

CLOSURE PLAN

Diesel Storage Facility at the Coral Springs Housing Development Site

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Prepared for:
Gore Developments Ltd
2C Braemar Avenue
Kingston 10

Prepared by:
Environmental Solutions Ltd.
89 Hope Road
Kingston 6

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1.0 INTRODUCTION

Gore Developments Ltd has applied for a permit for the deployment of a temporary Diesel Fuel Storage Facility at the Coral Springs Housing Development site in Falmouth.

The proposed storage tank will contain diesel fuel which will be supplied and installed by Cool Petroleum. Only one tank will be erected. The infrastructural design includes a plan for the containment bund wall, elevations and details for a 3000 gallon storage tank. The tank will have a steel casing and will be located as an Above-ground Storage Tank (A.S.T.) compact with 3000 gallons of diesel fuel. The bund wall will be 3' 0" from ground level and the tank will be sited on a 6" thick well compacted marl and 6" thick C/C slab to support a pressure of 3000 psi. The slab detail includes a 6" block wall rendered, with each pocket filled with a 1:2:3 C/C mix.

The leak detection system for the diesel storage tank will combine the following elements.

1. Daily visual tank and bund inspections. The storage area and fuel tank will be monitored daily to check for leaks or spilt fuel.
2. Stock reconciliation. Fuel gauges will be read daily to track stock levels and ensure losses are negligible. If a spill were to occur the capacity of the containment bund is sized to accommodate more than the volume of the fuel that is stored within the tank and to restrict fuel contamination".

The proposed location of the tank is at the northeastern section of the Batching Plant (see attached drawing BP 1.1) which will be located at the centre of the site, as outlined. The tank and containment facility design are shown in detail on the attached blueprints.

2.0 CLOSURE PLAN – RECOMMENDED PROCEDURES

The goal of the closure activities proposed below is to ensure that after all activities have been terminated, the site is left in a condition with no restrictions governing its future use. The closure process for the Diesel tank storage and dispensing facility at Coral Springs will take four steps, listed as follows:

1. Tank/Supply pipe/Pump cleaning emptying and cleaning
2. Tank/Supply pipe removal and disposal/re-use
3. Containment bund/refueling pad cleaning
4. Containment bund/refueling pad disposal
5. Site soil examination/remediation

2.1 Tank/Supply Pipe/Pump Cleaning

The above-ground storage tank and its supporting pipe and pump networks will be processed by adherence to the following steps:

1. Removal of any product and solid materials that may remain within the system's storage tank and pipes.
2. Storage, purification and recycling of remaining product at approved off-site facility for re-distribution.
3. Storage of sludge removed from the tanks and pipes in 55-gallon drums prior to transport to approved, off-site disposal facility.

4. Storage of solids removed from the tanks, pipes and pumps in lined bins prior to transport to approved, offsite disposal facility.
5. Decontamination of tanks through rinsing with a non-toxic dispersing agent to remove residual product in close contact with the tank/pipe inner walls.
6. Removal and decontamination of pipes and pumps by rinsing with a non-toxic dispersing agent to remove residual product in close contact with the tank/pipe inner walls.
7. Determination of cleanliness of all cleaned components through oil and grease testing of rinse water for hydrocarbons.
8. Collection of rinse water generated by rinsing processes in rinse storage tanks for removal, treatment and disposal at approved off-site facilities.

2.2 Tank/Supply Pipe/Pump Removal

The storage tank, its pipes and pumps will be post-processed through either one of two processes - (1: the cleaned tank and pipe items will be cut up and disposed of as scrap if the integrity of the components will prevent their re-use or (2: the cleaned items will be recovered intact for storage and re-use at a future site.

2.3 Containment Bund/Refueling Pad Cleaning

Both the tank containment feature and any impermeable refueling surfaces to be used in conjunction with the facility will be pressure washed with a non-toxic dispersing agent to remove residual product that may have spilled on its surfaces during filling or dispensing. The cleanliness of all cleaned components will be done through oil and grease testing of rinse water for hydrocarbons, after which the collected wash water will be collected in storage tanks for removal, treatment and disposal at approved off-site facilities.

2.4 Containment Bund/Refueling Pad Removal

After the Containment bund and refueling pad surfaces have been cleaned, these structures will be demolished and disposed of either as fill material for other construction ventures or as solid waste for transport to an approved landfill facility.

2.5 Soil-Water Sampling/Remediation

Environmental sampling/testing will be conducted within the immediate vicinity of the tank storage/refueling areas. The objectives of the environmental testing activities are as follows:

1. Assess the potential for onsite contamination of soils and ground water due to spillages that may occur at the facility.
2. Where contamination exists, identify vertical and horizontal extents of the contamination.
3. Compare the data with the relevant NEPA standard.
4. Recommend monitoring and remediation programme where required

Soil and ground water samples will be taken by augering the soil to a depth determined either by the nature of the substrata within the immediate vicinity of the storage facility or by the presence of ground water, with soil samples being taken at 25 cm depth intervals.

The following parameters will be determined on both soil and groundwater samples (where necessary):

1. Soil
 - a. Benzene, Toluene, Ethylbenzene and Xylene (BTEX)
 - b. Total Extractable Petroleum Hydrocarbon (TPH)
 - c. Lead
2. Groundwater
 - a. BTEX
 - b. TPH
 - c. Lead

The complete suite of parameters as detailed above will be monitored initially to verify whether there is contamination exceeding the relevant NEPA standards, then at the end of remediation if remediation is required. Should contamination be found the tests should be repeated until the soil/ground water is satisfactorily remediated. The following represents suggested methods of remediation for contaminated soils (extracted from www.psiqw.org/English_PDF/2_Dry/E2-8.pdf):

In-situ Treatment Methods:

The application of in-situ processes requires that the contamination in the subsoil must not be excavated or scraped. Treatment is carried out in the subsoil either by biological means such as oil degradation by microorganisms or Chemical-physical processes, such as incineration, air sparging and soil air suction extraction or through combinations of the two processes”.

Ex-situ Treatment Methods:

With the ex-situ processes, the contaminated soil must be removed to an off site remediation facility. This method can be applied if the amount of contaminated soil is small or if the oil contamination occurred at the surface in residential or industrial estates, in which an in-situ treatment is not possible. The soil can be combusted in incinerating plants or chemical extraction or soil washing using surfactants can be undertaken to remove the hydrocarbon components”.

For contaminated ground water, air sparging and ground water pumping methods are proposed as means of recovering contaminants from subsurface, after the horizontal extent of contamination has been determined. Ground water removal will be effected from the lowest hydrological point of identified contamination and will be followed by oil/water separation and disposal after NEPA Trade Effluent standards have been complied with.

The results of soil tests should be reported within three weeks of the date of sampling and submitted to NEPA. The report should contain a thorough analysis of the data compared with the relevant NEPA interim standard and detail all emerging trends.