



# Kearsarge Metallurgical Corp. Site Conway, NH

U.S. EPA | HAZARDOUS WASTE PROGRAM AT EPA NEW ENGLAND



**THE SUPERFUND PROGRAM** protects human health and the environment by locating, investigating, and cleaning up abandoned hazardous waste sites and engaging communities throughout the process. Many of these sites are complex and need long-term cleanup actions. Those responsible for contamination are held liable for cleanup costs. EPA strives to return previously contaminated land and groundwater to productive use.

## YOUR OPINION COUNTS: OPPORTUNITIES TO COMMENT ON THE PLAN

EPA, the lead agency for all site activities, will be accepting public comments on this proposed cleanup plan from May 23rd, 2012 through June 21st 2012. You don't have to be a technical expert to comment. If you have a concern, suggestion, or preference regarding this Proposed Plan, EPA wants to hear from you before making a final decision on how to protect your community. Comments can be sent by mail, email, or fax. People also can offer oral or written comments at the formal public hearing (see page 12 for details). If you have specific needs for the public meeting and hearing, questions about the meeting facilities and their accessibility, or questions on how to comment, please contact Rodney Elliott (see below).

### *Public Informational Meeting*

**Tues., May 22 at 6 p.m.**

Town Hall  
1634 East Main Street  
Center Conway, NH 03813

### *Formal Public Hearing*

**Tues., June 19 at 6 p.m.**

Town Hall  
1634 East Main Street  
Center Conway, NH 03813

## SUMMARY OF THE PROPOSED PLAN

Following twelve years of active cleanup at the Kearsarge Metallurgical Corporation (KMC) Superfund Site (the Site), this Proposed Plan outlines EPA's preferred method for addressing the remaining contamination in groundwater. The Proposed Plan for the cleanup of groundwater contamination at the KMC Site generally includes:

- Reducing contaminant concentrations in groundwater through natural processes;
- Monitoring and Assessment of the natural attenuation of the remaining contaminants in groundwater;
- Placing additional restrictions to prevent the use of the property for non-commercial/non-industrial purposes;

*continued >*

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- Attaining federal and state drinking water standards in groundwater throughout the Site; and
- Revising/adding cleanup levels for some contaminants in groundwater.

EPA's proposed cleanup plan would be implemented through natural attenuation of contaminants in groundwater, additional monitoring and assessments of contaminant reduction, institutional controls and Five-Year Reviews. The estimated total present value cost of this proposed cleanup plan is about \$731,000.

In accordance with Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the law that established the Superfund program, this document summarizes EPA's cleanup proposal. For detailed information on the cleanup options evaluated for use at the site, see the Kearsarge Metallurgical Corporation Focused Feasibility Study and other documents contained in the site's Administrative Record available for review at the site information repositories at the Conway Public Library, Main Street, Conway, NH and the EPA New England Records Center, 5 Post Office Sq., First Floor, Boston, MA or online at [www.epa.gov/region1/superfund/sites/kearsarge](http://www.epa.gov/region1/superfund/sites/kearsarge).

## SCOPE OF THIS PROPOSED PLAN

A Focused Feasibility Study has been completed that summarizes the current nature and extent of contamination at the Site. The Focused Feasibility Study also evaluated three different cleanup approaches to protect human health and the environment from exposure to contaminated groundwater and vapor intrusion at the Site. This Proposed Plan summarizes the evaluation of these three, long-term cleanup alternatives for addressing these remaining problems at the Site. In addition, this Proposed Plan includes a proposal for new/ revised cleanup

levels for some contaminants found in groundwater. Finally, this Proposed Plan requires that Institutional Controls for the site be revised to address potential unacceptable risk from vapor intrusion.

## A CLOSER LOOK AT EPA'S CLEANUP PROPOSAL

The existing contaminated portion of the aquifer lies entirely to the east of Hobbs Street and the KMC building, beneath a wetland area. See Figure 1. Cleanup efforts from 1993 to 2005 removed approximately 300 pounds of Volatile Organic Contaminants (VOCs) or 99% of the groundwater contamination from the Site. The remaining 3 pounds of VOCs at the Site are distributed in saturated soil covering 0.5 acres and approximately 4 to 6 feet thick.

