

# Environmental Guideline for Used Oil and Waste Fuel



Department of Environment  
Government of Nunavut

# GUIDELINE: USED OIL AND WASTE FUEL

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This Guideline has been prepared by the Department of Environment's Environmental Protection Division and approved by the Minister of Environment under the authority of Section 2.2 of the *Environmental Protection Act*.

This Guideline is not an official statement of the law and is provided for guidance only. Its intent is to increase the awareness and understanding of the risks, hazards and best management practices associated with used oil and waste fuel. This Guideline does not replace the need for the owner or person in charge, management or control of the waste to comply with all applicable legislation and to consult with Nunavut's Department of Environment, other regulatory authorities and qualified persons with expertise in the management of used oil and waste fuel.

Copies of this Guideline are available upon request from:

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Electronic version of the Guideline is available at <http://env.gov.nu.ca/programareas/environmentprotection>

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## Introduction

The management of used oil and waste fuel is a major concern in Nunavut as large volumes are generated from a wide variety of sources each year. While an up-to-date inventory is not available, a study undertaken by the Government of the Northwest Territories in 1990 concluded that each person living in Cambridge Bay, Kugluktuk, Gjoa Haven and Taloyoak generated almost 14 litres of used crankcase oil annually. Based upon this figure, it is estimated that more than 450,000 litres of used oil was generated in Nunavut communities in 1990. A significant increase in the use of automobiles and four-stroke ATVs, snowmobiles and boat motors, together with an increase in construction and mining activity, means the volume of used oil generated in Nunavut today is likely much greater.

Used oil is oil which is purchased for lubricating or other purposes but has become unsuitable for its intended purpose due to the presence of impurities or the loss of original properties. It includes engine, turbine and gear lubricating oil, hydraulic and transmission fluid and insulating coolant (i.e. transformer fluid). Used oil is generated by a wide variety of commercial and industrial sectors including automotive and heavy equipment servicing, marine and aviation transportation, electrical generation and mining. Household do-it-yourselfers also generate used oil by self-servicing their automobiles, ATVs, snowmobiles and boat motors.

Waste fuel includes gasoline, diesel and fuel oil, aviation fuel, kerosene and naphtha that is no longer suitable for its intended purpose due to impurities or the loss of its original properties. Like used oil, waste fuel is generated by a wide variety of sources including residential, institutional, commercial and industrial users of fuel products. However, unlike used oil, the volume of waste fuel generated each year in Nunavut can vary greatly.

The *Environmental Guideline for Used Oil and Waste Fuel* (the Guideline) is intended to increase the awareness and understanding of the risks, hazards and best management practices associated with used oil and waste fuel. The Guideline provides information on the characteristics and potential environmental and human health effects of these wastes and guidance on its proper storage, transportation, reuse and disposal. It is not an official statement of the law. For further information and guidance, the owner or person in charge, management or control of used oil and waste fuel is encouraged to review all applicable legislation and consult the Department of Environment, other regulatory agencies or qualified persons with expertise in the management of these wastes.

The *Environmental Protection Act* enables the Government of Nunavut to implement measures to preserve, protect and enhance the quality of the natural environment. Section 2.2 of the *Act* provides the Minister with authority to develop, coordinate, and administer the Guideline.

### 1.1 Definitions

*Blend* To mix used oil or waste fuel with another hydrocarbon fuel.

*Bottom Ash* The coarse non-combustible and unburned material that remains in the burn chamber, exhaust piping and pollution control devices after burning is complete.

<i>Commissioner's Land</i>	Lands that have been transferred by Order-in-Council to the Government of Nunavut. This includes roadways and land subject to block land transfers. Most Commissioner's Land is located within municipalities.
<i>Contaminant</i>	Any noise, heat, vibration or substance and includes such other substance as the Minister may prescribe that, where discharged into the environment, (a) endangers the health, safety or welfare of persons, (b) interferes or is likely to interfere with normal enjoyment of life or property, (c) endangers the health of animal life, or (d) causes or is likely to cause damage to plant life or to property.
<i>Dangerous Good</i>	Any product, substance or organism included by its nature or by the <i>Transportation of Dangerous Goods Regulations</i> in any of the classes listed in the schedule provided in the <i>Transportation of Dangerous Goods Act</i> .
<i>Environment</i>	The components of the Earth and includes (a) air, land and water, (b) all layers of the atmosphere, (c) all organic and inorganic matter and living organisms, and (d) the interacting natural systems that include components referred to in paragraphs (a) to (c) above.
<i>Hazardous Waste</i>	A contaminant that is a dangerous good and is no longer wanted or is unsuitable for its original intended purpose and is intended for storage, recycling, treatment or disposal.
<i>Household Do-It-Yourselfer</i>	An individual who generates used oil or waste fuel through the maintenance of their personal vehicles and equipment.
<i>Inspector</i>	A person appointed under subsection 3(2) of the <i>Environmental Protection Act</i> and includes the Chief Environmental Protection Officer.
<i>Open Burning</i>	Burning of waste with limited or no control of the burn process. For clarity, open burn includes burning on the open ground or in a small open pit, or using a burn box or unmodified or modified burn barrel.
<i>Qualified Person</i>	A person who has an appropriate level of knowledge and experience in all relevant aspects of waste management.
<i>Transport Authority</i>	The statute and regulations controlling the management of hazardous waste under that mode of transport. These include (a) Road and Rail - <i>Transportation of Dangerous Goods Act (Canada) and Regulations; Interprovincial Movement of Hazardous Waste Regulations</i> and <i>Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations</i> .

- (b) Air – *International Air Transport Association (IATA) Dangerous Goods Regulations* and *International Civil Aviation Organization (ICAO) Technical Instructions*; and
- (c) Marine – *International Maritime Dangerous Goods Code (IMDG)*.

<i>Used Oil</i>	Engine, turbine and gear lubricating oil, hydraulic and transmission fluid and insulating coolant (i.e. transformer fluid) that is unsuitable for its intended purpose due to the presence of impurities or the loss of original properties, but does not include waste derived from animal or vegetable fat or a petroleum product spilled on land or water.
<i>Used Oil or Waste Fuel Appliance</i>	An incinerator, boiler, furnace or other device that has been certified and approved for the burning of used oil or waste fuel by the Canadian Standards Association, Underwriters' Laboratories of Canada or another certified testing agency acceptable to the Fire Marshal.
<i>Waste Fuel</i>	A flammable or combustible petroleum hydrocarbon that is unsuitable for its intended purpose due to the presence of impurities or the loss of original properties, and includes gasoline, diesel and fuel oil, aviation fuel, kerosene and naphtha, but does not include paint, solvent or propane.

## **1.2 Roles and Responsibilities**

### **1.2.1 Department of Environment**

The Government of Nunavut's Environmental Protection Division is the key territorial agency with responsibility for ensuring parties properly manage used oil and waste fuel. Authority is derived from the *Environmental Protection Act*, which prohibits the discharge of contaminants to the environment and enables the Minister to undertake actions to ensure appropriate management measures are in place. Although programs and services are applied primarily to activities taking place on Commissioner's and municipal lands and to Government of Nunavut undertakings, the *Environmental Protection Act* may be applied to the whole of the territory where other controlling legislation, standards and guidelines do not exist. A complete listing of relevant legislation and guidelines can be obtained by contacting the Department of Environment or by visiting the web site at <http://env.gov.nu.ca/programareas/environmentprotection>.

