Explanation of Significant Differences

SIDNEY LANDFILL SUPERFUND SITE

Town of Sidney
Delaware County, New York

EPA
Region 2 **September 2004**

INTRODUCTION

In accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9617(c), and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan, if after the Environmental Protection Agency (EPA) selects a remedial action, there is a significant change with respect to that action, an explanation of the significant differences (ESD) and the reasons such changes were made must be published.

EPA issued a Record of Decision (ROD) for the Sidney Landfill site in September 1995 that called for, among other things, construction of four independent landfill caps and extraction and treatment of contaminated groundwater in a "hotspot" area. The ROD also stated that after the construction of the caps and the extraction and treatment of the contaminated groundwater in the "hotspot" area, the results of monitoring would be evaluated to determine whether the groundwater quality in downgradient areas would be restored to acceptable levels through natural attenuation within a reasonable time frame. Should the monitoring show that groundwater quality would likely not be restored within a reasonable time frame by natural attenuation alone, then groundwater extraction and treatment would be implemented.

Groundwater data indicate that the elevated concentrations of contaminants are no longer present in the "hotspot" area. Therefore, extraction and treatment of contaminated groundwater in this area is no longer necessary.

Contamination is still present in downgradient monitoring wells.

Aquifer testing results indicate that a hydraulic connection exists between the contaminated downgradient Sidney Landfill monitoring wells and recovery wells located at the adjacent Richardson Hill Road Landfill (RHRL) site [1] and the RHRL site system is capturing the contaminants from the Sidney Landfill site. Therefore, the downgradient groundwater contamination at the Sidney Landfill site will be addressed utilizing the RHRL site's recovery wells.

[1] The Richardson Hill Road Landfill site, also a National Priorities List site, is being remediated separately.

This ESD will become part of the Administrative Record file for the site. The entire Administrative Record for the site, which includes the remedial investigation (RI) report, feasibility study (FS) report, ROD, design reports, the June 2004 Five-Year Review Report, and other relevant documents are available for public review at the following location:

Sidney Memorial Public Library
Main Street
Sidney, New York 13838
(607) 563-8021 or 1200

Hours: 9:00 A.M. - 9:00 P.M. Monday - Thursday
9:00 A.M. - 6:00 P.M. Friday
9:00 A.M. - 3:00 P.M. Saturday
1:00 P.M. - 4:00 P.M. Sunday

and

U.S. Environmental Protection Agency
290 Broadway, 18th Floor
New York, New York 10007
(212) 637-4308

Hours: 9:00 A.M. - 5:00 P.M. Monday - Friday

The changes to the selected remedy are not considered by EPA or the New York State Department of Environmental Conservation (NYSDEC) to be a fundamental alteration of the remedy selected in the 1995 ROD. The remedy modifications maintain the protectiveness of the groundwater action with respect to human health and the environment, and comply with federal and state requirements that were identified in the ROD.

SITE DESCRIPTION, SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The 74-acre Sidney Landfill is an inactive landfill located in the Town of Sidney, Delaware County, New York. About 20 acres of the site have been used for waste disposal.

The land on which the Sidney Landfill is located was purchased in 1967 for the purpose of operating a refuse disposal area. While operating the Sidney Landfill, the owner

also operated a disposal area on the west side of Richardson Hill Road referred to as the RHRL site. Both

Landfills were used for the disposal of municipal waste from the Town of Sidney and commercial wastes from Bendix Corporation. The Sidney Landfill was poorly operated and was cited by NYSDEC for improper compaction of waste, poor daily covering, no supervision, and uncontrolled access to the site. Operations at the Sidney Landfill ceased in 1972.

NYSDEC performed a Phase II investigation of the site from 1985 to 1987. In September 1985 and October 1986, the New York State Department of Health collected groundwater samples from residential wells near the site and identified the presence of site contaminants. These efforts led to the proposal to include the site on the Superfund National Priorities List (NPL); the site was listed on the NPL on March 30, 1989.

EPA conducted an RI/FS from 1991 to 1995. Bedrock groundwater samples collected during the RI indicated the presence of chlorinated and non-chlorinated volatile organic compounds (VOCs). Three private water supplies sampled during the RI also contained contaminants found in site groundwater; two were found to be above drinking water standards[2]. Surface soils at the site were found to contain elevated concentrations of pesticides, polychlorinated biphenyls (PCBs), and inorganic compounds. Leachate samples identified the presence of chlorinated VOCs and PCBs.

Based upon the results of the RI/FS, EPA issued a ROD in September 1995. The selected remedy included, among other things, construction of four independent landfill caps and extraction and treatment of contaminated groundwater from the bedrock aquifer in the vicinity of "hotspot" monitoring well MW-2S, and discharge to surface water. The ROD also stated that after the construction of the caps and the extraction and treatment of the contaminated groundwater in the "hotspot" area, the results of monitoring would be evaluated to determine whether the groundwater quality in downgradient bedrock areas would be restored to acceptable levels through natural attenuation within a reasonable time frame. Should this monitoring show that groundwater quality would likely not be restored within a reasonable time frame by natural attenuation alone, then groundwater extraction and treatment would be implemented.

On December 13, 1995, EPA issued a Notice Letter to the potentially responsible parties (PRPs), inviting them to design and implement the remedy selected for the site. Since the PRPs did not agree to conduct the necessary work, on July 9, 1996, EPA issued them a Unilateral Administrative Order (UAO), EPA Index No. II-CERCLA-96-0204. The PRPs subsequently agreed to comply with the UAO to conduct the remedial design/remedial action.

Pursuant to the UAO, the PRPs began the design of the selected remedy in 1997. The construction of the landfill caps was completed in 1999.

