U.S. ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND

RECORD OF DECISION
AMENDEMNT
EASTLAND WOOLEN MILL
OPERABLE UNIT I

SEPTEMBER 2006

Record of Decision Amendment
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Record of Decision Amendment
Part 1 – The Declaration

DECLARATION FOR THE RECORD OF DECISION AMENDMENT

A. SITE NAME AND LOCATION

Eastland Woolen Mill Superfund Site
Corinna, Penobscot County, Maine
MED980915474
Site ID No: 0101043
EPA Lead
Operable Unit I

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents an amendment to the September 19, 2002 Record of Decision (ROD) that identified the selected remedial action for Operable Unit I (OU I) at the Eastland Woolen Mill Superfund Site in Corinna, Maine (the Site), which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 USC § 9601 et seq., and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, as amended. The Director of the Office of Site Remediation and Restoration (OSRR) of the United States Environmental Protection Agency (EPA), Region 1 has been delegated the authority to approve this Record of Decision Amendment (ROD Amendment).

This decision is based on the Administrative Record, which has been developed in accordance with Section 113(k) of CERCLA, and which is available for review at the Stewart Public Library, Corinna, Maine and at the EPA Region 1, OSRR Records Center at One Congress Street, Boston, Massachusetts during normal business hours. The Administrative Record Index (Appendix D to the ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based. In accordance with 40 C.F.R. §300.825(a)(2), this ROD Amendment will become part of the Administrative Record file.

The State of Maine concurs with the selected remedy.

C. ASSESSMENT OF THE SITE

The response action selected in this ROD Amendment is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

D. DESCRIPTION OF THE SELECTED REMEDY

This ROD Amendment changes the original remedy set forth in the ROD for OU I (2002 OU I ROD) for the Site. Both the original 2002 remedy and amended remedy target the restoration of contaminated groundwater through treatment using the application of in-situ reagents. The amended remedy, however, eliminates the long-term groundwater extraction and

treatment system and the enhanced flushing with surfactants or solvents components of the original remedy.

Specifically, the OU I amended remedial action will include the following major components:

- In-situ chemical oxidation of the source material in the deep overburden soil and the shallow and deep bedrock;
- Application of biostimulants after the in-situ chemical oxidation program;
- Connection of residences to the public water supply;
- Implementation of institutional controls to restrict future groundwater use;
- Long-term monitoring of site groundwater; and
- Five-Year Reviews to ensure that the remedy remains protective of human health and the environment.

The selected remedy addresses principal and low-level threat wastes at the Site by reducing the mass of contamination, including Dense Non-Aqueous Phase Liquid (DNAPL), in the soil and bedrock fractures to achieve groundwater restoration.

E. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action (unless justified by a waiver), is cost-effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.

The remedy also satisfies the statutory preference for treatment as a principal element of the remedy by reducing the toxicity, mobility, and volume of source materials comprising principal threats through in-situ chemical oxidation treatment.

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure (and groundwater use restrictions are necessary), a review will be conducted within five years after initiation of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

F. SPECIAL FINDINGS

None.

G. ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD Amendment or is referenced to the 2002 OU I ROD when the language from the original 2002 OU I ROD did not require revision. Additional information can be found in the Administrative Record file for this Site.

1. Chemicals of concern (COCs) and their respective concentrations.

2. Baseline risk represented by the COCs.

3. Cleanup levels established for COCs and the basis for the levels.

4. How source materials constituting principal threats are addressed.

5. Current and reasonably anticipated future land assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD Amendment.

6. Potential land and groundwater use that will be available at the Site as a result of the selected remedy.

7. Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected.

8. Key factor(s) that led to selecting the remedy, including a description of how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria and highlighting criteria key to the decision.

H. AUTHORIZING SIGNATURES

This ROD Amendment documents the selected remedy for OU I at the Eastland Woolen Mill Superfund Site. The State of Maine Department of Environmental Protection (ME DEP) concurs with the selected remedy.

Concur and recommend for immediate implementation:

U.S. Environmental Protection Agency

By: Susan Studlien Date: 09/28/06

Susan Studlien, Director
Office of Site Remediation and Restoration
EPA New England

Record of Decision
Part 2 – The Decision Summary
RECORD OF DECISION AMENDMENT SUMMARY

A. SITE NAME, LOCATION AND BRIEF DESCRIPTION

Eastland Woolen Mill Superfund Site
Corinna, Penobscot County, Maine
MED980915474
Site ID No: 0101043
EPA Lead
Operable Unit I

The Eastland Woolen Mill Superfund Site is located in the Town of Corinna, Penobscot County, Maine, approximately 6 miles north of Newport and 25 miles northwest of Bangor, Maine (Figure 1). Approximately 800 people live within one mile of the Site and 2,500 live within four miles. The Town of Corinna is located within the East Branch of the Sebasticook River (EBSR) watershed, which drains to Sebasticook Lake approximately three miles south of the Town. Topography within the watershed is typified by gently rolling hills to steeply sloping ridges, varying from narrow valleys to fairly expansive low-lying floodplains. Elevations within the immediate vicinity of Corinna range from 200 to 320 feet above mean sea level (msl). The former Eastland Woolen Mill straddled the EBSR and the southern portion of the former Mill Pond.

The future land use assumptions for the 25 acre Site and surrounding areas are based on the Reuse Plan that was developed by the Town of Corinna. The large land area in the center of town, currently occupied by the Site, has been targeted for a mix of commercial, residential and mixed-use development. An expansion of the water supply has been implemented by the local water district to support future growth. The majority of the Site is available for re-use since the current cleanup program only occupies about three of the 25 acres covered by the Site. The available 22 acres are currently being marketed by the Town of Corinna. The back portion of the Site has already been brought into productive re-use. A 20 unit senior housing facility, Corundel Commons, opened on this portion of the Site in February 2006.

A more complete description of the Site can be found in Section 1 of the Focused Feasibility Study (FFS) Report released in May 2006.

B. RATIONALE FOR ROD AMENDMENT

On September 19, 2002 EPA, with the concurrence of the ME DEP, in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 USC § 9601 *et seq*., issued the ROD for OU I at the Eastland Woolen Mill Site. The 2002 OU I ROD included in-situ chemical oxidation (ISCO) and groundwater extraction and treatment as the approach to achieve restoration of the contaminated aquifer. The 2002 OU I ROD also included the potential for the use of enhanced flushing solvents/surfactants) in addition to the ISCO program. A long-term groundwater extraction and treatment system was included in the 2002 OU I ROD to limit migration of the contaminated groundwater, prevent contaminated groundwater from having an adverse impact on the benthic community in the EBSR, and facilitate the restoration of the aquifer after the completion of the ISCO program.

The 2002 OU I ROD was written prior to the completion of the non-time-critical removal action (NTCRA) that commenced in 1999. Therefore, the impact of the NTCRA-related excavation and treatment of the contaminated overburden source areas was uncertain at the time of the ROD. Subsequent to the signing of the 2002 OU I ROD and the completion of the NTCRA excavation and treatment program, EPA performed assessment monitoring of the groundwater. EPA also developed an improved conceptual site model through additional hydro-geologic investigations and groundwater modeling. The primary results of the investigations and monitoring from 2002 – 2005 are presented below:

- The groundwater plume was found to be receding as a result of the NTCRA cleanup activities and the connection of certain water supply wells to the Corinna Water District water line. This eliminated the major pumping stresses that were influencing the expansion of the groundwater contamination. Since the groundwater was no longer expanding, containment of the groundwater to prevent expansion was no longer necessary. The institutional controls that are being developed as part of the OU I Remedial Action will prevent the re-use of the water supply wells that could cause the area of groundwater contamination to expand.

- Monitoring of the groundwater and surface water indicates that the EBSR is not being impacted by the groundwater contamination; therefore the benthic community in the EBSR is no longer threatened by the Site contamination. An assumption of the 2002 OU I ROD was that the EBSR may be impacted by the discharge of contaminated overburden groundwater. Prior to the NTCRA, contaminated groundwater contributed to severe ecological impacts in the EBSR. The EBSR was relocated as part of the NTCRA and the combined benefit of the relocation of the EBSR and elimination of the majority of the source contamination was not known at the time of the 2002 OU I ROD. To assess the potential for impacts to the EBSR after completion of the soil excavation and ex-situ treatment phase of the NTCRA, groundwater samples were collected from a series of piezometers installed within the EBSR channel. One sample collected from a piezometer located adjacent to Area 1 contained chlorinated benzene compounds at concentrations less than the federal and state drinking water standards. In addition, samples collected from piezometers installed within the base of the river did not contain detectable concentrations of chlorinated benzene compounds.

- Groundwater modeling based on the most updated Site information revealed that the time frame to achieve aquifer restoration without a groundwater extraction and treatment system was only slightly longer than the time frame with the groundwater extraction and treatment system. The time frame to achieve aquifer restoration has two components. The first component is the removal of the principal threat source material through the ISCO and biological enhancements. This first component is identical in both the original 2002 OU I ROD remedy, identified as GW-4 in the FFS, and the amended OU I remedy, identified as GW-4a in the FFS. The second component of the restoration is the aquifer recovery through long-term natural attenuation processes, either facilitated by groundwater extraction, as included in Alternative GW-4, or through non-active processes, as included in Alternative GW-4a. The time frame for the source removal under both Alternative GW-4 and GW-4a is estimated at 15 years. Subsequent to the 15 year period required for source removal, an

additional 15 to 60 years is estimated to be necessary to achieve full aquifer restoration for Alternative GW-4 with the use of long-term groundwater extraction and treatment. This results in an estimated range for the cleanup of 30 to 75 years, with 60 years being selected in the FFS as a reasonable estimate for the basis of alternative comparison and cost evaluation. For Alternative GW-4a, without the use of long-term groundwater extraction and treatment, the estimated time period to achieve aquifer restoration is 30 to 74 years, resulting in a cleanup range of 45 to 89 years and with 80 years being selected as a reasonable estimate for the basis of alternative comparison and cost evaluation.

- The 20 year time difference between GW-4 and GW-4a is not considered significant for the following reasons:

    - The groundwater plume that will remain after the NTCRA and ISCO programs is located under roadways and greenspace within an area where groundwater use is prohibited and a water line is available. There is therefore minimal potential for human consumption of the groundwater during the additional 20 years.
    - The time frame estimates were developed using the information available and are considered reasonable for alternative comparison; however, there is substantial uncertainty associated with these estimates. The actual difference in time frame for aquifer restoration could therefore be much smaller than estimated.

- The pilot testing and initial applications of the oxidizing reagent, persulfate, supports the conclusion that this technology would be appropriate for use in the deep bedrock. Therefore, EPA does not expect to use the enhanced flushing with surfactants or co-solvents as a cleanup technology for OU I.

Based on the above information, EPA decided to amend the 2002 OU I ROD to eliminate the groundwater extraction and treatment system as well as the enhanced flushing component with surfactants or co-solvents in order to achieve the remedial action objectives and cleanup goals in a more cost effective manner. An updated cost estimate for original OU I remedy, GW-4, and a cost estimate for the amended remedy, GW-4a, was developed as part of the FFS. Alternative GW-4 has an estimated present worth of $10.5 million as compared with the estimated present worth of GW-4a of $4.5 million. Further, the projected total cost (not adjusted for present value) for GW-4 is $20.8 million as compared with $6.5 million for GW-4a. Therefore, GW-4a with a $6 million lower present value and $14.3 million lower total cost is the most cost effective alternative, given that GW-4a provides a similar level of protection of human health and the environmental and compliance with ARARs.

The amended OU I Remedial Action will achieve the original OU I remedial action objectives and cleanup goals and will be equally protective of human health and the environment. In addition, the elimination of the long-term groundwater extraction and treatment system substantially reduces the financial burden to the State of Maine and provides additional area for re-use at the Site.

Table 1 listed a comparison of the original 2002 OU IROD components and the ROD amendment.

Table 1

2002 OU I ROD	ROD Amendment
Extraction and treatment of the contaminated overburden and bedrock groundwater. The extraction system will be designed to prevent off-site migration of contaminated groundwater and restore the aquifer to federal and state MCLs, federal non-zero MCLGs and more stringent state MEGs.	*Long-term extraction and treatment is not included in the amended Remedial Action.*
In-situ treatment of the contaminated overburden and bedrock groundwater and remaining areas of contaminated soil/DNAPL. A chemical reagent (e.g., Fenton's Reagent or another oxidizing agent) will be added to the overburden and bedrock aquifer to reduce the mass of contaminants in the system. If the mass reduction is not sufficient to achieve cleanup levels, then enhanced flushing (using surfactants/solvents) and biological degradation (using bio-stimulants) will be attempted to further reduce the mass of contamination.	In-situ treatment of the contaminated overburden and bedrock groundwater and remaining areas of contaminated soil/DNAPL. A chemical reagent (e.g., Fenton's Reagent or another oxidizing agent) will be added to the overburden and bedrock aquifer to reduce the mass of contaminants in the system. If the mass reduction is not sufficient to achieve cleanup levels, then biological degradation (using bio-stimulants) will be attempted to further reduce the mass of contamination. *Enhanced flushing with surfactants/solvents is not included in the amended Remedial Action.*
Connection of certain residences to the water supply lines to prevent their wells from becoming contaminated and to prevent expansion of the contamination in the groundwater.	Connection of certain residences to the water supply lines to prevent their wells from becoming contaminated and to prevent expansion of the contamination in the groundwater.
Implementation, monitoring and maintenance of institutional controls (i.e., deed restrictions) in the form of groundwater use restrictions (e.g., easements or restrictive covenants) to prevent ingestion of groundwater and disturbance of the groundwater extraction and treatment system.	Implementation, monitoring and maintenance of institutional controls (i.e., deed restrictions) in the form of groundwater use restrictions (e.g., easements or restrictive covenants) to prevent ingestion of groundwater and disturbance of the remedy.
Long-term monitoring of groundwater, surface water and sediments to evaluate the success of the remedial action.	Long-term monitoring of groundwater, surface water and sediments to evaluate the success of the remedial action.
Implementation of five-year reviews to assess the protectiveness of the remedy until cleanup goals have been met.	Implementation of five-year reviews to assess the protectiveness of the remedy until cleanup goals have been met.

This ROD Amendment and the documents that form the basis for the Amendment are available at the following information repositories:

EPA Records Center
One Congress Street, Suite 1100
Boston, MA 02114-2023
(617) 918-1459
Hours: 10 a.m. to noon and 2 p.m. to 5 p.m.

Stewart Public Library
8 Levi Stewart Drive
Corinna, ME 04928

C. SITE HISTORY AND ENFORCEMENT ACTIVITIES

1. History of Site Activities

The Eastland Woolen Mill operated a textile mill in Corinna, Maine from about 1909 to 1996. Liquid wastes were discharged directly into the EBSR until 1972, when the liquid wastes were sent to the local sewage treatment plant. In 1983, local water supplies were found to be contaminated with chlorinated benzene compounds released by the Eastland Woolen Mill. As a result of this contamination, five locations were fitted with carbon filters in 1983. This number increased to ten locations by 1988. In 1995, a water line was installed to serve the properties with contaminated water supplies. From 1984 to 1995, the Eastland Woolen Mill performed a series of environmental assessments. The Eastland Woolen Mill ceased to operate in 1996. All of the equipment and land were either sold at a creditor auction or taken by the Town of Corinna to address tax liability. Please refer to the 2002 OU I ROD and the associated OU I remedial investigation and feasibility study (RI/FS) for a more detailed history of Site activities prior to the 2002 OU I ROD. A detailed description of the Site operating history can also be found in Section 1 of the OU I RI Report and Section 1.3 of the FFS Report.

2. History of Federal and State Investigations and Removal and Remedial Actions

After the closure of the Eastland Woolen Mill, the State of Maine performed a response action in 1997 to remove hazardous materials from the former mill buildings. The State of Maine also provided technical and financial support to maintain the Corinna Water District after closure of the mill. In 1998, EPA began investigation activities at the Eastland Woolen Mill. In July 1999, EPA placed the Eastland Woolen Mill site on the National Priorities List and signed an Action Memorandum to begin a Non-Time-Critical Removal Action (NTCRA) to address the primary source of the contamination in groundwater, surface water, and sediment. From 1999 to 2002, EPA performed the RI/FS for the Eastland Woolen Mill. In September 2002, EPA signed a ROD for OU I of the Eastland Woolen Mill Superfund Site to address contaminant source material remaining after the NTCRA, as well as the associated groundwater contamination. The OU I RI/FS also identified and designated sediment and associated floodplain areas of the EBSR as well as the old dump as a second operable unit (OU II) for the Site. Please refer to the 2002 OU I ROD and the associated OU I RI/FS for more detail regarding the history of federal and state Investigations and Removal and Remedial Actions prior to the 2002 OU I ROD. Subsequent investigations and response actions are described in Section 1 of the FFS. A brief summary of the federal and state response actions since the OU I ROD was issued is presented below.

During the period from September 2002 through September 2006 there were three major categories of activity at the Site. These are:

- Completion of the Operable Unit II (OU II) RI/FS and the associated ROD;
- Completion of the NTCRA; and

- Completion of the pre-design and design activities for the OU I Remedial Action, initiation of the Remedial Action, and construction completion of the Remedial Action.

Each of these activities will be summarized below. See Figure 2 for the general location of the NTCRA, OU I, and OU II areas of the Site.

(a) Operable Unit II Remedial Investigation/Feasibility Study and Operable Unit II Record of Decision

In September 2002, EPA created OU II to address the sediment and associated floodplain areas of the EBSR downstream of NTCRA excavation, as well as an area of solid and liquid waste disposal known as the old dump. The OU I RI included the entire Site (both the OU I and OU II area) in the Human Health Risk Assessment. The Human Health Risk Assessment for OU I/OU II did not identify any unacceptable threats to human health from current or future use of the OU II areas. The current and future use assumptions in the Human Health Risk Assessment were based on non-residential recreational activities (swimming, hunting, fishing). The OU I RI did identify the potential for impacts to ecological receptors in the OU II area. During 2002 and 2003, EPA performed a series of studies to better define the potential for ecological impacts in the OU II area. Surface water, sediment, floodplain soil, and crayfish tissue samples were collected, and biological assessments of the benthic macro-invertebrate community were performed. The information from these studies was presented in a Supplemental RI Report. The information was also combined with the initial RI data to prepare a revised Baseline Ecological Risk Assessment Report that found there was no unacceptable risk to ecological receptors in the OU II area. Both reports were released in 2004 as part of the Administrative Record and were available for review during the public comment period for the OU II Proposed Plan. On September 30, 2004, EPA signed a ROD selecting No Further Action for OU II of the Site. EPA activities in the OU II Study Area are complete, and no further activities are anticipated.

(b) Non-Time Critical Remedial Action

In July 1999, EPA signed an Action Memorandum to initiate the NTCRA at the Site. Beginning in 1999, EPA retained the United States Army Corps of Engineers (USACE) to implement the NTCRA. The USACE retained Weston Solutions, Inc. (Weston) as the prime contractor to perform the NTCRA cleanup activities. The NTCRA has included the removal of the mill buildings (performed during the winter of 1999-2000) and contaminated soils from four areas (performed from 2000-2001). NTCRA work areas are described below and shown in Figure 2:

- Area 1: Region underlying former Eastland Woolen Mill Buildings 1, 1A, and 3 extending across the former location of Main Street (Route 7), and including the segment of the EBSR beneath the former Eastland Woolen Mill and extending across the former Main Street. The contaminated soil in this area was removed in 2001.

- Area 2: Segment of ESBR down river from the former Eastland Woolen Mill to the abandoned railroad trestle. The contaminated soil and sediment in this area was removed in 2000.
- Area 2a: Segment of EBSR under the abandoned railroad trestle between Area 2 and Area 3. The contaminated soil and sediment in this area was removed in 2000.
- Area 3: Segment of EBSR for a distance of several hundred feet beyond the railroad trestle. The contaminated soil and sediment in this area was removed in 2000.
- Area 4: Lot 88, Building 9, UST Area, Building 14 Area, and other miscellaneous areas.

The initial contaminated soil removal for these areas occurred in 2000 and 2001. Additional contaminated soil removal for the Building 14 Area was performed in 2005. During 2000 and 2001 approximately 75,000 yd^3 of chlorinated-benzene contaminated soils were excavated and stockpiled at the Site in lined containment structures.

In 2001, pilot testing of an on-site thermal soil treatment system was performed. The results of this pilot test indicated that the treatment system could meet the treatment goals established for the NTCRA. Full-scale treatment of contaminated soil using an on-site ex-situ low temperature thermal system began in October 2002 and was completed in October 2003. Quality control testing of the soil after treatment documented that all of the soil that was used for on-site backfill contained residual levels of contamination below residential cleanup standards and met the NTCRA groundwater leaching criteria that were developed during the NTCRA. Table 2 contains a summary of the data collected as part of the ex-situ treatment program.

Table 2
NTCRA Soil Cleanup Summary
Summary Statistics for Soil Excavated and Subject to Treatment

Contaminant	95% Upper Confidence Level Concentration of soil prior to treatment (ug/kg) – based on 100 soil samples	95% Upper Confidence Level Concentration of soil used as backfill after treatment (ug/kg) based on 4,200 soil samples	Soil concentration that allows for residential use - direct contact with of soil (ug/kg)	Soil concentration that was determined to be protective of groundwater (ug/kg) (dependent upon soil organic carbon content)
1,2,4 Trichlorobenzene	92,070	4,451	540,000	3,900 – 8,000
1,2,3 Trichlorobenzene	25,955	1,408		
1,2 Dichlorobenzene	17,091	610	370,000	4,700 – 4,900
1,3 Dichlorobenzene	1,427	285	16,000	4,300 – 4,800
1,4 Dichlorobenzene	12,279	563	3,400	3,400 – 3,800
Chlorobenzene	3,938	169	150,000	3,300 – 3,600

To support the NTCRA excavation and thermal treatment activities, a temporary groundwater extraction and treatment system was constructed to aid in control of groundwater infiltration during excavation activities. One bedrock well and four overburden wells were connected to the temporary groundwater extraction and treatment system. The system remained

operational until November 2004 to provide hydraulic control over the groundwater plume during the initial phase of the NTCRA. Since 2004, the temporary groundwater extraction and treatment system has been operated as necessary to support the NTCRA in-situ oxidation program.

