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Preliminary Closeout Report

West Site/Hows Corner Superfund Site Plymouth, Maine

September 2011

Prepared by:
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Region 1, New England
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Superfund Records Center
SITE: WEST SITE/HOWS CORNER 011
BREAK: 2
OTHER: 496112

I INTRODUCTION

This Preliminary Closeout Report (PCOR) documents the completion of all physical remedial construction activities that were performed at the West Site/Hows Corner Superfund Site. This PCOR was prepared in accordance with *Closeout Procedures for National Priorities List Sites* (OSWER Directive 9320.2-22 dated May 2011). For the purpose of determining construction completion, EPA conducted pre-final inspections of the groundwater hydraulic containment system and the vapor mitigation system at 59 Sawyer Road on August 15, 2011 and September 20, 2011, respectively. All components of the remedy were constructed in accordance with EPA-approved plans and specifications. Minor punch list items were identified in each inspection and these have been resolved. No other outstanding items were identified and thus no additional remedial construction is anticipated at the Site.

All components of the remedy selected in the 2002 and 2006 Records of Decision as amended by the March 2010 Explanation of Significant Differences (ESD) have been implemented. Pursuant to the January 25, 2010 Consent Decree, the Performing Settling Defendants shall operate and maintain the groundwater hydraulic containment system and the vapor mitigation system, perform long-term monitoring, and assure compliance with institutional controls. EPA will continue with the statutorily required five-year reviews to ensure the protectiveness of the selected remedy.

II SUMMARY OF SITE CONDITIONS

1. Background

The Site is located on Sawyer Road, Penobscot County, Plymouth, Maine (see Figure 1). The Site is defined as a 17-acre parcel of land that was owned by George West (George West property), the groundwater beneath this parcel, and the surrounding properties where contamination has come to be located. As a result of past operations at the George West property, groundwater and soil were contaminated and the groundwater contamination has migrated to nearby properties.

Site Description

Mr. West used a two-acre portion of his property to operate a waste oil facility from 1965 to 1980 (Figure 2). This two-acre portion of the Site and the groundwater beneath it is referred to as the "Source Area" to distinguish it from the term "Site" that, as previously mentioned, also includes the groundwater beneath the surrounding properties where contamination has come to be located. The area surrounding the Source Area is rural residential with mixed woods and open fields.

A six-foot high chain link fence surrounds the two-acre portion of the Site. As a result of an EPA removal action in 1990 and removal of soils as part of an *in situ* pilot study by a group of potentially responsible parties (PRP Group), much of the thin overburden soils were removed

from within the fenced area. Much of the land surface within the fenced area is now covered by the treatment building for the groundwater hydraulic containment system and pavement.

Operational History

From 1965 to 1980, Mr. West operated a waste oil storage and transfer facility within the two-acre portion of his property. Waste oils were stored in eight aboveground storage tanks ranging in volume from 1,000 to 20,000 gallons. According to documents obtained from Mr. West and other sources, in excess of 235,000 gallons of waste oil and other liquids were received at the facility for storage and transfer during operations. After separating the waste oils based on density, lighter oils were sold to greenhouses, paper companies, and others as fuels, and heavier oils were spread on dirt roads for dust control. Operations ceased in 1980, and the tanks were disassembled and sold as scrap.

In 1995 EPA placed the Site on the National Priorities List because of the discovery of contaminated soil within the Source Area and contaminated groundwater underlying the Source Area and surrounding properties.

2. Removal Activities

Environmental investigations were initiated in 1988 by Maine Department of Environmental Protection (MEDEP) after contaminated groundwater was discovered in a residential well that was sampled during a pre-purchase environmental assessment of Mr. West's property in 1987. MEDEP sampled other wells in the immediate area and found ten residential wells contaminated with chemicals often used as industrial solvents or degreasers (tetrachlorethene (PCE) and trichloroethylene (TCE)). As an emergency response measure, MEDEP provided bottled water and installed dual in-line granular carbon filters to all homes with contaminated water. MEDEP completed a Preliminary Assessment of the Site in June 1989, and subsequently completed a preliminary groundwater investigation in March 1990.

EPA completed a Removal Action in 1990-91 that included the installation of the fence around the two-acre Source Area and the excavation and off-site disposal of approximately 850 tons of contaminated soil from this area. In March 1994, EPA and MEDEP completed construction of a public water supply system that provided safe water to 33 residences surrounding the Source Area, with the potential to provide water to several additional residences.

