

Leaksite# 1940

Minnesota Pollution Control Agency
Hazardous Waste Division
Tanks and Spills Section

Date: 3/14/95
By: SCT

*****HYDROLOGIC SITE REVIEW*****

LEAKSITE NAME AND LOCATION: Dittmer Oil - Fairfax
HYDROLOGIST: SCT
PCS: MEK
VAX FILE: [Thompson_S]1940.txt

RECOMMENDATION:

Comments about this site:

- The contamination plume at this site is very large. It extends over 450 feet from north to south and up to 200 feet from east to west.
- The sediments at this site are composed primarily of fractured, silty clay. The consultant has postulated that contamination has migrated through the fracture system.
- A deep well was installed adjacent to a water table monitoring well, MW-4. The deep well, MW-8, has consistently demonstrated a strong vertical gradient relative to MW-4. However, except for minor contam levels detected during th
- Pumping test of Co-op well did not indicate that the well was hydraulically connected to the surficial aquifer, although the data was not conclusive. However, significant contamination levels were detected in Co-op well water samples during the pump test - levels as high as 400 ppb GRO.
- Contamination in the Co-op Well - there are at least two possibilities for its origin:
 - 1) Migration of contaminants through the unconsolidated sediments. This scenario is supported by the strong downward gradient exhibited in MW-8. However, MW-8 has remained essentially free of contamination.
 - 2) Contamination migration through leaky grout seal on the outside of the Co-op well casing.

The second of these scenarios is most likely the cause of the well contamination. The Co-op well is completed to approximately 170 feet below grade. Between the surface and the completion depth exists mostly clay. The low recovery rates in MW-8 suggest that the clay fractures do not extend to a depth of 30 feet below grade.

The solution to the drinking water risk to the Co-op well, then, is to abandon the Co-op well thus removing the conduit for contaminant migration. There is

municipal water available across the street, so that seems to be a good option for an alternate water supply.

The risk associated with the remaining contamination appears to be fairly low. There is a well located approximately 700 feet to the east which is reportedly 180 feet deep. Since the plume does not extent that far, continuation through the annulus of the well is not possible. Again, the potential for migration throught the unconsolidated sediments appears to be low.

For The letter

We have reviewed your recent Remedial Investigation Progress Report dated November 4, 1995. We agree with the conclusions of the report that leakage might be occurring along the casing of the Co-op well and also agree with the report's recommendations for corrective actions at this site. Please proceed in accordance with the following recommendations:

1. Abandon the existing Co-op well in accordance with MDH guidelines.
2. Provide for alternate water supply to the Co-op. Connecting the Co-op to the nearby municipal water supply appears to be a good option. This option would provide the best chance for avoiding similar problems in the future.
3. One round of sampling of the Bremmel residence well for VOCs
4. Semi-annual monitoring is required. Monitoring should include:
 - a) measurement of water level in all monitoring wells;
 - b) analysis of water samples from monitoring wells MW-2, MW-4, MW-5, MW-7, MW-8, and MW-9 for benzene, ethyl benzene, toluene, xylene, and total petroleum hydrocarbons.

The purpose of the monitoring is to ensure that the contamination plume has reached equilibrium and has stopped expanding in extent. Results of the monitoring should be submitted to the MPCA using MPCA Fact Sheet 7, "Site Monitoring Report Worksheet" dated April 1993. An annual progress report should be prepared and submitted in accordance with Section IV, Annual Progress Reports of MPCA Fact Sheet 3 "Petroleum Tank Release Report" dated April 1993. Monitoring should continue for two years after which time the frequency and need for additional monitoring or work will be evaluated.