The preferred cleanup plan would replace an existing groundwater pump-and-treat remedy that operated at the Site from 1992 until 2005 with a Monitored Natural Attenuation (MNA) remedy. EPA is proposing that the groundwater pump-and-treat remedy be replaced because of the inefficiency of the recovery system given the low levels of contamination that remain at the site. When the recovery system was shut down in December 2005, it had recovered less than 1 pound of contamination during that year at a cost of \$250,000.

Based on the three cleanup alternatives evaluated in the Focused Feasibility Study to address the remaining groundwater contamination at the Site, EPA is proposing the following actions for the final Site cleanup:

- Monitored Natural Attenuation or MNA to reduce contaminant concentrations in groundwater through natural processes.
- Long-term groundwater monitoring to measure the success of the natural attenuation mechanisms in the aquifer in reducing contamina-

tion and preventing contaminant migration.

- Revise Institutional Controls to prevent the use of the property for non-commercial/non-industrial purposes.
- Five-Year CERCLA reviews to assess the protectiveness of the remedy to public health and the environment and determine if additional remedial actions are necessary.
- Contingent remedy if natural attenuation fails to restore the contaminated groundwater within a reasonable timeframe.
- Cleanup Levels revised/added for some contaminants in groundwater.

EPA's preferred cleanup plan (identified as alternative MM-3) is discussed in the Focused Feasibility Study in greater detail. The estimated total present value cost for the preferred cleanup plan is approximately \$731,000.

MNA would rely on natural processes to reduce contaminate concentrations in groundwater. Monitoring would occur to confirm that the levels of contamination are reducing and that contamination is not migrating. Modeling has demonstrated that the preferred cleanup plan would restore the aquifer to acceptable cleanup levels in approximately 18 years while continuation of the current remedy would attain cleanup levels in 15 years at a significantly greater cost. The length of time for each remedy is extended because of the slow diffusion of contaminants from the saturated soils into the groundwater.

EPA also proposes to change the Cleanup Levels for some of the contaminants found in groundwater at the Site. The Cleanup Level for chloroform, selected in the 1990 Record of Decision, was 100 parts per billion (ppb) based on health risk calculations at that time. EPA is proposing to lower that value to 80 ppb based on revised EPA drinking water health standards.

*continued on page 4 >*



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>Source Area Removal</li> <li>Groundwater Treatment Plant</li> <li>Kearsarge Metallurgical Corporation</li> <li>Buildings</li> <li>Excavation</li> <li>Wetland</li> <li>Active Monitoring Location</li> <li>Inactive Location</li> <li>Line Drain</li> <li>Site Boundary</li> <li>Drainage Culvert</li> </ul>		<p><b>EPA</b></p> <p>Feet</p> <p>0 80 160</p>	<p><b>Figure 1</b></p> <p><b>GROUNDWATER MONITORING LOCATIONS</b></p> <p>Kearsarge Metallurgical Corporation Conway, New Hampshire</p> <p>Map by US EPA Region 1 GIS Center 1/26/2012, Map Tracker ID: 8345</p>
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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. EPA now seeks to revise the Cleanup Level for 1,1 dichloroethane to 81 ppb based on a new Ambient Groundwater Quality Standard established by the State of New Hampshire.

EPA is also proposing to establish a Cleanup Level for 1,4 dioxane of 3 ppb based on the most recent State of New Hampshire Ambient Groundwater Quality Standard.

This proposed cleanup plan will meet all current State and Federal drinking water standards as well as any additional Cleanup Levels established in the 1990 Record of Decision.

Finally, EPA is proposing to revise the Institutional Control that was placed on the Site in 2011. The Institutional Control is a Notice of Activity and Use Restriction (AUR) which is recorded at the Carroll County Registry of Deeds within the chain of title to the site property. The Notice runs with the land. The AUR prohibits the use of soil for the production of food for human consumption, extraction of groundwater other than for performance of the remedy at the Site, and any activity including soil excavation that will interfere with performance of the remedy at the Site. The revised AUR also will prevent the use of the property for non-commercial/non-industrial purposes such as residences, schools, day-care centers, or nurseries.

## POTENTIAL COMMUNITY IMPACTS

The proposed cleanup plan is not expected to impact the surrounding community. Monitored Natural Attenuation will generally consist of only groundwater monitoring on and near the Site. Regardless, EPA and NHDES will work with the Town and property owner(s) to ensure that activities are consistent with community needs for the area.

