATION

Background

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration is an effective means of reducing the mass and volume of waste, including paper products, domestic rubbish, and kitchen wastes. Burning these waste streams is important to reduce the impact to local wildlife and will eliminate scavenging around the camps.

EGT NW will utilize Westland model CY-2050-FA-D incinerators at all remote camps during the construction of the ITH. The unit is a diesel fired, forced air, double chamber, cyclonator incinerator designed for the petroleum, mining and lumber industries.

Consistent with EGT NW's intent to be a responsible operator, the main objective of this section is to ensure the incinerators are operated in a safe, efficient and environmentally compliant manner.

Technical Document for batch Waste Incinerator

The Technical Document for Batch Waste Incineration was issued by Environment Canada in January 2010 and is intended to act as a guideline for owners and operators of various incinerators. The Technical Document focuses on batch waste incinerators ranging in size from 50 to 3,000 kg of waste per batch. Batch waste incinerators are those that operate in a non-continuous manner (i.e. they are charged with waste prior to the initiation of the burn cycle and the door remains closed until the ash has cooled inside the primary chamber) EGT NW's selected model is a batch feed incinerator.

The Technical Document recommends and describes a six-step process for batch waste incineration:

- Step 1 – Understand Your Waste Stream
- Step 2 – Select the Appropriate Incinerator (or Evaluate the Existing System)
- Step 3 – Properly Equip and Install the Incinerator
- Step 4 – Operate the Incinerator for Optimum Combustion
- Step 5 – Safely Handle and Dispose of Incinerator residues
- Step 6 – Maintain Records and Report

This document addresses proper system selection, operation, maintenance and record keeping, with goals of achieving the Canada-Wide Standards for dioxins/furans and mercury, and reducing releases of other toxic substances. A copy of the Technical Document for Batch Waste Incineration can be found on Environment Canada's website or by using the following link:

http://www.ec.gc.ca/gdd-mw/f53ede13-1d01-4d05-b97d-1f3818d28657/technical%20doc%20for%20batch%20waste%20incineration.2010.pdf

Waste Composition

Understanding the typical waste stream composition is important as it leads to key opportunities for waste management generally and specifically for incineration control on site. As the project is not yet started it is necessary to estimate the waste type to get an idea of a quantity of each waste stream requiring incineration. Once operational, incinerator logs and operational checklists can be used to understand the types and quantities of waste incinerated. Using categories defined by Westland Environmental Services, the supplier of the incinerator, the waste composition is estimated in the following tables;

Waste Type	**Estimated Percentage of Waste by Weight**
Food Waste	40
Paper/Cardboard	20
Plastic	10
Inorganic	5
Wood/Debris	25

Waste Collection and Segregation

Incinerator waste streams will be collected onsite through the use of sealable bins. The bins are sealable so as to prevent an attractant to wildlife.

Proper waste segregation is important in any incineration application and only appropriate camp waste is permitted for burning. It is important to segregate hard plastics (ex, PVC piping) and heavy metals from normal waste to reduce the amount of dioxins, furans or mercury present in stack emissions.

Dioxin and furan emissions from incinerators may be reduced by:

- Reducing or removing certain waste types from the incinerator waste stream;
- Burning waste in batches according to moisture content and caloric value;
- Placement of waste in the incinerator chamber according to manufacturer specifications to ensure optimal burning efficiency of waste; and
- Use of Pre-Operational, Operational and Maintenance Checklists and Log Books to ensure that the unit is operated in a safe and efficient manner.

There are certain waste streams that if incinerated can pose a threat to either the operators or the environment. Incinerator waste is segregated at the source to ensure non-burnable waste streams do not enter the feed stock for the incinerator. In the camp complex, all "burnable" waste will be

placed in specifically identified waste receptacles with transparent bags. Throughout the camp footprint there will also be sealable bins that will collect waste from field activities and crews.

Crews collecting garbage for incineration will grab only the amount of waste that can safely and efficiently be incinerated in one cycle for each operational incinerator, about 80-90 kg each. The cycle will take around one hour depending on the caloric value and moisture content of the waste. The remaining will have to stay in sealable bins until it is ready for loading to eliminate any possibility of a wildlife attractant.

Prior to loading the waste batches in the incinerator, the feed material will be visually inspected by the incinerator operator to ensure it does not contain inappropriate waste materials. General classes of inappropriate wastes include but are not limited to:

- Hazardous wastes
- Mercury-containing materials/waste (fluorescent lamps, thermometers, thermostats)
- Asbestos waste
- Liquid wastes including petroleum hydrocarbons and liquid sewage
- Materials/wastes containing heavy metals (mercury-containing wastes, pressure or chemically treated wood)
- Uncontaminated plastics, including chlorinated plastics
- Bulky materials such as machinery parts or large metal goods such as appliances
- Radioactive materials such as smoke detectors
- Potentially explosive materials such as aerosols, pressurized vessels, unused or ineffective explosives
- Other hazardous materials such as organic chemicals (e.g. PCB's, pesticides)
- Batteries (Lead Acid, Alkaline, Lithium, NiCad)
- Electronics, fluorescent light bulbs, tires, rubber boots, etc.
- Kitchen grease can be burned but must be burned in quantities less than 4L per burn

When encountered, all inappropriate waste material shall be removed from the incinerator feed, where possible. If the inappropriate waste is too intermixed with the incinerator feed, the bag should be rejected and not incinerated. Removed, inappropriate wastes and rejected batches will be handled on a case by case basis depending what the characteristics are of the inappropriate waste. Operators are to consult their superiors in the event they are not sure how to handle the rejected waste. Depending if the waste exhibits hazardous or non-hazardous properties it will be packaged and labeled accordingly.

Description of Incinerator

The Westland Model CY-2050-FA-D incinerator has a manufacturer's stated capacity to burn 90 kg of waste an hour using diesel as the auxiliary fuel. The incinerator comes with a 1350 L diesel storage tank that is mounted on a skid type frame. There will be spill kits nearby in the event of a spill or leaking fuel line. The unit weighs 5000kg and is 6.2 meters high with the stack vertical. The air supply is a forced air design, complete with duct to the primary air jets and to secondary over-fire air jets.

CY-2050-FA-D

EGT NW will have one of the above pictured Westland Model CY-2050-FA-D accompany each of its remote camps working on the ITH Project. These units will easily handle the small volume of waste expected from the construction activities, field activities and camp operations. This will allow the garbage to be incinerated in a timely manner allowing less waste to accumulate between burns. EGT NW will ensure a proper amount of spare parts are maintained to allow for timely maintenance and repair as required. Having all units of the same model will allow for an easier/better maintenance program.

These incinerators are designed to burn Type 1, 2 and 3 wastes. See below for a description of these wastes.

Type	Description	Components
0	Trash	Paper, cardboard, cartons, wood boxes and combustible floor sweepings from commercial and industrial activities. Less than 10% by weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags and plastic or rubber scraps
1	Rubbish	Trash and Type 3 (no more than 20%)
2	Refuse	Rubbish and garbage
3	Garbage	Animal and vegetable wastes, kitchen garbage, general mixed garbage with plastics
4	Animal/Pathological	Carcasses, organs, hospital and laboratory samples

Possible Hazards

The hazards that could be encountered while operating an incinerator are listed below:

(not in any order of importance):

- Contact with waste (infectious or toxic components, or sharps).
- Exposure to heat, from contact with hot surface or radiation from the primary combustion chamber when the waste charging door or ash removal door is opened.

The general precautionary actions include:

- Not opening waste batches to hand sort items already bagged unless you see something that would be dangerous to burn (explosives, aerosols, batteries).
- Not touching hot surfaces, and minimum exposure to heat radiation through open doors.
- Do not open ash doors during combustion except when required to stir ash.
- No charging waste in mid burn, wait for next cycle.
- Wearing appropriate personal protective equipment for charging waste and raking the primary chamber, and minimize the time for those tasks.
- Waste technicians may have multiple job responsibilities and could involve working with flammable liquids such as jet fuel, gasoline and solvents. Supervisors are to ensure they do not handle or spill fuel prior to operating the incinerator.
- When possible it is recommended that personnel working with flammable liquids that have the potential to spill or get on clothing or gloves not operate the incinerator the same day or while wearing the same coveralls.
- Disposable, impermeable, Tyvek coveralls must be used overtop of PPE if the operator must handle flammable liquids during the same day as operate the incinerator. These contaminated Tyvek coveralls and gloves are to be removed and properly disposed of, prior to approaching the incinerator unit.
- Check PPE for any possible flammable liquid spills again, prior to approaching the incinerator. If the operator can smell any trace of fuel, they are not to approach the incinerator. They are to contact their supervisor immediately and inform them of the situation.

