

Department of Indian Affairs and Northern Development  
Contaminants and Remediation Directorate  
P.O. Box 1500  
Yellowknife, NT X1A 2R3

Wek'eezhii Land  
& Water Board  
File # \_\_\_\_\_

MV2004L8-0001

Ms. Violet Camsell-Blondin;  
Chair, Wek'eezhii Land and Water Board  
P.O. Box 32  
Wek'eezhii, NT X0E 1W0

JUL 12 2007

July 4, 2007

Application # MV2004L8-0001  
Copied To: PE IREG

**RE: Colomac Remediation Project:  
Hydrocarbon Contaminated Soil – On-Site Landfarming**

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Dear Ms. Camsell-Blondin:

This is to further to a discussion between Ron Breadmore, DIAND Environmental Manager and Scott Stewart, Water Resource Officer, DIAND-South Mackenzie District Office, on May 30<sup>th</sup>, 2007, regarding the above issue.

Hydrocarbon contaminated soil at Colomac is captured under Part D: Item 17 of the Water Licence. This condition refers to soil treatment as described within Section 5.10.1 of the Colomac Site Remediation Plan Final Report March 2004, and a letter submitted to the MVLWB on August 30, 2004. The latter (August 30, 2004 letter) describes soil treatment by a 'biopile' method conducted in a specially constructed 'Land Treatment Unit' (LTU). However, this approach is now being revisited due to the length of time the remediation has required and a lack of further space in the LTU to treat additional soil.

After two years of active treatment, the hydrocarbon concentrations in the biopiles still exceed the target remedial concentration for the soil at the site. The size of the biopiles and the short remedial season in this part of Northern Canada have contributed to the slow bioremediation. A more aggressive remedial strategy is necessary to maintain the timeline established for completion of remedial efforts at the Colomac site.

The LTU was designed to contain leachate from the biopiles, or water that has become contaminated with petroleum by draining through the contaminated soil. Generally, it is the lighter gasoline-like fractions of the petroleum that are picked up by the water while the heavier fractions remain stuck to the soil.

In order to complete the soil treatment, the soil of the two biopiles will be split into two types; soil which contains gasoline-like fractions and soil without gasoline-like fractions but which exceeds other (diesel or motor oil) objectives. Remediation of the soil without gasoline-like fractions will take place at the Waste Oil (Laydown) Area using a landfarming process similar to that recommended in the Colomac Site Remediation Plan. The Colomac Hydrocarbon Advisory Group has expressed the opinion that convective cooling of the waste rock dump, upon which the Waste Oil Laydown Area is located, has

created an impermeable ice lens that will prevent any migration of hydrocarbons through the rock in the unlikely event that adsorbed diesel or motor oil is mobilized. Treatment would be done in windrows with weekly turning of the soil with a front-end loader. The windrows would be sampled monthly and soil within applicable guidelines would be decommissioned.

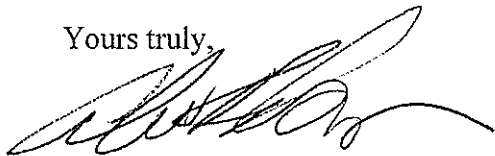
Soil that still contains the gasoline-like fractions would remain in the LTU and be re-constructed into smaller biopiles.

Use of the Waste Oil Laydown Area, which is already impacted with motor oil fraction hydrocarbons, would permit much greater flexibility and lower remedial time for the biotreatment. According to CCME reference documents, the diesel-like fraction generally is an order of magnitude less leachable than the gasoline fraction. Based on these factors, use of the Waste Oil Laydown Area would present minimal risk to the environment while permitting greater flexibility in the bioremediation program.

In order to verify that use of the Waste Oil Laydown Area will not contribute to greater impact of the Waste Oil Laydown Area, a standpipe will be installed at the toe of the slope adjacent to the Area. Soil samples will be collected from the base of the test pit for this standpipe. The standpipe will be sampled monthly, when liquid water is present, for hydrocarbon concentration. A soil sample will be obtained from an additional test pit at the completion of the landfarming.

I trust this information is to your satisfaction. If you have any questions regarding this, or require further information, please do not hesitate to call me at 669-2772.

Yours truly,



Andrew Richardson  
Environmental Scientist; Colomac Remediation Project

cc.           Patty Ewaschuk; Regulatory Officer – MVLWB  
              Scott Stewart; WRO – DIAND South Mackenzie District  
              Ken Dahl; RMO III – DIAND South Mackenzie District  
              Magnus Bourque; Environmental Enforcement Officer, Env. Canada  
              Ken Hall, Manager Environmental Protection, GNWT-ENR  
              James Edwards; Project Manager – Colomac Project  
              Jimi Arey; Project Manager - PWGSC