Details concerning the NTCRA excavation and thermal treatment program are presented in the *Final Completion Report, Areas 2, 3, 4-Lot 88, and 4-Building 4 Soil Remediation NTCRA*, Eastland Woolen Mill Superfund Site, Corinna, Maine, Weston Solutions, *Final Completion Report Areas 2,3,4-Lot 88 and 4-Building 4 Soil Remediation Non-time Critical Removal Action*, Eastland Woolen Mill Superfund Site, Corinna, Maine, June 2001; Weston Solutions, *Final Completion Report Areas 1 and 4 Soil Remediation Non-time Critical Removal Action*, Eastland Woolen Mill Superfund Site, Corinna, Maine, June 2001.

NTCRA In-Situ Treatment Program

Three areas of contaminated soil were not accessible to the NTCRA excavations. One area was located within Area 1 and the other two were within the Area 4 UST Area and Building 14 Area. These areas are shown in Figure 3. These remaining soils are located in the saturated zone between depths of 6 to 40 ft below ground surface (bgs). The final phase of the NTCRA targeted the reduction of contamination in these source areas using in-situ chemical oxidation (ISCO). EPA also retained the USACE to implement this component of the NTCRA. USACE retained Nobis Engineering, Inc. as the lead contractor for the remaining NTCRA activities.

An ISCO Pilot Study was performed to identify the optimal oxidant technology for use in the NTCRA ISCO program. In the Spring and Summer of 2004, Nobis installed 23 ISCO injector wells in Area 1 to depths ranging from 35 to 40 ft bgs. Following injector installations, a field-scale pilot study was performed by a subcontractor to Nobis, Xpert Design and Diagnostics (XDD), and Nobis in November 2004. The pilot study was designed to evaluate effectiveness of two potential oxidant technologies, Fenton's reagent and iron-catalyzed sodium persulfate (ICP). The Fenton's Study Area consisted of injecting 10,000 gallons of sulfuric acid and 11,534 gallons of hydrogen peroxide into two injection wells. The Persulfate Study Area consisted of injecting 5,580 gallons of persulfate and chelated Fe+2 catalyst into two injection wells.

The results of this pilot study indicated that ICP achieved superior subsurface distribution relative to Fenton's reagent due to its longer reaction half-life. Based on post-pilot study soil sampling, a 48% total mass reduction was estimated over the pilot study area. Based on these results, ICP was selected as the oxidant for full-scale treatment application for the NTCRA ISCO program. The NTCRA ISCO Pilot Study was also incorporated in the Remedial Design for the OU I ISCO program that was occurring simultaneously with the final phase of the NTCRA, and resulted in the selection of ICP as the oxidant technology for the OU I Remedial Action ISCO programs.

The NTCRA ISCO Program consisted of two work areas: Phase I, which included the contaminated soil associated with the former UST Area and Building 14 Area; and Phase II, which included the contaminated soil associated with Area 1. These work areas are shown in Figure 3.

Phase I Activities

Following demolition of Building 14 by the Town of Corinna in 2004, a limited excavation was undertaken by Weston adjacent to the former loading dock to remove a small quantity of contaminated soil that was present in the vadose zone adjacent to the loading dock. The excavation did not extend below the water table. Analytical results for confirmation soil samples collected from base of the excavation indicated contaminated soil remained in-place at depths below the water table (approximately 6 ft bgs).

In Spring 2005, Nobis installed 20 injector wells in the UST Area and the former Building 14 Area to depths ranging from 15 to 30 ft bgs. ISCO treatment consisted of two full-scale injections of ICP, followed by confirmatory soil borings and groundwater sampling. These injections were performed in July and October/November 2005. A total of 13,319 gallons of persulfate solution (22,120 lbs of oxidant) and 13,514 gallons of chelated iron solution were delivered to the UST Area and Building 14 Area. Confirmatory soil borings and groundwater sampling indicated an approximate 90% reduction of dissolved phase contamination and an approximate 71% reduction in sorbed phase soil contamination following the Phase I ICP applications. The Phase I Task Plan and the Chemical Oxidation Phase I ISCO Work Plan describe in detail the activities that were performed to complete the NTCRA source reduction in this area. The 2005 Phase I and Phase II ISCO Remedial Performance Assessment documents that the ISCO has been successful in reducing the mass of contamination in the Phase 1 Area. The NTCRA for the Phase 1 Area is complete. The OU I Remedial Action will include long-term monitoring of the Phase I Area to confirm whether groundwater restoration is achieved.

Phase II Activities

In August 2005, Nobis and XDD performed one full-scale round of Phase II ISCO treatment for Area 1. ICP was delivered to the subsurface via 11 ISCO injector wells. Approximately 19,256 gallons of persulfate (31,947 lbs of oxidant) and 19,423 gallons of chelated iron solution (2,429 lbs) were delivered to the Phase II treatment area. Confirmatory groundwater sampling performed following full-scale ISCO application indicated a reduction of dissolved phase contamination by approximately 63%. Soil sampling performed following the ISCO Pilot study indicated a 38% reduction in residual DNAPL contamination. The Phase II Task Plan and Phase II Full Scale ISCO Injection Plan - Application #1 describe the activities that were performed to further the completion of NTCRA source reduction in this area. The "2005 Phase I and Phase II ISCO Remedial Performance Assessment Eastland Woolen Mill Superfund Site, Non-Time Critical Removal Acion, Corinna, Maine, May 2006" documents that the ISCO has been successful in reducing the mass of contamination in the Phase II Area. The Phase II program will continue as part of the OU I Remedial Action.

(c) OU I Remedial Design, and Remedial Action

The 2002 OU I ROD was issued to address overburden and bedrock groundwater and remaining areas of contaminated soil/DNAPL and restore the aquifer to federal and state MCLs,

federal non-zero MCLs and more stringent state MEGs. The OU I remedy targeted the restoration of contaminated groundwater through treatment using both extraction and ex-situ treatment and the application of in-situ reagents. Treatment of the groundwater will be accomplished in two ways: (1) groundwater will be extracted from the ground and treated to reduce the concentration of contaminants to levels that are protective of human health and the environment and achieve the applicable criteria for discharge into either the EBSR or the groundwater; and (2) in-situ reagents will be used to facilitate the removal of contamination (via in-situ oxidation and in-situ surfactant addition, in combination with the addition of bio-stimulants as a polishing step). Institutional controls will restrict the future use of the Site to prevent ingestion of groundwater and disruption of the groundwater extraction and treatment system. This cleanup approach is expected to control the off-site migration of contaminated groundwater and restore the aquifer to drinking water standards.

OU I also targets the soil contamination remaining after the NTCRA ex-situ and in-situ soil treatment programs. The soil excavation and ex-situ soil treatment program conducted under the NTCRA removed all soil contamination above the water table and most soil contamination, including the DNAPL below the water table, except in a few areas under the former Eastland Woolen Mill complex, the UST Area and Building 14 Area that were not accessible during the NTCRA. The in-situ ISCO program performed as part of the NTCRA completed the source reduction in the UST Area and Building 14 Area and reduced the source material in Area 1 of the Site. The OU I ISCO program will target the remaining contaminated soils and DNAPL located in Area 1 of the Site that acts as a continuing source of groundwater contamination. The OU I program will also include long-term assessment of the Building 14 Area and UST Area to confirm that the NTCRA source reduction was successful. Figure 4 shows the area that will be the focus of OU I Remedial Action.

Specifically, the 2002 OU I ROD includes the following major components:

- Extraction and treatment of the contaminated overburden and bedrock groundwater. The extraction system will be designed to prevent off-site migration of contaminated groundwater, prevent contaminated groundwater from having an adverse impact on the benthic community in the EBSR, and restore the aquifer to federal and state MCLs, federal non-zero MCLGs and more stringent state MEGs.

- In-situ treatment of the contaminated overburden and bedrock groundwater and remaining areas of contaminated soil and DNAPL. A chemical reagent (*e.g.*, Fenton's Reagent or another oxidizing agent) will be added to the overburden and bedrock aquifer to reduce the mass of contaminants in the system. If the mass reduction is not sufficient to achieve cleanup levels, then enhanced flushing (using surfactants/solvents) and biological degradation (using bio-stimulants) will be attempted to further reduce the mass of contamination.

- Connection of certain residences to the water supply lines to prevent their wells from becoming contaminated, and to prevent expansion of the contamination in the groundwater.

- Implementation, monitoring and maintenance of institutional controls (*i.e.*, deed restrictions) in the form of groundwater use restrictions (*e.g.*, easements or restrictive covenants) to prevent ingestion of groundwater and disturbance of the groundwater extraction and treatment system.

- Long-term monitoring of groundwater, surface water and sediments to evaluate the success of the remedial action.

- Implementation of five-year reviews to assess the protectiveness of the remedy until cleanup goals have been met.

The selected remedy addresses principal and low-level threat wastes at the Site by both reducing the mass of contamination, including DNAPL, in the soil and bedrock fractures and containing and treating the contaminated groundwater to achieve groundwater restoration.

The Remedial Design for the OU I Remedial Action was initiated in 2003 and completed in August 2005. Two components of the OU I Remedial Action were not included in the design: design of a long-term groundwater extraction and treatment system and the enhanced flushing (using surfactants or solvents) of the deep bedrock aquifer. Remedial Design was implemented in close coordination with the final phase of the NTCRA ISCO program since both programs relied on ISCO to reduce the mass of contamination in the overburden soil and bedrock. As such, the NTCRA design support activities and the Remedial Design support activities are complementary.

As referred to in the previous NTCRA description, a series of additional studies and investigations were performed between 2003 and 2005 to develop the design for the NTCRA ISCO program and the in-situ treatment portion of the OU I Remedial Action. The results and conclusions of these investigations are summarized in the FFS and are reported in greater detail in the Conservative Interwell Tracer Test (CITT) Design, Conceptual Model Update Report, and the OU I Remedial Design Report. The studies and investigations performed to support the design activities included:

- ISCO Pilot Study: The ISCO Pilot Study performed for the NTCRA ISCO program was incorporated in the Remedial Design for the OU I ISCO program and resulted in the selection of ICP as the oxidant technology for the OU I Remedial Action ISCO programs.

- Bedrock Well Installations: Fifteen bedrock boreholes were drilled in Area 1. Bedrock fractures were characterized by borehole geophysics, and water samples were collected by packer methods. Shallow fracture DNAPL distribution and rock matrix properties were assessed by methanol extracted rock samples (MERC). These well locations provide characterization data for the Area 1 bedrock groundwater and contribute to the overall understanding of the bedrock fracture system and its behavior under pumping conditions.

- Hydraulic Control Pump Test: In September 2004, a multi-well pump test was initiated utilizing six pumping wells (EW-2, EW-3, EW-4, EW-5, EW-6, and EW-7). During the test,

individual well flow rates were gradually increased or decreased depending on individual well responses. The pumping test was completed by October 2004, when the CITT/Electrical Resistivity Tomography (ERT) baseline was initiated.

- Conservative Interwell Tracer Test (CITT): A CITT was designed and performed during October 2004 under forced gradient conditions to demonstrate that measurable flow paths exist within the aquifer. Data was used to evaluate dilution factors to verify the scale at which adequate minimum oxidant and surfactant concentrations could be maintained and to demonstrate sufficient aquifer connection at a scale suitable for treatment.

- Partitioning Tracer Test (PITT): An initial PITT was designed and performed in conjunction with the CITT. This pilot-scale PITT was performed within the DNAPL source zone to assess the volume of DNAPL contacted within the swept aquifer volume.

- Electrical Resistivity Tomography (ERT)/Induced Polarization (IP): ERT was completed prior to and in conjunction with the CITT to identify preferential pathways of saline solutions in the fracture system between individual boreholes. Selected IP profile panels were also completed. The selected IP profiles were completed to provide potential evidence for the presence or absence of DNAPL in weathered bedrock and potentially contaminated fractures.

- Assessment Monitoring: Area-wide groundwater and drinking water sampling was implemented to evaluate and quantify the nature and extent of the overburden and bedrock contaminant plumes that remained after NTCRA activities. The results from the 2004 area-wide sampling event are presented in the 2005 *Area-Wide Groundwater Sampling Technical Memorandum*. The results from the 2005 area-wide sampling results are presented in the spring 2006 *Area-Wide Groundwater Sampling Technical Memorandum*.

- Bedrock wells to assess aquifer characteristics: Off-site bedrock borehole installations and groundwater pumping tests provided refined estimates of aquifer transmissivity and anisotropy at locations east of the EBSR. Results are presented in the *Conceptual Model Update Technical Memorandum.*

- Groundwater Modeling: Groundwater flow and contaminant transport numerical model simulations assessed the long-term impacts of the bedrock contaminant plume under various potential future site conditions based on varying degrees of contaminant mass reduction. The modeling is described in the *Institutional Control Zones Groundwater Modeling Report.*

- Long-Term Monitoring: A Long-Term Monitoring Plan (LTMP) was developed for future area-wide sampling to be performed for the evaluation of plume migration and impacts.

- Institutional Controls and Water Line Connections: The results of the area-wide sampling and groundwater modeling were used to identify the properties that should be connected to the public water supply. The results were also used to finalize the extent of the institutional control zones (ICZ).

The information from the studies described above was used to develop the Remedial Design that was approved in August 2005 and to develop the implementation work plans for the OU I Remedial Action.

The OU I Remedial Action was initiated in September 2005 with the installation of the first of the three water line connections. All of the water line connections have now been completed. The construction phase of the OU I Remedial Action also included the installation of the injection system for the OU I ISCO program as well as the long-term monitoring wells. Restrictive environmental covenants for the use of groundwater at the Site are being developed. All construction activities for the OU I Remedial Action were completed in September 2006 as documented in the Preliminary Close Out Report for the Eastland Woolen Mill Site.

3. History of CERCLA Enforcement Activities

Enforcement activities have been limited by the lack of viable potentially responsible parties (PRPs) at the Site. Eastland Woolen Mill ceased to operate in 1996. The family-owned company is now defunct (it ceased operations shortly after proposing a reorganization plan pursuant to Chapter 7 of the Bankruptcy Code), and most of its officers are deceased.

The Site is currently owned by numerous entities, including the Town of Corinna and the State of Maine. The State acquired its title through eminent domain and abandonment, and the Town of Corinna acquired its title through tax foreclosure and an eminent domain taking. There is currently one private owner of a portion of the mill complex who acquired title at a creditor's auction.

EPA is continuing to investigate its enforcement options at the Eastland Woolen Site.

D. COMMUNITY PARTICIPATION

This ROD Amendment meets the criteria for community involvement specified in CERCLA Section 117 and in Sections 300.435(c)(2)(ii)(A) through (H) of the NCP.

Throughout the EPA cleanup of the Site, community concern and involvement have been high. The local Selectboard actively sought EPA's involvement at the Site to address the contamination left behind by the closure of the mill in 1996. EPA has kept the community and other interested parties informed of Site activities through informational meetings, fact sheets, press releases and public meetings. Information about the Site is posted on EPA's website at http://www.epa.gov/ne/superfund/index2.htm. EPA has met regularly with the community and Selectboard to keep them informed and to seek their input regarding Site activities. The community has also benefited from a website (www.cattailpress.com), which was developed and is maintained by a local resident. The website contained daily photographs of Site activities during the NTCRA demolition and excavation activities and has provided a forum for community

dialogue regarding the Site. EPA's public notices and fact sheets have been posted on this website as well.

Below is a brief chronology of public outreach efforts subsequent to the 2002 OU I ROD:

- In April 2003, March 2004, and February 2006, EPA released public information updates to keep the public informed of Site activities.
- On April 30, 2003, EPA met with the community to provide an update of the NTCRA, OU I, and OU II activities.
- In support of the cleanup decision for the OU II ROD, EPA implemented the following public involvement activities. Updates regarding the NTCRA and OU I cleanup were provided as part of these efforts:
    - On June 7, 2004, EPA met with the local organization, Sebasticook Committee for a Clean Environment (SCCE) to present the findings of the Ecological Risk Assessment and Supplemental RI for OU II. The SCCE is a recipient of a Technical Assistance Grant from EPA. EPA presented a description of the Supplemental RI and the results of the revised Baseline Ecological Risk Assessment to the SSCE, its Technical Advisors, and members of the public and news media at the meeting.
    - On June 30, 2004 EPA held an informational meeting to discuss the results of the RI Report, particularly the Supplemental RI and revised Baseline Ecological Risk Assessment, and to present the Agency's Proposed Plan to a broader community audience than those that had already been involved at the Site. At this meeting, representatives from EPA answered questions from the public.
    - From July 13, 2004 to August 12, 2004, EPA held a 30 day comment period for the no further action proposal.
    - On August 10, 2004, EPA held a public hearing to receive oral comments regarding the no further action proposal.
    - In September 2004, EPA signed the ROD for OU II documenting that no further action was necessary in the OU II area.

- On February 28, 2006, EPA participated in an open house for the Corundel Commons housing development where EPA provided an update of Site activities as part of the poster presentation at the open house.

- In May 2006, EPA published a Proposed Plan to amend the 2002 OU I ROD. The Proposed Plan for the ROD Amendment asked for public comment on the proposal to eliminate groundwater extraction and treatment of deep bedrock groundwater and to eliminate enhanced flushing with surfactants or solvents of the aquifer.

- On May 25, 2006, EPA held a public information meeting which was followed by a public hearing to accept comment on the Proposed Plan to amend the 2002 OU I ROD.

- From May 25 to June 25, 2006 EPA held a thirty day public comment period for the proposal to amend the 2002 OU I ROD.

All formal comments are summarized and responded to in the Responsiveness Summary, which is included as Appendix C to this ROD Amendment.

Pursuant to Section 300.825(c) of the NCP, EPA updated the Administrative Record in May 2006 to add the documents which EPA relied on to form the basis for the decision to amend the response action for 2002 OU I at the Eastland Woolen site. See Appendix D for the Administrative Record Index.

E. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

There are three cleanup actions at the Eastland Woolen Mill Site. The first cleanup action is the NTCRA that was authorized by an Action Memorandum signed in July 1999. The second is the remedy described in the 2002 OU I ROD and is the subject for this ROD Amendment. The third is the RI/FS and associated No Further Action decision for the OU II Study Area. The location of the areas affected by these actions is shown on Figures 1 and 2. The NTCRA is complete and the OU II ROD terminated EPA involvement in the OU II Study Area. The OU I ROD targets the groundwater contamination and the associated DNAPL and source contamination remaining after the NTCRA in the downtown area of Corinna. The OU I ROD includes treatment of the principle threat wastes and restoration of the overburden and bedrock aquifers. The ROD Amendment only adjusts the 2002 OU I Remedial Action to eliminate a component of the remedy that was determined not to be necessary and does not change the overall scope, role, or expected outcome in that restoration of groundwater will occur within a similar timeframe as the original ROD remedy without the need for long-term extraction and treatment of groundwater. Please refer to the 2002 OU I ROD for more details regarding the scope and role of the OU I Remedial Action.

F. SITE CHARACTERISTICS

Chapter 1 of the FS Report contains an overview of the RI Report and the general characteristics of the Site. The significant findings of the pre-design, design, and NTCRA activities performed after the 2002 OU I ROD are summarized below and are further presented in the FFS. Refer to the 2002 OU I ROD for a summary of the RI/FS for OU I.

1. Soil and Bedrock Source Contamination

Overburden materials in Area 1 consist of anthropogenic fill materials (treated and reworked site soil) overlying glacial till up to 26 feet thick. Underlying the glacial till is weathered bedrock (Waterville formation) which slopes generally to the east, towards the EBSR, and ranges in thickness from less than one foot to approximately ten feet. Underlying highly weathered bedrock is moderately competent to competent fractured bedrock. In the overburden system, a pocket of residual DNAPL resides in an area just outside the deepest portion of the NTCRA soil excavation (down to and including some of the weathered bedrock surface) adjacent to the relocated Main Street. Significant lateral and vertical variability exists in soil contaminant concentrations due to heterogeneity in the overburden. Within the bedrock system, residual DNAPL resides in weathered bedrock and competent rock (upper 100 feet) immediately below

the DNAPL entry area and the bottom of the NTCRA excavation. Under static (non-pumping) groundwater conditions, overburden groundwater flow is to the southeast where the groundwater discharges to the EBSR. Bedrock groundwater flow is upward to overburden and to the drainage divide created by the EBSR.

There are two source areas that are the focus of the OU I Remedial Action.

Area 1 Deep Overburden Soil

The release of chlorinated benzenes at the Eastland Woolen Mill resulted in extensive contamination of saturated overburden soils and bedrock underlying DNAPL source areas. Two zones of DNAPL entry are presumed to exist in Area 1, based on the distribution of residual DNAPL saturations above bedrock and bedrock sample data collected during investigations performed in 2004. The more significant of the two areas is present within deep overburden till located along the southeastern edge of the former NTCRA Area 1 Excavation, and it is presumed to contain both residual and sorbed-contamination (contamination either adsorbed or absorbed onto soil particles). The residual- and sorbed-soil contamination in Area 1 soil exists at depths of approximately 31 to 41 feet bgs along the southeastern portion of the former Area 1 NTCRA excavation. Figure 4 shows the areas of remaining contamination in this area after the NTCRA excavation and ex-situ treatment program and Figure 5 shows a cross-section of the soil contamination remaining after the NTCRA.

Bedrock DNAPL and Residual Contamination

Chlorinated benzene compounds in pure form are DNAPLs and have the potential to migrate vertically downward through the water table regardless of the direction of groundwater flow. To account for the deep penetration of contamination in bedrock directly under the mill, the contamination had to migrate counter to the overall direction of bedrock groundwater flow. It is believed that deep penetration of DNAPL along fracture planes in bedrock underlying the Site accounts for the observed distribution of contamination.