Safety Equipment

The following personal protective equipment will be used while operating or loading the incinerator unit:

- Flame retardant coveralls or leather welder’s jacket
- Long cuffed, puncture resistant gloves
- CSA approved, Grade 1 safety footwear
- CSA/ANSI approved safety glasses
- Canadian Standards Association (CSA)/American National Standards Institute (ANSI) approved full face shield

During ash raking or removal additional PPE is required and includes the use of respiratory protection to protect the operator from any particulate matter and hot ash that may be disturbed.

This will include wearing one of the following;

- National Institute for Health and Safety NIOSH N95 respirator
  - This respirator MUST be used with a CSA/ANSI full face shield
- Half mask or full mask respirator with a P95 cartridge.
  - If the operator chooses to wear a half face mask they MUST wear a face shield
  - If the operator chooses to wear a full face mask they will not be required to wear the face shield but can if they prefer

Training

Personnel with the responsibility of operating the Westland Model CY-2050-FA-D incinerator will be required to read and comprehend this section of the Waste Management Plan and the Westland Operating and Maintenance Manual. It would be beneficial for operators to also read the attached technical Document for Batch Waste Incineration to further understand the theory of combustion and the issues associated with Dioxins and Furan emissions.

Incinerator operators are familiar with this type of system and will have completed incinerator training from Westland. EGT NW will only use competent and knowledgeable staff to operate or perform maintenance on the incinerator.

Batch Preparation

There is no perfect formula when preparing a batch of waste for incineration as multiple factors can manipulate or affect a burn cycle. Factors that could affect each burn cycle differently include;

- Moisture content and volume of waste.
- Fresh or frozen waste takes more time/fuel for complete combustion.
- Not enough food waste to allow for proper batch preparation – operator must adjust batch volume and composition accordingly.
- Unknown high caloric items such as fuel soaked rags or greasy residues/food.
- Bags are not opened and hand sorted for personal safety so classification is limited to what can be seen and indentified. Inappropriate items if observed will be removed.

Daily record keeping and operator experience will assist in ensuring batches are prepared consistently and within the capacity of the specific incinerator unit. The weight of the various waste categories loaded into the incinerator determines the proper batch composition for efficient burn cycles. Operators will have to estimate the weight of the bags as a scale will be unavailable. The units can each only burn 90 kg of waste per load. If the incinerator is overloaded you will not get a complete burn and will have to run the cycle longer until only ash remains.

Depending on burn time required for complete combustion and above mentioned variables the CY-2050-FA-D typically incinerates 8-11 90 kg batches during a 12 hour shift. Batches are prepared using the following process:

- Waste is sorted into the following four categories before opening the incinerator door and feeding waste
    - Paper/Cardboard
    - Kitchen/Food
    - Burnable Debris
    - Wood (not chemically treated or painted wood)
- The amount of food waste available for each burn will determine the required composition for other waste streams.
    - Note: If the volume of waste to burn is larger than the capacity of the machine, the batch will be broken down into smaller batches and the extra waste will be burned during the next batch.
    - The extra waste will be placed back into a sealable bin immediately to wait for the burn cycle to complete on the prior batch. This will keep the incinerator area clean and will eliminate wildlife activity in the area.
- Food waste bags are counted and the bags weights are estimated. The number of bags and approximate weight of food waste are recorded in daily operations checklist.
- This process is repeated for both paper and cardboard waste, plastics and wood waste. The number of bags is not crucial; it is the weights that will determine a proper burn.

The incinerator should be operated according to the Operation and Maintenance Manual. The operator shall ensure that every batch can go through the waste charging door easily, regardless of weight. If there are large pieces of wood or other waste it will have to be cut down so it can be placed inside and door securely latched.

Loading the Incinerator

Once the batch has been prepared, weighed and recorded, the incinerator is loaded with the waste. To ensure the most efficient combustion of all waste streams, despite the difference in caloric value, use the following procedure when loading a batch of waste:

- **Paper (or small pieces of clean wood):** load first and place at the back of the incinerator
- **Wood and Debris:** load second and cover the paper waste
- **Food:** load last and cover the wood waste

The operator will then initiate the burn cycle as per the manufacturer's instructions. The operator will return half way through the cycle to stir the burning waste. All PPE including the respiratory protection mentioned previously in the "safety" section must be used. If the incinerator was properly loaded the volume of waste should be reduced by 90-95% of original mass.

Record Keeping and Inspections

Routine inspections of the incinerator and fuel tank will be conducted by a trained individual prior to daily start up of the incinerator. The inspection will include, but not necessarily be limited to:

- Inspecting all fuel lines, fuel storage facilities and secondary containment for leaks and check connections.
- Inspection of the spark arrestor to ensure no plugging.

During ash removal, the inspection will include, but not necessarily be limited to:

- Inspect refractory for large cracks (not expansion cracks).
- Check combustion air hole for plugging.
- Inspect door gaskets for damages or wear.

The manufacturer will supply specific pre-operation, operational, maintenance and monthly checklists for the CY-2050-FS-D unit, Records will be kept on file for each burn and will be available for audit by EGT NW management or regulatory agency representatives. Any out-of-specification situations need to be brought to the supervisor's attention immediately and the incinerator should not be used until maintenance or remedial measures have been applied. A formal incident report needs to be completed if there are any out-of-specification conditions associated with the incinerator, its performance, waste or any emissions, ash or smoke.

To demonstrate appropriate operation and maintenance of the incinerator, the facility will maintain records containing, at minimum, the following information:

- A list of all staff who have been trained to operate the incinerator; type of training conducted and by whom; dates of the training; dates of the refresher courses.
- All preventative maintenance activities undertaken on the equipment.
- Records of operation of the incinerator.
- Records of quantities of waste incinerated.
- Summarized annual auxiliary fuel usage.
- A list of all shipments of incineration ash, including the weight transported and the location of the disposal facility.
- Analytical results of ash sampling.

Use of the following checklists will ensure that each operator diligently operates and inspects the unit consistently. These checklists are also a great source of information when trouble shooting or maintenance is required for the unit.

Pre-Operational Checks

This checklist is to be performed each day prior to start-up of the incinerator. This pre-inspection form ensures good housekeeping and that thorough inspections are completed on various aspects of the unit daily. The fuel volumes consumed are documented on the daily pre-operational checklist. The fuel storage, secondary containment and fuel delivery lines are subject to regular

inspection. This form also directs the operator to properly weigh and document the amount of ash produced from the last burn.

Operational Checks

This checklist is done throughout the day as the incinerator is operational to monitor each of the burn cycles. Depending on volume of waste available and collection times, there can be between 8-11 burn cycles during a 12 hour period. For each cycle the estimated weight of all streams of waste are documented separately. These waste streams are divided up into the following categories: food waste, paper/cardboard waste, untreated wood and accepted debris. Non-routine waste streams must be listed and checked with the supervisor in advance to make sure that the new waste is in fact "burnable".

Maintenance checklists

Onsite maintenance of the units falls under the Camp Maintenance/Environmental Supervisors at EGT NW. The team consists of electricians, carpenters, plumbers and personnel trained and certified to work on boilers and burners. They should perform a monthly and yearly inspection on the various components of the incinerator, including the burners and blowers. Preventative maintenance and repairs will be documented accordingly. Maintenance requirements are described in the Westland Operating and Maintenance Incinerator Manual.

Supervisor Inspection Checklist

This checklist is for use by the supervisor. The checklist is periodically performed to ensure that all supplies are readily available and in stock. This sheet is also used as a checklist to spot check operators on the proper selection and use of required PPE and safe handling of waste. Any deficiencies with personnel or the incinerator unit must be documented and rectified immediately.

<u>Ash Management</u>

All waste associated with incineration will be deposited in a solid waste disposal facility. Any other non-hazardous solid waste not incinerated will also be deposited in a solid waste disposal facility.

In the morning when the combustion chamber of the incinerator is cool, the incinerator operator will remove the ash from the previous burn cycles before loading the incinerator. During ash removal, the operator will inspect and clean the combustion air holes and will inspect the burner tip for damage.

The ash is placed into a metal garbage container to be weighed. Once weighed and documented the garbage can is transferred into a $3m^3$ ash bin. The bin is sealable to prevent attraction of wildlife. When full, this bin is sealed, weighed and stored until a few bins can be transported at the same time to reduce transportation costs. The ash is then manifested and transported to an approved receiving facility.

Approved waste receiving facilities outside of the NT, issues EGT NW disposal receipt certificates for each Bill of Lading (BOL) of waste shipped off site. This is provided so

generators can demonstrate to regulatory authorities that their waste is being handled by an approved facility and that the waste was disposed of according to all federal and territorial regulations.

