File

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

SEATTLE
FAIRBANKS
ANCHORAGE
SAINT LOUIS

January 10, 1994

MAPCO Alaska Petroleum Inc.
1076 Ocean Dock Road
Anchorage, Alaska 99501-1199

Attn: Mr. Peter Hellstrom

RE: PRODUCT RECOVERY AND GROUNDWATER MONITORING, FAIRBANKS AIRPORT FUEL FACILITY, FAIRBANKS, ALASKA

In accordance with our proposal and scope of work dated December 9, 1993, Shannon & Wilson, Inc. has conducted product recovery and short-term monitoring of well MW-1 located at the Airport Fuel Facility, Fairbanks, Alaska. This well, located near the truck loading rack, is the only well in which free phase hydrocarbon product has been observed with any regularity. The objective of this work was to evaluate the response of product accumulation in the well over a short time period so that the apparent size and magnitude of contamination and appropriate corrective actions can be considered. Our work was performed in general accordance with our ADEC approved Quality Assurance Program Plan.

Field Work

Field activities were performed by Dennis Peterson, a geologist with our firm, between December 13 and 17, 1993. Groundwater level and product thickness were initially measured on December 13, 1993, and then the product was skimmed from the surface into a steel drum using silicon tubing and a peristaltic pump. Groundwater and product levels were measured at 10, 25, and 55 minutes after pumping. Groundwater and product levels were then checked approximately every 24 hours between December 14 and 17. Product did not accumulate in the well to levels that warranted product recovery during the following days. As part of our quarterly sampling activities conducted on December 29, 1993, the water level and product thickness was again measured. Accumulated product was pumped into the same steel drum and left with Airport Services International, Inc. (ASII) at the site for transport to the MAPCO refinery.

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Groundwater levels (potentiometric surface, corrected for product thickness) and product thickness for the period December 13 through 17 are tabulated below:

Date	Time	Groundwater level (Below top of casing, feet)	Product thickness (feet)	
12/13/93	12:30	10.95	0.34	before pumping off product
12/13/93	12:40	10.96	0.02	after pumping off product
12/13/93	12:55	10.96	0.01	
12/13/93	13:25	10.95	0.02	
12/14/93	11:45	10.98	0.08	
12/15/93	12:05	11.02	0.12	
12/16/93	13:10	11.10	0.14	
12/17/93	12:45	11.10	0.14	
12/29/93	10:15	10.99	0.17	before pumping off product
12/29/93	10:25	11.01	0.05	after pumping off product

Discussion

Product levels observed in monitoring well MW-1, from this and other data, indicate short-term recovery rates which are consistent with observed product recovery in monitoring wells at other locations in the Fairbanks area. The data suggests that product is present in a free phase state, as a dissolved state, and adsorbed to the substrate matrix in a smear zone. The extent of the free phase product and smear zone appear to be limited, based on conditions encountered in other monitoring wells at the site, and the distribution of dissolved hydrocarbons. Our opinion is that continued product monitoring at monitoring well MW-1, although providing useful data, will not further enhance our understanding of contaminant characteristics at the site or assist in the development of remedial alternatives. Specific product monitoring should not be considered unless associated with an existing sampling program.

In our opinion, the amount of free product currently thought to be present in the vicinity of well MW-1 is not sufficient to allow recovery by skimming or other long-term product pumping techniques. To define the extent of free phase product and smear zone soil contamination at the site, additional characterization of the soil and groundwater in the immediate vicinity of monitoring well MW-1 should be established by soil borings/vapor probes and groundwater sampling. We recommend that borings/vapor probes be installed radially about 30 to 60 feet

from MW-1 to attempt to define the extent of soil contamination. Soil samples should be collected from the zone of water table fluctuation for chemical analysis and determination of likely contamination. Groundwater samples should be collected from monitoring wells installed once the extent of soil contamination is defined.

Limitations

This report was prepared for the exclusive use of MAPCO Petroleum Inc. and their representatives in the assessment of the product observed at monitoring well MW-1, at the Airport Fuel Facility, Fairbanks, Alaska in accordance with the scope of work. We have presented our findings based on the product recovery and level monitoring performed; they should not be construed as a definite conclusion about the conditions at the site. Changes in the observed conditions can occur with passage of time, and may be dependent on seasonal fluctuations of the groundwater table and/or the general passage of time, particularly if spills are ongoing or contaminates are migrating. The monitoring performed can only provide you with limited data, and it in no way guarantees that an agency or its staff will reach the same conclusions that we have.

We trust that this information is sufficient for your needs at the present time. If you have any questions, please do not hesitate to call.

Sincerely,

SHANNON & WILSON, INC.

By: _____
David McDowell
Associate

DMM:JEC/laf