### **1.2.2 Generators and Owners of Used Oil and Waste Fuel**

Generators, owners or persons in charge, management or control of used oil and waste fuel, also referred to as the responsible party, must ensure the waste is properly and safely managed from the time it is produced to its final reuse or disposal. This includes household do-it-yourselfers and municipal, territorial and federal government, commercial, industrial and institutional operators who may or may not have in-house capabilities for recycling, reusing or disposing of the wastes.

Contractors may manage unwanted used oil and waste fuel on behalf of the responsible party. However, the responsible party remains liable for ensuring the method of management complies with all applicable statutes, regulations, standards, guidelines and local by-laws. If the contractor does not

comply with the requirements of the *Environmental Protection Act* and is charged with a violation while managing the waste, the responsible party may also be charged.

A household do-it-yourselfer and any other person that generates used oil or waste fuel in quantities less than five litres per month is exempt from certain requirements described in the Guideline. These small quantity generators should refer to section 3, *Waste Management*, for information on the applicable exemptions. Any person who generates used oil or waste fuel in quantities greater than five litres each month must comply with all instructions described in section 3, *Waste Management*. In addition, further information on the registration of generators, carriers, receivers and hazardous waste management facilities can be obtained by referring to the *Environmental Guideline for the General Management of Hazardous Waste*.

### **1.2.3 Other Regulatory Agencies**

Other regulatory agencies may have to be consulted regarding the management of used oil and waste fuel as there may be other environmental or public and worker health and safety issues to consider.

#### **Workers' Safety and Compensation Commission**

The Workers' Safety and Compensation Commission is responsible for promoting and regulating worker and workplace health and safety in Nunavut. The Commission derives its authority from the *Workers' Compensation Act* and *Safety Act* which require an employer to maintain a safe workplace and ensure the safety and well being of workers. The Workplace Hazardous Materials Information System, or WHMIS, requires information be provided to workers on the safe use of any hazardous material used in the workplace.

#### **Department of Community and Government Services**

The Department of Community and Government Services is responsible under the *Commissioner's Lands Act* for the issuance of land leases, reserves, licenses and permits on Commissioner's Lands. The Department, in cooperation with communities, is also responsible for the planning and funding of municipal solid waste and sewage disposal facilities in most Nunavut communities. Emergency planning responsibilities under the *Emergency Measures Act* include developing territorial emergency response plans, coordinating emergency operations at the territorial and regional levels and supporting community emergency response operations.

The Office of the Fire Marshal is responsible for ensuring the safe storage, handling and use of flammable and combustible liquids and materials. The Office of the Fire Marshal derives its authority from the *Fire Prevention Act*, *National Fire Code* and *National Building Code*.

#### **Department of Health and Social Services**

Activities related to the generation, handling, storage, transportation, reprocessing, burning and disposal of used oil and waste fuel may have an impact on public health. The Office of the Chief Medical Officer of Health and Regional Environmental Health Officers should be consulted regarding legislated requirements under the *Public Health Act*.



## **Department of Economic Development and Transportation**

The Motor Vehicles Division of the Department of Economic Development and Transportation is responsible for the safe transport of dangerous goods and hazardous waste by road through administration of the *Transportation of Dangerous Goods Act*. The Department is also responsible for driver licensing and various other vehicle and road safety matters under the *Motor Vehicles Act*.

## **Environment Canada**

Environment Canada is responsible for administering the *Canadian Environmental Protection Act* (CEPA). Section 76 of CEPA requires the federal Ministers of Environment and of Health to establish a Priority Substances List identifying substances that are to be assessed on a priority basis to determine whether they are toxic (as defined under section 64 of CEPA) and pose a risk to the health of Canadians or to the environment. An assessment of used crankcase oils was completed in 1994 that concluded existing data was insufficient to determine whether these oils are "toxic" under CEPA.

Environment Canada also regulates the interprovincial and international movement of hazardous waste under the *Interprovincial Movement of Hazardous Waste Regulations* and *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* and is responsible for administering the pollution prevention provisions of the federal *Fisheries Act*.

## **Aboriginal Affairs and Northern Development Canada**

Aboriginal Affairs and Northern Development Canada is responsible under the *Territorial Lands Act* and *Nunavut Waters and Nunavut Surface Rights Tribunal Act* for the management of federal lands and waters, including the impact used oil and waste fuel may have on the quality of these lands and waters.

## **Local Municipal Governments**

The role of municipal governments is important in the proper local management of used oil and waste fuel. Under the Nunavut Land Claims Agreement, municipalities are entitled to control their own municipal disposal sites. Unwanted waste may be deposited into municipal landfill sites and sewage lagoons only with the consent of the local government. The local fire department may also be called upon if a fire or other public safety issue involving used oil and waste fuel is identified.

## **Co-management Boards and Agencies**

Co-management boards and agencies established under the Nunavut Land Claims Agreement have broad authority for land use planning, impact assessment and the administration of land and water. Activities involving the management and disposal of used oil and waste fuel may be controlled through the setting of terms and conditions in plans, permits and licenses issued by the Nunavut Water Board, Designated Inuit Organizations responsible for land administration and other co-management boards and agencies.

## Characteristics and Potential Effects of Used Oil and Waste Fuel

### 2.1 Characteristics

The characteristics of used oil are determined in large part by the nature of its virgin state. Lubricating oils consist of a complex mixture of hydrocarbons making up 80 to 90% of its volume. Different additives are then mixed with this base oil to enhance the product’s performance and prolong its useful life. These chemical additives improve the oil’s lubricating characteristics by stabilizing its viscosity at various temperatures, preventing tackiness, dispersing solid particles and maintaining its characteristics under extreme hydraulic pressure. The product’s useful life is ensured by adding chemicals which neutralize acids, form corrosion or oxidation preventing films, inhibit microbial growth and minimize chemical degradation. Table 1 provides the formulation of typical engine oil.

**Table 1. Typical Engine Oil Formulation (CCME 1989)**

Ingredient	Percent of Volume
Base Oil (solvent 150 neutral)	86
Viscosity Improver (polyisobutylene)	5
Multi-functional Additives (dispersant, pour depressant, viscosity improver)	4
Detergents (barium and calcium sulphonates)	4
Detergent Inhibitors (ZDDP – zinc dialkyl dithiophosphate)	1

Lubricating oils are altered during use through breakdown of the additives, the addition of metals and solids from friction wear on engine parts and contamination with unburned fuel combustion products. Contaminants can also be introduced through poor management after the oil has been removed from the operating equipment (i.e. blending or mixing with other used oil, waste fuel or solvents during collection and transportation, mixing with water during storage). Although the composition of used oil is variable and difficult to characterize, gasoline engine lubricating oils typically contain higher levels of contaminants through use than diesel engine oils, while diesel engine oils contain higher levels of contaminants than hydraulic oils. Table 2 describes how used engine oil can vary because of its original properties, use and through contamination resulting from poor management.

