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SUPERFUND RECORDS CTR	_____
Site:	Sylvester/Gilson Rd
Block:	8.3
Other:	_____

FIVE YEAR REVIEW

**SYLVESTER/GILSON ROAD
SUPERFUND SITE
NASHUA, NEW HAMPSHIRE**

**PREPARED BY:
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I
BOSTON, MASSACHUSETTS**

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NH&RI Waste Management Branch

Date

**Five-Year Review (Type Ia)
Sylvester/Gilson Road Superfund Site
Nashua, New Hampshire**

I. INTRODUCTION

Authority Statement, Purpose. 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 23, 1991), and 9355.7-02A (July 26, 1994). It is a Policy Review. The purpose of a 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 a part of the Site File. This review (Type Ia) is applicable to a site at which response is ongoing.

Site Characteristics. The Sylvester/Gilson Road Site (Site) is located in the City of Nashua, New Hampshire, off Route 111, in the south easterly corner of that community. A portion of the Site, approximately 6 acres, was used as a sand borrow pit for an undetermined number of years. During the late 1960's, the operator of the pit began to use the Site for waste disposal without obtaining required permits or authorizations. Household refuse, demolition materials, chemical sludges, and hazardous liquid chemicals all were dumped at the Site at various times. The household refuse and demolition material were usually buried, while the sludges and hazardous liquids were either mixed with trash or were allowed to percolate into the ground adjacent to the old sand pit. Some hazardous liquids were also stored in steel drums which were either buried or placed on the ground surface.

The illegal dumping at the Site was first discovered in late 1970. After several court actions, the court issued an injunction in 1976 which required the removal of all materials from the Site. The operator of the Site failed to comply with the injunction.

The first indication that the illegal dumping had included hazardous waste came in November 1978 when New Hampshire State personnel observed drums being stored at the Site. A court order was issued in October 1979 prohibiting all further disposal of hazardous wastes on the Site. Although it is not possible to determine the precise amount of hazardous wastes that were disposed of at the Site, documents show that over 900,000 gallons of hazardous wastes were discarded at the Site during a ten month period in 1979.

In 1981, initial investigations showed that there were high concentrations of heavy metals and volatile and extractable organics in the ground water under the Site. The contamination formed a plume in the ground water which was moving from the Site toward Lyle Reed Brook. As the volatile hazardous compounds reached Lyle Reed Brook they volatilized into the atmosphere at levels well above acceptable public health limits. In addition, the initial investigation indicated that if the ground water

plume continued to move unchecked into the brook, Water Quality Criteria for arsenic, methylene chloride, chloroform, 1,2-dichloroethane, trichloroethylene and benzene would potentially be exceeded in Lyle Reed Brook and the Nashua River.

In July 1982, EPA issued a Record of Decision (ROD) which specified that a slurry wall would be installed around a 20-acre area to contain the contaminated ground water plume and a surface cap placed over the Site. The ROD also approved ground water treatment in principle, but deferred the selection of the treatment process until pilot plant studies were completed. By December 1982, a slurry wall had been installed around the 20 acre area and a synthetic cap placed over the entire 20 acre Site.

On September 22, 1983, EPA issued a Supplemental ROD that recommended that a 300 gallon per minute (gpm) ground water treatment plant be constructed. The treatment plant would provide removal of inorganic chemicals (metals), removal of volatile organic chemicals, and destruction of the VOCs by incineration. The Supplemental ROD also established cleanup goals within the slurry wall containment area for 16 compounds listed in the Supplemental ROD (Attachment I). These cleanup goals, known as Alternate Concentration Limits (ACLs), were derived from extensive research and were set at levels deemed necessary to adequately protect human health and the environment.

Construction of the ground water treatment facility began in April 1984 and was completed in April 1986. The Supplemental ROD estimated that cleanup levels inside the 20 acre containment area would be met within two years of initiation of the treatment system. After two years of operation, the ROD required EPA and the New Hampshire Department of Environmental Services (NHDES) to undertake an evaluation of the Site to determine the degree to which treatment goals have been met, the integrity of the slurry wall and the amount of ground water flowing through the containment area.

In March 1988, an evaluation of the Site in accordance with the requirements of the Supplemental ROD was performed. The report, the Remedial Program Evaluation Report, was completed in August 1989 and concluded that several hot spots or areas of elevated groundwater contamination persisted in spite of the groundwater extraction and treatment system. On July 7, 1990, EPA issued an Explanation of Significant Differences (ESD) that concluded that certain adjustments to the remedy described in the Supplemental ROD are necessary. The adjustments to the remedy, as recommended in the ESD and described in Section II of this Five-Year Review, were completed in the Fall of 1992.