To properly classify the waste for shipment and to ensure the ash is not hazardous periodic samples will be taken and sent to an accredited lab for the following analysis:

- Leachable metals
- Leachable mercury
- Leachable benzene, toluene, xylene, and ethyl benzene
- Paint filter
- Flash point

These are part of the LANDFILL-CLASS11-ED: Class II Basic Landfill w/Paint Filter package required for disposal at most landfills. This will allow EGT NW to determine if the ash needs to be shipped off-site as hazardous or non-hazardous waste.

Ash from incinerators will be shipped off-site for disposal as either hazardous or non-hazardous waste. The off-site waste handling facility will be provided with the analytical results. Hazardous waste shipments will follow the Transportation of Dangerous Goods regulations as well as Interprovincial Movements of Hazardous Waste requirements and must be received by an appropriately approved and certified facility. Non hazardous ash can be shipped to a Class II landfill.

3.2 SEWAGE AND DOMESTIC WASTE WATER

Raw Sewage and Domestic Waste Water generated during camp operations will be collected in a sewage lift station fitted with floats, switches and a then transferred with a macerating pump to a larger holding tank that will be heated and insulated.

Disposal Location

EGT NW has received approval from the Hamlet of Tuktoyaktuk and the Town of Inuvik to dispose of all Raw Sewage in the municipal Sewage Lagoons.

All Raw Sewage generated by camps operating on the northern portion of the ITH construction project and based out of Tuktoyaktuk will dispose of the camp generated sewage at the Hamlet of Tuktoyaktuk Sewage Lagoon.

All Raw Sewage generated by camps operating on the southern portion of the ITH construction project and based out of Inuvik will dispose of the camp generated sewage at the Town of Inuvik Sewage Lagoon.

No raw sewage, treated effluent, or other waste water will be discharged on the land.

Method of Storage and Transport

EGT NW will have installed heated, insulated and bermed effluent watertight storage tanks located with each of its field construction camps. There will be storage sufficient for ~ 5 days of effluent given the probability in the region for adverse weather conditions. This should allow for a comfortable cushion in the event that severe weather hampers the travel of mobile equipment.

Sewage will be transported off-site with by means of a tandem or off road LGP vacuum truck to each of the municipal sewage lagoons on a daily basis. Tanks on the transport vehicles will be watertight, baffled tanks and will be maintained to the manufacturer's specifications to ensure dependable performance.

3.3 HAZARDOUS WASTE

The NT Guideline for the General Management of Hazardous Wastes define "hazardous wastes" as:

"A contaminant which is a dangerous good that is no longer used for its original purpose and is intended for recycling, treatment, disposal or storage."

"A hazardous waste does not include a contaminant that is:"

- Household in origin
- Included in Class 1, Explosives or class 7, Radioactive materials of Transportation of Dangerous Goods Regulations (Canada)
- Exempted as a small quantity
- An empty container
- Intended for disposal in a sewage system or by land filling that meets the applicable standards set out in the Environment Guideline for Industrial Waste Discharges in the NWT

A copy of the Guideline for the General Management of hazardous Waste in the Northwest Territories can be found on the GNWT Environment and Natural Resources website or by using the link:

http://www.enr.gov.nt.ca/_live/documents/content/General_management.pdf

An example of Hazardous waste that may be generated onsite includes equipment batteries, aerosols, solvents, some petroleum hydrocarbons, glycol contaminated fuel, etc.

There is anticipated to be very small volumes of hazardous waste during the construction process. All hazardous waste generated during the ITH construction project will be stored on-site in a safe and secure manner which minimizes, to the extent possible risk to the site workforce, the general public and the environment. All hazardous waste generated at the project must be classified, collected in appropriate labeled containers, segregated into compatible groups, securely stored,

transported and disposed of in an appropriate and approved manner. Documentation related to the management of hazardous wastes will be accurately completed, submitted to be required bodies with copy(s) retained onsite for a period no less than 2 years. On-site storage of hazardous waste will be short term (<180 days) and within the allowable limits. Hazardous waste generated during the ITH project will be disposed of at one of the Tervita Corporation Facilities in Ft Nelson, Ft St John BC or as directed by Tervita's Waste Management Division.

Training

The Transportation of Dangerous Goods (TDG) Regulations state that;

"A person who handles, offers for transport pr transports dangerous goods must;

- *be adequately trained and hold a training certificate in accordance with this Part; or*
- *perform those activities in the presence and under the direct supervision of a person who is adequately trained and who holds a training certificate in accordance with this part.*

An employer must not direct or allow an employee to handle, offer for transport or transport dangerous goods unless the employee;

- *is adequately trained and holds a training certificate in accordance with this Part; or*
- *performs those activities in the presence and under the direct supervision of a person who is adequately trained and who holds a training certificate in accordance with this part*"

Personnel working in the waste management facility will be required to be certified or under the direct supervision of a certified individual in the following;

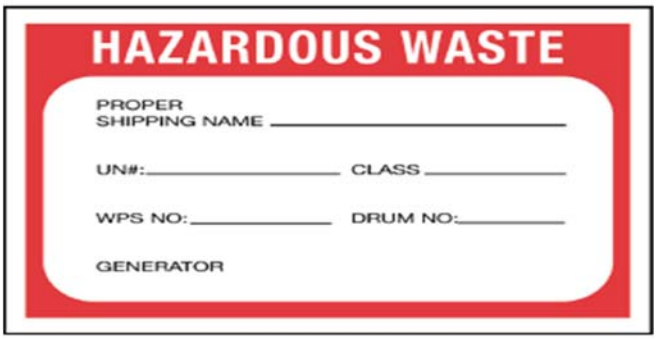
- Workplace Hazardous Material Information System (WHMIS)
- Transportation of Dangerous Goods (TDG)

Handling and Storage

Safe handling precautions and product specific information is found in Material Safety Data Sheets (MSDS) Which must be located on site and accessible to all workers. The following points should be considered for handling and storage of waste streams:

- Transportation means should be selected according to procurement and HSE requirements;
- Carriers of waste should be provided with instructions on how to handle emergency situations;
- All persons interacting with hazardous wastes will be required to wear the appropriate PPE;
- Regular inspections are performed and recorded;
- Containers are placed so that each container can be inspected for signs of leaks or deterioration;
- All hazardous wastes are stored in a location that provides maximum amount of safety for site personnel and protection of the environment;
- Incompatible chemical wastes are not packaged or stored together based on the WHMIS and/or the MSDS for each chemical;

- All hazardous wastes are stored on-site for the shortest practical length of time and in a manner that prevents release to the environment;
- Appropriately sized containers are use for collecting and storing the waste;
- In the case of 4 or 10 L plastic containers, 20 L pails, and 205 L drums, the container is also the "package" and shall have the appropriate waste label affixed to it;
- Efforts are made not to contaminate the outside of the container during filling. Containers and packages with visible signs of external contamination will not be used in the storage or transport of hazardous wastes;
- Personnel ensure that all container and package lids are secured tightly;
- Personnel ensure that all approved containers and packages are structurally capable of withstanding the aggregate weight of all containers within the package;
- Leaking or deteriorated containers are removed as soon as practical and their contents transferred to a sound container;
- The storage facility is equipped with emergency response equipment appropriate for the type and volume of materials stored within (i.e. spill kit, appropriate type of fire extinguisher, etc.) and
- All waste containers and packages are properly labeled according to the appropriate WHMIS, MSDS and/or federal Transportation of Dangerous Goods Regulations. The following general requirements apply;
  - Each package must be labeled with a waste label;



  - Each container must be labeled with the contents prior to being packed and sealed;
  - Only proper chemical names are used on all labels. Acronyms, trade names, or chemical formulas are not acceptable;
  - UN numbers should be used in labeling where applicable to ensure clear identification of materials;
  - Personnel ensure that all labels are securely attached to the container so that it will not come off during transport;
  - All other labels must be removed from the container or otherwise made illegible (i.e. painted over, scratched out, or otherwise defaced);

- No waste may protrude from the packaging container and must be sealed for transport; and
- When transporting waste on site to the waste management collection area and berm, ensure it is secure and will not leak during transport as well as once in storage.

Tracking and Recording

Tracking and recording waste types and volumes is a necessary and important function in an efficiently running waste management system. Adequate records on waste details such as dates, quantities, waste in storage, being transported, treated and disposed of, should be kept for a period of at least 2 years.

EGT NW will maintain an accurate record of all hazardous waste materials generated on site and all materials transported off site. That record, at a minimum, includes:

- A list of the materials being stored/transported;
- The volume of each material being stored/transported;
- The type of container used to store the material;
- The location of the stored material; and
- MSDS sheets for all waste handled by personnel to ensure safe handling and procedures are followed.