**Table 2. Summary of Physical Characteristics of Used Engine Oil (Franklin Associates Ltd., 1985)**

Parameter	Number of Samples	Range		
		Low	High	Average
Flash Point (°C)	289	17	290	99
Bottom Sediment and Water (%)	320	0	99	19
Viscosity (cm <sup>2</sup> /second at 38 °C)	+	0.01	5.13	0.71
Specific Gravity	48	0.67	0.98	0.89
Heating Value (kJ/kg)	231	9,630	53,600	38,370

+ Inaccurate reporting in source data

The characteristics of waste fuel are also largely determined by the nature of its virgin state. The Canadian General Standards Board (CGSB) maintains a series of standards for gasoline and diesel fuels used in different applications in Canada<sup>1</sup> while the American Society for Testing and Materials (ASTM) Specification for Aviation Turbine Fuels D1655 defines the basic civil jet fuel specifications for Jet-A, Jet-A1 and Jet-B fuels<sup>2</sup>. When one or more of the components of the fuel blend falls outside of the acceptable range specified by these standards, the fuel is referred to as being ‘off-specification’ or ‘off-spec’, and is no longer suitable for its intended purpose. Off-specification may result from the introduction of impurities during the fuel’s refining, transportation or storage, or through the loss of original properties through aging. Fuels that cannot be brought back into specification with the introduction of additives must be reused for other purposes, returned to refineries for re-refining or managed as a hazardous waste.

Flash point is the temperature at which enough hydrocarbon will evaporate from the fuel so as to burn in the presence of oxygen and an ignition source (i.e. spark). In other words, flash point provides an indication of how easy a fuel or oil will burn. Hydrocarbons with low flash points (i.e. gasoline) are more flammable than hydrocarbons with high flash points (i.e. automotive crankcase oil SAE30). Table 3 describes flash points for several common fuels and oils.

**Table 3. Flash Points and Viscosity of Common Fuels and Oils**

Fuel type	Flash Point (°C)	Viscosity (cSt <sup>a</sup> )
Gasoline	-43	0.46 to 0.80 <sup>b</sup>
Jet B <sup>3</sup>	-1 to -23	1.3 <sup>c</sup>
Jet A and A1	>38	2 to 3.5 <sup>c</sup>
Fuel Oil No. 1 (kerosene)	38 to 72	2.39 to 4.28 <sup>c</sup>
Fuel Oil No. 2 (home heating oil, automotive diesel fuel)	52 to 96	3.0 to 7.4 <sup>c</sup>
Fuel Oil No. 4 (commercial heating oil, marine diesel fuel)	61 to 115	7.4 to 26.4 <sup>c</sup>
Fuel Oil No. 6 (Bunker C)	>65	97.4 to 660 <sup>d</sup>
Automotive Crankcase Oil SAE30	230	66.3 <sup>e</sup>
Freshwater		1.0038 <sup>c</sup>

a The centistoke (cSt) is the ratio of a liquid's absolute viscosity to its density.

b Determined at 15 °C

c Determined at 20 °C

d Determined at 50 °C

e Determined at 40 °C

<sup>1</sup> Examples of Canadian General Standard Board standards for fuels include:

CAN/CGSB 3.5 Automotive Gasoline

CAN/CGSB-3.517 Automotive Low-Sulfur Diesel Fuel

CAN/CGSB-3.520 Automotive Low-Sulfur Diesel Fuel Containing Low Levels Of Biodiesel Esters (B1-B5)

CAN/CGSB-3.16 Mining Diesel Fuel

CAN/CGSB-3.6 Regular Sulfur Diesel Fuel

CAN/CGSB-3.18 Diesel Fuel for Locomotive-Type Medium Speed Diesel Engines

CAN/CGSB 3-GP-11d Naval Distillate Fuel

<sup>2</sup> Jet A is used within Canada and the United States by domestic and international airlines. Jet B is rarely used except in parts of northern Canada where its lower freeze point and higher volatility is an advantage for handling and cold starting.

<sup>3</sup> Jet B is typically comprised of 35% kerosene and 65% naphtha.

Viscosity is a liquid's resistance to flow. A hydrocarbon with a low viscosity is 'thinner' and more likely to migrate away from the point of spillage than a hydrocarbon with a high viscosity. Low viscosity hydrocarbons are also more likely to leach through unfrozen soil towards groundwater or an adjacent water body. Besides the hydrocarbon's chemical composition, viscosity is also influenced by the temperature of the liquid. The lower the temperature, the higher the viscosity. Table 3 provides the viscosities of several common oils and fuels and compares them with freshwater.

## **2.2 Potential Effects on the Environment and Human Health**

Used oil and waste fuel have historically been released to the environment through flaring, burning and fire practice, landfilling, indiscriminant dumping, accidental spills and through use as a dust control agent on roads. Burning and use in fire practices can lead to the release of unburned hydrocarbons, acid gases and metals that adhere to particulate matter in air (i.e. solid particles and liquid droplets) and eventually are deposited on soil and plants or in water. When hydrocarbons are released into water, a film of oil is initially formed on the surface where contaminants can be released and mixed with the water column and sediments. There are many ways oil can affect aquatic organisms ranging from coating the organism's skin, ingestion and absorption by surface breathing aquatic insects and tainting the flesh of fish, shrimp, clams and other edible organisms. The direct release of used oil or waste fuel to soil can lead to contaminants entering the environment through volatilization, adsorption to solid organic matter, leaching into groundwater, or through surface runoff to oceans, lakes, rivers and streams. Many different plant species are very sensitive to the toxic effects of oil, while others are more resistant.

The potential effects of used oil and waste fuel on human health is directly related to its physical properties and the types and levels of contaminants present. Highly volatile hydrocarbons are flammable and may present a risk of fire or explosion. Highly volatile hydrocarbons are also more likely to be inhaled into a person's lungs, which can result in inflammation of the tracheobronchial tree, bleeding from alveolar membranes and the displacement of oxygen. Repeated inhalation can affect the central nervous system eventually leading to lethargy, headaches and coma. Ingestion of hydrocarbons can result in irritation of the gastrointestinal tract, abdominal pain, vomiting and nausea.

Prolonged or repeated skin contact with used oil and waste fuel may cause severe irritation and dermatitis, and should be avoided. Heavy metals and other contaminants found in used lubricating oil may also be absorbed through the skin.

Heavy metals such as chromium, copper, lead, manganese, nickel and zinc are commonly found in used lubricating oil from friction wear on engine parts and can influence the effect the waste has on human health. Heavy metals can accumulate in the body and, although symptoms vary with the specific heavy metal, a person may be exhibiting metal poisoning if they experience any of the following: chronic pain throughout the muscles, tendons or other soft tissues of the body; a general feeling of discomfort, fatigue, and illness; forgetfulness and confusion; gastrointestinal complaints such as diarrhea, constipation, bloating, heartburn, and indigestion; dizziness; migraines and headaches; visual disturbances; or nervous system malfunctions including burning or numbness of the extremities.

## Waste Management

*Minimizing or avoiding the creation of pollutants and wastes can be more effective in protecting the environment than treating or cleaning them up after they have been created.<sup>4</sup>*

### 3.1 Pollution Prevention

Pollution prevention is a term used to describe methods and practices that minimize or eliminate the generation of waste. Employing these methods only makes good sense as they help to reduce the hazards and costs associated with handling, storing, transporting, recycling, treating and disposing of the waste. They also help to reduce the impacts waste can have on the environment, human and worker health and safety and reduce the global emissions of greenhouse gases by minimizing the use of raw materials.

Generators can help prevent pollution and reduce their costs by implementing a range of waste reduction, reuse and recycling initiatives including changes to operational procedures, maintenance practices and raw material use. Several of these initiatives are identified below.

#### *Reduce*

- Purchase the right type of oil, lubricants and fuel and only the amount needed.
- Use re-refined, reconditioned or recycled oils and lubricants by choosing Ecologo certified products. A complete listing of environmentally-preferable products is available for downloading at <http://www.ecologo.org/en/index.asp>.
- Use longer lasting synthetic products or select oils and lubricants that provide for maximum operating life.
- Develop effective inventory controls and ensure the stored quantities of oils, lubricants and fuels are completely used before purchasing additional supplies.
- Establish and maintain equipment maintenance schedules that are consistent with the manufacturers' suggested schedule.

