NUNAVUT TUNNGAVIK
INCORPORATED

intraoffice

MEMORANDUM

To: Carson Gillis – Director of Lands and Resources
Re: HBJV - Windy Lake Camp – Petroleum Product Spill
Date: August 29th, 2002

Dear Carson;

On August 28th, 2002, while I was demobilising the crew from the Bathurst Geoscience Project, we spent a day and a night at the Hope Bay Joint Venture's (HBJV) Windy Lake Camp, located at: 68°03'38"N and 106°36'57" W. The main purpose of our visit was to receive some detailled information about the regional geology of the Hope Bay greenstone belt, and specifically look at diamond drill core and surface bedrock exposures related to the Doris lode gold deposit.

While in the Windy Lake Camp, it was requested that I follow-up the investigation of a petroleum product spill that occurred on August 1st, 2002. The following short report and accompanying digital photos are the results of that investigation. The information was received from Darren Lindsay, the Project Geologist, while I received a tour of the site.

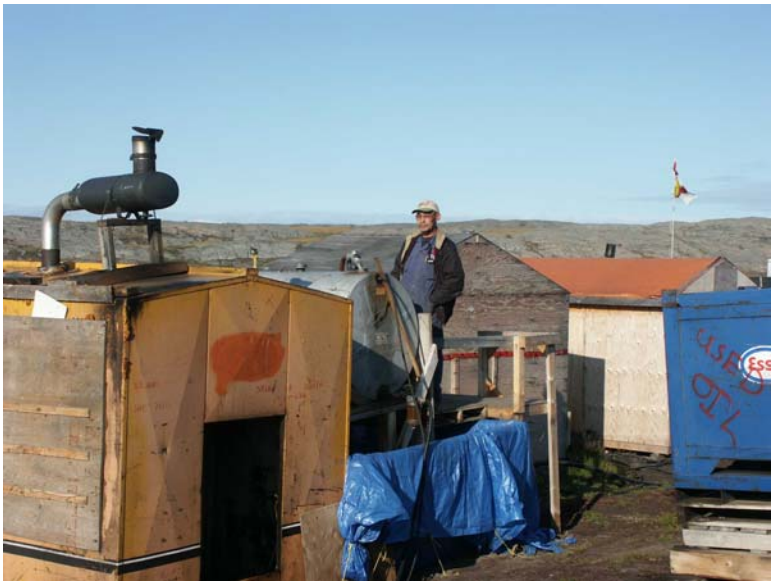
BACKGROUND:
The Windy Lake camp supports the exploration activities of both the HBJV and Navigator Exploration. Both companies are exploring for Archean lode gold deposits in the Hope Bay greenstone belt, an 80 km long mixed sequence of volcanic and sedimentary rocks. The camp at the time of our visit had 83 people in residence, consisting of camp support, diamond drilling, helicopter and geological personnel.

The camp uses regular gasoline for small internal combustion engines, propane for cooking fuel and diesel fuel for large engines, waste incineration, heating and power generation.

Petroleum products except propane are kept in large storage tanks with 70,000 litre capacities. Propane is kept in 100 lb. pressurised cylinders.

Diesel refuelling procedures for low consumption applications such as heating oil, waste incineration or large machinery motors involves transferring the fuel from the large storage tanks into smaller, portable slip tanks or 205 litre fuel drums for ease of transportation. The large amounts of fuel required for power generation necessitate the use of a direct hose line from the large storage tanks to the fuel tank on the generator which has a 700 litre capacity.

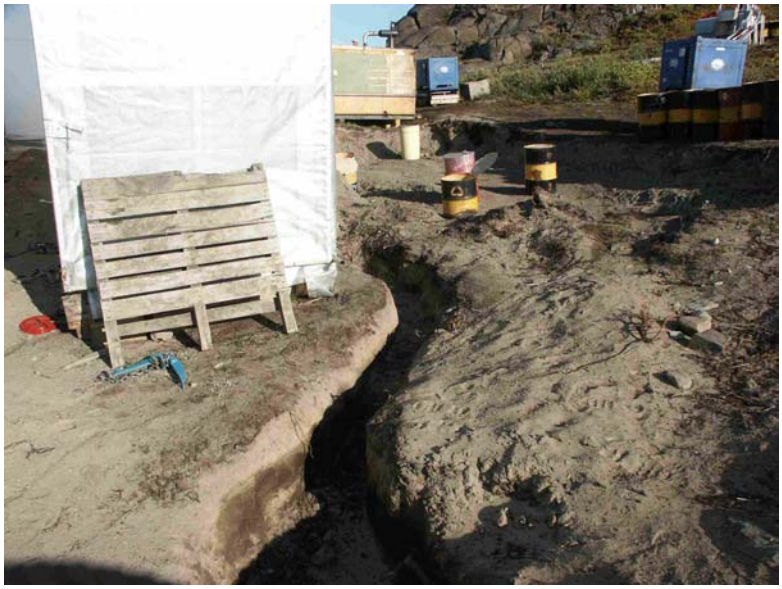
THE INCIDENT:
On August 1st, 2002, the power generator was having its tank filled up from the direct line to one of the storage tanks. During the process of filling the generator tank, the employee left fuel flowing into the generator tank while attending to other matters in camp as there were a lot of aircraft shuttling into the site at the dock. The employee forgot that they had left the fuel flowing and it spilled for approximately 3 hours, releasing approximately 8,000 litres of product onto vegetation covered beach deposits (sand, gravel, silt and clay).