An excel template will be used to track all waste currently waiting for transport off site for disposal, treatment or recycling. A summary will be prepared each year to monitor waste trends and allow for tracking waste volumes and types.

All waste records must be tracked from cradle to grave by the generator and kept on record for a period of two (2) years. The generator of the waste (supervisor or his delegate associated with the activity – construction) will be responsible for completing Part A of the Federal Movement Document (FMD). This individual will be required to hold a valid certificate in TDG.

Hazardous Waste: The Guideline for the General Management of Hazardous Waste in the NWT requires that a completed waste manifest accompany shipments of hazardous waste. In addition, hazardous waste regulations in other provinces and by Environment Canada's Interprovincial Movement of Hazardous Waste Regulations. A Movement Document supplied by the Department of Environment and Natural Resources qualifies as a hazardous waste manifest form and is recognized by other provincial agencies. All parties involved in the disposal of hazardous wastes, the generator, the carrier and the receiver must be registered and provided with the appropriate registration number. In the NWT these numbers are provided by ENR according to the Guideline above.

The form contains the following information:

- Detailed information on the types and amounts of hazardous waste shipped;
- A record of the firms or individuals involved in the shipment; and
- Information on the storage, treatment or disposal of the waste and confirmation that they reached their intended final destination

The generator (Consignor), Carrier and Receiver (Consignee) must each complete their portion of the FMD. The information provided on the FMD as well as other TDGR requirements (i.e. labeling and placarding) are also intended to assist first responders (police, ambulance, fire fighters) with hazard information should a transportation accident occur. The FMD completion instructions are provided n the reverse side of each movement document.

Non Hazardous Waste: The Movement Document supplied by the Department of Environment and Natural Resources will be used to track all non hazardous waste.

3.4 OTHER WASTES

Lube Oils: all combustible waste petroleum products will be disposed of either by incineration or removal. All waste lube oils will be sampled and tested for acceptable levels of contaminants as required by the NWT *Used Oil and Waste Fuel Managements Regulations*. If the identified requirements cannot be met the products will be safely stored in sealed containers (odor free to prevent animal attraction) and safely transported to a facility that is a registered recycling or disposal facility for these wastes. If the waste petroleum products are tested and found to be within the acceptable levels of contaminants as required by the regulations the products will then be transported to a registered receiver with a registered used oil appliance (boiler or furnace). The lube oil waste will be tracked on movement documents.

Recyclables: Only beverage containers currently can be recycled locally and economically and they will be packaged appropriately in multi-sectional bins and shipped to an appropriate recycling facility in Tuktoyaktuk, and Inuvik.

Wood debris: will be recovered for reuse, burned in a suitable incinerator (described above) or transported outside the NWT for disposal at an approved landfill.

Food Waste: all food waste will be stored in airtight sealed containers to prevent the attraction of wildlife regardless if it is being stored for the purpose of on-site or off-site disposal.

Containers with Residues: The containers are to have residuals consolidated by like wastes so that the drums can be considered empty with residuals. These drums must be empty and labeled as Residue Last Contained and tracked on a movement document prior to removal from the site to a recycler. If waste cannot be safely consolidated, then EGT NW will classify the residuals according to class and volume and will dispose of the waste at an approved facility.

4. SUMMARY OF WASTE PLANNING

Each class of waste generated in EGT NW's operation is identified in the attached Waste Management Table (Appendix II), which consists of the following:

- Waste Stream
- Description
- Handling Method
- Disposal Method (Handling Code)
- AB Code
- Shipping Name
- PIN
- Class
- PG
- Comments

The Waste Management Table will be posted at each operating site to help field staff determine how wastes are to be managed. The on-site Environmental Technician is responsible, in conjunction with the EGT NW Supervisor, to ensure that all wastes are managed accordingly. The Waste Management Table is included for reference in Appendix II.

APPENDICES

Appendix I **TERVITA's Waste Acceptance Authorization Letter and Tervita's Protocol and Waste Approval Application (WAA)**

Appendix II **Waste Management Table**

Appendix III **Local Disposal Authorization and Approval Letters**

Appendix IV **Schematic of Temporary Waste Storage at Camp Locations**

Appendix I

TERVITA'S Waste Acceptance Authorization Letter and Tervita's Protocol and Waste Approval Application (WAA)

December 24th, 2013

Tervita Waste Management
PO Box 95
302-3rd Ave West
Beaverlodge, AB
T0H 0C0

EGT Northwind Ltd.
PO Box 177
Tuktoyuktuk, NT
X0E 1C0

To whom it may concern,

TERVITA Waste Management in Beaverlodge agrees to accept all wastes listed on the spreadsheet provided with the exception of raw sewage. All waste must be packaged and transported as per TDG requirements.

TERVITA must be given notice of waste types, volumes and arrival dates to ensure sufficient space is available at our Transfer Station facility.

Tervita has a wide range of facilities available for recycling or disposal of our customer's wastes. TERVITA will assist you with determining the ones that best suit your needs. All disposal options undergo review by TERVITA to ensure they meet regulatory requirements. TERVITA manages all waste types except for explosives, biomedical waste and radioactive waste.

Waste streams with smaller volumes will come to the Beaverlodge Transfer Station, bulked with like items from other waste generators, then redirected to the final disposal and/or recycle facility. Arrangements will be made for Larger Volume waste streams to go directly to final disposal.
Absorbent materials from spill clean-ups, filters and rags will be taken to our BC Hazardous waste landfill (Silverberry or Northern Rockies) for disposal.
Compressed gases such as aerosols and propane will come through the transfer station and be redirected to a recycler who will properly disposal of the waste gas and recycle the containers.
Antifreeze glycol, lube oil and solvents be brought to the Beaverlodge transfer Station then redirected to a recycling facility.
Acid Batteries will be sent to a recycler.

Tervita Corporation

Calgary Head Office
500, 140 – 10th Avenue SE
Calgary, AB T2G 0R1
T: (403) 233-7565
F: (403) 261-5612

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Empty plastic and metal containers will be sent to an approved recycling facility after being brought to Tervita Beaverlodge.

Grease and Kitchen Grease will be dried out on the Tervita Sludge Pad then redirected to a Tervita Class II landfill for disposal.

After receiving proper analytical, incinerator ash will be disposed of at a BC Hazardous waste landfill (Silverberry or Northern Rockies).

Latex paints will be dried out on the sludge pad and disposed of in a class II landfill. Oil and solvents based paints will be sent to a recycling facility.

Sincerely,

Haley Genovese
Technical Service Representative
Tervita Waste Management

WASTE APPROVAL APPLICATION (WAA)

WAA # (Tervita use only)	

Important: This form is to be completed when you have received all of the accredited lab analytical results identified from the Solid Waste Acceptance Protocol form. The waste generator or authorized representative must complete this form and email a scanned copy or fax to the facility you wish to take the waste to. Please ensure the WAA is signed and dated and be sure to include all supporting and signed analytical documents.

1. GENERATOR INFORMATION

ERCB operator code (Alberta only):

a) Generator's name	Company:		
b) Generator's address	Street:		
	City/town:	Province:	Postal code:
c) Generating location	LSD or physical address:		
	City/town:	Province:	Postal code:
d) Generator's contact	Name:	Company:	
	Phone:	Fax:	

2. INVOICING INFORMATION

a) Check here ☐ if invoicing information is the same as generator information above.

b) Company/Consultant	Company:		
c) Company/Consultant address	Street:		
	City/town:	Province:	Postal code:
d) Contact	Name:		
	Phone:	Fax:	
e) Job identification	EDI code:	AFE #:	PO #:

3. ENVIRONMENTAL CONSULTANT INFORMATION

a) Consultant/Company	Name:		
b) Consultant/ Company address	Street:		
	City/town:	Province:	Postal code:
c) Consultant/ Company contact	Name:		
	Phone:	Fax:	

4. LANDFILL DESTINATION

Alberta

- ☐ Bonnyville
- ☐ Judy Creek
- ☐ Rainbow Lake
- ☐ Spirit River
- ☐ Willow Creek
- ☐ Fox Creek
- ☐ Rocky Mtn. House
- ☐ Tower Road
- ☐ Willesden Green
- ☐ Janvier
- ☐ Mitsue
- ☐ South GP

Saskatchewan

- ☐ Gull Lake
- ☐ Lomond
- ☐ Lomond Treatment Pad
- ☐ Marshall
- ☐ Kindersley

British Columbia

- ☐ Northern Rockies
- ☐ Silverberry

Partnered Facilities

- ☐ Medicine Hat
- ☐ Pincher Creek
- ☐ Peace River

☐ La Glace	☐ Wabasca			

5. ATTACHMENTS

☐ Supporting analytical Supporting analytical I.D. #:_____

☐ MSDS ☐ Memo/letter ☐ Other (specify): _____

6. WASTE STREAM INFORMATION

a) Waste description: ***check only one below***
(a separate WAA is required for each waste stream)

