



Superfund Records Center
SITE: EASTERN SURPLUS
REGION: 8.3
OWNER: 494345

SECOND FIVE-YEAR REVIEW

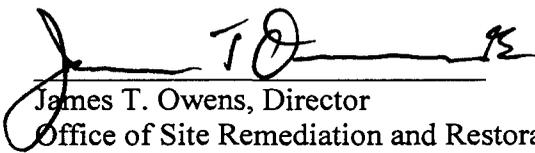
**EASTERN SURPLUS COMPANY SUPERFUND SITE
MEDDYBEMPS, MAINE**

Prepared by:

U.S. Environmental Protection Agency

Region 1

Boston, Massachusetts


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

9/29/11
Date

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

ES EXECUTIVE SUMMARY

This is the second five-year review for the Eastern Surplus Company Superfund Site (Site). This statutory five-year review is required since hazardous contamination remains at the Site above levels that allow for unlimited use and unrestricted exposure. The review was completed in accordance with EPA guidance entitled "Comprehensive Five-Year Review Guidance," OSWER No. 9355.7-03B-P, June 2001.

Starting in 1946, two owners, Harry Smith, Sr., and Harry Smith, Jr., used the Site as a storage and salvage yard. The area north of Route 191 at one time had debris/junk covering over half of the area, with thick vegetation covering the remaining areas. Some of the junk/surplus materials contained hazardous substances that were released into the site soils and further released into the groundwater. In 1985 Maine Department of Environmental Protection (MEDEP) performed an inspection and identified the Site as an uncontrolled hazardous substance site. MEDEP initiated a removal action to stabilize the Site, including removing approximately 120 transformers and other waste and fencing the Site. At the request of MEDEP, EPA then took over the removal activities. Most of the liquid hazardous waste, drums, containers, and compressed gas cylinders were removed during the first EPA removal action in the 1980s.

In June 1996, EPA placed the Site on the National Priorities List, the list of hazardous waste sites eligible for long-term remedial action financed under the Superfund program, and began a Remedial Investigation and Feasibility Study (RI/FS). The RI identified two distinct contaminated groundwater plumes. The northern plume is situated in the northern half of the properties north of Route 191. The southern plume started just north of Route 191, migrated beneath the highway, and flows underneath the southern area of the Site. In 1998-1999, EPA performed a non-time-critical removal action (NTCRA) that, among other things, excavated and disposed of contaminated soils and sediment to an approved off-site facility. In September 2000, EPA issued a Record of Decision (ROD) for the Site. The ROD set forth the selected remedy for the Site. The major components of the selected remedy included:

- Installation and operation of a groundwater extraction and treatment system to prevent off-site migration of contaminated groundwater and restore the aquifer to drinking water standards;
- Enhancement of the extraction system by flushing with treated water and /or injection of a chemical reagent to facilitate the removal of contamination;
- Implementation of land-use restrictions on the two properties north of Route 191 to prevent ingestion of groundwater and disturbance of archaeological resources;
- Implementation of institutional controls on the property south of Route 191 where groundwater contamination is located until the groundwater met cleanup levels;
- Long-term monitoring of groundwater, surface water, sediments (and possibly biota sampling) on a regular basis to evaluate changes in site conditions over time;
- Implementation of archaeological mitigation activities; and
- Review of the Site every five years until cleanup goals are met to ensure that the remedy remains protective of human health and the environment.

The ROD did not include any source control component because EPA's risk assessment concluded that the 1998-1999 NTCRA addressed the risks that were posed by soils and sediment.

Based on the data reviewed for this review, observations from the site inspection, and interviews, the

remedy is functioning as intended by the ROD. Contamination in the southern plume has decreased to Federal and State drinking water standards, groundwater extraction and treatment continues for the northern plume, maintenance is performed as necessary, and long-term monitoring has been carried out since the ROD, all of which has thus far ensured the integrity of the remedy and prevented exposure to site groundwater.

The primary ARARs for groundwater beneath the Site are the Safe Drinking Water Act's Maximum Contaminant Levels (MCLs) or Maine's Maximum Exposure Guidelines (MEGs). The MCLs and MEGs continue to be met in the wells outside of the Site, and are essentially being met in the southern plume.

Land use in the vicinity of the area remains agricultural and residential (both year-round and seasonal). Since the 2006 Five-Year Review, a year-round home was built directly north of the Site and a seasonal home was constructed several hundred feet south of the southern plume extraction wells. Drinking water samples were collected from both homes and contaminants were not detected in either sample.

Five-Year Review Protectiveness Statement

The remedy currently protects human health and the environment in the short-term because the groundwater extraction and treatment system continues to contain the northern plume and ownership of the northern properties of the Site by MEDEP prevents exposure to site groundwater. However, in order for the remedy to be protective in the long-term, the institutional controls need to be implemented to ensure long-term protectiveness. Groundwater monitoring has shown contaminants in the southern plume have stabilized at the performance standards. Surface water and sediment monitoring indicate the levels continue to decrease from pre-ROD levels. As the ROD stated that those levels did not pose an unacceptable risk, the remedy remains protective of the environment.

Five-Year Review Summary Form

SITE IDENTIFICATION
Site name (<i>from WasteLAN</i>): Eastern Surplus Company Superfund Site
EPA ID (<i>from WasteLAN</i>): MED981073711
Region: 1 State: ME City/County: Meddybemps/Washington
SITE STATUS
NPL status: Added on June 17, 1996
Remediation status: Ongoing
Multiple OUs?* No Construction completion date: August 27, 2001
Has site been put into reuse? No
REVIEW STATUS
Lead agency: USEPA
Author name: Terrence Connelly
Author title: Remedial Project Manager
Author affiliation: EPA Region I
Period for this review: 02/28/11 to 09/30/11 (Time period covered by this review, 2006 - 2011)
<p>Date of site inspection: 06/07/11 Type of review: Post-SARA Review number: 2nd Triggering action: Implementation of Remedial Action, August 2001 Triggering action date (<i>from WasteLAN</i>): <u>08/27/2001</u> Due date (<i>five years after previous review</i>): <u>09/29/11</u></p> <p>* "OU" refers to operable unit.</p>

Five-Year Review Summary Form, cont'd.

ISSUES:

- While concentrations in the southern plume have stabilized at the performance standards, the concentrations in the northern plume suggest a residual DNAPL in the plume core.
- Institutional controls have not been implemented for either the northern or southern portions of the Site.

RECOMMENDATIONS and FOLLOW-UP ACTIONS:

- Continue enhanced bioremediation studies to assess its viability for restoring the northern plume.
- Resolve institutional controls.

PROTECTIVENESS STATEMENT:

The remedy currently protects human health and the environment in the short-term because the groundwater extraction and treatment system continues to contain the northern plume and ownership of the northern properties of the Site by MEDEP prevents exposure to site groundwater. However, in order for the remedy to be protective in the long-term, the institutional controls need to be implemented to ensure long-term protectiveness. Groundwater monitoring has shown contaminants in the southern plume have stabilized at the performance standards. Surface water and sediment monitoring indicate the levels continue to decrease from pre-ROD levels. As the ROD stated that those levels did not pose an unacceptable risk, the remedy remains protective of the environment.

OTHER COMMENTS:

TABLE OF CONTENTS
EASTERN SURPLUS COMPANY SUPERFUND SITE
SECOND FIVE-YEAR REVIEW

<u>SECTION</u>	<u>PAGE</u>
ES	EXECUTIVE SUMMARY.....ES-1
1	INTRODUCTION..... 3
2	SITE CHRONOLOGY..... 4
3	BACKGROUND..... 5
	3.1 Physical Characteristics5
	3.2 Land and Resource Use 6
	3.3 History of Contamination 7
	3.4 Initial Response 7
	3.5 Basis for Taking Action 8
4	REMEDIAL ACTION10
	4.1 Remedy Selection10
	4.2 Remedy Implementation12
	4.2.1 Extraction Systems12
	4.2.2 Enhancement by In-Situ Chemical Oxidation13
	4.2.3 Land-Use Restrictions14
	4.2.4 Long-Term Monitoring 15
	4.2.5 Archaeological Mitigation15
5	PROGRESS SINCE LAST FIVE-YEAR REVIEW 16
6	FIVE-YEAR REVIEW PROCESS 16
	6.1 Administrative Components 16
	6.2 Community Notification and Involvement16
	6.3 Document Review16
	6.4 Data Review16
	6.4.1 Groundwater Monitoring 16
	6.4.2 Surface Water Monitoring 22
	6.4.3 Sediment Monitoring22
	6.4.4 Treatment System Monitoring26
	6.4.5 Archaeological Mitigation27
	6.5 Site Inspection 29
	6.6 Interviews 30
7	TECHNICAL ASSESSMENT31
	7.1 Question A: Is the remedy functioning as intended?31
	7.2 Question B: Are the assumptions at the time of the remedy selection still valid?33
	7.3 Question C: Is there any new information that could call into question the protectiveness of the remedy? 34
	7.4 Technical Assessment Summary 35
8	ISSUES 35
9	RECOMMENDATIONS AND FOLLOW-UP ACTIONS 36

10	PROTECTIVENESS STATEMENTS	37
11	NEXT REVIEW	37

TABLES

1.	Chronology of Site Events	4
2.	Historical Trends of PCE Concentrations.....	(after text)
3.	Surface Water Monitoring Analytical Statistical Summary.....	(after text)
4.	Sediment PCB Analytical Statistical Summary.....	(after text)
5.	Sediment Metals Analytical Statistical Summary... ..	(after text)
6.	Issues	37
7.	Recommendations.....	37

FIGURES

1. Site Location Map
2. Pre-ROD Soil Sampling Locations (figure 8 from ROD)
3. Pre-ROD Surface Water and Sediment Sampling Locations (figure 13 from ROD)
4. Pre-ROD Contaminant Plumes (figure 18 from ROD)
5. Site Plan View with Groundwater Extraction and Treatment System
6. Treatment system process flow diagram
7. PCE concentrations in the northern bedrock plume

APPENDICES

- A. Documents Reviewed
- B. Site Inspection Checklist
- C. MEDEP Comments on Draft Five-Year Report
- D. ARARs and TBCs

1.0 INTRODUCTION

The purpose of this five-year review is to determine if the remedy selected in the 2000 Record of Decision (ROD) for the Eastern Surplus Company Superfund Site (Site) in Meddybemps, Maine, is protective of human health and the environment. This report summarizes the five-year review process, investigations and remedial actions undertaken at the Site; evaluates the monitoring data collected; reviews the Applicable or Relevant and Appropriate Requirements (ARARs) specified in the ROD for changes; discusses any issues identified during the review; and presents recommendations to address these issues.

The United States Environmental Protection Agency, Region 1 (EPA) prepared this five-year review pursuant to the Section 121 of the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) and the National Contingency Plan. CERCLA § 121 states:

“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”

The EPA interpreted this requirement further in the National Contingency Plan; 40 CFR § 300.430(f)(4)(ii) states:

“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.”

This is the second five-year review for the Site. This statutory five-year review is required since hazardous contamination remains at the Site above levels that allow for unlimited use and unrestricted exposure. The triggering action for the initial statutory review was initiation of the remedial action following remedial design.

Work on this review was performed between February and September 2011. The review was completed in accordance with EPA Guidance OSWER No. 9355.7-03B-P.

2.0 SITE CHRONOLOGY

Table 1: CHRONOLOGY OF SITE EVENTS
 SECOND FIVE-YEAR REVIEW
 EASTERN SURPLUS COMPANY SUPERFUND SITE

EVENT	DATE
Property occupied by a farm and a mill	pre-1946
Two owners operated the Site as a storage/salvage yard to store and resell, among other things, materials and equipment acquired from US Department of Defense (DOD). Most of the business activities had ceased by 1976	1946 – 1976
MEDEP performed an inspection and identified the Site as an uncontrolled hazardous substance site. MEDEP initiated a removal action to stabilize the Site, including removing approximately 120 transformers, 4500 gallons of waste oil, and fencing the Site	1985
EPA initiated removal activities. Over four years, EPA removed thousands of leaking drums and cans, and over two thousand compressed gas cylinders	1986 – 1990
EPA issued a Unilateral Order to Matheson Gas Products to remove eight commercial compressed gas cylinders. Matheson complied with the order	1989
EPA notified US DOD of liability with respect to the Site and demanded reimbursement of response costs. EPA reached agreement for \$1.4 million in past response costs	1993 – 1995
Department of Justice, on behalf of EPA, filed complaint against one owner for refusing to comply with request for information. Default judgment against the owner for \$357,000 in US District Court for the District of Maine	1994 and February 25, 1995
EPA placed the Site on the National Priorities List	June 17, 1996
EPA began a remedial investigation and feasibility study (RI/FS)	1996
EPA issued a community relations plan	June 1997
EPA notified owners of two parcels of property that represent the Site north of Route 191 and DOD of their potential liability with respect to the Site	April 22, 1998
Negotiations commenced with these potentially responsible parties (PRPs)	1998
EPA performed an Engineering Evaluation/Cost Analysis, and signed an Action Memorandum for a non-time-critical removal action (NTCRA).	July 1998
Consent Decree entered in US District Court for cash-out settlement and transfer of title of properties north of Route 191 to MEDEP	March 1999
EPA published notice of Proposed Plan in local and regional newspapers	August 1999
EPA extended public comment period to December 20, 1999	September 1999
EPA completed the soil component of the NTCRA	1999
EPA completed the groundwater component of the NTCRA – northern plume	2000

extraction system online in Jan 2000 and southern plume extraction system online September 2000	
EPA issued the ROD with State concurrence describing the remedial action to be implemented at the Site	September 28, 2000
Archaeological field work performed	Summers 2000 and 2001
Final Remedial Design report completed	July 2001
Baseline sampling to assess conditions prior to ROD-designated response actions	June – July 2001
EPA initiated enhancement and flushing of groundwater component of ROD using sodium permanganate	phase 1 July 2000 - April 2001; phase 2 April - June 2001; full-scale Aug 2002 through Jan 2003
Spring and fall groundwater sampling and annual surface water and sediment sampling commenced	2002 – present
Groundwater Rebound Period following full-scale permanganate application	Jan 2003 – April 2003
Resumption of Groundwater Extraction System	August 2003
Fish and Mussel Sampling Study completed with US F&WS	July 2003
Bedrock Delineation Study in northern plume	May 2006
Completion of archaeological reports and installation of commemorative plaques	Summer 2006
First Five-Year Review	September 2006
Shutdown of Groundwater Extraction and Treatment System	September 2006
Resumption of Groundwater Extraction and Treatment System	September 2007
Shutdown of Southern Plume Groundwater Extraction System	November 2010

3.0 BACKGROUND

3.1 Physical Characteristics

The Site consists of approximately 4-5 acres of land north of Route 191 and another 2-3 acres of land south of Route 191 in Meddybemps, Maine. The 2000 ROD designated the area north of Route 191 as the “surficial site”. The Site is bounded by residential property and Meddybemps Lake to the north, by the Dennys River to the east, and undeveloped land to the south and west. A dam controls the outlet of the lake to the river, and a small wetland exists adjacent to the river just downstream of the dam. Most of the Site is above the floodplain as a steep bank runs along the Dennys River. See Figure 1 for the site location map.

The topography west of the Site consists of generally level land with the elevation decreasing in the surficial Site toward the river. The land east of the Dennys River (and south of Meddybemps Lake) is also

generally level with a slight decrease in elevation occurring toward the river. Groundwater flow direction at the Site generally mimics surface contours.

Surficial runoff from the Site as storm water, snow melt and groundwater seeps drains into the Dennys River. The Dennys River is classified by the State of Maine as a Class AA river based on its designation as an Atlantic salmon river. The river flows into Dennys Bay, approximately twenty miles downstream from the Site. Dennys Bay is part of the larger Cobscook Bay estuary.

The surficial materials are glacial deposits that range from stratified beds of gravel, sand, and mixed sands and silt. This overburden soil ranges from 5 to 20 feet in thickness in the northern plume and 10 to 30 feet in the southern plume. The overburden in the northern portion of the Site is only seasonally saturated with the water table fluctuating as much as six feet during the year. The overburden in the southern part of the Site has a saturated thickness of several feet. Bedrock at the Site is Meddybemps granite with a gabbro-diorite intrusion.

3.2 Land and Resource Use

The Site is located in an area of mixed land use. The Site is surrounded by permanent and seasonal homes that ring Meddybemps Lake. Farther away from the lake, land use includes agricultural, woodlots, and residential properties. There is an inactive gravel borrow pit west of Stone Road, the private road immediately to the west of the Site. MEDEP and EPA performed a removal of transformers and contaminated soil in another gravel pit approximately a mile farther to the west. In addition to the joint removal, Maine DEP performed a removal action at a residence east of the Dennys River just north of Route 191 where hazardous materials similar to those found on the Site were removed from the basement. Finally, there is another junkyard situated about three miles to the west along Route 191. All of these locations lie within the Dennys River watershed. The location of the Site would be considered a prime building lot but for the contamination and the archaeological restrictions.