In October 1999 the PRP Group voluntarily agreed to perform a Remedial Investigation/Feasibility Study (RI/FS). The RI/FS was initiated in October 1999 and included groundwater, surface water, sediment, surface soil, and air sampling; installation of bedrock monitoring wells; residential well sampling; packer testing of bedrock wells; geophysical surveys and bedrock mapping; and computer modeling of groundwater and contaminant movement through the bedrock aquifer. The RI identified volatile organic compounds (VOCs) polychlorinated biphenyls (PCBs), manganese, and an insecticide. Numerous remedial alternatives were evaluated in the 2001 FS prior to EPA's selection of a remedy.

3. Selected Remedy

Four response action objectives (RAOs) were developed for the 2001 FS to guide the development of cleanup alternatives. These RAOs were based on preliminary information relating to types of contaminants, environmental media of concern, and potential exposure pathways. These RAOs were developed to mitigate, restore and/or prevent existing and future potential threats to human health and the environment. The RAOs for the 2002 interim Record of Decision (2002 ROD) were:

- Prevent the use of groundwater containing contaminants that exceed federal or state MCLs, MCLGs, MEGs, or, an excess cancer risk of 1×10^{-6} or a hazard quotient of 1;
- Contain source area groundwater within the 2-acre fenced area of the Site and manage the migration of contaminants throughout the groundwater plume;
- Restore groundwater outside of the 2-acre fenced area of the Site (i.e., Non-Source Area groundwater) to meet federal or state MCLs, MCLGs, MEGs, or an excess cancer risk of 1×10^{-6} or a hazard quotient of 1; and
- Perform long-term monitoring of surface water, sediments, and groundwater to verify that the cleanup actions at the Site are protective of human health and the environment.

The remedy selected in the 2002 ROD addressed three of these objectives through the implementation of institutional controls; installation of a groundwater containment system to prevent further migration of highly contaminated groundwater from the Source Area to the non-source area; regular monitoring and provisions for water supply connections to the Plymouth Water District. What remained was whether the objective that required Non-Source Area groundwater to be restored to drinking water quality within a reasonable timeframe through monitored natural attenuation could be met.

Two additional RAOs were developed for the 2006 final ROD:

- Determine whether or not it is technically practicable to restore Source Area groundwater to meet federal or state MCLs, MCLGs, MEGs, or an excess cancer risk of 1×10^{-6} or a hazard quotient of 1; and
- Prevent exposure to vapor intrusion coming from the groundwater that presents an unacceptable risk to human health (this RAO is consistent with the RAO identified above that requires the cleanup to prevent the use of groundwater causing unacceptable risks, including the potential indoor air inhalation exposures to volatile compounds coming from the groundwater).

In September 2002, EPA signed the interim ROD that addressed the Non-Source Area groundwater, defined as the groundwater underlying the Site where VOCs concentrations were below 10 parts per million. The 2002 ROD included four remedy components:

- installation and operation of a groundwater containment system to cut off the Source Area groundwater;
- implementation of institutional controls to prevent exposure to contaminated groundwater;

- access to public water; and
- long-term monitoring of groundwater, sediment and surface water.

In September 2006, EPA signed a ROD that set forth the final remedy for the Site, augmenting the remedy components previously selected. The final remedy includes the following components:

- a determination that with the installation and operation of the groundwater containment system, restoration of the Non-Source Area groundwater will occur within a reasonable timeframe through monitored natural attenuation;
- a technical impracticability waiver for the Source Area groundwater;
- an investigation of, and response to, if necessary, the potential vapor intrusion pathway from the contaminated groundwater into indoor air; and
- five-year reviews

The final remedy is a comprehensive approach that addresses all current and potential future risks associated with groundwater contamination. As a result of previous response actions, contaminated groundwater is the only medium requiring remedial action.

In March 2010, EPA signed an ESD. Following the issuance of the 2006 ROD, EPA and MEDEP reexamined the entire data set for arsenic. This included data both pre- and post-ROD, from the monitoring wells as well as from residential wells both inside and outside the Site. This examination found that the exceedances of the arsenic performance standard were isolated and were not connected either to the operation of the facility or to the VOC plume. Based upon this review, EPA determined that arsenic found in Non-Source Area Groundwater was not related to the Site.

Consequently, because arsenic is not site-related, the ESD concluded that the remedy for the Site did not need to achieve the arsenic performance standard for groundwater. To assure that arsenic is not mobilized by operation of the groundwater hydraulic containment system, there will be confirmatory sampling to verify this. The confirmatory sampling will occur after the determination by EPA that the groundwater hydraulic containment system is operating as it was designed.