ERCB waste code (**AB Only**):

☐ Absorbent
☐ Activated carbon[1]
☐ Asbestos*
☐ Catalyst, sulphur[1] (elemental sulphur and sulfides)
☐ Catalyst, non-sulphur[1]
☐ Cement Returns, Dry (solid)
☐ Construction and demolition debris
☐ Dessicant (drying agent/ molecular sieve)[2]
☐ Drilling mud:
(specify)_____
☐ Elemental sulphur*
☐ Flare pit soil*
☐ Invert drill cuttings
☐ Produced sand

☐ Soils with crude oil
☐ Soil with refined fuel or solvent:
(specify)_____
☐ Soil with dioxin*
☐ Soil with gasoline (leaded)
☐ Soil with gasoline (unleaded)
☐ Soil with herbicide*:
(specify)_____
☐ Soil with metals
☐ Soil impacted with dry cleaning and/or industrial related chemicals*:
(specify)_____

☐ Soil with PCBs*
☐ Soil with pesticide:
(specify)_____
☐ Soil with produced water
(0% hydrocarbon) ☐ Yes ☐ No
☐ Soil with sulphur (elemental sulphur and sulfides)
☐ Other*:
(specify)_____

*Refer to the specific Tervita Provincial Waste Acceptance Protocols or contact your Tervita representative for specific details.

Note:
See section 8 (k) for further details on superscripts [1] & [2].

b) Process generating waste	Clearly explain generating process, use separate sheet if required.
c) Volume *(estimated)*	Tonnes_____ m^3_____
d) Shipping mode	☐ Bulk ☐ Bag ☐ Other (describe)
e) Frequency	☐ One time ☐ Week ☐ Month ☐ Year
f) Recomended PPE and special handling instructions	

7. PHYSICAL PROPERTIES

a) Physical state	☐ Dry solid ☐ Damp solid ☐ Sludge ☐ Powder/dust (friable) Describe:
b) Odour	☐ Strong ☐ Slight ☐ None Describe:
c) Debris in waste	☐ Yes ☐ No Describe:
d) Waste composition	_____% top soil _____% clay _____% gravel _____% sand
e) Passes paint filter test?	☐ Yes ☐ No

8. WASTE CHARACTERIZATION/CLASSIFICATION

a) Flash point	☐ ≤ 60.5 °C Alberta ☐ > 60.5° C (As per AB WCR) ☐ ≤ 60 °C British Columbia and Saskatchewan ☐ > 60 °C (As per TDGR)
b) pH	☐ < 2.0 ☐ > 12.5 ☐ Between 2.0 and 12.5
c) BTEX (check only those that apply)	☐ Leachable BTEX (each ≤ limits listed in Table 2 of **Alberta** User Guide for Waste Managers) ☐ Leachable BTEX (each < limits listed in Schedule 4, Table 1 **British Columbia** Hazardous Waste Regulation) ☐ Total BTEX (Combined Total ≤ 1,000 mg/kg **British Columbia** secure landfills only) ☐ Total BTEX (All BTEX components < 100 mg/kg, TDGR-SOR / 85-77 **Manitoba**) ☐ Leachable Benzene (Benzene components < 5.0 mg/L, TDGR Appendix 4 **Saskatchewan**) ☐ Total TEX (All TEX components < 100 mg/kg, TDGR Appendix 5 **Saskatchewan**)
d) Hydrocarbon (waste oil content)	☐ < 3% ☐ > 3% **(B.C. Only)**
e) Check those that apply	☐ Waste **does not** exhibit properties of TDG Class 1 – 9 substances ☐ Waste **does not** contain materials from TDG Column 3, schedule 1 ☐ Halogenated organic compounds (except tetrachloroethylene) ≤ 100 mg/kg (**B.C. landfills only**)[3] ☐ Tetrachloroethylene ≤ 500 mg/kg and/or < 3.0 mg/L (**B.C. landfills only**)[3] [3] Refer to the B.C. Hazardous Waste Regulations Schedule 1 for additional leachable (mg/L) discrete parameters.

f) Is the waste classed hazardous under applicable waste regulations?

☐ Yes ☐ No

g) Is this a treatment residue of a waste which was previously a regulated waste?

☐ Yes ☐ No

If yes, an attached signed letter and other applicable supporting documentation explaining is required.

h) Is the waste classified as non-hazardous due to the generator's knowledge of the waste or an exemption under applicable waste regulations?

☐ Yes ☐ No ☐ N/A

If yes, please provide reasoning supporting non-hazardous classification.

i) Regulated under Transportation of Dangerous Goods?

☐ Yes ☐ No

TDG information: Shipping name:_____

Class:_____ UN no.:_____ Packing group:_____

j) PCB contamination present? ☐ Yes ☐ No

Extractable Organic Halides (EOX) present? ☐ Yes ☐ No

k) [1]Spontaneous combustion testing may be required and a valid MSDS sheet (if available) e.g. catalyst(s) and/or activated Carbon(s)
[2]Water reactivity testing may be required and a valid MSDS sheet (if available) e.g. dessicant(s)

☐ Non-applicable

l) NORM (Natural Occurring Radioactive Material) contamination present? ☐ Yes ☐ No

≤ 70 Bq/g and Radium 226 ≤ 5 Bq/g ☐ Yes ☐ No **(Silverberry Landfill Only)**

9. GENERATOR'S CERTIFICATION

I understand that it is the responsibility of the Generator or the Generator's Authorized Representative to determine the characteristics of the aforementioned material and its proper classification, I hereby certify that the aforementioned material complies with all federal, provincial and local laws and regulatory criteria, and is acceptable material for landfill at the above selected Tervita landfill. Additionally, I hereby indemnify Tervita and save it harmless from and against any claims, actions, damages, liabilities and expenses including lawyers and other professional fees, in connection with the loss or injury whatsoever arising from or out of any inaccuracy or untruthfulness in the information herein provided. I further agree that this section 9 shall survive the expiry or termination of any agreements entered into between Tervita and the Generator.

Generator or generator's representative signature

Date:	Print Name:	Signature:	Title:

WASTE APPROVAL APPLICATION INSTRUCTIONS

This form is to be utilized to describe "Solid Waste" offered to Tervita for disposal and/or management.

These materials include; but are not limited to:

- Industrial waste
- Oilfield waste

Waste not included in this definition is:

- Municipal Solid Waste (MSW)

In accordance with Provincial Regulations, generators must determine whether their waste is a dangerous/hazardous or non-dangerous/non-hazardous waste. In order to manage your waste, Tervita requires certain information about your waste to confirm that your determination of it meets landfill disposal acceptance criteria and that it can be managed in a safe, environmentally sound, and lawful manner. This information will serve to protect you, the waste generator, as well as Tervita.

GENERAL INSTRUCTIONS

1. The generator or authorized representative of the generator must complete the Waste Approval Application (WAA) form. Please be thorough and accurate in your answers. The entire form must be completed, answers must be legibly printed in ink or typewritten, and the completed form must be signed and dated. Write "N/A" where the data requested is not applicable, and "N/D" if the information has not been determined. Please attach any additional relevant information such as MSDS, analytical data, or explanations that will help to describe the waste and expedite its review.
2. Send the complete and signed form, along with supporting documentation, to your Tervita Representative. If you have any questions concerning the completion of this form, please contact your local Tervita Representative or call the main office at (403) 233-7565.

SECTION 1 – GENERATOR INFORMATION

a) Generator's name – name of the company generating the waste.

b) Generator's address – mailing address including the street, city and province of the generating facility.

c) Generating location – physical location (i.e. LSD location) of the facility, well, pipeline, etc. generating the waste.

d) Generator contact – The name of the generator's employee or authorized representative completing the form and their telephone and fax numbers. This person must also sign the form in section 7 or by the generators' representative identified in Section 3(c).

SECTION 2 – INVOICING INFORMATION

This section is intended to provide Tervita with accurate information related to invoicing for the receipt of waste. Waste brokers, if being invoiced for the waste, should fill in this section with their information.

a) Check the box if the invoicing information is identical to the information in section 1.

b) Company name – name of the company that shall be invoiced for the waste.

c) Company address – mailing address including the street, city and province of the company to be invoiced for the waste.

d) Contact – name of the person to be contacted regarding invoicing of the waste, including phone and fax numbers.

e) Job# / EDI# - The appropriate generator/consultant number specific to the waste stream being offered for disposal is required when applicable. It is an EDI, AFE or PO number.

