

Superfund Records Center
SITE: BFI Rockingham
BREAK: 8.3
OTHER: 55540

SUPERFUND FIVE YEAR REVIEW

**BFI Rockingham Landfill Superfund Site
Rockingham, Vermont**

September 1999

I INTRODUCTION

Authority Statement

EPA Region I conducted this review pursuant to CERCLA section 121(c), NCP section 300.400(f)(4)(ii), and OSWER Directives 9355.7-02 (May, 1991), and 9355.7-02A (June, 1994). It is a statutory review. The purpose of the five-year review is to ensure that a remedial action remains protective of public health and the environment and is functioning as designed. This document will become part of the Site file.

The EPA has established a three-tiered approach to conducting five year reviews, the most basic of which provides a minimum protectiveness evaluation (Level I Review). The second and third levels of review (Levels II and II) are intended to provide flexibility to respond to varying site-specific considerations and employ further analysis of Site conditions. In all but a relatively few cases where site-specific circumstances suggest a more comprehensive level of review, the EPA has determined that a Level I review will be appropriate. A Level I review is appropriate for the BFI Rockingham Landfill.

Site Characteristics

The Site is the BFI-Rockingham Landfill Superfund Site, also known as the Disposal Specialists Inc. Landfill, and will hereafter be referred to as the "Site". The Site is located along U.S. Route 5, locally known as Missing Link Road, in the Town of Rockingham, Windham County, Vermont. The Site is located on a terrace within 500 feet of the Connecticut River. The surrounding area is rural residential and agricultural land. Four residences are located between the landfill and the Connecticut River. Three of these residences are supplied water by a private water line on BFI property. The fourth residence has a private water supply upgradient of the Site. Much of the topography between the landfill and the Connecticut River is too steep for development.

The Site consists of a 17 acre solid waste landfill and the surrounding areas impacted by the Site. The impacted areas include the overburden ground water, bedrock ground water, and at least three areas of leachate discharge and the associated seep sediments along Route 5. Two of these areas of leachate discharge are now dry. There is a substantial floodplain/wetland area at the base of the steep slopes between the Site and the Connecticut River. There are no wetlands or floodplain areas on the west side of Route 5 within the 25 acre area consisting of the landfill and operating facility. The facility adjacent to the landfill includes an office building, garage, a solid waste transfer station, and storage areas for the transfer station.

The overburden ground water is discontinuous in the area of the Site. Bedrock ground water is the primary drinking water resource for the residences in the area of the Site. A publicly owned

sewage treatment works (POTW) is located directly across the Connecticut River in Charlestown, N.H.

Site History

From 1968 until 1991, the landfill received residential, commercial, and industrial solid and liquid waste. Approximately 1.2 million cubic yards of solid waste were disposed of in the landfill during its operation. The landfill stopped receiving waste in November 1991.

Prior to the 1960s, the Site was undeveloped woodland. The Site was used as a borrow pit for construction materials during the 1960's. In 1969, Disposal Specialist, Inc. (DSI) was created by Harry Shepard as the owner and operator of the landfill, and Harry K. Shepard, Inc. performed the solid and industrial waste hauling operations at the Site. Browning-Ferris Industries Inc. purchased DSI and Harry K. Shepard Inc. in 1973; and it continued the operation of the landfill as DSI. That same year the waste hauling business name was changed from Harry K. Shepard Inc. to Browning-Ferris Industries of Vermont, Inc. ("BFIVT").

The landfill received municipal incineration ash from 1986 to 1989. The municipal incineration ash was disposed in a lined monofill in the southeastern section of the landfill. In 1989, DSI installed an active gas collection system in order to comply with the Vermont air pollution control regulations. The gas collection and treatment system is operated and maintained pursuant to a permit issued by the Vermont Air Pollution Control Division.

The current and future land use of the landfill is considered non-residential due to the impracticality of constructing residences on a closed landfill. The areas surrounding the landfill are considered residential. However, due to steep topography, a significant portion of the area surrounding the landfill is not suitable for development.

Enforcement History

The State of Vermont has regulated the landfill's operations under its solid waste management program since 1968. In 1979, the Vermont Department of Environmental Conservation ("VTDEC") collected and analyzed groundwater samples from six bedrock wells in the vicinity of the landfill. Based upon the results of those samples, the VTDEC required DSI to supply nearby residents with bottled water. In 1980, a water supply well was installed on the DSI property to service the facility and the residents. DSI entered into an agreement with the residents to maintain the water line until twenty years after full and final closure of the solid waste facility. Since the installation of the water line no residences have been supplied bottled water. Several hydrogeologic investigations were performed during the 1980s by DSI pursuant to VTDEC requirements.

On May 15, 1992, EPA notified two parties, DSI, as owner and operator of the facility, and BFIVT, as a transporter of wastes to the facility, of their potential liability with respect to the Site. Subsequently, EPA began negotiations with these parties regarding the settlement of their liability at the Site.