## SITE DESCRIPTION

The former Kearsarge Metallurgical Corporation property consists of approximately

## MONITORED NATURAL ATTENUATION

Monitored Natural Attenuation relies on natural processes to clean up or attenuate contamination in soil and groundwater. For example, microbes that live in soil and groundwater can use contaminants in soil and groundwater for food resulting in lower levels of contamination. The end-products are water and harmless gases.

The right conditions must exist underground for natural processes to work. If not, cleanup will not be quick enough or complete enough. Monitoring of conditions is done to confirm that natural processes are working and that contamination is not spreading to other areas. This ensures that people and the environment are protected during the cleanup.

*For further information consult the following:*

*A Citizen's Guide to Bioremediation [EPA 542-F-01-001], and*

*A Citizen's Guide to Monitored Natural Attenuation, Office of Solid Waste and Emergency Response, EPA 542-F-01-004, April 2001.*

*Also available at: <http://www.clu-in.org/download/citizens/mna.pdf>*

9-acres located in an industrial park on the western edge of Conway, New Hampshire, on the southeast side of Hobbs Street. The topography is flat, with several nearby large buildings housing various commercial enterprises. A residential area is 900-feet west of the property. The area is served by public water and sewer provided by the Conway Village Fire District (CVFD). The approximate groundwater cleanup area is shown on Figure 1, on Page 3 of this Proposed Plan.

Monitoring by EPA and the State of New Hampshire identified a 0.5 acre area of groundwater contamination that varies from 4 to 6 feet in thickness and is approximately 4 feet below the ground surface. A thick layer of clay beneath the saturated soils prevents the contaminants from migrating downward. The source of the groundwater contamination is the layer of clay that contains contaminants that have been absorbed and are slowly released.

## LAND USE

### Historical Land Use

In 1964, the Kearsarge Metallurgical Corporation began manufacturing stainless steel valves 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 of in a wooded wetland just east of the old KMC building. Solvents were also discharged through the on-site septic system that was located between the old KMC building and the 1992 Source Removal Area. These solvents are the VOC contaminants present in the groundwater today.

The Kearsarge Metallurgical Corporation closed in 1982 and abandoned the property. The Site was added to the National Priorities List in 1984. Following a Remedial Investigation and Feasibility Study, EPA issued a Record of Decision in 1990 selecting the cleanup approach to be implemented throughout the Site. The cleanup of the Site was performed as follows:

- 1992: 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.
- 1993: EPA built and began operating the groundwater pump-and-treat system.
- 2003: EPA and New Hampshire Department of Environmental Services removed an additional 5,670 tons of VOC contaminated saturated soils.
- 2005: After pumping and treating approximately 250 million gallons of contaminated water over 12 years, groundwater pumping and treatment was halted.

**ENVIRONMENTAL INVESTIGATIONS AND CLEANUP ACTIONS TO DATE**

- 1970 to 1982:.....KMC manufactured stainless steel castings and discharged waste acids, chlorinated solvents, caustics, and flammable liquids to the ground surface (waste piles) and septic system.
- 1982: .....KMC closed and abandoned the property after the State of New Hampshire and EPA order it to halt discharges to the septic system, to place unsafe wastes in containers, and to remove a waste pile.
- Sep 21, 1984:.....Kearsarge Metallurgical Corporation is added to the National Priorities List
- Jun 1990: .....The State of New Hampshire and EPA concluded investigations at the Site and issued a Proposed Plan for public comment to address risks at the Site.
- Sep 28, 1990: .....EPA signed a Record of Decision that required the removal of a contaminated septic system and soil as well as cleanup of contaminated groundwater.
- Aug 1992: ..... EPA issued an Explanation of Significant Differences that clarified portions of the 1990 Record of Decision to allow the remedy to proceed.
- Sep 1992:.....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
- 1993: .....EPA designed and built a 40+ gallon per minute groundwater pump and treat system to restore groundwater.
- Sep 1993:.....EPA began operation of the groundwater pump and treat system, extracting and treating contaminated groundwater at a rate of approximately 42 gallons per minute. The treated water was discharged to the sewer system.
- Oct 2000:.....A groundwater recovery trench and well EW-13A were installed in the area east of Hobbs Street to optimize recovery of contaminated groundwater.
- Sep 2003: .....An Explanation of Significant Differences was issued to address lingering groundwater contamination east of Hobbs Street by requiring the removal of contaminated saturated soil. The Cleanup Level for 1,1 dichloroethane was also increased from 4 to 3,650 parts per billion based on risk calculations.
- Dec 2003:.....Approximately 5,670 tons of saturated soil contaminated with chlorinated solvents (VOCs) were excavated and removed from the Site.
- Feb 2004: .....A new extraction well, EW-13B, was installed in the excavation area and added to the extraction system. Pumping from the extraction wells west of Hobbs Street was discontinued because the Cleanup Levels in this area were attained and maintained.
- Dec 2005:.....The groundwater pump and treat system was turned off to determine groundwater conditions.
- Dec 2009:.....EPA determined that the remaining groundwater contamination at the site is not migrating.
- Apr 19, 2010: .....EPA issued an Explanation of Significant Differences to require Institutional Controls for the Site.
- Aug 30, 2011:.....The Institutional Control (Activity and Use Restriction) was recorded by Carroll County Register of Deeds.
- Jan 2012:.....EPA issued a Focused Feasibility Study that evaluated three alternatives to address remaining groundwater contamination.

