U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

RECORD OF DECISION AMENDMENT

KEARSARGE METALLURGICAL CORPORATION
SUPERFUND SITE
CONWAY, NEW HAMPSHIRE

SEPTEMBER 2012

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September 2012

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List of Abbreviations

1,1- DCA: 1,1-Dichloroethane.

1,1-DCE: 1,1-Dichloroethene.

1,2-DCA: 1,2-Dichloroethane.

1990 ROD: 1990 EPA Record of Decision.

2003 ESD: 2003 Explanation of Significant Differences, EPA Region 1, September 2003.

2012 AROD: 2012 Amended Record of Decision.

µg/g: Micrograms per gram or parts per million.

µg/ℓ: Micrograms per liter or parts per billion.

AGQS: State of New Hampshire Ambient Groundwater Quality Standards.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act.

CFR: Code of Federal Regulations.

COC: Contaminant of Concern.

CVFD: Conway Village Fire District.

EPA: Environmental Protection Agency.

EPA FFS: EPA Focused Feasibility Study, January 2012.

GPTS: Groundwater Pump-and-Treat System.

KMC: Kearsarge Metallurgical Corporation.

MAROS: Monitoring and Remediation Optimization System software.

MNA: Monitored Natural Attenuation.

NCP: National Contingency Plan.

ng/g: Nanograms per gram or parts per billion.

NHBSWM: New Hampshire Bureau of Solid Waste Management.

NHDES: New Hampshire Department of Environmental Services.

NHWSPCC: New Hampshire Water Supply and Pollution Control Commission.

O&M: Operation and Maintenance

OSRR: EPA Region 1, Office of Site Remediation and Restoration.

TCA: 1,1,1-Trichloroethane.

VC: Vinyl Chloride.

VOC: Volatile Organic Compound.

Weston FFS: Weston Solutions, Inc., Focused Feasibility Study, December 2010.

PART ONE: DECLARATION FOR THE RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Kearsarge Metallurgical Corporation (KMC), Carroll County, Conway, New Hampshire 03818
EPA Id #: NHD062002001, Site #: 0101105, Operable Unit #2, Groundwater.

STATEMENT OF BASIS AND PURPOSE

This decision document presents an amendment to the selected remedial action for the Kearsarge Metallurgical Corporation (the Site), in Conway, New Hampshire. This remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC § 9601 *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as amended, 40 CFR Part 300. The Director of the Office of Site Remediation and Restoration (OSRR) has been delegated the authority to approve this Amended Record of Decision.

This decision was 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 Conway Public Library and at the United States Environmental Protection Agency (EPA), Region 1, Office of Site Remediation and Restoration (OSRR) Records Center in Boston, Massachusetts. The Administrative Record Index (Appendix B to this Amended ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

The State of New Hampshire concurs with the selected remedy.

RATIONALE FOR THE AMENDMENT

In a 1990 Record of Decision (1990 ROD) EPA, with the concurrence of the New Hampshire Department of Environmental Services (NHDES), selected a comprehensive remedy for the Site that addressed groundwater as well as contaminated soils and materials. EPA began implementing the remedy in 1992 by removing 13,620 tons of waste pile material, 41.85 tons of crushed drums, a solvent-contaminated septic tank and 12 yards of contaminated septic soils. In 1993 EPA designed and built a groundwater pump-and-treat facility that removed contaminated groundwater from the aquifer beneath the Site, treated that water to drinking water standards and discharged that water to the Conway Village Fire District Sewage Treatment Facility for disposal.

The groundwater treatment plant attained cleanup levels through much of the Site by the late 1990's except for an area east of the treatment building. Because groundwater contaminant recovery had reached an asymptote and cleanup levels had not yet been reached, in 2003 NHDES excavated an additional 5,670 tons of contaminated, saturated soils. After the excavation, NHDES replaced the groundwater recovery wells with a groundwater recovery trench. NHDES operated the groundwater extraction and treatment plant until December 2005. Following additional contaminant recovery, EPA then agreed to halt groundwater recovery to assess the Site conditions.

A 2009 assessment of the Site using the Monitoring and Remediation Optimization System software (MAROS) found the following:

- Active remediation from 1993 to 2005 had diminished contamination at the Site and that the majority of monitoring wells showed no, or low and decreasing, levels of contamination.
- The contaminant plume was stable and restricted to a small area of shallow groundwater that was on the KMC property.
- Biotic and abiotic degradation pathways were actively transforming the contaminants at the Site.

In 2010 a Focused Feasibility Study (2010 FFS) found that 225 pounds of volatile organic compound (VOC) contaminants had been removed by the pump-and-treat system, approximately 150 pounds had been removed by the 2003 excavation, and that less than 3 pounds of VOCs remained in the subsurface, primarily attached to saturated silt. A residual plume of groundwater contamination was found to exist in a 20,000 square-foot area in saturated silts that are approximately 4 to 6 feet thick. It was determined that greater than 99% of the contaminants had been removed from the Site.

Based on the conclusions in the MAROS report and the 2010 FFS, a 2012 Focused Feasibility Study performed by EPA (2012 FFS) evaluated the potential of an alternative remedy, Monitored Natural Attenuation (MNA) to replace the current Groundwater Pump-and-Treat System remedy (GPTS). The 2012 FFS concluded that the MNA alternative provided similar overall protection in a similar timeframe at significantly lower cost than the GPTS.

EPA presented the results of that analysis and the MNA alternative remedy as EPA's preferred alternative in a Proposed Plan and Public Meeting in Conway, New Hampshire on May 22, 2012. No comments were received either during the public comment period or the Public Hearing on June 19, 2012 in Conway, New Hampshire.

ASSESSMENT OF THE SITE

Contamination at the Site originated from the waste handling practices of the Kearsarge Metallurgical Corporation (KMC) that produced precision stainless steel castings from 1964 until 1982. Following remedial efforts by EPA and NHDES from 1992 to 2005, only a small area of groundwater remains contaminated. The primary contaminants at the Site include 1,1,1-Trichloroethane (TCA) and its degradation product 1,1-Dichloroethene (1,1-DCE). Other contaminants at the Site include 1,1-Dichloroethane (1,1-DCA), 1,2-Dichloroethane (1,2-DCA), and Vinyl Chloride (VC). Recent sampling has indicated that 1,4-Dioxane is also present at the Site at concentrations that exceed the State of New Hampshire Ambient Groundwater Quality Standards (AGQS).

The 9-acre Site consists of lots 140 and 139 shown on the Town of Conway Tax Map 277. These lots were abandoned by the owners and the Town officials have expressed an intention to foreclose on the properties for the unpaid back taxes and auction the two lots to a new owner for reuse. The area is zoned commercial and the intention is that the reuse will be for commercial

purposes. Pursuant to CERCLA, EPA and the State have taken all of the equipment from the GPTS building that can be used on other sites and will offer the building and its remaining contents to the Town. A future owner may use the structures on the Site, the former KMC building and the GPTS. EPA believes that this reuse will not incur unacceptable risk to workers.

The response action selected in this 2012 Record of Decision Amendment (2012 AROD) is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

DESCRIPTION OF THE RECORD OF DECISION AMENDMENT

This 2012 AROD changes only the groundwater remedy component of the 1990 ROD. All other components of the Site remedy are complete. The changes to the 1990 ROD are:

1. The GPTS installed pursuant to the 1990 ROD is replaced by MNA. MNA will consist of annual monitoring and assessing the progress of contaminant degradation. Because MNA is an innovative remedy, contingent actions to address contaminants *in situ* and with small-scale pump-and-treat are also components of this remedy.
2. A cleanup level for 1,4-Dioxane is established based on the recently established State of New Hampshire AGQS of 3 µg/ℓ.
3. The cleanup level for 1,1-DCA is changed from 3,650 µg/ℓ, which was established in the September 2003 Explanation of Significant Differences (2003 ESD), to 81 µg/ℓ, which is based on the recently established AGQS value.
4. Revise the Activity and Use Restriction (AUR) that was placed on the 9 acre parcel of land, to allow the future construction of residential homes or other non-industrial or non-commercial buildings with adequate engineering controls to prevent the real or potential unacceptable risk from vapor intrusion.

This 2012 AROD will provide a comprehensive approach for this Site that addresses all current and potential future risks caused by groundwater contamination. The remedial measures will prevent further flow of contaminants from the Site in groundwater and restore groundwater to concentrations at or below the drinking water standards through natural processes.

STATUTORY DECISIONS

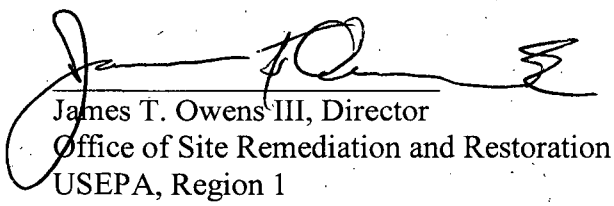
The selected remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. This remedy also satisfies the statutory preference for treatment as a principal element of the remedy. MNA reduces the volume of contaminants through *in situ* biotic and abiotic transformations. Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure (groundwater and land use restrictions are necessary until cleanup levels are met), 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.

RECORD OF DECISION AMENDMENT DATA CERTIFICATION CHECKLIST
The following information and relevant updates are included in the 2012 AROD. Additional information can be found in the Administrative Record for this Site.

1. Contaminants and their respective concentrations.
2. Baseline risk represented by the contaminants.
3. Cleanup levels established for contaminants and the basis for the levels.
4. Current and reasonably anticipated future land and groundwater use assumptions used in the baseline risk assessment and the ROD Amendment.
5. Potential land and groundwater use that will be available at the Site as a result of the selected remedy.
6. 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.
7. Decisive factors that led to amending the original 1990 ROD.

AUTHORIZING SIGNATURES
This 2012 AROD documents the selected remedy for the Kearsarge Metallurgical Corporation Superfund Site, Operable Unit #2. This remedy was selected by USEPA with concurrence of the New Hampshire Department of Environmental Services.

U.S. Environmental Protection Agency

By:  Date: 9/18/12

James T. Owens III, Director
Office of Site Remediation and Restoration
USEPA, Region 1

PART TWO: THE RECORD OF DECISION AMENDMENT – DECISION SUMMARY

A. THE SUPERFUND SITE AND RATIONALE FOR THE AMENDMENT

SITE NAME: Kearsarge Metallurgical Corporation. EPA ID# NHD062002001.

SITE LOCATION: The Kearsarge Metallurgical Corporation Superfund Site (the Site) is located in an industrial park on the western edge of Conway, New Hampshire, on the southeast side of Hobbs Street (formerly Mill Street), Conway, New Hampshire 03818. The Site and area surrounding the Site is served by public water and sewer provided by the Conway Village Fire District (CVFD). The closest water supply wells, CVD-1 and CVD-2, lie nearly 1 mile to the north of the Site. The Site property and water supply wells are shown on Figure 1.

FIGURE 1. The Site location.

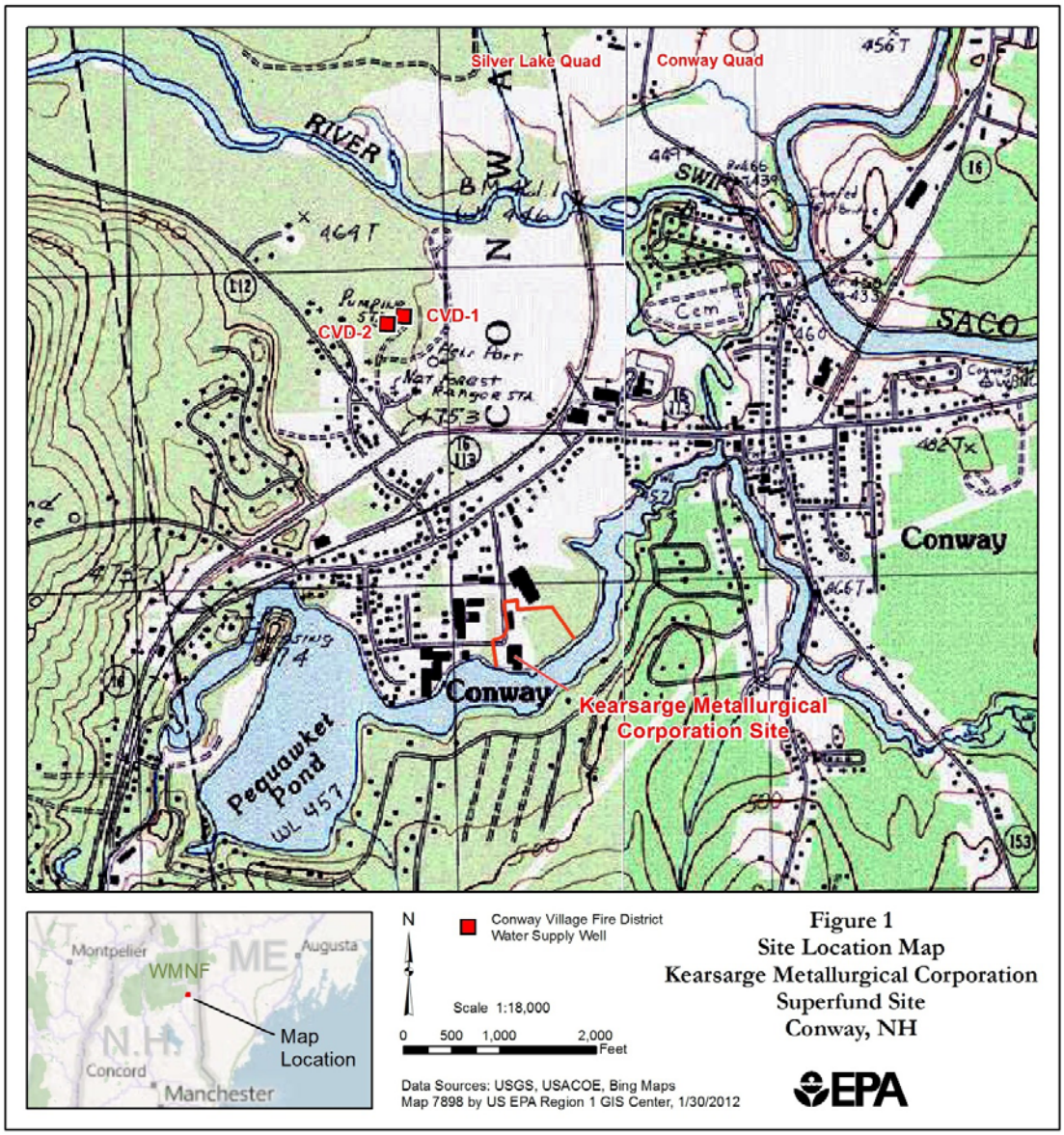


Figure 1
Site Location Map
Kearsarge Metallurgical Corporation
Superfund Site
Conway, NH

SITE DESCRIPTION: The Site is an abandoned metal foundry that was operated by the Kearsarge Metallurgical Corporation (KMC). The approximately 9 acre property consists of two lots, lot 140 and 139, shown on Town of Conway Tax Map 277. Both lots were abandoned by their owners. Lot 140, formerly owned by OCR, Inc., is primarily wetland and is bisected by a storm drain pipe. Two buildings are located on lot 139 : the original, dilapidated KMC building and a 4,000 ft^2 groundwater treatment plant built by EPA in 1993 on the northern portion of the KMC property.

