SEP 3 0 1998

SUPERFUND PRELIMINARY SITE CLOSE OUT REPORT
FINAL REMEDIAL ACTION
FOR
REFUSE HIDEAWAY LANDFILL
MIDDLETON, WISCONSIN

I. INTRODUCTION

This Preliminary Close Out Report (PCOR) documents the completion of construction activities for the work required by the June 28, 1995 Record of Decision (ROD) for the Refuse Hideaway Landfill site in accordance with U.S. EPA's OSWER Directive 9320.2-09. The 1995 ROD required groundwater extraction and treatment for groundwater exceeding 200 ppb total Volatile Organic Compounds (VOCs). A Predesign Study completed in July, 1998 demonstrated that groundwater currently does not exceeded the 1995 ROD action level of 200 ppb total VOCs. U.S. EPA completed an Explanation of Significant Difference (ESD) in September, 1998 documenting that, based on the 1998 groundwater data, it is not necessary to implement groundwater extraction and treatment. Therefore, all construction activities required by the 1995 ROD are now complete.

II. SUMMARY OF SITE CONDITIONS

Site Description

Refuse Hideaway Landfill was listed on the National Priorities List (NPL) by the U.S. EPA in October 1992. Refuse Hideaway Landfill (RHL) is located in the SW1/4, NW1/4, Section 8, T7N, R8E, Town of Middleton, Dane County, Wisconsin. The 1.2 million cubic yard landfill containing municipal, commercial and industrial waste is located in the rural portion of the Town of Middleton, 2 miles west of the City of Middleton and 4 miles east of the Village of Cross Plains. According to the 1990 census, there are 3,628 persons living in the Town of Middleton.

RHL is located in the easternmost section of the upper Black Earth Creek drainage basin. Land use in the area surrounding the landfill is diverse. The landfill property itself, outside the fill boundary, is currently being rented by the landfill owner to a sand and gravel company as a storage area for truck and construction equipment. The north and west side of the landfill property are bounded by a Christmas tree farm, while the remaining area surrounding RHL is predominantly agricultural with field corn and other dairy support crops being the most common output. A small wetland area is located southeast of the landfill. Several residences are located near the landfill. Most homes are located adjacent to County Highway 14 or in the Deer Run Heights Subdivision to the southwest of the landfill.

Private water supply wells provide water for the residences and agricultural uses in the RHL area. Approximately 53 homes are within 1 mile of the Site. Three private wells down gradient of the landfill have had Volatile Organic Compounds (VOCs) detected in them. One of these

residences is currently vacant while two others have treatment systems in place to treat the documented groundwater contamination.

Immediately surrounding the landfill, there appears to be a localized radial component of groundwater flow from the landfill. To the north of the landfill, groundwater at the water table flows to the north, essentially against the regional flow direction. The apparent radial flow pattern emanating from the landfill to the north appears to be limited to the upper 50 feet of the saturated strata. Groundwater flow at depth migrates to the southwest, consistent with the documented regional flow pattern to the southwest.

Groundwater flow in the unconsolidated deposits to the south and east of the landfill is to the south, while further off the Site to the south, the flow direction changes and merges with the regional flow direction which trends in a southwesterly direction. This southwesterly direction of flow is also observed within the topographic ridges to the west and southwest of the landfill.

No endangered species are known to be located in the vicinity of RHL. There are no historic landmarks that would be potentially affected by RHL.

Site History and Enforcement Activities

John Debeck, the owner and operator of the Refuse Hideaway Landfill, received a landfill license from the Wisconsin Department of Natural Resources (WDNR) in 1974 to operate a 23 acre landfill. The main engineering requirement was that he maintain at least 10 feet of soil between the waste and bedrock and that he daily cover the waste. Numerous violations of the daily cover requirements are noted in the WDNR file of the site. The site was filled from south to north, but was not operated in "phases". Therefore, the entire waste volume (approximately 1.2 million cubic yards) was exposed to leaching by rain and snow melt throughout the operating history. The landfill owner reported receiving a variety of commercial and industrial wastes including: full barrels of glue and paint, barrels of ink and ink washes, spray paint booth by-products and paint stripper sludge, and spill residue containing VOCs. In addition, large volumes of other types of waste were received from local industries, businesses, and cities and towns in Dane County were also disposed at the landfill.