SECTION 3 – ENVIRONMENTAL CONSULTANT INFORMATION

To be completed only if the generator is using a third party representative to classify the waste and arrange disposal.

a) Consultants company name – name of the consultant company.

b) Consultants company address – mailing address including the street, city and province of the consulting company.

c) Consultant contact – name of the consultant company employee or authorized representative completing the form and their telephone and fax numbers. This person if applicable must sign the form in section 7 as the generators representative.

SECTION 4 – LANDFILL DESTINATION

Select the Tervita Landfill at which you desire the waste to be land filled. Tervita is pleased to offer disposal options at our partnered facilities; your Tervita representative can provide information regarding these facilities.

SECTION 5 - ATTACHMENTS

Check those boxes indicating supporting documentation. In the case of "Supporting Lab Analytical I.D.#" - write down the I.D.# from the supporting lab analytical. This should be the I.D.# given by the lab to the analytical data. Tervita can then verify the WAA data with the lab if required. **(Note: Tervita requires that supporting signed lab analytical be from accredited lab(s).**

SECTION 6 – WASTE STREAM INFORMATION

a) Waste description – check the waste type that most accurately describes the waste to be disposed.

b) Process generating waste – accurately describe the process that generated the waste (i.e. crude oil pipeline spill cleanup).

c) Anticipated volume – indicate the tonnage (tonnes) or volume (cubic meters) of waste to be disposed.

d) The frequency of generation of the waste described is to be noted.

e) In accordance with OH&S Hazard Communications requirements and WHMIS requirements, provide any special handling information, personal protective equipment recommendations, and other relevant information that will prevent injury or illness resulting from the safety hazard and can be handled safely without the use of personal protective equipment or special handling procedures.

SECTION 7 – PHYSICAL PROPERTIES

a) Physical state – check the box that describes the physical state of the waste.

b) Odour – check the box that best describes the odour of the waste.

c) Debris in waste – describe any debris that is not typically part of the waste i.e. wood, cement, empty containers. It is important to provide this information to ensure the debris is first acceptable and second to avoid any delays during waste reception.

d) Waste composition – this information is needed if the waste is intended for bioremediation and also to aid in determining the wastes final resting place within the landfill cell.

e) Potential for liquids to separate out – free liquids are not acceptable at a landfill however, some wastes that have passed landfill criteria may have liquids settle out during transport. Awareness at the facility will allow the wastes continued acceptance.

SECTION 8 – WASTE CHARACTERIZATION / CLASSIFICATION

The following questions help determine if the waste is acceptable at the designated receiving facility, they do not include all classification criteria. All wastes must be accurately characterized and classified as dangerous/hazardous or non-dangerous/non-hazardous as per Provincial Regulations.

a) Flash point – check applicable box.

b) pH – check applicable box.

c) BTEX – check applicable box.

d) Hydrocarbon content – this is used in British Columbia and determines waste classification as well as manifesting requirements for the province. Check applicable box.

e) Check applicable boxes.

f) This is confirmation by the generator or authorized representative that the waste is classified as **NON-DANGEROUS/NON-HAZARDOUS**. Disposal of dangerous/hazardous waste and misrepresentation of dangerous/hazardous waste as non-dangerous/non-hazardous is strictly prohibited. Liability for improperly classified waste remains solely with the generator.

g) This is to identify to Tervita if the waste was previously a dangerous/hazardous waste and was treated to make non-dangerous/non-hazardous in order to meet Tervita landfill criteria. If the waste was previously a dangerous/hazardous waste and has been treated, a signed letter describing the waste prior to treatment and the treatment process (i.e. addition of lime) must be attached.

h) Some wastes can be properly classified, without analyzing for all parameters outlined in the Alberta Waste User Guide for Waste Managers, based on the generators knowledge of the waste or due to an exemption (e.g. de-listed wastes). If this is the case, supporting documentation (e.g. signed letter) explaining the classification of the waste should be attached to the submitted WCD.

i) Check applicable box and provide TDG information if yes box is checked.

j) Additional analytical testing may be required.

k) Check applicable box and provide analysis if yes box is checked.

SECTION 9 – GENERATOR'S CERTIFICATION

The generator identified in Section 1 (d) or authorized representative of the generator identified in Section 3 must sign and date the certification. The WCD will not be processed and the waste will not be approved for Tervita management without completion of this and all other sections.

Appendix II

Waste Management Table

Waste Generation Table

Estimate for duration of project

Waste Stream	Description	Handling Method	Disposal Method	AB Code	Shipping Name	PIN	CLASS	PF	EST. Vol	Comments
Absorbents	Absorbent material used for spill clean up	Store in drum with rags	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	OILABS	Environmentally hazardous substance, solid, N.O.S. (pads cont/w BTEX)	UN3077	9	III	50 m3	
Aerosols	Not Empty	Bulk in an approved drum or pail	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	WSTGCS	Aerosols, flamable (waste)	UN1950	2.1	N/A	10 m3	
Antifreeze/Glycol	From engines possibly contaminated with heavy metals	Store in drum or plastic tote	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	GLYCHM	Environmentally hazardous substance, liquid, N.O.S. (used antifreeze)	UN3082	9	III	10 cubes	
Batteries (acid)	Lead/acid batteries	Wear gloves, handle carefully, store upright in battery bins or palletize	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	BATT	Batteries, wet, filled with acid, electric storage (waste)	UN2794	8	III	20 m3	
Beverage Cans and Plastics	Pop and juice containers	Place in Enviro-bin or Seacan	Transport to a recycling depot in Tuktoyaktuk or Inuvik, NWT	No Provincial Code	Not regulated by the TDG Act and Regulation	N/A	N/A	N/A	3600 m3	Recycle in Tuktoyaktuk and Inuvik for all beverage containers
Containers with Residue	Empty steel chemical drums, less than 10% full	Store in secure area on sides, lids and bungs on	Reuse or transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	EMTCON	Residue drum-content unknown; number of drums or class #	unknown	unknown	unknown	1500 m3	
Contaminated Snow	Snow contaminated with either diesel, oil, or other spill material	Pick up contaminated snow and place in an evaporator	Liquid residue placed in drums or tanks for shipment to recyclers	No Provincial Code	Residue drum-content unknown; number of drums or class #	unknown	unknown	unknown	100 cubes	
Diesel	Used as a fuel. Not considered waste unless contaminated by a substance that makes it unusable for the purposes as fuel	Store in large volume containers and enclosed by secondary containment	Recycle to approved recycling facility in Tuktoyaktuk or Inuvik	WSTFLQ	Waste, Flammable liquid, NOS (fuel)	UN1993	3	III	10 cubes	
Domestic Garbage	Camp waste, kitchen waste, burnable debris/wood	Food waste must be stored in secure, airtight containers	Dispose of all burnable waste in onsite incinerators, pull out plastic from the incinerator waste stream	DOMWST	Food waste will not be shipped offsite, plastics should be removed from the incinerator waste stream, packaged and shipped offsite to a receiving facility	N/A	N/A	N/A	60,000 kg	Non-hazardous domestic waste to the Tuktoyaktuk and Inuvik disposal facilities
Empty Barrels/Pails	Unrinsed barrels, jugs and other containers	Store in secure area on sides, lids on	Supplier or transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	EMTCON	Empty steel drums for recycle	N/A	N/A	N/A	1500 m3	
Filters	Process (glycol, dips, water)	Store in on site filter container	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	FILOTH	Environmentally hazardous substance, solid, N.O.S. (waste filters BTEX)	UN3077	9	III	25 m3	
Grease	Lubrication Grease	Store in approved container	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	No Provincial Code					10 m3	
Hydraulic and Transmission Fluids	Source is a vehicle maintenance program	Store in drums	Ship to approved receiving facility based on results from sample	HYDOIL	Not regulated by the TDG Act and Regulation	N/A	N/A	N/A	20 cubes	
Incinerator Ash	Feed source is generally burnable domestic waste and paper products	Package in non-haz bag when cool	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	INCASH	Incinerator ashe (waste)	N/A	N/A	N/A	200 m3	
Kitchen Grease	Kitchen grease	Burn in an incinerator	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	No Provincial Code					unknown	
Lube Oils	From oil changes including hydraulic fluid	Bulk in double walled tank/drum	Used oil recycler in Tuktoyaktuk or Inuvik	LUBIOL	Non DOW, Non TDG regulated	N/A	N/A	N/A	400 cubes	
Lube Oil Filters	Spin on filters	Package in on site filter container	Used oil recycler in Tuktoyaktuk or Inuvik	FILLUB	Environmentally hazardous substance, solid, N.O.S. (lube oil filters)	N/A	N/A	N/A	30 m3	
Paint	In cans or pails	Package in an approved open top drum	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	WPAINT	Paint or paint related material (waste)	UN1263	3	II	< 1 cubes	
Propane	Heating, torches, welding etc.	Transport and store upright in a ventilated location away from ignition sources. Cylinders not in use must have valves in place. Do not store with oxidizing agents or oxygen	Empty cylinders may contain residuals. Return to manufacturer for refilling or transport to an approved receiving facility if unable to send for refill	No Provincial Code	Liquefied petroleum gas (propane)	UN1075	2.1	N/A	unknown	
Rags	Contaminated with chemicals/oil	Package onsite in sealed containers and transport to an approved landfill	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	OILRAGS	Environmentally hazardous substance, solid, N.O.S. (rags cont/w BTEX)	UN3077	9	III	4 m3	
Raw Sewage	Untreated sewage effluent from the camps	Store in heated, insulated, sealed tanks and truck to Municipal Sewage Lagoons	Ship small volumes to approved facility inside the NWT (Tuktoyaktuk/Inuvik)	No Provincial Code	Not regulated by the TDG Act and Regulations	N/A	N/A	N/A	10,000 cubes	
Scrap Metal	Not contaminated with chemicals	Stockpile onsite	Local scrap metal dealer or transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	SMETAL	Scrap metal	N/A	N/A	N/A	10 m3	
Solvents	Thinners, varsol, xylene	Store in approved drums	Transport to approved (Tervita Corporation) disposal facility outside the NWT (Fort Nelson, Fort St. John, BC)	SOILALP	Flammable liquid, N.O.S. (waste solvents, thinners)	UN3077	9	III	5 cubes	
Wood Materials	Lathes, wood boards, boxes	Incinerate what can be incinerated and stockpile remainder	Recycle, reuse or transport to an approved disposal facility in Tuktoyaktuk or Inuvik (if not hazardous)	No Provincial Code	Not regulated by the TDG Act and Regulations	N/A	N/A	N/A	30 m3	