The results of MERC sampling indicate that diffusion of contaminant mass into the weathered bedrock matrix and oxidized bedrock adjacent to fractures is an important feature of the mass distribution within the bedrock system. The presence of high concentrations of chlorinated benzene compounds in the MERC data support the conclusion that DNAPL migration did occur down deep along specific bedding planes and vertical fractures, opposite of the upward flow direction of discharging bedrock groundwater. The MERC data also indicates that contaminant mass has diffused up to several feet from contaminated fractures into the fresh rock matrix. Compared to the mass in the oxidized rock matrix, this fresh matrix contaminant mass is a small component of residual mass.

Diffusion coefficients of chlorinated benzene compounds are similar but vary an order of magnitude in solubility from 1,2,4-trichlorobenzene to monochlorobenzene. Extremely high groundwater concentrations for 1,2,4-trichlorobenzene approaching 30 to 50 percent of compound solubility were measured in a number of bedrock boreholes. This data, in addition to the MERC

data, suggests that limited amounts of DNAPL may still be present in specific fractures in the two regions of the fractured bedrock aquifer.

In general, many of the high contaminant concentrations observed in groundwater and MERC data within the competent fractured bedrock may result from the backward diffusion of contamination from weathered rock matrix near fractures. Although rock porosity was not measured during this investigation, the weathered porosity adjacent to fractures has been measured at similar sites and may range from 1 to 5 percent. The total porosity in the rock matrix is assumed to be a combination of the weathered porosity along fractures, primary rock porosity (generally less than one-half to one percent) and open micro-fracture networks.

Bedrock contaminant mass estimates were revised in 2005 as part of the Conceptual Model Update Report. The total estimated mass for the shallow bedrock (0-10 feet in depth) includes 5.4 kg of DNAPL and 120 kg of mass diffused in oxidized rock matrix adjacent to fractures. The total estimated mass for the deep fractured bedrock includes 14.5 kg of DNAPL, 182 kg of mass diffused in oxidized rock matrix adjacent to fractures, and 16 kg of mass diffused into fresh rock matrix. Figure 6 shows the approximate extent of the bedrock contamination that will be targeted by the OU I cleanup.

2. Groundwater Contamination

Two regions of overburden groundwater containing Site-related dissolved-phase contamination at concentrations above federal and state drinking water criteria are present at the groundwater source area. One region is associated with shallow soil at the UST/Building 14 area (NTCRA Area 4), and the other with deep overburden soil at the former location of Buildings 1, 1A, and 3 (NTCRA Area 1). Additionally, bedrock groundwater located directly under the former mill location is contaminated at concentrations in excess of MCLs/MEGs. These groundwater systems are described separately while recognizing that they are related because of interactions between bedrock, overburden and surface water systems. Figure 7 depicts the boundaries of the bedrock and overburden contaminant plumes in 2002 and 2006, as well as the regions of groundwater that contain site related contaminants in excess of federal and state drinking water criteria.

Overburden Groundwater Plumes

Area 1 Overburden

Based upon data collected between 2004 and 2005, it appears that the groundwater flow direction (potentiometric surface) in Area 1 is heavily influenced by the operation of the temporary groundwater extraction and treatment system installed during the NTCRA. Under pumping conditions, the overburden groundwater in this area flows generally toward the NTCRA excavation and the temporary extraction wells. Under non-pumping/static conditions, the overburden groundwater flow in this area is toward the south/southeast and discharges to the EBSR approximately 135 feet from the eastern edge of soil excavation to bedrock.

Both a pilot-study and a full-scale application of ICP were completed in Area 1 between 2004 and 2005. Samples of groundwater were collected prior to the full-scale application in order to evaluate the potential for contaminant "rebound" resulting from the mass reduction during the pilot test, as well as after the full-scale application in order to evaluate remedial success. Table 3 provides a summary of the analytical results from the most recent Area 1 overburden groundwater sampling round that was conducted in November 2005 after the first full-scale ICP application. A select number of wells along with the major contaminants of concern area shown in Table 3 below.

Table 3
Area 1 Overburden
Groundwater Contamination

Compound	OU I Cleanup Levels ug/L	IM-04-01 µg/L	IM-04-09 µg/L	P2-04-07 µg/L	P2-04-09 µg/L	P2-04-12R µg/L	P2-04-27 µg/L
Benzene	5	--	**6.6J**	--	--	--	--
CB	47	**4,100**	**13,000**	640	**84**	16J	**2,300**
1,2-DCB	85	**3,900**	**8,500**	350	**110**	25	**1,900**
1,3-DCB	85	**150**	**260**	12J	--	--	**110**
1,4-DCB	27	**2,600**	**7,000**	270	**100**	21	**2,000**
1,2,4-TCB	70	**7,400**	**10,000**	160	**54**	**83**	**3,200**

An assumption of the 2002 OU I ROD was that the EBSR may be impacted by the discharge of contaminated overburden groundwater. Prior to the NTCRA, contaminated groundwater contributed to severe ecological impacts in the EBSR. The EBSR was relocated as part of the NTCRA, and the combined benefit of the relocation of the EBSR and elimination of the majority of the source contamination was not known at the time of the 2002 OU I ROD. To assess the potential for impacts to the EBSR after completion of the NTCRA soil excavation and ex-situ treatment program, groundwater samples were collected from a series of piezometers installed within the EBSR channel. One sample collected from a piezometer located adjacent to Area 1 contained chlorinated benzene compounds at concentrations less than their respective MCLs. In addition, samples collected from piezometers installed within the base of the river did not contain detectable concentrations of chlorinated benzene compounds. As a result of this data, EPA has concluded that the groundwater is not a threat to the EBSR. See Figure 7 for the extent of Area 1 groundwater contamination.

UST Area and Building 14 Area

Based upon data collected during 2004 and 2005, overburden groundwater within the Building 14 Area and UST Area is inferred to migrate toward and ultimately discharge to the EBSR, located approximately 270 to 340 feet to the west/southwest of the UST Area dissolved plume.

The OU I RI identified an area approximately 200 long and 50 feet wide of overburden groundwater containing contaminants above MCLs and MEGs. This dissolved contaminant plume is interpreted to be continuous between Building 14 Area and the UST Area based upon the direction of overburden groundwater flow. Groundwater sampling conducted in 2005 following two full-scale ISCO applications to soil indicated that the groundwater contamination plume in the Building 14 Area and UST Area had retracted from the southwest towards the northeast to an area approximately 100 feet long and 40 feet wide. The groundwater contamination is primarily observed in shallow overburden groundwater and will be included in the long-term monitoring program. See Figure 7 for the location of the Building 14 Area and UST Area groundwater contamination.

Bedrock Groundwater Plume

An assumption of the 2002 OU I ROD was that containment was necessary for the bedrock groundwater contamination. Contamination has spread from the former Eastland Woolen Mill to water supply wells serving the Sunshine Village housing project. The 2002 OU I ROD included a groundwater extraction and treatment system to contain the bedrock plume. The bedrock groundwater system at the Site responds in a strongly anisotropic (non uniform) manner to groundwater pumping stresses because of the dominance of the bedding plane fracture network on groundwater movement. This high degree of anisotropy has allowed distant pumping stresses to pull deep and shallow bedrock groundwater outward from the source area if the pumping sources are aligned parallel to the source area along the direction of bedding plane fractures.

A groundwater plume with high concentrations of chlorinated benzene compounds exists in bedrock groundwater to depths in excess of 300 feet bgs. In 2000, the bedrock plume was estimated to extend approximately 1,200 feet laterally along a southwest-northeast axis, and approximately 400 feet downgradient from the source area as described in the OU I FS. Based on area-wide sampling performed in 2004 and 2005, the bedrock plume is believed to have receded and is now estimated to extend 240 feet laterally (reduced from 1,200 feet in 2000) along a southwest-northeast axis and approximately 230 feet downgradient (reduced from 400 feet in 2000) from the source area. Figure 7 depicts the former and current extents of the bedrock plume contamination and residual DNAPL. Based on the data collected since the 2002 OU I ROD, the bedrock plume discharges to overburden and surface waters and rapidly diminishes downgradient. The plume appears to be in a stable configuration with respect to downgradient migration and has receded when compared with results prior to 2004. The stability and reduction of the plume is enhanced by the removal of downgradient pumping stresses, such as the Sunshine Village well, and the removal of over 90% of the contaminant source material as part of the NTCRA. The groundwater monitoring data documents that the groundwater plume is contracting as a result of the combined impacts of the NTCRA and Remedial Action activities.

Maximum concentration of VOCs detected in bedrock groundwater above MCLs and MEGs are summarized in Table 4 below.

Table 4
Maximum Bedrock Groundwater COC Concentrations in Area 1

Compound	OU I Cleanup Levels (ug/L)	BM-99-04F (ug/L)	BM-04-37 (ug/L)	R-2 (ug/L)
Benzene	5	**11**	**12**	1.7
CB	47	**13,000**	**18,000**	**1,200**
1,2-DCB	85	**6,000**	**7,400**	**770**
1,3-DCB	85	**380**	**240**	81
1,4-DCB	27	**6,100**	**6,100**	**890**
1,2,4-TCB	70	**3,700**	**3,500**	**880**

3. Conceptual Site Model

Refer to the 2002 OU I ROD for the full description of the Conceptual Site Model (CSM). The Amended ROD retains the focus on treating the principle threat wastes in the soil and bedrock, including DNAPLs. The pre-design, design, and preliminary implementation phases of OU I along with the activities performed to complete the NTCRA have further validated that the CSM for the Site presented in the 2002 OU I ROD was accurate. The only changes in the CSM since 2002 are:

- The groundwater plume is not expanding, it is contracting. This is due to the source removal activities to date and the removal of the major pumping stresses in the area.

- The contamination is no longer impacting the surface water of the East Branch of the Sebasticook River. The removal of the contaminated material and the hydrological changes resulting from relocating the river have eliminated the ecological impacts from contaminated overburden groundwater.

F. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Refer to the 2002 OU I ROD for the summary of current and potential future land uses. Since the 2002 OU I ROD was issued, Site soils have been excavated, treated to residential use levels and backfilled. The Reuse Plan for Corinna has been implemented, three residences have been connected to the public water line, and institutional controls prohibiting the use of groundwater have been developed but not yet implemented. One area of the Site has been redeveloped into a senior housing project, and a historic structure that was relocated has been renovated into a General Store and restaurant. The Town of Corinna is currently marketing several lots within the Site for reuse. Currently, 22 acres of the 25 acre Site that have been part of

the cleanup action are available for reuse. Figure 8 shows the areas that are currently available for re-use.

G. SUMMARY OF SITE RISKS

The 2002 OU I ROD included an assessment of the potential threats to human health in the OU I study area. Based on the Human Health Risk Assessment prepared as part of the RI and the 2002 OU I ROD, the only pathways that exceed EPA's acceptable cancer risk range and/or a hazard quotient of concern are ingestion of groundwater in the overburden and bedrock plumes by a future resident. The lifetime cancer risk estimate for a combined child and adult exposure to the bedrock plume groundwater is 6×10^{-3}. Seventy-five percent of this risk is due to arsenic, with twenty-five percent attributable to the 1,4-DCB. EPA's hazard index of concern for non-carcinogenic risk is exceeded for children and adults for several target organs. The major contributors to these exceedances are chlorobenzene, 1,2-DCB, 1,3-DCB, 1,4-DCB, 1,2,4-TCB and arsenic. These COCs also were detected at concentrations above federal and state maximum contaminant levels (MCLs) and more stringent state maximum exposure guidelines (MEGs).

The lifetime cancer risk estimates for the overburden plume groundwater is 2×10^{-3}. Sixty-seven percent of this risk is attributable to 1,4-DCB, with arsenic contributing to the remainder of the cancer risk. EPA's hazard index of concern for non-carcinogenic risk is exceeded for children and adults for several target organs. The major contributors to these exceedances are chlorobenzene, 1,2-DCB, 1,3-DCB, 1,4-DCB, 1,2,4-TCB and arsenic. These COCs also were detected at concentrations above federal and state MCLs and more stringent state MEGs. The Baseline Human Health Risk Assessment concluded that the estimated risk for the soils, surface water, or sediments within the OU I area do not represent an unacceptable threat to human health. Only groundwater represents a threat to human health. Soil contamination that is causing groundwater contamination is also relevant to the cleanup action.

The groundwater beneath and surrounding the Site still remains a drinking water aquifer. Although data gathered since the 2002 OU I ROD was issued demonstrates that the groundwater plume has receded and contaminant mass is reduced, contaminant levels still exceed drinking water standards and ingestion of groundwater continues to pose a risk to human health consistent with the risks summarized above.

The OU I ROD concluded that contaminant levels in surface waters, surface soils and sediments within the OU I area of the EBSR are not sufficiently elevated to pose a substantial risk to invertebrates, fish and wildlife through direct contact and dietary exposure to the Site-related COCs. Exposure to the contaminated water at the groundwater/surface water interface, however, was identified as an unacceptable risk to those organisms dwelling in this zone. Data gathered since the 2002 OU I ROD, however, demonstrate that the concentration of contaminants in the groundwater do not exceed the levels that have the potential for an unacceptable risk to organisms dwelling in the groundwater/surface water interface. Therefore, the successful implementation of the NTCRA and OU I remedy has eliminated this risk.

Refer to the 2002 OU I ROD for the complete presentation of the human health and ecological risks.

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

H. REMEDIATION OBJECTIVES

Based on preliminary information relating to the types of contaminants, environmental media of concern and potential exposure pathways, response action objectives (RAOs) were developed to aid in the development and screening of alternatives. These RAOs were developed to mitigate, restore and/or prevent existing and future potential threats to human health and the environment. The RAOs for the selected OU I Remedial Action remain the same and are repeated below:

- Prevent the ingestion of groundwater containing contaminants that exceed federal or state MCLs, federal non-zero MCL Goals (MCLGs) and more stringent state MEGs, or in their absence, an excess cancer risk of 1×10^{-6} or a hazard quotient of 1;

- Prevent, to the extent practicable, the off-site migration of groundwater containing contaminants at a concentration above Site cleanup levels;

- Prevent, to the extent practicable, the discharge of groundwater containing contaminants at a concentration above levels that could impact ecological receptors to the East Branch of the Sebasticook River;

- Restore groundwater to meet federal or state MCLs, federal non-zero MCLGs or state MEGs (whichever is most stringent), or in their absence, an excess cancer risk of 1×10^{-6} or a hazard quotient of 1; and

- Perform long-term monitoring of surface water, sediments and groundwater to verify that the cleanup actions at the Site are protective of human health and the environment.

I. DEVELOPMENT AND SCREENING OF ALTERNATIVES

1. Statutory Requirements/Response Objectives

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including a requirement that EPA's remedial action, when complete, must comply with all federal and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery

technologies to the maximum extent practicable; and a preference for remedies in which treatment that permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these Congressional mandates.

2. Technology and Alternative Development and Screening

CERCLA and the National Contingency Plan (NCP) set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed for the Site.

With respect to the groundwater response action, the OU I RI/FS developed a limited number of remedial alternatives that attain Site cleanup levels within different time frames using different technologies, as well as a no-action alternative. The FFS incorporated the alternative development and screening step completed as part of the OU I RI/FS by reference.

J. DESCRIPTION OF ALTERNATIVES

This Section provides a narrative summary of the alternatives considered as part of the ROD Amendment Focused Feasibility Study (FFS). The FFS was prepared to evaluate the original OU I Remedial Action against the revised OU I Remedial Action.

Alternative GW-1: No Further Action

Alternative GW-1, the No Further Action alternative, was retained as a baseline with which to compare the other alternatives, as required by the NCP. This alternative would not include remedial action components beyond those already performed in the NTCRA to contain or reduce contaminant concentrations in groundwater. Nor would GW-1 control potential risks from exposure to contaminated groundwater by implementing institutional controls, extending the public water supply, or environmental monitoring. Site reviews would not be performed as part of this alternative. The NTCRA groundwater management system would be turned off and decommissioned upon completion of the NTCRA in 2006, and no further groundwater cleanup activities would occur at the Site.

Capital Costs: none
Present Worth of Long Term Monitoring:
None

Alternative GW-4: Hydraulic Containment plus Mass Reduction (2002 OU I ROD Remedial Action)

Alternative GW-4 includes actions to hydraulically contain groundwater in the source area of the mill footprint, reduce contaminant mass contributing to the contamination of groundwater through chemical oxidation, extend the public water supply system to prevent ingestion of contaminated groundwater and plume expansion and migration, implement institutional controls to prevent exposure to contaminated groundwater, and perform environmental monitoring to assess

migration of contamination and potential human health risks from exposure to contaminated groundwater. Hydraulic containment of the Area 1 bedrock and overburden groundwater plumes would occur by extraction and treatment of bedrock and overburden groundwater from beneath the Site. These actions would accelerate clean up of groundwater to some degree, control plume migration and prevent discharge of contaminated groundwater to the EBSR in excess of concentrations that would pose potential ecological risk.

Capital Costs: $6.9 million
Total Present Value of Alternative GW-4: $10.5 million
Estimated time to achieve groundwater restoration: 60 years.

Alternative GW-4a: Mass Reduction without Active Hydraulic Containment

Alternative GW-4a includes actions to reduce contaminant mass contributing to the contamination of groundwater through chemical oxidation and extends the public water supply system to prevent ingestion of contaminated groundwater and to prevent plume migration and/or address potential threats to human health. It also relies upon institutional controls and environmental monitoring to control potential human health risks from exposure to contaminated groundwater. These actions would accelerate clean up of groundwater, further control plume migration, and prevent discharge to the EBSR of groundwater with contaminant concentrations that would pose potential ecological risk.

Capital costs: $3.54 million
Present Value of Alternative GW-4a: $4.5 million
Estimated time to achieve aquifer restoration: 80 years.

K. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section l2l(b)(1) of CERCLA presents several factors that, at a minimum, EPA is required to consider in its assessment of alternatives. Building upon these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. These criteria are summarized as follows:

Threshold Criteria

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP:

1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy will meet all federal environmental and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked.

Primary Balancing Criteria

The following five criteria are utilized to compare and evaluate the elements of one alternative to another that meet the threshold criteria:

3. Long-term effectiveness and permanence addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.

4. Reduction of toxicity, mobility, or volume through treatment addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the Site.

5. Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.

6. Implementability addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7. Cost includes estimated capital and Operation and Maintenance (O&M) costs, as well as present-worth costs.

Modifying Criteria

The modifying criteria are used as the final evaluation of remedial alternatives, generally after EPA has received public comment on the RI/FS and Proposed Plan:

8. State acceptance addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the State's comments on ARARs or the proposed use of waivers.

9. Community acceptance addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS.

The following is a comparison of the 2002 OU I ROD remedy and the alternatives evaluated for this ROD Amendment, contrasting each remedy's components with respect to the nine evaluation criteria. Only those alternatives that satisfied the first two threshold criteria were balanced and modified using the remaining seven criteria.

Summary for the Comparative Analysis of Alternatives

Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Results of Baseline Human-health Risk Assessment for overburden and bedrock groundwater indicate that cancer risks due to chlorinated benzene compounds exceed the EPA target cancer risk range of $1x10^{-4}$ to $1x10^{-6}$ and a non-cancer risk target of an HI=1, (for inorganic and chlorinated benzene compounds). As identified in the OU I FS and 2002 OU I ROD, Alternative GW-1 would not take any actions to prevent potential human receptor exposure to contaminated groundwater. The No Further Action alternative would not reduce these risks and would not be protective of human health or the environment.

Alternatives GW-4 and GW-4a are considered protective of potential risks to human health and the environment. They utilize active remedial actions that either destroy or remove COCs from the aquifer in combination with using a public water supply and institutional controls that prohibit groundwater use, which are to be implemented until such time that MCLs/MEGs are achieved or it can be shown that risk levels posed by the COCs in groundwater are within target risk ranges. Alternative GW-4, the original 2002 OU I ROD remedy, included a groundwater extraction and treatment component to aid in achieving aquifer restoration. The reduction of the contaminant mass through NTRCA activities and the elimination of local pumping stresses that could cause the expansion of the groundwater plume have eliminated the primary need for the long-term groundwater extraction and treatment system, which was to prevent plume migration and protect the EBSR from contaminated water discharge until cleanup levels are met. As a result, the only remaining reason for long-term groundwater extraction and treatment would be to facilitate aquifer restoration. However, given that the groundwater contamination is limited to an un-developable area consisting of either roadway or designated greenspace, the anticipated placement of institutional controls to prevent future groundwater use, the availability of a water line, and the fact that the groundwater contamination is receding rather than expanding, EPA considers the less aggressive approach defined in Alternative GW-4a to provide an equivalent level of protection of human health and the environment to that of Alternative GW-4. Alternatives GW-4 and GW-4a both include groundwater monitoring as a component to provide information on the ability of the alternative to destroy/remove contaminants within the aquifer and to confirm that COCs are eventually reduced to concentrations that protect against potential risks to human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA requires that remedial actions at CERCLA sites attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and

limitations which are collectively referred to as "ARARs," unless such ARARs are waived pursuant to CERCLA section 121(d)(4). This criterion must be met for a remedial alternative to be chosen as a final site remedy in accordance with CERCLA.

Chemical-specific ARARs. Chemical-specific ARARs for groundwater (MCLs, non-zero MCLGs, and MEGs) would not be met by Alternative GW-1 for an estimated 600 years. Alternatives GW-4 and GW-4a are expected to attain chemical-specific ARARs within 60 and 80 years, respectively.

Location-specific ARARs. Alternatives GW-4 and GW-4a can be designed and implemented to comply with location-specific ARARs, with Alternative GW-4a having slightly fewer impacts to wetlands and floodplains since construction or expansion of the groundwater treatment system is eliminated. There are no location-specific ARARs for Alternative GW-1.

Action-specific ARARs. Alternative GW-1 entails no action and therefore triggers no action-specific ARARs. Alternatives GW-4 and GW-4a produce investigation-derived waste from groundwater sampling that would be required to be managed in accordance with EPA OSWER Publication 9345.3-03FS, which is a "to be considered" (TBC) guidance. Alternatives GW-4 and GW-4a will also meet applicable groundwater injection program standards during subsurface application of remedial solutions. Alternative GW-4's long-term groundwater extraction and treatment system produces waste streams from water treatment that requires potential handling, storage, transportation, and disposal/treatment of hazardous waste. For Alternative GW-4, groundwater discharged to the EBSR would need to be treated to prevent exceedance of AWQC in the river at low-flow and to protect surface water quality.

Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. Alternative GW-4 uses chemical oxidation, possibly surfactant or cosolvent flushing, and bioremediation to remove or destroy contaminants within the aquifer. Hydraulic capture and treatment performed during these processes will result in contaminants being isolated ex-situ for further treatment and disposal off-site. Alternative GW-4a uses chemical oxidation and bioremediation to remove or destroy contaminants within the aquifer. There is no long-term hydraulic capture and treatment performed as part of GW-4a because the plume is no longer expanding and the EBSR is not threatened by the remaining groundwater contamination. Alternatives GW-4 and GW-4a both rely on an aggressive treatment approach. Although GW-4a is presumed to require a longer period of time for aquifer restoration (80 years as opposed to 60 years), they offer essentially equivalent long-term effectiveness.

For long-term protectiveness, Alternatives (GW-4 and GW-4a) both rely on restrictive environmental covenants to prevent the use of groundwater until cleanup goals are met. Because waste remains in place, EPA will review the remedy every five years to ensure the effectiveness and protectiveness of this control and to implement further controls if necessary. Long-term monitoring will continue under both alternatives.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy. Alternatives GW-4 and GW-4a use aggressive treatment approaches to destroy contaminants in-situ. The hydraulic containment portion of Alternative GW-4 would actively control contaminant mobility in the subsurface during in-situ treatment implementation. The ex-situ treatment portion would reduce contaminant mobility in extracted groundwater. Alternative GW-4a does not include long-term active hydraulic containment. The RAO for groundwater restoration can be met without long-term hydraulic containment based upon the result of the groundwater modeling performed for the OU I design. A decrease has been observed in the volume of the groundwater contamination plume and the COC concentrations with the absence of hydraulic control. It is anticipated that a continued decrease in plume volume and COC concentrations will occur with continued ISCO applications. Alternatives GW-4 and GW-4a provide the same reduction in toxicity, mobility, and volume of contaminants through treatment, although GW-4a is presumed to require a longer period of time for aquifer restoration (80 years as opposed to 60 years).

Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers and the community during construction and operation of the remedy until cleanup goals are achieved. Because there is no current exposure to groundwater, there will be no short-term adverse effects to the community from exposure to groundwater during implementation of any of the groundwater remedies. Site workers will experience the same short-term impacts during ICP ISCO in-situ remediation with both alternatives. Alternatives GW4 and GW-4a both include connection to a public water line to offer immediate protection to nearby residences and businesses from ingestion of contaminated drinking water. Alternative GW4a has a slight advantage over alternative GW-4 in that elimination of the long-term groundwater extraction and treatment systems and surfactant/co-solvent flushing results in less onsite construction, less truck traffic, and fewer impacts on wetlands and floodplains.

Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered. Although both alternatives rely on innovative technologies, ICP ISCO has been successfully implemented at the Site during 2004 and 2005 NTCRA activities. Surfactant/cosolvent flushing in Alternative GW-4 has yet to be successfully implemented in a fractured bedrock setting comparable in scale to the Site and must be considered unproven. Based on this general comparison, the alternative GW-4a is considered more implementable than GW-4.

Cost

The estimated present worth costs for the alternatives, not including Alternative GW-1, range from $4.5 million for Alternative GW-4a to $10.5 million for Alternative GW-4. When evaluating the alternatives based upon an annual outlay as opposed to present value, the cost benefit of Alternative GW-4a is more apparent. The cumulative expenditures to achieve aquifer restoration using Alternative GW-4a will be approximately $6.5 million by the end of 80 years whereas the cumulative expenditure for Alternative GW-4 is estimated at $20.8 million at the end of 60 years. Although the revised OU I remedial action, GW-4a, would require 20 additional years to achieve the restoration of the aquifer, the cost to achieve restoration is significantly lower than GW-4, which relies on a long-term groundwater extraction and treatment system to facilitate the groundwater restoration in a shorter period. However, given the reduced size of the groundwater plume and the implementation of institutional controls, there is no consequence to public health as a result of the additional 20 years to achieve restoration. Capital, present worth, and total long-term costs for each alternative are shown in the following Table 5 below.

Table 5
Comparison of Costs

Cost Category	Alternative GW-1	Alternative GW-4	Alternative GW-4a
Capital Costs	$0	$6,891,283	$3,541,980
Present Worth of Annual and Periodic Costs	$0	$3,614,296	$926,674
Present Worth	$0	$10,505,579	$4,468,653
Total (Long-term) Costs – non-discounted costs	$0	$20,777,431 (60 years)	$6,508,976 (80 years)

Capital costs are greater for GW-4 due to the installation of the groundwater extraction and treatment system and injection system for enhanced flushing. Long-term operation and maintenance costs are also greater for GW-4 due to the cost associated with the operation and maintenance of the treatment system.

State/Support Agency Acceptance

This criterion addresses whether, based on its review of the data derived from the Site and the Proposed Plan, the State concurs with, opposes, or has no comment on the Amendment that EPA has selected for the Site.

ME DEP has reviewed the May 2006 Proposed Plan to amend the 2002 OU I ROD and a draft of this ROD Amendment. The State of Maine supports the proposed changes to the OU I remedy as described in Alternative GW-4a.

Community Acceptance:

This criterion addresses whether the public concurs with EPA's proposed Amendment. Compliance with this criterion is based on the comments received at the public meeting and public hearing.

The community is supportive of the proposed changes to the OU I remedy as described in Alternative GW-4a.

L. THE SELECTED REMEDY

1. Summary of the Rationale for the Selected Remedy

The selected remedy is the proposed preferred alternative, Alternative GW-4a, that was identified in the Proposed Plan and presented in more detail in the FFS. The amended OU I remedy remains a comprehensive remedy for the OU I portion of the Site that utilizes the application of in-situ reagents, incorporates groundwater use restrictions and long-term monitoring and will require five-year reviews as long as waste remains in place.

For the amended remedy for OU1, EPA has selected a remedy which ensures protectiveness of human health and the environment, attains all federal and state regulations, provides long-term and short-term effectiveness, is implementable, and reduces toxicity, volume, and mobility through treatment.

2. Description of Remedial Components

The major components of the remedy are:

Alternative GW-4a includes actions to 1) reduce the contaminant mass contributing to the contamination of groundwater through chemical oxidation; 2) extend the public water supply system to prevent ingestion of contaminated groundwater; and 3) prevent plume migration to address potential threats to human health and the environment. It also relies upon institutional controls and environmental monitoring to control potential human health risks from exposure to contaminated groundwater. Alternative GW-4a is presented in Figure 9 and consists of the following key components:

- Groundwater source mass reduction
  - ISCO treatment of Area 1 deep saturated soil and shallow weathered bedrock
  - ISCO treatment of Area 1 deep fractured bedrock including installation of additional bedrock injection wells
  - Bio-stimulation of Area 1 deep fractured bedrock
- Environmental monitoring
  - Groundwater monitoring to assess remedy effectiveness and progress toward attaining cleanup goals
- Institutional Controls to prevent future use of the contaminated groundwater and prevent disturbance of the remedy
- Connecting currently occupied properties within the institutional controls zone to the existing public water supply system
- Five-year reviews to ensure that the remedy remains protective of human health and the environment.

Groundwater Source Mass Reduction

This alternative focuses mass reduction technologies on three specific areas of contamination that represent residual sources below the water table. These areas include:

- Area 1 deep saturated soil
- Area 1 shallow weathered bedrock surface
- Area 1 deep fractured bedrock

Area 1 Deep Saturated Soil ISCO

An estimated 1,289 kg of contaminant mass exists as residual DNAPL within approximately 809 yd^3 of dense glacial till approximately two to four feet thick immediately above the bedrock surface in Area 1. An additional contaminant mass of approximately five kg of contaminants is estimated to be present as sorbed contamination in approximately 543 yd^3 of soil, forming a wedge shape overlying and adjacent to the DNAPL saturated soils.

The ISCO application will be performed in the Area 1 overburden during 2006 to reduce soil concentration to allow groundwater to achieve MCLs/MEGS. Post-injection soil and groundwater sampling will be performed to evaluate the success of these future treatments. Additional ISCO applications will occur as necessary to achieve a level of source reduction that will support the restoration of the aquifer.

Area 1 Shallow Weathered Bedrock Surface ISCO

This area is estimated to contain approximately 5.4 kg of DNAPL mass and 120 kg of mass diffused in oxidized rock matrix adjacent to fractures. To treat residual DNAPL dispersed along the top of weathered bedrock, an ISCO program will be performed. During the ISCO injections, groundwater will be extracted from the fractured bedrock underlying Area 1 from the existing extraction well (former Lot 120 Recovery Well 2 (R2), re-converted as EW-1). The extracted groundwater will be treated onsite by carbon absorbtion and discharged to the EBSR. Best management practices will be used during extraction, treatment and discharge activities.

Area 1 Deep Fractured Bedrock ISCO and Bio-stimulation

The total estimated contaminant mass for this area includes 14.5 kg of DNAPL, 182 kg of mass diffused in oxidized rock matrix adjacent to fractures, and 16 kg of mass diffused into fresh rock matrix. An ISCO program would be performed to target the deep bedrock contamination and to stimulate biological degradation processes that would provide the long-term reduction in contaminant levels necessary to achieve cleanup levels.

An option included in the 2002 OU I ROD was possibility of using bio-stimulants as a polishing step to remove any contamination that remained after the ISCO. This ROD Amendment incorporates the use of bio-stimulants into the remedy. The bio-stimulant composition will likely be designed or formulated from commercially available products such as HRC™, specialized

sugars and nutrients, or injection of air with gaseous phase nutrients (nitrogen and phosphorous) with methane as a carbon source. The full-scale application of bio-stimulant would be accomplished through approximately eight vertical bedrock wells. The bio-stimulant injection would be repeated on an as-needed frequency to maintain productive levels of biological activity. The level of biological activity would be assessed using phospho-lipid fatty acid analysis or other specialized analytical procedures, in addition to monitoring methane, chloride and nutrient levels within the aquifer treatment zone.

As with the shallow bedrock, hydraulic control would be established and maintained during active treatment of the bedrock groundwater system by operation of the temporary groundwater extraction and treatment system installed during the NTCRA. Once the active treatment phase is completed and treatment fluids have been recovered from the subsurface, the temporary groundwater extraction and treatment system will be removed.

Environmental Monitoring

The monitoring program will be initiated after completion of the mass reduction phase. Environmental monitoring will consist of collection and analysis of groundwater samples for VOCs, inorganics, and field parameters from approximately 24 overburden and 16 bedrock monitoring wells. This includes four new overburden and six new bedrock groundwater monitoring wells. The monitoring locations include wells within and outside the limits of the bedrock and overburden groundwater plumes. The monitoring will occur annually for five years and then may be reduced to support each five year review.

Details of the monitoring program, including quality assurance/quality control (QA/QC) protocols and institutional control compliance, will be specified in a long-term monitoring plan to be submitted to ME DEP for review and concurrence prior to implementation.

Institutional Control Components

Based on the groundwater modeling that was performed as part of the OU I Remedial Design, the Institutional Control Zone (ICZ) was modified to reflect additions or changes to the ICZ components. The final proposed ICZ is shown in Figure 10.

The ICZ contains three property categories, IC Zone A (ICZ-A), IC Zone B (ICZ-B), and IC Zone C (ICZ-C). These properties that are classified as ICZ would have environmental covenants that either prohibit (ICZ-A and ICZ-B) or restrict (ICZ-C) groundwater use.

ICZ-A identified those properties that will be subject to environmental covenants prohibiting use of groundwater over the entire property. All of the ICZ-A properties are currently served by the water line. Within the ICZ-A boundary, all existing bedrock and overburden water supply wells will be formally decommissioned, unless the wells are converted to monitoring wells for use in the long-term remedial action. ICZ-A properties are depicted on Figure 10.

ICZ-B identified those properties where connection to the water line and implementation of an environmental covenant prohibiting use of groundwater over the entire property was

determined to be necessary. All of the properties have now been connected to the water line, moving these properties to ICZ-A; there is therefore no longer a functional application for ICZ-B.

ICZ-C identified those properties where the current well is not contaminated and does not appear to be impacting the groundwater contamination, however, the groundwater modeling suggested that a modification to the existing well to increase yield or the installation of a new well at locations on the property closer to the Site could have an adverse impact on the groundwater contamination by inducing migration of the groundwater contamination. The restrictions on these properties will prohibit installation of future groundwater wells in locations or at depths that differ from existing water supply wells located on these properties. ICZ-C properties may continue to use their private water wells within this zone for domestic or other uses. There are two properties included in ICZ-C. The ICZ-C properties are shown on Figure 10.

In addition to ICZ-A, ICZ-B, and ICZ-C, the Town Cemetery will also be included in the institutional controls pertaining to property where treated soil was placed. The Town of Corinna, EPA, and ME DEP agreed that any backfilled, treated soil that was subject to EPA's removal or remedial activities that is excavated during future Town redevelopment may be moved to and backfilled at the Village Cemetery located on Stetson Road. The Town of Corinna has agreed to implement this environment restriction.

Once the institutional controls have been implemented, compliance with the restrictions will be monitored and enforced to ensure that the institutional controls are effective. Over time, EPA will also evaluate whether the land use restrictions can be removed or modified because acceptable levels have been met at the Site.

Five-Year Reviews.

As long as contamination that prevents unrestricted use of the Site remains, EPA will review the Site at least once every five years after the initiation of remedial action to ensure that the remedial action continues to protect human health and the environment.

3. Summary of the Estimated Remedy Costs

The estimated capital cost for the remedial action is $3.54 million. The capital costs are detailed in Table 6 below.

Table 6
CAPITAL COST SUMMARY FOR ALTERNATIVE GW-4a:

Description	Cost
Site Management, Equipment, and Facilities (2006-2008)	$512,151
Connection of residences to public water supplies	$54,761
Long-term monitoring well installation	$239,273
Institutional Control Support	$33,607
ISCO – Area 1 Shallow Bedrock	$796,648
ISCO – Area 1 Deep Bedrock	$741,118
ISCO – Area 1 Polishing Injections	$374,571
Biological Enhancement Treatment – Area 1	$309,345
Performance Monitoring (2006/2007)	$160,000
Site restoration (removal of temporary treatment plant and well decommissioning)	$120,016
Direct Cost Subtotal	$3,341,490
Indirect Capital Costs	
Construction Management	$100,245
Project Management	$100,245
Indirect Cost Subtotal	$200,489
TOTAL CAPITAL COSTS	**$3,541.980**

The estimated monitoring and periodic injection costs are summarized in Table 7 below.

Table 7
COST SUMMARY FOR ALTERNATIVE GW-4a:
Annual Operation and Maintenance Costs

Description	Quantity	Unit	Unit Cost	Cost
Annual Costs				
Annual Groundwater monitoring (years 1-5) – including 10% contingency, 5 percent project management, and 10% technical support	45 wells	annual	LS	$75,000
Periodic Costs				
Periodic monitoring to support 5 year reviews (every fourth year, for years 5-80) – including 10% contingency, 5 percent project management, and 10% technical support	45 wells	Event	LS	$75,000
Five-Year Reviews (every 5 years beginning in 2011) – including 10% contingency, 5 percent project management, and 10% technical support		Event	LS	$31,250
Bio-stimulant Injections (years, 2,4,6, and 8) – including 10% contingency, 5 percent project management, and 10% technical support			LS	$120,454

The present value of the long-term costs for Alternative GW-4a is $926,674. The total cost, including capital and present value of long-term costs, for Alternative GW-4a is $4,468,653. The detailed breakout of long-term costs and the present value is presented in Table 8, which is attached to this ROD Amendment.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. A discount rate of 7% was used to develop the present value. Major changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Difference (ESD), or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

4. Expected Outcomes of the Selected Remedy

The primary expected outcome of the selected OU I amended remedy is that the OU I Site area will no longer present an unacceptable risk to future users of the groundwater through ingestion and inhalation of groundwater and will be suitable for unrestricted use. Approximately 80 years is the estimated time necessary to achieve the goals consistent with aquifer restoration. The NTCRA and selected remedy have also reduced the flux of contaminants into the EBSR allowing for a full recovery of the benthic community. The previous removal actions, including the NTCRA, have eliminated any threat from exposure to soils within the Site. It is anticipated that the selected remedy will also provide significant socio-economic and community revitalization impacts since the area addressed by the NTCRA and this OU I cleanup are the center of the community. The completion of the NTCRA and the construction phase of the OU I cleanup, have allowed the community to implement the redevelopment plan. Of the 25 acres that were part of the Site cleanup activities, 22 acres are currently available for productive re-use. A senior housing facility, Corundel Commons, was installed on one portion of the Site. A historic structure, relocated from the center of the Site to just outside the Site, has been rehabilitated and serves the community as a general store and restaurant. The Town of Corinna has approved a subdivision plan and is actively marketing most of the remaining areas of the Site that are available for re-use.

a. Cleanup Levels -- Groundwater

The provisional cleanup levels established in the 2002 OU I ROD remain protective of human health and the environment. Refer to the 2002 OU I ROD for discussion about cleanup levels. The numerical cleanup levels from the 2002 OU I ROD are listed in Table 9 below.

Table 9 Provisional Groundwater Cleanup Levels

Carcinogenic Chemicals of Concern	Cancer Classification	Provisional Cleanup Level (ug/l)	Basis	RME Risk
arsenic	A	10	MCL	2×10^{-04}
1,4 dichlorobenzene	C	27	1992 MEG	1×10^{-05}
benzene	A	5	MCL	2×10^{-06}
Sum of Carcinogenic Risk				**2×10^{-04}**

Non-Carcinogenic Chemicals of Concern	Target Endpoint	Provisional Cleanup Level (ug/l)	Basis	RME Hazard Quotient
arsenic	skin	10	MCL	2.1
manganese	central nervous system	200	MEG	0.57
benzene	hematological system	5	MCL	0.12
chlorobenzene	liver	47	1992 MEG	0.018
1,2 dichlorobenzene	liver	85	1992 MEG	0.085
1,3 dichlorobenzene	liver	85	1992 MEG	9.4
1,4 dichlorobenzene	liver/kidney	27	1992 MEG	0.080
1,2,4 trichlorobenzene	Endocrine system	70	MCL	0.78
HI (liver): 9.7 HI (central nervous system): 0.57 HI (skin): 2.1 HI (endocrine system): 0.78				

Key

MCL: Federal Safe Drinking Water Act Maximum Contaminant Level

MCLG: Federal Safe Drinking Water Act Maximum Contaminant Level Goal

MEG: State of Maine Maximum Exposure Guidelines

HI: Hazard Index

RME: Reasonable Maximum Exposure

All groundwater cleanup levels identified in the ROD and any newly promulgated ARARs and modified ARARs that call into question the protectiveness of the remedy and the protective levels determined as a consequence of the risk assessment of residual contamination must be met at the completion of the remedial action at the points of compliance. At this Site, cleanup levels must be met throughout the contaminated groundwater plume. The values represent concentration levels that cannot be exceeded in any given well location at the Site. EPA has estimated that the groundwater cleanup levels will be obtained within 80 years after the initiation of the in-situ oxidation program.

EPA's new Cancer Guidelines and Supplemental Guidance (March 2005) will be used as the basis for EPA's analysis of all new carcinogenic risk assessments. If updated carcinogenic risk assessments become available, EPA will determine whether an evaluation should be conducted as part of the remedial design to assess whether adjustments to the target cleanup levels for this remedial action are needed in order for this remedy to remain protective of human health.

M. STATUTORY DETERMINATIONS

The amended OU I remedial action selected for implementation at the Site is consistent with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, will comply with ARARs and is cost-effective. In addition, the selected remedy utilizes permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable and satisfies the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element.

1. The Selected Remedy is Protective of Human Health and the Environment

The remedy at this Site will adequately protect human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through treatment, engineering controls and institutional controls (*i.e.*, deed restrictions). More specifically, the selected remedy's in-situ oxidation will reduce the mass of contamination and protect the ecological resources by reducing the loading of contaminated water into the EBSR. Institutional controls will limit future Site use to prevent ingestion of groundwater during the period required for restoration. Institutional controls will also prevent the extraction of groundwater from locations that could cause the contamination to migrate. Long-term monitoring will allow for the evaluation of the cleanup and the identification of any future threats.

The selected remedy will reduce potential human health risk levels such that they do not exceed EPA's acceptable risk range of 10^{-4} to 10^{-6} for incremental carcinogenic risk, and such that the non-carcinogenic hazard is below a level of concern. It will reduce potential human health risk levels to protective ARARs levels, *i.e.*, the remedy will comply with ARARs and TBC criteria. Implementation of the selected remedy will not pose any unacceptable short-term risks or cause any cross-media impacts.

At the time that the ARAR-based Ground Water Cleanup Levels identified in the ROD and ROD Amendment and newly promulgated ARARs and modified ARARs that call into question the protectiveness of the remedy have been achieved and have not been exceeded for a period of three consecutive years, a risk assessment shall be performed on the residual ground water contamination to determine whether the remedy is protective. This risk assessment of the residual ground water contamination will follow EPA procedures and will assess the cumulative carcinogenic and non-carcinogenic risks posed by ingestion of ground water and inhalation of VOCs from domestic water usage. If, after review of the risk assessment, the remedy is not determined to be protective by EPA, the remedial action will continue until protective levels are achieved and have not been exceeded for a period of three consecutive years, or until the remedy is otherwise deemed protective. These protective residual levels shall constitute the final cleanup levels for this ROD and shall be considered performance standards for any remedial action.

2. The Selected Remedy Complies With ARARs

ARARs were identified during the development of the 2002 OU I ROD and were reviewed as part of this ROD Amendment process. Several Maine statutes were updated to reflect their current citations and are noted in Tables 10 - 12. In addition, a 2005 risk assessment guidance was added as a TBC to be used when future risk assessments are conducted. No other changes were made.