#### *Reuse and Recycling*

- Donate any excess unused oil, lubricant and fuel to reputable companies or individuals.
- Make an agreement with your supplier to return un-opened and undamaged containers of oil, lubricant and fuel.
- Purchase and install lubricating oil reconditioning equipment. While this form of recycling might not restore the oil to its original condition, it does prolong its useful life. Refer to section 3.7.1 *Reprocessing and Re-refining* for further information on reconditioning used lubricating oils.
- Purchase and install a certified appliance (i.e. incinerator, boiler or furnace) designed to safely burn used oil or waste fuel. Utilizing the oil's heating value can also reduce the purchase and consumption of other virgin fossil fuels. Refer to section 3.7.2 *Burning for Heat Recovery* for further information on the use of used oil and waste fuel appliances.
- Encourage small volume generators to deliver used oil and waste fuel to local collection centers, reusers or recyclers. Contact the Nunavut Department of Environment for the names of registered waste receivers and waste management facilities or your community government for alternative local reuse and recycling options.

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<sup>4</sup> Source – Canadian Council of Ministers of the Environment.

- Large commercial and industrial generators of used oil and waste fuel should participate in national, provincial, territorial and local waste exchange programs or establish exchange accounts with approved recyclers and re-refiners.

Refer to the *Environmental Guideline for the General Management of Hazardous Waste* for a listing of Canadian waste exchanges and associations.

The *Workplace Hazardous Materials Information System* (WHMIS) is Canada's national hazard communication standard. WHMIS is administered in Nunavut by the Workers' Safety and Compensation Commission. Key elements of WHMIS are the provision of material safety data sheets (MSDS), container labeling and worker education and training programs. A MSDS is available from the chemical manufacturer and contains information on the properties of various oils, lubricants and fuels, along with instructions on their safe use and handling. Refer to the MSDS before purchasing or using oil and fuel products for the first time.

### **3.2 Storage**

Storage refers to the maintenance of used oil and waste fuel while awaiting its reuse, recycling, transport or disposal. Storage is not acceptable for the long-term management of these wastes except under extraordinary circumstances and should be considered as a temporary measure only.

The type of storage method used depends upon the volume of wastes generated. Small volume household do-it-yourselfers should use leak-proof high density plastic jerry cans to store used oil and waste fuel until enough is accumulated to warrant transport to a local treatment or disposal facility. Moderate and large volume commercial and industrial generators should use metal drums or tanks to store used oil and waste fuel until treatment and disposal options are identified. Regardless of the storage method used, used oil and waste fuel should never be mixed with each other or other wastes as this will increase the complexities and costs of treatment and disposal.

Guidelines for the storage of excessive, unwanted or waste oil, lubricant and fuel are provided below:

- Never mix used oil and waste fuels with one another or different wastes (i.e. solvents, paints).
- Store used oil and waste fuel in its original container or another container certified by the Canadian Standards Association (CSA) for this purpose. Containers should be tightly sealed at all times, except when emptying or filling, to avoid spills.
- Small volumes of used oil and waste fuel should be stored in leak-proof high density plastic jerry cans while larger quantities should be stored in 16 gauge or lower steel drums.
- Containers should be sound, sealable and not damaged, rusting or leaking. If the container is leaking, carefully transfer the contents to another sound and sealable container or place the leaking container inside a larger leak-proof container.
- Each container must be clearly labeled to identify its contents – either “Used Oil” or “Waste Fuel”. If used oil and waste fuel are being stored in an institutional, commercial or industrial location, the containers must also be labeled in accordance with the *Workplace Hazardous Materials Information System* (WHMIS).
- Place all labeled containers in a secure and clearly marked area which is separate from other waste to prevent its disposal with normal garbage. Access to the storage area should be controlled and the area should have secondary containment in accordance with the *Fire*

*Prevention Act* and *National Fire Code*. Spill response equipment should be located nearby to enable quick response in the event of an accident.

- Containers should be located so as to enable their physical inspection for damage or leakage and should be protected from the sun, weather and physical damage.
- Workers should be trained in the safe use, handling and shipping of used oil and waste fuel, be made aware of the importance of not mixing wastes, have access to material safety data sheets and be provided with personal protective equipment. Only trained personnel should have access to the designated storage area.
- Store used oil and waste fuel out of reach of children and pets and a safe distance away from potential sources of ignition. Children and other family members should be made aware of the risks and hazards associated with these wastes.
- Never store used oil or waste fuel in underground tanks as leaks cannot be easily identified.

If a commercial facility is used to store used oil and waste fuel for periods of 180 days or more or the total quantity of waste stored on-site at any one time exceeds the criteria set out in the *Environmental Guideline for the General Management of Hazardous Waste*<sup>5</sup>, the facility must be registered with the Department of Environment as a hazardous waste management facility. Copies of registration forms are available at <http://env.gov.nu.ca/programareas/environmentprotection/forms-applications> or by contacting Nunavut's Department of Environment. Refer to the *Environmental Guideline for the General Management of Hazardous Waste* for additional information on the registration process.

In accordance with the *Spill Contingency Planning and Reporting Regulations* that have been adopted under Nunavut's *Environmental Protection Act*, no person may store used oil and waste fuel in an aboveground facility where the storage capacity of the facility equals or exceeds 20,000 litres unless a spill contingency plan has been prepared and filed with the Chief Environmental Protection Officer. Refer to the *Regulations* or contact Nunavut's Department of Environment for further information on contingency planning and spill reporting requirements.

### **3.3 Transportation**

All used and unused oils, lubricants and fuels are regulated as dangerous goods under the *Transportation of Dangerous Goods Act* when they have a flash point of less than 61°C. Used oil and waste fuel may be subject to additional transportation requirements if the product is regulated as a dangerous good and is intended for disposal or recycling, or if the used oil or waste fuel contains metal wear particles, organic compounds or other contaminants that exceed the concentrations as set out in Schedule 5 of the federal *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*. In these cases, the oil or fuel must also be transported as a hazardous waste<sup>6</sup>.

Under the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* and the *Interprovincial Movement of Hazardous Waste Regulations*, a consignment of hazardous waste must be accompanied by a completed waste manifest when the waste is intended for disposal or recycling and is transported in a quantity greater than five litres or five kilograms. An exception to the manifesting requirements is applied when the used oil and waste fuel is either household in origin or is

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<sup>5</sup> The criterion for Class 3 Flammable Liquid waste is 4000 litres and the total aggregate quantity is 5000 litres or kilograms.

<sup>6</sup> In response to the 2007 federal government direction on streamlining regulation in Canada, the alignment of requirements under the *Interprovincial Movement of Hazardous Waste Regulations* and *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* is being undertaken by Environment Canada.



being returned directly to the supplier for any reason. In other words, household do-it-yourselfers do not have to complete a waste manifest to transport used oil or waste fuel to a local collection centre and institutional, commercial and industrial owners are exempt from manifesting if the product is being returned to the supplier because it is defective (i.e. off-specification) or was purchased in surplus quantities. In both case, all other requirements as set out in legislation and the Guideline must be complied with.