The KMC building is surrounded by a six-foot high chain-link fence installed by the New Hampshire Department of Environmental Services (NHDES) to prevent unauthorized trespass and exposure to physical hazards from the building. The groundwater treatment plant was part of the Groundwater Pump-and Treat System (GPTS). A network of wells extracted contaminated groundwater from both the east and west sides of Hobbs Street and directed it to the groundwater treatment plant. The treatment plant has been decommissioned and equipment needed by other agencies has already been removed. Some tanks and other equipment remain in the building. The extraction wells were properly abandoned and the connections from the well field to the groundwater treatment plant was severed in June 2012.

The topography of the surrounding area is flat, with several nearby large buildings north of the Site housing various commercial enterprises. A residential area is 800-feet west of the KMC property. The grounds surrounding the KMC building are overgrown with native vegetation. Further east of both the KMC building and the treatment plant are pioneer tree species such as birch and poplar that lie within a wooded wetland. A surface water drainage culvert bisects the KMC property and conveys storm water runoff from the parking lot for the former Yield House parcel to the north of the Site into Pequawket Pond which lies on the southern border of the Site.

Contaminated groundwater at the Site is confined to a four to six foot thick, low-permeability silt that lies five to six feet beneath a wetland east of the KMC Buildings and west of the surface water drainage culvert. Bedrock lies 100 to 120 feet below the ground surface. The groundwater in the area has been determined to be of Medium Use and Value.[1] An independent assessment using pump tests and modeling found that it is unlikely that Site contaminants would impact the public drinking water wells to the north.[2] The approximately 9 acre property, consisting of the two abandoned lots, is shown on Figure 2 with other details of the Site.

[1] Thomas S. Burack, Commissioner, New Hampshire Department of Environmental Services, to James T. Owens, Director, EPA Office of Site Remediation and Restoration *Groundwater Use and Value Determination*, February 9, 2012.

[2] Emery &Garrett Groundwater, Inc., *Groundwater Supply Assessment Conway Village Fire District Production Wells CVD-1 and DVD-2 Eight-Day Pumping Test and Water Quality Analyses,* Conducted for the Conway Village Fire District Conway, New Hampshire. January 2008.

FIGURE 2. Details of the Site and surrounding area.

RATIONALE FOR THE AMENDMENT: On September 28, 1990 EPA, with the concurrence of NHDES, issued the 1990 Record of Decision (the 1990 ROD) for the Kearsarge Metallurgical Corporation Site. The 1990 ROD selected the final remedial action for the Site and established target cleanup goals for a waste pile, soils and groundwater. All components of the 1990 ROD were implemented. The cleanup goals for surface soils and the waste pile were met in 1992. The GPTS was built and began operating in 1993.[3]

During the time the GPTS operated from 1993 to 2005, EPA and NHDES optimized the extraction system to maximize recovery of contaminants.[4] To hasten groundwater cleanup, NHDES, with EPA funding, also excavated and removed 5,670 tons of solvent-contaminated soils from the aquifer at the Site in 2003. It was estimated that this excavation removed 150 pounds of contaminants from the subsurface. Although the excavation did not remove all contaminated soils, it was determined that additional excavation would be impractical.[5] Groundwater extraction resumed and continued until December 2005 when EPA and NHDES agreed to stop extraction and treatment to observe the behavior of the remaining contaminants. In 2005, the final year of operation of the GPTS, less than 1 pound of contamination was removed at a cost of more than $200,000 for operation and maintenance (O&M) of the GPTS.

During 12 years of extracting and treating contaminated groundwater, approximately 225 pounds of Site contaminants were removed from the aquifer underlying the Site. Including the150 pounds removed during the 2003 excavation, approximately 375 pounds of contaminants were removed from the aquifer from 1993 to 2005. Based on post-excavation soil gas surveys, it was estimated that approximately 3 pounds of contaminants remained in the aquifer.[6] The remedial actions performed from 1993 to 2005 removed greater than 99% of the groundwater contamination.

The remaining 3 pounds of contamination at the Site are located approximately 8 to 9 feet below the ground surface in approximately 1,300 cubic yards of saturated silt located in a wetland 100 feet east of the GPTS building. The properties of the silt prevent efficient withdrawal of the remaining contaminants by pumping. Reverse matrix diffusion, the slow desorption of contaminants from the silt and saturated soils within the aquifer, controls the rate of groundwater cleanup. EPA evaluated alternative means to address the remaining contaminants and determined that Monitored Natural Attenuation (MNA) would be the most viable available alternative to the present GPTS.

[3] EPA Region 1, *Focused Feasibility Study, Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire*, January 2012, 76 pages.

[4] EPA Region 1, *Focused Feasibility Study*, 76 pages.

[5] Weston Solutions, Inc., *Technical Memorandum, Soil Removal Cost Estimate*, *Kearsarge Metallurgical Corporation Site*, June 8, 2012.

[6] Weston Solutions, Inc., *Geoprobe Investigation Report*, *Kearsarge Metallurgical Corporation, Conway, New Hampshire*, 2008.

Model results for attaining cleanup levels through the current GPTS, were found to be similar to those of MNA.[7] The approximate, modeled cleanup times for GPTS and MNA were 15 and 18 years, respectively. The projected cost of continuing the current remedy, GPTS, is $2.6 million over 15 years at a discount rate of 7%. The primary cost of MNA is monitoring. The projected cost of the MNA remedy is $731,000 over 18 years at a discount rate of 7%.[8]

EPA also determined that no unacceptable current human health or ecological risk exists at the Site. Future risks were found to exist if groundwater is used for drinking water or through vapor intrusion of groundwater contaminants if residential homes without engineering controls are built over the contaminant plume. There was no unacceptable risk for workers under commercial or industrial use.[9]

This Amended Record of Decision changes the method of groundwater cleanup from groundwater pump-and-treat to MNA. Because MNA is an innovative remedy, contingent remedies of *in situ* chemical treatment and small-scale pump-and-treat are included in the selected cleanup plan in the event MNA does not reduce Site contamination to acceptable levels. The current GPTS, including the groundwater treatment plant shown on Figure 2, will no longer be used in attaining cleanup goals and the building will be relinquished to the Town to be restored for re-use.

It was determined that MNA could attain cleanup levels for all of the groundwater contaminants except 1,4-Dioxane.[10] Regardless of this, MNA was selected as the preferred remedy because 1,4-Dioxane is found at relatively low concentrations and in only three wells isolated to a small portion of the Site. The three contaminated wells lie next to the Drainage Culvert in an area approximately 100 feet by 25 feet.

Because 1,4-Dioxane was only recently found to pose a risk to human health, monitoring only began in 2009. Monitoring of this contaminant will continue with the purpose of determining if the plume of 1,4-Dioxane is stable and if MNA will attain cleanup levels in a time-frame similar to the other groundwater contaminants. If the selected contingent remedies must be implemented, they can be designed to destroy the contaminant.

The cleanup level for 1,1 dichloroethane was set in the 1990 Record of Decision at 4 ppb based on health risk calculations at that time, but was increased to 3,650 ppb based on a change in toxicity factors, as documented in the 2003 Explanation of Significant Differences. EPA is now revising the cleanup level for 1,1 dichloroethane to 81 ppb based on a new Ambient Groundwater Quality Standard established by New Hampshire. EPA is also establishing a cleanup level for 1,4 dioxane of 3 ppb based on the most recent New Hampshire Ambient Groundwater Quality Standard.

[7] EPA Region 1, *Focused Feasibility Study*, Appendices A and C.

[8] EPA Region 1, *Focused Feasibility Study*, Appendix B.

[9] EPA Region 1, *Focused Feasibility Study*, pages 19-22.

[10] EPA Region 1, *Focused Feasibility Study*, Appendix C.

The documents that form the basis for this Amendment are available at the following Information Repositories:

EPA Records Center, John W. McCormack Building, 5 Post Office Square, First Floor, Boston, MA 02109-3912. Phone: (617) 918-1440.

New Hampshire Department of Environmental Services, 29 Hazen Drive, Concord, NH 03302. Phone: (603) 271-3644.

Conway Public Library, 15 E. Main Street, Conway, New Hampshire 03818. Phone: (603) 447-5552.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

KMC manufactured stainless steel valves and materials through high-quality castings using the lost-wax process. The lost-wax process produced waste casting sands and solvents. These solvents and casting sands were disposed in a wooded wetland just east of the old KMC building shown on Figure 2 in the area labeled "1992 Source Removal Area now wetland." Solvents were also discharged through the on-site septic system that was located between the old KMC building and the 1992 Source Removal Area.

Based on the Remedial Investigation and Feasibility Study performed by Camp, Dresser and McKee, Inc., under the direction of NHDES, EPA issued the 1990 ROD that selected both Source Control and Management of Migration remedies for the Site.[11,12] The Source Control component of the remedy required disposal of septic system components and soils, as well as a waste pile. EPA performed the Source Control component in 1992 by removing and disposing of 13,620 tons of waste pile material, 41.85 tons of crushed drums, a solvent-contaminated septic tank and 12 yards of contaminated septic soils from the area labeled "1992 Source Removal Area."[13] The Management of Migration component required construction of the GPTS. Construction was completed in 1993 and operations began in September 1993 with the GPTS operating at the approximate rate of 40 gallons per minute. From 1993 to 2005, GPTS removed and treated approximately 250 million gallons of contaminated water. Table 1, below, summarizes the critical events in the history of the KMC Site.

[11] Camp, Dresser and McKee, Inc., *Remedial Investigation/Feasibility Study Report, Kearsarge Metallurgical Corporation Hazardous Waste Site, Conway, New Hampshire*, June 1990.

[12] U.S. Environmental Protection Agency, *Region 1, Record of Decision, Kearsarge Metallurgical Corporation , Conway, New Hampshire*, September 28, 1990.

[13] Dean Tagliaferro, OSC, Lexington Lab, EPA Region 1, *On-Scene Coordinator's Report, Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire, July 15, 1992 – October 15, 1992*, page 1.

Table 1. Chronology of Site Events.

Date	Event
Pre-1964	Operation of Site as a sawmill.
1964 – 1982	Operation of Site as KMC for manufacture of stainless steel castings.
1970s	Discharge of acids, chlorinated solvents, caustics, and flammable liquids to ground surface (waste piles) and septic system.
1979	New Hampshire Water Supply and Pollution Control Commission notifies KMC that discharges to ground/septic system are illegal.
September 1981	EPA and New Hampshire Bureau of Solid Waste Management (NHBSWM) issue verbal order to re-containerize corroded drums in the waste piles.
December 1981	NHBSWM issues Letter of Deficiency to KMC.
1982	Indian Head Bank takes possession of KMC Lot 8 (now Lot 140). Site abandoned.
June 1982	Containerized wastes removed from the Site in response to verbal order from EPA and NHBSWM.
October 1982	NHBSWM issues a Notice of Violation and Order of Abatement to KMC.
December 1982	NHBSWM begins hydrologic investigation of Site.
May 1983	EPA and NHBSWM order KMC to remove waste piles from the Site.
September 21, 1984	KMC Site added to the NPL.
July 1985	Consent Order – State of New Hampshire vs. KMC, orders KMC to perform Remedial Investigation/Feasibility Study (RI/FS).
July 1985	Commencement of RI/FS activities by GEI, KMC's contractor.
1987	After producing four draft documents, the insurance carriers for KMC cease funding the RI/FS.
1988	Through a cooperative agreement with EPA, NHDES selects Camp, Dresser and McKee, Inc. (CDM), to complete the RI/FS.
June 1990	CDM completes the RI/FS. EPA releases the RI/FS and Proposed Plan to the public.
September 1990	Action Memorandum issued by EPA requiring removal of seven drums of uncharacterized materials from the Site.
September 28, 1990	ROD signed by EPA to perform Source Control and construct a GPTS.
August 1992	Explanation of Significant Differences (ESD) is issued by EPA to describe changes and clarifications to the 1990 ROD.
September 1992	Source Control Completed. EPA removed and disposed of 13,620 tons of waste pile material, 41.85 tons of crushed drums, a solvent-contaminated septic tank and 12 yards of contaminated septic soils
September 1992 to 1993	GPTS was designed, built and began operation, pumping and treating 40 gallons of contaminated groundwater per minute.
May 9, 1994	EPA determines that the GPTS was functioning properly and performing as designed.

Table 1. Chronology of Site Events.

Date	Event
May 9, 1994 – May 31, 2004	Long-term response action (LTRA), the period of operation funded by EPA to pump-and-treat groundwater.
August 1, 1994	Cooperative Agreement between the EPA and NHDES documenting the takeover by NHDES of the LTRA.
July 1998	First SARA Five-Year Review completed.
October 1999	An active soil gas survey conducted by EPA.
October 2000	GPTS was modified by installing a groundwater recovery trench and extraction well EW-13A.
January 2001	Extraction trench installed and groundwater recovery begins through well EW-13A.
January 2001	Capture zone analysis performed for Conway Village Fire District Wells No. 1 and No.2.
April 2002	Passive soil gas survey completed by WESTON for NHDES.
August 2002	Vertical profiling study completed by WESTON for NHDES.
December 2002	Geoprobe coring investigations completed by WESTON and a report of the results issued.
March 2003	EPA and NHDES met with Conway's town engineer to discuss Site remediation and obtain Town's feedback on excavation of saturated soils.
July 2003	EPA and NHDES attended Town of Conway selectmen's meeting to review future excavation activities, give overview of Site status, and respond to questions.
September 2003	ESD providing for additional source material excavation and modification of the cleanup level for 1,1-DCA from 4 µg/ℓ to 3,650 µg/ℓ.
September 30, 2003	Second Five-Year Review completed by EPA Region I.
October through December 2003	Approximately 5,670 tons of soils contaminated with chlorinated solvents were excavated and removed from the Site as part of additional source material excavation.
February 2004	New extraction well EW-13B installed in excavation area and pumping begun.
February 2004	Discontinued pumping from the Hobbs Street Extraction Wells (EW-01, EW-02, EW-03) due to attainment of cleanup goals in that area.
May 31, 2004	Ten years of LTRA completed. NHDES assumes full responsibility for O&M.
June 2004	Source Removal Action Completion Report completed for NHDES by WESTON Solutions, Inc.
June 2004	Catalogue of Wells, Piezometers and Other Subsurface Investigations Report completed by WESTON Solutions, Inc.
September 2004	Kearsarge Metallurgical Corporation Reuse Assessment completed

Table 1. Chronology of Site Events.