In June 2004, EPA performed a five-year review of the Site in accordance with Section 121(c) of CERCLA, 42 U.S.C. §9621(c)[3]. The five-year review concluded that the portion of the remedy implemented at the site was done so in accordance with the remedy selected in the ROD and that it is fully protective of human health and the environment.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES

During the RI, measurable (up to 4 inches) light non-aqueous phase liquid (LNAPL) was detected during the installation of monitoring well MW-2S. Sampling of this well in 1991 showed the presence of PCB Aroclor 1242 at 61,000,000 micrograms per liter (μg/l) and screening results indicated highly elevated levels of tetrachloroethene (PCE), trichloroethene (TCE), ethylbenzene, 1,1,2,2-tetrachloroethane, and xylene. In 1992, LNAPL was collected from monitoring well MW-2S; it contained very high concentrations of VOCs, including PCE (36,000 μg/l), TCE (26,000 μg/l), and toluene (65,000 μg/l). On this basis, the groundwater located in the vicinity of monitoring well MW-2S was identified as a "hotspot" area. However, samples collected during the pre-remedial design and post-landfill cap construction no longer showed LNAPL and concentrations of PCE and its daughter products were significantly lower than were previously detected.

The groundwater remedy selected in the ROD calls for the reduction of VOC concentrations to groundwater standards by extraction of contaminated groundwater from the MW-2S "hotspot" area in combination with natural attenuation in downgradient areas. A pilot-scale blasted bedrock trench was constructed in May 1998 as part of the pre-design investigation. Based upon the results of subsequent testing, it was determined that the blasting caused the shallow bedrock zone to become hydraulically connected with the deeper zone, thereby dewatering the hydraulic zone represented by monitoring well MW-2S. Following the blasting of the bedrock trench, with the exception of the sampling event in February 2000, monitoring well MW-2S could not be sampled due to the well being dry or containing an insufficient amount of water for sampling (the February 2000 sample results showed the presence of only TCE at 1.4 μg/l). Due to the conditions mentioned above, it has been concluded that extraction of groundwater from the "hotspot" could not effectively remove contaminants from this area. Therefore, the remedy selected in the ROD for the MW-2S "hotspot" area is no longer necessary[4].

[2] Since the contamination in these wells was linked to the RHRL site, treatment systems were installed on these water supplies by the potentially responsible parties (PRPs) associated with the RHRL site, pursuant to an Administrative Order on Consent.

[3] The purpose of five-year reviews is to assure that selected remedies protect public health and the environment and that they function as intended.

[4] Based upon estimates from the ROD, the capital cost associated with collecting and treating contaminated groundwater in the vicinity of monitoring MW-2S would have been $600,000; the annual O&M cost would have been approximately $180,000.

Because it did not appear that the blasted bedrock trench could address the groundwater contamination, the PRPs evaluated other potential treatment technologies. Based upon this analysis, injection of an enhanced biodegradation product–hydrogen release compound (HRC) was chosen to be pilot-scale tested. The HRC pilot test was undertaken in the "hotspot" area from 2001 to 2002. Although there was some evidence of minor reducing conditions and VOC degradation, it was determined that the enhanced biodegradation technology would not be a suitable alternative at the site.

As part of an assessment of site-wide natural attenuation, quarterly groundwater sampling was initiated in November 2001. Quarterly groundwater sampling was conducted for eight quarters. The samples were analyzed for natural attenuation parameters and VOCs. The natural attenuation analysis indicates that natural attenuation processes are occurring, although only in a limited number of locations.

The current levels of groundwater contamination in downgradient areas are consistent with the levels that existed during the RI.

As part of the remedy for the RHRL site, a bedrock groundwater recovery well and treatment system has been in operation in close proximity (approximately 800 ft) to the Sidney Landfill site since August 2003. Aquifer pumping test results indicate that a hydraulic connection exists between contaminated Sidney Landfill monitoring wells and the RHRL site's recovery wells. These recovery wells are capturing the contaminants from the Sidney Landfill site. EPA evaluated the addition of pumping wells closer to the contaminated wells at the Sidney Landfill site. Based upon preliminary modeling results, it has been estimated that it would take 22 years to restore the downgradient groundwater contamination at the Sidney Landfill site, as compared to 17 years utilizing recovery wells located on the Sidney Landfill site. The estimated present-worth cost of construction, operation, monitoring, and maintenance of the recovery wells on the Sidney Landfill site is $550,000. The estimated present-worth cost of monitoring the groundwater at the Sidney Landfill site, if no recovery wells are constructed, is $55,000.

The estimated time frame for the groundwater to reach state and federal drinking water standards would not be substantially reduced by installing recovery wells at the Sidney Landfill site and there would be a significant increase in cost. The downgradient groundwater contamination at the Sidney Landfill site will however continue to be addressed by the RHRL site's groundwater recovery wells and treatment system.

EPA believes that the remedy that has already been implemented at the Sidney Landfill site in combination with the RHRL site's recovery system and natural attenuation will offer the most cost-effective, technically feasible approach to restoring groundwater quality in a reasonable time frame.

SUPPORT AGENCY COMMENTS

NYSDEC supports the change to the remedy.

AFFIRMATION OF STATUTORY DETERMINATIONS

EPA and NYSDEC believe that the remedy, as modified, remains protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this remedial action or provides justification for a waiver, and is cost-effective. In addition, the remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

PUBLIC PARTICIPATION ACTIVITIES

EPA and NYSDEC are making this ESD and supporting information available to the public in the Administrative Record. Should there be any questions regarding this ESD, please contact:

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