Reasonable anticipated future uses of the northern area of the Site remain quite limited. The contamination prevents consumption of groundwater and with the contamination in the bedrock the timeframe needed for restoration of the groundwater could be decades. MEDEP assumes O&M responsibilities in August 2012. These responsibilities will continue until the groundwater has been restored and unrestricted use is allowed. Finally, the designation of a portion of the northern area as a prehistoric Native American site also prevents excavation to preserve the archaeological resources.

Reasonable anticipated future uses of the southern area of the Site are not as limited. First, the operation of the groundwater extraction system and supplemented with the application of permanganate has reduced the groundwater contamination such that the drinking water standards have essentially been met in both the overburden and bedrock groundwater (tetrachloroethene [PCE] is the only contaminant above its standard, and fluctuates around its performance standards, MCL of 5 ppb and a MEG of 3 ppb). Second, the property is not required to be transferred to the State of Maine as the Consent Decree only dealt with the northern area parcels, and no restrictions have been placed on the parcel. Third, since the removal of the soils only occurred in the northern area of the Site, the southern portion is not subject to any archaeological mitigation requirements (archaeological investigations on this parcel did not find archaeological resources). In 2006 a seasonal home was constructed on the parcel, about 600 feet south of the farthest southern extraction well, RWS-6. Since groundwater samples from RWS-6 meet drinking water standards, EPA anticipated that the well for this seasonal home would provide clean water and this was confirmed through

sampling and analysis. Commercial use of the land also remains a possibility.

Reasonably anticipated future uses of adjacent land and the surrounding area include mostly residential use with the possibility of some light commercial and agricultural uses. Low-bush wild blueberry fields are the major agricultural activity in the area.

The current uses of the groundwater in surrounding areas are for agricultural and residential purposes. However, for the Site itself it is unlikely that the groundwater at the Site could be used as a water supply in the near future (30 years) given the residual PCE concentrations in the bedrock. The areas surrounding the Site are dependent upon groundwater for residential and agricultural water. This is based on good quality aquifers in both the overburden (dug wells) and bedrock (drilled wells) and the lack of a public water supply.

The current uses of the surface water adjacent to the Site are as a water supply, fishery, swimming, and recreation. The potential beneficial use of the surface water at the Site and surrounding area is the same. The State of Maine has classified Meddybemps Lake as a GPA surface water and the Dennys River as a Class AA river.

3.3 History of Contamination

The record indicates that prior to the start of Eastern Surplus Company in 1946, the property was used as a farm with a mill (the prehistoric record indicates the use of the land as a gathering place for native people).

Starting in 1946, two owners, Harry Smith, Sr., and Harry Smith, Jr., used the Site as a storage and salvage yard. The area north of Route 191 at one time had debris/junk covering over half of the area, with thick vegetation covering the remaining areas. Some of the junk/surplus materials contained hazardous substances that were released into the site soils and further released into the groundwater. Most of the liquid hazardous waste, drums, containers, and compressed gas cylinders were removed during the first EPA removal action. Two distinct groundwater plumes of contaminated groundwater were identified in the RI. The northern plume is situated in the northern half of the properties north of Route 191. The southern plume started just north of Route 191, migrated beneath the highway, and flows underneath the southern area of the Site. The groundwater between the two plumes meets drinking water standards.

3.4 Initial Response

In 1985, following an inspection, MEDEP performed a removal action to stabilize the Site. MEDEP removed approximately 120 transformers, 4,650 gallons of waste oil, 2,400 gallons of PCB oil, and fenced the northern area of the Site. In 1986, EPA took over the removal actions. EPA's removal involved the inspection, evaluation, sampling (if necessary) of 312 fifty-five gallon drums, 24 thirty gallon cans, 1,226 five gallon cans, 168 one hundred pound containers of calcium carbide, 1,182 miscellaneous containers, 10 cubic yards of asbestos, and 2,674 compressed gas cylinders. EPA also provided oversight of DOD's removal of several thousand more compressed gas cylinders. An EPA time-critical removal action was completed in 1990.

The Site was proposed for inclusion on the National Priorities List (NPL) on October 2, 1995. The Site was listed for final inclusion on the NPL on June 17, 1996.

3.5 Basis for Taking Action

In response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, EPA began the RI/FS in 1996. EPA completed the RI in 1998 and the FS in 1999.

Several thousand surficial and sub-surface soil samples were collected as part of the RI from September 1996 to July 1999 and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and cyanide, pesticides, PCBs, and dioxin. This comprehensive sampling indicated widespread distribution of soil contamination in the northern area of the Site, including the riverbank leading down to the Dennys River, just upstream of the former hydroelectric station. Excavation and off-site disposal of all soils with contamination above cleanup levels was completed by November 1999. Figure 2 (Figure 8 of the 2000 ROD) shows the soil sampling locations.

Seventy-four sediment samples were collected over the period 1996 to 1999, with the sampling locations ranging from Meddybemps Lake along the northern boundary of the Site, throughout the Dennys River to approximately 150 feet downstream of Route 191. Low levels of VOCs were fairly well distributed in the sediments south of the dam. Low levels of SVOCs were also detected, with the highest detections found at locations just below the Route 191 bridge and adjacent to the Town of Meddybemps boat ramp which is located farther east along the southern shore of Meddybemps Lake and not hydraulically connected with the Site. Several metals were detected in the sediments but consistent patterns of elevated metals were not evident. PCBs were extensively detected in the sediments. While most concentrations were quite low, elevated levels were found in the sediments just north of the former hydroelectric station. These sediments were removed along with the soils as part of the 1998-1999 NTCRA. Figure 3 (Figure 13 of the ROD) shows the sediment sampling locations.

Forty-six surface water samples were collected during the same timeframe, with the locations similar to the sediment locations. No VOCs were detected in the surface water. There were only two detections of a SVOC in surface water; resampling of the same area in 1999 did not detect this SVOC, bis 2-ethylhexyl phthalate (BEHP), and it was concluded that BEHP did not represent a significant site contaminant. Several metals were detected in the surface water. Similar to the sediment data, no patterns of elevated metals were evident as the frequency of detection was quite low (one or two detections in the sampling program).

The groundwater in the Meddybemps area, including the area surrounding the Site, is used as the primary drinking water resource. While there are some dug wells that use the overburden groundwater as a drinking water source, most of the drinking water supply wells are in the bedrock. Six groundwater monitoring events were completed during the RI/FS and further sampling was performed during the pump tests and pilot tests. A complete set of analytical parameters were included in the first several sampling events (VOCs, SVOCs, metals, pesticides, and PCBs).

The RI identified two distinct plumes, one area in the northern end of the Site, and the second, starting just north of Route 191 and continuing south beneath the highway. Figure 4 (Figure 18 of the ROD) shows a plan view of the two plumes. The majority of the contamination in the northern plume was located in the bedrock with DNAPL possible, whereas the RI/FS results indicated the major contamination in the southern plume was located in the overburden and shallow bedrock. RI sampling of monitoring wells east of the river showed sporadic and low levels (single digit ppb) of PCE across from the northern plume, suggesting a possible bedrock pathway.

In the northern plume, sampling results indicated PCE was the major contaminant in the northern plume, both in terms of frequency of detection and maximum concentrations. PCE was detected in 20 of 22 locations during the RI/FS with a maximum concentration of 6,700 ppb. Other VOCs detected above federal drinking water standards, MCLs, in the northern plume included trichloroethene (TCE), 1,2-dichloroethene (DCE), 1,1,2-trichloroethane, xylene, and methylene chloride. Much of the contamination was believed to be discharging to the Dennys River.

In the southern plume, sampling results were generally of lower concentrations than the northern plume. However, in addition to VOCs, PCBs were also detected in the groundwater beneath, and downgradient of, the soil PCB "hot spot." PCE was detected at a maximum concentration of 1,100 ppb and PCBs were detected at a concentration of 3 ppb. The southern plume was also believed to be discharging to the Dennys River.

Three ambient air monitoring events were performed at the Site. No significant emissions of VOCs were detected outside the work zones for the NTCRA. In addition, regular monitoring of the ambient air was performed during the NTCRA and no elevated levels of contaminants were detected.

The U.S. Fish & Wildlife Services (US F&WS) performed a fish and mussel sampling event in 1997 to support the human health and ecological risk assessments. Mercury was detected in sediment collected at all locations, including background, not inconsistent with the statewide fishing advisory. PCBs were also detected at all sediment locations, with elevated concentrations detected adjacent to the Site. Arsenic, chromium, and copper were detected adjacent to the Site above background concentrations as well.

US F&WS collected 71 fish from three locations in Meddybemps Lake, three reaches of the Dennys River, and from several areas within the East Machias River (the latter serving as a reference location). Thirty mussels were collected from the same lake locations, two of the Dennys River locations, and in one location in the Machias River.

US F&WS concluded that when compared to national, regional, and other Maine contaminant studies, the levels of metals or PCBs detected in the fish and mussel tissue from Meddybemps Lake or Dennys River were not highly elevated. Comparison to the reference location did not suggest major site-related impacts to fish or mussels.

The Site was found to contain prehistoric Native American artifacts in the soils dating back several thousand years. These archaeological resources made a portion of the Site (at the northern end of the Site, near the lake outlet) eligible for listing on the National Register of Historic Places. Accordingly, EPA followed National Historic Preservation Act requirements during the implementation of the NTCRA. Because some archaeological resources were unavoidably affected as part of the excavation and off-site disposal of contaminated soils, EPA was required to perform mitigation activities as part of the ROD remedy.

In August 1999, EPA published notice of the completion of the FS and the proposed plan for remedial action in the Bangor News, Calais Advertiser, and Quoddy Times, the major local newspapers of general circulation. EPA provided a thirty-day opportunity for written and oral comments from the public on the proposed plan for remedial action. An extension to the public comment period was requested and as a result it was extended to December 20, 1999.

Based on the results of the investigations, ARARs and other guidance, cleanup goals for groundwater were established to protect human health from the identified risks (the ecological risk assessment concluded that the contaminant levels in surface waters, sediment, and fish and mussel tissue were not sufficiently elevated to pose an unacceptable risk to ecological receptors). On September 28, 2000, with concurrence from MEDEP, EPA issued a ROD. The ROD set forth a remedy for the Site that combined extraction and treatment of groundwater; enhancements for this system using in-situ oxidation and flushing with clean water; institutional controls; long-term monitoring of groundwater, surface water, sediments (and possibly biota sampling); archaeological mitigation activities; and five-year reviews.

4.0 REMEDIAL ACTION

This section describes the remedial action selected for and implemented at the Site. Long-term response activities since the 2006 Five-Year Review are discussed in Sections 5 and 6 below.

4.1 Remedy Selection

The September 28, 2000 ROD for the Site specified a multi-component remedy to address groundwater contamination. Based on the RI, remedial action objectives were identified for the Site:

- Prevent the ingestion of groundwater contaminants that exceed federal MCLs, MCLGs, Maine MEGs, or in their absence, an excess cancer risk of 1×10^{-6} or a hazard quotient of one per contaminant;
- Prevent, to the extent practicable, off-site migration of groundwater with contamination above cleanup levels;
- Restore groundwater to meet federal or state standards, or in their absence, an excess cancer risk of 1×10^{-6} or a hazard quotient of one per contaminant; and
- Provide long-term monitoring of surface water, sediments, groundwater, and fish to verify that the cleanup actions are protective of human health and the environment.

The remedy selected in the ROD included:

- Perform extraction and treatment of contaminated groundwater from both plumes;
- Enhance the extraction system by flushing with treated water and/or injection of a chemical reagent;
- Place land-use restrictions on the two parcels north of Route 191 to prevent ingestion of groundwater and disturbance of archaeological resources;
- Institutional controls were also to be implemented on the property south of Route 191 where groundwater contamination is located, until the groundwater meets cleanup levels;
- Perform long-term monitoring of groundwater, surface water, sediments, and possibly biota sampling;
- Perform archaeological mitigation activities; and
- Perform a review of the Site every five years.

The primary expected outcome of the selected remedy was that the Site would no longer present an

unacceptable risk to future users of the groundwater via ingestion and inhalation of the groundwater and the Site would be suitable for unrestricted use (other than the archaeological area). The 2000 ROD estimated it would take approximately five to ten years to achieve the goals consistent with future residential land use. Additionally, the selected remedy would also prevent the flux of VOCs into the Dennys River.

4.2 Remedy Implementation

This section describes the implementation of the components of the remedy specified in the 2000 ROD.

4.2.1 Extraction Systems

During the summer of 2001, the interim groundwater extraction system (constructed during the 1998-1999 NTCRA) was upgraded to a 30 gallons-per-minute treatment capacity.

Groundwater is extracted from a series of shallow bedrock and overburden wells using bladderless, pneumatically operated pumps. Each pump is installed in a below-ground, concrete wall vault that provides security. Compressed air supply pipelines and groundwater discharge lines are either buried approximately six feet below ground to prevent freezing and damage, or are heat traced and insulated and enclosed in polymer enclosures installed at grade. See Figure 5 for a depiction of the extraction system.

The groundwater from the extraction wells is pumped to the treatment building. The treatment system process flow diagram is presented in Figure 6. Groundwater treatment consists of the following processes:

- Equalization to blend the groundwater from the extraction wells and to allow a steady flow rate through the treatment system;
- Filtration to remove suspended solid particles that might otherwise interfere with the treatment processes;
- Liquid-phase granular activated carbon (GAC) to remove dissolved VOCs (predominantly PCE and TCE); and
- Ion exchange to remove dissolved metals (primarily manganese).

Following these treatments, the treated groundwater is pumped to a discharge pipeline that conveys it to an infiltration gallery located between the northern plume and the treatment building where it is reintroduced into the overburden aquifer.

The full-scale system was activated in August 2001 and was operated for a two-month period as part of its start-up process. The extraction wells and treatment system operated from August 2001 until January 2003 when it was shut down to allow for a rebound assessment from the full-scale oxidation addition (see below for a summary on this activity). The extraction system was reactivated in August 2003 after the April 2003 sampling data were evaluated. Based on the April 2003 results, EPA and MEDEP determined that the extraction system should be reactivated to reestablish hydraulic capture of the two plumes. The extraction system operated continuously through August 2006 when it was shut down because of the transition from one contractor to another EPA contractor.

The 2006 FYR found that effluent data throughout the operation of the system from August 2001 through

the latest data available indicated that the treatment system was effective in removing VOCs from the pumped water such that the system effluent consistently met the drinking water standards.

4.2.2 Enhancement by In-Situ Chemical Oxidation

A two-phase pilot study was conducted to assess the potential application and effectiveness of in-situ chemical oxidation of residual VOCs in the core portions of the two groundwater plumes. Phase 1 was initiated in July 2000 and concluded in April 2001. Phase 2 ran from April to June 2001. The pilot study was followed by a full-scale application from August 2002 through January 2003.

Phase 1 consisted of adding sodium permanganate of varying volume and concentration (from 1 to 40% solution) into the bedrock in the northern plume and into the overburden and bedrock in the southern plume. The northern plume received three permanganate additions during Phase 1 while the southern plume received only one addition. Concentrations of PCE increased in the core of the northern plume after the first two additions and declined slightly after the third addition (from a maximum concentration of 12,000 ppb prior to permanganate application to 16,000 ppb then to 22,000 ppb then back to 9,700 ppb after the third addition). Concentrations in the southern plume decreased from maximum concentrations of 570 ppb in the overburden and 200 ppb in bedrock prior to permanganate application to 160 ppb and 77 ppb, respectively. Since the concentrations continued to decrease in the southern plume to 11 ppb in the overburden and 46 ppb in the bedrock, no Phase 2 additions were made into the southern plume.

Phase 2 of the in-situ chemical oxidation for the northern plume began in April 2001. Using a grid pattern of direct push wells in order to create a more widespread application, 1440 gallons of permanganate solution were added to 73 direct push wells. Sampling of wells immediately following the Phase 2 application indicated decreases in most of the wells (generally a 50 to 80% reduction) with a couple low-yield wells showing marked increases. Sampling performed six months after the permanganate application found that some wells showed significant rebound, essentially back to pre-Phase 1 PCE concentrations whereas other wells continued to decline.

The persistence of PCE suggested the presence of PCE residuals in the core area of the northern plume, and that this residual may in part be located in dead-end fractures that act as long-term sources. In addition, the permanganate may have oxidized the materials to which PCE was adsorbed, thereby causing the PCE to become mobile and partition into the aqueous phase and temporarily increasing the dissolved concentrations.

A full-scale in-situ chemical oxidation program was implemented from August 2002 to January 2003. As part of this full-scale program, five open-hole bedrock wells were installed in the northern plume as supplemental oxidant application wells, and four new overburden application wells were installed in the southern plume to supplement the existing wells. The in-situ chemical oxidation consisted of establishing a groundwater recirculation system in each plume so that contaminated groundwater could be extracted and treated, then amended with sodium permanganate oxidizer and injected back into the plumes.