The 2003 soil removal and the 12 years of pumping and treating removed approximately 300 pounds of VOCs from the groundwater. By 2010, it was estimated that 3 pounds of VOCs remained in the saturated soils.

### CURRENT & FUTURE LAND USE

The Site is located in an industrial park within the Town of Conway, NH. This area is expected to remain industrial. Residential areas lie approximately 900 feet to the north and west. Pequawket Pond, located to the south of the Site, is used by the public for recreation and fishing. Institutional Controls are currently in place at the Site to prohibit extraction of contaminated groundwater, to prohibit any activity that would interfere with the cleanup and to prohibit the use of soil for the production of food for human consumption. The groundwater near the Site is not currently used as drinking water. However, the State has issued a determination of groundwater use and value, and upon further clarification has stated that it views the groundwater at the Site as a potential drinking water source.

### WHY ADDITIONAL CLEANUP IS NEEDED

#### Contaminants

Past industrial operations at the Site have resulted in contamination of the soil and groundwater. Actions taken by EPA and the New Hampshire Department of Environmental Services have cleaned up the soil and approximately 99% of the groundwater contamination. Groundwater pump-and-treat performed from 1993 to 2005 removed most contamination from the groundwater and reduced the area of contamination from more than 9 acres to less than one-half acre. Within that one-half acre, only five monitoring wells remain above groundwater cleanup levels and those concentrations are now declining. The most recent

groundwater monitoring in October 2011 found the following distribution of contamination in the five affected wells:

- 1,1 dichloroethene was above cleanup levels in five wells.
- 1,1,1 trichloroethane and 1,2 dichloroethene each exceeded cleanup levels in only one well.
- 1,4 dioxane exceeded the State of New Hampshire Ambient Groundwater Quality Standard and proposed Cleanup Level in three wells.

The groundwater cleanup levels established for all other contaminants have been attained throughout the Site.

### EXPOSURE PATHWAYS & POTENTIAL RISK

The existence of contamination at a particular site does not mean the environment or people are currently at risk. Risk is created only if there can be exposure to the contamination. Exposure can occur when people or other living organisms eat, drink, breathe or have direct

skin contact with a substance or waste material. Based on existing or reasonably anticipated future land use at a site, EPA develops different possible exposure scenarios to determine potential risk, appropriate cleanup levels for contaminants, and potential cleanup approaches.

Human health and ecological risk assessments have been prepared for the Site and a summary of these assessments can be found in the Focused Feasibility Study. These assessments use different contamination exposure scenarios to determine if and where there are current or potential future unacceptable risks.

#### Human Health

There is the potential for people to be exposed to the Site's contaminants either by drinking contaminated groundwater or by breathing vapors that may enter buildings. If groundwater were used for drinking water purposes, the contaminants would pose an unacceptable risk to human health. At the current maximum concentrations found in groundwater, modeling determined that if contaminants were to enter buildings as a vapor phase, no risk to workers would exist, but if homes, for example, were built on the Site or buildings were used for residential purposes, a risk to residents would be possible.