The most significant ARARs reflect the groundwater cleanup levels. The federal MCLs and non-zero MCLGs govern the quality of drinking water provided by public water supply and are relevant and appropriate requirements for groundwater remediation at the Site. The state MEGs are also relevant and appropriate chemical-specific ARARs. The Maine Standards for Hazardous Waste Facilities, which include the state MEGs, require that a miscellaneous unit be closed in a manner that ensures hazardous waste shall not appear in ground or surface waters above MEGs. The Site is considered analogous to a miscellaneous hazardous waste unit. The selected amended remedy will comply with these and all other federal and any more stringent state ARARs listed in Tables 10-12 for the remedial action.

Further discussion about ARARs may be found in Section 3 of the FS Report.

3. The Selected Remedy is Cost-Effective

In EPA's judgment, the selected remedy is cost-effective because the remedy's costs are proportional to its overall effectiveness (see 40 CFR 300.430(f)(1)(ii)(D)). This determination was made by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (*i.e.*, that are protective of human health and the environment and comply with all federal and any more stringent state ARARs, unless appropriately waived). Overall effectiveness was evaluated by assessing, in combination, three of the five balancing criteria: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. The overall effectiveness of each alternative then was compared to the alternative's costs to determine cost-effectiveness.

The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence represents a reasonable value for the money to be spent. Alternatives GW-4 and GW-4a would be equally ARAR-compliant in that each alternative would achieve the groundwater cleanup levels in a reasonable time period. The cost effectiveness of both Alternatives GW-4 and GW-4a is predicated upon the ability of the in-situ reagents and bio-stimulants to eliminate the source of the contamination in order for the aquifer to achieve full restoration. The time frame for the source removal under both Alternatives GW-4 and GW-4a is 15 years. Subsequent to the 15 year period required for source removal, an additional 15 to 60 years was estimated to achieve full aquifer restoration for Alternative GW-4 with the use of long-term groundwater extraction and treatment. This results in an estimated range for the cleanup of 30 to 75 years, with 60 years being selected as a reasonable estimate for the basis of alternative comparison and cost evaluation. For Alternative GW-4a, without the use of long-term groundwater extraction and treatment, the estimated time period to achieve aquifer restoration is 30 to 74 years, resulting in a cleanup range of 45 to 89 years, with 80 years being selected as a reasonable estimate for the basis of alternative comparison and cost evaluation. Given that the groundwater plume is located under roadways and greenspace within an area where groundwater use is prohibited and a water line is available, there is no consequence to waiting the additional 20 years. GW-4 has an estimated present worth of $10.5 million as compared to the estimated present worth of GW-4a of $4.5 million. Further, the projected total cost (not adjusted for present value) for GW-4 is $20.8 million, as compared to $6.5 million for GW-4a. Therefore, GW-4a, with a $6 million lower present value and $14.3 million lower total cost, is the most cost effective alternative given that GW-4 provides an equivalent level of protection of human health and the environmental and compliance with ARARs.

4. The Selected Remedy Utilizes Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

Once the Agency identified those alternatives that attain or, as appropriate, waive ARARs, and that are protective of human health and the environment, EPA identified which alternative utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provides the best balance of trade-offs among alternatives in terms of: (1) long-term effectiveness and permanence; (2) reduction of toxicity, mobility or volume through treatment; (3) short-term effectiveness; (4) implementability; and (5) cost. The balancing test emphasized the long-term effectiveness and permanence and the reduction of toxicity, mobility and volume through treatment, and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and state acceptance. The selected remedy provides the best balance of trade-offs among the alternatives.

The selected remedy provides long-term effectiveness and permanence while using treatment to reduce the toxicity, mobility, and volume of the contaminant mass material. Chemical oxidation treatment is a principal element of the selected remedy in achieving permanent aquifer restoration. The addition of bio-stimulants will enhance the restoration

process. The State of Maine and the community were very supportive of the selected remedy. The potential to more cost effectively achieve cleanup goals in a similar time frame supports the selection of Alternative GW-4a over Alternative GW-4, which would achieve essentially the same outcome at a substantially greater cost.

5. The Selected Remedy Satisfies the Preference for Treatment Which Permanently and Significantly Reduces the Toxicity, Mobility or Volume of the Hazardous Substances as a Principal Element

The principal element of the selected remedy is the in-situ treatment of groundwater and DNAPL. This element addresses the primary threats at the Site – highly contaminated groundwater, DNAPL, and the remaining soil contamination – as defined by the risk to local water supplies and the exceedance of MCLs/MEGs. The selected remedy satisfies the statutory preference for treatment as a principal element by reducing the contamination in the aquifer through in-situ treatment of the mass of contamination in the overburden soil and bedrock and in the overburden and bedrock groundwater.

6. Five-Year Reviews of the Selected Remedy are Required

Because this remedy will result in hazardous substances remaining on-site above levels that will not allow for unlimited use and unrestricted exposure, a review will be conducted within five years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment. This review will continue every five years as long as waste remains in place above cleanup levels.

N. DOCUMENTATION OF NO SIGNIFICANT CHANGES

On May 25, 2006, EPA presented a proposed plan that described eliminating the long-term extraction and treatment of the groundwater component of the original 2002 OU I ROD remedy. The Plan also noted a minor change that eliminated the enhanced flushing with surfactants/co-solvents. EPA reviewed all written and verbal comments submitted during the public comment period, which was open from May 26 to June 25, 2006. None of the comments opposed the proposed amendment to the 2002 OU I ROD, and it was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary. EPA has prepared a responsiveness summary to address the comments received during the public comment period. The responsiveness summary is attached as Appendix C.

One minor change in the cost of Alternatives GW-4 and GW-4a has occurred since the public comment period. The FFS reported the present value as a net rate of 3.9%. EPA guidance recommends a discount rate of 7%. The costs reported in the ROD are based on the discount rate of 7%. The revision does not impact capital costs for either alternative. The present value of long-term costs for Alternative GW-4 in the Proposed Plan and FFS was reported as $5,651,353. The revised present value for these long-term costs for GW-4 is $3,614,296. The revised total present value (capital and long-term costs) for GW-4 is $10.5 million. The present value of long-term costs for Alternative GW-4a in the Proposed Plan and FFS was reported as $1,263,640. The

revised present value for GW-4a is $926,674. The revised total present value (capital and long-term costs) for GW-4a is $4.5 million. There is no significant impact to the comparative analysis or other aspects of the alternative evaluation since the cost differential remains substantial and GW-4a is more cost effective than GW-4.

O. STATE ROLE

ME DEP has reviewed the various alternatives and has indicated its support for the selected remedy. The State has also reviewed the FFS with respect to amendment to determine whether the selected remedy is in compliance with applicable or relevant and appropriate state environmental and facility siting laws and regulations. The State of Maine concurs with the amendment to the selected remedy for the Eastland Woolen Mill Superfund Site. A copy of the declaration of concurrence is attached as Appendix B.

Record of Decision Amendment
Part 2- The Decision Summary

APPENDIX A

TABLES AND FIGURES NOT IN ROD TEXT

TABLE 8
PRESENT VALUE OF ANNUAL AND PERIODIC COSTS - YEARS 1 THROUGH 80
ALTERNATIVE GW4a: MASS REDUCTION WITHOUT HYDRAULIC CONTAINMENT

OU1 FOCUSED FEASIBILITY STUDY REPORT
EASTLAND WOOLEN MILL SUPERFUND SITE
CORINNA, MAINE

Year (t)	GW Monitoring	Synoptic GW Levels	IC Monitoring	Pump and Treat O&M	Annual Reporting	Biostimulant Re-Injection	Five-Year Reviews	Contingency (@ 10%)	PM (@ 5%)	Tech. Support (@ 10%)	Total Non-Discounted Cost	Total Present Value
0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 76,846
2	$ 55,000	$ -	$ -	$ -	$ 5,000	$ 96,363	$ 5,000	$ 16,136	$ 8,875	$ 17,750	$ 204,124	$ 178,290
3	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 67,120
4	$ 55,000	$ -	$ -	$ -	$ 5,000	$ 96,363	$ 5,000	$ 16,136	$ 8,875	$ 17,750	$ 204,124	$ 155,725
5	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 58,625
6	$ -	$ -	$ -	$ -	$ -	$ 96,363	$ 5,000	$ 10,136	$ 5,575	$ 11,150	$ 128,224	$ 85,441
7	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 3,939
8	$ -	$ -	$ -	$ -	$ -	$ 96,363	$ 5,000	$ 10,136	$ 5,575	$ 11,150	$ 128,224	$ 74,628
9	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 44,725
10	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 3,215
11	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 3,005
12	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 2,808
13	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 34,120
14	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 2,453
15	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 2,292
16	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 2,142
17	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 26,030
18	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,871
19	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,749
20	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,635
21	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 19,858
22	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,428
23	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,334
24	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,247
25	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 15,150
26	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,089
27	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 1,018
28	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 951
29	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 11,558
30	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 831
31	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 777
32	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 726
33	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 8,817
34	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 634
35	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 592
36	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 554
37	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 6,727
38	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 484
39	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 452
40	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 422
41	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 5,132
42	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 369
43	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 345
44	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 322
45	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 3,915
46	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 281
47	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 263
48	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 246
49	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 2,987
50	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 215
51	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 201
52	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 188
53	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 2,279
54	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 164
55	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 153
56	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 143
57	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 1,738
58	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 125
59	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 117
60	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 109
61	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 1,326
62	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 95
63	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 89
64	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 83
65	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 1,012
66	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 73
67	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 68
68	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 64
69	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 772
70	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 55
71	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 52
72	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 48
73	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 589
74	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 42
75	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 40
76	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000	$ 500	$ 275	$ 550	$ 6,325	$ 37
77	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 449
78	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 420
79	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 392
80	$ 55,000	$ -	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 6,500	$ 3,575	$ 7,150	$ 82,225	$ 367
TOTAL	$ 1,430,000	$ -	$ -	$ -	$ 130,000	$ 385,452	$ 400,000	$ 234,545	$ 129,000	$ 258,000	$ 2,966,997	$ 926,674
Total before applied costs							$ 2,345,452					

PV Discount Rate (i)
0.070

PV = non-discounted cost X 1/((1+i)t)

ROD TABLE 10
LOCATION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE'
CORINNA, MAINE

Regulatory Authority	Location Characteristic	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
Federal	Floodplains	Floodplain Management Executive Order No. 11988 [40 Code of Federal Regulations (CFR) Part 6, App. A]	Applicable	Requires federal agencies to evaluate potential adverse effects associated with direct and indirect development of a floodplain. Alternatives that involve modification/construction within a floodplain may not be selected unless a determination is made that no practicable alternative exists. If no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain. United States Environmental Protection Agency (USEPA) must also provide the public with early and continuing information concerning floodplain management.	Only de minimis impacts to floodplains and the river channel are expected as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects on floodplains to the extent practicable. Least damaging methods will be specified to achieve remedial goals. Restoration actions will be taken to restore natural and beneficial values of the floodplain.
Federal	Wetlands	Protection of Wetlands Executive Order No. 11990 [40 CFR Part 6, App. A]	Applicable	Under this Order, federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and preserve and enhance natural and beneficial values of wetlands. If remediation is required within wetlands areas, and no practical alternative exists, potential harm must be minimized and action taken to restore natural and beneficial values.	Only de minimis impacts to wetlands and the river channel are expected as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects to aquatic ecosystems.
Federal	Navigable Waters	Rivers and Harbors Act of 1899 [33 USC 403 et seq.; 33 CFR Parts 320-323]	Relevant and Appropriate	Section 10 of the Rivers and Harbors Act of 1899 requires that the construction of any structure in or over any "navigable water of the U.S." including the excavation from or deposition of material in such waters, or any obstruction of alteration in such waters, obtain authorization from the Secretary of the Army acting through the U.S. Army Corps of Engineers.	Only de minimis impacts to wetlands and the river channel are expected as part of this alternative. Site activities will be designed and implemented to avoid obstruction and minimize alteration of navigable waters. Disturbed areas will be restored.
Federal	Endangered Species	Endangered Species Act [16 United States Code (USC) 1531 et seq.; 40 Code of Federal Regulations (CFR) 6.302(h); 50 CFR Part 200, 50 CFR Part 402]	Applicable, if such species are encountered	This statute requires that federal agencies avoid activities that jeopardize threatened or endangered species or adversely modify habitats essential to their survival. Mitigation measures should be considered if a listed species or habitat may be jeopardized.	Although no current listed endangered or threatened species or their nests have been identified at the site, their presence has been noted in the area. As part of the remedial action, pertinent lists will be reviewed to assess whether Federally listed species may be present. During the remedial action, measures such as relocation or seasonal work limits for specific actions would be implemented to protect listed species, if any are identified.

ROD TABLE 10
LOCATION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE'
CORINNA, MAINE

Regulatory Authority	Location Characteristic	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
Federal	Surface Waters	Fish and Wildlife Coordination Act [16 USC 661 et seq.; 40 CFR Section 6.302(g); 33 CFR Part 320]	Applicable	Requires Federal agencies involved in actions that will result in the control of structural modification of any stream or body of water for any purpose, to take action to protect the fish and wildlife resources that may be effected by the action. USEPA must consult with the U.S. Fish and Wildlife Service and the appropriate state agency to ascertain the means and measures necessary to mitigate, prevent, and compensate for project-related losses of wildlife resources and to enhance the resources.	Only de minimis impacts to fish and wildlife resources are expected as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects to aquatic ecosystems. USEPA will take measures to mitigate or compensate adverse project-related impacts, if determined necessary by USEPA. The U.S. Fish and Wildlife Service and the appropriate state agency will be consulted.
State	Wetlands	Maine Wetlands Protection Rule [06-096 Code of Maine Regulations (CMR), Chapter 310]	Applicable	These regulations outline requirements for certain activities related to fresh water wetlands greater than 10 acres or with an associated stream, brook, or pond. The regulations prohibit activities, which would have an unreasonable impact on the wetland or cause a loss in wetland area, functions, and values if there is a less practicable alternative to the project that would be less damaging to the environment. If there is no practicable alternative, there must be minimal alteration of the wetland and compensation (off-setting) may be required.	Only de minimus impacts to wetlands and the river channel are expected as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects to aquatic ecosystems. This alternative will be designed and implemented to meet activity standards. Remedial actions within 100 feet of the East Branch Sebasticook River will be designed and implemented so as to not unreasonably interfere with stream flow or water quality and to minimize adverse effects on aquatic habitat, fisheries, and aquatic life. Function and value assessments will be performed for existing wetland/habitat, and restoration activities performed so that post-remediation-site wetlands are at least comparable to existing on-site wetlands.
State	Wetlands Surface Waters	Maine Natural Resources Protection Act, permit-by-Rule Standards [06-096 CMR, Chapter 305]	Applicable	This rule prescribes standards for specific activities that may take place in or adjacent to wetlands and water bodies. The standards are designed to ensure that the disturbed soil material is stabilized to prevent erosion and siltation of the water.	Response actions that involve the disturbance of soil material in or adjacent to a wetland, great pond, stream or brook will meet these standards. Only de minimus impacts to wetlands and the river channel are expected as part of this alternative.
State	Endangered Species	Maine Endangered Species Act and Regulations [12 Maine Revised Statutes Annotated (MSRA) Section 7751-7756; 09-137 CMR 008] (**Revised:** Maine Endangered Species Act and Regulations [12 Maine Revised Statutes Annotated (MSRA) Section 12801-12809; 09-137 CMR 008])	Applicable	The State of Maine has authority to research, list, and protect any species deemed endangered or threatened. These species are listed as either endangered or threatened in the state regulations. The Maine Department of Inland Fisheries and Wildlife also has developed the following administrative categories for species not considered endangered or threatened, but considered important for research and further evaluation: Maine Watch List, Special Concern List, and Indeterminate Category. The Department determines appropriate use(s) of various habitats on a case-by-case basis. The Maine lists may differ from the federal lists of endangered species.	Endangered and threatened species lists will be reviewed to assess whether Maine listed species may be present. During the remedial action, measures will be implemented to protect listed species if identified or encountered.

ROD TABLE 10
LOCATION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE'
CORINNA, MAINE

Regulatory Authority	Location Characteristic	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
State	Shoreland areas	Mandatory Shoreland Zoning Act [Title 38, Maine Revised Statue Annotated (MRSA), Sections 435-449]. Town of Corinna Shoreland Zoning Ordinance, enacted 29 September 1991.(**Revised:** Mandatory Shoreland Zoning Act [Title 38, Maine Revised Statue Annotated (MRSA), Sections 435-449]. Town of Corinna Shoreland Zoning Ordinance, enacted 29 September 1991 and amended March 2004.)	Applicable	To protect and conserve shoreland areas by controlling activities within 250 feet of high water mark, as defined in state law.	Only de minimus impacts to shoreland areas will occur as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects to shoreland areas. Measures will be taken during selection, design, and implementation of remedial actions to comply with the ordinance wherever practicable.
State	Activities that expose soil with potential for erosion	Erosion and Sedimentation Control [38 MRSA subsection 420-C], Chapter 500, Stormwater Management Rules and Chapter 502, Direct Watershed of Waterbodies Most at Risk from New Development. (**Revised:** Erosion and Sedimentation Control [Title 38 MRSA subsection 420-Cand 420-D], Chapter 500, Stormwater Management Rules and Chapter 502, Direct Watershed of Waterbodies Most at Risk from New Development.)	Applicable	Erosion control measures must be in place before activities, such as filling, displacing or exposing soil or other earthen materials take place.	Where Site activities described in 38 MRSA 420-C and 420-D occur, USEPA will implement appropriate controls to address erosion, sedimentation and stormwater. Erosion control measures will be in place prior to the construction of the groundwater treatment plant and associated discharge pipe. (References the revised Regulations)
State	Business/Residential District of Corinna	Maine Site Location of Development Law and regulations (38 MRSA Sections 481-490, CMR Chapter 375).	Applicable	Regulations apply to control activities at certain federal developments so that there are minimal adverse impacts to natural resources, to include specifically, erosion and sedimentation control, noise control, and air quality control.	To the extent that USEPA leave three or more acres unvegetated for a period of a year or more, or requires 20,000 square feet of impervious area, remedial alternatives will comply with these requirements, if deemed appropriate. The footprint of the groundwater treatment plant and other impervious areas is expected to be less than 20,000 square feet. Stormwater management, erosion and sedimentation controls, and traffic controls will be designed and implemented so that adverse effects on natural resources are minimized.
State Criteria, Advisories and Guidance	Special Habitats and Communities	Maine Natural Areas Program (12 MRSA Section 544)	To Be Considered if such special areas are identified at the site	These state programs govern special habitats or communities.	If such special areas are identified at the site, the appropriate state programs will be consulted.

ROD TABLE 11
CHEMICAL-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE
CORINNA, MAINE

Regulatory Authority	Chemical Medium	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
Federal	Groundwater	Safe Drinking Water Act (SDWA), National Primary Drinking Water Regulations (NPDWR), Maximum Contaminant Levels [40 Code of Federal Regulation (CFR) Parts 141.11 - 141.16 and 141.50 - 141.53]	Relevant and Appropriate	The National Primary Drinking Water Regulations establish Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCGLs) for several common organic and inorganic contaminants. MCLs specify the maximum permissible concentrations of contaminants in public drinking-water supplies. MCLs are federally enforceable standards based in part on the availability and cost of treatment techniques.	MCLs and non-zero MCLGs were used to establish groundwater cleanup goals. Aggressive in-situ treatment and hydraulic containment by groundwater extraction is expected to decrease the estimated time to attain MCLs and non-zero MCLGs to approximately 30 to 90 years.
State		Maine Department of Human Services Rules Relating to Drinking Water [10-144A Code of Maine Regulations (CMR) Chapter 231-233] (**Revised:** Maine Department of Health and Human Services Rules Relating to Drinking Water [10-144A Code of Maine Regulations (CMR) Chapter 231-233])		MCLGs specify the maximum concentration at which no known or anticipated adverse effect on humans will occur. MCLGs are non-enforceable health-based goals that are always set equal to or lower than MCLs.	
State Criteria, Advisories and Guidance	Groundwater	Maine Standards for Hazardous Waste Facilities, Miscellaneous Units (06-096 CMR Chapter 854, Section 15) Maximum Exposure Guidelines (MEGs). (Maine Department of Human Services Bureau of Health Maximum Exposure Guidelines for Drinking Water (1992)) [**Revised:** Maine Standards for Hazardous Waste Facilities, Miscellaneous Units (06-096 CMR Chapter 854, Section 15) Maximum Exposure Guidelines (MEGs). (Maine Department of Health and Human Services Bureau of Health Maximum Exposure Guidelines for Drinking Water (1992))]	Relevant and Appropriate	The Maine MEGs 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. MEGs were identified as a 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. The Site is considered analogous to a miscellaneous hazardous waste unit. The MEGs are non-promulgated non-enforceable recommendations for concentrations of chemical constituents in drinking water below which there is minimal risk of deleterious health effects resulting from long-term ingestion.	MEGs were used to establish groundwater cleanup levels when the MEG concentration was lower than the MCL or non-zero MCLG for that constituent. Cleanup actions will be taken to meet MEGs in groundwater.

ROD TABLE 11
CHEMICAL-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE
CORINNA, MAINE

Regulatory Authority	Chemical Medium	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
Federal Criteria, Advisories and Guidance	Groundwater	United States Environmental Protection Agency (USEPA) Risk Reference Doses	To Be Considered	Risk reference doses (RfDs) are estimates of daily exposure levels that are unlikely to cause significant adverse non-carcinogenic health effects over a lifetime.	RfDs were used in developing the human-health risk assessment.
Federal Criteria, Advisories and Guidance	Groundwater	USEPA Carcinogenic Assessment Group, Cancer Slope Factors (CSFs)	To Be Considered	CSFs are used to compute the incremental cancer risk from exposure to site contaminants and represent the most up-to-date information on cancer risk from USEPA's Carcinogenic Assessment Group.	CSFs were used in developing the human-health risk assessment.
Federal Criteria, Advisories and Guidance	Groundwater	Guidelines for Carcinogen Risk Assessment EPA/630/P-03/001F (March 2005) Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens EPA/630/R-03/003F (March 2005)	To Be Considered	Provides guidance on conducting risk assessments involving carcinogens.	Until updated or replaced, these guidances will be used by EPA to evaluate all risk assessments on carcinogenicity conducted in the future at the Site.
State Criteria, Advisories and Guidance	Groundwater	Maine Draft Remedial Action Guidelines for Hazardous Substances in Soil	To Be Considered	These draft guidelines provide specific chemical concentrations determined by the State of Maine Department of Environmental protection (MEDEP) to be protective under various exposure scenarios and for groundwater.	These guidelines were used to establish the soil cleanup levels for the Non-time Critical Removal Action (NTCRA) and to evaluate the level of treatment required as part of the in-situ application.