Given the difficulties associated with precisely characterizing used oil and waste fuel, consideration should be given to the following:

- Assume the flash point and levels as set out in Schedule 5 of the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* are exceeded and transport the waste as a hazardous waste. The Regulations and Schedule 5 can be downloaded from Environment Canada's web site at <http://www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=84>.
- Submit a representative sample of the used oil or waste fuel to an accredited laboratory for testing to determine whether the flash point and contaminant levels are exceeded.

Waste manifest forms are available in Nunavut from the territorial Department of Environment. Completion instructions are included on the reverse side of each manifest. Further information on manifesting can be obtained by referring to the *Environmental Guideline for the General Management of Hazardous Waste* or Environment Canada's *User's Guide for the Hazardous Waste Manifest*.

When used oil and waste fuel has been determined to be a hazardous waste, its classification, packaging, labeling and placarding must also conform to the federal and territorial *Transportation of Dangerous Goods Act and Regulations*. Schedule I of the *Regulations* classifies used oil and waste fuel as follows:

Shipping Name: WASTE Diesel Fuel; Fuel Oil; Gas Oil; or Heating Oil Light  
 Classification: 3  
 Product Identification Number: UN1202  
 Packing Group: III  
 Special Provisions: 82 and 88

Shipping Name: WASTE Gasoline; Motor Spirit; or Petrol  
 Classification: 3  
 Product Identification Number: UN1203  
 Packing Group: II  
 Special Provisions: 17, 82 and 88

Shipping Name: WASTE Kerosene  
 Classification: 3  
 Product Identification Number: UN1223  
 Packing Group: II

Shipping Name: WASTE Petroleum Distillates N.O.S.; or Petroleum Products N.O.S.  
 Classification: 3  
 Product Identification Number: UN1268  
 Packing Group: I, II or III



Shipping Name: WASTE Ethanol and Gasoline Mixture with more than 10% Ethanol  
Classification: 3  
Product Identification Number: UN3475  
Packing Group: II  
Special Provisions: 17, 82 and 88

Shipping Name: WASTE Environmentally Hazardous Substance, Liquid, N.O.S.<sup>7</sup>  
Classification: 9  
Product Identification Number: UN3082  
Packing Group: III  
Special Provisions: 16

When used oil and waste fuel is determined to be a hazardous waste, its transport by air must conform to the *International Air Transport Association (IATA) Dangerous Goods Regulations* and *International Civil Aviation Organization (ICAO) Technical Instructions*. When being transport by marine, it must conform to the *International Marine Dangerous Goods Code*. Further information on transporting wastes by air or marine can be obtained by contacting Transport Canada or by referring to the appropriate Transport Authority.

All hazardous waste generators, carriers and receivers must be registered with the Nunavut Department of Environment before handling the waste. A unique registration number is assigned to each registrant through the registration process, which enables completion of the manifest document. Copies of registration forms are available at <http://env.gov.nu.ca/programareas/environmentprotection/forms-applications> or by contacting Nunavut's Department of Environment. Refer to the *Environmental Guideline for the General Management of Hazardous Waste* for additional information on the registration process.

A listing of registered hazardous waste generators, carriers, receivers and management facilities in Nunavut is available by contacting Nunavut's Department of Environment.

### **3.4 Spill Response and Cleanup**

Spills of used oil and waste fuel can affect soil, groundwater and surface water quality if they are not cleaned up quickly and properly. Spills of gasoline and other highly flammable waste fuels can also present a fire or explosion hazard if sources of ignition are not immediately eliminated.

Taking preventative actions such as ensuring proper handling and storage, training personnel and preparing a spill contingency plan, is the most effective way of reducing the potential environmental and safety hazards and costs associated with spills. When a spill does occur, the waste should be contained as quickly as possible. Small spills on land or impermeable surfaces (i.e. concrete floors) can be recovered using absorbent materials. Underlying and surrounding soil and snow that become contaminated may need to be excavated. All reasonable efforts should be made to prevent spills from entering floor drains, groundwater or surface water bodies as containment and cleanup then becomes very difficult and costly. All cleanup materials, recovered waste and contaminated soil and snow must

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<sup>7</sup> UN3082 should be used whenever concentrations as set out in Schedule 5 of the federal *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* are exceeded.

be disposed of properly. Contact the Nunavut Department of Environment or local community government for available treatment and disposal options.

All spills of hazardous materials must immediately be reported to the NWT/Nunavut 24-Hour Spill Report Line at (867) 920-8130 in accordance with the *Spill Contingency Planning and Reporting Regulations*. The local fire department, police, and health and environmental officials should also be notified once initial containment efforts are complete.

### 3.5 Mixing or Blending with Other Materials

It is good practice to avoid mixing wastes, either intentionally or through poor storage and management practices. Mixing used oil and waste fuel with other hazardous or non-hazardous materials makes management and disposal of the mixture more complicated and costly. Also, how the resulting mixture is regulated can vary greatly depending upon the type of material that is mixed with the used oil or waste fuel. In these cases, it may be necessary to contract an accredited laboratory to analyze the resulting mixture to determine its characteristics and how it should be regulated.

The best means to avoid mixing used oil and waste fuel with other materials is to segregate the various types of waste during storage. The degree of segregation would depend on the amount and variety of used oil and waste fuel generated. The following segregation categories should be pursued:

- Engine lubrication oils
- Unwanted or off-specification fuels
- Hydraulic oils including brake and power steering fluids
- Other oily wastes including oily fluids, oil-in-water emulsions, greases and solvents

**No person should blend or dilute used oil or waste fuel with unused hydrocarbons for the purpose of lowering the concentration of metal wear particles, organic compounds or other contaminants so as not to exceed the concentrations as set out in Schedule 5 of the federal *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*.**

Some materials are incompatible with used oil and waste fuel. In this case, mixing could result in a fire, explosion or chemical reaction. It could also make it more difficult and costly to find a registered carrier and receiver willing to accept the mixture for transport, treatment and disposal.

### 3.6 Used Oil Filters

Filters may contain significant quantities of used oil after being taken out of service. These filters should be managed in the same way as the used oil they contain and are subject to the storage, transportation, disposal and other requirements described in the Guideline.

When used oil is drained or removed from a filter so there is no visible sign of free-flowing oil left behind, the filter is no longer subject to the Guideline and can be disposed of as regular garbage. The used oil should be removed from the filter by puncturing the filter dome and gravity draining it for at

least 24 hours<sup>8</sup> or by crushing the filter either pneumatically or hydraulically in a commercially available crusher. A combination of both draining and crushing is considered to be the best practice.

Used oil that is removed from a filter must be managed in accordance with the applicable legislation and the Guideline.

### 3.7 Recycling, Reuse and Disposal

There are many environmental, economic and resource conservation benefits to reusing and recycling used oil and waste fuel, and many different ways to achieve it. Used oil can be reprocessed or reconditioned so as to conserve the lubricating properties of the oil, prolong its operating life and reduce the consumption of virgin oils. It can also be reused to utilize its heating value. Waste fuel can be returned to re-refiners to be remade into useful fuel products, brought back into specification through the introduction of fuel additives or, like used oil, be used for space heating or other uses. Disposal is less desirable from an environmental and resource conservation point of view and should be considered only where practical alternatives are not available.