Date	Event
Early December 2005	GPTS turned off as agreed to by EPA and NHDES to allow stabilization phase to begin.
March 29, 2007	Preliminary Draft Post-Source Removal Data Evaluation Report completed by WESTON Solutions, Inc.
September 26, 2008	Third Five-Year review issued by EPA.
December 2009	EPA issues a 2009 report that evaluated the remaining groundwater contamination at the Site using the Monitoring and Remediation Optimization System (MAROS) software.
April 19, 2010	EPA issues an Explanation of Significant Differences to require Institutional Controls for the Site..
August 30, 2011	Institutional Control (Activity and Use Restriction) recorded by Carroll County Register of Deeds.

Table 1 shows enforcement activities beginning at the Site in the 1970's and lasting until 1987. EPA did issue Special Notice letters to 4 parties; however, subsequent negotiations failed to find any viable Potentially Responsible Parties (PRPs) liable for cleanup activities at the Site. As a result the cleanup of the Site was funded by EPA and NHDES.

C. COMMUNITY PARTICIPATION

This ROD Amendment meets the criteria for community involvement specified in Sections 300.435(c)(2)(ii)(A) through (H) of the NCP. Throughout the Site's history, community concern and involvement has varied. In 1990 three public comments were received regarding EPA's Proposed Plan for Site cleanup. Those comments concerned the speed of the remedy, the effect of the proposed remedies on neighboring businesses, and other potential remedies. During the Public Hearing for this ROD Amendment held on June 19, 2012 only the Town Manager, the Director of the Department of Public Works, a Selectman, and the camera operator were present. No comments were received during the Public Hearing or during the 30-day Public Comment Period.

D. IMPLEMENTATION OF THE 1990 RECORD OF DECISION

The 1990 ROD had two components: Source Control and Management of Migration. The selected source control remedy required the excavation of a waste pile, septic system and associated septic system soils, segregation of solid and hazardous wastes, and disposal of the excavated wastes at solid waste and hazardous waste landfills. In 1992, this remedy was fully implemented and attained all cleanup levels. The 1990 ROD cost estimate was $3,256,000, the actual expenditure by EPA in completing the Source Control remedy, Operable Unit 1, was $3,399,289.[14]

[14] U.S. Environmental Protection Agency, *1990 Record of Decision*, p. 24.

The 1990 ROD management of migration remedy required designing and building a 40 gallon-per-minute groundwater extraction network and treatment facility. The treated groundwater was to be discharged to a publicly-owned treatment works. The estimated cost of this component was $2,891,000 to design and build and $1,044,000 to operate it over 10 years.[15] The actual remedial design cost was $938,112 and construction cost $3,731,012 for a total capital cost of $4,669,124. EPA spent an additional $3,570,804 to operate the treatment facility over 11 years and with the State's 10% matching funds, the total cost of this component of the remedy was approximately $9,000,000. It was originally estimated that the facility would need to operate 10 years to attain cleanup levels outlined in Table 2.

Table 2. Groundwater Cleanup Levels established in the 1990 ROD and the contaminant concentrations in 1990.[16]

Contaminant	Cleanup Level (µg/ℓ)	Maximum Concentration in 1990 (µg/ℓ)[17]	Frequency of detection[18]
Chloroform	100	171	3/24
1,1 Dichloroethane	3,650[19]	1,560	9/24
1,2 Dichloroethane	5	1,460	1/10
1,1 Dichloroethylene	7	615	4/10
Trichloroethylene	5	118	2/10
1,1,1 Trichloroethane	200	18,500	7/10
Chromium	50	10	1/24
Nickel	700	4,700	3/24

Subsequent to the 1990 ROD, there have been three Explanation of Significant Differences (ESDs) issued to address minor changes to the original remedy. The first ESD was issued in August, 1992, to allow for the offsite disposal of contaminated soil at a licensed Subtitle C RCRA landfill *in-lieu* of incineration and the incineration of a contaminated septic tank and 12 cubic yards of contaminated septic soils. This ESD also corrected a typographical error in the 1990 ROD that listed the cleanup level for chromium in the waste pile as ng/g or parts per billion to the correct units of µg/g or parts per million.

[15] U.S. Environmental Protection Agency, *1990 Record of Decision*, pp. 28-29.

[16] U.S. Environmental Protection Agency, *1990 Record of Decision*, page 40.

[17] U.S. Environmental Protection Agency, *1990 Record of Decision*, page 12.

[18] Maximum concentration and frequency were selected from one of two sampling periods, May 1989 and February 1990.

[19] The 1990 ROD identified a cleanup level of 4 ppb or µg/ℓ. Subsequent to that EPA evaluated the toxicity data used to establish the 1990 cleanup levels and in the September 29, 2003 Explanation of Significant Differences the Cleanup Level was increased to 3,650 ppb or µg/ℓ. Subsequently, the State of New Hampshire has established an Ambient Water Quality Criterion of 81 ppb or µg/ℓ, which will be the new cleanup level for 1,1-DCA established by this ROD Amendment.

In April 2002, because groundwater contaminant recovery had reached an asymptote but not all groundwater cleanup levels had been attained, a soil-gas investigation was conducted. That investigation found that a localized area of saturated subsurface Site soils still held significant quantities of solvent-contaminants and as a result were impacting groundwater.

EPA issued a second ESD in September, 2003. The 2003 ESD modified the original remedy to remove contaminated aquifer materials that acted as a continuing source of contaminants to groundwater and improve the extraction system by installing a new groundwater collection trench in the source area. The 2003 ESD also corrected the site-specific groundwater cleanup goal for 1,1-DCA so that it was consistent with then-current toxicity data.

In 2003, with EPA funding, NHDES removed an additional 5,670 tons of soil from the Site and re-configured the groundwater extraction trench. The excavation of contaminated materials and modifications to the collection system were completed by February, 2004 and NHDES resumed operating the GPTS until December 31, 2005.

Since December 2005, the groundwater treatment plant has been inactive to allow the aquifer to reach equilibrium and determine static conditions. As part of the evaluation of groundwater conditions, EPA performed a statistical assessment of contaminant conditions using the Monitoring and Remediation Optimization System software (MAROS). The results of the MAROS assessment were released in a 2009 Report.[20] The 2009 Report made the following findings:

1. Active remediation from 1993 to 2005 diminished contamination at the Site and the majority of monitoring wells showed no or low and decreasing levels of contamination.
2. Biotic and abiotic degradation pathways were actively transforming the contaminants at the Site.
3. Two areas had increasing trends as of 2008. However, due to limited source material the belief was that those concentrations would begin declining. These areas included:
    a. Well MW-3008, located near the drainage culvert, which showed an increasing trend for DCE.
    b. Well MW-3003, located approximately 100-feet east of Hobbs Street, which showed an increasing trend for Trichloroethane (TCA) and 1,1-DCE.
4. There was redundancy in the monitoring well system and the sampling frequency could be reduced. A number of monitoring locations were also declared statistically "clean."

Although the 2009 Report found that biotic and abiotic degradation was reducing the original contaminants at the Site, it also found that one of the daughter products, 1,1-DCE, was a more recalcitrant compound with a more stringent cleanup level (7 ppb) than TCA (200 ppb).[21] The 2009 Report stated that the potential for an expansion of groundwater contamination above cleanup levels was possible in areas still dominated by low concentrations of TCA that degrades

[20] Office of Solid Waste and Emergency Response, *Final Report: Technical Assistance for the Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire, EPA Region 1*. EPA-542-09-014, December 2009.

[21] Office of Solid Waste and Emergency Response, *Final Report*.

to 1,1-DCE.[22] The fate and transport of 1,1-DCE, was found to be a concern and the 2009 Report recommended additional semi-annual monitoring over the next two to three years.[23]

A third ESD was issued in April 2010 to establish Institutional Controls through an Activity and Use Restriction (AUR). This AUR prevents the use of groundwater and the disturbance of any on-site soils to prevent exposure to groundwater.

E. SUMMARY OF PRESENT SITE CONDITIONS AND CONTAMINATION

EPA and NHDES have monitored groundwater since the GPTS was shutdown in December, 2005. Monitoring has found that the plume of contaminants covers a small area on the eastern half of the Site property and consists primarily of 1,1-DCE, 1,1-DCA, 1,2-DCA, and TCA. A contaminant of concern not identified in the 1990 ROD has recently emerged: 1,4-Dioxane. 1,4-Dioxane was commonly used as a stabilizer for chlorinated solvents such as TCA and it is likely that it originated from the Site. It is highly miscible in water and therefore prone to rapid transit in groundwater. Monitoring of this compound began in September 2009. It has been found in low concentrations in three wells associated with higher concentrations of TCA. Prior EPA response actions at the Site did not set a cleanup level for 1,4-Dioxane. New Hampshire has since adopted an Ambient Groundwater Quality Standard (AGQS) of 3 µg/l for 1,4-Dioxane. Because 1,4-Dioxane is a relatively recent contaminant and the concentration and migration trends are uncertain, additional assessments of this compound will be performed. Table 3 lists the concentrations of contaminants found at the Site in January, 2012.

[22] Office of Solid Waste and Emergency Response, *Final Report*, Page 7.

[23] Office of Solid Waste and Emergency Response, *Final Report*, Pages 16 - 17.

Table 3. Kearsarge Metallurgical Corporation Superfund Site Groundwater Monitoring Results, January 2012.

Monitoring Point	TCA ug/ℓ	1,1-DCA ug/ℓ	1,1-DCE ug/ℓ	1,2-DCA ug/ℓ	Chloroform ug/ℓ	TCE ug/ℓ	Vinyl Chloride ug/ℓ	c-1,2-DCE ug/ℓ	1,4-Dioxane ug/ℓ
EW-9	2.4	<1	1	<1	<1	<1	<1	<1	<2
MWS-203A	1.1	7.8	3.5	<1	<1	<1	<1	<1	<2
MW-3003	1.1	<1	<1	<1	<1	<1	<1	<1	<2
MW-3004	<1	<1	<1	<1	<1	<1	<1	<1	<2
MW-3006	9.5	1.3	5.2	<1	<1	<1	<1	<1	<2
MW-3008	2.6	49	100	2	<1	<1	1.1	<1	5.7
MW-3009	10	2.3	6.3	<1	<1	<1	<1	<1	<2
MW-3010	170	190	420	20	<10	<10	<10	<10	41
MW-3011	<1	45	14	<1	<1	<1	<1	<1	6.8
MW-5003	31	4.9	16	<1	<1	<1	<1	<1	<2
PZ-4002	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4003	1.1	<1	<1	<1	<1	<1	<1	<1	<2
CB 5-8[b]	<1	2.2	1.2	<1	<1	<1	<1	<1	<2
Cleanup or Regulatory Level	200	81	7	5	100	5	2	-	3

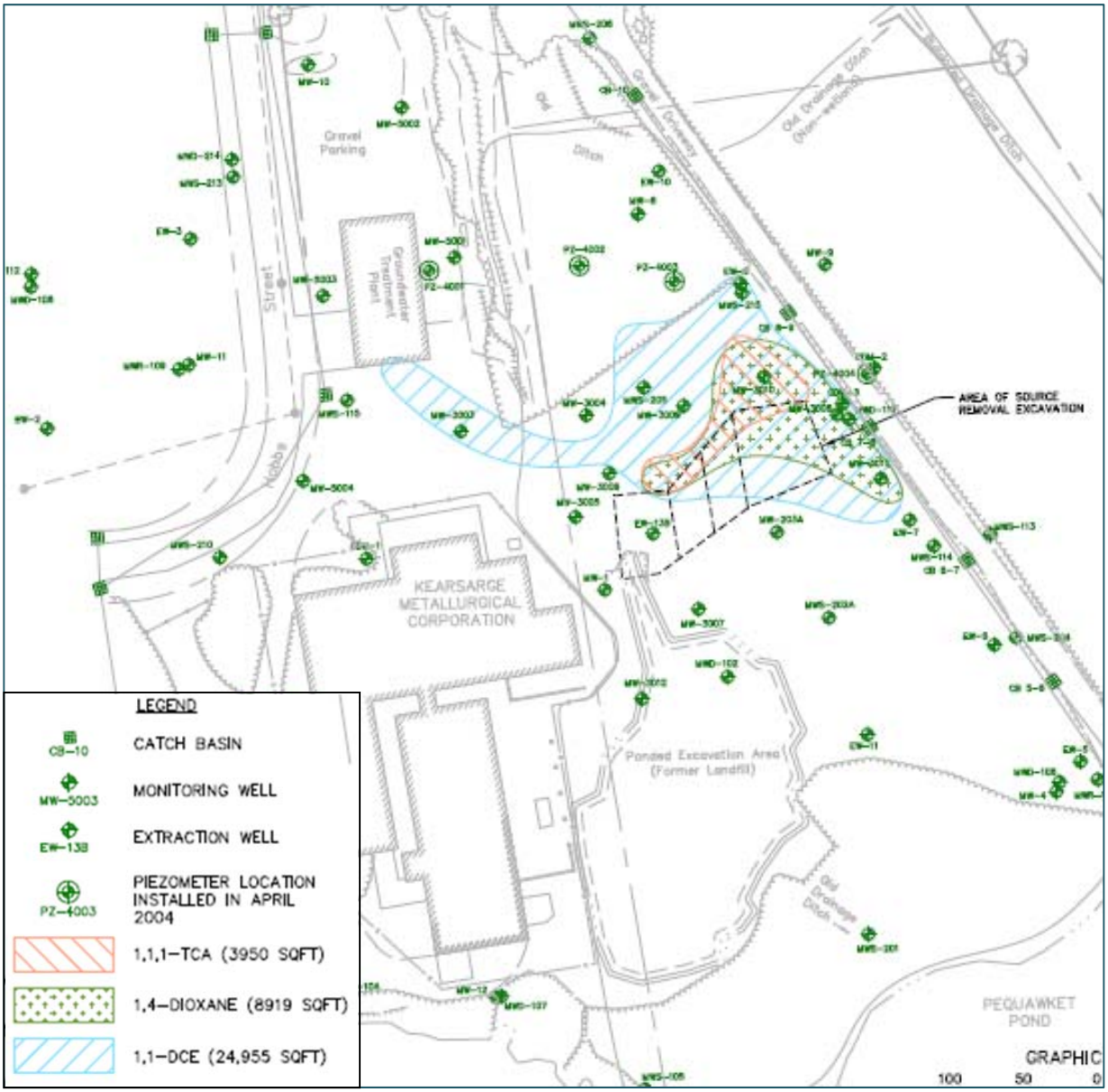
Notes:

[a] Yellow highlighting indicates that the concentration exceeds the Cleanup Level or other regulatory Standard.