ROD TABLE 12
ACTION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE
CORINNA, MAINE

Regulatory Authority	Action	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
Federal	In-situ treatment	Safe Drinking Water Act (SDWA) Underground Injection Control (UIC) Program (40 Code of Federal Regulations (CFR) Parts 144, 146, and 147)	Applicable	These regulations outline minimum program and performance standards for underground injection programs. Technical criteria and standards for siting, operation and maintenance, closure, and reporting and record keeping as required for permitting are set forth in Part 146.	This alternative involves the use of injection wells to deliver the in-situ reagents into the groundwater. This alternative will be implemented in accordance with the criteria and standards set forth in these regulations.
Federal	Treatment, storage, or disposal of hazardous waste	Resource Conservation and Recovery Act (RCRA), 42 United States Code (USC) §6901 et seq., Air Emissions Standards for Equipment Leaks, 40 CFR 264 Subpart BB	Applicable if relevant equipment contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight.	This regulation applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight that are managed in particular types of treatment, storage or disposal units. The regulation addresses equipment leaks and includes standards for particular types of equipment (compressors and open-ended valves or lines, for example), record keeping standards and reporting standards.	Data collected to date do not suggest that the presence of hazardous waste with organic concentrations greater than 10 percent by weight. If threshold conditions are met, the equipment in the groundwater treatment plant will be operated and record keeping performed to meet these standards.
Federal	Groundwater monitoring for the Treatment, storage, or disposal of hazardous waste	RCRA, 42 USC §6901 et seq., Releases from Solid Waste Management Units, 40 CFR Part 264, Subpart F	Applicable	Requirements for the installation of groundwater monitoring wells and compliance monitoring.	This alternative would comply with the requirements for the installation of groundwater monitoring wells and a compliance monitoring program.
Federal	Discharge of dredged (excavated soil) materials to surface waters and wetlands	Clean Water Act (CWA), 33 USC §§1251-1357	Applicable	Section 404 of the CWA regulates the discharge of dredged or fill materials to U.S. waters, including wetlands. Filling wetlands would be considered a discharge of fill materials. Procedures for complying with regulatory conditions are contained in 33 CFR Part 323. Guidelines for Specification of Disposal Sites for Dredged or Fill Material at 40 CFR Part 230, promulgated under CWA Section 404(b)(1), maintain that no discharge of dredged or fill material will be permitted if there is a practical alternative that would have less effect on the aquatic ecosystem. If adverse impacts are unavoidable, action must be taken to restore or create alternative wetlands.	Only de minimus impacts to wetlands and the river channel are expected as part of this alternative. The only impact will be the installation of the discharge pipe for the discharge from the groundwater treatment system. The impacts associated with the installation of the discharge are unavoidable and efforts will be made to minimize adverse effects to aquatic ecosystems. Function and value assessments will be performed for existing wetland/habitat, and restoration activities performed so that post-remediation on-site wetlands and river are at least comparable to existing on-site wetlands. Proposed activities will meet the substantive requirements of Programmatic General Permit conditions, to the extent practicable.
Federal	Surface Water Discharge	CWA National Pollutant Discharge Elimination System (NPDES) 40 CFR 122, 125, 131 and 136	Applicable	This rule limits for the discharge of pollutants from any point source into U.S. waters. This rule takes into account the federal and state ambient water quality standards.	All substantive requirements of this regulation will be met with respect to the discharge of any water from the groundwater treatment plant. Appropriate controls will be implemented with best management practices to address any extracted and treated groundwater.

ROD TABLE 12
ACTION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

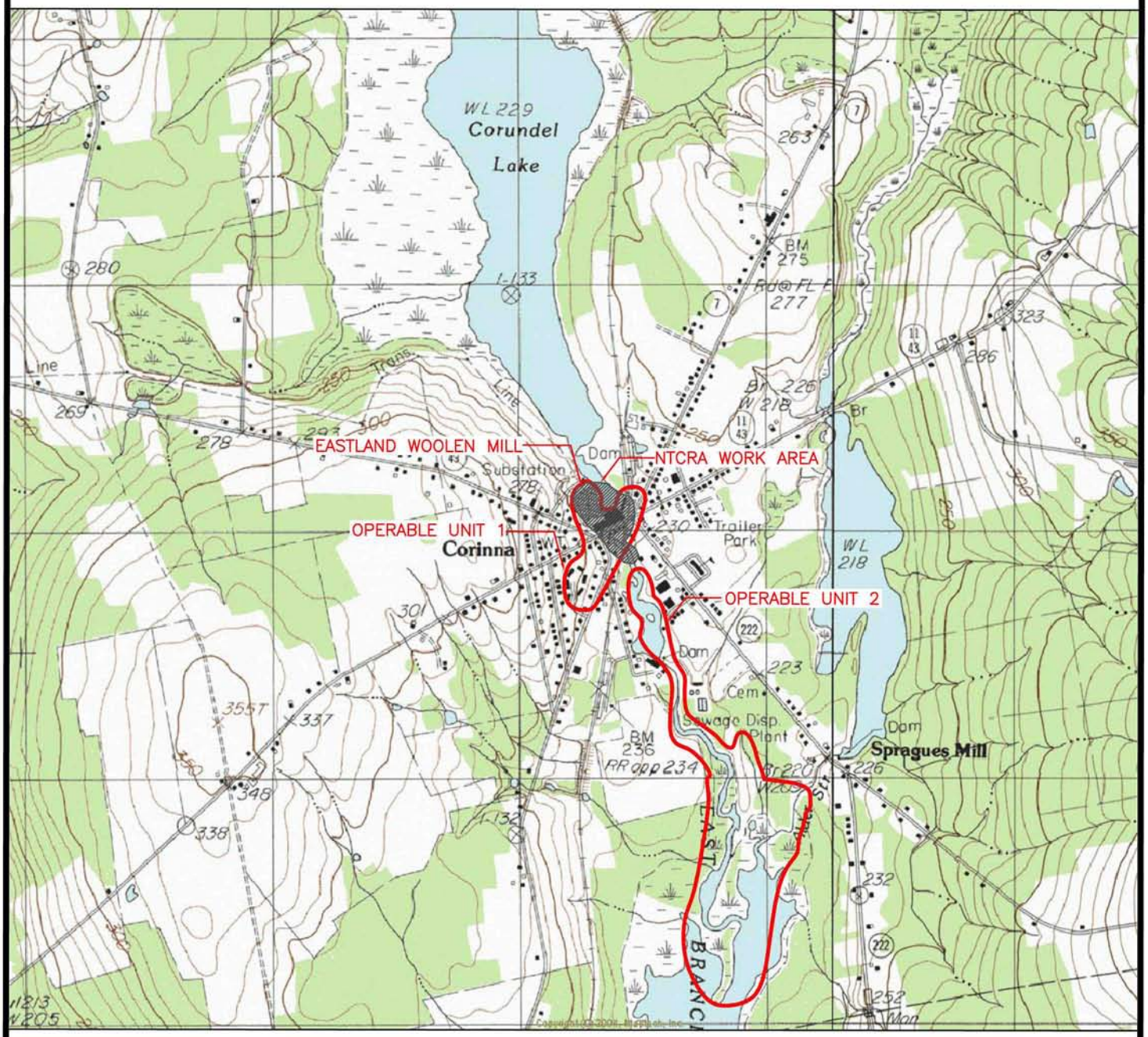
OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE
CORINNA, MAINE

Regulatory Authority	Action	Regulations	Status	Requirement Synopsis	Action to be taken to Attain ARAR
State	Surface Water Discharge	Waste Discharge Permitting Program [06-096 Code of Maine Regulations (CMR) Chapters 520-529]	Applicable	This rule requires permits issued by Maine Department of Environmental Protection (MEDEP) for the discharge of pollutants from the point sources.	All substantive requirements of this regulation will be met with respect to the discharge of any water from the groundwater treatment plant. Appropriate controls will be implemented with best management practices to address any extracted and treated groundwater.
State	In-situ treatment	Underground Injection Control (UIC) Program [06-096 CMR Chapter 543]	Applicable	These regulations outline minimum program and performance standards for underground injection programs. Technical criteria and standards for siting, operation and maintenance, closure, and reporting and record keeping as required for permitting are set forth in Part 146.	This alternative involves the use of injection wells to deliver the in-situ reagents into the groundwater. This alternative will be implemented in accordance with the criteria and standards set forth in these regulations.
State	Actions that may degrade surface water quality	Maine Water Classification Program (38 Maine Revised Statutes Annotated (MRSA) Section 464-470)	Applicable	This program sets forth standards for the classification of Maine's water. The East Branch Sebasticook River is classified as Class C. Activities in a water body cannot lower water quality below the designated classification.	The groundwater treatment plant will be designed and implemented in a manner that the effluent discharge does not degrade the chemical, physical, or biological integrity of the East Branch Sebasticook River.
State	Actions that may degrade surface water quality	Maine Surface Water Toxics Program [38 MRSA Section 420, 06-096 CMR Chapter 530.5] (**Revised:** Maine Surface Water Toxics Program [38 MRSA Section 420, 06-096 CMR Chapters 530 and 584])	Applicable	This performance standard establishes numerical surface water quality standards for all Maine surface water.	The groundwater treatment plant will be designed and implemented in a manner that the effluent discharge does not degrade the chemical, physical, or biological integrity of the East Branch Sebasticook River.
State	Management of contaminated media	Maine Hazardous Waste Management Rules [38 MRSA Section 1301 et seq., 06-096 CMR Chapter 850-857]	Relevant and Appropriate	These rules establish performance standards for treatment, disposal, and/or storage of media contaminated with hazardous waste piles, tanks, and miscellaneous units.	To the extent they are more stringent than federal RCRA requirements, and to the extent practicable, United States Environmental Protection Agency (USEPA) will design and operate response actions to meet the substantive requirements of these regulations.
State	Activities that expose soil with potential for erosion	Erosion and Sedimentation Control [38 MRSA subsection 420-C], Chapter 500, Stormwater Management Rules	Applicable	Erosion control measures must be in place before activities, such as filling, displacing or exposing soil or other earthen materials take place.	Where Site activities described in 38 MRSA 420D or 38 MRSA 481-490 occur, USEPA will implement appropriate controls to address erosion, sedimentation and stormwater. Applicable plans will be coordinated with MEDEP prior to implementation.
State	Generation of air emissions	Maine Air Quality Control Laws; Protection and Improvements of Air (38 MRSA 581-608A), Chapters 101, 105, 110, and 115	Applicable	This law and its associated regulations detail the requirements, limitations, and exemptions of state air emissions, including fugitive dust and emissions from air strippers.	If remedial activities result in fugitive dust and/or treatment that includes emissions from air strippers, measures will be taken under this alternative to comply with these regulations.
Federal	Generation of Investigation Derived Waste (IDW)	USEPA Office of Solid Waste and Emergency Response (OSWER) Publication 9345.3-03 FS, January 1992	To Be Considered	Management of IDW must ensure protection of human health and the environment.	IDW that may be produced from well installation and groundwater sampling will be managed in a manner to protect human health and the environment.

ROD TABLE 12
ACTION-SPECIFIC ARARS FOR ALTERNATIVE GW4A

OU1 FOCUSED FEASIBILITY STUDY
EASTLAND WOOLEN MILL SITE
CORINNA, MAINE

Regulatory Authority	Action	Regulations	Status	Requirement Synopsis	Action to be Taken to Attain ARAR
State Criteria, Advisories and Guidance	Generation of air emissions	Maine Department of Human Services Interim Ambient Air Guidelines, Memorandum February 23, 1993(**Revised:** Maine Department of Human Services Ambient Air Guidelines, dated April 2004)	To Be Considered	Interim ambient air guidelines are derived from risk assessment-based criteria or from occupational exposure criteria that are protective of ambient air quality.	These guidelines will be considered during the design of emissions control equipment.