In addition to this determination, EPA also clarified in the ESD that 1,1-DCE is a non-carcinogen but was incorrectly included in some tables of the 2002 ROD and 2006 ROD as a carcinogen.

4. Remedial Action

In 2010 a Consent Decree between EPA, MEDEP, and the PRP Group was executed. Under this Consent Decree, two PRPs, defined as Performing Settling Defendants (PSDs), agreed to partially finance and perform the remaining Remedial Design and Remedial Action (RD/RA) in accordance with the Consent Decree, the 2002 and 2006 RODs, and the Statement of Work (Appendix D to the Consent Decree). The PSDs also agreed to reimburse EPA Future Response Costs and State Past Response Costs, State Future Response Costs, and State Future Oversight

Costs. Finally, the PSDs compensated the United States and the State of Maine for Natural Resource Damages. Besides the agreement by the PSDs, the under the Consent Decree approximately one hundred other PRPs (Cashout Settling Defendants) agreed to pay a share of the costs of the RD/RA, State Past Response Costs, EPA and State Future Response Costs, and State Future Oversight Costs, as well as compensate the United States and the State of Maine for Natural Resource Damages.

Groundwater Hydraulic Containment System Construction

Construction of the groundwater hydraulic containment system began in October 2010 and was completed in July 2011. A pre-final inspection for construction completion purposes occurred on August 15, 2011. Two punch list items were identified in the inspection: a gutter needed to be installed beneath interior piping for the public water supply (for emergency washing and the building's bathroom) as the piping ran above the treatment building electrical panels; and the exterior drainage vent for the process tank was not secured with a lock. These items were addressed in September 2011.

A seven day pump test to collect baseline drawdown data was performed in July 2011 and the system operated without interruption. Prior to the pump test, the following tests were conducted using water from the public water supply to verify proper groundwater hydraulic containment system operation:

- testing all pipelines;
- leak-checking liquid transfer lines;
- inspecting grounding systems and measuring for stray voltage;
- verifying instrument settings; and
- calibrating signals and alarms and interlock devices.

EPA has agreed with the PSDs that the lead construction contractor will begin operation of the groundwater hydraulic containment system on a temporary basis until the selection of the O&M contractor process is completed. Operation of the system under this arrangement is expected to begin October 24, 2011.

Vapor Mitigation at 59 Sawyer Road

In February 2007 and March 2010, EPA performed vapor intrusion studies in some of the homes surrounding the facility. As a result of these studies, EPA included in the Statement of Work that the PSDs were to develop a work plan for a comprehensive study of the potential vapor mitigation pathway. Because of the EPA data, the PSDs work was set in two phases with the first focused on one home where EPA found TCE levels above the screening levels in the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*, OSWER EPA 530-D-02-004, November 2002.

The PSDs collected sub-slab and indoor air samples at 59 Sawyer Road in August 2010 and from the other homes identified in the approved work plan in March 2011. The August 2010 data

were consistent with the data collected by EPA in 2007 and 2010. Consequently, the PSDs recommended that a vapor mitigation system be installed at this residence. The results of the March 2011 study have not yet been submitted to EPA and MEDEP. However EPA does not anticipate the need for vapor mitigation systems at additional residences based on EPA's 2007 and 2010 studies, which evaluated the homes closest to the facility that are most likely to be impacted.

After obtaining access from the property owners at 59 Sawyer Road, a vapor mitigation system was installed and began operation on September 20, 2011. The pre-final inspection for construction completion purposes occurred that evening. One punch list item was identified: rather than installing the mitigation system on a new and separate electrical circuit, the electrical sub-contractor on his own rewired two of the existing electrical circuits, including one with a ground fault circuit interrupter that the home owners had specifically set up. The PSDs contractor contacted the vapor mitigation contractor the following morning and the repair was made on September 23, 2011.

5. Institutional Controls

The PRP Group began establishing institutional controls following the 2002 ROD. Prior to the effective date of the 2010 Consent Decree, over 80% of the properties located fully or partially within the Site had restrictive covenants in place that prohibited the use of groundwater. Since the Consent Decree, the PSDs have obtained additional restrictive covenants such that approximately 90% of the properties have restrictive covenants in place. Per the Consent Decree the PSDs send annual notices to the owners of the remaining properties regarding the restrictive covenants.

In 2003 the Town of Plymouth adopted an ordinance restricting the use of groundwater within a designated area (Figure 12 from the 2008 Five-Year Review).

