

BURLINGTON NORTHERN RAILROAD

(GREASE LAKE)

(West Burlington, Iowa)

GENERAL DESCRIPTION

The Burlington Northern Santa Fe Railroad operates a locomotive repair installation south of the site. The repair work includes wreck repair, major overhauls, and painting. The site is located in the West 1/2 of Section 25, Township 70 N, Range 3 W, Des Moines County, Iowa. The site includes a small landfill and drainage channel leading to Grease Lake, Grease Lake itself and a small portion of Honey Creek north of the lake. The site covers approximately 12 acres. The site is owned by the Burlington Northern Santa Fe Railroad. The railroad used "Grease Lake" as a disposal site for all its shop and sanitary waste from 1927 until 1976. The site was entered on the Registry in March 1990. Since the site was entered on the Registry, further investigations have shown soil, groundwater, and surface water contamination south and west of the boundaries of the Registry site. These investigations have also shown much higher levels of contamination than were previously known when the site was listed on the Registry.

SITE CLASSIFICATION

In 2004 this site is re-classified to "d", Site Closed, Requires Continued Management.

TYPE AND QUANTITY OF HAZARDOUS WASTE

- **Waste lubrication and hydraulic oils, tetrachloroethylene and other halogenated degreasing solvents, waste diesel fuel, mineral spirits, paint thinners, other spent non-halogenated solvents, waste sodium hydroxide, and sanitary wastes.**

The facility used Lyxol, mineral spirits, and a chlorinated solvent blend for parts cleaning. All three spent solvents are hazardous wastes based on the characteristic of ignitability. Tetrachloroethylene (PCE) was used as a degreasing solvent until 1983. Painting waste is hazardous based on the characteristics of ignitability and EP toxicity for lead and chromium. Industrial wastewater (which includes paint stripping waste) is pre-treated (oil and grit removal and then dissolved air flotation) prior to discharge to the sanitary sewer.

Volatile organic compounds found at elevated concentrations in Grease Lake include tetrachloroethylene (PCE), trichloroethylene (TCE), and 1,2-trans-dichloroethylene. Analysis of shallow sediment samples identified PCB-1260, 2-methylnaphthalene, chlorobenzene, and xylenes and lead and arsenic are present above background levels. Sampling of the unnamed stream to the west of the site found significant levels of PCE in the stream. PCE at 180,000 ug/L has been detected in shallow groundwater on site. One soil sample contained 2,700 ppm of PCE.

SUMMARY OF PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS

PCE contamination has been found in fractured bedrock at depths up to 160 feet. However, the deeper Maple Mill Shale formation forms a substantial boundary to contaminant movement, thus protecting the underlying aquifer used by the city of West Burlington for water supply, however, off-site groundwater contamination does not appear to be a problem. The city of West Burlington, Iowa obtains its municipal water from a well located a mile southwest of the site. Approximately 283 households within three miles of the site use private wells. The nearest residence is located approximately 0.4 miles northwest of the site.

SUMMARY OF ASSESSMENT, MONITORING OR REMEDIAL ACTIONS

EPA is the lead agency at the site. Since 1994, BNSF has been conducting routine groundwater and surface water monitoring and is conducting an ongoing (phased) investigation of PCE in groundwater and in the unnamed stream to the northwest of the source area. Information provided in these investigations indicates surface waters of unnamed creek are impacted by contaminated groundwater discharging to the creek.

2002: In April 2002 BNSF signed an Administrative Order on Consent (AOC) with USEPA. The AOC prescribed the development of an Interim Measure Work Plan (IMWP) to address potential groundwater contamination discharging to Unnamed Creek. The IMWP was submitted to EPA in July of 2002 and was approved in September 2002. Subsequent to the approval of the IMWP it was determined that a Human Health and Ecological Risk Assessment (HHERA) would also be conducted to determine if (remedial) measures would be required for Unnamed Creek.

2003: A first Quarter Groundwater and Surface Water Monitoring report and a revised Interim Measures Work Plan (IMWP) Incorporating the (HHERA) were submitted for EPA review and comment in June 2003. In August, a Preliminary Human Health and Ecological Conceptual Site Model was submitted for EPA approval. In September a Second Quarter Ground Water and Surface Water Monitoring report was submitted for EPA approval.

2004:

- July 2004: Semi-annual Ground Water and Surface Water Monitoring Report, and work plan for Final RCRA Facility Investigation (RFI) were submitted.
- September 2004: Human Health and Ecological Risk Assessment Work Plan for Final RFI submitted.
- November 2004: Human Health Risk Assessment report for Unnamed Creek. Conclusion of the report is that the discharge of ground water to Unnamed Creek does not present significant risk to public health.
- December 2004: Screening Level Ecological Risk Assessment and Biological Assessment (**SLERA**) report. Results of report that no evidence of adverse impacts to aquatic receptors.
- Indoor Air Evaluation Work Plan was submitted to assess the potential vapor intrusion to buildings on site.

2005:

- Submittal of Final Indoor Air Evaluation Work Plan for EPA approval.
- Submittal of Semiannual Groundwater and Surface water Monitoring Report for DNR review.
- Submittal of Phase I RCRA Facility Investigation (RFI).
- Submittal of Final Addendum for Ambient and Indoor Air Sampling report for the Phase I RCRA Facility Investigation QA plan.
- Submittal of Summary report for Industrial Sewer cleaning and Inspection

2006:

- Submittal of (Fall) 2005 Semiannual Groundwater and Surface water Monitoring Report
- Submittal of Spring 2006 Semiannual groundwater and surface water report
- Indoor Air Evaluation Report submitted 9/14/06
- Submittal of Phase II RCRA Facility Investigation Work Plan

2008: Semi-annual monitoring reports received.

2009:

- Revised Facility-Wide Ground Water Investigation
- Treatability Study Work Plan