In July 1992, EPA and DSI and BFIVT, entered into an Administrative Order on Consent, U.S. EPA Region I CERCLA Docket No. I-92-1053 for the performance of a remedial investigation and feasibility study ("RI/FS Order"). EPA also recovered past costs from the same parties under a separate Administrative Order on Consent, U.S. EPA Region I CERCLA Docket No. I-92-1052.

As part of the Superfund Accelerated Cleanup Model ("SACM"), EPA initiated a NTCRA for the Site in December 1992. In February 1993, EPA required the Settling Parties to prepare an engineering evaluation/cost analysis ("EE/CA") under the existing RI/FS Order to evaluate alternative to implement as part of the NTCRA. The NTCRA followed the preferred approach for landfill closure as described in EPA's "Guidances for Conducting Remedial Investigations and Feasibility Studies at CERCLA Municipal Landfill Sites."

Based upon the EE/CA, EPA selected the installation of a multi-layer landfill cap as the NTCRA activity in an Action Memorandum signed on September 13, 1993. On September 24, 1993, EPA entered into a third Administrative Order on Consent, U.S. EPA CERCLA Docket No. 1-93-1099, for the design and implementation of the activities described in the Action Memorandum.

On September 21, 1994, the Region issued the Record of Decision ("ROD") that describes the remedial action for the Site. The ROD selected natural attenuation of groundwater and the Long-Term Operation, Maintenance and Monitoring of the landfill cap which was constructed under the NTCRA Order as the remedial action. The ROD also requires Institutional Controls to restrict the use of the groundwater and protect the integrity of the landfill cap. EPA anticipates that groundwater cleanup levels will be achieved in 15 to 20 years. A consent decree, Civil Action No. 2:96-CV-309 requiring the PRPs to perform long-term maintenance, long-term monitoring, and institutional controls was approved by the U.S. District Court in November 1996.

Remedial Construction Activities

The Site has two CERCLA cleanup. The first cleanup action was a non-time critical removal action (NTCRA). The NTCRA included: construction of a multi-layer landfill cap; expansion of the gas extraction system; and institutional controls to protect the cap. The second cleanup action was described in the September 1994 Record of Decision. The second action called for the natural attenuation of the groundwater, continued operation and maintenance of the NTCRA, and long-term monitoring of the Site as the future activities.

The design of the NTCRA was initiated in October 1993 and completed in July 1994. The PRP contractor, Dames and Moore, mobilized to the Site in April 1994 to initiate Site preparation activities and install the additional gas extraction wells. The gas extraction system expansion and Site preparation activities were completed in May 1994. A test pad was implemented in June 1994 to verify that the design performance standards could be met. Seventy-five percent of the landfill had a cap by December 1994. The remaining twenty-five percent of the landfill had a cap installed in May-July 1995. All surface water control systems were completed by August 1995 and a well vegetated cover was established by October 1995.

EPA, VTDEC, and the oversight contractor performed a pre-final inspection in December 1995 and a final inspection in May 1996. The cap and all related systems were determined to have been constructed according to design and that the vegetative cover was well established. The construction activities and completion were documented in a Completion of Work Report that was approved by EPA in September 1996. This Report documented the completion of the NTCRA and the initiation of Post-Removal Site Control/Operation and Maintenance by the PRPs.

The 1994 ROD called for natural attenuation, monitoring, institutional controls, and maintenance of the NTCRA. No construction activities were required by the ROD. EPA approved the Monitoring Plan for the Natural Attenuation ROD in May 1996. The Institutional Controls were also completed in May 1996.

EPA signed a Preliminary Closeout Report (PCOR) for the entire Site (NTCRA and Remedial Action) in September 1996 upon completion of the cap. The PCOR confirmed that no additional monitoring wells or other construction activities will be necessary at the Site.

II DISCUSSION OF REMEDIAL OBJECTIVES; AREAS OF NONCOMPLIANCE

The 1994 Record of Decision established the following remedial action objectives for the Site:

Landfill (Source Area) Remedial Action Objectives

- Prevent, to the extent practicable, the potential for water to contact or infiltrate through the debris mass;
- Prevent, to the extent practicable, the generation of landfill seeps and the migration of landfill impacted surface water into the Connecticut River;
- Control landfill gas emissions so methane gas does not represent an explosion hazard; prevent, to the extent practicable, the inhalation of landfill gas containing hazardous substances, pollutants, or contaminants; and meet state and federal air standards;

- Prevent, to the extent practicable, the migration of contaminated ground water/leachate beyond the points of compliance by controlling the source of the contamination;
- Minimize the potential for slope failure of the debris mass associated with the multi-layer landfill cap or any future action;
- Prevent, to the extent practicable, direct contact with and ingestion of soils/debris within the landfill and beneath the landfill;