[b] CB 5-8 is a catch basin in the storm drain shown on Figure 2 and Figure 4, below. It represents the concentration of water discharging from the drain to Pequawket Pond. The other monitoring points are groundwater wells shown on Figures 2 and 4.

Table 3 shows that the primary remaining contaminant is 1,1-DCE. This contaminant was selected for focus as it has a low cleanup level and the other contaminants are either below cleanup levels or in wells that are also contaminated with 1,1-DCE. Figure 3 shows the extent of the contamination plumes for TCA, 1,1-DCE and 1,4-Dioxane as well as the locations of the monitoring wells. The only wells above cleanup levels noted in Table 3 are within the areas of the contaminant plumes shown in Figure 3.

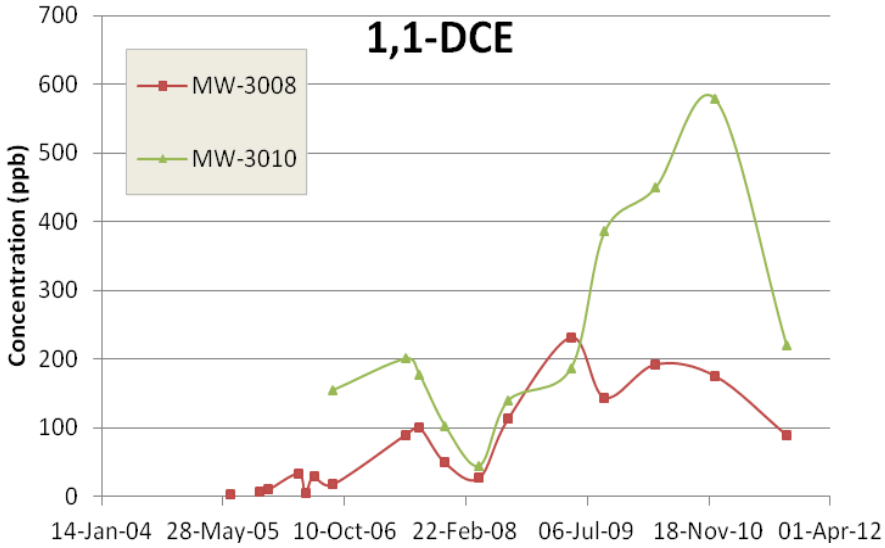
Figure 3. Approximate location of groundwater contaminated with TCA, 1,1-DCE and 1,4-Dioxane.



From: Weston Solutions, Inc., *Revised Draft Final Focused Feasibility Study….*

The two wells with the highest concentration of 1,1-DCE are MW-3010 and MW-3008, containing the majority of the contaminants and the highest concentrations. Figure 4 shows the concentration trends for 1,1-DCE in wells MW-3010 and MW-3008, the two wells with the highest concentrations, since the shutdown of the GPTS in 2005.

Figure 4 – Concentration trends for 1,1-DCE in MW-3010 and MW-3008.



The rebound of 1,1-DCE following shutdown is evident, but appears to be unsteady. The concentrations of contaminants are affected by the groundwater elevation. Pequawket Pond serves as the southern boundary of the Site. The groundwater elevation throughout the Site is controlled largely by the water level maintained in Pequawket Pond by the NHDES Dam Bureau which controls the pond level with boards in the dam. The water level in the pond is rapidly transmitted through the aquifer through the bank and via a storm drain that lies on the eastern border of the Site that is connected directly to the pond. Generally, higher concentrations occur in the fall and winter when the water levels are low, and lower concentrations occur in the spring and summer when water levels are higher. The contaminant trends for TCA, 1,1-DCE, and other contaminants reflect the seasonal trend. Therefore, the effect of the pond's water level at the time samples are collected must be considered when evaluating Site groundwater data.

Overall, the results of groundwater sampling show an overall decline in concentration. The results of the last sampling round were shown in Table 3.

F. SUMMARY OF SITE RISKS

The Site is part of a business park zoned for industrial uses. There are no private water supply wells in the area and all nearby residents and businesses are connected to the public water supply. Although the Site is abandoned and currently unoccupied, the Town plans to acquire the property and convey it to a new owner for a commercial enterprise. It is therefore very likely that the Site could be occupied for commercial/industrial uses at some time in the future. The following section provides an evaluation of risks to human and ecological receptors at the Site based on recent data collected at the Site and current and future use scenarios for the Site.

1. HUMAN HEALTH RISK

The consumption of contaminated groundwater at the Site poses a future risk and groundwater exceeds the MCL for 1,1-DCE, and 1,2-DCA. Although the risk-based concentration for 1,1-DCA, 3,650 µg/ℓ, is not exceeded presently, New Hampshire has established an AGQS of 81 µg/ℓ. Also, the AGQS for 1,4-Dioxane has since been set at 3 µg/ℓ. Therefore, the Cleanup Levels for these compounds at the Site are revised to 81 µg/ℓ and 3 µg/ℓ, respectively. Concentrations of 1,1-DCA and 1,4-Dioxane in groundwater at the Site currently exceed these new Cleanup Levels.

Groundwater from the Site discharges to Pequawket Pond via storm drains; however, contaminant concentrations detected in water samples collected from the storm drain catch basins have been below the NH Surface Water Quality Criteria for human consumption of fish. Therefore, there are no future or current unacceptable risks due to human consumption of fish caught from Pequawket Pond.[24]

The third Five-Year Review in 2008 identified two potential current exposure pathways for Site groundwater contamination that pose risks to human health: ingestion of groundwater and inhalation of contaminants migrating from the groundwater plume into buildings.[25] Because groundwater contamination still exceeds cleanup levels, an Activity and Use Restriction (AUR) prohibiting the use of groundwater was recorded in the chain-of-title for the KMC site.[26] The AUR precludes any unauthorized activities which could cause exposure to Site contamination before the Site cleanup is complete. Such activities would include: disturbing the soil or using groundwater as drinking water. Although none of the soil samples collected from the Culvert Area during the Geoprobe investigations in 2008 contained VOCs that exceeded the NH Soil Remediation Standards for industrial exposure, the prohibition on disturbing soil prevents potential exposure to contaminated groundwater.[27, 28]

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[24] Weston Solutions, Inc., *Revised Draft Final Focused Feasibility Study*, December 2010. Table 4-3.

[25] EPA, Region 1, *2008 Five Year Review*, September 2008. Pages 65 – 66.

[26] State of New Hampshire, *Notice of Activity and Use Restriction*, Document # 0009498, Registry of Deeds, Carroll County, August 30, 2011 @ 11:07 AM, Book #2946, Pages 0727 – 0734.

[27] The NH Soil Remediation Standards that are based on protection of human health risks through direct exposure and leaching to groundwater.

An evaluation of potential risks due to intrusion of VOC vapors into buildings on or near the Site was performed in 2009.[29] Maximum detected groundwater concentrations of chlorinated VOCs were compared to guidance criteria in the *New Hampshire Vapor Intrusion Guidance,* dated July 2006 and revised February 2007 (NHDES, 2007) and to guidance criteria in *EPA OSWER Draft Subsurface Vapor Intrusion Guidance (EPA530-D-02-004)* (EPA, 2002); with noted modifications and adjustments by EPA Region 1. Based on that evaluation, there were no unacceptable risks due to the vapor intrusion pathway to workers. However, since maximum concentrations of VOCs in the contaminant plume increased after that evaluation, vapor intrusion risks were re-evaluated.[30]

More recently, EPA has issued new toxicity values for TCE and PCE, as well as new vapor intrusion screening levels for multiple chemicals. The vapor intrusion screening levels can now be calculated using the Vapor Intrusion Screening Level (VISL) calculator. This calculator considers the target cancer and non-cancer risk levels and the receptor type to either residential or commercial/industrial exposures. In addition, the groundwater temperature can be changed from the default 25 °C to a site-specific groundwater temperature. To update the screening levels for residents and workers, the VISL calculator was set to a cancer risk level of 10^{-4} (the maximum acceptable cancer risk level at Superfund sites), a Hazard Quotient (HQ) =1 (the maximum acceptable non-cancer risk at Superfund sites), and the site-specific groundwater temperature of 12 °C.[31] The lowest target groundwater screening levels for either 10^{-4} cancer risk or HQ =1 are shown in Table 4.

[28] Weston Solutions, Inc., *Revised Draft Final Focused Feasibility Study*, Table 4-1.

[29] Weston Solutions, Inc., 2-page letter to NHDES regarding vapor intrusion, April 14, 2009.

[30] Weston Solutions, Inc., *Revised Draft Final Focused Feasibility Study*, Table 4-2.

[31] Andrew Hoffman, NHDES Site manager, to Darryl Luce, EPA Site Manager, referencing the data sheets from prior sampling rounds.

Table 4. Updated Vapor Intrusion Pathway Analysis, Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire. Table from Weston Solutions, Inc., Revised, Draft Final Focused Feasibility Study, Table 4-2.

Target VOC	Maximum Concentration Detected in 2010[1] (µg/ℓ)	Well	NHDES Groundwater to Indoor Air Screening Levels[2] (µg/ℓ)	MCL (µg/l)	EPA Draft Groundwater to Vapor Intrusion Screening Levels (for residents)[3] (µg/ℓ)	EPA Regional Screening Level for Residential Tapwater[4] (µg/ℓ)	EPA Draft Groundwater to Vapor Intrusion Screening Levels (for Workers) (µg/ℓ)
PCE	<2	None	80	5	130	9.7	540
TCE	<2	None	90	5	11	0.44	44
1,1-DCA	197	MW-3010	10,000	NA	1,200	**2.4**	6,200
1,1-DCE	483	MW-3010	1,000	7	**330**	**260**	1,400
1,1,1-TCA	302	MW-3010	20,000	200	14,000	7,500	60,000
VC	<2	None	10	2	21	0.015	370

Notes:

[1] New Hampshire Department of Environmental Services (NHDES) Laboratory Report, Work Order A002535 dated May 3, 2010. These values are groundwater concentrations and not vapor concentrations.

[2] NHDES Vapor Intrusion Guidance, July 2006, revised February 2007, relative to exposure to commercial & industrial workers.

[3] The vapor intrusion groundwater screening levels represent the lower of either 10^{-4} cancer risk or a hazard quotient of 1.

[4] The EPA Regional Screening Levels for tapwater represent the lower of either 10^{-6} cancer risk or a hazard quotient of 1.

The EPA regional screening levels are from: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_run_MAY2012.pdf.
The EPA groundwater to vapor intrusion screening levels are from: http://www.epa.gov/oswer/vaporintrusion/guidance.html#Item6.
Numbers in **bold** exceed vapor intrusion screening levels.
Screening level for workers is 6.3 times higher than for residents due to shorter exposure frequency (250 vs. 350 days/year), shorter exposure duration (20 vs. 30 years) and shorter exposure time (8 vs. 24 hours/day).

PCE = tetrachloroethylene, TCE = trichloroethylene, DCA = dichloroethane, DCE = dichloroethene, TCA = trichloroethane, VC = vinyl chloride, VOC = volatile organic compound, NA = not applicable, µg/ℓ = micrograms per liter = parts per billion.

The updated results indicate that the maximum detected concentration exceeds the tapwater RSL for 1,1-DCE and the vapor intrusion groundwater target level for residents for 1,1-DCE and 1,1-DCA, at the maximum acceptable cancer risk of 10^{-4} and HQ = 1. Although the maximum concentration of 1,1-DCE exceeds the tapwater RSL, there is no current residential risk because there are currently no residences within 800 feet of the groundwater plume. Future residential exposures will be prevented through the use of Institutional Controls that prohibit residential or other non-commercial/non-industrial uses without adequate engineering controls to prevent exposure from vapor intrusion, and the eventual attainment of Cleanup Levels. The maximum detected concentration of 1,1-DCE does not exceed the vapor intrusion groundwater target level for workers at the maximum acceptable cancer risk of 10^{-4} and HQ = 1. As a result, there are no current or future unacceptable risks of 1,1-DCE to workers via the vapor intrusion pathway. Since this analysis is based on a chemical by chemical approach, there is some uncertainty whether the cumulative risk of multiple chemicals of concern could result in an unacceptable vapor intrusion risk to workers. This is considered to be highly unlikely, especially since the highest detected concentrations were obtained from one well in a wetland, where construction of buildings will not occur.

2. RISK TO ENVIRONMENT

The 1990 Feasibility Study identified the waste pile as the major risk to ecological receptors at the Site. In addition, TCA contaminated groundwater posed a low level chronic risk to the wetland/pond ecosystem as it entered surface water. The ecological risks at the Site have been greatly reduced, if not eliminated, by the removal of the waste pile, septic tank and leaching field soil, and additional soil in the Culvert Area, and the significant reduction in the concentration of TCA in groundwater.

The present potential exposure of ecological receptors to Site contaminants is limited to groundwater contamination that discharges to the storm sewer beneath the gravel driveway in the Culvert Area and flows into Pequawket Pond. Soil and groundwater contamination is greater than 5 feet deep, which is sufficiently deep to not present a risk to terrestrial ecological receptors. To evaluate potential risks to aquatic receptors in Pequawket Pond, samples of groundwater were collected from the storm sewer catch basins after a period of no precipitation in April 2009. Only TCA was above detection limits (2.6 µg/ℓ). In 2012 catch basin CB 5-8 had concentrations of 1,1-DCA (2.2 µg/ℓ) and 1,1-DCE (1.2 µg/ℓ) above detection limits. There are no Federal Surface Water Quality Criteria standards available for TCA, 1,1-DCA or 1,1-DCE. However the maximum groundwater concentrations do not exceed the NH Water Quality Criteria for the protection of aquatic life and therefore, groundwater discharging from the Site will not exceed standards in Pequawket Pond. Based on this evaluation, there are currently no unacceptable risks to ecological receptors at the Site.

G. REMEDIATION OBJECTIVES

The 1990 Record of Decision developed the following seven remedial action objectives to address contamination at the Site:

1. To minimize further horizontal and vertical migration of contaminated groundwater from the KMC site.
2. To minimize any negative impact to Pequawket Pond resulting from discharge of contaminated groundwater.
3. To prevent the inhalation of wind-blown, fine, particulate materials from the Waste Piles.
4. To reduce the risk associated with ingestion of, or physical contact with, metals in the Waste Piles.
5. To prevent the possibility of a release of other contaminants that may be present within the Waste Piles.
6. To prevent the migration of contaminants from the septic system and surrounding soils that could further degrade groundwater quality.
7. To reduce the risk associated with inhalation of VOCs and physical contact with the contents or the septic system or the surrounding soils.