III Demonstration of Cleanup Activity Quality Assurance and Quality Control

The methods, procedures, inspections and tests were performed in accordance with various Construction Quality Assurance Plan prepared as part of the EPA-approved remedial designs. The construction contractors' Quality Control Plans were implemented and verified by the EPA's remedial project manager and MEDEP project manager and technical support staff. Construction of the Remedy is complete. Following the pump test, the system was shut down. As noted above, EPA has agreed with the PSDs that the lead construction contractor will begin operation of the groundwater hydraulic containment system on a temporary basis until the selection of the O&M contractor process is completed. Operation of the system under this arrangement is expected to begin October 24, 2011. The vapor mitigation system began operation on September 20, 2011. The constructed remedy is complete and is consistent with the two RODs and the remedial design plans and specifications.

Groundwater Hydraulic Containment System Construction (2010-2011)

The Groundwater Hydraulic Containment System construction contractor implemented a Quality Control program to monitor all construction activities and inspected work for conformance with contract documents. An integral part of the QC Program was the QC Plan which was relied on and describes the personnel, facilities, and administrative procedures for QC testing and inspections. Frequent inspections were performed and consisted of verifying compliance with contract documents and any change orders as they were received. Each month during construction, the construction contractor held an on-site meeting with EPA, MEDEP, and the sub-contractors to review the construction progress. Additionally, a monthly conference call was scheduled to update the construction progress.

Vapor Mitigation System at 59 Sawyer Road (2011)

The vapor mitigation system installed at 59 Sawyer Road was a standard off-the-shelf system typically installed for radon mitigation that is designed to run continuously. Four separate pressure measurements beneath the basement concrete slab were made to verify that the system's capture extended beneath the footprint of the home. Pressure measurement at the extraction vent verified that the system fan was maintaining a flow from underneath the home. While the PSDs are responsible for the O&M for the system, a copy of the O&M plan for the system was provided to the homeowners.

IV Schedule of Activities for Site Completion

It is anticipated that all activities associated with site completion will be performed according to the schedule below:

Schedule for Site Completion

Task	Date	Responsible Organization
Initiate Start-up of the Groundwater Hydraulic Containment System	October 2011	PSDs
Submittal of Vapor Intrusion Investigation Report	October 2011	PSDs
Selection of O&M Contractor	December 2011	PSDs
Operational and Functioning Determination for Groundwater Hydraulic Containment System	TBD	EPA
Arsenic Evaluation following O&F Determination	TBD	EPA
Second Five-Year Review (every 5 years thereafter)	September 2013	EPA
Complete Groundwater Treatment*	September 2091	PSDs
Final Site Inspection	Apr 2092	EPA, MEDEP

Final Closeout/Final Remedial Action Report	June 2092	EPA
Propose Site Deletion from NPL	June 2092	EPA
NPL Site Deletion	Sept 2092	EPA

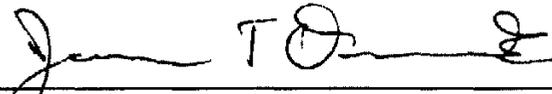
* Based on substantial uncertainty with regard to the residual contaminant mass and the groundwater flow models which are estimate of attenuation rates, the 2006 ROD estimated that the groundwater hydraulic containment system would need to be operated for 40-80 years before the Non-Source Area groundwater was restored to performance standards and possibly operated another 20-40 to prevent recontamination of the Non-Source Area groundwater from the Source Area groundwater. Therefore a default of 80 years is presumed for continued groundwater treatment.

Five-Year Review

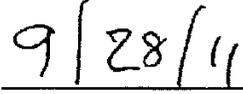
Hazardous substances will remain at the Site above levels that allow unlimited use and unrestricted exposure after the completion of the action. Pursuant to CERCLA §121(c) and as provided in the current guidance on Five-Year Reviews (OSWER Directive 9355.7-03B-P, June 2001), EPA must conduct statutorily required five-year reviews. The first Five-Year Review was conducted in September 2008. The 2008 Five-Year Review concluded that the remedy components for the two RODs that had been implemented provided in the short term protectiveness of human health and the environment because voluntary institutional controls had been implemented. However, in order for the remedy to be protective in the long-term, the 2008 Five-Year Review stated that the remaining components of the remedy needed to be implemented: construction and operation of the groundwater hydraulic containment system, long-term monitoring of groundwater, surface water, and sediments, establishment of compliance monitoring of the institutional controls, and an investigation of and appropriate response to the potential vapor intrusion pathway from contaminated groundwater to indoor air.