THE RESPONSE:
When the spill was noted, the pump was shut off and fuel spill response measures were initiated. The spill had ponded between two natural berms which are probably the result of old lake shorelines in the unconsolidated beach sediments. The berms trapped the ponded product and enabled crews to recover half of the spilled material, or about 4,000 litres. The remainder had infiltrated the pore spaces in the sand and migrated into the sediments and down slope.

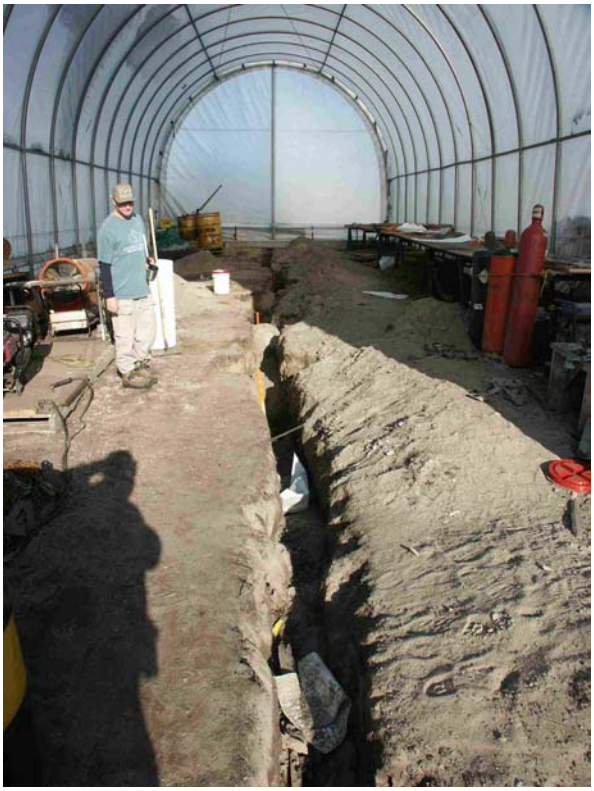
The second phase of the containment involved

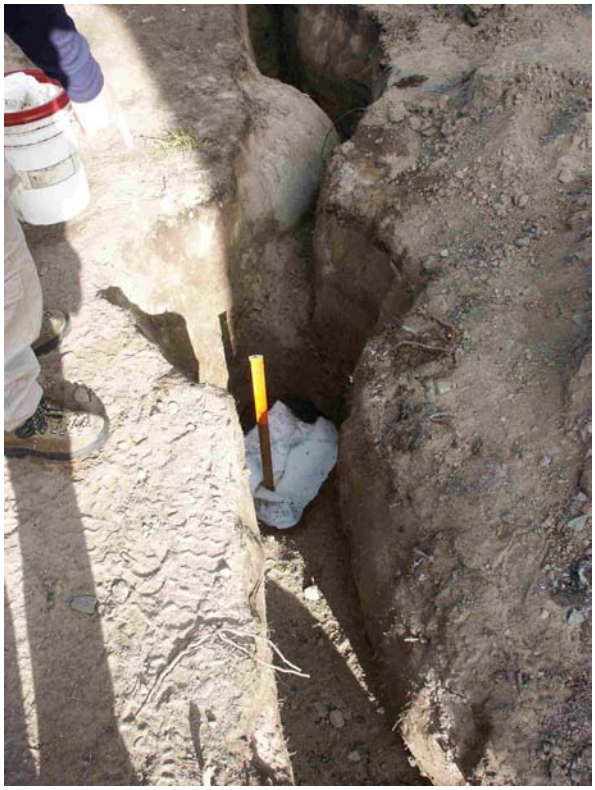
excavating the site and storing the contaminated beach sediments in sealed 205 litre drums for shipment out and disposal. Much of the infiltrated product was trapped against a non-permeable clay layer and removed with the soil excavation technique. An area of approximately 10m x 6m was excavated to a depth of about 1 metre.