The remedial actions conducted from 1992 until 2005 have largely accomplished all seven of these objectives. Following the shutdown of the GPTS in 2005, contaminant concentrations re-bounded to a limited extent as discussed in the EPA FFS. Table 5 summarizes the cleanup levels first proposed in the 1990 ROD, the change in the 2003 ESD, and the amendments in the State of New Hampshire's AGQS relative to those cleanup levels. Table 5 then compares those standards to the sampling round conducted in January, 2012.

Table 5. Interim Cleanup Levels for groundwater contamination at the Kearsarge Metallurgical Corporation Superfund Site.[32]

Contaminant	Interim Cleanup Level (µg/ℓ)	Basis	Maximum Concentration in January 2012 (µg/ℓ)	Number of Wells that Exceed the Proposed Cleanup Standard in January 2012
1,1,1-Trichloroethane	200	MCL[1]	170	0
1,1-Dichloroethene	7	MCL[1]	420	4
Trichloroethene	5	MCL[1]	ND[5]	0
1,2-Dichloroethane	5	MCL[1]	20	1
1,1-Dichloroethane	81	AGQS[2]	190	1
Chloroform	80	MCL	ND[5]	0
1,4-Dioxane	3	AGQS[2]	41	3
Nickel	700	HI[3]	ND[5]	0
Chromium	50	NIPDWR[4]	ND[5]	0

Notes:
[1] MCL – Maximum Contaminant Level established in the 1990 ROD.
[2] AGQS – Ambient Groundwater Quality Standards enacted by New Hampshire and established as an Interim Cleanup Level in this ROD Amendment.
[3] Non-cancer Interim Cleanup Level (Hazard Index = 1) established in the 1990 ROD.
[4] National Interim Primary Drinking Water Regulation established in the 1990 ROD.
[5] ND – Not detected. Detection limits generally at 2 ug/ℓ for VOCs. For Chromium and Nickel the dates of last analysis are 2006 and 2004, respectively. The detection limit for Chromium was 10 ug/ℓ and Nickel was 5 ug/ℓ.

To address the current conditions at the Site, the response objectives for contaminated groundwater have been revised for this Amended ROD as follows:

1. Prevent ingestion of groundwater water having carcinogens in excess of ARARs and/or a total excess cancer risk (for all contaminants) of greater than 10^{-4}.
2. Prevent ingestion of groundwater having non-carcinogenic contaminants in excess of ARARs and/or an HI >1.
3. Restore groundwater so that carcinogens meet ARARs and the total excess cancer risk (for all contaminants) is within 10^{-4} to 10^{-6}.
4. Restore groundwater so that non-carcinogens meet ARARs and non-cancer risk is reduced to an HI<1.
5. Prevent exposure to compounds that would pose an inhalation risk to residential or commercial and industrial users as outlined in Table 4.

[32] In addition, all numeric criteria for all contaminants included in requirements listed as ARARs are also considered cleanup levels and must be met regardless of whether or not they are identified above as cleanup levels except where background is an issue.

To address these Remedial Action Objectives, EPA and NHDES collected additional groundwater monitoring data and examined the results of a geoprobe analysis performed after the 2003 excavation.[33] The known groundwater parameters at the Site were then examined and appropriate assumptions were applied for the remaining contaminant mass, diffusion, and other parameters. Two modeling approaches were used: the mass balance method and the pore volume flush method. Based upon this modeling, it was estimated that cleanup levels would be met in 15 years if the GPTS resumed operations.[34] Modeling determined that MNA would attain cleanup levels in 18 years using the same assumptions. A more detailed explanation is provided in Appendix A of the 2012 FFS.

H. DESCRIPTION OF REMEDIAL ALTERNATIVES EVALUATED

Three remedial alternatives were evaluated in the EPA FFS. The following describes these alternatives:

1. NO-ACTION (MM-1)

Under the No-Action alternative (MM-1), it is assumed that no treatment or removal would occur. Any reduction in toxicity or volume of contaminants would be the result of natural processes similar to the MNA remedy. Neither monitoring of groundwater nor assessment of any reduction or potential expansion of groundwater contamination would occur. MM-1 represents the minimum proposed remedial action for addressing the remaining contamination at the Site. No cleanup time is provided as attainment would not be verified.

2. 1990 RECORD OF DECISION (MM-2)

Groundwater Pump-and-Treat (MM-2) was the selected groundwater remedy in the 1990 ROD and was implemented from 1993 until 2005. The implementation of that remedy was optimized over that period to increase the efficiency of contaminant recovery. To respond to the remaining contamination, the components of this alternative include:

- Resume operation of the GPTS to treat the contaminated groundwater.
- Extract groundwater from extraction well EW-13B in the Culvert Area at a rate of 4 to 6 gallons per minute (8,700 gallons per day maximum).
- Operate the GPTS, which will include both the addition of sequestering agent to prevent deposition of metals in process equipment and removal of volatile organic compounds through air stripping.
- Discharge the treated groundwater to the local publicly owned treatment works (POTW).
- Perform long-term groundwater monitoring.
- Revise the Institutional Controls to prevent construction of homes on the Site in the future without the installation of adequate engineering controls to address any real or potential unacceptable risk from vapor intrusion.
- Conduct Five-Year CERCLA reviews.

[33] Weston Solutions, Inc., *Geoprobe Investigation Report,* 2008.

[34] Weston Solutions, Inc., *Revised Draft Final, Focused Feasibility Study,* December, 2010.

Model results indicate that groundwater cleanup levels will be attained in 15 years under this alternative.

3. MONITORED NATURAL ATTENUATION (MM-3)

MNA (MM-3) relies on natural processes to prevent migration and reduce concentrations of contaminants to cleanup levels. The supporting documentation for MNA is provided in Appendix C of the EPA Focused Feasibility Study. The components of MM-3 include:

- Perform long-term groundwater monitoring to measure the success of attenuation mechanisms in the aquifer functioning to reduce contamination and prevent migration.
- Revise the Institutional Controls to allow construction of residential homes or other non-industrial or non-commercial buildings with adequate engineering controls to prevent the real or potential unacceptable risk from vapor intrusion.
- Conduct Five-Year CERCLA reviews.

Model results indicate that groundwater cleanup levels will be attained in 18 years under this alternative. Because MNA is an innovative remedy a contingent remedy, to be implemented if MNA fails to attain Cleanup Levels, is included as a component of this alternative. Future monitoring results would be compared to a baseline of concentrations from the December 2010 sampling round. The contingent remedy, *in situ* injection of oxidizing compounds, will be performed if concentrations in wells increase and are above cleanup levels. If the *in situ* remedy does not succeed, or if migration is found to occur, then a small-scale pump-and-treat remedy will be implemented in the affected area. The December 2010 result was selected as it followed a determination that the Site groundwater contaminant plume was stable.[35]

I. COMPARATIVE ANALYSIS OF THE REMEDIAL ALTERNATIVES

This assessment compares the strengths and weaknesses of each remedial alternative described in Section H using the nine criteria established in the NCP. 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 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 which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principle element over remedies not involving such treatment.

The nine criteria for the evaluation of each alternative are divided into three groups: Threshold Criteria that each alternative must meet to be carried forward in the analysis; Balancing Criteria which measure the performance of each alternative; and Modifying Criteria which are the State's concurrence and the public's acceptance of the remedy set forth in the Proposed Plan. In the

[35] Office of Solid Waste and Emergency Response, *Final Report,* December 2009.

subsections that follow, each criterion is explained and then the three Management of Migration remedies described in Section H are evaluated with respect to how they satisfy the goals of that criterion. The evaluation was conducted in accordance with the *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (EPA, 1988) and summarizes the relevant information necessary to compare each alternative with respect to their benefits and draw-backs.

1. THRESHOLD CRITERIA

Overall Protection of Human Health and the Environment

This criterion addresses whether or not an alternative provides adequate protection and describes how site risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering or institutional controls. This criterion draws on the assessments conducted under other criteria especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. This criterion also considers whether the alternatives pose any unacceptable short-term or cross-media impacts.

Contamination currently exists in a small portion of the aquifer at levels that present an unacceptable risk. There is the potential for inhalation risk through vapor intrusion should homes be built on the Site. The No-Action alternative, MM-1, would not be protective as no monitoring or evaluation of the contamination that remains in the aquifer would occur. The other two Alternatives (MM-2 and MM-3) would be protective as both would reduce contaminant concentrations to safe levels. This would be confirmed by monitoring which is a component of both Alternatives MM-2 and MM-3. In addition, action would be taken under both Alternatives MM-2 and MM-3 to allow construction of homes on the Site in the future only if adequate engineering controls to prevent unacceptable risk from real or potential vapor intrusion are installed. Finally, an evaluation of the remedial progress for MM-2 and MM-3 would occur every five years to determine whether the remedy continues to be protective of human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements

Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy will meet all Federal, and more stringent State, environmental standards, requirements, criteria or limitations, unless a waiver is invoked under CERCLA §121(d)(4). Section 121(d) of CERCLA requires that remedial actions at CERCLA sites at least attain ARARs, unless they are waived. Alternative MM-1 would not comply with chemical-specific ARAR requirements. MM-2 and MM-3 will meet all ARAR requirements.

2. BALANCING CRITERIA

Long-Term Effectiveness and Permanence

This criterion evaluates the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up levels have been met. This criterion includes the evaluation of the residual risk that will remain following remediation and the adequacy and reliability of institutional controls.

Because there is no evaluation of conditions under Alternative MM-1, attainment of cleanup levels cannot be ascertained and the magnitude of the residual risk would, therefore, also be unknown. In addition, under the No Action Alternative there are no Institutional Controls to prevent exposure to Site contaminants that could result in a potential future unacceptable risk from vapor intrusion.

Both Alternatives MM-2 and MM-3 are equal in performance as they will reduce the concentration of contaminants in groundwater to acceptable levels so that the magnitude of the residual risk is greatly reduced. Long-term monitoring would be conducted to confirm that concentrations continue to remain below cleanup levels. Monitoring is a highly reliable method to evaluate the remaining residual contamination. In addition, both of these alternatives include Institutional Controls to prevent any potential future unacceptable risk. In order for Institutional Controls to be effective and protective, they must be adequately monitored and maintained. As a result, the adequacy and reliability will be dependent on how well the Institutional Controls are monitored, maintained, and enforced.

Reduction of Toxicity, Mobility, and Volume Through Treatment

This criterion evaluates the degree to which each alternative employs recycling or treatment, including how treatment is used to address the threats posed by the site. This evaluation considers the following factors:

- Treatment processes and what they will treat.
- Amount of hazardous materials treated or destroyed and how the principle threat is addressed.
- Degree of expected reduction in toxicity, mobility, or volume (as a percentage).
- The degree to which treatment will be irreversible.
- The type and quantity of treatment residuals that will remain following treatment.
- Does the remedy satisfy the statutory preference for treatment as a principle element.

The most significant remaining issue at the Site is that contamination exceeds groundwater cleanup levels in a very limited area. Alternative MM-1, No Action, would likely reduce the toxicity, mobility and volume of groundwater contaminants through *in situ* reactions similar to MM-3. However, no evaluation of conditions under MM-1 would occur to ascertain these reductions of groundwater contaminants.

Alternative MM-2 would actively eliminate the groundwater plume and treat contaminants, but will also generate a solid residual requiring transport and treatment. MM-2 will capture VOC contaminants on activated carbon that will need to be shipped off-site for disposal. MM-2 will also likely discharge some amount of 1,4-dioxane to the CVFD, if allowed, unless additional treatment is applied and successful.

Alternative MM-3 would reduce the toxicity, mobility and volume of remaining groundwater contaminants to acceptable concentrations through *in situ* biotic and abiotic reactions. The evidence for the MNA mechanism described for MM-3 is provided in Appendix C of the EPA Focused Feasibility Study. Reductions through MNA are irreversible. Finally, there would not

be any treatment residuals unless either of the two contingencies was used to meet cleanup levels.

Short-Term Effectiveness

This criterion evaluates the period of time needed to achieve protection and whether any adverse impacts on human health and the environment may occur during the construction and implementation period, until cleanup levels are achieved. This evaluation considers the following factors:

- Protection of community from exposure to dust, poor air-quality, and transportation impacts.
- Protection of workers during remedial actions.
- Environmental impacts that result from construction and what mitigation measures may be taken.
- Time until the remedial response objectives are met.

Under Alternative MM-1, there would be no short term impacts to the community, workers or the environment from construction or implementation as no actions would be taken under this alternative. There is no estimate as to when groundwater cleanup levels would be met and the vapor intrusion remedial action objective would not be met.

For both MM-2, Groundwater Pump-and-Treat, and MM-3, Monitored Natural Attenuation, there would be limited impacts to the community or to the workers in the short-term. Under both alternatives there are minimal construction activities (treatment system O&M, installing signs for institutional controls, groundwater sampling, etc.) required to implement the remedy. Also, there are few, if any, exposure pathways for contaminants to reach the community, workers or the environment. Because MM-2 has already been built and MM-3 will likely not require any construction (unless contingencies must be implemented), no significant community or environmental impacts are expected from construction under either alternative. Under both alternatives, workers would use appropriate health and safety measures when handling contaminated material.

It is estimated that MM-2 and MM-3 will attain groundwater cleanup levels in 15 and 18 years, respectively.

Implementability

This criterion evaluates the technical and administrative feasibility of implementing a remedy, including the availability of materials and services needed to implement a particular option. This evaluation considers the following:

- Technical difficulties and unknowns associated with a technology.
- Reliability of the technology and technical problems that may lead to schedule delay.
- Ease of undertaking additional remedial action.
- Monitoring to determine the effectiveness of the remedy and to evaluate the risk of exposure.
- Administrative feasibility and coordination with other offices and agencies.

- Availability of services and materials.

The No-Action alternative, MM-1, requires no implementation. For MM-2, Groundwater Pump-and-Treat, the treatment plant is already in place on-site and was previously operated effectively to control the contaminant plume at the Site. The treatment plant was shut down and winterized in December, 2005. The effort required to resume operation would include restoration of winterized equipment, repairing or replacing broken and aged equipment, and obtaining additional supplies necessary for day-to-day operations. Equipment was removed from the Site in the spring and summer of 2012 but could be recovered at minimal cost if needed. Materials and skilled staff are readily available to reinstate, operate and maintain the treatment system. The local POTW (CVFD) would need to agree to accept the treated plant effluent. But that is unlikely to pose a problem with implementation since the local POTW had previously accepted the effluent before shutdown of the GPTS, and the flow is likely to be only 6 gpm or less. The addition of 1,4-Dioxane to the discharge may require additional treatment prior to discharge to the POTW.