Appendix III

Local Disposal Authorization and Approval Letters

INCORPORATED HAMLET OF TUKTOYAKTUK
LAND OF THE PINGOS

P.O. BOX 120
TUKTOYAKTUK, NT X0E 1C0

TEL#: 867-977-2286
FAX#: 867-977-2110

September 16, 2013

Pietro de Bastiani
ITH Project
GNWT-DOT

Re: **In The Matter of the Discharge of "raw sewage" into the Hamlet of Tuktoyaktuk's Sewage Lagoon and Disposal of Waste into the Hamlet of Tuktoyaktuk's Solid Waste Site Facility: Generated from Activity Related to the Inuvik to Tuktoyaktuk Highway Construction Project**

Dear Pietro,

In regard to the above:

The Hamlet of Tuktoyaktuk will accept non-hazardous waste in its solid waste site as defined by NWT regulations and as per the Hamlet of Tuktoyaktuk Bylaws governing such; and will accept sewage in its sewage lagoon so long as it does not contain any hazardous materials: tipping fees will apply.

Regards,

Tom Matus, SAO

TOWN OF INUVIK
2 Firth Street, Box 1160
Inuvik, Northwest Territories
Canada, X0E 0T0
Phone: 867.777.8600 • Fax: 867.777.8601
Email: sao@inuvik.ca

September 20, 2013

Government of the Northwest Territories
Department of Transportation
P.O. Box 1320
Yellowknife, NT X1A 2L9

Attention Mr. Pietro Debastiani – Senior Transportation Planner

RE: Use of Sewage and Solid Waste Dumping Facilities

Please be advised that the Town of Inuvik acknowledges that the Department of Transportation of the Government of the Northwest Territories may use the above mentioned facilities in conjunction with the Inuvik- Tuktoyaktok highway project. As part of this approval the Department or any contractor working on their behalf acknowledges that there will be a fee for use of these facilities and that they shall provide weekly reporting of the volume of sewage and solid waste brought in from this project.
We are required as part of our water license to account for these types of additional wastes entering our sewage lagoon and solid waste site respectively.

If you have any questions or concerns, please do not hesitate to contact me.
Thank-you in advance for your cooperation.

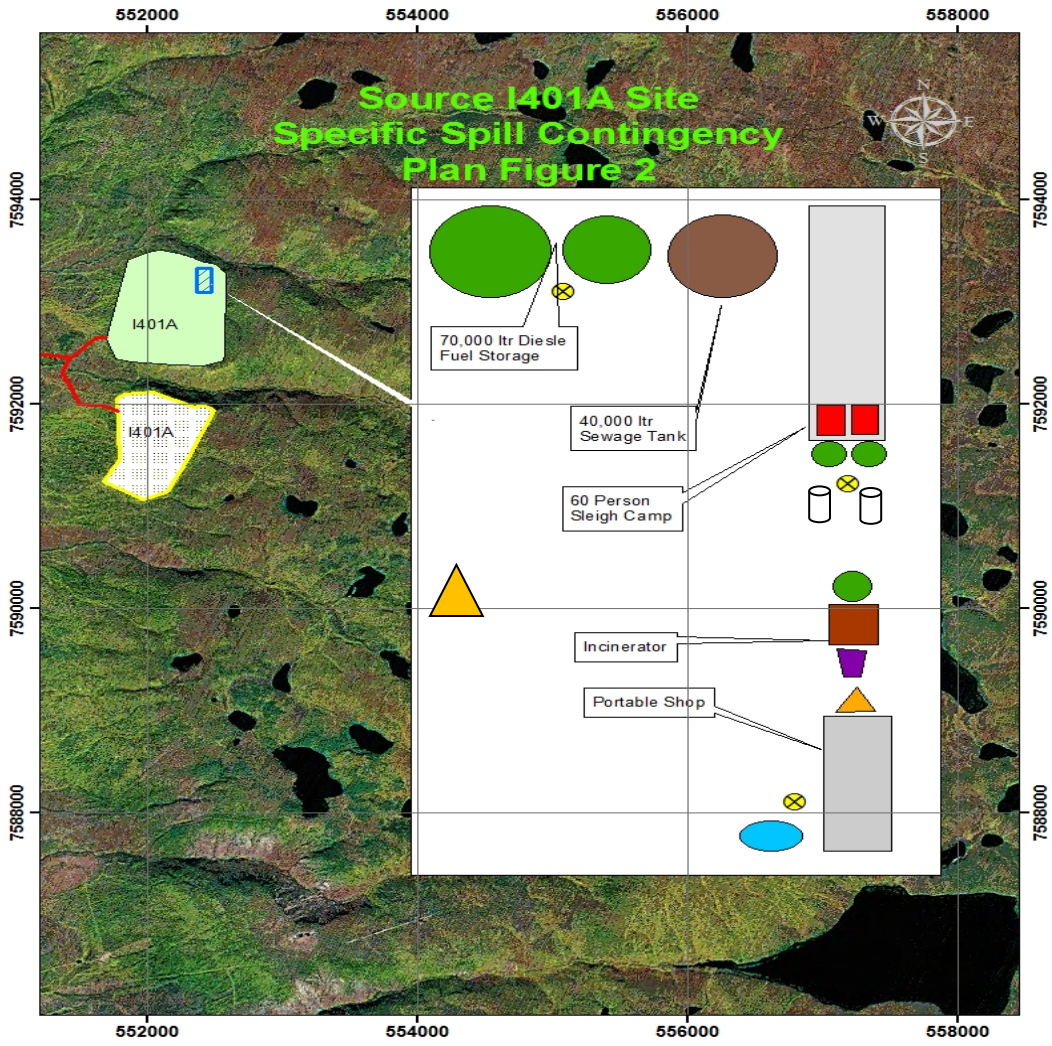
Yours sincerely;

Grant Hood, CMA
Senior Administrative Officer

CC: Mr. Rick Campbell – Director of Public Services – Town of Inuvik
Mr. Jim Stevens Director – DOT
Mr. Gurdev Jagpal – Regional Superintendent – DOT
Ms. Tara Schmidt - Stantec

Appendix IV

Location of Temporary Waste Storage Areas at the Camp Locations



Sewage Tank

Fuel Tank
Generator
Incinerator
Spill Kit & Extinguisher
Gasoline Tank
Hazardous Waste Storage
Hazardous Materials Storage
Non-Hazardous Temporary Waste Storage

Figure 2: Sketch of site plan

Figure 2 show a sketch of the I401A site that includes buildings, roads, water bodies, hazardous material locations, Non-Hazardous Temporary Waste Storage, spill kit locations, and hazardous waste storage.