Focusing on those wells within the 1/2 acre contaminated area, the following concentrations were found in groundwater monitoring wells in December 2011:

Contaminant	Cleanup Level (µg/l)	Maximum Concentration (µg/l)	Number of Wells that Exceeded Cleanup Level
1,1,1-trichloroethane	200	170	0 of 12
1,1-dichloroethene	7	420	4 of 12
1,2-dichloroethane	5	20	1 of 12
1,1-dichloroethane	81*	190	1 of 12
1,4-dioxane	3*	41	3 of 12

\* Cleanup levels proposed in this Proposed Plan. The remaining wells monitored on the remaining 9 or more acres meet all cleanup levels.

## Site Exposure Assumptions

EPA used the following exposure assumptions to estimate the potential human health risks posed by the Site:

- For using groundwater as drinking water, it is assumed that residents would consume 2 liters per day for 350 days a year for a total of 30 years;
- For workers inhaling contaminated vapors, it was assumed that they would be exposed for 8 hours per day for 250 days per year over 20 years; and
- For residents inhaling contaminated vapors, it was assumed that they would be exposed for 24 hours per day for 360 days per year for 30 years.

## Threats to the Environment

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 (see Figure 1). To evaluate potential risks to aquatic receptors in Pequawket Pond, samples of groundwater were collected in April 2009 from the storm sewer catch basins after a period of no precipitation and analyzed for VOCs. Only 1,1,1 trichloroethane was above detection limits (2.6 µg/l). There is no Federal Surface Water Quality Criteria standard for 1,1,1 trichloroethane. New Hampshire has established a State Water Quality Criteria standard for 1,1,1 trichloroethane for the protection of aquatic life. The maximum groundwater concentrations detected at the Site do not exceed the State standard. Therefore, groundwater discharging from the Site does not present an unacceptable risk to ecological receptors.

## CLEANUP ALTERNATIVES

After possible exposure pathways and potential risk have been identified at a site, cleanup alternatives are developed to address the identified risks and achieve the Remedial Action Objectives, also known as cleanup objectives.

The cleanup objectives established for the KMC Site include:

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 1 in 10,000.
2. Prevent ingestion of groundwater having non-carcinogenic contaminants in excess of ARARs and/or a Hazard Index greater than 1.
3. Restore groundwater so that carcinogens meet ARARs and the total excess cancer risk (for all contaminants) is within 1 in 10,000 to 1 in 1,000,000.
4. Restore groundwater so that non-carcinogens meet ARARs and non-cancer risk is reduced to a Hazard Index less than 1.
5. Prevent exposure to compounds that would pose an inhalation risk to residential or commercial and industrial users.

A detailed description and analysis of each alternative developed to reduce risks from exposure to contaminated groundwater and vapor intrusion is presented in the Focused Feasibility Study, which is also available for public review and comment.

To protect public health and the environment from actual or threatened releases of hazardous substances into the environment, EPA believes that the preferred alternative presented in this Proposed Plan will meet the cleanup objectives described above. Below is a summary of the alternatives and how they will, or will not, meet the cleanup objectives.

MM-1 – No Further Action is required by the Superfund law to be evaluated and is used as a baseline for comparison to other cleanup alternatives. This alternative would not require any further cleanup action, periodic monitoring, or Five-Year Reviews. It would be unknown if, or when, cleanup objectives would be met under this alternative. The estimated total present value cost of this alternative is \$0.

MM-2 – Groundwater Pump-and-Treat was the selected remedy for Management of Migration in the 1990 ROD and operated from 1993 until 2005. This remedy was optimized to extract as much contamination as possible from 1993 to 2005 as the distribution of contaminants in groundwater changed as a result of remedy operation. To respond to the present groundwater contamination, the components of this alternative include:

- Resuming operation of the groundwater pump-and-treat system to treat the contaminated groundwater.
- Extracting groundwater from extraction well EW-13B in the Culvert Area at a rate of 4 to 6 gallons per minute (gpm) (8,700 gallons per day maximum).
- Operating the groundwater pump-and-treat system to removed VOCs through air-stripping and the addition of a sequestering agent to prevent deposition of metals in process equipment.
- Discharging the treated groundwater to the Conway Village Fire District sewer system for disposal.
- Long-term groundwater monitoring.
- Revising Institutional Controls to prevent the use of the property for non-commercial/non-industrial purposes such as residences, schools, day-care centers, or nurseries.
- Revising Cleanup Levels
- Performing Five-Year CERCLA reviews.

Based on the modeling presented in Appendix A of the Focused Feasibility Study, the cleanup time under this alternative is estimated to be approximately 15 years. The estimated total present value cost of this alternative is \$2,606,046.