4.2.3 Land Use Restrictions

In order to comply with the 1999 Consent Decree, the owners of the site properties north of Route 191

transferred title of their properties to MEDEP. Since then, MEDEP has sought to identify a suitable third-party entity to which MEDEP could transfer the properties, while maintaining enforcement rights for MEDEP and EPA. Because MEDEP holds the complete fee simple property interest of the properties north of Route 191, compliance with the restrictions pertaining to groundwater and archaeological area is ensured. When the properties ultimately are transferred to a third party, the State must require the retention of environmental covenants, enforceable under Maine's Uniform Environmental Covenants Act that will permit MEDEP and EPA to have enforcement rights.

Land-use restrictions have not yet been obtained for the property south of Route 191. The 2000 ROD (pages 56, 60, and 63) acknowledged that the ability to secure deed restrictions may be difficult since the owners of the property were not parties to the 1999 Consent Decree. This has proven to be the situation, as even getting access for installing and maintaining the southern groundwater extraction system required many requests, and ultimately, a unilateral administrative order for access was prepared before the land owners signed a notice to comply.

4.2.4 Long-Term Monitoring

Long-term monitoring began with the collection of baseline samples in June and July 2001 prior to the start-up of the expanded groundwater extraction and treatment system. Since the baseline sampling event, groundwater samples have been collected and analyzed on a semi-annual basis for VOCs and metals. In addition, samples were separately analyzed for 1,4-dioxane and PCBs on two and four occasions, respectively.

The northern plume occurs in a thin overburden unit that is seasonally saturated and in fractured bedrock. Historically, PCE concentrations in groundwater have been relatively lower in the overburden unit than in the bedrock unit. Monitoring and extraction wells are located in both overburden and bedrock.

The southern plume occurs primarily in the overburden unit. Historically, PCE concentrations in groundwater have been higher in the overburden unit than in the bedrock unit (it is noted that the overburden thickness is greater in the southern plume than in the northern plume). Monitoring and extraction wells are located in both overburden and bedrock.

A limited number of residential wells were sampled semi-annually during the initial remedial action period but with the operation of the groundwater extraction system and lack of any data to indicate that site contaminants were present in the residential wells, this sampling was terminated in 2006.

Surface water and sediment samples were collected annually in the summer from 2001 through 2006. Surface water has been sampled only for metals, whereas sediment samples were analyzed for SVOCs, total PCBs, and metals.

EPA conducted a three-part biota sampling program: in October 2002, intertidal clams were collected in Dennys Bay, near the mouth of the Dennys River; in July 2003, fish and mussels were collected from Meddybemps Lake and Dennys River; and a benthic study was performed during the summer of 2003. The biota samples were analyzed for metals and PCBs. The results of the analyses indicate a general decline in metals and PCB median concentrations per sampling location for fish and mussels tissue between 1997 and 2003. The classification determination from the benthic study for the river remained Class C, the same result as the 1997 and 1999 Maine DEP

results.

4.2.5 Archaeological Mitigation

The 2000 ROD required completion of the mitigation of adverse effects upon the archaeological resources at the Site caused by the removal of soils and sediment as part of the 1998-1999 NTCRA. These mitigation activities included the archaeological investigation of approximately 200 square meters performed over two field seasons in 2000 and 2001, development of a report documenting the findings of the field work, development of a cultural study (including a video spanning each of the four seasons) and displays permanently placed at the Site as well as mobile displays for use in educational and tribal settings.

In August 2000, a Memorandum of Agreement (MOA) for Recovery of Significant Information and Mitigation of Adverse Effects was entered into by EPA, State of Maine Historic Preservation Officer (Maine Historic Preservation Commission), Passamaquoddy Tribe (Pleasant Point Reservation and Indian Township Reservation), and Advisory Council on Historic Preservation.

Phase III data recovery excavations were conducted during 2000 and 2001. Field work included the hand excavation of 228 square meters. Over 80,000 artifacts including stone tools and pottery were recovered, as well as copious amounts of animal bones and plant remains. Other features identified at the Site include hearths, house pits, and storage and refuse pits. Artifact analysis, radiocarbon dating of 39 carbon samples, and analysis of floral and faunal remains document a long sequence of human occupation at N'tolonapemk¹ beginning in the Early Archaic period, ca. 7000 B.C.

Two reports addressing the scientific and cultural value of the recovered material have been generated. In October 2005, a four-volume draft scientific report entitled *The Archaeology of N'tolonapemk (96.02 ME)*, "Our Ancestor's Place" was circulated for peer review. Following revisions, the final report was submitted in December 2006.

A companion piece to the archaeological work is a cultural study produced in 2005. The report is entitled *A Visit to Our Ancestor's Place: Meddybemps – N'tolonapemk Village*, by Donald Soctomah, Passamaquoddy Tribal Historic Preservation Officer. The cultural study is available as a link from the EPA website at www.epa.gov/ne/superfund/sites/eastern.

A variety of materials have been produced to facilitate education and outreach to general public. A 50-minute documentary (*N'tolonapemk: Our Relatives' Place* by Gunnar Hansen, Bing Miller and Jeff Dobbs, 2006) uses an animal effigy found during the archaeological excavation as a point of departure to tell the story of N'tolonapemk as a hub for travel throughout the St. Croix watershed for 9000 years. Two four-panel mobile displays – one geared towards an adult reader, the second for children – have been created. A set of casts of selected artifacts were also created to accompany the mobile displays. Finally, one thousand copies of a 32-page booklet based on the scientific and cultural reports were printed and distributed to schools and libraries throughout Washington County and other parts of Maine. This booklet, *N'tolonapemk: An Ancient Native American Village on Meddybemps Lake, Lake*, is also available as a link from the EPA website.

A wayside exhibit consisting of four enamel signs was installed at the Eastern Surplus Site on August 24 –

¹ The Site was named this by the Passamaquoddy Tribe and means "Our Ancestors' Place"

25, 2006. The Site remains closed while groundwater remediation continues, however, limited access for tribal or other important municipal events can be arranged by contacting EPA or MEDEP.

In March 2003, an agreement concerning the archaeological resources at the Site was reached. This agreement specified how artifacts and other materials collected during archaeological investigations at the Site were to be housed and treated at the Robert Abbe Museum of Stone Age Antiquities in Bar Harbor, Maine. In November 2004, 177 archival storage boxes containing stone tools, flakes, floral and faunal remains, feature fill and other materials were transferred to the Abbe Museum. With the consent of the Passamaquoddy Tribe, additional fire-cracked rock was returned to the Site.

5.0 PROGRESS SINCE LAST FIVE-YEAR REVIEW

This is the second five-year review for the Site. The 2006 Five-Year Review made the following protectiveness statement:

“Because the remedial actions implemented for the Site are protective, the Site is protective of human health and the environment. The groundwater extraction and treatment system is preventing off-site migration of contaminants from the northern plume and has reduced concentration levels in the southern plume to cleanup levels. The properties north of Route 191 are owned by Maine DEP assuring that the groundwater will not be used prior to its attaining the cleanup levels and thereby ensuring the Site remains protective of human health. Concentration levels in surface water, sediment, and biota sampling data have shown reductions in concentrations of contaminants of concern from the pre-ROD levels. As the 2000 ROD determined that those levels did not pose an unacceptable risk, the current data confirm that the Site is not posing an unacceptable risk to ecological receptors. Sampling results of monitoring wells and residential water wells have demonstrated that there is no off-site contaminant migration to the east of the Dennys River. The monitoring program will continue to ensure that migration from the Site does not occur.”

Below is an update of the Long-Term Response Actions that have occurred since the 2006 Five-Year Review.

5.1 Extraction Systems

Operation of the groundwater extraction and treatment systems for both plumes was resumed in September 2007 when agreement with the new EPA contractor was reached. The northern plume system has been run continuously since then other than periods when system maintenance was being performed. With concurrence from MEDEP, EPA directed the contractor to deactivate the southern extraction system in November 2010 because the remedial action objective for that area had essentially been met (performance standards for all site contaminants except PCE have been attained and PCE concentrations have stabilized at its performance standards). As presently operated, the extraction system for the northern plume consists of 8 – 10 extraction wells (not all of the wells operate full-time).

Further discussion of the treatment system data and operation is provided in Section 6.4.4.

5.2 Remedy Enhancement

Prior to the 2006 FYR, EPA and MEDEP were assessing the potential use of bedrock blasting to increase the transmissivity of the northern plume. However, during the year-long transition period between EPA's contractors, concerns about potential drawbacks with blasting were raised and it was decided to focus on getting the groundwater extraction and treatment system operating and resuming the long-term monitoring to assess the amount of rebound caused by the year-long shutdown. Prior to the resumption of the groundwater extraction and treatment system, groundwater samples were collected from site monitoring and extraction wells. The results from this sampling event showed VOC concentrations in both overburden and bedrock wells in the northern plume were considerably greater than 2006 levels. By fall 2008 after a year of system operation concentrations had decreased and were consistent with pre-shutdown levels.

Following resumption of regular operation and monitoring, EPA and MEDEP pursued other alternative technologies to accelerate destruction of the residual PCE contamination in the northern plume. Based on discussions with in-house staff and external organizations (Interstate Technology and Regulatory Council), EPA directed its contractor to assess the viability of enhanced reductive dechlorination (ERD) as an alternative in situ technology. Bench-scale studies are currently underway. Should the results of these studies indicate that ERD could be beneficial a pilot-scale effort would be implemented.

5.3 Land Use Restrictions

No progress has been made on identifying a third party interest to which the titles to the northern properties could be transferred. Similarly, no progress has been made in securing institutional controls on the southern property. However since the PCE concentrations have stabilized to just above the MEG standard since 2004, the need for restrictions on this property has greatly diminished. In November 2010, the southern extraction system was deactivated. EPA continues to monitor the groundwater beneath this property. EPA tested and found no site contaminants in the drinking water well that was installed in 2006 for the new seasonal home located approximately 600 feet south of the extraction system.

5.4 Long-Term Monitoring

Semi-annual monitoring of groundwater resumed in Fall 2007 and the results after the 2006 FYR are discussed in detail in Section 6.4.1 below. Regarding the northern plume, the 2006 FYR found that:

- the lateral extent of the northern overburden and bedrock contamination had not varied appreciably, indicative that the plume was stabilized and not migrating beyond the extraction system,
- VOCs in the northern overburden plume, other than PCE, were essentially meeting the applicable performance standard,
- bedrock groundwater data indicated the mass of the residual PCE was located in the upper fifty feet of the bedrock with the core of the plume is centered around MW-35B,
- VOC concentrations beyond the core of the plume were beneficially affected by the in-situ oxidation and ongoing extraction,
- the continued presence of PCE in the core of the bedrock plume after the oxidation programs and groundwater flushing suggested that a residual PCE mass remains within the fractured bedrock

and will continue to contribute to the groundwater contamination for an extended period of time.

Regarding the southern plume, the 2006 FYR found that:

- the overburden unit contributed the majority of the groundwater extracted,
- historically, PCE concentrations in the overburden aquifer unit had been higher than in the bedrock unit,
- the lateral extent of the southern overburden and bedrock contamination had not varied appreciably indicating that the overburden component had stabilized and was not migrating beyond the extraction system,
- PCE was the only VOC consistently detected and its mean, median, and middle fifty percent followed an overall decreasing trend and the average PCE concentration in bedrock had fluctuated between its MCL and MEG standards since April 2004.

Regarding the non-plume wells the 2006 FYR found that

- Overall, site-related VOCs were not detected in these wells and metal concentrations were generally below their respective standards.

The 2006 FYR found that of the four ROD-designated surface water contaminants, aluminum, barium, and lead had occasionally been detected at higher concentrations than the ROD protective levels after the 1999 NTCRA while silver had not. Overall these metals did not appear to represent a threat to surface water quality.

Sediment sampling occurred at the same time and generally the same locations as the surface water sampling. In accordance with the approved work plan, sediment samples were analyzed for SVOCs, total PCBs, and metals. The 2006 FYR found that sediment metal concentrations appeared to either slightly decrease or had remained stable since 2002, and at levels below the pre-NTCRA 1999 samples. As the 2000 ROD concluded that the 1999 sediment concentrations did not pose an unacceptable risk, the 2006 levels were not considered to pose an unacceptable risk to aquatic organisms.

Surface water and sediment results after the 2006 FYR are discussed in Section 6.4.1 below.

5.5 Archaeological Mitigation

As noted in Section 4.2.5, several reports were completed shortly after the 2006 Five-Year Review. EPA is working with the Passamaquoddy Tribe to use the remaining fire-cracked rock that was returned to the Site to create a patio around the four kiosks installed in 2006.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

EPA, the lead agency for this five-year review, notified MEDEP in the spring of 2011 that the five-year review would be completed this fiscal year. Rebecca Hewett of MEDEP was part of the review team. The

schedule established by EPA included completion of the review by September 2011.

6.2 Community Notification and Involvement

EPA prepared a public notice announcing the five-year review and requesting public participation. The notice was published in June 2011 in the Calais Advertiser and Quoddy Times, the major local newspapers of general circulation. Additionally, EPA contacted stakeholders announcing the five-year review. These stakeholders included representatives from the Town of Meddybemps, Passamaquoddy Tribe, and US F&WS as well as discussing the Site with community members in the lakefront neighborhood north of the Site. In an interview with the town clerk for this review on June 8, 2011, the town clerk said she would enquire with the selectmen whether the town might have any interest in acquiring the property and would contact EPA if there was any interest. Since the publication of the public notice and the contact with the stakeholders, there has been no response from the public to either MEDEP or EPA regarding this five-year review.

6.3 Document Review

This five-year review included a review of relevant documents including decision documents, annual data summary reports, and operation and maintenance monthly reports. See Appendix A for a list of documents.

6.4 Data Review

A review was completed of the monitoring reports. A summary of relevant data regarding the components of the Site remedy is presented below.

6.4.1 Groundwater Monitoring

Prior to the resumption of the groundwater extraction and treatment system samples were collected in August 2007 to assess contamination rebound.

Northern Plume

In the overburden northern plume, concentrations greatly increased from less than 100 µg/L to 950 µg/L. However, immediately following the resumption in September 2007, concentrations in the overburden groundwater began to decrease and by Spring 2008 were more consistent with (and generally lower than) pre-shutdown averages. The most recent northern overburden sampling results were consistent with the reduction in concentrations. In Spring 2010, PCE was detected in each overburden sample but the levels were below the applicable MEG (3 µg/L) and MCL (5 µg/L). No other VOCs were detected at concentrations above the laboratory detection limits in these wells. No metals were detected at concentrations exceeding the applicable MCL/MEG. Consistent with historical observations, the groundwater table was lower in the Fall 2010 monitoring round than during the spring round. Due to the increased depth of the water table, only two overburden monitoring wells were sampled. PCE was detected in both wells at 6.5 µg/L and 1.1 µg/L. One sample also contained TCE, and cis-1,2-DCE below their respective standards.

In the bedrock, PCE concentrations generally remained stable or decreased while the groundwater

extraction and treatment system was offline and then increased following the resumption of the system. By Fall 2008, PCE concentrations were generally consistent with those observed prior to the system shut-down. This suggests that as the aquifer recharged and achieved static conditions, clean groundwater infiltrating the previously dewatered (hydraulic capture) zone diluted the contaminants. PCE “residuals” or NAPL ganglia may be trapped in non-contiguous and dead-end fractures concentrated in the shallow bedrock. Groundwater becomes contaminated as it recharges and fluctuates through the shallow bedrock; therefore, residual PCE NAPL continues to contribute to dissolved-phase contamination of the aquifer.

Since Fall 2008 PCE concentrations have decreased significantly over time with spring sampling results lower than fall sampling results. The highest PCE concentration detected in 2010 (2,800 µg/L) was in the sample collected from well MW-51B during the fall monitoring round. The elevated concentration of PCE detected may be due to PCE-contaminated groundwater and/or NAPL trapped in bedrock fractures being drawn toward extraction well MW-35B. PCE was detected at a concentration of 8.1 µg/L in the sample collected from deep bedrock well MW-34B2, indicating that the source of increased PCE concentrations is likely from shallow bedrock fractures and not the deeper bedrock aquifer. Figure 7 depicts the PCE concentrations in the northern bedrock plume.

Other VOCs, including TCE, cis-1,2-DCE, chloromethane, and methylene chloride, have been detected in the northern plume but generally below their respective standards. Metal sampling results from Spring 2010 found exceedances for several metals slightly above their respective standards.

A review of the historical data and observed reduction of PCE concentrations over time suggests that the extraction and treatment system is effectively drawing the shallow bedrock contamination toward the extraction wells and into the treatment system. Based on the current and historical distribution of PCE concentrations, it appears that the plume may be shrinking. Figure 7 and Table 2 illustrate the declining PCE trend.

Southern Plume

PCE concentrations detected in groundwater samples collected from southern plume overburden aquifer wells show a general decreasing trend from Fall 2001 through Spring 2010. All other VOCs have been below their respective standards. Based on an evaluation of historical analytical data from southern plume monitoring wells, response actions conducted at the southern plume have effectively reduced VOC concentrations in groundwater and it was not necessary to continue treatment of the southern plume overburden or bedrock aquifers. Therefore, the groundwater extraction wells for the southern plume were shut off on November 2, 2010. The monitoring wells included in the long-term monitoring plan were sampled during the Spring 2011 sampling round to assess whether rebound occurred. The results of this sampling event were not available at the time of this review.