Pumping from extraction well EW-13B would be expected to recapture most of the existing plume in the Culvert Area. Although groundwater concentrations would temporarily attain cleanup goals shortly after resuming operations of the GPTS, reestablishment of the plume would be expected if the GPTS was discontinued before contaminants had been depleted in the silt layer. Diffusion of contaminants out of the silt and clay layer would be the time-limiting factor in the permanent, long-term attainment of cleanup goals. Due to the low transmissivity of the silt layer, groundwater extraction from the silt layer would be very slow and inefficient.

Alternative MM-3, Monitored Natural Attenuation, is more easily implemented than MM-2. There are no significant technical issues associated with groundwater monitoring or establishing additional institutional controls. Should MNA need to be supplemented, the contingent remedies would also be easy to implement as the contaminated medium is close to the ground surface.

There are no significant technical issues associated with MM-3 other than groundwater monitoring and enforcement of institutional controls. Neither alternative would require coordination with other agencies other than the CVFD. Finally, both alternatives would require some coordination to revise the Institutional Control but this is not expected to be difficult.

Cost

This criterion evaluates costs including the capital costs, operation and maintenance (O&M) costs, and total project present-worth costs. Direct capital costs include those for construction, equipment, site development, buildings and services, relocation expenses, and disposal. Indirect costs include those for engineering, startup/shakedown costs, and contingencies. Annual O&M costs include operating labor costs, maintenance materials and labor, auxiliary materials and energy, disposal of treatment residuals, purchased services, administrative costs, insurance, taxes, licensing, maintenance reserve and contingency funds, rehabilitation costs, and periodic Site Reviews.

The capital costs associated with Alternative MM-2 would include: restoration of the winterized equipment, repairing or replacing broken and aged equipment, obtaining the necessary supplies

for day to day operations, and the labor to complete these tasks. The O&M costs include plant O&M, annual monitoring events, and Five-Year CERCLA site reviews over a period of 15 years.

The only capital costs for Alternative MM-3 are associated with establishing, maintaining, and enforcing additional institutional controls. The O&M costs include groundwater monitoring, maintenance of institutional controls, and Five-Year CERCLA site reviews. The costs for the contingencies (if needed) would be added to that of MM-3. A summary of the overall costs for each of the alternatives is presented below in Table 6. The details are provided in Appendix B of the EPA Focused Feasibility Study.

Table 6. Summary of costs for the remedial alternatives.

MM-1: No Action	
Capital Costs (present worth)	$0
Annual Operations and Maintenance (present worth)	$0
Total Present Worth Costs (7% discount rate)	**$0**
MM-2: Groundwater Pump-and-Treat	
Capital Costs (present worth)	$69,575
Annual Operations and Maintenance (present worth)	$291,918
Total Present Worth Costs (7% discount rate over 15 years)	**$2,606,046**
MM-3: Monitored Natural Attenuation	
Capital Costs (present worth)	$23,000
Annual Operations and Maintenance (present worth)	$115,698
Total Present Worth Costs (7% discount rate over 18 years)	**$730,674**
Contingent Remedy: Chemical Oxidation Implemented under MM-3 and a potential additional cost to that alternative	
Total Capital Cost (present worth)	**$72,050**
Contingent Remedy: Focused Pump and Treat Implemented under MM-3 and a potential additional cost to that alternative	
Capital Costs (present worth)	**$31,625**
Annual Operations and Maintenance (present worth)	**$45,210**

3. MODIFYING CRITERIA

The final two criteria are classified as the modifying criteria and include state or support agency acceptance, and community acceptance.

State Acceptance

The New Hampshire Department of Environmental Services has reviewed the alternatives under consideration and concurs with the proposed change from the 1990 ROD to MNA as described in this Amendment. A copy of the State concurrence letter is attached as Appendix C.

Community Acceptance

No comments were received from the community. The transcript for the Public Hearing provided in Appendix D.

The Site presents a future risk from consuming contaminated groundwater for drinking water. Future risk due to vapor intrusion may occur if residential buildings are constructed over the contaminant plume where maximum concentrations occur. The maximum concentrations in groundwater at the Site are located in a wetland approximately 100 feet east of the GPTS. The contaminated groundwater is stable and not migrating.

The Management of Migration component of the 1990 ROD remedy would effectively meet the remedial response objectives; however, the MNA remedy will attain Cleanup Levels in a similar time-frame and at less than half the cost. MNA is an innovative remedy which raises concerns regarding the ultimate success of the remedy. Therefore, a contingent remedy is proposed to enhance MNA if required. A summary of how each Management of Migration component compares with the NCP nine evaluation criteria follows on Table 7.

Table 7. Comparison of Cleanup Alternatives, Kearsarge Metallurgical Corporation Superfund Site.

Criterion	MM-1 No-Action Alternative	MM-2 1990 Groundwater Remedy	MM-3 Monitored Natural Attenuation
Overall Protection of Human Health and the Environment	Does not meet Criteria.	Meets Criterion	Meets Criterion
Compliance with Applicable or Relevant and Appropriate Requirements	Does not meet Criteria.	Meets Criterion	Meets Criterion
Long-term Effectiveness and Permanence	Does not meet Criteria.	Meets Criterion	Meets Criterion
Reduces Toxicity, Mobility, or Volume through Treatment	Does not meet Criteria	Meets Criterion	Meets Criterion
Short-term Effectiveness	Meets Criterion	Meets Criterion	Meets Criterion
Implementability	Meets Criterion	Meets Criterion	Meets Criterion
Cost	$0	$2.6 Million	$731,000
State agency acceptance	State concurs with selection of MM-3.		
Community acceptance	The community had no objections to the remedy change.		

J. THE SELECTED REMEDY

Based on the above analysis, EPA has selected Monitored Natural Attenuation (MM-3) to replace the existing remedy, MM-2. MNA provides no active treatment, containment, or recovery of contaminants. MNA will rely on natural processes to prevent migration and reduce concentrations of contaminants to cleanup levels. The evidence and details for MNA are provided in Appendix C of the EPA Focused Feasibility Study. The components of MNA include:

1. Perform long-term groundwater monitoring to measure the success of attenuation mechanisms in the aquifer functioning to reduce contamination and prevent migration.
2. Revise the Activity and Use Restriction to allow the future construction of residential homes, or other non-industrial or non-commercial buildings on the Site with adequate engineering controls to prevent the real or potential unacceptable risk from vapor intrusion.
3. Implement a contingent remedy if MNA is unable to restore groundwater in an acceptable time-frame.
4. Conduct Five-Year CERCLA reviews.

Because MNA is not an active remedy and may not achieve cleanup levels at the Site due to unknown factors, a phased contingency approach is included in the selected remedy. The decision to design and implement additional response actions would be performed if either of the two following trigger conditions occur:

1. The concentration of either 1,1-DCE or 1,1-DCA in wells MW-3010 or MW-3008 rises above the concentration found in December 2010; for MW-3010: 578 ppb and 235 ppb, respectively, and for MW-3008: 175 ppb and 101 ppb, respectively, in any two consecutive sampling events, or;
2. The concentration of any contaminant in any of the monitored wells increases by 100% over its December 2010 concentration, and is above its cleanup level, in any two consecutive sampling events. The concentrations found in December 2010 are listed in Table 8.

Table 8. Concentrations of Site contaminants in December 2010 that exceeded the Interim Cleanup Levels.

Well	1,1-DCE	TCA	1,1-DCA	1,2-DCA	1,4-Dioxane
MW-3010	578	305	236	23	34
MW-3008	175		101		6.3
MW-3006	12				
MW-3003	30				
MW-3009	8.8				
ICL (µg/ℓ)	7	200	81	5	3

Notes: All values not shown on the table are below the ICL and if increased by 100% would not exceed the ICL. Therefore, trigger #2 would be met if any contaminant in any well not listed above is above the ICL for two consecutive sampling events.

Should either of the trigger conditions occur, an oxidizing compound will first be injected into the aquifer to destroy the contaminants. Following treatment, additional monitoring will be conducted and additional injections may be necessary. If *in situ* treatment of the source area is not successful[36] or migration of the contaminant plume outside the Site property boundary shown on Figure 2 occurs, then a small-scale mobile pump-and-treat system would be designed, constructed, and then operated to capture and destroy the remaining contaminants and restore the aquifer so that all remedial action objectives are met.

The estimated costs for this remedy including the contingent components are shown below in Table 9. Details of the cost estimate are provided in Appendix B of the EPA Focused Feasibility Study.

Table 9. Summary of costs for Selected Remedy including the contingent components if required.

MM-3: Monitored Natural Attenuation	
Capital Costs (present worth)	$23,000
Annual Operations and Maintenance (present worth)	$115,698
Total Present Worth Costs (7% discount rate over 18 years)	**$730,674**
Chemical Oxidation	
Implemented under MM-3 and a potential additional cost to that alternative	
Total Capital Cost (present worth)	**$72,050**
Focused Pump and Treat	
Implemented under MM-3 and a potential additional cost to that alternative	
Capital Costs (present worth)	**$31,625**
Annual Operations and Maintenance (present worth)	**$45,210**

K. STATUTORY DETERMINATIONS

EPA believes that the remedy, as amended herein, is protective of human health and the environment, complies with all federal and state requirements that are applicable or relevant and appropriate to this remedial action, meets the remedial action objectives, is cost effective, utilizes permanent solutions and alternative technologies to the maximum extent practicable, has satisfied the preference for treatment with natural, *in situ* processes, and satisfies the requirements in Section 121 of CERCLA.

L. DOCUMENTATION OF NO SIGNIFICANT CHANGES

The Proposed Plan to amend the 1990 ROD was released for public comment in May, 2012. The changes outlined in the Proposed Plan called for attaining protectiveness of human health and the environment through restoration of groundwater by Monitored Natural Attenuation. The

[36] *In situ* source treatment would be unsuccessful if either of the conditions listed above that trigger action reoccurred.

Proposed Plan also proposed changing the cleanup level of 1,1-Dichloroethane from 3,650 µg/ℓ to 81 µg/ℓ, adding a cleanup level of 3 µg/ℓ for 1,4-Dioxane, and adding additional activity and use restrictions.

No comments were received during the public comment period which concluded on June 21, 2012. Therefore, no significant changes were made to the proposed cleanup plan. Because no comments were received, EPA did not prepare a Responsiveness Summary.

M. STATE ROLE

The New Hampshire Department of Environmental Services has reviewed the proposed remedy change for the Site and concurs with the selected remedy described in Section J of this Amended ROD. A copy of the State concurrence letter is attached as Appendix C.

N. REFERENCES

Burack, Thomas S., Commissioner, New Hampshire Department of Environmental Services, letter to James T. Owens, Director, EPA Office of Site Remediation and Restoration *Groundwater Use and Value Determination*, February 9, 2012.

Camp, Dresser and McKee, Inc., *Remedial Investigation/Feasibility Study Report, Kearsarge Metallurgical Corporation Hazardous Waste Site, Conway, New Hampshire*, June 1990.

Emery &Garrett Groundwater, Inc., *Groundwater Supply Assessment Conway Village Fire District Production Wells CVD-1 and DVD-2 Eight-Day Pumping Test and Water Quality Analyses,* Conducted for the Conway Village Fire District Conway, New Hampshire. January 2008.

EPA, Region 1, *Region 1, Record of Decision, Kearsarge Metallurgical Corporation , Conway, New Hampshire*, September 28, 1990.

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EPA Region 1, *Focused Feasibility Study, Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire*, January 2012.

EPA Region 1, *Transcript of Public Hearing*, June 19, 2012.

Hoffman, Andrew, NHDES Site manager, personal communication to Darryl Luce, EPA Site Manager, referencing the data sheets from prior sampling rounds.

Office of Solid Waste and Emergency Response*, Final Report: Technical Assistance for the Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire, EPA Region 1*. EPA-542-09-014, December 2009.

State of New Hampshire, *Notice of Activity and Use Restriction*, Document # 0009498, Registry of Deeds, Carroll County, August 30, 2011 @ 11:07 AM, Book #2946, Pages 0727 – 0734.

Tagliaferro, Dean, OSC, Lexington Lab, EPA Region 1, *On-Scene Coordinator's Report, Kearsarge Metallurgical Corporation Superfund Site, Conway, New Hampshire, July 15, 1992 – October 15, 1992*.

Weston Solutions, Inc., *Technical Memorandum, Soil Removal Cost Estimate*, *Kearsarge Metallurgical Corporation Site*, June 8, 2012

Weston Solutions, Inc., *Geoprobe Investigation Report*, *Kearsarge MetallurgicalCorporation, Conway, New Hampshire*, 2008.

Weston Solutions, Inc., *Revised Draft Final Focused Feasibility Study*, December 2010.

Weston Solutions, Inc., 2-page correspondence to NHDES regarding vapor intrusion, April 14, 2009.

APPENDIX A: APPLICABLE AND RELEVANT AND APPROPRIATE REQUIREMENTS

Applicable and Relevant and Appropriate Requirements (ARARs) for the Selected Remedy are as follows:

- A1 – Chemical specific ARARs for the Monitored Natural Attenuation Alternative MM-3.
- A2 – Action specific ARARs for the Monitored Natural Attenuation Alternative MM-3.

TABLE A1: CHEMICAL-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
FEDERAL				
Safe Drinking Water Act – Maximum Contaminant Levels MCLs) 40 CFR 141.11—141.16 40 CFR 141.60—141,62	Relevant and Appropriate	Maximum Contaminant Levels (MCLs) have been promulgated for several common organic and inorganic contaminants. These levels regulate the concentration of contaminants in public drinking water supplies, and are relevant and appropriate for groundwater aquifers used for drinking water.	MCLs must be met for water used as drinking water.	Alternative MM-3 would meet these requirements by reducing the concentration of contaminants through natural processes.
Safe Drinking Water Act – Non-Zero Maximum Contaminant Level Goals (MCLGs) 40 CFR 141.50—51	Relevant and Appropriate	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.	Non- zero MCLGs must be met for water used as drinking water.	Alternative MM-3 would meet these requirements by reducing the concentration of contaminants through natural processes.
Guidelines for Groundwater Classification under the EPA Groundwater Protection Strategy June, 1988 EPA Number: 813R-880001	To Be Considered	Describes the procedures and information needed to classify groundwater; defines classes, concepts, and key terms related to groundwater classification system.	Groundwater at the site is classified as a potential drinking water source under this federal classification system.	Drinking water standards will be used as cleanup standards based upon this federal classification.