MM-3 – Monitored Natural Attenuation (MNA) provides no active treatment, containment, or recovery of contaminants. MM-3 will rely on natural processes in the groundwater to prevent migration and reduce concentrations of contaminants to cleanup levels. The additional components of MM-3 include:

- Long-term groundwater monitoring to measure the success of the natural attenuation mechanisms in the aquifer functioning to reduce contamination and prevent migration.
- Revising Institutional Controls to prevent the use of the property for non-commercial/non-industrial purposes such as residences, schools, day-care centers, or nurseries.
- Revising Cleanup Levels
- Performing Five-Year CERCLA reviews.

Because Monitored Natural Attenuation relies on natural processes and it is possible the cleanup levels may not be achieved, a phased contingency approach is included in this alternative. If MM-3 does not reduce contamination or fails to prevent migration, the MNA alternative will be supplemented with additional response actions. The decision to design and implement additional response actions, successively, would be triggered by either of the following conditions:

- The concentration of either 1,1 dichloroethylene or 1,1 dichloroethane 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, or
- The concentration of any contaminants at any other monitoring point indicates that contaminants may migrate off-site at concentrations above cleanup levels.

Should either of those conditions exist, an oxidizing compound would likely be injected into the aquifer to destroy the contaminants. Following treatment, additional monitoring will be performed and additional injections may be necessary. Stabilization and further monitoring will then be performed to determine if this in situ treatment of the contamination, in combination with MNA, will meet the remedial action objectives.

If in situ treatment is not successful, or migration of the contaminant plume is likely to

occur outside the Site boundary, then a small-scale mobile pump-and-treat system would be designed and used to capture the remaining contaminants and restore the aquifer. Additional details regarding this contingent remedy are provided in the Focused Feasibility Study.

Based on the modeling presented in Appendix

A of the Focused Feasibility Study, the cleanup time for MNA is estimated to be approximately 18 years. The estimated total present value cost of this alternative is \$730,674.

## THE NINE CRITERIA FOR CHOOSING A CLEANUP PLAN

EPA uses nine criteria to evaluate cleanup alternatives and select a cleanup plan. EPA has already evaluated how well each of the cleanup alternatives developed for the Kearsarge Metallurgical Corporation Site meets the first seven criteria in the Focused Feasibility Study. Once comments from the state and the community are received and considered, EPA will select the final cleanup plan.

1. Overall protection of human health and the environment: Will it protect you and the plant and animal life on and near the site? EPA will not choose a cleanup plan that does not meet this basic criterion.
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs): Does the alternative meet all federal and state environmental statutes, regulations and requirements? The cleanup plan must meet this criterion.
3. Long-term effectiveness and permanence: Will the effects of the cleanup plan last or could contamination cause future risk?
4. Reduction of toxicity, mobility or volume through treatment: Using treatment, does the alternative reduce the harmful effects of the contaminants, the spread of contaminants, and the amount of contaminated material?
5. Short-term effectiveness: How soon will site risks be adequately reduced? Could the cleanup cause short-term hazards to workers, residents or the environment?
6. Implementability: Is the alternative technically feasible? Are the right goods and services (e.g., treatment equipment, space at an approved disposal facility) available?
7. Cost: What is the total cost of an alternative over time? EPA must select a cleanup plan that provides necessary protection for a reasonable cost.
8. State acceptance: Do state environmental agencies agree with EPA's proposal?
9. Community acceptance: What support, objections, suggestions or modifications did the public offer during the comment period?

## CLEANUP ALTERNATIVES COMPARISON

The three alternatives described previously in this Proposed Plan were compared with each other to identify how well each alternative meets EPA's evaluation criteria. The following discussion and table presents a general comparison summary of the alternatives. Detailed evaluations and comparisons of the alternatives are included in the Focused Feasibility Study.

### Overall Protection of Human Health & the Environment

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 and no action is taken to address potential vapor intrusion risks. The other two Alternatives, Groundwater Pump-and-Treat, MM-2, and Monitored Natural Attenuation, 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, institutional controls would be enforced under both Alternatives MM-2 and MM-3 to prevent unacceptable exposure to vapor intrusion. Finally, an evaluation of the remedial progress for MM-2 and MM-3 would occur every five years to determine whether the remedy is continuing to be protective of human health and the environment.

