

Minnesota Pollution Control Agency  
Hazardous Waste Division  
Tanks and Spills Section

Leaksite: #2572  
Date: January 10, 1992

\*\*\*\*\*HYDROGEOLOGIC SITE REVIEW\*\*\*\*\*

LEAKSITE NAME: Sinclair Service Station  
LEAKSITE LOCATION: 7733 Portland Avenue South, Richfield, Minnesota  
LEAK OR SPILL REPORTED DATE: May 22, 1990  
CONSULTANT: EnecoTech Midwest, Inc.  
REPORT NAME: Remedial Investigation Report  
REPORT DATE: April 5, 1991

PROJECT MANAGER: Mark Koplitz  
HYDROGEOLOGIST: Larry R. Quandt  
VAX FILENAME: [QUANDT\_L] 2572.TXT

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#### REPORT SUMMARY/BACKGROUND

A remedial investigation was conducted following removal of seven underground storage tanks (UST) at the Sinclair service station located at 7733 Portland Avenue South in Richfield, Minnesota. The USTs included two 4,000 gallon regular gasoline tanks, two 4,000 gallon unleaded gasoline tanks, one 6,000 gallon premium unleaded gasoline tank, a 1,000 gallon fuel oil tank, and a 560 gallon waste oil tank. The gasoline and waste oil tanks were located in one tank basin and the fuel oil tank was located in another. The tanks were slightly corroded and contained no visible holes.

Approximately 300 cubic yards of contaminated soil was removed during the tank excavation and treated at a thermal treatment facility and incorporated into asphalt road base. The soil in the tank basin consisted of fine- to coarse-grained sand. Organic vapor concentrations between 2.2 and 357 ppm indicate the presence of petroleum contamination in the tank basin between 2 and 16 feet. Soil samples collected beneath each tank detected between 11 ppm and 1,100 ppm total hydrocarbons as gasoline and 190 ppm and 1,900 ppm total hydrocarbons as fuel oil between 7 and 16 feet. Most of the contaminated soil was removed. The old dispenser lines and pump islands were removed along with some soil to a depth of 2 to 3 feet. Petroleum staining and odors were not noted during excavation of the old dispenser lines and pump islands.

Nine soil borings were advanced around the former tank basin to depths between 31 and 60 feet, four of which were completed as monitoring wells. The general geology consists of 9 feet of fine- to medium-grained sand overlying fine- to coarse-grained sand with a trace of gravel.

Organic vapor concentrations between 49 and 1,250 ppm indicate the presence of high levels of petroleum contamination in SB-3 and SB-4 located in the former tank basin between 4 and 36 feet. A soil sample detected 920 ppm total hydrocarbons as gasoline in SB-3 located in the former tank basin at a depth of 9 feet. A soil sample detected 97 ppm total hydrocarbons as gasoline and 480 ppm total hydrocarbons as fuel oil in SB-4 in the former tank basin at a depth of 10 feet. Significant levels of contaminated soil exist in a thin layer immediately beneath the former tank basin at a depth of 16 feet. The level of soil contamination decreases significantly beneath the former tank basin.

Ground water will probably not be significantly impacted from the levels of petroleum contamination remaining in the soil beneath the former tank basin and old pump islands.

The depth to the static water table ranges between 31 and 36 feet and ground water flows southeast. The monitoring wells were sampled on February 1, 1991. Ground water samples did not detect benzene, ethylbenzene, toluene, xylenes, and total petroleum hydrocarbons in the monitoring wells. However, a ground water sample did detect 3.2 ppb 1,2-dichloroethane in MW-3 cross-gradient of the former tank basin and pump islands. The source of ground water contamination in MW-3 may be Elsens Service Garage which previously contained eight USTs located upgradient of the site. The monitoring wells are not directly downgradient and they may be too far from the former tank basin and pump islands to detect ground water contamination. The petroleum contamination remaining in the soil is unlikely to significantly impact the ground water table at a considerable depth of 36 feet.

The permeable soil and considerable depth to ground water eliminates the potential vapor risk to underground structures and utilities.

#### RECOMMENDATIONS/COMMENTS

The MPCA has reviewed the "Remedial Investigation Report" dated April 5, 1991 for the above referenced site. Based on the information in this report it appears the investigation has adequately defined the magnitude and extent of soil contamination associated with the former tank basin. Significant levels of contaminated soil still exist in a thin layer immediately beneath the former tank basin at a depth of 16 feet. The petroleum release has impacted the water table aquifer below the Minnesota Department of Health Recommended Allowable Limits (RALs) for 1,2-dichloroethane in MW-3 located cross-gradient of the former tank basin and pump islands. The petroleum contamination remaining in the soil is unlikely to significantly impact the ground water table at a considerable depth of 36 feet.

Ground water monitoring is required to assess the effectiveness of natural biodegradation and to determine whether migration of contaminated ground water is occurring at the site.

The MPCA hereby approves the no-corrective action plan proposed by EnecoTech with the following comments and modifications that present our response to the conclusions and recommendations contained in the reports, and outline the performance objectives and technical recommendations for the additional work.

1. Ground water monitoring is required to establish a contaminant concentration trend. Follow-up ground water monitoring should be conducted in accordance with the new MPCA guidance document entitled "Leaking Underground Storage Tank Program Ground Water Monitoring" dated May 1991. The monitoring wells should be sampled a minimum of three more quarters. The ground water samples should be analyzed for benzene, ethylbenzene, toluene, xylenes, 1,2-dichloroethane, and total hydrocarbons as gasoline and fuel oil. Monitoring should also include water level measurements in the monitoring wells.

2. A report summarizing and documenting the results of the ground water monitoring program should be submitted to the MPCA as a progress report. The report should follow the format described in the MPCA guidance document

"Petroleum Tank Release Reports" dated May 1991. The ground water monitoring program and need for corrective action will be reevaluated based on the results of this report.

3. If ground water contaminants exceed the RALs for drinking water contaminants in any of the monitoring wells, please notify MPCA hydrogeologist Larry Quandt (612-297-8602)