USGS TOPOGRAPHIC MAP

CORINNA, MAINE

1982

APPROXIMATE SCALE
1 INCH = 2,000 FEET

QUADRANGLE LOCATION

NORTH

FIGURE 1
SITE LOCATION

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

Q:\CADD\Locus.dwg

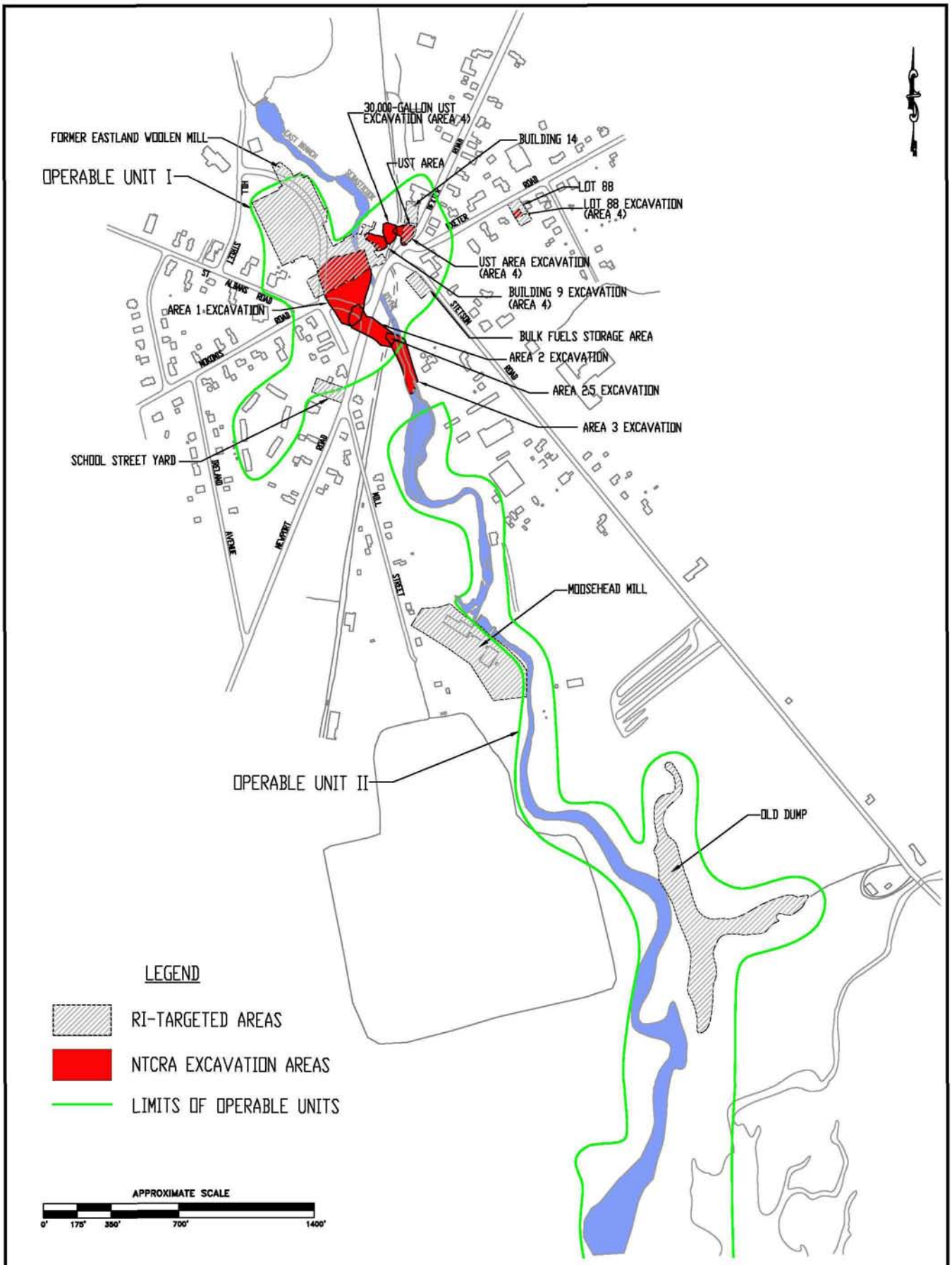


FIGURE 2
OU I, OU II, AND NTCRA WORK AREAS

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

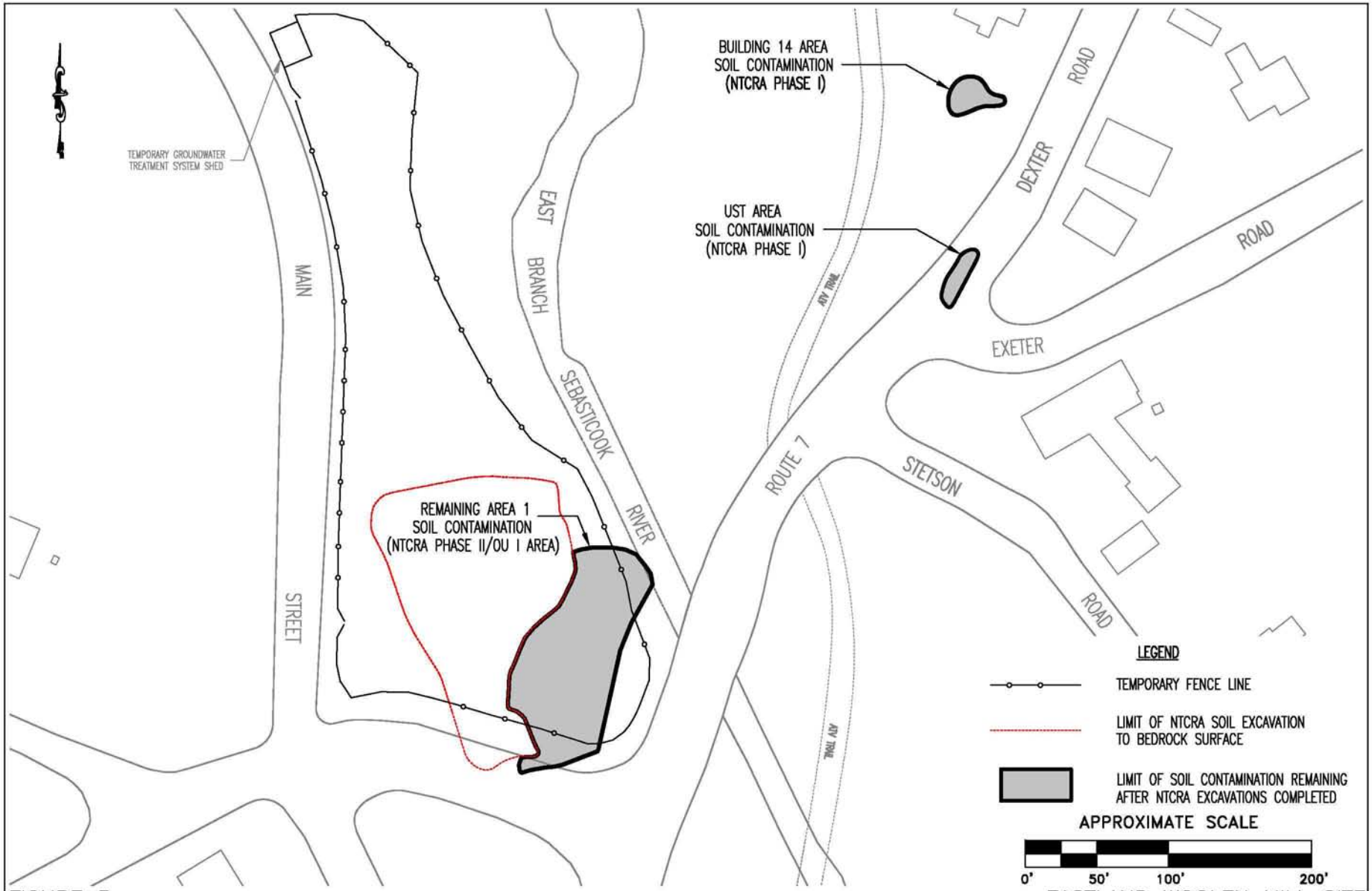


FIGURE 3
AREAS OF REMINING SOIL CONTAMINATION AFTER THE NTCRA EXCAVATION PROGRAM

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

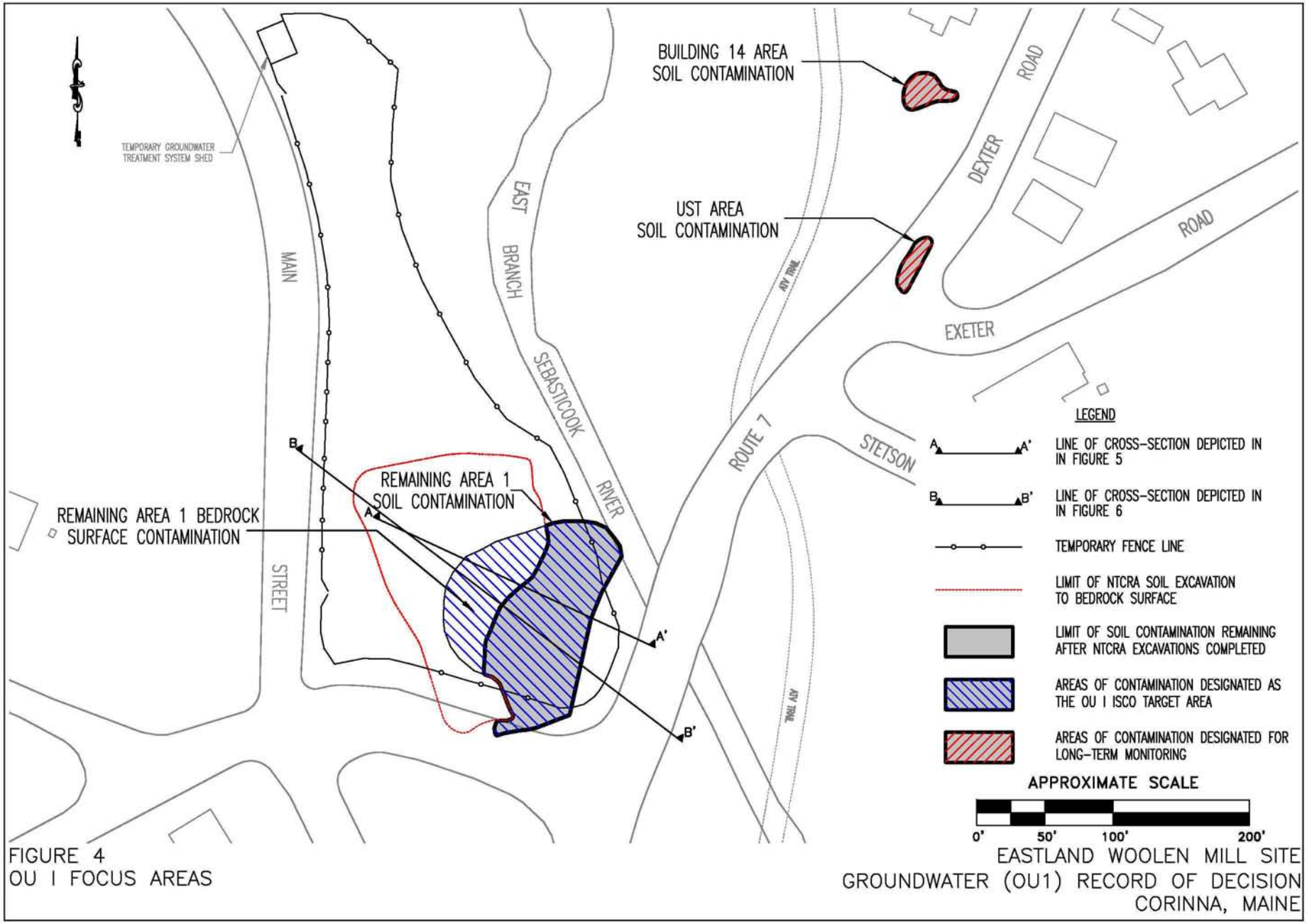


FIGURE 4
OU I FOCUS AREAS

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

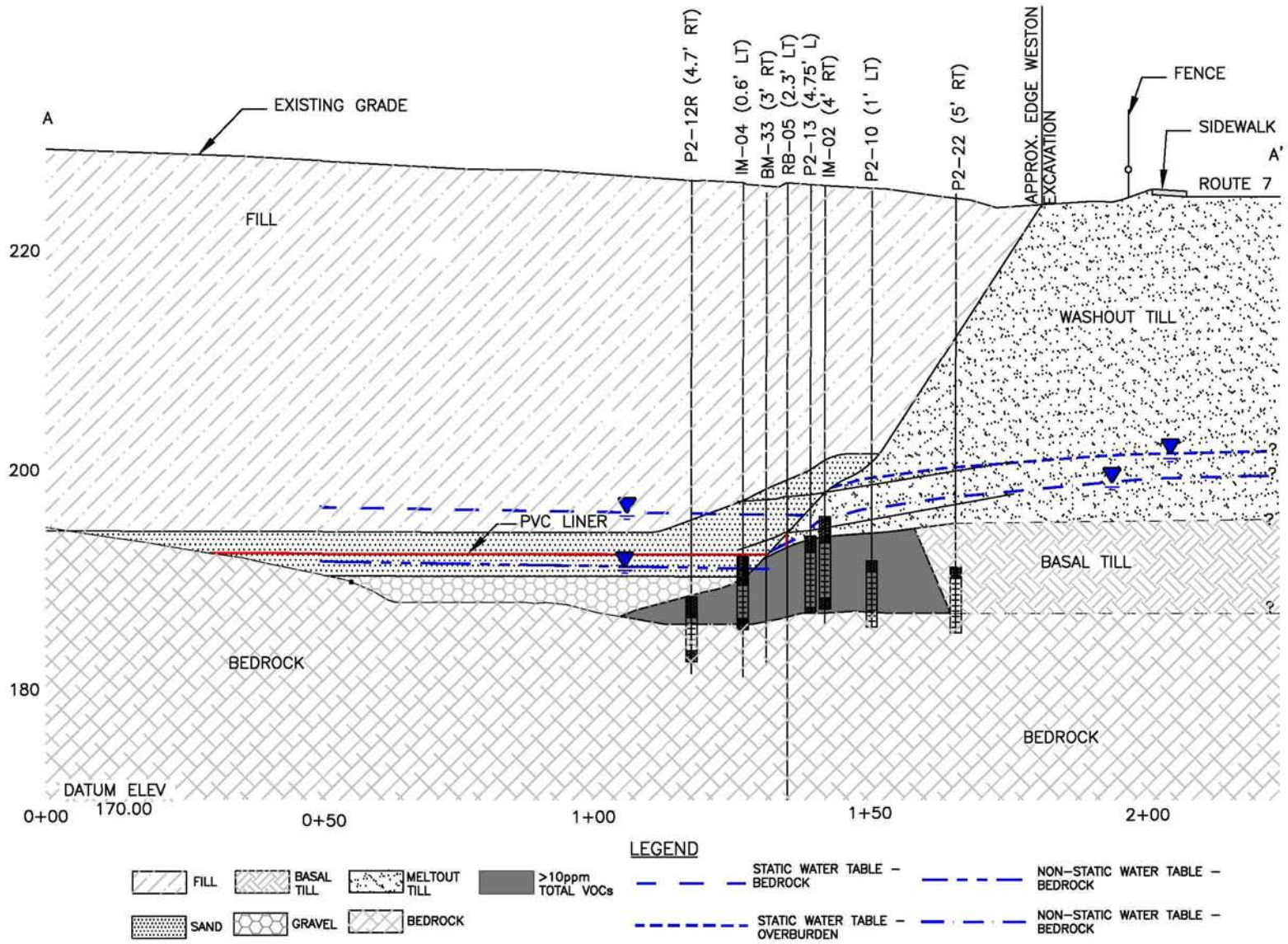


FIGURE 5
AREA 1 CONTAMINATION REMAINING AFTER NTCRA – OU I FOCUS AREA

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

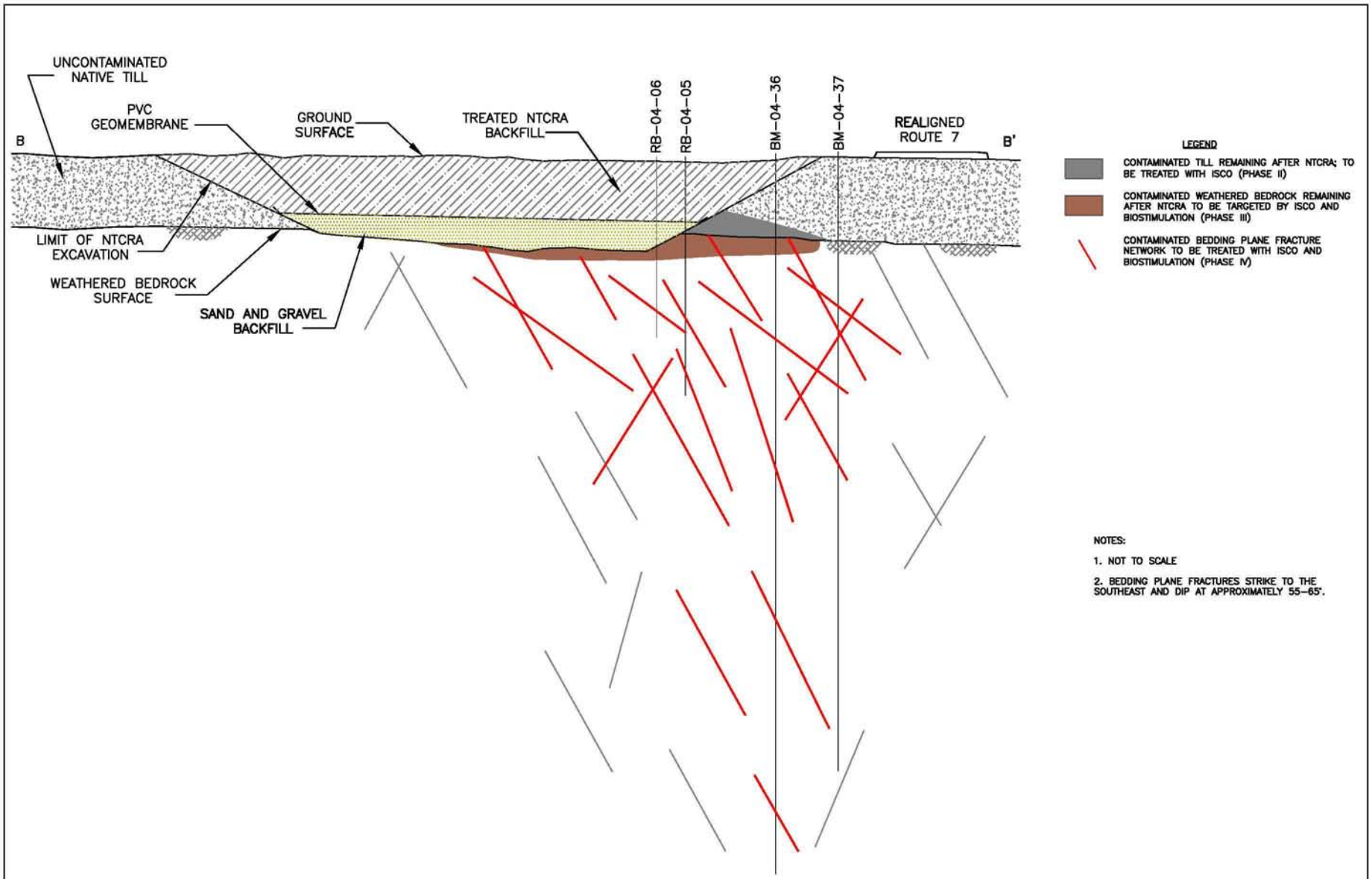
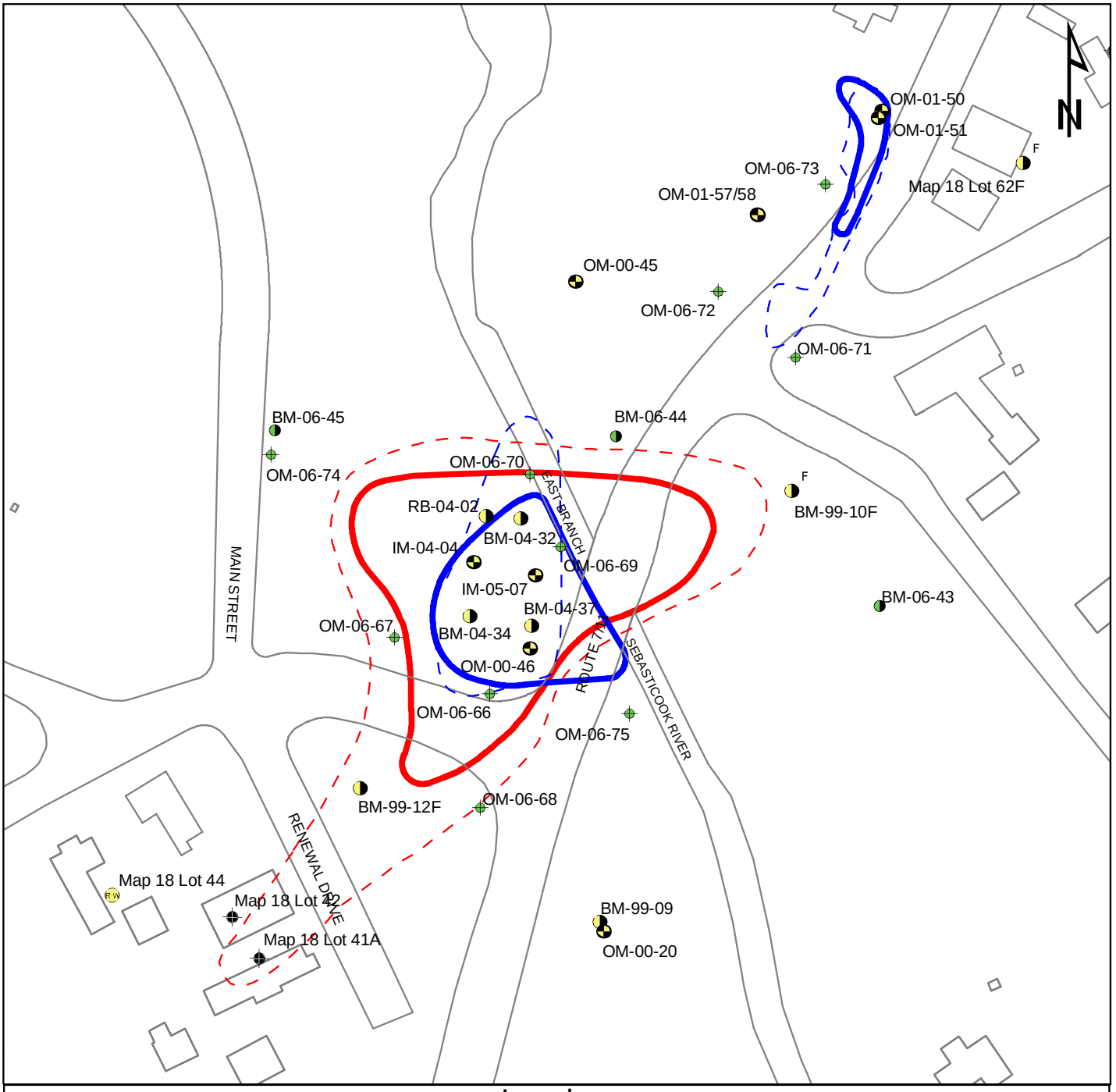


FIGURE 6
BEDROCK SOURCE CONTAMINATION REMAINING AFTER NTCRA – OU I FOCUS AREA

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE



Legend

- Estimated Limit of 2002 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Overburden Groundwater
- Estimated Limit of 2002 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Bedrock Groundwater
- Estimated Limit of 2005 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Overburden Groundwater
- Estimated Limit of 2005 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Bedrock Groundwater
- Existing Bedrock Long-Term Monitoring Location
- Existing Overburden Long-Term Monitoring Location
- F Existing Bedrock Flute-Well Monitoring Location
- Former Drinking Water Well Long-Term Monitoring Location
- RW Active Drinking Water Long-Term Monitoring Location
- New Overburden Groundwater Monitoring Location
- New Bedrock Groundwater Monitoring Location

115 57.5 0 115 Feet

FIGURE 7
GROUNDWATER CONTAMINATION
2002 vs. 2005

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

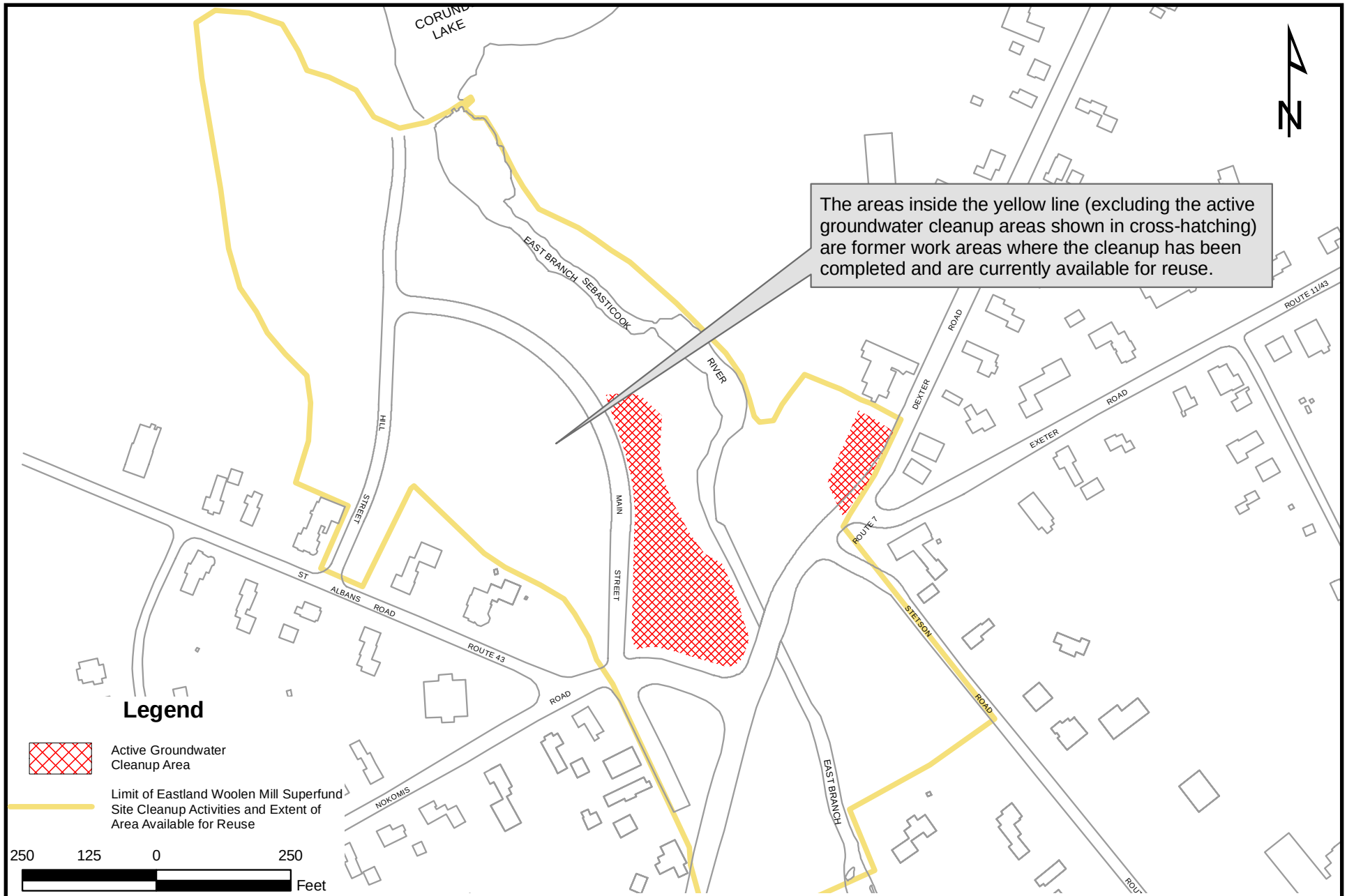
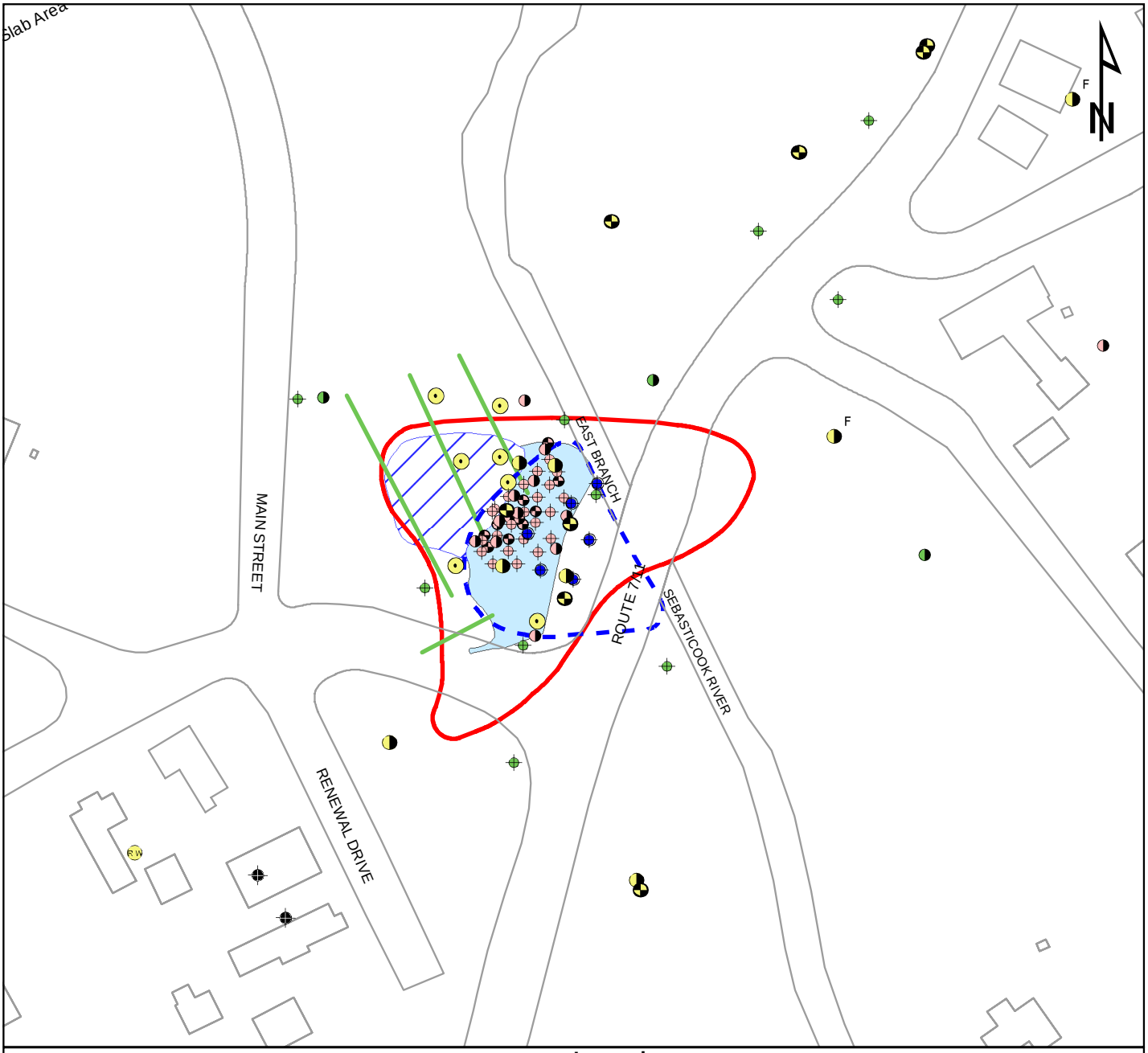