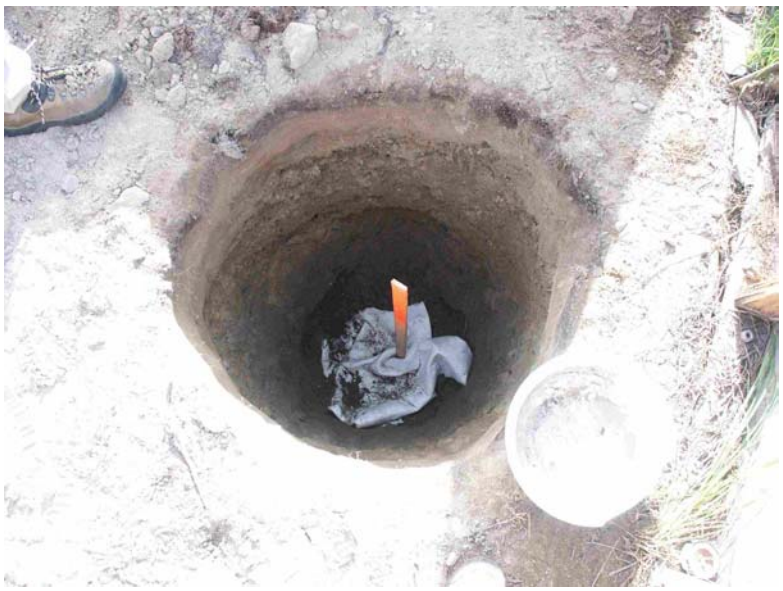


After the second phase was completed, a series of monitoring pits were excavated in the main removal pit and fuel absorbent materials placed within them. These pits extend 1 metre below the excavation level of the main removal pit. The pits are monitored continuously and the fuel absorbent materials are replaced every 24 hours with fresh material. The soiled materials are sealed in 205 litre drums for shipment and disposal.

Lateral migration of the petroleum product towards a large shed on the site required the excavation of two monitoring trenches with monitoring pits dug into them at intervals to detect and stop and product from reaching Windy Lake. The east side of the shed has a trench along its southern half. The second trench extends the entire length of the shed on its inside floor, effectively putting this facility out of commission for the foreseeable future. This trench has four 1 metre monitoring pits. There are also a monitoring pit on the inside, west wall of the shed, and another across the main camp roadway outside and down slope.







To date, two employees are tasked full time with checking for any contaminant in the monitoring pit and trench network. They are also responsible for changing the fuel absorbent materials if they pick up any diesel fuel, and properly sealing them for transportation and eventual disposal. No petroleum product has been detected in the furthest westerly pit. The shed trench (number 2 in photos) is picking up any material that comes off the end of the impermeable clay layer.

PROCEDURAL CHANGES:
Since the fuel spill, the process for transferring bulk fuel has been changed. The employee directly responsible for monitoring the fuel transfer is not permitted to leave the generator tank site until the transfer has been completed and the fuel pump shut off.

HBJV was taking weekly water quality samples from Windy Lake as part of their baseline environmental monitoring strategy. This practice has now been changed to daily water samples and checks for any sign of fuel contamination.

CONCLUSIONS:
At the time that I interviewed Mr. Lindsay, he indicated that while Environment Canada (EnvCan), the Kitikmeot Inuit Association (KIA) and Department of Sustainable Development (DSD) were aware of the spill, the only response had been the visit to their camp by Mr. Jack Kaniak, Lands Officer from KIA in Kugluktuk.

Mr. Kaniak advised them at the time to extend monitoring down slope and helped to install the pit on the west side of the camp roadway, which had not picked up any diesel at the time of the writer's visit. There have been no further communications from regulators or government agencies since that time to HBJV.

By the looks of the geology of the beach deposit where the spill occurred, the amount of material outright removed, coupled with the extensive network of monitoring pits and trenches, the HBJV is doing everything possible to ensure that the diesel fuel does not pass the lower trench, and also that such an incident does not happen again.

Best Regards,

Robin J. Wyllie, P.Geol.
Research Exploration Geologist