Qulliq Energy Corporation

Waste Oil Management

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Introduction

The Government of Nunavut (GN) Environmental Guideline for Used Oil and Waste Fuel states:

> *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 waste product is any product which has been contaminated, degraded and or otherwise lost its original properties so as to no longer serve the purpose for which it was intended. Oil refers to any type of liquid waste including glycol.

Given the importance of environmental compliance and public trust for Qulliq Energy Corporation (QEC):

- This plan is in place to conform to the Transportation of Dangerous Goods (TDG) Act and Regulations, the Canadian and GN Environmental Protection Act, the Nunavut Safety Act, and the regulations for the WHMIS component of the Act. QEC is registered as a waste generator with the GN Department of Environment under the number NUG100004.

History

QEC waste oil products are stored on pallets in power plant yards. Under TDG regulations, stored waste products must be marked to identify their contents, as well as be labeled with the appropriate TDG class symbol. This satisfies Workplace Hazardous Materials Information System (WHMIS) requirements as well. Waste handlers should refer with caution to the Material Safety Data Sheets (MSDS) on every product they store on site. Inventory of all waste products should be kept current so that operators know what is on site regardless of snow conditions.

Environmental Management Programs

QEC's Environment Management Programs (EMP) are plans set forth by the Department of Health, Safety, and Environment (HSE) to improve overall operations with regard to environmental management. They are designed to reduce liabilities, eliminate negative impacts and engage the corporation in environmental practices which do not negatively impact our environment. Within the QEC Waste Management Plan, there is a waste reduction plan to address all aspects of QEC's generated waste.

The EMPs that most affect waste generation at QEC are the waste oil reuse plan, the used oil transfer program, the newly created transformer management plan and the filter crushing operations.

Waste Generation

There are three main types of waste oil generated at QEC facilities; waste lube oil, waste transformer oil and waste fuel oil. All of these can be reused in each community when a used oil furnace or boiler is installed.

Waste lube oil is produced directly from engine oil changes and or engine leaks. This oil is directly decanted into sealable drums. This type of waste is also produced when filters are drained and crushed.

Waste transformer oil is produced when a transformer is considered out of service and removed from a pole or when a transformer is shipped damaged to a community. Transformer oil is mineral oil and can be mixed with any other type of oil in drums.

Waste fuel oil is diesel and is produced when there are engine leaks or when maintenance is performed on engines and pipelines. Waste fuel can also be mixed with all other types of oil, but because it has a lower flash point than lubes or transformer oil it must be clearly marked as such. This is to alert emergency responders of its flammability so they can respond properly to spill incidents.

Standard Operating Procedures

Environmental Standard Operating Procedures (SOP) are sets of directions to perform operational activities in an environmentally sound manner. SOP training consists of reading through, understanding and following the tasks outlined in each procedure.

SOPs describe a main activity as indicated by the title, the scope of that activity, the employee responsible for each task and the description of the tasks to perform in order to conduct the activity. They describe which documents and forms to access, how to fill them out and where they are distributed in order to keep key employees informed on the status of the activity. SOPs make up the main content of QEC's internal Environmental Manual. SOPs are living documents and can change depending on circumstances.

Management of Liquid Waste Oil

Liquids make up the majority of waste each QEC facility produces by volume. For this reason and the fact that liquid waste can spill and travel into water or other sensitive environments, QEC's Environmental Management System has deemed it the highest environmental risk. Contributing factors like mobility of containment vessels, adequate storage space, flammability, snow cover in winter and vandalism aggravate the high risk associated with liquid waste handling.

This SOP stresses the importance of proper packaging and storage of drums on pallets and on stable and level ground or platforms. Segregation is also important as a tool for identification, cost savings and protection of the highest risk products while being stored on QEC property. Lastly, labeling the contents according to the type of product is essential so identification can be made at any time, and the drum counts are accurate in the spring when the contract for disposal is renewed.

It is the responsibility of the HSE department to provide proper guidance, as well as packaging and labeling materials, to operations in order to meet compliance issues. Communication between departments is crucial to ensure that when the disposal contract is tendered, QEC has accurate information on counts and products before awarding the contract.

Each plant has a designated area for liquid waste and these areas are mapped in order to monitor storage.

Recycle and Disposal of Used Products

There are two methods of recycling and disposing of used products; the burning of used oil and fuel and the transferring of used oil and fuel to third parties.

Used Oil and Fuel Burning

QEC has committed to reducing the quantity of used oil being shipped south. This decreases the number of times and the distance a barrel has to travel from its origin. QEC has purchased used oil burners to heat vehicle storage huts and other storage warehouses.

A major benefit of burning waste oil is the recycling of a product which would otherwise be disposed of. The waste oil can be repurposed into valuable heat and offsets a quantity of diesel fuel which would normally be used in that capacity. It also reduces the associated costs and liabilities of disposing of waste oil.

QEC has adopted the GN Waste Oil Guideline as the prime documentation and set of procedures for the transfer of waste oil. Within this document are strict sets of rules to follow when handling waste oil to burn. They require that only incinerators approved by Canadian standards are to be used for burning waste oils and fuels. These incinerators atomize the waste and increase the air mixture so that the heat is sufficient to burn most of the product and reduce the amount of emissions.

The following table lists the communities that utilize oil burning vehicle storage huts. QEC has planned that all communities will benefit from used oil burners in one way or another.

Hamlet	Waste oil burner installed	Waste oil burner planned	Comments
Cambridge Bay	Yes		Currently in use since 2014
Gjoa Haven		Yes	Expected in 2018/2019
Taloyoak		Yes	Expected in 2019/2020
Kugaaruk			No line truck in the community
Kugluktuk	Yes		Currently in use since 2003
Rankin Inlet			Currently has a heated garage for line truck
Baker Lake			Currently has a heated garage for line truck
Arviat			Currently has a heated garage for line truck
Coral Harbour		Yes	Expected in 2017/2018
Chesterfield Inlet			No line truck in the community
Whale Cove		Yes	Expected in 2018/2019
Naujaat		Yes	Expected in 2017/2018
Iqaluit		Yes	Expected to be installed in March 2017
Pangnirtung	Yes	Yes	Currently in use since 2016 and additional installations expected in 2017/2018
Cape Dorset			New plant expected to have heated garage for line truck
Resolute Bay			Currently has a heated garage
Pond Inlet		Yes	Expected in 2017/2018
Igloolik		Yes	Expected in 2017/2018
Hall Beach		Yes	Expected in 2017/2018
Qikiqtarjuaq		Yes	Expected in 2017/2018
Kimmirut		Yes	Expected in 2017/2018
Arctic Bay			No line truck in the community
Clyde River		Yes	Expected in 2017/2018
Grise Fiord			No line truck in the community
Sanikiluaq		Yes	Expected in 2017/2018

Note: Waste oil burners are purchased for communities that have vehicle storage huts to house the line trucks. If a power plant currently has a heated garage for the trucks, oil burning huts are not required and therefore installation is not planned for those communities.

Used Oil and Fuel Transfers To Third Parties

QEC has also committed to a program which transfers used oil to third parties on a case by case basis. The third party must prove that their burner system is certified for Canadian use. The corporation will then enter into a transfer agreement and track the number of drums given to the party.

Each time the party retrieves used oil, QEC completes a "Proof of Used Oil Transfer" form stating the date and the number of barrels taken. When the emptied drums are returned to QEC both parties sign off to close the transaction. No monies are exchanged as part of the agreement.