FIGURE 8
AREAS AVAILABLE FOR REUSE

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE



Legend

ALTERNATIVE GW4a FEATURES

Groundwater Above Cleanup Levels

- Estimated Limit of 2005 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Overburden Groundwater
- Estimated Limit of 2005 Chlorobenzene Compounds Detected at or Above Cleanup Levels in Bedrock Groundwater

Mass Removal Components

- ISCO Injector Well
- ISCO Injection Monitoring Well
- Bedrock Borehole/ISCO Monitoring Well
- Extraction Well
- Injection/Extraction Well for Enhanced Biological Treatment (Bedrock)
- Horizontal ISCO Injection Well
- Limit of Area Scoured to Bedrock Surface Where Confirmation Samples Exceeded NTCRA Clean Up Goals
- Estimated Limit of Soil Contamination Which Remains at Concentrations in Excess of NTCRA Clean Up Goals

Long Term Groundwater Monitoring Components

- Active Bedrock Drinking Water Well to be Monitored
- Inactive Bedrock Drinking Water Well to be Monitored
- Bedrock Monitoring Well/Borehole to be Monitored
- Bedrock Flute Monitoring Well to be Monitored
- Overburden Monitoring Well to be Monitored
- New Long-Term Bedrock Monitoring Well
- New Long-Term Overburden Monitoring Well

115 57.5 0 Feet

FIGURE 9
O I GW-4a COMPONENTS

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
CORINNA, MAINE

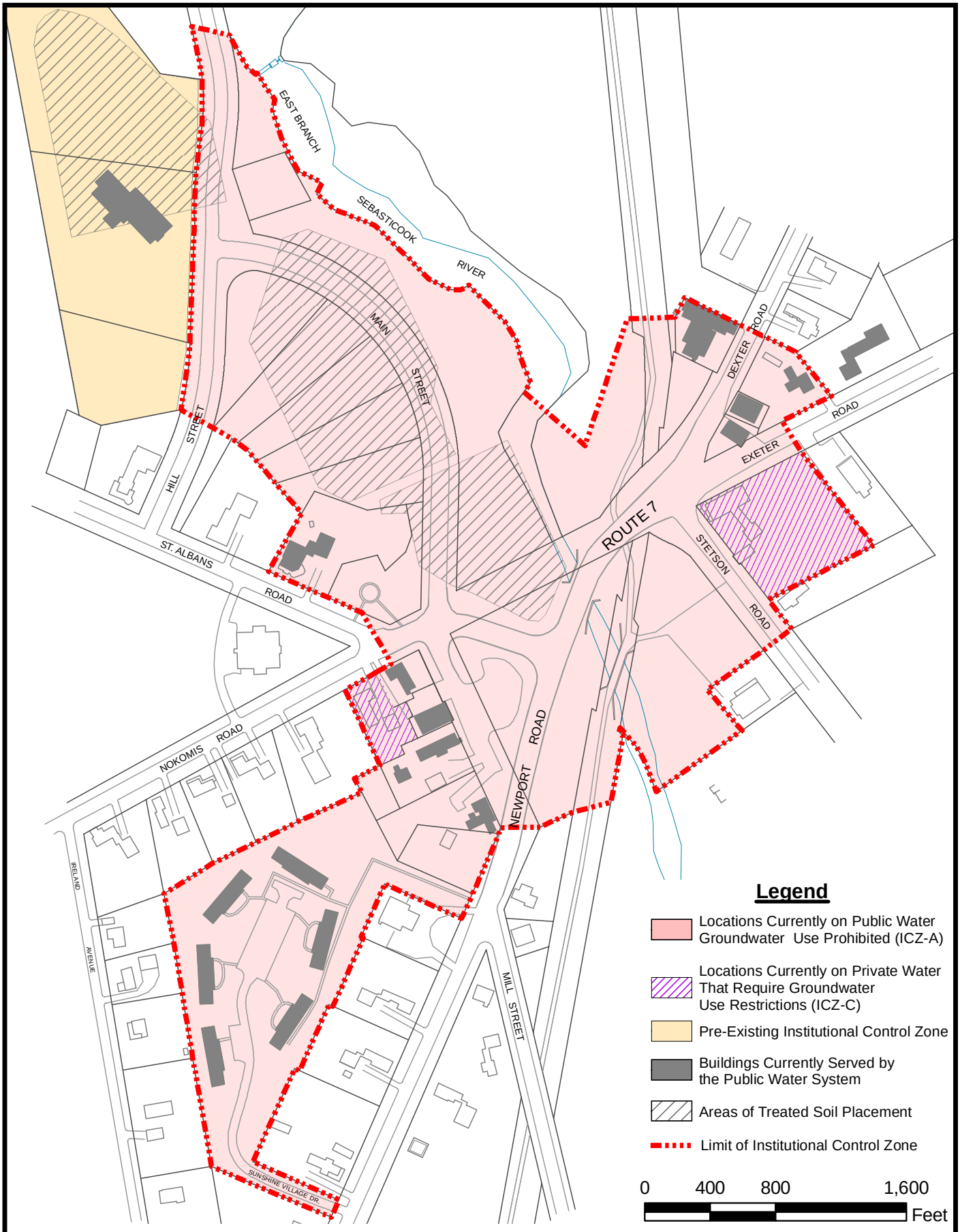


FIGURE 10
INSTITUTIONAL CONTROL ZONE LAYOUT

EASTLAND WOOLEN MILL SITE
GROUNDWATER (OU1) RECORD OF DECISION
RORINNA, MAINE

OU I Record of Decision Amendment
Appendix C

APPENDIX B

STATE OF MAINE CONCURRENCE LETTER

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

September 26, 2006

Ms. Susan Studlien, Director
Office of Site Remediation and Restoration
EPA New England
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Re: September 2006 Final Draft Record of Decision Amendment, Eastland Woolen Mill Superfund Site, Corinna, Maine

Dear Ms. Studlien:

The Maine Department of Environmental Protection (MEDEP) has reviewed the September 2006 Final Draft Record of Decision Amendment (ROD Amendment) with regard to the selected remedy for Operable Unit 1 (i.e., the groundwater) at the Eastland Woolen Mill Superfund Site located in Corinna, Maine.

Based on the ROD Amendment review, the MEDEP is very pleased to concur with the selected remedy, Alternative GW-4a: Contaminant Mass Reduction without Active Hydraulic Containment for Operable Unit 1. The major components of the selected remedy are listed below:

1. In-situ Chemical oxidation of the source material in the deep overburden and the shallow and deep bedrock.
2. Application of biostimulants after the in-situ chemical oxidation program.
3. Connection of residences to the public water supply.
4. Implementation of institutional controls to restrict future groundwater use.
5. Long-term monitoring.
6. Five-year reviews.

The MEDEP understands that with the selection of Alternative GW-4a, three components from the alternative selected in 2002 for the operable unit 1 are being deleted from the remedial action. Specifically, the three deleted components are the construction of a long-term groundwater treatment facility, long-term extraction and treatment of groundwater and the use of a co-solvent flush.

Also, as stated in MEDEP's September 19, 2002, ROD concurrence letter the following still apply:

a) This concurrence is based upon MEDEP's understanding that at the completion of the remedy, the residual risk posed by the site will be recalculated. As you know, per State of Maine policy, the upper bound incremental lifetime cancer risk that MEDEP can accept is 1 in 100,000; the upper bound hazard index that MEDEP can accept is 1.

b) MEDEP understands EPA will be responsible for the selected remedy for up to ten (10) years, or until the cleanup goals have been met, whichever is sooner. Further, the MEDEP understands that the MEDEP is responsible for paying ten percent (10%) of the costs during the construction and the initial ten (10) year period and for 100% of the selected remedy costs after the initial ten (10) year period.

Lastly, it has been my experience during the past 8 or so years, that MEDEP and EPA have worked collaboratively at this site as well as others. Overall it has been a very successful partnership and MEDEP looks forward to continuing with our excellent working relationship with EPA at this site. If you need additional information, do not hesitate to contact myself or members of my staff at (207) 287-2651.

Respectfully,

Mark Hyland, Acting Director
Bureau of Remediation & Waste Management

pc: Mary Jane O'Donnell, EPA
Edward Hathaway, EPA
Rebecca Hewett, MEDEP
Ted Wolfe, MEDEP
Hank Aho, MEDEP

Amended RODconcurrenceltr 9-2006.doc

APPENDIX C
RECORD OF DECISION RESPONSIVENESS SUMMARY

PREFACE:

The purpose of this Responsiveness Summary is to document EPA's responses to the questions and comments raised during the public comment period. EPA considered all of the comments summarized in this document before selecting a final remedial alternative to address contamination at the Site. Attachment A to the Responsiveness Summary contains a copy of the transcript from the public hearing held on Thursday, May 25, 2006 at the Corinna School in Corinna, Maine. All of the original comments submitted by citizens and the State of Maine are included in the Administrative Record.

This Responsiveness Summary addresses comments pertaining to the Proposed Plan and FFS Report that were received by EPA during the comment period held from May 25 to June 25, 2006. No comments were received from local residents or the Town of Corinna. The State of Maine and two other entities submitted comments to EPA either in writing or at the public hearing. None of the comments received were in opposition to the proposed cleanup action.

SUMMARY OF COMMENTS FROM STATE AND LOCAL OFFICIALS AND CITIZENS

Only two letters were received during the comment period. The letters were from two insurance companies that had been notified of the proposed ROD amendment as potentially interested parties, and both letters essentially consisted of a denial of liability for the cleanup. Neither provided any comments regarding the cleanup action or regarding the proposed change to the remedy. The State of Maine offered comments during the Public Hearing and submitted a copy of the statement as a comment to the public record. The State of Maine supports the proposed changes to the OU I Remedial Action. ME DEP stated that it concurs with the proposed cleanup alternative, Alternative GW-4a, as proposed by EPA, which it understands will comply with state and federal applicable or relevant and appropriate requirements. EPA appreciates the support of the State of Maine for the proposed Amendment to the 2002 OU I ROD.

THE SELECTED REMEDY'S CHANGES TO THE PROPOSED REMEDY MADE BASED UPON PUBLIC COMMENTS

There have been no significant changes to the Proposed Amended Remedy as a result of public comments. No comments were received from the local public. The State of Maine is supportive of the EPA Amended Proposed Remedy.

Eastland Woolen Mill

Superfund Site

Administrative Record Index
for the Record of Decision (ROD) Amendment
Operable Unit 1

ROD
Signed: September 28, 2006
Released: October 13, 2006

Prepared by
EPA New England
Office of Site Remediation & Restoration

With Assistance from
ASRC Management Services
6301 Ivy Lane, Suite 300
Greenbelt, MD 20770

INTRODUCTION

This is the Administrative Record Index for the Record of Decision Amendment to the Eastland Woolen Mill Superfund site, Corinna, ME, Operable Unit 1 [OU01 (sitewide)]. The Record of Decision (ROD) Amendment was released on October 13, 2006. Section I of the Index cites site-specific documents, and Section II cites guidance documents used by the EPA staff in selecting a response action at the site.

This file includes, by reference, the Administrative Record for the Eastland Woolen Mill, Operable Unit 2 (OU02) Record of Decision (ROD), issued on September 30, 2004, the Administrative Record, Operable Unit 1 (OU01) Record of Decision, issued on September 19, 2002, and the Administrative Record file for the Non-Time Critical Removal Action for the Eastland Woolen Mill with an Action Memorandum signed on July 22, 1999.

The Record of Decision (ROD) Amendment is available on-line at the link below and for public review at:

EPA New England Superfund Records & Information Center
1 Congress Street, Suite 1100 (HSC)
Boston, MA 02114
(617) 918-1140 (phone)
(617) 918-1223 (fax)
http://www.epa.gov/region01/superfund/resource/records.htm

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An Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

02: REMOVAL RESPONSE

240719 **PRELIMINARY DRAFT OVERALL COMPLETION REPORT FOR THE NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)**

Author: WESTON SOLUTIONS INC
Addressee: US ARMY CORPS OF ENGINEERS
Doc Type: REPORT
Doc Date: 04/01/2004 **# of Pages:** 856
File Break: 02.02

240718 **TRANSMITTAL FOR THE PRELIMINARY DRAFT OVERALL COMPLETION REPORT FOR THE NON-TIME-CRITICAL REMOVAL ACTION (NTCRA)**

Author: MICHAEL J WAGNER WESTON SOLUTIONS INC
Addressee: DAVID O'CONNOR US ARMY CORPS OF ENGINEERS
Doc Type: LETTER
Doc Date: 04/16/2004 **# of Pages:** 2
File Break: 02.02

248090 **TECHNICAL MEMORANDUM FOR OPERABLE UNIT 1 GW4 REMEDIAL ACTION - AREA-WIDE GROUNDWATER SAMPLING**

Author: NOBIS ENGINEERING INC
Addressee: US ARMY CORPS OF ENGINEERS
Doc Type: REPORT
Doc Date: 03/29/2006 **# of Pages:** 163
File Break: 02.02

259300 **POLLUTION REPORT (POLREP) FINAL, EASTALND WOOLEN MILL**

Author: US EPA REGION 1
Addressee:
Doc Type: POLREP
Doc Type: REPORT
Doc Date: 05/10/2006 **# of Pages:** 8
File Break: 02.04

04: FEASIBILITY STUDY (FS)

248091 **FOCUSED FEASIBILITY STUDY (FS)**

Author: NOBIS ENGINEERING INC
Addressee: US ARMY CORPS OF ENGINEERS
US EPA REGION 1

Doc Date: 05/01/2006 **# of Pages:** 127
File Break: 04.06

Doc Type: REPORT

248096 **EPA PROPOSES CHANGES TO THE OPERABLE UNIT 1 CLEANUP PLAN**

Author: US EPA REGION 1
Addressee:

Doc Date: 05/01/2006 **# of Pages:** 17
File Break: 04.09

256000 **EASTLAND WOOLEN MILL COMMENT - CLAIM# 870546071**

Author: FLO ANN WILSON GREAT AMERICAN INSURANCE GROUP
Addressee: SUSAN STUDLIEN US EPA REGION 1 - OFFICE OF SITE REMEDIATION & RESTORATION

Doc Date: 06/07/2006 **# of Pages:** 1
File Break: 04.09

Doc Type: LETTER

04: FEASIBILITY STUDY (FS)

250598 **COMMENT - NOTE STATING TRAVELERS IS NOT INVOLVED IN MATTER**

Author: ILLEGIBLE ST PAUL TRAVELERS
Addressee: SUSAN STUDLIEN US EPA REGION 1 - OFFICE OF SITE REMEDIATION & RESTORATION
Doc Type: LETTER
Doc Date: 06/09/2006 **# of Pages:** 2
File Break: 04.09

05: RECORD OF DECISION (ROD)

256941 **STATE CONCURRENCE - SEPTEMBER 19, 2006 CONSTRUCTION COMPLETE INSPECTION**

Author: REBECCA L HEWETT ME DEPT OF ENVIRONMENTAL PROTECTION
Addressee: EDWARD M HATHAWAY US EPA REGION 1
Doc Type: LETTER
Doc Date: 09/20/2006 **# of Pages:** 1
File Break: 05.01

256943 **STATE CONCURRENCE - SEPTEMBER 2006 FINAL DRAFT ON RECORD OF DECISION (ROD) AMENDMENT**

Author: MARK HYLAND ME DEPT OF ENVIRONMENTAL PROTECTION
Addressee: SUSAN STUDLIEN US EPA REGION 1 - OFFICE OF SITE REMEDIATION & RESTORATION
Doc Type: LETTER
Doc Date: 09/26/2006 **# of Pages:** 2
File Break: 05.01

05: RECORD OF DECISION (ROD)

259301 **RECORD OF DECISION (ROD) AMENDMENT FOR OPERABLE UNIT 1 (OU1)**

Author: US EPA REGION 1
Addressee:
Doc Type: DECISION DOCUMENT
Doc Type: RECORD OF DECISION

Doc Date: 09/28/2006 **# of Pages:** 81
File Break: 05.04

06: REMEDIAL DESIGN (RD)

240720 **TRANSMITTAL FOR FINAL OU 1 REMEDIAL DESIGN (RD) REPORT**

Author: ANDREW J BOECKELER NOBIS ENGINEERING INC
Addressee: SCOTT E ACONE US ARMY CORPS OF ENGINEERS
Doc Type: LETTER

Doc Date: 08/09/2005 **# of Pages:** 1
File Break: 06.04

240721 **FINAL REMEDIAL ACTION DESIGN REPORT (TEXT, FIGURES, APPENDICES A THROUGH I, AND INSTITUTIONAL CONTROLS)**

Author: NOBIS ENGINEERING INC
Addressee: US ARMY CORPS OF ENGINEERS
Doc Type: REPORT

Doc Date: 08/09/2005 **# of Pages:** 32
File Break: 06.04

08: POST REMEDIAL ACTION

240717 **2005 PHASE 1 AND PHASE 2 ISCO REMEDIAL PERFORMANCE ASSESSMENT (TEXT, FIGURES, APPENDICES A THROUGH J)**

Author: NOBIS ENGINEERING INC
Addressee: US ARMY CORPS OF ENGINEERS
Doc Type: REPORT
Doc Date: 01/01/2005
# of Pages: 640
File Break: 08.04

259302 **PRELIMINARY CLOSE OUT REPORT (PCOR) FOR NON-TIME CRITICAL REMOVAL ACTION AND FINAL SITE ACTION - OPERABLE UNIT 1 (OU1)**

Author: US EPA REGION 1
Addressee:
Doc Type: REPORT
Doc Date: 09/28/2006
# of Pages: 16
File Break: 08.03

13: COMMUNITY RELATIONS

250436 **PUBLIC INFORMATION MEETING [JULY 11, 2000]**

Author:
Addressee:
Doc Type: PUBLIC MEETING RECORD
Doc Date: 07/11/2000
# of Pages: 23
File Break: 13.04

13: COMMUNITY RELATIONS

248064 **FACT SHEET - SOIL TREATMENT COMPLETED, COMMUNITY UPDATE #12**

Author: US EPA REGION 1
Addressee:
Doc Type: FACT SHEET
Doc Date: 03/01/2004 **# of Pages:** 10
File Break: 13.05

248065 **FINAL EPA FACT SHEET - RE-USE SUCCESS AT EASTLAND WOOLEN MILL SITE, COMMUNITY UPDATE #13**

Author: US EPA REGION 1
Addressee:
Doc Type: FACT SHEET
Doc Date: 02/23/2006 **# of Pages:** 7
File Break: 13.05

250431 **PROPOSED CHANGES TO THE GROUNDWATER CLEANUP**

Author: DON THOMPSON & ASSOCIATES COURT REPORTING
Addressee: NOBIS ENGINEERING INC
US EPA REGION 1
Doc Type: PUBLIC MEETING RECORD
Doc Date: 05/25/2006 **# of Pages:** 13
File Break: 13.04

250432 **PROPOSED CHANGES TO THE GROUNDWATER CLEANUP**

Author: DON THOMPSON & ASSOCIATES COURT REPORTING
Addressee: NOBIS ENGINEERING INC
US EPA REGION 1
Doc Type: PUBLIC MEETING RECORD
Doc Date: 05/25/2006 **# of Pages:** 9
File Break: 13.04

13: COMMUNITY RELATIONS

250433 **PROPOSED CHANGES TO THE GROUNDWATER CLEANUP**

Author: DON THOMPSON & ASSOCIATES COURT REPORTING
Addressee: NOBIS ENGINEERING INC
US EPA REGION 1
Doc Type: PUBLIC MEETING RECORD
Doc Date: 05/25/2006 **# of Pages:** 7
File Break: 13.04

250599 **CONDENSED TRANSCRIPT - DEP PROPOSED CHANGES TO THE GROUNDWATER CLEANUP, EASTLAND WOOLEN MILL SUPERFUND SITE**

Author: DON THOMPSON & ASSOCIATES COURT REPORTING
Addressee: NOBIS ENGINEERING INC
Doc Type: PUBLIC MEETING RECORD
Doc Date: 05/25/2006 **# of Pages:** 7
File Break: 13.04

Number of Documents in Collection22

EPA Region 1 AR Compendium GUIDANCE DOCUMENTS

EPA guidance documents may be reviewed at the EPA Region I Superfund Records Center in Boston, Massachusetts.

TITLE
GUIDE TO PREPARING SUPERFUND PROPOSED PLANS RECORDS OF DECISION AND OTHER REMEDY SELECTION DECISION DOCUMENTS

DOCDATE	OSWER/EPA ID	DOCNUMBER
7/1/1999	OSWER 9200.1-23P	C525

TITLE
GUIDANCE FOR MONITORING AT HAZARDOUS WASTE SITES: FRAMEWORK FOR MONITORING PLAN DEVELOPMENT AND IMPLEMENTATION

DOCDATE	OSWER/EPA ID	DOCNUMBER
1/1/2004	OSWER 9355.4-28	C561

TITLE
CLOSE OUT PROCEDURES FOR NATIONAL PRIORITIES LIST SITES

DOCDATE	OSWER/EPA ID	DOCNUMBER
1/1/2000	OSWER 9320.2-09A-P	C621

TITLE
DRINKING WATER HEALTH ADVISORY FOR MANGANESE

DOCDATE	OSWER/EPA ID	DOCNUMBER
1/1/2004	EPA-822-R-04-003	C636

TITLE
2004 EDITION OF THE DRINKING WATER STANDARDS AND HEALTH ADVISORIES

DOCDATE	OSWER/EPA ID	DOCNUMBER
11/1/2004	EPA-822-R-04-005	C637

TITLE
SUPPLEMENTAL GUIDANCE FOR ASSESSING SUSCEPTIBILITY FROM EARLY-LIFE EXPOSURE TO CARCINOGENS

DOCDATE	OSWER/EPA ID	DOCNUMBER
3/5/2005	EPA/630/R-03/003F	C638