



Amended Proposed Plan

Dover Municipal Landfill Superfund Site
Dover NH

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Counts!**

In 1991 EPA and the New Hampshire Department of Environmental Services (NHDES) selected a remedy for the Dover Municipal Landfill which consisted of installing an impermeable cap on the landfill and capturing and treating contaminated ground water flowing from the site. The remedy was never built due to concerns raised by the community and others. Instead, EPA and NHDES allowed the responsible parties to investigate new, innovative technologies that could be applied at the site.

After careful consideration of those studies and other site information, EPA and NHDES are proposing to amend the source control portion of the 1991 Selected Remedy. The following amendment is proposed:

- Instead of an impermeable cap, the landfill will be left with its present, soil cover to facilitate the treatment of contamination.
- A treatment trench will be installed at the edge of the landfill to immobilize, capture, or destroy contaminants flowing from the landfill in the ground water.
- Indoor air in buildings near the site will be monitored.
- Sediment in the Cocheco River will be monitored and excavated if necessary.
- Contaminated ground water flowing to the Cocheco River will be cleaned up through natural attenuation. EPA and NHDES will monitor these processes until cleanup is achieved.
- Contaminated ground water flowing toward the Bellamy Reservoir will be intercepted and treated to restore it to drinking water standards.

A closer look at the amended proposed cleanup plan can be found on page 4.

Find out about EPA's amended proposed cleanup plan at a public meeting on June 21 at the Dover City Hall Auditorium, Dover NH. At the meeting, EPA and NHDES will summarize the cleanup proposal and will be available to respond to your questions and concerns about the cleanup.

EPA is accepting public comment on this cleanup proposal from June 22 to July 22, 2004. If you have comments regarding EPA's amended proposed cleanup plan for the site, we want to hear from you before making a final decision. In addition, EPA is also soliciting specific comment on a finding of no practical alternative to wetland impacts. This finding is described further on page 6.

**Public Information Meeting for the
Amended Proposed Cleanup Plan**
Monday, June 21, 2004 at 7:00 p.m.

**Public Hearing for the
Amended Proposed Cleanup Plan**
Monday, July 19, 2004 at 7:00 p.m.

both events will be held at the:
Dover City Hall Auditorium
Central Ave., Dover NH

To provide formal comment, you may offer oral comments during the public hearing or send written comments postmarked no later than July 22, 2004 to:

**Darryl Luce
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1 Congress St., Suite 1100 (HBO)
Boston MA 02114**

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For more information about the amended proposed plan, meetings, or should you have specific needs or questions about the meeting facility and its accessibility, please contact EPA Community Involvement Coordinator Angela Bonarrigo (toll free): 888 372-7341 x 81034.

Dover Municipal Landfill Site History

The following is a brief summary of the regulatory history of the site.

1961 - 1979: The landfill accepted municipal solid waste and industrial hazardous waste.

1981: Contaminants found in local drinking water wells resulted in providing municipal drinking water to the surrounding residential area.

1983: The site is placed on EPA's Superfund List.

1991: A Record of Decision is issued which requires that the landfill be capped and that the contaminated ground water south of the landfill be pumped and treated. Contaminants in ground water east of the landfill would naturally attenuate. The estimated cost of the cleanup is \$27 million.

1994 - 1996: The landfill cap design is completed.

1996 : Based on the availability of new technology, the responsible parties propose a Bioremediation Pilot Project that may be as effective and less expensive as the 1991 selected remedy.

1997: EPA and NHDES accept the Bioremediation Pilot proposal and the Bioremediation Pilot begins.

2002: NHDES sends a letter to the responsible parties stating that the Bioremediation Pilot, as demonstrated, will not be considered as a replacement for capping the landfill and treating the groundwater. EPA and NHDES agree to look at a revised alternative that arose during the Bioremediation Pilot.

2002 - 2004: The responsible parties complete a *Revised Focused Feasibility Study (RFFS)* which presents two alternative remedies to that selected in the 1991 Record of Decision.

2004: EPA and NHDES review the *Revised Focused Feasibility Study*, prepare an Addendum to that document and issue this amended proposed plan for public comment.

Why is Cleanup Needed?

The Dover Municipal Landfill Site covers approximately 50 acres, just south of Tolend Road where it meets Glen Hill Road in Dover, New Hampshire. The site is located in a rural, residential area where approximately 23 homes lie within 1/4 mile of the site. The landfill operated from 1961 to 1979 accepting municipal and industrial wastes including liquid hazardous wastes. These wastes were deposited in the landfill where they leached into the ground water.

The contaminated ground water began to flow in two principal directions. One contaminated plume of ground water, the Eastern Plume, flows to the east and discharges to the Cochecho River. The other contaminated plume of ground water, the Southern Plume, flows south towards the Bellamy Reservoir.