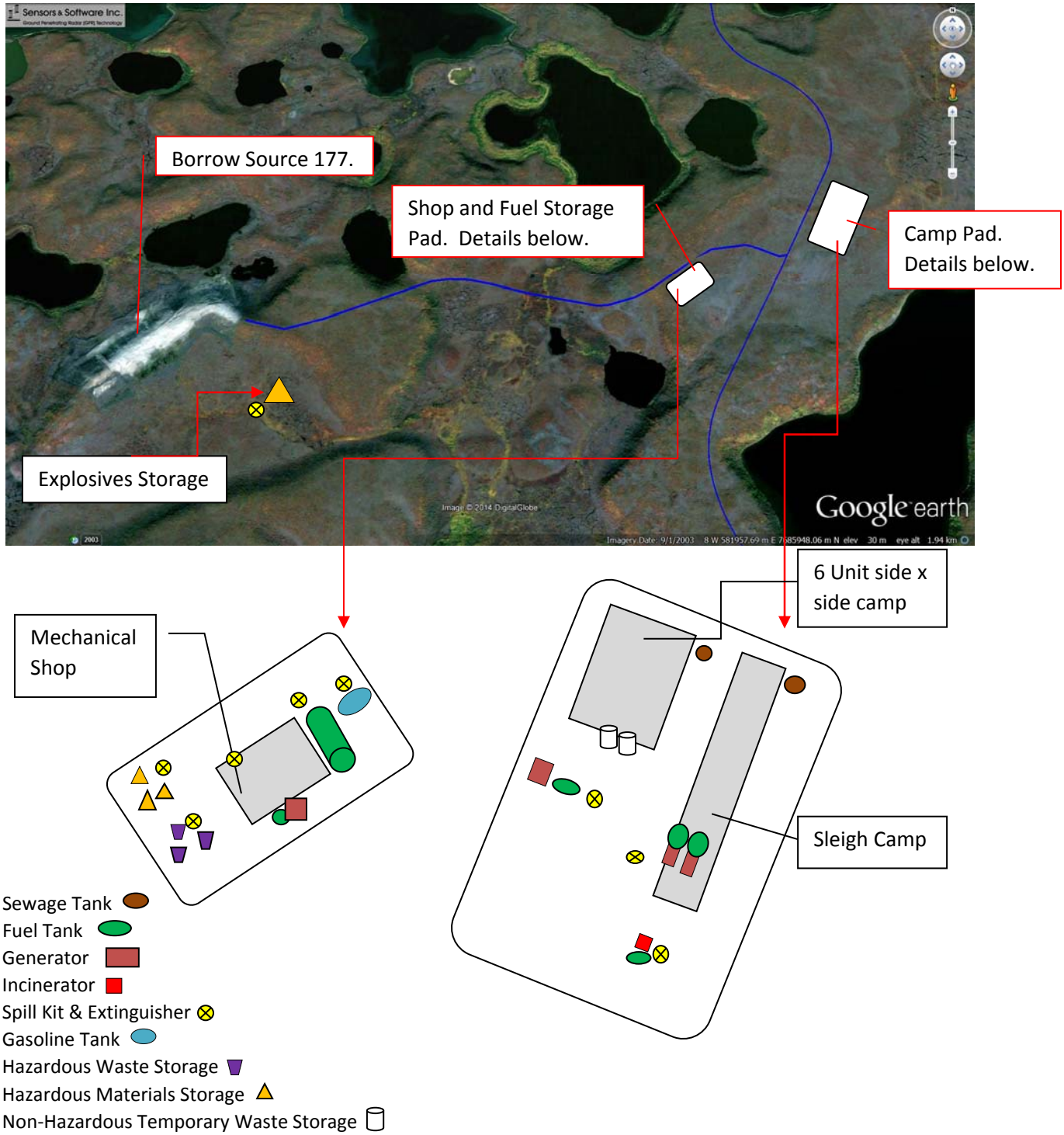
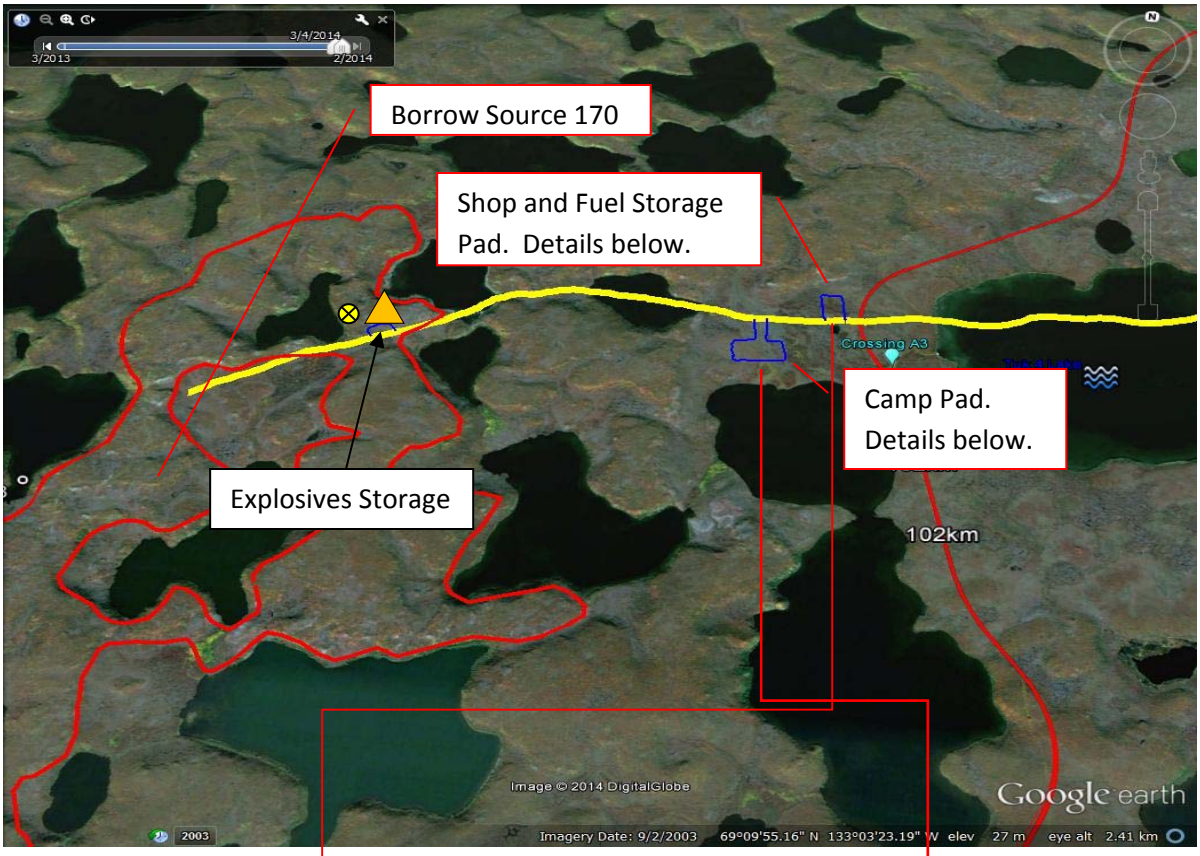


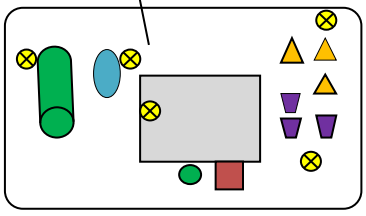
Figure 2: Sketch of site plan

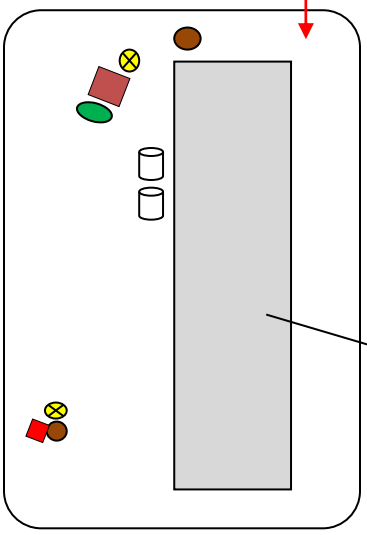
Figure 2 show a sketch of the 177 site that includes buildings, roads, water bodies, hazardous material locations, spill kit locations, and hazardous and non-hazardous waste storage locations.

Source 170 Camp Pad Image



Mechanic shop & Fuel Storage pad





s/s Camp

Sewage Tank
Fuel Tank
Generator
Incinerator
Spill Kit & Extinguisher
Gasoline Tank
Hazardous Waste Storage
Hazardous Materials Storage
Non-Hazardous Temporary Waste Storage