5.2 Progress Since Last Five-Year Review

Below is a summary of progress since the previous Five-Year Review for each OU.

5.2.1 OU #1 Progress

Construction of the RA for OU #1 was completed in November 1991. Since that time, the MassDEP has been responsible for O&M of OU #1. Quarterly inspections of the OU #1 landfill are conducted and inspection reports are prepared. Corrective actions are performed as needed.

5.2.2 OU #2 Progress

Annual monitoring of about 30 area wells was discontinued in the Fall of 2003. The results identified a well defined VOC plume in shallow groundwater extending beneath a nearby residential area. Several years of monitoring indicated that the plume is generally stagnant, which means that contaminant concentrations have remained relatively unchanged and the overall plume is neither expanding nor contracting. These findings suggest that the DNAPL is an ongoing source of groundwater contamination. Based on these findings, a DNAPL alternatives memorandum was prepared in September 2005 to evaluate options to physically recover the DNAPL.

Renewed concerns over vapor intrusion lead EPA to perform an indoor air assessment in shortly after the completion of the previous five-year review in 2004. TCE and four other contaminants were detected in five (5) of the seven (7) homes sampled at concentrations which exceeded the lower end of the screening level range of 2 to 43 $\mu g/m^3$ for TCE. This prompted EPA to complete a focused risk assessment using all the available indoor air data from Nyanza. The risk assessment was completed in October 2005 and concluded that a potentially unacceptable risk from continued long-term inhalation of TCE vapors in seven (7) of the fourteen (14) homes sampled, and in the Town Hall.

Based on groundwater data and the focused vapor intrusion risk assessment, EPA determined that active mitigation of vapors was necessary. In August 2006, EPA distributed a fact sheet by going door to door throughout the impacted neighborhood and held multiple public meetings to describe vapor intrusion concerns and the planned mitigation process. EPA issued an ESD in September 2006, which provided for the physical source extraction of DNAPL and the

that they can be converted to recovery wells if DNAPL is encountered. This approach is pending EPA approval.

5.2.3 OU #3 Progress

Construction activities for OU #3 were completed in November 2001. OU #1 O&M activities were temporarily suspended between 1999 and 2002 to allow OU #3 RA construction activities to be completed. OU #1 and OU #3 O&M activities resumed in 2003 after OU #3 RA was completed and the O&M Plan was updated. Since 2003, OU #3 has been monitored in conjunction with OU #1. Quarterly inspections are conducted and inspection reports are prepared. MassDEP is also responsible for conducting long-term wetland monitoring activities through 2009. Corrective actions for these areas are performed as needed.

5.2.4 OU #4 Progress

A *Supplemental Baseline Human Health Risk Assessment,* prepared by Roy F. Weston, Inc. in 1999 (Weston, 1999a) assessed the human health risks due to exposure to mercury in the Sudbury River through incidental ingestion of mercury in surface water and sediment and ingestion of mercury through fish consumption. The Weston report concluded that potential human exposure to mercury in surface water and sediment in the Sudbury River was well-below any level of concern; however, exposure to mercury through the catch and consumption of fish from the Sudbury River posed an unacceptable level of risk to subsistence fishermen. A Supplemental Baseline Human Health Risk Assessment (SBHHRA) for OU #4 was completed in May 2006 (Avatar Environmental, 2006). The SBHHRA evaluated both the recreational and subsistence fisherman pathways. The SBHHRA documents the potential mercury exposure and consequent risk to individuals who catch and eat fish from the Sudbury River, providing an addendum to the *Supplemental Baseline Human Health Risk Assessment,* prepared by Roy F. Weston, Inc.