Figure 1 – Example of a Used Oil Filter Crusher

#### 3.7.1 Reprocessing and Re-refining

In most cases, the basic lubricating properties of oil are not lost through its normal use, but are simply altered through breakdown of additives, the addition of metals and solids from friction wear on engine parts and contamination with unburned fuel combustion products. During reprocessing, relatively simple treatments such as settling, dehydration, filtration, centrifugation and coagulation are used to remove the contaminants. While reprocessing cannot produce a lubricating product that is comparable to virgin oil, it can clean the oil to the extent necessary for less demanding applications. Used lubricating oils that have been mixed with other products generally cannot be reprocessed using these techniques and therefore, **the segregation of used oil stocks is essential.**

Waste fuel that has lost its original properties through aging can sometimes be reconditioned through the introduction of specific fuel additives. The owner or person in charge, management or control of off-specification fuel should contact the Petroleum Products Division of the Department of Community and Government Services for further information and advice.



Figure 2 – Example of Used Oil Reconditioning Equipment

<sup>8</sup> Drain time may be reduced by 'hot draining' or maintaining the filter at or near the engine's operating temperature for 12 hours.

Unlike reprocessing, re-refining technologies are designed to fully restore the original properties of the used oil and waste fuel. These processes are industrial in nature and involve the treatments used for reprocessing followed by other techniques such as demetalization, distillation, stripping, clay contacting, solvent extraction and hydrogenation. There are currently no re-refiners located in Nunavut. Used oil or waste fuel that is intended for re-refining would need to be transported to a re-refinery located in southern Canada.

### 3.7.2 Burning for Heat Recovery

Used oil and waste fuel may be burned in a variety of combustion appliances including boilers, furnaces, space heaters, engines, incinerators and cement kilns. For the purpose of the Guideline, discussion will focus on furnaces and boilers because of their ability to recover heat energy and their relative popularity in northern Canada.

The most common types of used oil and waste fuel appliances are the vaporizing pot and air-atomizing burners. The major difference is that the fuel evaporates into the combustion chamber in a vaporizing pot fuel burner while microscopic fuel particles are formed in an air-atomizing burner by forcing the fuel through a nozzle and spraying it into the combustion chamber. The vaporizing pot burner is most suited to small applications while the air-atomizing burner can be used in a wide range of applications.



Figure 3 – Example of an Air-atomizing Used Oil Furnace

Studies show that design of the burner and feedstock quality greatly influences the environmental performance of the appliance. In general, the vaporizing pot burner retains most of the feedstock metals in the ash residues, while air-atomizing burners release most of the metals up the stack. Conversely, emission levels of unburned organic compounds are higher from vaporizing pot burners than from air-atomizing burners. Other studies show that large commercial boilers generally emit lower levels of pollutants than small boilers and furnaces because operators of large units usually pretreat the fuel feedstock (i.e. settling, centrifugation, vacuum distillation or solvent extraction) and have more consistent operating conditions. Other important factors when considering the design and installation of a waste oil burner is height of the stack and the number of appliances already operating in the area.

Used oil and waste fuel should only be burned using boilers or furnaces that have been certified and approved for that purpose by the Canadian Standards Association (CSA), Underwriters' Laboratories of Canada (ULC) or another certified testing agency acceptable to the Fire Marshal. In all cases, combustion gases must be vented directly to the outside ambient air. Appliances that are not certified or installed in accordance with manufacturers' specifications may represent significant environmental, fire and personal health and safety risks.

As described above, the quality of the burner feedstock is one of the greatest determinants of emissions quality. For this reason, no person should burn used oil or waste fuel, either with or without heat recovery, when the undiluted levels of metals, halogens and polychlorinated biphenyls (PCBs) exceed those described in Table 4.

**Table 4. Maximum Levels of Impurities in Used Oil and Waste Fuel Burner Feedstock<sup>9</sup>**

Impurity	Maximum Concentration (parts per million)	
	Used Oil	Waste Fuel
Cadmium	2	2
Chromium	10	10
Lead	100	100
Total Organic Halogens (as chlorine)	1000	1500
Polychlorinated Biphenyls	2	2
Ash Content		0.6% by weight

**Used oil and waste fuel feedstock should not be blended or diluted with other hydrocarbons for the primary purpose of meeting the maximum levels of impurities.**

**Written records of appliance operation should be kept by the operator.** These records should include when and how much used oil or waste fuel feedstock was burned. The quantity and quality of feedstock obtained from any off-site sources should be recorded separately along with any repairs and maintenance performed on the equipment. An Inspector may require the owner or person in charge, management or control of the used oil or waste fuel to obtain a representative sample of the feedstock, have it analyzed by an accredited laboratory and the results submitted to the Inspector.

**Used oil and waste fuel appliances should not be operated on property that is zoned residential or, if the property is not zoned, on property in an area that is used primarily for residential purposes.**

Bottom ash and other solid residue collected from the appliance is suitable for burial when it meets the criteria set out in Table 1 of the *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities* or in accordance with land use permits and water licenses issued by Nunavut's co-management boards and Aboriginal Affairs and Northern Development Canada. When the residue meets the criteria and is to be disposed of into a municipal landfill, consent from the local community government must first be obtained. Bottom ash not meeting the criteria is considered to be a hazardous waste and must be managed in accordance with the *Environmental Guideline for the General Management of Hazardous Waste*.

Any person who purchases or operates a used oil or waste fuel appliance is strongly encouraged to register the appliance with the Nunavut Department of Environment. Voluntary registration enables the Department to better manage used oil and waste fuel by maintaining an up-to-date inventory of certified appliances operating in Nunavut. Appendix 4 includes a copy of the registration form. The owner or operator may obtain an original form and registration user's guide by contacting Nunavut's

<sup>9</sup> Adopted from the Northwest Territories' Used Oil and Waste Fuel Management Regulations (2004).

Department of Environment or by downloading the documents through the Department's web site. There is no fee for registering the used oil or waste fuel appliance<sup>10</sup>.

Open burning used oil and waste fuel should be avoided because of the inefficient destruction of the waste, limited control over the combustion process and fire hazards. Waste fuel may only be openly burned for the purpose of practicing fire fighting under the direct supervision of a trained firefighter when the practice is conducted in accordance with a standard operating procedure. In all cases, the minimum volume of waste fuel needed to initiate the practice burn should be used and the primary purpose for its use should not be for its disposal.

### 3.7.3 Disposal

Once in the environment, the hydrocarbons that make up the base oil or fuel, the additives and many of the contaminants that are introduced through usage can significantly impair the quality of local soil, water, vegetation, fish and wildlife resources. For this reason, used oil and waste fuel should never be used as a dust suppressant on local roads, discharged directly to the ground, a lake or watercourse or sewage lagoon, open burned or placed in a landfill. Used oil should also never be used for fire practice although small quantities of waste fuel can be used under the direct supervision of a trained firefighter.

Reprocessing and burning for heat recovery in a certified appliance are the safest, most environmentally responsible and cost effective local options for managing used oil. Businesses and industries that routinely generate large quantities of used oil (i.e. automotive service garages, trucking and aviation companies, heavy equipment operators) should implement one of these options or arrange to transport their waste to a local collection center, reprocessor or registered used oil or waste fuel appliance owner. Small generators and household do-it-yourselfers should donate used oil to local businesses that operate reprocessing or registered burning appliances, where the businesses accept such wastes.

Large generators of waste fuel should investigate the possibility of bringing off-spec fuel back into specification with the introduction of additives before other disposal options are considered.

Where local reprocessing or reuse options are not available, used oil and waste fuel that is generated by commercial, industrial, institutional or government operations should be safely stored until it can be transported to a commercial recycler, re-refiner or registered hazardous waste receiver. Names of Canadian recyclers and disposal companies are available by contacting the waste management exchanges and associations listed in Appendix 10 of the *Environmental Guideline for the General Management of Hazardous Waste*.