### Compliance with Applicable or Relevant and Appropriate Requirements

Alternative MM-1 would not comply with chemical-specific ARAR requirements, specifically Federal and State requirements related to drinking water. MM-2 and MM-3 will meet all ARAR requirements. The primary requirements are Federal and State drinking water regulations. Tables D1 through D5, in Appendix D of the Focused Feasibility Study, list all the ARARs for each alternative.

### Long-Term Effectiveness and Permanence

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 is no monitoring of Institutional Controls to prevent exposure to Site contaminants that could result in a potential future unacceptable risk.

Both Alternatives MM-2 and MM-3 will reduce the concentration of contaminants in groundwater to acceptable levels and therefore the magnitude of the residual risk is greatly reduced. Long-term monitoring would be conducted to confirm that levels 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 a potential future unacceptable risk from vapor intrusion. 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 or Volume through Treatment

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 the groundwater 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 nearby sewer system, if allowed, unless additional treatment is applied and successful.

Alternative MM-3 would reduce the toxicity, mobility and volume of remaining groundwater contaminants to cleanup levels through in situ biotic and abiotic (natural) reactions. 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

Under Alternative MM-1, there would be no short term impacts from construction/implementation to the community, workers or the environment 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 as under both of these Alternatives as there are minimal construction activities (treatment system O&M, installing signs for institutional controls, groundwater sampling, etc.) required to implement the remedy. Therefore, 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.

The groundwater cleanup time for MM-2, as outlined in Appendix A of the Focused Feasibility Study is approximately 15 years. For MM-3, the time estimated to attain cleanup levels in groundwater is 18 years.

**Table 1 Comparison of Groundwater Cleanup Alternatives**

Alternative	Evaluation Criteria									Time to Achieve Cleanup Objectives
	Protects Human Health & Environment	Meets Federal & State Requirements	Long-term Effectiveness and Permanence	Reduces Toxicity, Mobility & Volume Through Treatment	Short-Term Effectiveness	Implementability	Cost <sup>1</sup>	State Agency Acceptance	Community Acceptance	
MM-1: No Action	☐	☐	☐	☐	■	■	\$0	TBD	TBD	Unknown
MM-2: Resume operating the existing groundwater pump and treat facility and maintain institutional controls.	■	■	■	■	■	■	\$2.6 million	TBD	TBD	15 years
<b>MM-3: Monitored Natural Attenuation. Allow natural processes to restore groundwater and maintain institutional controls.</b>	■	■	■	■	■	■	\$731,000	TBD	TBD	18 years

**Notes:**

<sup>1</sup> Estimated Total Present Value

**Key:** ☐ EPA's preferred cleanup alternative

☐ Does not meet criterion; ■ Partially meets criterion; ■ Meets criterion; TBD – to be determined following public comment period.

This table is not a substitute for the detailed alternatives analysis in the Focused Feasibility Study; it is an evaluation summary intended to be helpful for the public. The reader is directed to the Cleanup Alternatives Comparisons of the Focused Feasibility Study for further understanding of important legal and technical differences among the alternatives.

### Implementability

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 operated effectively to control the contaminant plume at the Site from 1993 to 2005. The effort required to resume operation under MM-2 would include repairing or replacing broken and aged equipment and obtaining supplies necessary for day-to-day operations. Materials and skilled staff are readily available to restore, operate and maintain the treatment system under MM-2. The Conway Village Fire District would need to agree to accept the treated plant effluent, approximately 6 gallons per minute or less, but accepted larger volumes from the Site from 1993 to 2005 (42 gallons per minute) and therefore is likely to accept the discharge. 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 capture most of the existing plume in the Culvert Area. Although groundwater concentrations would temporarily attain cleanup goals shortly after resuming operations of the extraction system under MM-2, reestablishment of the plume would occur once extraction ceased. Diffusion of contaminants out of the silt and clay layer is the time-limiting factor in the permanent, long-term attainment of cleanup goals. Due to the low transmissivity of the silt and clay layer, groundwater extraction from the silt and clay layer would be very slow and inefficient.