In the most recent southern bedrock sampling, PCE concentrations were below both the MCL and MEG. Additionally, metals were not detected above applicable standards.

6.4.2 Surface Water Monitoring

Following the resumption of the groundwater extraction and treatment system in September 2007, surface water samples were collected and analyzed for metals in July 2008. Aluminum was detected above its ROD PL in three of twenty samples and lead in two of twenty samples. As the highest aluminum

concentration was upstream from the dam, it suggests that the other two exceedances downstream of the dam may not be entirely site-related. The lead concentrations were only slightly above the ROD PL.

The sporadic nature of the 2008 data was consistent with historical data since the 1998-1999 NTCRA. Since exceedances have occurred upstream of the dam and there are no exceedances downstream of Mill Pond, it does not appear that metal concentrations represent an unacceptable risk to the surface water quality adjacent to the Site. Table 3 presents a summary of surface water data.

6.4.3 Sediment Monitoring

Following the resumption of the groundwater extraction and treatment system in September 2007, sediment samples were collected and analyzed for PCBs and metals in July 2008. PCB was detected above its ROD PL (190 µg/kg) in only one of the twenty sample locations. This location is south of the Route 191 bridge and thus may represent either a localized residual source from the southern plume or run-off from the highway. Based on one exceedance in twenty samples, it is unlikely that the Site is contributing PCBs to the river sediments.

Consistent with historical results, metal exceedances were detected in samples collected from Meddybemps Lake, Mill Pond, and the Upper Dennys River. Review of the 2008 results shows that the concentrations were generally within historical ranges. There does not appear to be consistent trends in the results suggesting that the concentrations are not attenuating. Tables 4 and 5 present summaries of the PCB and metals data for sediments.

6.4.4 Treatment System Monitoring

Since the resumption of the groundwater extraction and treatment system, weekly, monthly, and annual maintenance has been performed to keep the system operating.

EPA's contractor performs up to three visits to the Site per week to observe treatment system operations and performance and to perform routine maintenance. During these visits, the following tasks are typically performed:

- Record treatment system pressures, run-times, treated water volumes, and flow rates within the treatment plant;
- Inspect and record conditions of each extraction well vault, record extraction pump cycles per minute, and bleed air lines at each pump of accumulated condensed moisture;
- Change bag filters, air filters, and particulate filters, as necessary; and
- Change air compressor oil, as necessary.

On a monthly basis, water samples are collected from 11 locations throughout the system treatment train and submitted for laboratory analyses of VOCs and the 22 Target Analyte List (TAL) metals and mercury. In addition, any necessary non-routine maintenance is performed during the monthly visits. This includes changing the carbon in the six granular activated carbon vessels located in the treatment plant and removing accumulated silt and sludge from the equalization tanks up to three times per year or as required.

Annually, during the fall season, EPA's contractor performs treatment system maintenance. Each system

component is checked in accordance with the manufacturers' recommendations. Maintenance includes the removal, inspection, cleaning, and repair of each extraction pump; inspection and tightening of each connection (for compressed air and water lines) within the treatment plant; inspection of compressor filters and belt tension, and other components.

The System was offline from August 2006 through mid-September 2007 during the transition from one EPA to another as one contract vehicle was replaced by another. From September 2007 to present the system has generally operated continuously with the exception of short periods of downtime due to alarm conditions, electrical service interruptions, and routine maintenance.

Short-term interruptions are generally rectified by resetting alarms, switches, and breakers and/or replacing bag filters and pumping the equalization tanks manually. For the last calendar year (2010) the system operated 351 of the 365 days, or 96-percent of the time.

PCE was detected in influent samples from the northern plume at concentrations exceeding the MEG/MCLs during each monthly sampling round. Influent concentrations from the southern plume were below the MEG/MCL so the southern extraction wells were turned off on November 2, 2010. Metals were not detected at concentrations exceeding the MEG/MCLs during any of the 2010 monthly sampling rounds.

Annual hours and costs directly involved with operation and maintenance and analytical tasks (long-term groundwater monitoring, analytical support, data validation and evaluation, submittal of monthly, semi-annual, and annual reports) since the resumption of the groundwater extraction and treatment system are presented in the Table 6 below. It is noted that the contract vehicle between the EPA Region 1 and its contractor is negotiated for all sites within Region 1 so only level of effort hours are site-specific.

Year	Operation and Maintenance		Analytical Tasks	
	LOE Hours	Costs (thousands)	LOE Hours	Costs (thousands)
2008	1455	\$186	1460	\$168
2009	1287	\$163	997	\$105
2010	1321	\$163	1177	\$132

6.4.5 Archaeological Mitigation

The June 7, 2011 site inspection documented that the concrete bases of the four kiosks have cracked but that the kiosks themselves were in good shape. As part of the closing out of EPA's contract, work is planned to repair the concrete bases as part of the construction of a patio-type area in front of the kiosks. Additionally, a fence is being constructed to separate out the active remediation area from the rest of the Site.

6.5

Site Inspection

A site inspection for this five-year review was performed on June 7 and 8, 2011. The inspection was performed by EPA with its contractor, Nobis Engineering, Inc., and MEDEP. Concurrent with the inspection, an EPA headquarters team visited the site as part of a remedy optimization study.

The inspection included a site walkover, inspection of the extraction and treatment system, monitoring wells both on the Site and those wells east of the Dennys River, the site fence, the restored riverbank (location of the PCB hot spot), former hydroelectric station, and the kiosks erected as part of the archaeological mitigation. Following the site inspection, the EPA representative drove around the roads contiguous to the Site to check for new homes and developments.

The Site north of Route 191 is fenced on three sides; on the south along Route 191 and on the west and north separating the Site from private property. The mill pond of Dennys River forms the eastern boundary of this portion of the Site and this boundary is not fenced. The northern portion of the Site is accessed through a vehicle gate in the fence along Route 191, and there are two additional gates located in the western side of the fence. The fence along Route 191 from the river to the vehicle gate is in poor condition; it is listing significantly backward away from the highway. The fence along the western boundary has places where post caps or stabilizing bars are missing or unattached. EPA has directed its contractor to replace the Route 191 fence and to make repairs as needed to the rest of the Site fence.

The portion of the Site south of Route 191 remains unrestricted; there is no fence, and a roadway runs through the property back to a seasonal home that has been constructed since the 2006 FYR. Compared to the northern portion of the Site, much of the southern portion is overgrown with vegetation. In addition to the seasonal home, a barn structure with concrete floor stands nearer to the road.

On the day of the site inspection for this five-year review, there was no indication of any disturbance of the fence (beyond the conditions noted above) or grounds, or any erosion along the riverbank. Each of the monitoring wells currently in use as part of the monitoring program was located and inspected. All appeared to be in acceptable condition with no indication of frost displacement and all riser caps were secured. There are a number of unmarked one-inch piezometers in the southern plume which were likely used for permanganate injections.

The roads in the area surrounding the Site were driven to check for new development/new use. The area remains predominantly rural residential interspersed with agricultural properties. There did not appear to be any significant changes on Route 191 either west or east of the property. MEDEP performed a removal action of contaminants similar to those found on the Site from the basement of a small house located just north of Route 191 and east of the river (the house was formerly occupied by the family member of the former site owner) and a fence surrounds this house. Stone Road, the private road immediately to the west of the Site, leads to a few homes along Meddybemps Lake; all of these homes are located hydraulically upgradient of the Site. Since the 2006 Five-Year Review, a year-round lakefront home was built adjacent to the northern edge of the Site. Its bedrock well was tested by EPA and no contaminants were detected. Along the next road farther to the west along Route 191, there were some clearings along the road, likely to be residential lots for new homes. This road also leads to the southwestern shore of Meddybemps Lake and also is upgradient from the Site.

No new construction or clearing, with the exception of the seasonal home on the southern portion of the Site, were observed south of Route 191 in the area of the Site.

See Appendix B for the site inspection checklist.

6.6 Interviews

EPA conducted interviews with MEDEP and the reference librarian at the Calais Free Library (the library serves as the site repository). EPA visited the office of the Town of Meddybemps clerk (the town does not have an office but holds meetings in the community center). During the Site inspection, EPA also spoke with a tribal representative and property owners in the nearby lakeside neighborhood.

Rebecca Hewett has been the MEDEP project manager since 1996, and she has provided MEDEP's comments on the site reports. MEDEP has been actively involved with all aspects of the Site. The comments of MEDEP on the draft Five-Year Review Report are included in Appendix C.

The site file at the Calais Free Library was reviewed during a site visit on June 7, 2011. The site files include the administrative records compiled for the 1999 NTCRA (volumes I – VI) and for the 2000 Record of Decision (volumes I – IV). The reference librarian noted that the record is not often accessed but that it is appreciated by the community members who are interested in the Site. The reference librarian affirmed that electronic copies of the administrative records would be appreciated.

The town clerk did not raise any issues or concerns with the Site.

EPA's project manager met with a tribal representative on June 7, 2011 to discuss possible uses for the fire-cracked rock and long-term use of the Site.

Community members did not express any concerns about the Site nor have opinions about the future use of the Site.

7.0 TECHNICAL ASSESSMENT

7.1 Question A: Is The Remedy Functioning As Intended By The Decision Documents?

Yes

Remedial action performance. The remedial action objectives (RAOs) were noted above (see Section 4.1).

The first RAO, to prevent ingestion of contaminated groundwater, is being met by the groundwater extraction system and the ownership by MEDEP of the properties north of Route 191. Ongoing semi-annual sampling supports the conceptual site model that off-site migration is not occurring and thereby the second RAO is also being met. Thus, the threat posed to human health is being addressed.

The third RAO, to restore contaminated groundwater to drinking water standards, has not been achieved in the northern plume at the time of this five-year review. Groundwater PCE concentrations, as measured both by the influent concentrations to the extraction system and semi-annual sampling of monitoring wells, have declined since the resumption of the extraction treatment system in October 2007. This suggests that

the northern plume is attenuating, though there remains a core PCE residual.

The fourth RAO, long-term monitoring to verify the protectiveness of the remedy, is being met. The threat posed to the environment through exposure to contaminated groundwater has not occurred because the groundwater extraction system prevents discharge of the contaminated groundwater into the Dennys River. Surface water and sediment samples collected from the Dennys River show that metal concentrations are generally decreasing since the ROD. Additionally, the elevated metal concentrations are not significantly above background concentrations.

Operations and Maintenance. The ROD specified that the extraction systems would be operated and maintained to ensure the continuing effectiveness of the treatment system. System operation began prior to the 2000 ROD and full system operation began in August 2001. The extraction system for the southern plume was deactivated in 2010 as the PCE performance standard was reached.

Opportunities for Optimization. Based on the extensive monitoring data collected during the RI/FS and post-ROD, in 2007 EPA with concurrence from MEDEP, reduced the number and frequency of monitoring locations following resumption of the extraction and treatment system. Subsequently, specific monitoring wells were added back into the monitoring program to establish lateral extent of the northern plume.

EPA headquarters conducted an optimization study in Summer 2011 and a draft final report is now being distributed. Upon receipt of this report, further opportunities to optimize the long-term monitoring and the groundwater extraction and treatment system will be discussed with MEDEP.

Indicators of Remedy Problems. There are no indicators of remedy problems. As with any system that has been in operation for over a decade, replacement of components in the extraction and treatment system is increasing in frequency as parts wear out.

Implementation of Institutional Controls. The institutional controls required by the 2000 ROD have not been completed. Titles to the properties north of Route 191 are now held by MEDEP, thereby ensuring that the site groundwater will not be used. The ROD acknowledged the difficulty of obtaining institutional controls on the property south of Route 191 and this has proven to be the case. However, since the groundwater beneath this property has reached the performance standards the need for institutional controls has been diminished.

7.2 Question B: Are The Exposure Assumptions, Toxicity Data, Cleanup Levels And Remedial Action Objectives (RAOs) Used At The Time Of Remedy Selection Still Valid?

Yes

Changes in Standards and TBCs. As part of this five-year review, Applicable or Relevant and Appropriate Requirements (ARARs) and To Be Considered (TBC) guidance for the Site presented in the ROD were reviewed, and a review of current ARARs was conducted. There have been no changes in the chemical-specific ARARs (MCLs² or Maine MEGs³) for the contaminants identified in the 2000 ROD, nor any

² The MCL for arsenic was lowered in January 2001 from 50 µg/L to 10 µg/L. The 2000 ROD specifically excluded

location or action-specific ARARs. ARARs identified in the ROD and current ARARs and TBCs applicable to this five-year review are included in Appendix D of this report for reference.

Changes in Exposure Pathways. There have not been any changes in exposure pathways since the 2006 FYR (the 2006 FYR concluded vapor intrusion pathway was not a viable pathway for the Site).

Land use around at the Site has not changed appreciably since the 2006 FYR, and is not expected to significantly change. EPA will continue to inspect the area on a regular basis to assure that should there be any changes in the land use that it will not affect the plume configuration.

Changes in Toxicity and Other Contaminant Characteristics. Since the ROD there have been changes in the oral cancer slope and the dermal cancer slope for PCE and TCE. These changes in toxicity do not affect the protectiveness of the remedy as the extraction system prevents offsite migration and MEDEP, through its ownership of the properties north of Route 191, prevents the use of the contaminated groundwater onsite.

Changes in Risk Assessment Methods. The human health risks discussed in the ROD have been eliminated by the implementation of the groundwater extraction and treatment system and institutional controls. Groundwater monitoring has demonstrated that the contaminant plume has not migrated offsite. There are no changes that affect the protectiveness of the remedy. Since the cleanup levels for groundwater are the MCLs or MEGs rather than site-specific risk-based concentrations, changes in risk assessment methods would not affect the protectiveness of the remedy.

Expected Progress Towards Meeting RAOs. The first two RAOs have been met. The third one has not been met, although it has essentially been met in the southern plume. Site-wide monitoring is still ongoing, and overall, groundwater contaminant levels in the northern plume have been decreasing. Because of the likely presence of residual DNAPL within the core of the northern plume, it is difficult to project when the performance standards will be attained throughout the entire northern plume. PCE remains the only VOC above its performance standard in the southern plume. Its statistical measurement has fluctuated for the past eight years at its standard, indicating that PCE concentrations have reached an asymptotic level.

7.3 Question C: Has Any Other Information Come To Light That Could Call Into Question The Protectiveness Of The Remedy?

No.

No information has been discovered since the completion of the 2006 FYR that would call into question the protectiveness of the remedy.

arsenic as a site contaminant, yet with the new MCL arsenic concentrations have been tracked in the plumes and treatment system. Re-evaluations of PCE and TCE have been underway for many years and EPA announced new levels for both compounds would be proposed by end of 2009. At the time of this September 2011 review, these new levels have not been proposed. Should PCE and TCE MCLS be changed, the long-term monitoring will be revisited to ensure that laboratory analysis will reach the new levels.

³ Maine MEGs have been updated since the 2000 ROD; however, the 1992 MEGs remain the only values that have been referenced in State regulations, and therefore they remain as ARARs whereas the updates are TBCs.

7.4 Technical Assessment Summary

Based on the data reviewed, observations from the site inspection, and interviews, the remedy is functioning as intended by the ROD. The groundwater extraction and treatment system has been constructed, maintained and operated and is meeting the intended goal of preventing off-site migration. The goal of restoring the groundwater to drinking water standards has not been achieved in the northern plume within the timeframe projected in the ROD. That projection may have been overly optimistic in that the possibility of DNAPL within the bedrock was known at the time of the ROD. Nonetheless, the groundwater extraction system has prevented further migration of the northern plume.

Final resolution of the institutional controls has not been achieved but MEDEP holds the titles to the northern properties and the contaminant levels in the southern plume have been significantly diminished, reducing the need for institutional controls for the southern property. The groundwater monitoring has demonstrated that contaminants are not migrating offsite. Therefore, the remedy is functioning as designed and remains protective of human health and the environment. Groundwater monitoring continues and maintenance of the extraction and treatment system and the monitoring wells is performed as necessary.

The primary ARARs for groundwater are MCLs and Maine MEGs. These continue to be met offsite as well as downgradient of the extraction systems. Treatment system effluent has consistently met these standards. Groundwater contamination levels within the northern plume have shown an overall decrease while PCE concentrations have stabilized at the performance standards in the southern plume.

Land use in the surrounding area has not changed appreciably (there are new seasonal and year-round homes upgradient of the Site on the southwestern shore of Meddybemps Lake and a seasonal home was constructed approximately 600 feet beyond the southernmost extraction well of the Site south of Route 191). Land use is not expected to change significantly during the next review cycle.

8.0 ISSUES

This five-year review identified two issues. While concentration levels have decreased in both plumes and the southern plume is essentially meeting performance standards, the northern plume has not been restored in the five to ten years that the 2000 ROD projected. The likely explanation for this is that the majority of the northern plume is located in the bedrock unit with its correspondingly lower transmissivity. It is believed that there is residual PCE adsorbed in low-flow fractures and on the bedrock matrix that will act as a long-term source. Unless the transmissivity of the bedrock unit can be improved or the distribution of in-situ additives can be improved, then it is unlikely that the northern plume will be restored in the near future, and the timeframe to achieve the cleanup may be several decades. Consequently, EPA should continue with its assessment of ERD for optimizing clean up of the northern plume while also assessing other long-term approaches to the Site.