TABLE A1: CHEMICAL-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
STATE				
Env-Dw 700 New Hampshire Water Quality Standards	Relevant and Appropriate	These regulations set forth New Hampshire drinking water quality standards for water supply systems based on health and technical practicability. The aquifer at the site is not currently being used for drinking water. When Ambient Groundwater Quality Standards (AGQS) are more stringent than federal levels, the state levels must be met.	AGQS must be met for water used as drinking water.	. Alternative MM-3 would meet these requirements by reducing the concentration of contaminants through natural processes and contingent remedies.
Env-Ws 312 - 315 State Drinking Water Quality Standards: MCLs and MCLGs	Relevant and Appropriate	This provision identifies and regulates contaminants in drinking water.	MCLs/non-zero MCLGs must be met for water used as drinking water.	. Alternative MM-3 would meet these requirements by reducing the concentration of contaminants through natural processes and contingent remedies.

TABLE A2: ACTION-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
FEDERAL				
Resource Conservation and Recovery Act (RCRA) 42 USC §§ 6901 *et seq.* Standards for identification and listing of hazardous waste 40 CFR Part 261	Potentially Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. These provisions have been adopted by the State.	Applicable to contaminated materials generated by capture of contaminants on activated carbon should pump and treat be needed as a contingent remedy.	If contaminated material is generated, it will be analyzed to determine if hazardous.
RCRA Standards applicable to generators of hazardous waste 40 CFR Part 262	Potentially Applicable	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. These provisions have been adopted by the State.	Applicable to contaminated materials generated by capture of contaminants on activated carbon should pump and treat be needed as a contingent remedy.	If hazardous waste is generated, it will be properly manifested and then shipped off-site.
RCRA – Subtitle C Hazardous Waste Regulations 40 CFR Part 264 Subparts F (groundwater monitoring), I (containers), J (tanks).	Potentially Relevant And Appropriate	New Hampshire has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. These provisions have been adopted by the State.	Hazardous waste will be generated by the capture of contaminants on activated carbon should pump and treat be needed as a contingent remedy. Groundwater monitoring will be conducted.	To the extent containers or tanks are used these requirements will be met. Groundwater monitoring requirements will be used to establish the groundwater monitoring program.

TABLE A2: ACTION-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
RCRA – Subtitle C Hazardous Waste Regulations 40 CFR Part 264 Subparts B, C and D	Potentially Relevant And Appropriate	These regulations establish general facility standards, standards for prevention/ preparedness and contingency/emergency procedures for owners/operators of hazardous waste treatment storage and disposal facilities.	Hazardous substances will be extracted from the groundwater and treated/stored should pump and treat be needed.	The substantive requirements of these regulations will be followed by this Alternative should pump and treat be needed.
Safe Drinking Water Act Underground Injection Wells 42 USC §300h 40 CFR Part 144—147	Potentially Applicable	Regulates the construction, operation, permitting, and closure of injection wells that place fluids underground for storage or disposal.	Necessary if chemical oxidation is employed.	Chemical oxidation will meet the substantive discharge requirements.

TABLE A2: ACTION-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
Clean Water Act General Pretreatment Regulations for Existing and New Sources of Pollution 40 CFR 403	Potentially Applicable	Pretreatment standards for discharges to a POTW.	Hazardous substances/pollutants will be extracted from the groundwater then treated and shipped to a POTW for disposal should pump and treat be needed.	Treatment system has already been designed to meet pretreatment standards for most contaminants should pump and treat be needed. Further investigation will be required to ensure that discharges of 1,4-dioxane meet pretreatment requirements should pump and treat be needed.
Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathways from Groundwater and Soils (Subsurface Vapor Intrusion Guidance EPA 530-D-02-004 November, 2002 67 FR 71169 (Nov. 29, 2002)	To Be Considered	Guidance for assessing and mitigating vapor intrusion risk.	Vapor Intrusion pathway investigated as part of the Weston Focused Feasibility Study.	Potential future risk from vapor intrusion if homes built on the Site. ICs to prevent this included in this alternative.

TABLE A2: ACTION-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites OSWER Directive 9200.4-17P April 21, 1999	To Be Considered	Used to evaluate monitored natural attenuation remedies.	Used to develop and evaluate information for Appendices A and C in this Focused Feasibility Study.	Will be used to evaluate progress of the remedy.

TABLE A2: ACTION-SPECIFIC ARARs Monitored Natural Attenuation Kearsarge Metallurgical Corporation, Conway, New Hampshire				
STATUTE / REGULATION	**STATUS**	**REQUIREMENT SYNOPSIS**	**CONSIDERATION IN THE FEASIBILITY STUDY PROCESS**	**ACTION TAKEN TO ATTAIN ARAR**
STATE				
Env-Ws 904 Pretreatment Standards	Potentially Applicable	Provides standards for indirect discharge of pollutants to POTW.	Hazardous substances/pollutants will be extracted from the groundwater then treated and shipped to a POTW for disposal should pump and treat be needed.	Treatment system has already been designed to meet pretreatment standards for most contaminants should pump and treat be needed. Further investigation will be required to ensure that discharges of 1,4-dioxane meet pretreatment requirements should pump and treat be needed.
Env-Wm 702.10 – 702.13	Applicable	Establishes groundwater monitoring requirements.	Groundwater monitoring will be a component of his alternative.	Will be used to develop a groundwater monitoring plan.
New Hampshire Ambient Air Quality Standards, Env-A 300	Potentially Applicable	These regulations set requirements on the control of fugitive emissions and dust.	Compliance with these requirements will be required for any construction activities that might result in the generation of fugitive dust.	Any construction under Alternative MM-3 will be conducted in accordance with these requirements.

APPENDIX B: ADMINISTRATIVE RECORD INDEX

Kearsarge Metallurgical Corporation

Superfund Site

INDEX

Administrative Record (AR)

Amended Record of Decision (ROD)

Amended ROD Signed:

Released on CD/DVD-ROM:

Prepared by

EPA New England

Office of Site Remediation & Restoration

With Assistance from ASRC Primus

6301 Ivy Lane, Suite 300

Greenbelt, MD 20770

Introduction to the Collection

This is the Administrative Record Index for the Kearsarge Metallurgical Corporation in Conway, New Hampshire. This Administrative Record is an Amended Record of Decision (ROD). The Administrative Record (AR) was released on September 2012. 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 Administrative Record incorporates, by reference, the Administrative Record for the Record of Decision (ROD) dated on September 28, 1990, Explanation of Significant Differences (ESD) dated August 31, 1992, Explanation of Significant Differences (ESD) dated September 29, 2003, and Explanation of Significant Differences (ESD) dated April 19, 2010.

The administrative record file is available for review at:

EPA New England Office of
Site Remediation & Restoration
5 Post Office Square, Suite 100 (OSRR02-3)
Boston, MA 02109-3912
617-918-1440 (phone)
617-918-0440 (fax)
www.epa.gov/region01/superfund/resource/records.htm

Conway Public Library
15 E. Main Street
Conway, NH 03818-2100
Phone: (603) 447-5552
http://conwaypubliclibrary.org/

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

Please note that the compact disc(s) (CD) containing this Administrative Record may include index data and other metadata (hereinafter collectively referred to as metadata) to allow the user to conduct index searches and key word searches across all the files contained on the CD. All the information that appears in the metadata, including any dates associated with creation of the indexing data, is not part of the Administrative Record for the Site under CERCLA and shall not be construed as relevant to the documents that comprise the Administrative Record. This metadata is provided as a convenience for the user and is not part of the Administrative Record.

Questions about this administrative record file should be directed to the EPA New England site manager.

Phase 02: REMOVAL RESPONSE

File Break: 02.05

505036 **ON-SCENE COORDINATOR'S (OSC) REPORT - 07/15/1992 TO 10/15/1992 (12/29/1992 TRANSMITTAL LETTER ATTACHED)**

# of Pages: 121
Doc Date: 10/15/1992

Author: PATRICIA SUMNER, ROY F WESTON INC DEAN TAGLIAFERRO, US EPA REGION 1	**Addressee:**	**Doc Type:** REPORT	**Access Type(s):** REL **Bates #:** **Weston #:**

Phase 04: FEASIBILITY STUDY (FS)

File Break: 04.06

505034 **FOCUSED FEASIBILITY STUDY (FS) REPORT**

# of Pages: 76
Doc Date: 01/01/2012

Author: , US EPA REGION 1
Addressee:
Doc Type: FEASIBILITY STUDY (FS) REPORT
Access Type(s): REL
Bates #:
Weston #:

505073 **FOCUSED FEASIBILITY STUDY (FS) REPORT (12/30/2010 TRANSMITTAL ATTACHED)**

# of Pages: 163
Doc Date: 12/01/2010

Author: , WESTON SOLUTIONS INC
Addressee: , NEW HAMPSHIRE DEPARTMENT ENVIRONMENTAL SERVICES
Doc Type: FEASIBILITY STUDY (FS) REPORT
Access Type(s): REL
Bates #:
Weston #:

File Break: 04.09

509339 **PROPOSED PLAN FOR AMENDED RECORD OF DECISION (ROD)**

# of Pages: 12
Doc Date: 05/08/2012

Author: , US EPA REGION 1
Addressee:
Doc Type: PROPOSED PLAN
Access Type(s): REL
Bates #:
Weston #:

Phase 06: REMEDIAL DESIGN (RD)

File Break: 06.04

213054 **REUSE ASSESSMENT** **# of Pages: 26**

Doc Date: 09/01/2004

Author:	**Addressee:**	**Doc Type:**	**Access Type(s):**
, US EPA REGION 1		REPORT	REL

Bates #:

Weston #:

Phase 07: REMEDIAL ACTION (RA)

File Break: 07.01

505040 **MEMO SUMMARIZING POSITION OF EPA CONCERNING THE RECENT NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES) PROPOSALS FOR REMEDY EVALUATION [MARGINALIA]**

# of Pages: 3
Doc Date: 10/12/2007

Author: RICHARD GOEHLERT, US EPA REGION 1
Addressee: MICHAEL JASINSKI, US EPA REGION 1
Doc Type: CORRESPONDENCE
MEMO
Access Type(s): REL
Bates #:
Weston #:

505041 **MEMO REGARDING KEARSARGE REMEDY EVALUATION**

# of Pages: 2
Doc Date: 09/24/2007

Author: RICHARD GOEHLERT, US EPA REGION 1
Addressee: MICHAEL JASINSKI, US EPA REGION 1
Doc Type: CORRESPONDENCE
MEMO
Access Type(s): REL
Bates #:
Weston #:

505042 **MEMO REGARDING KEARSARGE REMEDY EVALUATION**

# of Pages: 2
Doc Date: 05/03/2008

Author: DAVE BARTENFELDER, US EPA
Addressee:
Doc Type: MEMO
Access Type(s): REL
Bates #:
Weston #:

Phase 07: REMEDIAL ACTION (RA)

File Break: 07.01

521729 **MEMO REGARDING VAPOR INTRUSION**

# of Pages: 1
Doc Date: 07/30/2012

Author: DARRYL LUCE, US EPA REGION 1

Addressee:

Doc Type: CORRESPONDENCE
MEMO

Access Type(s): REL

Bates #:

Weston #:

521730 **GROUNDWATER USE AND VALUE DETERMINATION**

# of Pages: 10
Doc Date: 02/09/2012

Author: THOMAS S BURACK, NH DEPT OF ENVIRONMENTAL SERVICES

Addressee: JAMES T OWENS III, US EPA REGION 1

Doc Type: CORRESPONDENCE
LETTER
REPORT

Access Type(s): REL

Bates #:

Weston #:

File Break: 07.05

505039 **CLEANUP DECISION FRAMEWORK REPORT [FIGURES & APPENDICES MISSING]**

# of Pages: 59
Doc Date: 07/01/2004

Author: , ROY F WESTON INC

Addressee: , NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Doc Type: REPORT

Access Type(s): REL

Bates #:

Weston #:

Phase 07: REMEDIAL ACTION (RA)

File Break: 07.05

505044 **GEOPROBE INVESTIGATION REPORT**

# of Pages: 168
Doc Date: 09/26/2008

Author: BETTE L NOWACK, ROY F WESTON INC
Addressee: DREW HOFFMAN, NH DEPARTMENT OF ENVIRONMENTAL SERVICES
Doc Type: REPORT
Access Type(s): REL
Bates #:
Weston #:

505045 **PORE VOLUME FLUSH MODEL - FIGURE # 2**

# of Pages: 1
Doc Date: 11/18/2010

Author: , WESTON SOLUTIONS INC
Addressee:
Doc Type: MAP
Access Type(s): REL
Bates #:
Weston #:

505046 **CASE STUDY OF THE EFFECT OF REVERSE MATRIX DIFFUSION ON REMEDIAL TIME FRAME AT SUPERFUND SITE - APRIL 13-15, 2011**

# of Pages: 28
Doc Date: 04/15/2011

Author: ANDREW J HOFFMAN, NH DEPT OF ENVIRONMENTAL SERVICES
BETTE L NOWACK, ROY F WESTON INC
Addressee:
Doc Type: REPORT
Access Type(s): REL
Bates #:
Weston #:

Phase 07: REMEDIAL ACTION (RA)

File Break: 07.05

505047 **DRAFT FINAL POST-SOURCE REMOVAL DATA EVALUATION REPORT**

# of Pages: 113
Doc Date: 04/21/2011

Author:	Addressee:	Doc Type:	Access Type(s):
, WESTON SOLUTIONS INC		REPORT	REL

Bates #:
Weston #:

File Break: 07.06

521731 **TECHNICAL MEMORANDUM: SOIL REMOVAL COST ESTIMATE**

# of Pages: 6
Doc Date: 06/08/2012

Author:	Addressee:	Doc Type:	Access Type(s):
BETTE L NOWACK, WESTON SOLUTIONS INC	ANDREW HOFFMAN, NH DEPARTMENT OF ENVIRONMENTAL SERVICES	CORRESPONDENCE MEMO	REL

Bates #:
Weston #:

Phase 08: POST REMEDIAL ACTION

File Break: 08.01

443284 **LETTER REGARDING EVALUATION OF POTENTIAL RISKS DUE TO INTRUSION OF VOLATILE ORGANIC COMPOUND VAPORS INTO BUILDINGS ON OR NEAR SITE**

# of Pages: 2
Doc Date: 04/14/2009

Author: BETTE L NOWACK, ROY F WESTON INC

Addressee: ANDREW J HOFFMAN, NH DEPT OF ENVIRONMENTAL SERVICES

Doc Type: CORRESPONDENCE
LETTER

Access Type(s): REL

Bates #:

Weston #:

File Break: 08.03

293575 **THIRD FIVE-YEAR REVIEW REPORT**

# of Pages: 120
Doc Date: 09/26/2008

Author: , US EPA REGION 1

Addressee:

Doc Type: FIVE YEAR REVIEW RPT & AP
REPORT

Access Type(s): REL

Bates #:

Weston #:

451784 **SOURCE REMOVAL ACTION COMPLETION REPORT**

# of Pages: 1068
Doc Date: 06/01/2004

Author: , WESTON SOLUTIONS INC

Addressee: , NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Doc Type: REPORT