II. DISCUSSION OF REMEDIAL OBJECTIVES; AREAS OF NONCOMPLIANCE

The Supplemental ROD identified the following objectives of remediation:

1. The concentrations remaining in the site after the treatment is stopped

will not pose a substantial present or potential hazard to human health or the environment.

2. Volatization from Lyle Reed Creek will be reduced to acceptable exposure levels.
3. Arsenic and organic concentrations will be reduced to below water quality criteria at Lowell, Massachusetts.
4. The likelihood of fish kills in the Nashua River will diminish as the plume migrates into the river.
5. Lyle Reed Creek will not meet water quality criteria levels, but an expanded aquatic population is expected.
6. Finally, all residents using groundwater, threatened by the plume, will be provided water service from the City of Nashua.

The Supplemental ROD also specified that after one and a half to two years of operation, the treatment system will be evaluated for the following:

1. The degree to which treatment goals have been met for the groundwater within the slurrywall containment area;
2. the long term integrity of the slurrywall and;
3. the amount of groundwater flowing through the containment area.

As explained in Section I above, in March 1988, the evaluation of the Site in accordance with the requirements of the Supplemental ROD was performed. The evaluation was completed and a report issued in August 1989. This report is the basis for the ESD issued by EPA on July 7, 1990. The ESD concluded that certain adjustments to the remedy described in the Supplemental ROD are necessary. The major adjustments to the Supplemental ROD are summarized below:

1. The ground water treatment plant will operate for up to an additional four years (until July 1994). If all ACLs within the containment area have not been attained within three years (by July 1993), an evaluation of the ground water treatment system will be performed to determine the technical feasibility of attaining the ACLs and the effect on public health and the environment if no further treatment is provided. If all ACLs are attained prior to July 1993, an evaluation will be performed prior to terminating ground water treatment to insure that protection of public health and the environment will be maintained. Based on the results of either of these evaluations, EPA will decide whether to continue operating the ground water treatment system, to alter the ground water

treatment system, or to terminate further groundwater treatment at the Site.

2. Six additional recovery wells will be installed in areas of greatest residual contamination.

3. An investigation will be performed into the location and nature of an apparent toluene contamination source. If necessary, the extraction system will be adjusted to focus on removal of the toluene contamination. Adjustments may also include instituting vacuum extraction or installing additional extraction wells and/or recharge trenches.

In July 1993, all ACLs within the containment area were not being attained and, as required in Item 1 above, an evaluation of the groundwater treatment facility was initiated. To date, all field work for the evaluation has been completed and a final report is expected this Fall.

Based on the latest Annual Report (May 1994), the groundwater treatment facility has treated approximately one billion gallons of contaminated groundwater and removed more than 400,000 pounds of volatile organic compounds from the groundwater since operation began in 1986. However, as previously noted, all groundwater cleanup goals have not yet been met. Of the 13 organic compounds for which ACLs are established, two have met the cleanup goal throughout the containment area, nine are approaching the applicable ACL and two (Chlorobenzene and 1,1 Dichloroethane) still remain relatively distant from the ACL. Additional modifications to the groundwater extraction and recharge pumping rates have been made to attempt to collect contaminated groundwater from stagnant locations within the containment area.

III. RECOMMENDATIONS

As previously noted, the groundwater extraction and treatment system is currently being evaluated to determine if it can be shut down or if continued treatment is necessary. EPA and the NHDES will continue to operate the system pending conclusion of the evaluation report and decisions based on that report.

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 1999.

ATTACHMENT I

Contaminated Concentration Within the Containment After Treatment

Appendix VIII Hazardous Constituents

Recommended A.C.L. Within the Containment Structure

Vinyl Chloride	95 ug/l
Benzene	340 ug/l
Chloroform	1505 ug/l
1,1,2 Trichloroethane	1.7 ug/l
Methyl Ethyl Ketone	8000 ug/l
Chlorobenzene	110 ug/l
Methylene Chloride	12250 ug/l
Toluene	2900 ug/l
1,1 Dichloroethane	1.5 ug/l
trans-1,2 Dichloroethane	1800 ug/l
1,1,1 Trichloroethane	200 ug/l
Methyl Methacrylate	350 ug/l
Selenium	2.6 ug/l
Phenols	400 ug/l