The second issue identified in this five-year review is that institutional controls have not been implemented for either the northern or southern portions of the Site.

Table 6: Issues

Issues	Affects Protectiveness (Y/N)	
	Current	Future
Northern plume has not been restored as projected by the ROD	N	N
Institutional Controls not implemented	N	N

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Work began on assessing the viability of ERD in Summer 2011. Following the completion of bench scale studies, EPA and MEDEP will evaluate the data. Should the data indicate that ERD is viable, then EPA will recommend that a pilot-scale effort be implemented in Spring-Summer 2012.

The final institutional controls for the northern properties have not yet been implemented; the imposition of these restrictions may have to wait for the transfer of the properties by the State to a third party. With PCE concentrations in the southern plume fluctuating at its performance standard for the past eight years, the need for institutional controls on this property are lessened. The inter-agency discussions should be resumed to reach a final resolution on the institutional controls.

These recommendations should be implemented as soon as practicable within the next fiscal year to address the two issues identified in this five-year review. The table below provides a summary of the recommendations, including the timeframe for their implementation.

Table 7: Recommendations

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Northern plume has not been restored as projected by the ROD	Continue enhanced bioremediation studies to assess its viability for restoring the northern plume	EPA	EPA/State	January 2012	N	N
Institutional Controls not implemented	Resolve institutional controls	EPA	EPA/State	FY 2012	N	N

In addition to the five-year review, it is noted that during Summer 2011 EPA headquarters carried out an optimization evaluation of the Site. This evaluation identified possible steps that could improve the effectiveness of the remedy and reduce costs as well as set out long-term approaches for the Site. In mid-

September 2011 a draft final report was distributed to EPA Region 1 and MEDEP. These steps will be considered with MEDEP and implemented if feasible.

Finally, it is further noted that the statutory ten-year operation and maintenance period for this fund-lead site ends August 26, 2012. At that point, per the State Superfund Contract, MEDEP will be responsible for the long-term operation and maintenance of the Site. Consequently, EPA will work with MEDEP to identify remaining tasks that need to be performed prior to the August 2012 transfer.

10.0 PROTECTIVENESS STATEMENTS

The remedy currently protects human health and the environment in the short-term because the groundwater extraction and treatment system continues to contain the northern plume and ownership of the northern properties of the Site by MEDEP prevents exposure to site groundwater. However, in order for the remedy to be protective in the long-term, the institutional controls need to be implemented to ensure long-term protectiveness. Groundwater monitoring has shown contaminants in the southern plume have stabilized at the performance standards. Surface water and sediment monitoring indicate the levels continue to decrease from pre-ROD levels. As the ROD stated that those levels did not pose an unacceptable risk, the remedy remains protective of the environment.

11.0 NEXT REVIEW

The next five-year review for the Eastern Surplus Company Superfund Site will be conducted in 2016. This review is required since hazardous contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

TABLES

**EASTERN SURPLUS SUPERFUND SITE
FIVE-YEAR REVIEW
September 2011**

(Tables 1, 6, and 7 embedded in Document)

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

Table 2
Historical Trends of PCE Concentrations
Eastern Surplus Company Site
Meddybemps, Maine

Sample Location	IN-1B1	IN-1B2	MW-3B	MW-34B1	MW-34B2	MW-35B	MW-36B1	MW-36B2	MW-43B1	MW-43B2	MW-42S	MW-43S	MW-45S	IS-1B	IS-2B	MW-50S	IS-1S	IS-2S
Aquifer	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NO	NO	NO	SB	SB	SO	SO	SO
Date																		
November-01	1,400	300		6,600	24	9,100	230	12	150	180	dry	dry	dry	2	19	42	8	11
April-02	1,800	310		1,100	14	3,200	380	25	220	180	13	51	dry	9	16	42	14	40
April-03	5,700	23		6,100	75	1,200	300	9	110		5	29	11	4	1U	14	5U	6
October-03	480	61		10,000	13	850	310	30	40	210				7	19	25	18	13
April-04	180	81		1,100	11	2,000	350	34	41	48	4	27	4	9	17	16	12	11
April-05	275	20		2,900	2	590	190	27	37	140	1	7	2	5	8	9	5	7
October-05	35	55		610	7	1,700	260	32	44	180		105	4	3	7	10	7	9
April-06	2,100	24		890	12		230	29.5	47	190	2	63	3	4	5	8	9	8
August-06	Treatment system and extraction wells offline.																	
September-07	Restarted treatment system and extraction wells.																	
August-07	110	150		840	16		120	30	80.5	42	220	950	1.5	1.9	1	7.8	9.5	7.7
October-07	3,600	210		3,000	64	1,650 ¹	230	20	47	17	110	380	2.5					
April-08	97	130	1,850	760	1.6		120	6.8	19	5.2	1.7	12	5.7	1.9	0.91	3.9	1.6	2.9
October-08	110	190	1,700	540	2.4	845	180	18	32	11	1.5	9.6						
May-09	170	200	1,650	36	1.2	535	140	34	28	8.8		6.55	3.3	6.8		7	4	
October-09	16	160	490	90	5U		61	10	8.4	1.2		2.7						
May-10	15	97	5U	30	5U		22	23	20	2.9	dry	1.5	1.2	0.92	0.5U	4.9	3.9	2.9
October-10	35	195	3.7	510	8.1	220	48	21	28	5.5	1.1	6.5	dry					

Notes:

1. Sample collected in September 2007
2. Blank = not sampled or a gap in historical data reviewed.
3. All concentration listed in micrograms per liter (µg/L).
4. U = below contract required quantitation limit.
5. *italic text* indicates the value listed is the average of the field sample and field duplicate results
6. NO = northern overburden aquifer, NB = northern bedrock aquifer, SO = southern overburden aquifer, SB = southern bedrock aquifer

Table 3-~~2~~
July 2008 Surface Water Monitoring Analytical Statistical Summary
Eastern Surplus Company Site
Meddybemps, Maine

Area	Medium	Parameter	Average Detect (ug/L)	Minimum Detect (ug/L)	Maximum Detect (ug/L)	Standard Deviation (ug/L)	Detection Frequency	Max Detect Location	PL	Exceedance Frequency
Meddybemps Lake	Surface Water	Aluminum	114.6	25.9	269.0	88.8	6 / 6	L03	87	3 / 6
Meddybemps Lake	Surface Water	Barium	2.6	2.2	3.3	0.6	3 / 6	L03	4	0 / 6
Meddybemps Lake	Surface Water	Iron	210.5	194.0	227.0	23.3	2 / 6	L04	---	0 / 6
Meddybemps Lake	Surface Water	Lead	0.6	0.3	1.2	0.4	4 / 6	L03	0.5	2 / 6
Meddybemps Lake	Surface Water	Managanese	24.7	16.5	33.9	7.5	4 / 6	L04	---	0 / 6
Mill Pond	Surface Water	Aluminum	32.9	22.7	79.6	20.7	7 / 7	L07	87	0 / 7
Mill Pond	Surface Water	Barium	2.3	2.3	2.3	---	1 / 7	L07	4	0 / 7
Mill Pond	Surface Water	Managanese	15.1	15.1	15.1	---	1 / 7	L07	---	0 / 7
Upper Dennys River	Surface Water	Aluminum	30.9	25.3	51.1	10.1	6 / 6	L18	87	0 / 6
Upper Dennys River	Surface Water	Barium	2.0	2.0	2.0	---	1 / 6	L18	4	0 / 6
Upper Dennys River	Surface Water	Managanese	15.4	15.4	15.4	---	1 / 6	L18	---	0 / 6

Table 4
July 2008 Sediment PCB Analytical Statistical Summary
Eastern Surplus Company Site
Meddybemps, Maine

Parameter	Medium	Average Detect (ug/kg)	Minimum Detect (ug/kg)	Maximum Detect (ug/kg)	Standard Deviation (ug/kg)	Detection Frequency	Max Detect Location	ROD PL (ug/kg)	Exceedance Frequency
Dichlorobiphenyls	Sediment	0.041	0.00223	0.125	0.045	8 / 22	L16	190	0 / 22
Trichlorobiphenyls	Sediment	0.080	0.00194	0.245	0.085	11 / 22	L16	190	0 / 22
Tetrachlorobiphenyls	Sediment	0.246	0.00310	0.931	0.338	15 / 22	L18	190	0 / 22
Pentachlorobiphenyls	Sediment	1.497	0.00262	8.41	2.722	21 / 22	L17	190	0 / 22
Hexachlorobiphenyls	Sediment	13.91	0.00595	96.9	26.746	19 / 22	L17	190	0 / 22
Heptachlorobiphenyls	Sediment	15.76	0.00943	141	34.257	21 / 22	L17	190	0 / 22
Octachlorobiphenyls	Sediment	4.63	0.00204	39.2	9.752	19 / 22	L17	190	0 / 22
Nonachlorobiphenyls	Sediment	0.31	0.00202	2.24	0.586	16 / 22	L17	190	0 / 22
Decachlorobiphenyls	Sediment	0.026	0.00210	0.14	0.047	8 / 22	L11	190	0 / 22
Total PCBs	Sediment	42.05	0.018	289	79.212	17 / 22	L17	190	1 / 22

Note: ROD PL - Record of Decision Protective Level

Table 5
 July 2008 Sediment Metals Analytical Statistical Summary
 Eastern Surplus Company Site
 Meddybemps, Maine
 Page 1 of 2

Area	Aquifer	Parameter	Average Detect (ug/kg)	Minimum Detect (ug/kg)	Maximum Detect (ug/kg)	Standard Deviation (ug/kg)	Detection Frequency	Max Detect Location	ROD PL (ug/kg)	Exceedance Frequency
Meddybemps Lake	Sediment	Aluminum	10,780.0	8,690.0	14,400.0	2,240.7	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Arsenic	11.1	8.0	16.9	3.4	5 / 5	L04	6	5 / 5
Meddybemps Lake	Sediment	Calcium	1,515.8	917.0	3,210.0	966.1	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Chromium	23.4	18.3	31.6	5.1	5 / 5	L03	26	1 / 5
Meddybemps Lake	Sediment	Cobalt	8.4	6.7	11.7	1.9	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Copper	15.3	10.4	18.1	2.9	5 / 5	L03	16	3 / 5
Meddybemps Lake	Sediment	Iron	22,540.0	20,100.0	25,600.0	1,965.5	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Lead	9.9	7.8	12.3	1.6	5 / 5	L03	31	0 / 5
Meddybemps Lake	Sediment	Magnesium	6,616.0	5,560.0	8,780.0	1,283.2	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Managanese	288.0	221.0	402.0	75.5	5 / 5	L04	460	0 / 5
Meddybemps Lake	Sediment	Nickel	27.3	22.1	33.8	4.2	5 / 5	L03	16	5 / 5
Meddybemps Lake	Sediment	Potassium	808.8	766.0	922.0	75.7	4 / 5	L04	---	---
Meddybemps Lake	Sediment	Vanadium	23.2	18.1	34.0	6.3	5 / 5	L03	---	---
Meddybemps Lake	Sediment	Zinc	47.1	41.8	52.4	4.7	5 / 5	L03	---	---
Mill Pond	Sediment	Aluminum	9,008.6	8,040.0	11,500.0	1,150.3	7 / 7	L06	---	---
Mill Pond	Sediment	Arsenic	10.6	4.8	25.4	6.8	7 / 7	L06	6	6 / 7
Mill Pond	Sediment	Calcium	1,393.9	967.0	1,610.0	210.5	7 / 7	L08	---	---
Mill Pond	Sediment	Chromium	21.7	14.3	29.8	4.8	7 / 7	L13	26	1 / 7
Mill Pond	Sediment	Cobalt	7.8	6.6	9.2	1.2	4 / 7	L06	---	---
Mill Pond	Sediment	Copper	11.4	8.1	19.3	3.8	7 / 7	L06	16	1 / 7
Mill Pond	Sediment	Iron	19,328.6	15,500.0	25,700.0	3,408.7	7 / 7	L06	---	---
Mill Pond	Sediment	Lead	9.5	6.6	15.1	3.5	7 / 7	L06	31	0 / 7
Mill Pond	Sediment	Magnesium	5,417.1	4,420.0	6,530.0	734.0	7 / 7	L09	---	---
Mill Pond	Sediment	Managanese	286.9	161.0	475.0	107.9	7 / 7	L09	460	1 / 7
Mill Pond	Sediment	Nickel	22.6	15.5	28.7	5.5	7 / 7	L06	16	6 / 7
Mill Pond	Sediment	Potassium	610.0	583.0	637.0	38.2	2 / 7	L06	---	---
Mill Pond	Sediment	Vanadium	18.4	13.2	26.4	4.1	7 / 7	L06	---	---
Mill Pond	Sediment	Zinc	42.2	34.6	55.1	7.0	7 / 7	L06	---	---
Upper Dennys River	Sediment	Aluminum	9,730.0	7,840.0	12,900.0	1,798.3	6 / 6	L16	---	---
Upper Dennys River	Sediment	Arsenic	10.0	8.2	13.1	2.0	6 / 6	L15	6	6 / 6
Upper Dennys River	Sediment	Calcium	1,592.3	930.0	2,920.0	759.7	6 / 6	L16	---	---
Upper Dennys River	Sediment	Chromium	20.8	16.8	27.2	4.1	6 / 6	L16	26	1 / 6
Upper Dennys River	Sediment	Cobalt	8.3	6.0	11.4	2.3	5 / 6	L16	---	---
Upper Dennys River	Sediment	Copper	12.9	9.9	17.5	2.9	6 / 6	L15	16	1 / 6

Table 5
July 2008 Sediment Metals Analytical Statistical Summary
Eastern Surplus Company Site
Meddybemps, Maine
Page 2 of 2

Area	Aquifer	Parameter	Average Detect (ug/kg)	Minimum Detect (ug/kg)	Maximum Detect (ug/kg)	Standard Deviation (ug/kg)	Detection Frequency	Max Detect Location	ROD PL (ug/kg)	Exceedance Frequency
Upper Dennys River	Sediment	Iron	21,266.7	17,500.0	30,200.0	4,666.8	6 / 6	L16	---	---
Upper Dennys River	Sediment	Lead	13.3	8.6	26.0	6.5	6 / 6	L15	31	0 / 6
Upper Dennys River	Sediment	Magnesium	7,375.0	4,960.0	10,800.0	2,306.3	6 / 6	L14	---	---
Upper Dennys River	Sediment	Managanese	341.0	201.0	496.0	125.2	6 / 6	L15	460	2 / 6
Upper Dennys River	Sediment	Nickel	28.3	21.3	43.2	8.1	6 / 6	L14	16	6 / 6
Upper Dennys River	Sediment	Potassium	640.0	568.0	714.0	71.8	4 / 6	L15	---	---
Upper Dennys River	Sediment	Vanadium	19.5	15.1	35.1	7.7	6 / 6	L16	---	---
Upper Dennys River	Sediment	Zinc	48.6	40.1	69.5	11.8	6 / 6	L15	---	---

Note: ROD PL - Record of Decision Protective Level

**BURGESS BROTHERS LANDFILL SUPERFUND SITE RECORD OF DECISION
AMENDMENT
APPENDICIES**

[PAGE LEFT INTENTIONALLY BLANK]

FIGURES

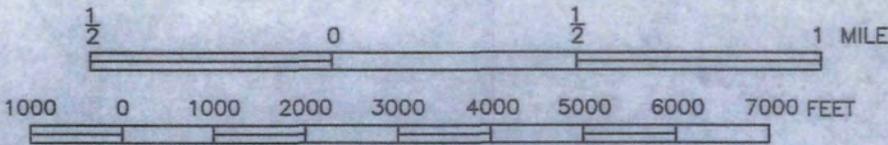
**EASTERN SURPLUS COMPANY SUPERFUND SITE
FIVE-YEAR REVIEW
September 2011**