The SBHHRA used data from several species of fish collected by the U.S. Fish & Wildlife Service (USFWS) in 2003 from each of 10 reaches of the Sudbury River to evaluate and identify the human health risk associated with consumption of fish from each of the reaches of the Sudbury River; evaluate the exposure and the consequent risk for those reaches that were not previously assessed; and for those reaches that were previously assessed, identify changes in the levels of mercury in the edible tissue of fish collected in 1993/1994 and again in 2003, and by extension, changes in the potential human health risk during that period. The Supplemental

Four in-person interviews were conducted by EPA on February 25, 2009 with Mr. Dave Buckley (MassDEP Project Manager), Mr. Mike Brogin (facilities manager of the Ashland House), Mr. Dave Foster (Town of Ashland Public Facilities Director), and Mr. Malcolm Smart (member of the Ashland Board of Health). Mr. Buckley reported that some incidents of trespassing have occurred at the landfill site. Evidence of dumping was observed during the Site inspection. Both Mr. Brogin and Mr. Foster reported that increased flooding has occurred around the railroad tracks and Trolley Brook area, and that the flooding has sometimes affected the downtown area. No additional concerns or major issues were raised during these interviews.

EPA conducted two additional interviews on March 6, 2009 with Pastor Charlie Legassey, principal of the Metro West Christian Academy, and Mrs. Gail Melancon, a resident of the Town of Ashland who has a VMS in her home. Pastor Legassey did not express any major concerns regarding the Site, and in general was pleased with the level of communication from the MassDEP and the EPA concerning activities at the Site and around the town. Mrs. Melancon reported that she was generally pleased with how the work to install the VMS was conducted. She did raise concerns about cracks that have occurred in her basement floor since the installation of the VMS. Mrs. Melancon expressed her desire for good communication from the MassDEP going forward concerning the maintenance and inspection of her VMS. No additional issues or concerns were raised during the interviews.

7.0 TECHNICAL ASSESSMENT

This section provides a technical assessment of the remedies implemented at the Site, as outlined in the Comprehensive Five-Year Review Guidance (EPA, 2001b). The remedies have been evaluated based on their function in accordance with decision documents, their adherence to valid risk data and scenarios, as well as any other information that could have affected the remedy's protectiveness.

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

OU #1

Yes. The results of the monitoring data review and the Site inspection indicate that the remedy is functioning as designed. Overall, the Site was well maintained and appeared to be in good condition. The issues identified during the Site inspection do not affect the overall

two existing monitoring wells, in November 2006 to more accurately delineate the shallow VOC plume as mandated by the ESD.

Finally, the institutional controls mandated by the ROD have not yet been implemented. There are currently no formal controls in place to prevent the installation of drinking water wells or contact with contaminated groundwater through excavation. In order to insure that the remedy remains protective in the long-term, institutional controls need to be implemented to prevent exposure to contaminated groundwater. As described in the ESD, an informal notification process has been used whereby the Town of Ashland seeks EPA's input into construction projects located within the extent of the known groundwater plume. Although not mandated by the ESD, EPA intends to establish institutional controls to prevent future inhalation of vapors. Due to the numerous residential properties requiring controls, EPA will request that the Town of Ashland establish a zoning ordinance to provide the necessary controls. These controls will be formalized in the pending final ROD for OU#2.

OU #3

Yes. The results of the monitoring data review and the Site inspection indicate that the remedy is functioning as designed. Overall, the Site was well maintained and appeared to be in good condition. The issues identified during the Site inspection do not affect the overall protectiveness of the remedy. The cap is functioning as designed and is in good overall condition. The cap remains as a protective barrier to prevent exposure to human trespassers and burrowing mammals. The results of the groundwater monitoring data indicate that the concentrations of contaminants detected in samples collected from both overburden and bedrock wells continue to fluctuate; however, the overall trend appears to be decreasing. The most recent surface water monitoring data did not detect any contaminant concentrations above the applicable EPA and MCP standards. Air monitoring data indicates that no contaminants are being transported off-site. The restored wetland areas are being actively maintained and appear to provide a functioning habitat. Also, the requirement for coverage of wetland native species has been met for a majority of the area and other areas are close to achieving the required coverage. Finally, the potential for direct human contact to contaminated sediments has been mitigated by the Site security fences.

Five-Year Review Report

Fourth Five-Year Review
for
Nyanza Chemical Waste Dump Superfund Site
Ashland, Massachusetts

May 2009

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