Ground Water Remedial Action Objectives

- Prevent, to the extent practicable, the ingestion of landfill-impacted bedrock ground water exceeding EPA Safe Drinking Water Act Maximum Contaminant Levels (MCLs), Vermont Primary Ground Water Quality Standards, or in their absence, the more stringent of an excess cancer risk of 1×10^{-6} for each compound or a hazard quotient of 1 for each noncarcinogenic compound, by any individual who may use the bedrock ground water within the area of landfill-impacted ground water or within an area that could become impacted as a result of pumping activities;
- Restore the bedrock ground water at the edge of the Waste Management Unit to: MCLs, Vermont Primary Ground Water Quality Standards, or in their absence, the more stringent of an excess cancer risk of 1×10^{-6} for each compound or a hazard quotient of 1 for each noncarcinogenic compound.

Surface Water (Ecological) Remedial Action Objectives

- Protect off-site surface water by preventing the occurrence of landfill impacted seeps;
- Meet federal and state applicable or relevant and appropriate requirements (ARARs) for any surface water discharge to the Connecticut River; and
- Provide long term monitoring of the surface water and sediments of the section of the Connecticut River adjacent to the landfill to assure that no landfill related impacts occur in the future.

ARARS Review and Update

Most of the ARARs identified by the 1992 Action Memorandum and 1994 ROD were met as part of the construction and implementation of the non-time-critical removal action. The only ARARs for which compliance has not been achieved are the groundwater performance standards (MCLs and Vermont Groundwater Standards).

One of the groundwater performance standard ARARs has been revised since the 1994 ROD. The Vermont groundwater enforcement standards are ARARs, along with MCLs, for the groundwater quality outside the limits of the Waste Management Unit. The standards were updated since the RODs. The Vermont groundwater standards were made to be equivalent to the federal MCLs. Therefore, there is no additional evaluation required as part of this review as MCLs were an original ARAR. The goal of the remedial action will continue to be the restoration of the groundwater to MCLs and Vermont groundwater standards outside the boundary of the waste management unit.

Site Visit and Inspection

EPA performs an annual Site visit. The most recent Site visit was conducted September 14, 1999. This Site visit was similar in nature to the other Site inspections performed annually since the completion of the remedial action. EPA walked the surface of the landfill cap and performed an inspection of all of the accessible remedial features. An EPA technical support contractor with landfill expertise and the VT DEC also participated in the inspection. All Site remedial components were in good working conditions and no problems were observed.

EPA also held a public meeting on September 14, 1999 at 7:00 p.m.. The meeting location was a hall located across the street from the Site. Approximately 12 local residents attended the meeting. EPA also walked through the neighborhood prior to the meeting and to meet with adjacent residents. The public sentiment was positive and no issues were identified regarding the landfill. There was some concern regarding the recent sale of BFI to Allied Waste Systems. EPA assured the public that the PRP was still responsible for operation and maintenance.

Review of Monitoring Data

The monitoring data for the Site supports that the landfill cap is working and that concentrations of contaminants have either stabilized or decreased since the installation of the cap. The landfill leachate generation has dropped dramatically as evidenced by the flow entering the leachate collection system. The flow rate has declined from approximately 1.25 gallons per minute to less than 0.2 gallons per minute.

Area of Non-Compliance

No areas of non-compliance with the ROD were identified. The landfill cap is in good condition and the PRPs are implementing the activities required by the ROD and consent decree. At this time, there is no reason to revise the 15-20 year time period for groundwater restoration.

III RECOMMENDATIONS

The response actions implemented as a result of the Action Memorandum and ROD for the Site have been successfully implemented and are operating as planned and expected. The landfill, interceptor trench, and gas extraction wells are performing to the standards of the Action Memorandum, ROD, and Consent Decree. No changes to the remedial actions are necessary as a result of revised ARARs or other aspects of this review. The groundwater beneath the landfill was not expected to meet cleanup levels at this time and will remain an area of contamination in need of control until natural attenuation has restored the groundwater. The Institutional Controls, including the water line, in combination with the reduction in contamination concentrations as a result of the natural attenuation will protect a future user of the groundwater.

Continued implementation of the operation, maintenance, and monitoring activities at the Site is the recommendation of this five-year review. The next five-year review should be conducted in June 2004.

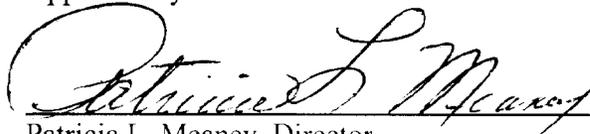
IV STATEMENT OF PROTECTIVENESS

I certify that the remedy selected for this Site remains protective of human health and the environment.

V NEXT FIVE YEAR REVIEW

The next five year review will be conducted by September 2004.

Approved by:



Patricia L. Meaney, Director
Office of Site Remediation and Restoration

9/29/99

Date