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

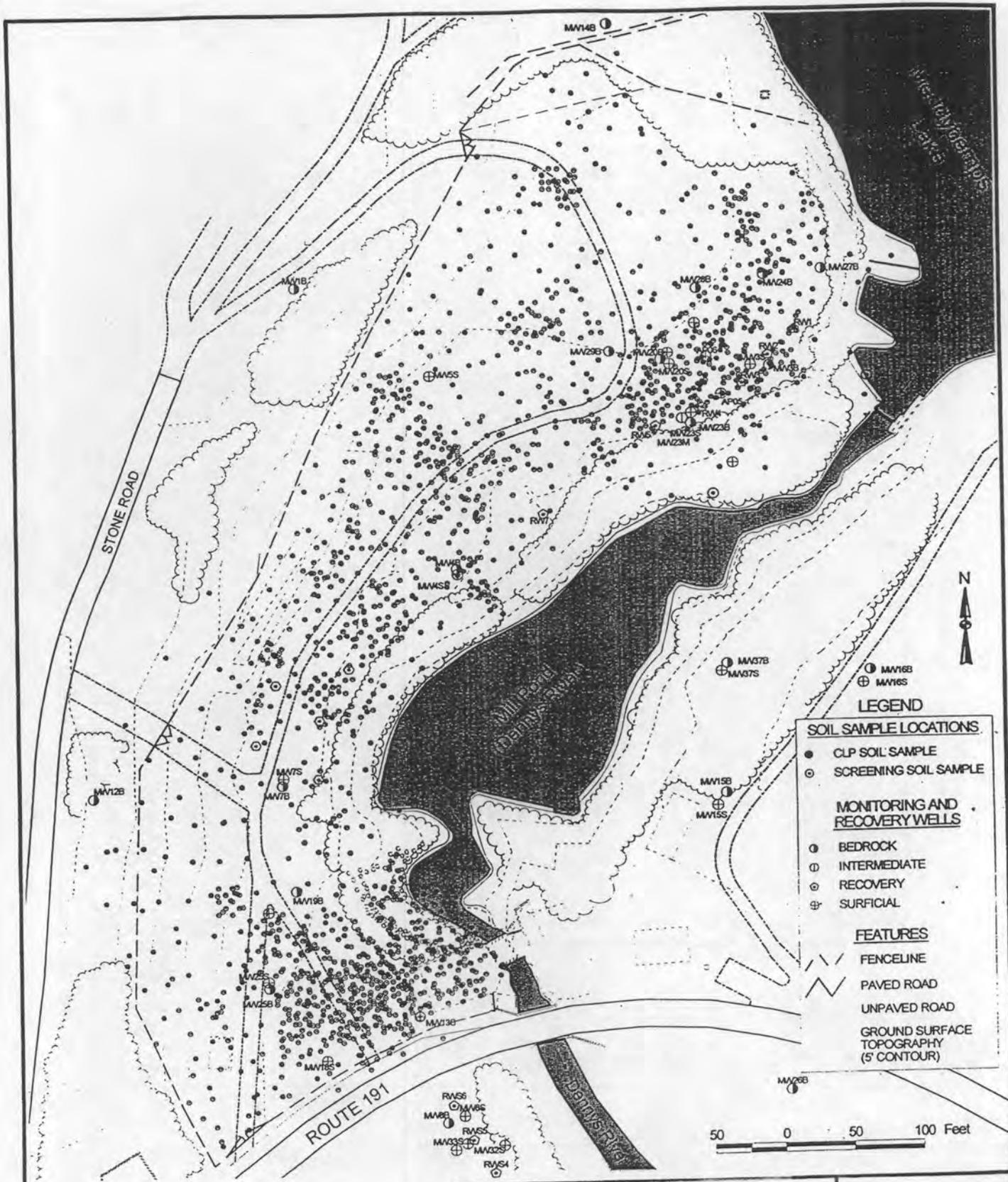
[PAGE LEFT INTENTIONALLY BLANK]



BASEMAP: U.S.G.S. QUADRANGLE MAP: MEDDYBEMPS LAKE EAST, MAINE, PROVISIONAL EDITION, 1987



SITE LOCATION MAP		FIGURE ■-1	
EASTERN SURPLUS COMPANY SITE		 TETRA TECH NUS, INC. 55 Jonspin Road Wilmington, MA 01887 (978)658-7899	
MEDDYBEMPS, MAINE			
DRAWN BY: D.W. MACDOUGALL CHECKED BY: C. RACE SCALE: AS SHOWN	REV.: 0 DATE: AUGUST 10, 2005 ACAD NAME: \1477\0114\RI0512970\FIG_2-1.DWG		



NOTES:

1. All locations to be considered approximate
2. Plan not to be used for design
3. Sample locations include:
1996 - 1997 Roy F. Weston, 1997 Brown & Root,
and 1998-1999 Tetra Tech NUS investigations

FYR Figure 2
Pre-ROD Soil Sampling Locations
EASTERN SURPLUS CO. NPL SITE



ACAD: DWG/EAST_SURVHANDOUT/FIG_1.DWG

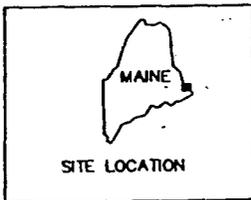
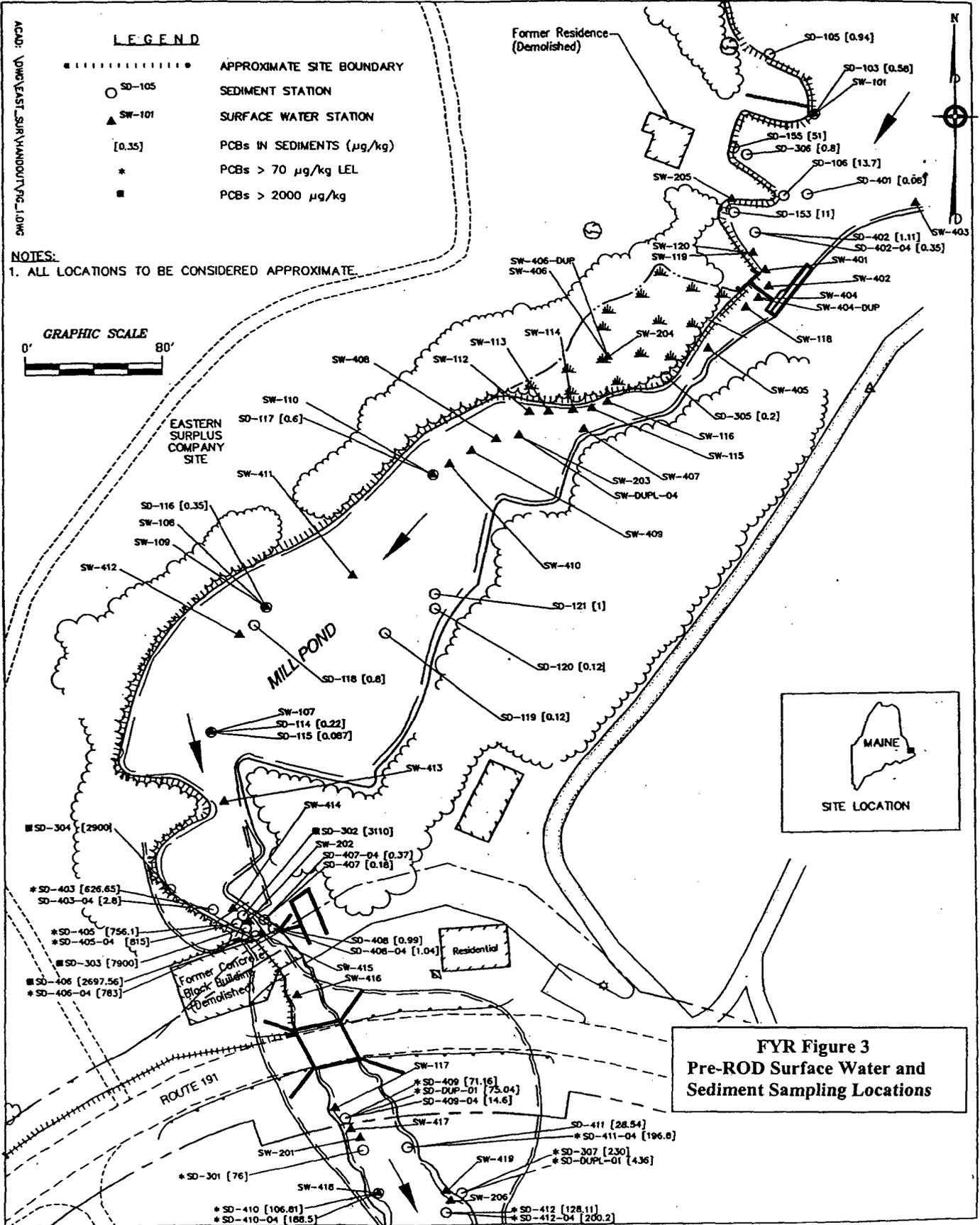
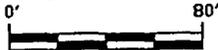
LEGEND

- APPROXIMATE SITE BOUNDARY
- SD-105 SEDIMENT STATION
- ▲ SW-101 SURFACE WATER STATION
- [0.35] PCBs IN SEDIMENTS (µg/kg)
- * PCBs > 70 µg/kg LEL
- PCBs > 2000 µg/kg

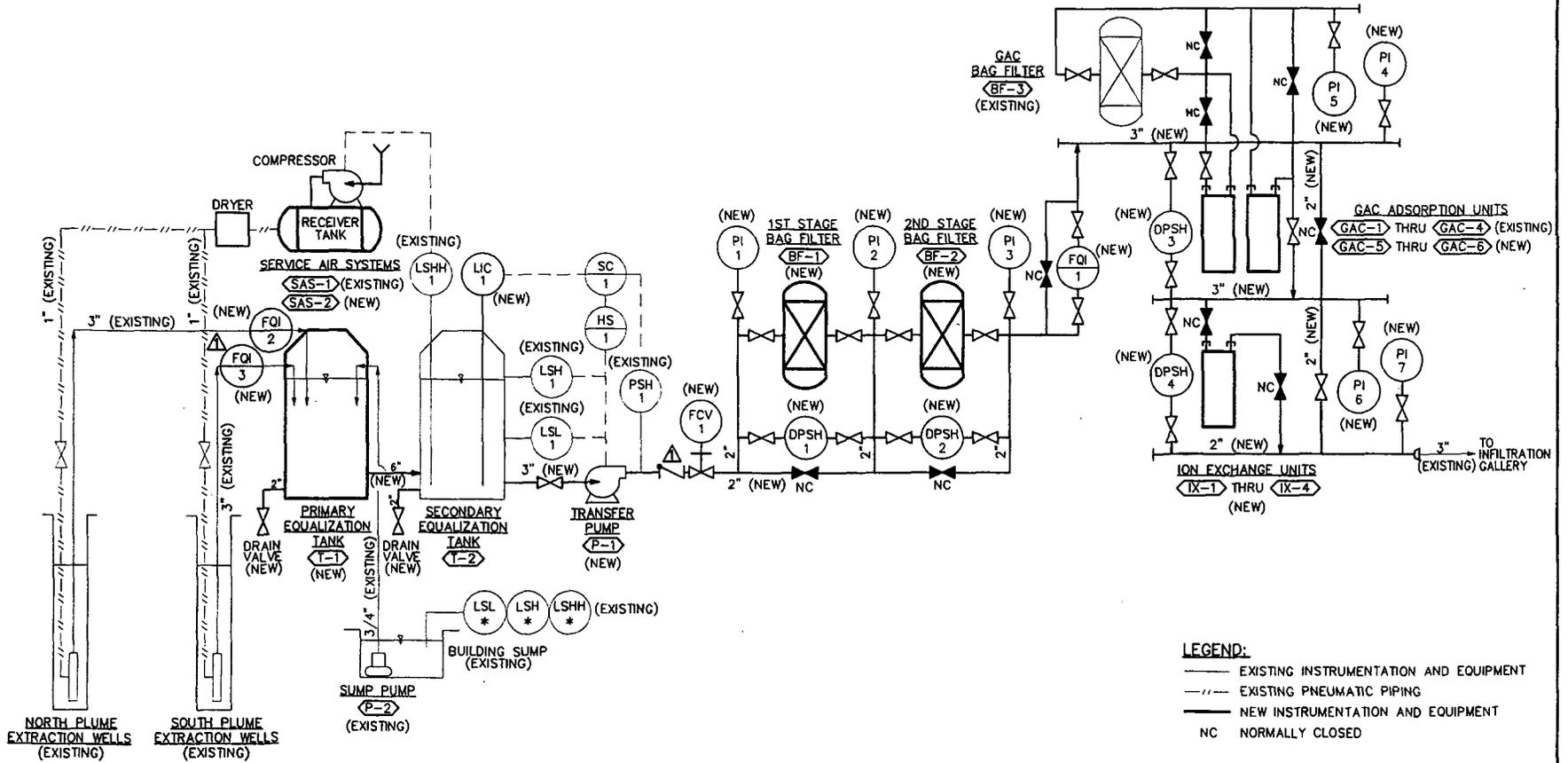
NOTES:

1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.

GRAPHIC SCALE



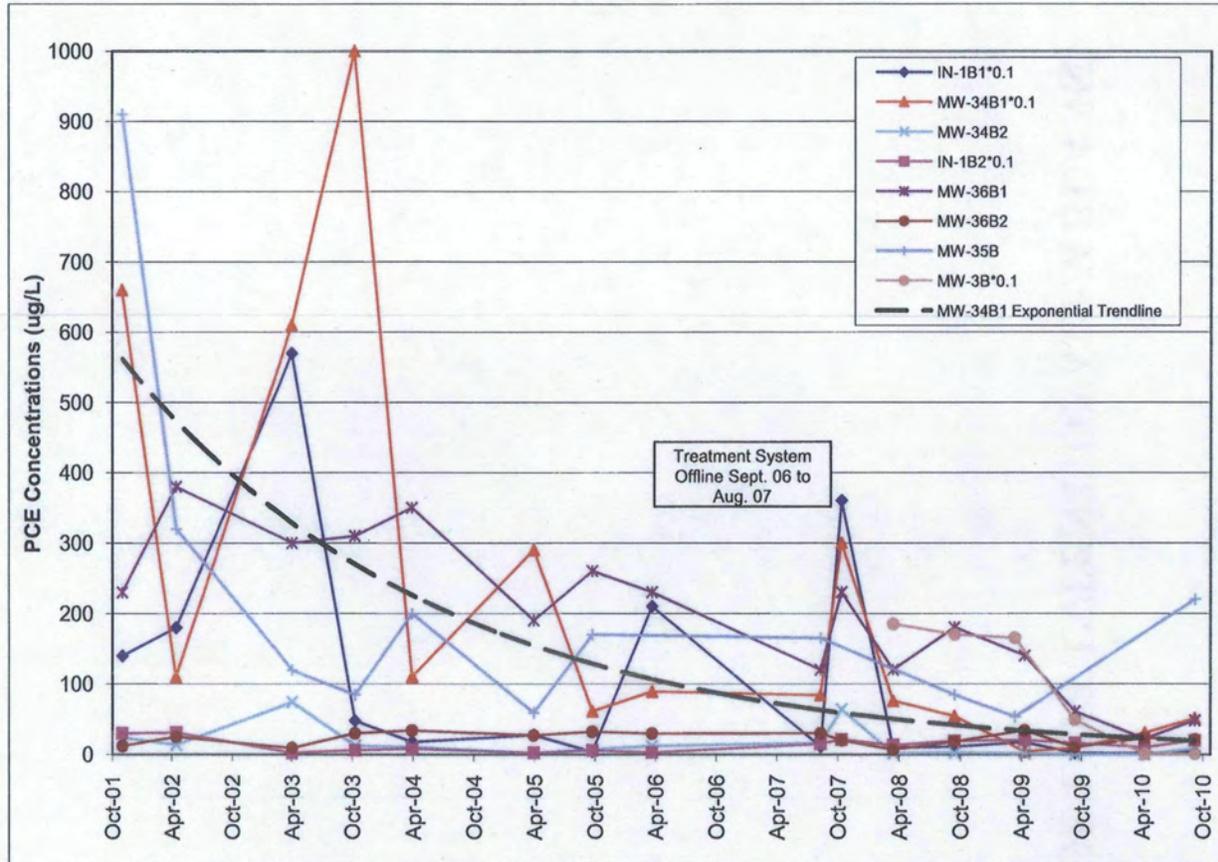
**FYR Figure 3
Pre-ROD Surface Water and
Sediment Sampling Locations**



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	Tetra Tech NUS, Inc.	CONTRACT NO.	OWNER NO.
1	6/01/01	ADDED TWO NEW INSTRUMENTS AND MOVED A VALVE	DLT				MF	4/18/01		0017	
							JLG	4/23/01	PROCESS FLOW DIAGRAM GROUNDWATER EXTRACTION & TREATMENT SYSTEM EASTERN SURPLUS SITE USEPA RAC 1 MEDDYBEMPS, ME	APPROVED BY	DATE
										APPROVED BY	DATE
							SCALE	NONE		FYR Figure 6	REV. 1

FIGURE 7

~~Figure 7~~
PCE Concentrations Over Time in Select Northern Plume Bedrock Monitoring Wells
Eastern Surplus Company Site
Meddybemps, Maine



Notes:

1. Data displayed reference Table 3-7.
2. In the event that a result was below the contract required quantitation limit (CRQL), half of the CRQL was used for plotting purposes.

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

APPENDIX A

**DOCUMENT REVIEW LIST FOR 2011 FIVE-YEAR REVIEW
EASTERN SURPLUS COMPANY SUPERFUND SITE**

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

EPA, 2000. *Record of Decision Summary for Eastern Surplus Company Superfund Site, Meddybemps, Maine* U.S. Environmental Protection Agency, Region 1, Boston, Massachusetts. September 28, 2000.