As noted in this PCOR, the construction of the groundwater hydraulic containment system has been completed, institutional controls have been established, and an initial investigation of the potential vapor intrusion pathway has been performed. Additionally, the baseline sampling events for the long-term monitoring of the groundwater have been completed.

Approved by:



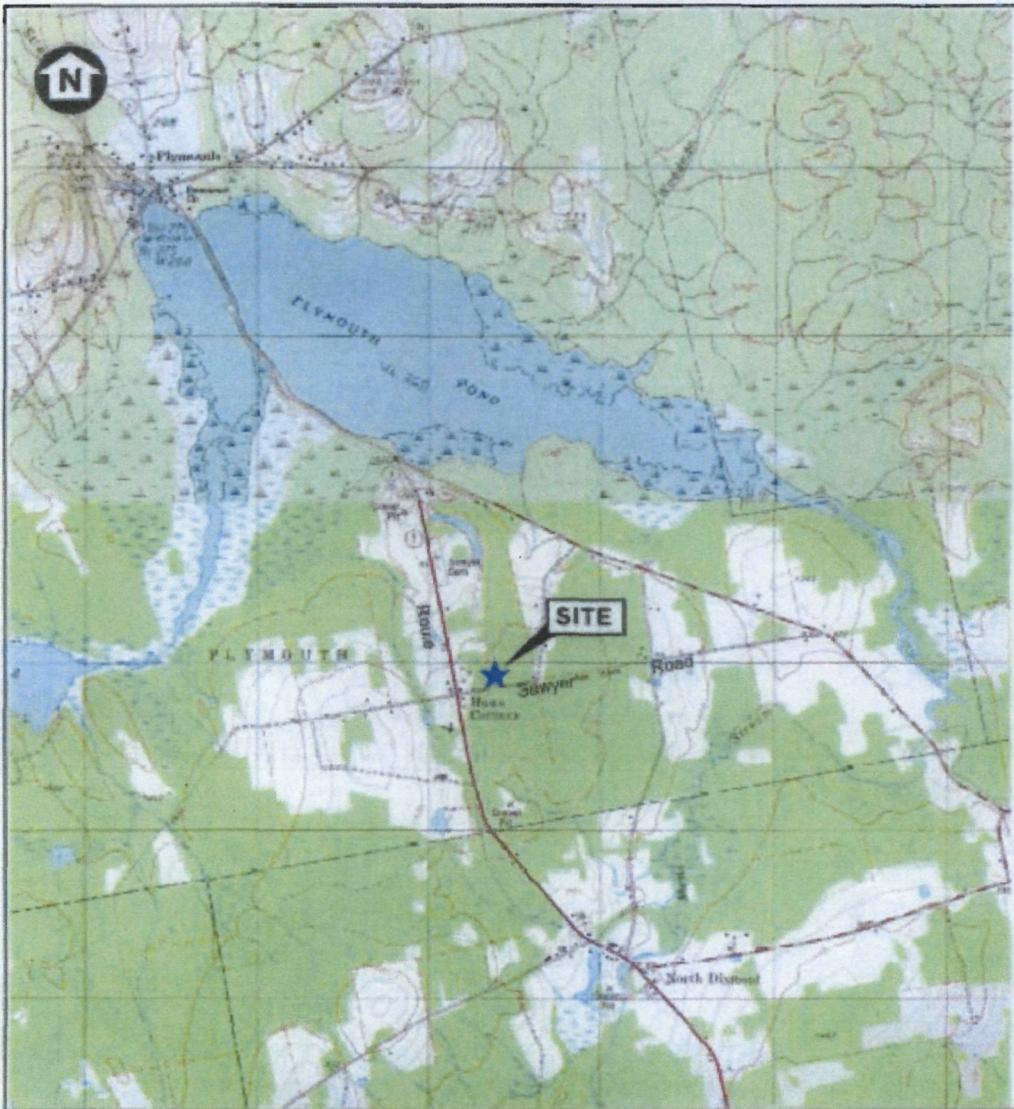
 James T. Owens III, Director
 Office of Site Remediation and Restoration



 Date

Attachment A

Site Figures



Source: USGS Topographic 7.5-minute Series Quadrangles -
 Plymouth, ME, 1982, and Dixmont, ME, 1982.

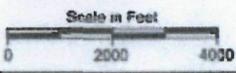


Figure 1
Site Location Map
Howa Corner Superfund Site
Plymouth, Maine

Originals in color.

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