Alternative MM-3, Monitored Natural Attenuation, can also be easily implemented. There are no significant technical issues associated with groundwater monitoring or establishing additional institutional controls. The silt and clay layer retards the flow of contaminants increasing the ability of attenuation mechanisms to function. However, should MNA need to be supplemented, chemical oxidation would also be easy to implement as the target zone for treatment is shallow and may be reached through conventional means. The silt and clay layer that makes groundwater extraction in

MM-2 difficult may also make oxidant delivery to the contaminants difficult. If limited short-term pump-and-treat is required, the area to be addressed is small and easily accessible using a mobile system but would also be rate-limiting due to silt and clay layers noted under MM-2.

There are no significant technical issues associated with MM-3 other than groundwater monitoring and enforcement of institutional controls. MM-2 would require additional work to re-start the treatment plant and arrange for disposal of the treated water. Neither alternative would require coordination with other agencies other than the local POTW. Finally, both alternatives would require some coordination to revise the Institutional Controls but this is not expected to be difficult.

### Cost

Total estimated present value costs for the three groundwater alternatives are presented in Table 1.

### FOR MORE INFORMATION:

The Administrative Record, which includes all documents that EPA has considered or relied upon in proposing this cleanup plan for the Kearsarge Metallurgical Corporation Superfund Site, is available for public review and comment at the following locations:

EPA Records and Information Center  
5 Post Office Square, First Floor  
Boston, MA 02109-3912  
617-918-1440

Conway Public Library  
15 E. Main Street  
Conway, NH 03818  
603-447-5552

### WHY EPA RECOMMENDS THIS CLEANUP PROPOSAL

EPA's proposed comprehensive cleanup plan addresses the remaining groundwater contamination at the Site following more than 12 years of active cleanup efforts. The remaining contamination consists of approximately 3 pounds of organic contaminants in saturated soils that are slowly transmitting the contaminants to groundwater. In addition, potential risk from vapor intrusion would be addressed by prohibiting non-industrial/non-commercial uses of the site. Finally, groundwater Cleanup Levels have been revised to reflect what EPA currently considers protective levels to be.

The proposed cleanup approach was selected over the other alternatives because it uses a proven cleanup technology, Monitored Natural Attenuation, to achieve substantial long-term risk reduction by allowing natural processes to address the contamination and minimize migration of remaining contaminants in a cost-effective manner.

Based on information available at this time, EPA believes its proposed cleanup alternative, MM-3, provides the best balance of tradeoffs among the other alternatives and satisfies the requirements of CERCLA §121. The proposed cleanup alternative would be protective of human health and the environment; would comply with state and federal environmental laws and regulations; would be cost-effective; and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The proposed cleanup alternative would also satisfy the preference for treatment as a principal element because it would treat groundwater contamination using natural processes.

## WHAT IS A FORMAL COMMENT?

*This Proposed Plan has been prepared in accordance with EPA's statutory and regulatory responsibilities. See 40 CFR 300.430(f)(2). This Proposed Plan meets the public participation requirements under CERCLA delineated in the National Contingency Plan (NCP). See 40 CFR 300.435(c)(2)(ii)*

*EPA will accept public comments during a 30-day formal comment period. EPA considers and uses these comments to improve its cleanup approach. During the formal comment period, EPA will accept written comments via mail, email, and fax. Additionally, verbal comments may be made during the formal Public Hearing on June 19, 2012 during which a stenographer will record all offered comments during the hearing. EPA will not respond to your comments at the formal Public Hearing.*

*EPA will hold a brief informational meeting prior to the start of the formal Public Hearing on June 19, 2012.*

*EPA will review the transcript of all formal comments received at the hearing, and all written comments received during the formal comment period, before making a final cleanup decision. EPA will then prepare a written response to all the formal written and oral comments received. Your formal comment will become part of the official public record. The transcript of comments and EPA's written responses will be issued in a document called a Responsiveness Summary when EPA releases the final cleanup decision, in a document referred to as the Amended Record of Decision. The Responsiveness Summary and Amended Record of Decision will be made available to the public on-line, at the Conway Public Library and at the EPA Records Center. EPA will announce the final decision on the cleanup plan through the local media and via EPA's website.*

Information is also available for review on-line at [www.epa.gov/region1/superfund/sites/](http://www.epa.gov/region1/superfund/sites/)

## SEND US YOUR COMMENTS

Provide EPA with your written comments about the Proposed Plan for the Kearsarge Metallurgical Corporation Superfund Site.

Please email ([luce.darryl@epa.gov](mailto:luce.darryl@epa.gov)), fax (617-918-0336), or mail comments, postmarked no later than Thursday, June 21, 2012 to:

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