, and Maine Department of Environmental Protection, *Superfund State Contract, Eastern Surplus Company Site*, Meddybemps, Maine July 2001.

Nobis Engineering, Inc., *Draft August 2007 Technical Memorandum*, Eastern Surplus Company Site, Meddybemps, Maine, October 17, 2007 March 25, 2008.

, *2007 Annual Data Summary, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, March 25, 2008.

, *April 2008 Semi-Annual Data Summary, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, Jul 22, 2008.

, *Draft Semi-Annual Data Summary, July – October 2008 Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, February 24, 2009

, *Draft 2007-2008 Annual Treatment System Performance Report, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, May 27, 2009.

, *Draft 2009 Annual Data Summary, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, June 3, 2010.

, *Draft 2008-2009 Annual Treatment System Performance Report, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, October 25, 2010.

, *Draft Bioremediation Technical Memorandum, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, October 27, 2010.

, *Final Southern Plume Technical Memorandum, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, December 7, 2010.

, *Draft 2010 Annual Data Summary, Revision 1, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, May 3, 2011.

, *Draft 2010 Annual Treatment System Performance Report, Long-Term Response Action*, Eastern Surplus Company Site, Meddybemps, Maine, July 6, 2011.

United States District Court for the District of Maine, 1999. Consent Decree, *United States of America, Plaintiff v. Harry J. Smith, Jr., Terrell L. Lord, and Lisa J. Lord, Defendants*, and *State of Maine, Plaintiff v. Harry J. Smith, Jr., Terrell L. Lord, Lisa J. Lord, and United States of America, Defendants*. U.S. Environmental Protection Agency, Region 1, Boston, Massachusetts and MEDEPartment of Environmental Protection, Augusta, Maine. March 24, 1999.

**BURGESS BROTHERS LANDFILL SUPERFUND SITE RECORD OF DECISION
AMENDMENT
APPENDICIES**

[PAGE LEFT INTENTIONALLY BLANK]

APPENDIX B

**SITE INSPECTION FOR 2011 FIVE-YEAR REVIEW
EASTERN SURPLUS COMPANY SUPERFUND SITE**

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION													
Site name: <u>Eastern Surplus Company</u>	Date of inspection: <u>June 7-8, 2011</u>												
Location and Region: <u>Meddybemps ME -R1</u>	EPA ID: <u>MED981073711</u>												
Agency, office, or company leading the five-year review: <u>EPA Region 1</u>	Weather/temperature: <u>clear and seasonable</u>												
Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Landfill cover/containment</td> <td><input type="checkbox"/> Monitored natural attenuation</td> </tr> <tr> <td><input type="checkbox"/> Access controls</td> <td><input type="checkbox"/> Groundwater containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional controls</td> <td><input type="checkbox"/> Vertical barrier walls</td> </tr> <tr> <td><input checked="" type="checkbox"/> Groundwater pump and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface water collection and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>		<input type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation	<input type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment	<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls	<input checked="" type="checkbox"/> Groundwater pump and treatment		<input type="checkbox"/> Surface water collection and treatment		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation												
<input type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment												
<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls												
<input checked="" type="checkbox"/> Groundwater pump and treatment													
<input type="checkbox"/> Surface water collection and treatment													
<input type="checkbox"/> Other _____													
Attachments: <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached (in document)													
II. INTERVIEWS (Check all that apply)													
1. O&M site manager _____ <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 30%; text-align: center;">Date</td> </tr> <tr> <td colspan="3"> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ </td> </tr> <tr> <td colspan="3"> Problems, suggestions; <input type="checkbox"/> Report attached _____ </td> </tr> </table>		Name	Title	Date	Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____			Problems, suggestions; <input type="checkbox"/> Report attached _____					
Name	Title	Date											
Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____													
Problems, suggestions; <input type="checkbox"/> Report attached _____													
2. O&M staff <u>Dave Gorhan</u> <u>Env Scientist</u> <u>June 7, 2011</u> <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 30%; text-align: center;">Date</td> </tr> <tr> <td colspan="3"> Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ </td> </tr> <tr> <td colspan="3"> Problems, suggestions; <input type="checkbox"/> Report attached <u>site fence in need of replacement or repair; abandonment of non viable piezometers and wells</u> </td> </tr> </table>		Name	Title	Date	Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____			Problems, suggestions; <input type="checkbox"/> Report attached <u>site fence in need of replacement or repair; abandonment of non viable piezometers and wells</u>					
Name	Title	Date											
Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____													
Problems, suggestions; <input type="checkbox"/> Report attached <u>site fence in need of replacement or repair; abandonment of non viable piezometers and wells</u>													

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Town of Meddybemps
 Contact Tammi Smith Town Clerk June 8
Name Title Date Phone no.
 Problems; suggestions; Report attached No concerns

Agency Passamaquoddy Tribe
 Contact Donald Sockomah Tribal Historic Pres. August 2011
Name Title Date Phone no.
 Problems; suggestions; Report attached ervation Officer

Agency MEDEP
 Contact Becky Hewitt Project Manager Feb - Sept 2011
Name Title Date Phone no.
 Problems; suggestions; Report attached attached comments on draft FYR report

Agency _____
 Contact _____
Name Title Date Phone no.
 Problems; suggestions; Report attached _____

4. **Other interviews (optional)** Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1.	O&M Documents <input checked="" type="checkbox"/> O&M manual <input checked="" type="checkbox"/> As-built drawings <input checked="" type="checkbox"/> Maintenance logs Remarks <u>in site trailer</u>	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date
		<input type="checkbox"/> N/A	<input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A
2.	Site-Specific Health and Safety Plan <input checked="" type="checkbox"/> Contingency plan/emergency response plan Remarks <u>in site trailer with evacuation map posted on wall</u>	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date
		<input type="checkbox"/> N/A	<input type="checkbox"/> N/A <input type="checkbox"/> N/A
3.	O&M and OSHA Training Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input type="checkbox"/> N/A	
4.	Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits _____ Remarks _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date
		<input checked="" type="checkbox"/> N/A	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	Gas Generation Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input checked="" type="checkbox"/> N/A	
6.	Settlement Monument Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input checked="" type="checkbox"/> N/A	
7.	Groundwater Monitoring Records Remarks <u>semi-annual reports submitted electronically</u>	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input type="checkbox"/> N/A	
8.	Leachate Extraction Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input checked="" type="checkbox"/> N/A	
9.	Discharge Compliance Records <input type="checkbox"/> Air <input checked="" type="checkbox"/> Water (effluent) Remarks <u>monthly operation reports submitted electronically</u>	<input type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date
		<input type="checkbox"/> N/A	<input type="checkbox"/> N/A <input type="checkbox"/> N/A
10.	Daily Access/Security Logs Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date
		<input checked="" type="checkbox"/> N/A	

IV. O&M COSTS																																																																		
1.	<p>O&M Organization</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> State in-house <input type="checkbox"/> PRP in-house <input type="checkbox"/> Federal Facility in-house <input checked="" type="checkbox"/> Other <u>fund-lead; O&F period Aug 2002 - Aug 2012</u> </div> <div style="width: 45%;"> <input type="checkbox"/> Contractor for State <input type="checkbox"/> Contractor for PRP <input type="checkbox"/> Contractor for Federal Facility </div> </div>																																																																	
2.	<p>O&M Cost Records</p> <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Funding mechanism/agreement in place Original O&M cost estimate _____ <input type="checkbox"/> Breakdown attached <p style="text-align: right;">Total annual cost by year for review period if available - <i>see table in report</i></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">From _____</td> <td style="width: 15%;">To _____</td> <td style="width: 20%;"></td> <td style="width: 15%;"></td> <td style="width: 35%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"></td> <td style="text-align: right;"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"></td> <td style="text-align: right;"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"></td> <td style="text-align: right;"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"></td> <td style="text-align: right;"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"></td> <td style="text-align: right;"><input type="checkbox"/> Breakdown attached</td> </tr> </table>	From _____	To _____					Date	Date	Total cost				<input type="checkbox"/> Breakdown attached	From _____	To _____					Date	Date	Total cost				<input type="checkbox"/> Breakdown attached	From _____	To _____					Date	Date	Total cost				<input type="checkbox"/> Breakdown attached	From _____	To _____					Date	Date	Total cost				<input type="checkbox"/> Breakdown attached	From _____	To _____					Date	Date	Total cost				<input type="checkbox"/> Breakdown attached
From _____	To _____																																																																	
Date	Date	Total cost				<input type="checkbox"/> Breakdown attached																																																												
From _____	To _____																																																																	
Date	Date	Total cost				<input type="checkbox"/> Breakdown attached																																																												
From _____	To _____																																																																	
Date	Date	Total cost				<input type="checkbox"/> Breakdown attached																																																												
From _____	To _____																																																																	
Date	Date	Total cost				<input type="checkbox"/> Breakdown attached																																																												
From _____	To _____																																																																	
Date	Date	Total cost				<input type="checkbox"/> Breakdown attached																																																												
3.	<p>Unanticipated or Unusually High O&M Costs During Review Period</p> Describe costs and reasons: <u>None</u> _____ _____ _____ _____																																																																	
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A																																																																		
A. Fencing																																																																		
1.	<p>Fencing damaged <input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A</p> Remarks <u>Fence along Route 191 was damaged; it was replaced in Sept 2011</u>																																																																	
B. Other Access Restrictions																																																																		
1.	<p>Signs and other security measures <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> N/A</p> Remarks _____ _____																																																																	

C. Institutional Controls (ICs)			
1.	Implementation and enforcement		
	Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
	Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
	Type of monitoring (e.g., self-reporting, drive by)	<u>Self-reporting</u>	
	Frequency	<u>periodically - 2</u>	
	Responsible party/agency	<u>MEDEP</u>	
	Contact	<u>Becky Hewitt</u>	<u>Project Manager</u>
	Name	Title	Date Phone no. <u>207 287-8554</u>
	Reporting is up-to-date	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
	Reports are verified by the lead agency	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
	Specific requirements in deed or decision documents have been met	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
	Violations have been reported	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
	Other problems or suggestions:	<input type="checkbox"/> Report attached	
	<u>State holds title to northern properties part of Site. Ultimately will want to transfer title to a third party while maintaining access and enforcement rights</u>		
2.	Adequacy	<input checked="" type="checkbox"/> ICs are adequate	<input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A
	Remarks	<u>for now.</u>	
D. General			
1.	Vandalism/trespassing	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No vandalism evident
	Remarks	<u>There have been two attempted break-ins of site trailer in past five years</u>	
2.	Land use changes on site	<input type="checkbox"/> N/A	
	Remarks	<u>None</u>	
3.	Land use changes off site	<input type="checkbox"/> N/A	
	Remarks	<u>None</u>	
VI. GENERAL SITE CONDITIONS			
A. Roads	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
1.	Roads damaged	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A
	Remarks		

B. Other Site Conditions			
Remarks <u>Northern portion of site is maintained with periodic mowing in summer and plowing in winter.</u>			
VII. LANDFILL COVERS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
A. Landfill Surface			
1.	Settlement (Low spots) Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Depth _____	<input type="checkbox"/> Settlement not evident
2.	Cracks Lengths _____ Widths _____ Depths _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Depths _____	<input type="checkbox"/> Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Depth _____	<input type="checkbox"/> Erosion not evident
4.	Holes Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Depth _____	<input type="checkbox"/> Holes not evident
5.	Vegetative Cover <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	<input type="checkbox"/> Grass <input type="checkbox"/> Cover properly established	<input type="checkbox"/> No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) <input type="checkbox"/> N/A Remarks _____		
7.	Bulges Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Height _____	<input type="checkbox"/> Bulges not evident

8.	Wet Areas/Water Damage <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks _____	<input type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____ <input type="checkbox"/> Location shown on site map Areal extent _____
9.	Slope Instability <input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of slope instability Areal extent _____ Remarks _____	
B. Benches <input type="checkbox"/> Applicable <input type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	Flows Bypass Bench Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
2.	Bench Breached Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
3.	Bench Overtopped Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
C. Letdown Channels <input type="checkbox"/> Applicable <input type="checkbox"/> N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	Settlement Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of settlement
2.	Material Degradation Material type _____ Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of degradation
3.	Erosion Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of erosion

VII Landfill covers - NA

OSWER No. 9355.7-03B-P

4.	Undercutting	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of undercutting	
	Areal extent _____	Depth _____		
	Remarks _____			
5.	Obstructions	Type _____	<input type="checkbox"/> No obstructions	
	<input type="checkbox"/> Location shown on site map	Areal extent _____		
	Size _____			
	Remarks _____			
6.	Excessive Vegetative Growth	Type _____		
	<input type="checkbox"/> No evidence of excessive growth			
	<input type="checkbox"/> Vegetation in channels does not obstruct flow			
	<input type="checkbox"/> Location shown on site map	Areal extent _____		
	Remarks _____			
D. Cover Penetrations <input type="checkbox"/> Applicable <input type="checkbox"/> N/A				
1.	Gas Vents	<input type="checkbox"/> Active	<input type="checkbox"/> Passive	
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	
	<input type="checkbox"/> N/A			
	Remarks _____			
2.	Gas Monitoring Probes			
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks _____			
3.	Monitoring Wells (within surface area of landfill)			
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks _____			
4.	Leachate Extraction Wells			
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks _____			
5.	Settlement Monuments	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input type="checkbox"/> N/A
	Remarks _____			

VII Landfill Covers - NA

OSWER No. 9355.7-03B-P

E. Gas Collection and Treatment <input type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	Gas Treatment Facilities <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
2.	Gas Collection Wells, Manifolds and Piping <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____	
F. Cover Drainage Layer <input type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	Outlet Pipes Inspected <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	
2.	Outlet Rock Inspected <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	
G. Detention/Sedimentation Ponds <input type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1.	Siltation Areal extent _____ Depth _____ <input type="checkbox"/> N/A <input type="checkbox"/> Siltation not evident Remarks _____ _____	
2.	Erosion Areal extent _____ Depth _____ <input type="checkbox"/> Erosion not evident Remarks _____ _____	
3.	Outlet Works <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	
4.	Dam <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____ _____	

VII Landfill Covers NA

OSWER No. 9355.7-03B-P

H. Retaining Walls <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. Deformations <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Deformation not evident Horizontal displacement _____ Vertical displacement _____ Rotational displacement _____ Remarks _____	
2. Degradation <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Degradation not evident Remarks _____	
I. Perimeter Ditches/Off-Site Discharge <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. Siltation <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Siltation not evident Areal extent _____ Depth _____ Remarks _____	
2. Vegetative Growth <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A <input type="checkbox"/> Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____	
3. Erosion <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Areal extent _____ Depth _____ Remarks _____	
4. Discharge Structure <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____	
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1. Settlement <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent _____ Depth _____ Remarks _____	
2. Performance Monitoring Type of monitoring _____ <input type="checkbox"/> Performance not monitored Frequency _____ <input type="checkbox"/> Evidence of breaching Head differential _____ Remarks _____	

IX. GROUNDWATER/SURFACE WATER REMEDIES <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1.	Pumps, Wellhead Plumbing, and Electrical <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____ _____
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	Spare Parts and Equipment <input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____
B. Surface Water Collection Structures, Pumps, and Pipelines <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1.	Collection Structures, Pumps, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____

C. Treatment System		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Treatment Train (Check components that apply) <input checked="" type="checkbox"/> Metals removal <input type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Filters <u>GAC</u> <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) <input type="checkbox"/> Others <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> Sampling ports properly marked and functional <input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date <input checked="" type="checkbox"/> Equipment properly identified <input checked="" type="checkbox"/> Quantity of groundwater treated annually <u>four million gallons</u> <input type="checkbox"/> Quantity of surface water treated annually <u>four million g</u> Remarks _____	<input type="checkbox"/> Oil/water separation	<input type="checkbox"/> Bioremediation
2.	Electrical Enclosures and Panels (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____		
3.	Tanks, Vaults, Storage Vessels <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks <u>for extraction wells; no USTs</u>		
4.	Discharge Structure and Appurtenances <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____		
5.	Treatment Building(s) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input checked="" type="checkbox"/> Chemicals and equipment properly stored Remarks _____		
6.	Monitoring Wells (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks <u>some wells missing locks</u>		
D. Monitoring Data			
1.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality		
2.	Monitoring data suggests: <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input checked="" type="checkbox"/> Contaminant concentrations are declining		

D. Monitored Natural Attenuation	NA
<p>1. Monitoring Wells (natural attenuation remedy)</p> <p> <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A </p> <p>Remarks _____</p>	
X. OTHER REMEDIES	
<p>If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.</p>	
XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
<p>Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).</p> <p>_____</p> <p style="font-family: cursive;">Remedy functioning as designed. EPA and MEDEP continue to look for ways to optimize the effectiveness and efficiency of the remedy</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
B. Adequacy of O&M	
<p>Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.</p> <p>_____</p> <p style="font-family: cursive;">O&M procedures are sufficient. Treatment system operates over 90% of the time - a fairly outstanding achievement considering the remote location of the site and the quality of the electrical infrastructure in the area</p> <p>_____</p> <p>_____</p> <p>_____</p>	

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None - other than system is now over ten years old and components need to be replaced

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

EPA HQs performed an optimization review in Summer 2011 and have just sent a draft final report to EPA Region 1 and MEPEP. Their suggestions will be discussed and implemented if feasible

APPENDIX C

**MEDEP COMMENTS ON DRAFT 2011 FIVE-YEAR REVIEW
EASTERN SURPLUS COMPANY SUPERFUND SITE**

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

September 28, 2011

Mr. Terrence Connelly
U.S. EPA, Region 1
5 Post Office Square, Suite 100
Mailcode: OSRR07-1
Boston, MA 02109-3912

Re: **Review of September 2011 Draft Second Five-Year Review Report for the Eastern Surplus Company Superfund Site, Meddybemps, Maine" received September 24, 2011**

Terry
Dear Mr. Connelly:

The Maine Department of Environmental Protection (MEDEP) has reviewed the text portion of the draft Second Five-Year Review report for the Eastern Surplus Company Superfund Site, Meddybemps, Maine which was prepared by the U.S. Environmental Protection Agency (EPA) and submitted to MEDEP by electronic mail on September 24, 2011. MEDEP appreciates the opportunity to review the draft Second Five-Year Review report and to be included on the review team.