John Debeck closed the landfill under court order in May, 1988. At that time, he covered the landfill in accordance with NR 504.07, WI Adm. Code, and placed a 6 inch grading layer of coarse soil over the waste, followed by 2 feet of clay soils. Two and a half feet of general soils were placed over the clay and 6 inches of topsoil, seeded and mulched, finished the cap. The final cover was completed in October, 1988. In January, 1989, John DeBeck declared bankruptcy and was unable to undertake additional remediation of the landfill or investigation of the degree and extent of groundwater contamination.

Therefore, in early 1989, the State of Wisconsin undertook the continued remediation and investigation of the site, as well as all operation and maintenance activities. Costs for this work

were paid by the State of Wisconsin's Environmental Fund which are monies from a variety of sources, including fees paid by the owners and operators of solid waste landfills, hazardous substance generator fees, licensing fees for pesticide use and general tax revenues.

In Fall, 1989, the State began a number of actions designed to remediate the immediate problems of :

1. Methane gas and leachate migration from the landfill.
2. Private water supply contamination at three wells.
3. Groundwater contamination and possible contamination of additional private wells.

The following actions were taken:

1. Installation of a gas and leachate extraction system in the landfill.

2. Long-term operation and maintenance of the gas/leachate extraction system.

3. Repair of the landfill cap.

4. Methane gas monitoring at private homes.

5. Point-of-entry (POE) water treatment systems installed in two private water supply wells.

6. Testing of private water supplies within one mile of the landfill.

7. Groundwater monitoring study. In Summer, 1990, the State undertook an intensive groundwater investigation to determine the degree and extent of VOC contamination. Hydro-Search, Inc. of Brookfield, WI performed the investigation. Twenty-seven groundwater monitoring wells were installed. There were 30 existing monitoring wells at the Site, for a total of 57 monitoring wells in the study. The study evaluated the geology, the vertical and horizontal groundwater flow, the average groundwater velocity in each geologic unit, the extent of aquifer contamination the direction of plume movement, preliminarily evaluated four remedial actions, and made recommendations on future work at the Site. The study showed that the groundwater plume had the potential to contaminate groundwater 1 mile southwest of the landfill. In January, 1991, the State began monitoring private wells in the southern portion of Deer Run Heights.

8. Numerical model simulation and assessment of contaminant plume migration.

9. Testing for metals, semi-volatiles compounds, pesticides and PCBs.

10. Long term groundwater monitoring.

In 1991, the WDNR offered to enter into a contract with a group of PRPs to undertake a remedial investigation and feasibility study (RI/FS) at RHL. After being unable to secure an agreement, and after reviewing data from the site, the WDNR recommended to EPA that the site be included on the National Priorities List (NPL). The site was listed on the NPL in October 1992. A Cooperative Agreement was signed between U.S. EPA and WDNR in April 1993 allowing the WDNR to act as lead agency in performing an RI/FS pursuant to s. 144.442, Wisconsin Statutes (now renumbered as s. 292.31 Wisconsin Statutes) and CERCLA. The RI/FS for this site was financed by the federal Superfund program. The WDNR secured a consultant, Hydro-Search, Inc., and the RI/FS officially began in October 1993.

The RI for RHL was completed in September 1994 and the FS was completed in February 1995. The WDNR issued a Record of Decision (ROD) in June, 1995. The ROD selected Alternatives B (Limited Action for Source Control), Alternative F (Groundwater Extraction and Treatment with Reinjection to enhance In-Situ Bioremediation) and Alternative G (Supply Individual Water Treatment Units) as the Final Remedy for the site.

U.S. EPA completed an Explanation of Significant Difference (ESD) in September, 1998 documenting that, based on the 1998 groundwater data, it is not necessary to implement groundwater extraction and treatment.

