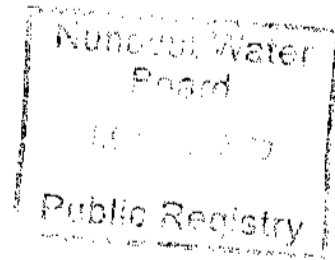


## **PROJECT SUMMARY**

### **Soil Treatment Landfarm in the Hamlet of Kugaaruk Nunavut Water Board Licence No. 8BR-KRK0609**



The need for a site to treat contaminated soil in Kugaaruk was identified by the Government of Nunavut when plans were developed for the relocation of a fuel oil tank and gasoline tank in the Hamlet. The Department of Community and Government Services arranged for the construction of the landfarm in 2006 to accept and treat petroleum contaminated soil which was to be excavated after the existing storage tanks were removed. The landfarm consists of a cell to hold the soil to be treated and a water retention cell to contain water which has been in contact with the contaminated soil. The berms for the two adjoining cells were constructed of local soil and gravel. Both cells are equipped with a synthetic liner that runs across the base of the cell and up the interior side of the berms. Culverts placed through the interior berm between the two cells allow excess water from the soil cell to flow into the water retention area. The landfarm is located approximately 1.5 km south-east of the community

The soil excavation from the former tank area was carried out in July, 2007. The soil was transported directly to the landfarm and placed into the treatment cell. Approximately 2200 cubic metres of soil were placed into the landfarm. The soil was spread in a layer less than one metre in depth. After all of the soil was placed in the cell, soil samples were taken for analysis to determine the concentration of the petroleum contamination.

In August, 2008, the soil was turned to provide additional oxygen to the bacteria that break down the petroleum contamination. The water in the retention cell was pumped out onto the ground close to the cell. The contractor who pumped out the cell was not aware that the Water Licence required the water to be tested before it could be released. Therefore no testing was done in 2008.

In 2009, the contractor turned the soil again in July and pumped out the water in August. Since the contractor had not been informed of the testing requirement in the Water Licence, the water was not sampled before it was discharged.

In September, 2009 staff from Wardrop Engineering were on site to take soil and water samples and to install five groundwater monitoring wells. The results for the soil samples show that the concentration of petroleum contamination has been significantly reduced, although the level is still too high for the soil to be removed. A sample taken of the water remaining in the retention cell showed no detectable sign of petroleum contamination. This result would suggest that the water that was pumped out in August, 2009 was likely not contaminated and would have no impact on the surrounding environment. Samples taken from

three of the monitoring wells also did not show evidence of petroleum contamination. The other two wells were dry and no samples could be taken.

The Government of Nunavut has taken steps to ensure that the terms of the Water Licence are being met for the duration of the soil treatment project. Regular turning of the soil will continue in 2010. Soil and water samples will be taken before any water is pumped out.

It appears likely that one more year of treatment will reduce the contaminant level in the soil to the point where most the soil can be removed for the cell. This decision will be made after the 2010 soil sample results are reviewed with the Water Board. If necessary, treatment will continue into the following year.

Once the soil treatment is complete and all soil has been removed from the cell, the Government Nunavut will either remove the landfarm and restore the site to its original condition, or keep the cells in place for possible future soil treatment projects.

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