The MEDEP's review comments on the text of the 2011 Draft Second Five-Year Review report submitted on September 24, 2011, are presented below:

1. Page ES-2, top paragraph, 2nd sentence - Please amend the text to read, "...decreased to Federal drinking water..."
2. Page 2, Tables section, #2 - The 2010 annual (data summary) report only contains Charts 3-1, 3-2 and 3-3. What is Chart 3-7 referenced here?
3. Page 3, Section 1.0, last paragraph, 1st sentence - To be consistent with the information presented on Page ES-3, please amend the text to read, "...between February and September 2011."
4. Page 6, Section 3.2, 1st paragraph, 5th sentence - In addition to the gravel pits and junkyard, the C. Smith Property site, where MEDEP removed containers of hazardous material (containing contaminants similar to those found at the Eastern Surplus Site and also stockpiled by the Harry Smith family) is also located near the Eastern Surplus Site and within the Dennys River watershed. Therefore, please amend the text to read, "...Route 191 and a residence on Route 191 east of the Dennys River that hazardous materials were removed from the basement."

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04679-2094
(207) 764-0477 FAX: (207) 760-3143

9-2011 Draft Five Year Review Report

9/28/2011

Page 2 of 3

5. Page 6, Section 3.2, 3rd paragraph, end of 3rd sentence - Add the second closing parenthesis.
6. Page 7, Section 3.4, 2nd sentence - Please change "4.650" to "4,650" and "2400" to "2,400".
7. Page 13, Section 4.2.4 - Delete the extra blank line between the 5th and 6th paragraphs.
8. Page 15, Section 4.2.5, next to last paragraph, last 2 sentences - Since we do not know who the future owner of the site might be and if they will allow access to the general public, please amend the text to read, "...continues however, limited access for tribal..."
9. Pages 17 & 18, Section 6.3 - What "institutional control agreements" were reviewed and will these documents be listed in Appendix A (not presently list there)?
10. Page 20, Section 6.4.5, last sentence - In addition to the remedial actions at the Site, MEDEP, as the owner of the Site property (north of Route 191), is also interested in protecting and conserving the archaeological artifacts that are currently located at the site. Please amend the text to read, "Additionally, a fence... rest of the Site." to reduce the emphasis to "access to the archaeological area" of the site.
11. Pages 20 & 21, Section 6.5 - Please add text to the section to discuss the new residence (on Lord's property) constructed since 2006 that is located adjacent to the northern portion of the Site and Meddybemps Lake.
12. Page 21, Section 6.6, 3rd paragraph, 2nd sentence- Does "remedial action (volumes I-IV)" mean the remedial investigation report (volumes I-IV)? If so, why not just refer to it as the RI.
13. Page 25, Section 7.4, last paragraph, next to last sentence - Please amend the sentence to read, "...home was constructed approximately 600 feet beyond the southern most..."
14. Page 29, Appendix - Why aren't documents from 2006 and before listed on the Document Review List and none list for 2007 to present? Also, in two places (second & last entries) please change "MEDEPARTMENT of Environmental Protection" to "MEDEP".

Further, MEDEP agrees with the two (2) issues raised in Section 8.0, which are continued assessment of Enhanced Reductive Dechlorination (ERD) for optimizing cleanup of the northern plume while also assessing other long-term approaches to the Site and resolution of institutional controls. Additionally, MEDEP agrees with the two (2) Section 9.0 recommendations to address the Section 8.0 issues. Specifically, MEDEP agrees that 1) the ERD

9-2011 Draft Five Year Review Report

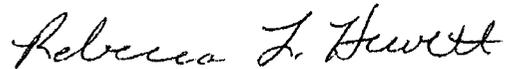
9/28/2011

Page 3 of 3

bench scale studies should be completed and evaluated and, if determined to be viable, implement a pilot-scale effort at the Site (provided that adverse impacts to the Dennys River are also evaluated and addressed) and 2) EPA and MEDEP should resume discussions to reach resolution on institutional controls for the Site.

If you have any questions or concerns regarding this letter, please contact me by electronic-mail at Rebecca.l.hewett@maine.gov or call me at (207) 287-8554.

Sincerely,



Rebecca L. Hewett, Project Coordinator
Division of Remediation
Bureau Remediation & Waste Management

cc: James Chow, EPA
David Wright, MEDEP
Ted Wolfe, MEDEP

9-2011 draft 5 Yr Review.doc

APPENDIX D

**ARARS AND TBCS FOR 2011 FIVE-YEAR REVIEW
EASTERN SURPLUS COMPANY SUPERFUND SITE**

**SECOND FIVE-YEAR REVIEW
EASTERN SURPLUS SUPERFUND SITE
September 2011**

[PAGE LEFT INTENTIONALLY BLANK]

1. CHEMICAL-SPECIFIC ARARS

Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), 40 CFR 141.11 - 141.16. The SDWA MCLs and non-zero MCLGs are relevant and appropriate because they are the basis for some of the interim cleanup levels (i.e., the Interim Groundwater Cleanup Levels) for the Site groundwater, which is a potential future drinking water source. MCLs were identified as a chemical specific standard in the FS. The Maine Department of Human Services Rule (10-144 CMR 231-233) standards are also chemical specific ARARs. The Maine primary drinking water standards are equivalent to MCLs. The selected remedy is expected to result in groundwater meeting the concentration requirements of the SDWA as specified as MCLs.

Maine Standards for Hazardous Waste Facilities, Miscellaneous Units (06-096 CMR Chapter 854, Section 15) Maximum Exposure Guidelines (MEGs). The Maine MEGs are the basis for some of the interim cleanup levels (i.e., the Interim Groundwater Cleanup Levels) for the Site groundwater. MEGs were identified as an action specific standard in the FS. The Maine Standards for Hazardous Waste Facilities require that a miscellaneous unit must be closed in a manner that will ensure that hazardous waste shall not appear in ground or surface waters above MEGs. MEGs are relevant and appropriate because the Site is considered analogous to a miscellaneous hazardous waste unit. The selected remedy is expected to result in groundwater meeting the concentration requirements of the Maine MEGs.

In addition, Cancer Slope Factors (CSFs) and Reference Doses (RFDs) were included as criteria "to be considered" in establishing cleanup levels in the absence of a SWDA MCL or Maine MEG. CSFs and RFDs are guidance values used to evaluate the potential respective carcinogenic and non-carcinogenic hazard caused by exposure to Site contaminants. The recently issued Maine Department of Human Services, Maximum Exposure Guidelines for Drinking Water (MEGs), dated January 20, 2000 will be used as guidance for establishing cleanup levels when MCLs, non-zero MCLGs, and promulgated MEGs (1992) are not available.

2. ACTION-SPECIFIC ARARS

Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), 40 CFR 141.11 - 141.16. The SDWA MCLs and non-zero MCLGs are relevant and appropriate as reinjection criteria because they define levels that would be protective to a future user of the groundwater. MCLs were identified as a action specific standard in the FS with respect to the reinjection/recharge limits for the treatment plant. The Maine Department of Human Services Rule (10-144 CMR 231-233) standards are also action specific ARARs. The Maine primary drinking water standards are equivalent to MCLs. The selected remedy is expected to result in extracted groundwater being treated such that the effluent does not exceed MCLs prior to reinjection into the ground.

Underground Injection Control Regulations (40 CFR Parts 144, 145, 146, and 147). These regulations are relevant and appropriate because they provide regulatory compliance standards for treatment facilities that inject wastes underground. These regulations prohibit the use of wells to dispose of wastes. Treatment of the extracted groundwater to meet MCLs will result in the groundwater no longer being considered a hazardous waste; therefore, the selected remedy will comply with this requirement. In-Situ injection of reagents is not considered to be classified as disposal of a waste.

RCRA Air Emission Standards for Equipment Leaks (40 CFR 264 Subpart BB). This regulation contains air pollutant emission standards for equipment leaks at hazardous waste treatment, storage, and disposal facilities. The rule is applicable when the waste stream has an organic concentration of at least 10 percent by weight. As it is unlikely that the trigger concentration will be exceeded by the selected remedy as maximum concentrations, these regulations are considered relevant and appropriate for the selected remedy. A leak detection and repair program will be implemented during groundwater treatment to comply with these standards.

RCRA Containment Building Requirements (40 CFR 264 Subpart DD). This regulation is relevant and appropriate because it contains design, operation, closure, and post-closure standards and requirements for the storage and treatment of hazardous waste in containment buildings. The design, operation, closure, and post-closure of the selected remedy's groundwater treatment building will comply with requirements.

Clean Air Act - National Emissions Standards for Vinyl Chloride (40 CFR 61 Subpart F). These regulations are relevant and appropriate because vinyl chloride was detected at the Site. Any air emissions from the groundwater treatment will be monitored to comply with the requirements of these regulations.

Maine Standards for Hazardous Waste Facilities, Miscellaneous Units (06-096 CMR Chapter 854, Section 15) Maximum Exposure Guidelines (MEGs). MEGs were identified as an action specific standard in the FS. The Maine Standards for Hazardous Waste Facilities require that a miscellaneous unit must be closed in a manner that will ensure that hazardous waste shall not appear in ground or surface waters above MEGs. MEGs are relevant and appropriate because the Site is considered analogous to a miscellaneous hazardous waste unit. The selected remedy's treatment of extracted groundwater will result in effluent that does not exceed MEGs prior to reinjection into the ground.

Maine Ambient Air Quality Standards (38 MRS 584; 06-096 CMR Chapter 110). These regulations are relevant and appropriate because they establish ambient air quality standards for certain pollutants that have been detected at the Site. The emissions from the selected remedy will be monitored to ensure that the requirements in these regulations are met.

Maine Solid Waste Management Rules (06-096 CMR, Chapter 400.1). The regulations are applicable to the management of non-hazardous waste generated by the selected remedy. The spent carbon units may be managed under these requirements if they are determined to be non-hazardous.

Maine Air Pollution Control Laws - Maine Emissions License Regulations (38 MSRA 585, 590-591; 06-096 CMR Chapter 115). These regulations would be relevant and appropriate to the selected remedy if a technology employing air emissions is included in the treatment plant. At this time, no air emission technologies are planned for inclusion in the treatment plant.

Maine Rules to Control the Subsurface Discharge of Pollutants by Well Injection (06-096 CMR Chapter 543). These regulations are relevant and appropriate because they provide regulatory compliance standards for treatment facilities that inject wastes underground. The use of wells to dispose of wastes is prohibited. Treatment of the extracted groundwater to meet MCLs will result in the groundwater no longer being considered a hazardous waste; therefore, the selected action will comply with this requirement. In-Situ injection of reagents is not considered to be classified as the disposal of a waste.

Other criteria "to be considered" in the operation of the groundwater extraction and treatment system include:

Maine Department of Human Services, Interim Ambient Air Guidelines, Memorandum dated February 23, 1993. This memorandum provides a list of risk based criteria that apply to the ambient air as protective levels. The selected remedy is not expected to create an air emission release. Monitoring of the Site during the NTCRA has confirmed that there is not a concern regarding ambient air.

Maine Department of Human Services, Maximum Exposure Guidelines for Drinking Water (MEGs), Memorandum dated January 20, 2000. While not promulgated, these 2000 MEGs will be used to set treatment effluent levels when MCLs, non-zero MCLGs, and promulgated MEGs (1992) are not available.

3. LOCATION-SPECIFIC ARARS

Protection of Wetlands (Executive Order 11990, 40 CFR 6.302(a) and 40 CFR 6, App. A (Policy on Implementing E.O. 11990)). Federal agencies are required to avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. There is a small wetland area in the northeast corner of the Site. There may be some unavoidable impacts to this wetland if monitoring wells or groundwater extraction wells must be located in this area to accomplish the remedial action. If any impacts occur, then all practical measures will be taken to minimize and mitigate any adverse effects.

Floodplain Management (Executive Order 11988, 40 CFR 6.302(b) and 40 CFR 6, App. A (Policy on Implementing E.O. 11988)). Federal agencies are required to avoid impacts associated with the occupancy and modification of a floodplain and avoid support of floodplain development wherever there is a practicable alternative. While there is no floodplain delineation for the area in which the Site is located, there may be limited activities associated with the installation of monitoring wells and sampling in the area that is seasonally flooded and is likely within the floodplain. The selected remedy will comply with these requirements by avoiding work in the potential floodplain to the extent practicable and minimizing the impacts to the function of the floodplain when impacts are unavoidable.

National Historic Preservation Act (16 USC 470 et seq; 40 CFR 800). These requirements are applicable because they contain provisions for the identification of and consideration of impacts on any historic properties prior to any federal undertaking. Previous work at the Site has identified historic properties (archaeological resources) that result in portions of the Site being deemed eligible for listing on the National Register of

Historic Places. EPA has followed the NHPA Section 106 procedures for consultation with the Maine Historic Preservation Commission (the State Historic Preservation Officer), the national Advisory Council on Historic Preservation, the Passamaquoddy Tribe, and other consulting parties. Because adverse effects resulting from the implementation of the NTCRA on the Site's archaeological resources were unavoidable, steps have been and will be taken to minimize and mitigate the adverse effects in accordance with the NHPA. An agreement regarding the scope of mitigation activities has been reached, and a Memorandum of Agreement has been executed to memorialize such agreement. The excavation portion of the mitigation requirements will be completed as part of the NTCRA. The long-term evaluation, documentation, and public outreach will be addressed as part of the selected remedy.

Endangered Species Act (16 USC 1531 et seq.; 40 CFR 6.302 (h)). This statute requires that federal agencies avoid activities that jeopardize threatened or endangered species or adversely modify habitats essential to their survival. One threatened species, the American Bald Eagle, inhabits the area in which the Site is located. No endangered or threatened species were identified on-site. In addition, the selected remedy is not anticipated to jeopardize or have an adverse effect on the American Bald Eagle or any other threatened or endangered species. Rather, the selected remedy combined with the NTCRA will reduce the levels of contamination in the habitat of the American Bald Eagle and the Atlantic Salmon (if listed).

Maine Wetlands Protection Rule (06-096 CMR Chapter 310, Section 1). This rule is applicable because activities adjacent to a freshwater wetland greater than 10 acres or with an associated stream, brook, or pond must not unreasonably interfere with certain natural features, such as natural flow, quality of waters, nor harm significant aquatic habitat, freshwater fisheries, or other aquatic life. The selected remedy will comply with this requirement through minimization of any impacts along the shoreline and river bank along with erosion and sediment control practices during any necessary activities within 100 feet of the surface water or wetland.

Maine Natural Resources Protection Act, Permit by Rule Standards (06-096 CMR Chapter 305). The rule is applicable because it prescribes standards for specific activities that may take place in or adjacent to wetlands or water bodies. The standards are designed to ensure that the disturbed soil material is stabilized to prevent erosion and siltation of the water. There will be minimal activities during the remedial action that cause a substantial disturbance of the soil. Erosion control and sediment control measures will be put in place to meet the requirements of this rule.

Maine Endangered Species Act and Regulations (12 MSRA Section 7751-7756; 09-137 CMR 008). The State of Maine determines the appropriate uses of habitat for species on the Maine Watch List, Special Concern List, and Indeterminate Category. A freshwater mussel, the brook floater, occurs in the vicinity of the Site and is a Special Concern species in Maine. The selected remedy is not expected to have an impact on this species. The injection of the chemical reagents into the groundwater will be under a controlled situation that will minimize the potential for discharge of any chemicals into the surface water. This regulation would only be applicable if such species are encountered.

Maine Site Location Law and Regulations (38 MRSA Sections 481-490; 06-096 CMR Chapter 375). These regulations are relevant and appropriate because they prescribe standards for specific activities that are considered to be a development. The selected

ARARs and TBCs from Eastern Surplus Superfund Site September 2000 Record of Decision
Five-Year Review September 2011

remedy will comply with these standards by preventing unreasonable adverse effects to:
air quality; runoff/infiltration relationships and surface water quality; and alteration of
climate or natural drainage-ways as well as implementing erosion, sediment, and noise
controls.