Access Type(s): REL

Bates #:

Weston #:

Phase 08: POST REMEDIAL ACTION

File Break: 08.03

505037 **2000 OPERATIONS REPORT**

# of Pages: 67
Doc Date: 05/01/2001

Author: , ROY F WESTON INC

Addressee: , NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Doc Type: REPORT

Access Type(s): REL

Bates #:

Weston #:

505038 **2001 OPERATIONS AND MAINTENANCE (O&M) REPORT**

# of Pages: 100
Doc Date: 03/01/2002

Author: , ROY F WESTON INC

Addressee: , NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

Doc Type: REPORT

Access Type(s): REL

Bates #:

Weston #:

505043 **GROUNDWATER SUPPLY ASSESSMENT CONWAY VILLAGE FIRE DISTRICT PRODUCTION WELLS CVD-1 AND CVD-2, EIGHT-DAY PUMPING TEST AND WATER QUALITY ANALYSES (01/22/2008 TRANSMITTAL LETTER ATTACHED) [MARGINALIA]**

# of Pages: 234
Doc Date: 01/01/2008

Author: , EMERY & GARRETT GROUNDWATER INC

Addressee: THOM STEELE MR, CONWAY VILLAGE FIRE DISTRICT

, UNDERWOOD ENGINEERS INC

Doc Type: REPORT

Access Type(s): REL

Bates #:

Weston #:

Phase 08: POST REMEDIAL ACTION

File Break: 08.04

479484 **FINAL REPORT: TECHNICAL ASSISTANCE FOR KEARSARGE METALLURGICAL**

# of Pages: 120
Doc Date: 12/01/2009

Author:	Addressee:	Doc Type:	Access Type(s):
, US EPA REGION 1		REPORT	REL

Bates #:
Weston #:

File Break: 08.07

492992 **NOTICE OF ACTIVITY AND USE RESTRICTIONS (09/14/2011 CHECKLIST ATTACHED)**

# of Pages: 9
Doc Date: 08/25/2011

Author:	Addressee:	Doc Type:	Access Type(s):
THOMAS S BURACK, NH DEPT OF ENVIRONMENTAL SERVICES		INSTITUTIONAL CONTROL(S) REPORT	REL

Bates #:
Weston #:

Phase 13: COMMUNITY RELATIONS

File Break: 13.03

509341 **PUBLIC NOTICE FOR PROPOSED PLAN ADMINISTRATIVE RECORD (AR)**

# of Pages: 1
Doc Date: 05/16/2012

Author:	Addressee:	Doc Type:	Access Type(s):
, CONWAY DAILY SUN, THE		NEWS ARTICLE PUBLIC INFORMATION	REL

Bates #:
Weston #:

File Break: 13.04

518887 **PROPOSED PLAN PUBLIC HEARING TRANSCRIPT**

# of Pages: 8
Doc Date: 06/19/2012

Author:	Addressee:	Doc Type:	Access Type(s):
RODNEY ELLIOTT, US EPA REGION 1		MEETING RECORD PUBLIC (AND OTHER) COMME	REL

Bates #:
Weston #:

518888 **SIGN-IN SHEET FOR PROPOSED PLAN PUBLIC HEARING**

# of Pages: 1
Doc Date: 06/19/2012

Author:	Addressee:	Doc Type:	Access Type(s):
, US EPA REGION 1		LIST MEETING RECORD	REL

Bates #:
Weston #:

Number of Documents in Administrative Record: 29

Selected Key Guidance Documents

EPA Guidance Documents may be reviewed at the OSRR Records and Information Center in Boston, MA

DOCNUMBER	DOCDATE	TITLE	OSWEREPAID
C474	01-Dec-97	DRAFT INTERIM FINAL OSWER MONITORED NATURAL ATTENUATION POLICY	OSWER 9200.4-17
C653	2/1/2007	NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES CHAPTER ENV-OR 600 - CONTAMINATED SITE MANAGEMENT	
C742	7/1/1999	A GUIDE TO PREPARING SUPERFUND PROPOSED PLANS, RECORDS OF DECISION AND OTHER REMEDY SELECTION DECISION DOCUMENTS	OSWER 9200.1-23P
C832	10/1/1999	GUIDELINES FOR SELECTION OF NATURAL ATTENUATION FOR GROUNDWATER RESTORATION	

APPENDIX C: STATE CONCURRENCE LETTER

The State of New Hampshire
Department of Environmental Services
Thomas S. Burack, Commissioner

Celebrating 25 Years of Protecting New Hampshire's Environment

September 17, 2012

James T. Owens III, Director
Office of Site Remediation and Restoration
US EPA New England, Region I
5 Post Office Sq, Suite 100
Boston MA 02109-3912

RE: Amended Record of Decision
Kearsarge Metallurgical Corporation Superfund Site
Conway, New Hampshire – DES #198708002, Project RSN #13323

SUBJECT: Declaration of Concurrence

Dear Mr. Owens:

The New Hampshire Department of Environmental Services (Department) has reviewed the 2012 Amended Record of Decision (AROD) for the Kearsarge Metallurgical Corporation Superfund Site (Site) in Conway, New Hampshire. The United States Environmental Protection Agency (EPA) prepared this AROD in accordance with the provisions of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986. The AROD addresses actions necessary under CERCLA, as amended, to manage potential threats to human health and the environment at the Site.

Rationale for the AROD

The 1990 Record of Decision (1990 ROD) selected a comprehensive remedy for the Site that addressed groundwater as well as contaminated soils and materials. EPA began implementing the 1990 ROD remedy in 1992 by removing 13,620 tons of waste pile material, 42 tons of crushed drums, a solvent-contaminated septic tank and 12 yards of contaminated septic soils. In 1993, EPA designed and built a groundwater pump-and-treat facility that removed contaminated groundwater from the aquifer beneath the Site, treated the water to drinking water standards and discharged the water to the Conway Village Fire District Sewage Treatment Facility.

In the late 1990's, primary contaminants of concern in groundwater at the Site had leveled off at concentrations well above cleanup standards. Based on sustained elevated concentrations of contaminants in groundwater at the Site and the findings of additional source area Site investigations, in 2003 the Department excavated an additional 5,670 tons of contaminated, saturated soils for off-Site disposal. Concurrent to this effort the Department also replaced a network of groundwater recovery wells with one large recovery

trench constructed within the 2003 source excavation area. The Department continued to operate the groundwater extraction and treatment plant until December 2005, at which time EPA agreed to halt groundwater recovery to assess Site conditions.

By 2005, greater than 99% of the contaminants had been removed from the Site. Focused Feasibility Studies performed by Weston Solutions, Inc. (Weston FFS) in 2010, and EPA (EPA FFS) in 2012, revealed that 225 pounds of volatile organic compounds (VOCs) had been removed by the pump-and-treat system; approximately 150 pounds had been removed by the 2003 excavation; and that an estimated 3 pounds (less than one percent) of VOCs remained in the subsurface, primarily attached to low-permeable silty soils. A residual plume of groundwater contamination exists in a 20,000 square-foot area in saturated soils that are approximately 4 to 6 feet thick. A 2009 assessment of the Site using the Monitoring and Remediation Optimization System software (MAROS) found the following:

- Active remediation from 1993 to 2005 had diminished contamination at the Site and the majority of monitoring wells showed no or low and decreasing levels of contamination.
- The residual contaminant plume was stable and restricted to a small area of shallow groundwater that was on the KMC property.
- Biotic and abiotic degradation pathways were actively transforming the contaminants at the Site.

Based on the conclusions in the 2009 MAROS report, the Weston FFS examined the potential of an alternative remedy, Monitored Natural Attenuation (MNA) to replace the current groundwater pump-and-treat remedy. The Weston FFS estimated cleanup times of 15 years for groundwater pump-and-treat and 18 years for MNA. The slow rate of cleanup for groundwater pump-and-treat is due to the diffusion-limited release of VOCs from the saturated soil matrix. The EPA FFS then examined the alternative remedies with regard to 7 of the 9 remedy evaluation criteria identified in the National Contingency Plan to determine the suitability of the alternative.

EPA summarized the results of that analysis and selected the MNA alternative remedy as EPA's preferred alternative in a Proposed Plan that was presented at a Public Meeting in Conway, New Hampshire on May 22, 2012. No comments were received either during the public comment period or at the Public Hearing held in Conway on June 19, 2012. The 2012 Amended Record of Decision (2012 AROD) has selected MNA to replace the current, active groundwater remedy. The primary reasons for this selection are that greater than 99% of the contamination at the Site has already been removed, and that the cleanup times are similar for groundwater pump-and-treat as compared to MNA, while meeting all applicable or relevant and appropriate regulations.

Components of Amended Record of Decision

The 2012 AROD changes only the groundwater remedy component, Management of Migration, of the 1990 ROD. All other components of the Site cleanup are complete. The four primary changes in the groundwater remedy include:

1. The active groundwater pump-and treat system installed pursuant to the 1990 ROD is replaced by MNA. MNA will consist of annual monitoring and assessing the progress of contaminant degradation.
2. A cleanup level is established for 1,4-dioxane based on the State of New Hampshire Ambient Groundwater Quality Standard (AGQS) of 3 µg/ℓ.
3. The cleanup level for 1,1-DCA is changed from 3,650 µg/ℓ, (established in a September 2003 Explanation of Significant Differences),to the AGQS value, 81 µg/ℓ.
4. Revision of the Activity and Use Restriction (AUR) that was recorded in the chain of title of the parcels comprising the Site in August 2011 to allow the future construction of residential homes or other non-industrial or non-commercial buildings with installation of adequate engineering controls to prevent the potential exposure to VOCs through vapor intrusion.

This 2012 AROD will provide a comprehensive approach for this Site that addresses all current and potential future risks caused by groundwater contamination. The remedial measures will restore groundwater to concentrations at or below the drinking water standards through natural processes.

Justification for the Remedy Change

The selected remedy will be protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate, is cost effective, and uses permanent solutions to the maximum extent practicable. The selected remedy will provide a high degree of overall protection, will be effective in the long-term, and will be permanent, as demonstrated by natural degradation mechanisms functioning at the Site.

State Concurrence

In reviewing the AROD, the Department has determined that the remedy change is consistent with the Department's requirements for a remedial action plan and meets all of the criteria for remedial action plan approval. The selected remedy establishes a remedial action that will allow for the natural attenuation of residual groundwater contamination, adjustment of cleanup levels appropriate for the protection of human health and the

environment, continued monitoring of groundwater and an appropriate revision of the institutional control to manage future use of the Site. Ultimately, the proposed remedial action will provide protection of human health and the environment. Therefore, the Department, acting on behalf of the State of New Hampshire, concurs with the selected remedy, as described in the AROD.

In striving to maximize the effectiveness of limited public and private resources, the Department seeks reasonable and practical solutions to the complex challenges associated with contaminated site cleanups. EPA's dedication and continued partnership with the Department will ensure the achievement of our mutual environmental goals at this Site. To this end, the Department stands ready to provide whatever assistance that EPA may require.

Sincerely yours,

Michael J. Wimsatt, P.G., Director
Waste Management Division

ec: Earl Sires, North Conway Town Manager
Board of Selectmen, Town of Conway
Raymond Leavitt, Town Health Officer
Michael Jasinski, USEPA
Darryl Luce, USEPA
Peter Roth, NHDOJ
Keith Dubois, NHDES
Carl Baxter, NHDES
Richard Pease, NHDES
Andrew Hoffman, NHDES

APPENDIX D: TRANSCRIPT FOR THE PUBLIC HEARING

TOWN OF CENTER CONWAY

PUBLIC HEARING

Kearsarge Metallurgical Super Fund Site

1634 East Main Street

Center Conway, NH 03813

6:25 p.m.

Tuesday, June 19, 2012

Hearing Officer: Mr. Rodney Elliott,
Environmental Protection Agency

INDEX

HEARING OFFICER: We'd like to call the hearing to order. This is a public hearing. My name is Rodney Elliott, and I'm with the Government Relations Group at the United States Environmental Protection Agency New England regional office in Boston, Massachusetts.

Tonight I will be serving as the hearing officer for tonight's proceedings and would like to take a moment to describe the purpose and the format of tonight's formal hearing.

First, the purpose of the hearing is to accept your oral comments on the proposed cleanup plan for the Kearsarge Metallurgical Super Fund Site into the formal record.

During the formal hearing we will not be responding to your oral comments or questions; however, all oral comments received will become part of the Site's formal record and will be responded to by the EPA in writing in the document referred to as a Response of this summary, which is part of the final cleanup plan called the Record of Decision.

The Response of this summary and the Record of Decision are expected to be completed in

September 2012 and will be available at the information repositories at both the library located -- excuse me -- at the Conway library and at the Environmental Protection Agency's Boston office.

After all the oral comments have been recorded I will close the formal hearing. If you feel uncomfortable speaking but still wish to submit written comments today on the Kearsarge proposed cleanup plan, you can hand them directly to either Darryl Luce or myself at the end of the proceedings, or you could send them by fax or e-mail by June 21st, or you can send them by regular mail, as long as it's postmarked by June 21st as well. Please send them to the attention of Darryl Luce, D-A-R-R-Y-L L-U-C-E. The last page of the proposed plan has all the information on it for submitting comments.

Are there any questions on the purpose or the format of tonight's hearing?

(Pause)

HEARING OFFICER: Okay. If anyone here would like to speak, please raise your hand so I can call on you to speak. As I call on you to make your oral statement, please come to the microphone so that

our stenographer who is recording these formal proceedings can accurately capture your statement for the record. When you speak, please, first identify yourself, spell your name, and provide your address.

We will now accept any individual who would like to come and present testimony.

(Pause)

HEARING OFFICER: Nobody. Okay.

Seeing that we have no one here to present testimony, we will conclude the formal public hearing. Please remember that the public comment period on the Kearsarge proposed cleanup plan ends June 21st.

We thank you and have a good evening.

(Hearing concluded at 6:28 p.m.)

C E R T I F I C A T E

I, Elaine J. Ritsema, a Certified Court Reporter and Notary Public of the State of New Hampshire, do hereby certify that the foregoing is a true and accurate transcript of my stenographic notes of the public hearing taken at the place and on the date hereinbefore set forth.

I further certify that I am neither attorney, nor counsel for, nor related to or employed by any of the parties to the action in which this testimony was taken, and further that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

THE FOREGOING CERTIFICATION OF THIS TRANSCRIPT DOES NOT APPLY TO ANY REPRODUCTION OF THE SAME BY ANY MEANS UNLESS UNDER THE DIRECT CONTROL AND/OR DIRECTION OF THE CERTIFYING REPORTER.

_____

Elaine J. Ritsema, CCR, RPR
NH Certified Court Reporter
No. 92 (RSA 331-B)