Remedial Construction Activities

Based on the Remedial Investigation (RI) and Feasibility Study (FS), the original ROD recommended extraction of the most highly contaminated groundwater (greater than 200 ppb total VOCs) in the vicinity of the landfill, treatment of groundwater to discharge standards and injection of the treated water into the aquifer upgradient of the landfill to stimulate in-situ biodegradation of the degradable components of the contamination. The Remedial Design (RD) phase began on April 8, 1997 when U.S. EPA entered into an Administrative Order on Consent (AOC) for RD with forty-two (42) Potentially Responsible Parties (PRPs). The AOC requires the PRPs to conduct Pre-Design Studies and then Remedial Design. The Pre-Design Studies were completed in July 1998 and consisted of: (1) sampling of 51 groundwater monitoring wells for VOCs; (2) sampling leachate extraction wells, 13 gas extraction wells, and 11 gas probes on the landfill; (3) sampling of 12 groundwater monitoring wells for natural attenuation parameters; and (4) an evaluation of the integrity of the new Schultz well.

The groundwater samples collected in February and March 1998 were analyzed in accordance with the EPA-approved Quality Assurance Project Plan (QAPP) procedures established for analytical work at this site. The results of groundwater sampling showed that none of the wells contained total VOCs at concentrations above 200 ppb. The highest total VOC concentration was found in well P-21D at 178 ppb. Therefore, the concentrations of total VOCs in groundwater are below the action level of 200 ppb total VOCs set in the June 28, 1995 ROD that would have triggered groundwater extraction and treatment. In other words, because the 1995 ROD called for installation of groundwater recovery wells in order to remediate groundwater

contaminated above 200 ppb total VOCs, and because groundwater is no longer contaminated above this level, no groundwater extraction and treatment is currently required by the 1995 ROD.

The decrease of total VOC concentrations in groundwater is likely the result of several processes: source control measures consisting of leachate extraction and gas extraction from the landfill are removing significant mass of VOC contamination from the landfill and thus reducing the mass of VOCs entering groundwater; and to a lesser degree natural degradation, dilution and dispersion of VOC contamination in groundwater. Analysis of natural attenuation parameters indicate that conditions appropriate for degradation of PCE and TCE are present within and probably beneath the landfill. Conditions appropriate for degradation of DCE and vinyl chloride are present in the groundwater around and downgradient of the landfill. These contaminants (PCE, TCE, DCE and vinyl chloride) constitute the majority of the VOC contamination in groundwater.

U.S. EPA in consultation with WDNR has determined, based on the 1998 groundwater data, that it is not necessary to implement the groundwater extraction and treatment component of the selected remedy. The groundwater plume appears to be stable and thus does not pose any additional threat to human health or the environment. Five year reviews of the site will be conducted until the groundwater remedial action objectives are achieved.

III. DEMONSTRATION OF QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) FROM CLEANUP ACTIVITIES

The September 30, 1998 ESD documented that, based on the 1998 groundwater data, construction of a groundwater pump and treat system is not necessary. Therefore, all construction activities under the June 28, 1995 ROD, as amended by the September 30, 1998 ESD are complete. Long-term operation, maintenance and monitoring of the landfill cap, gas/leachate systems and groundwater in conjunction with five year reviews are the only activities remaining for the site.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The following activities will be completed according to the schedule described below:

TASK	ESTIMATED COMPLETION	RESPONSIBLE ORGANIZATION
Long-term O&M Plan	3/1/99	PRPs
Operate Gas/Leachate Extraction and Groundwater Monitoring	2005-2010 [15-20 years from when the source was controlled (1990)]	PRPs
Final Close Out Report	2011	EPA

Five Year Reviews

A five year review is scheduled to be completed five years from the June 28, 1995 ROD, or June 2000. Five year reviews will be conducted pursuant to OSWER Directive 9355.7-02, "Structure and Components of Five-Year Reviews," or other applicable guidance where it exists.

Long-term operation and maintenance of the landfill cap, gas/leachate extraction systems and groundwater monitoring will be continued under the direction of the WDNR. U.S. EPA will initiate negotiations with the PRPs to take over long-term operation and maintenance from the State.

Wm. E. Muno

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9/30/98
Date