Some communities in Nunavut are implementing programs aimed at collecting and safely storing used oil and waste fuel from homeowners and household do-it-yourselfers as part of their garbage collection programs. Residents wishing to locally dispose of used oil, waste fuel and other hazardous waste should contact their local community government for other disposal options.

Consideration will be given by Nunavut's Department of Environment to management methods that differ from instructions provided in the Guideline where it can be demonstrated that the proposal would result in an equivalent level of environmental protection.

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<sup>10</sup> Registration of a used oil or waste fuel appliance does not remove the owner's obligation to comply with all other applicable municipal, territorial and federal statutes, regulations, standards, guidelines and by-laws. Further guidance on hazardous waste planning can be found in the *Environmental Guideline for the General Management of Hazardous Waste*.

## Conclusion

Used oil and waste fuel are two of the most common and widely generated hazardous wastes in Nunavut. Used lubricating and hydraulic oils are generated by a wide variety of commercial and industrial sectors including automotive and heavy equipment servicing, marine and aviation transportation, electrical generation and mining. Household do-it-yourselfers also generate smaller quantities of used oil by self-servicing their automobiles, ATVs, snowmobiles and boat motors. Waste fuel is also generated by a wide variety of residential, institutional, commercial and industrial users of fuel products.

The *Environmental Guideline for Used Oil and Waste Fuel* is an introduction to the management of these wastes. It provides information on the characteristics of used oil and waste fuel, their effects on the environment and human health and guidance on proper storage, transportation, spill response and cleanup, reuse and disposal.

Familiarity with the Guideline does not replace the need for the owner or person in charge, management or control of used oil and waste fuel to comply with all applicable federal and territorial legislation and municipal by-laws. The management of these wastes may also be controlled through permits and licenses issued by Nunavut's co-management boards, Aboriginal Affairs and Northern Development Canada and other regulatory agencies. These permits and licenses must be complied with at all times.

For additional information on the management of used oil and waste fuel, or to obtain a list of available guidelines, go to the Department of Environment web site or contact the Department at:

Environmental Protection Division  
Department of Environment  
Government of Nunavut  
Inuksugait Plaza, P.O. Box 1000, Station 1360  
Iqaluit, Nunavut X0A 0H0

Telephone: (867) 975-7729

Fax: (867) 975-7739

Email: [EnvironmentalProtection@gov.nu.ca](mailto:EnvironmentalProtection@gov.nu.ca)

Website: <http://env.gov.nu.ca/programareas/environmentprotection>



## References

Canadian Council of Ministers of the Environment (CCME). Code of Practice for Used Oil Management in Canada. CCME-TS/WM-TRE006E. 1989.

[http://www.ccme.ca/assets/pdf/pn\\_1042\\_e.pdf](http://www.ccme.ca/assets/pdf/pn_1042_e.pdf)

Environment Canada. Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations. 2005.

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<http://env.gov.nu.ca/node/82#Guideline Documents>

Government of Nunavut Department of Environment. Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities. 2011.

[http://env.gov.nu.ca/sites/default/files/industrial\\_waste\\_discharges\\_2011.pdf](http://env.gov.nu.ca/sites/default/files/industrial_waste_discharges_2011.pdf)

Government of the Northwest Territories, Department of Environment and Natural Resources. Used Oil and Waste Fuel Management Regulations. 2004.

[http://www.justice.gov.nt.ca/PDF/REGS/ENVIRONMENTAL%20PROTECTION/Used\\_Oil\\_and\\_Waste\\_Fuel\\_Mgmt.pdf](http://www.justice.gov.nt.ca/PDF/REGS/ENVIRONMENTAL%20PROTECTION/Used_Oil_and_Waste_Fuel_Mgmt.pdf)

Government of the Northwest Territories, Department of Renewable Resources. Inventory of Waste Oil Volumes Generated in the Western Northwest Territories. 1990.

Government of the Northwest Territories, Department of Renewable Resources. Waste Oil Furnace Emission Testing: Yellowknife and Hay River. 1990.

State of Connecticut Department of Environmental Protection. Used Oil Fact Sheet #4 – Materials Containing or Otherwise Contaminated with Used Oil. 2005.

[http://www.ct.gov/dep/lib/dep/waste\\_management\\_and\\_disposal/used\\_oil/MaterialsContainingUsedOil.pdf](http://www.ct.gov/dep/lib/dep/waste_management_and_disposal/used_oil/MaterialsContainingUsedOil.pdf)

Transport Canada. Transportation of Dangerous Goods Regulations.



## **APPENDICES**



## **APPENDIX 1 - ENVIRONMENTAL PROTECTION ACT**

The following are excerpts from the *Environmental Protection Act*

1. "Contaminant" means any noise, heat, vibration or substance and includes such other substance as the Minister may prescribe that, where discharged into the environment,
  - (a) endangers the health, safety or welfare of persons,
  - (b) interferes or is likely to interfere with normal enjoyment of life or property,
  - (c) endangers the health of animal life, or
  - (d) causes or is likely to cause damage to plant life or to property;

"Discharge" includes, but not so as to limit the meaning, any pumping, pouring, throwing, dumping, emitting, burning, spraying, spreading, leaking, spilling, or escaping;

"Environment" means the components of the Earth and includes

- (a) air, land and water,
- (b) all layers of the atmosphere,
- (c) all organic and inorganic matter and living organisms, and
- (d) the interacting natural systems that include components referred to in paragraphs (a) to (c).

"Inspector" means a person appointed under subsection 3(2) and includes the Chief Environmental Protection Officer.

- 2.2 The Minister may
  - (a) establish, operate and maintain stations to monitor the quality of the environment in the Territories;
  - (b) conduct research studies, conferences and training programs relating to contaminants and to the preservation, protection or enhancement of the environment;
  - (c) develop, co-ordinate and administer policies, standards, guidelines and codes of practice relating to the preservation, protection or enhancement of the environment;
  - (d) collect, publish and distribute information relating to contaminants and to the preservation, protection or enhancement of the environment:
3.
  - (1) The Minister shall appoint a Chief Environmental Protection Officer who shall administer and enforce this Act and the regulations.
  - (2) The Chief Environmental Protection Officer may appoint inspectors and shall specify in the appointment the powers that may be exercised and the duties that may be performed by the inspector under this Act and regulations.
5.
  - (1) Subject to subsection (3), no person shall discharge or permit the discharge of a contaminant into the environment.
  - (3) Subsection (1) does not apply where the person who discharged the contaminant or permitted the discharge of the contaminant establishes that
    - (a) the discharge is authorized by this Act or the regulations or by an order issued under this Act or the regulations;
    - (b) the contaminant has been used solely for domestic purposes and was discharged from within a dwelling house;
    - (c) the contaminant was discharged from the exhaust system of a vehicle;

- (d) the discharge of the contaminant resulted from the burning of leaves, foliage, wood, crops or stubble for domestic or agricultural purposes;
- (e) the discharge of the contaminant resulted from burning for land clearing or land grading;
- (f) the discharge of the contaminant resulted from a fire set by a public official for habitat management of silviculture purposes;
- (g) the contaminant was discharged for the purposes of combating a forest fire;
- (h) the contaminant is a soil particle or grit discharged in the course of agriculture or horticulture; or
- (i) the contaminant is a pesticide classified and labelled as "domestic" under the *Pest Control Products Regulations* (Canada).

(4) The exceptions set out in subsection (3) do not apply where a person discharges a contaminant that the inspector has reasonable grounds to believe is not usually associated with a discharge from the excepted activity.

- 5.1. Where a discharge of a contaminant into the environment in contravention of this Act or the regulations or the provisions of a permit or license issued under this Act or the regulations occurs or a reasonable likelihood of such a discharge exists, every person causing or contributing to the discharge or increasing the likelihood of such a discharge, and the owner or the person in charge, management or control of the contaminant before its discharge or likely discharge, shall immediately:
- (a) subject to any regulations, report the discharge or likely discharge to the person or office designated by the regulations;
  - (b) take all reasonable measures consistent with public safety to stop the discharge, repair any damage caused by the discharge and prevent or eliminate any danger to life, health, property or the environment that results or may be reasonably expected to result from the discharge or likely discharge; and
  - (c) make a reasonable effort to notify every member of the public who may be adversely affected by the discharge or likely discharge.
6. (1) Where an inspector believes on reasonable grounds that a discharge of a contaminant in contravention of this Act or the regulations or a provision of a permit or license issued under this Act or the regulations has occurred or is occurring, the inspector may issue an order requiring any person causing or contributing to the discharge or the owner or the person in charge, management or control of the contaminant to stop the discharge by the date named in the order.
7. (1) Notwithstanding section 6, where a person discharges or permits the discharge of a contaminant into the environment, an inspector may order that person to repair or remedy any injury or damage to the environment that results from the discharge.
- (2) Where a person fails or neglects to repair or remedy any injury or damage to the environment in accordance with an order made under subsection (1) or where immediate remedial measures are required to protect the environment, the Chief Environmental Protection Officer may cause to be carried out the measures that he or she considers necessary to repair or remedy an injury or damage to the environment that results from any discharge.

## APPENDIX 2 – GOVERNMENT CONTACTS

### Government of Nunavut

Environmental Protection Division  
Department of Environment  
Inuksugait Plaza  
P.O. Box 1000, Station 1360  
Iqaluit, Nunavut X0A 0H0  
Telephone: (867) 975-7729 Fax: (867) 975-7739

Workers' Safety and Compensation Commission  
P.O. Box 669  
Baron Building/1091  
Iqaluit, Nunavut X0A 0H0  
Telephone: 1-877-404-4407 (toll free)  
Fax: 1-866-979-8501

Office of Chief Medical Health Officer of Health  
Department of Health and Social Services  
P.O. Box 1000, Station 1000  
Iqaluit, Nunavut X0A 0H0  
Telephone: (867) 975-5774 Fax: (867) 975-5755

### Government of Canada

Aboriginal Affairs and Northern Development  
P.O. Box 2200  
Iqaluit, Nunavut X0A 0H0  
Telephone: (867) 975-4500 Fax: (867) 975-4560

Department of Transport – Road, Rail, Marine, Air  
P.O. Box 8550  
344 Edmonton Street  
Winnipeg, Manitoba R3C 1P6  
Telephone: 1-888-463-0521 (toll free)  
Fax: (204) 983-8992 Road, Rail and Marine  
Fax: (204) 983-1734 Air

Motor Vehicles Division  
Department of Economic Development and  
Transportation  
P.O. Box 10  
Gjoa Haven, Nunavut X0B 1J0  
Telephone: (867) 360-4615 Fax: (867) 360-4619

Department of Community and Government  
Services (all Divisions)  
P.O. Box 1000, Station 700  
4th Floor, W.G. Brown Building  
Iqaluit, Nunavut X0A 0H0  
Telephone: (867) 975-5400 Fax: (867) 975-5305

Environment Canada (NWT and Nunavut)  
5019 52nd Street  
Yellowknife, Northwest Territories X1A 1T5  
Telephone: (867) 669-4730 Fax: (867) 873-8185

Fisheries and Oceans Canada – Eastern Arctic Area  
4th Floor - 630 Queen Elizabeth  
P.O. Box 358  
Iqaluit, Nunavut X0A 0H0  
Telephone: (867) 979-8000  
Fax: (867) 979-8039  
Email: [nunavuthabitat@dfp-mpo.gc.ca](mailto:nunavuthabitat@dfp-mpo.gc.ca)

## **APPENDIX 3 – USED OIL FURNACE AND BOILER MANUFACTURERS**

The listing of used oil furnace and boiler manufacturers provided in this Appendix is not meant to be exhaustive or complete. Other manufacturers may offer similar products.

The Nunavut Department of Environment does not promote or endorse the specific products and services offered by the listed companies. Any person considering the purchase of a used oil furnace or boiler should first consult the manufacturer or other qualified persons with expertise in used oil furnaces and boilers.

Clean Burn Furnaces

<http://www.cleanburn.com>

EcoHeat Omni

<http://www.econoheat.com>

EnergyLogic (formerly Black Gold)

<http://www.energylogic.com/products/waste-oil-heaters>

Firelake Manufacturing

<http://www.firelakemfg.com>

INov8 International Incorporated

<http://www.inov8-intl.com>

Lanair waste oil-fired heaters and boilers

<http://www.lanair.com/lanairproducts/index.php>

Reznor Group

<http://www.reznorheaters.com>

## APPENDIX 4 – REGISTRATION FORM: USED OIL AND WASTE FUEL APPLIANCE

A copy of the Used Oil and Waste Fuel Appliance registration form and user's guide is available by contacting the Nunavut Department of Environment or by downloading the documents at <http://env.gov.nu.ca/programareas/environmentprotection>. Although registration is voluntary, it enables Nunavut's Department of Environment to better manage used oil and waste fuel by maintaining an up-to-date inventory of certified appliances operating in Nunavut.

### Instructions

1. The following information must be provided in order to register a used oil or waste fuel appliance and obtain a registration number. Incomplete applications will be returned to the applicant.
2. Completed registration forms are to be forwarded to the Environmental Protection Division, Department of Environment, Government of Nunavut, Box 1000, Station 1360, Iqaluit, Nunavut, X0A 0H0. Electronic registration forms are preferred and may be forwarded to [EnvironmentalProtection@gov.nu.ca](mailto:EnvironmentalProtection@gov.nu.ca).
3. Use additional pages to provide information as required.
4. Applicants should refer to the accompanying user's guide for further assistance on completing the generator registration form.
5. There is no fee for registering a used oil or waste fuel appliance with the Department of Environment.

### Section 1 - Identification

Applicant (Legal Name) \_\_\_\_\_  
Mailing Address \_\_\_\_\_  
\_\_\_\_\_  
Postal Code \_\_\_\_\_  
Principle Contact Person \_\_\_\_\_ Title \_\_\_\_\_  
Phone \_\_\_\_\_ Email \_\_\_\_\_

### Section 2 – Description of Operation

General Type of Business \_\_\_\_\_  
Site Location(s) Where the Waste is Generated \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Make, Model and Size of the Appliance \_\_\_\_\_  
\_\_\_\_\_

### Section 4 - Certification

*I certify that the information provided on this form is correct, accurate and complete.*

Signature of Contact Person \_\_\_\_\_ Date (dd/mm/yy) \_\_\_\_\_  
Print Name of Contact Person \_\_\_\_\_ Title \_\_\_\_\_  
Phone \_\_\_\_\_ Email \_\_\_\_\_

#### For Department Use Only

Appliance Registration Number NUA# \_\_\_\_\_ Approved by \_\_\_\_\_ Date \_\_\_\_\_