The primary contaminants in the ground water include arsenic and organic contaminants. The organic contaminants include chlorinated organics such as vinyl chloride, 1,2 dichloroethylene and trichloroethylene. Other organic contaminants include benzene and tetrahydrofuran. This contaminated ground water degrades the drinking water aquifer at the site, discharges to the Cochecho River, threatens to discharge to the Bellamy Reservoir, and could potentially threaten the aquifer that is the source of the Calderwood municipal supply well.

Contaminated ground water flowing to the east discharges to the Cochecho River, creating arsenic-contaminated sediment in the River. Contaminated ground water is also flowing south to the Bellamy Reservoir. Although no contaminants are discharging to the Bellamy Reservoir yet, EPA and NHDES believe, based on site data and previous studies that contaminants will discharge to the Bellamy Reservoir if they are allowed to continue migrating.

Exposure pathways (or routes of exposure) evaluated to identify risks to human health included:

- ☐ Ingestion of soil, ground water, and sediments.
- ☐ Dermal contact with soil, sediments in the Cochecho River, ground water, and surface water.

Indoor air in homes that overlie the Eastern contaminated ground water plume have been assessed under NHDES guidance in the past as not generating a risk, however, EPA has recently issued an indoor air guidance. EPA will reassess indoor air exposures using criteria in the new guidance. Should the assessment determine that there is a risk from indoor air, EPA will take steps to address it.

The primary risk at the site is to future residents from exposure to contaminants through drinking ground water. There is no current risk to residents from drinking groundwater because municipal drinking water has been provided to all residents in the area and institutional controls are in place that prohibit the use of groundwater as drinking water until the cleanup is complete. However, although no drinking water wells exist in the area, EPA must consider the potential for the future use of ground water. In addition, the aquifer must be restored to drinking water status.

Sediment concentrations of arsenic in the Cocheco River may be above EPA's and the NHDES criteria for ecological receptors and must be further evaluated to determine if a risk to the environment exists. Sediment does not currently pose a risk to human health but will be monitored on a continuing basis to ensure the levels remain protective of human health and the environment. Sediments that pose a risk to human health or the environment will be removed.

Actual or threatened releases of hazardous substances from this site, if not addressed by the amended proposed cleanup plan or other active measures considered, presents future threats to public health, welfare, or the environment and may present current or potential threats to public health, welfare or the environment.

What is an Amended Proposed Plan and an Amended Record of Decision?

In selecting a remedy EPA chooses those technologies that it believes will best protect public health and the environment. However, in some instances new information or technologies come to light that offer either more efficient or less costly approaches that are equally protective of public health and the environment. In such cases, EPA will evaluate those approaches against the technology that was previously selected and may, if EPA believes it to satisfy a number of requirements, issue an amended proposed plan and after public comment, select an amended remedy to replace the originally selected remedy or portions of the selected remedy. The amended remedy is then presented in an Amended Record of Decision.

Cleanup Objectives

The remedial action objectives for this proposed cleanup plan are to:

- o Allow contaminants in the landfill to migrate to a treatment trench at the perimeter of the landfill for capture or destruction. This will prevent the further contamination of surrounding ground water and restore the aquifer.
- o Prevent contaminated ground water from discharging to the Bellamy Reservoir.
- o Allow natural attenuation processes to reduce contamination in the Eastern ground water plume that discharges to the Cocheco River.
- o Remove sediments that currently pose an unacceptable risk beyond the landfill boundaries.
- o Examine the viability of natural attenuation in the Eastern Plume five years after implementing the treatment trench, and decide to either continue the natural attenuation remedy or to implement an active remedy.
- o Monitor for potential impacts to sediments and the environment in the Cocheco River and to indoor air in the homes along Tolend Road / Glen Hill Road.

These actions will permanently reduce the toxicity, mobility and volume of the materials on site, which currently represent an ongoing source of ground water contamination.

A Closer Look At EPA's Proposal...

EPA proposes to address contamination at the site using the Mixed Alternative Remedy which is further detailed in EPA's Addendum to the Revised Focused Feasibility Study and in the Revised Focused Feasibility Study. The Mixed Alternative Remedy combines the proposed source control alternative, SC-A, and retains the management of migration remedy, MM-2 and MM-4, for the Eastern and Southern Plumes, respectively, that was presented in the 1991 ROD. The most critical change from the 1991 Remedy is that the source control alternative is fundamentally different. The 1991 Remedy sought to **immobilize** contaminants in the landfill via capping while the proposed source control alternative seeks to **mobilize** contaminants in the landfill so they may be conveyed to a treatment trench.

EPA also examined the management of migration remedy in the Southern Plume which addresses contaminated ground water migrating towards the Bellamy Reservoir. EPA evaluated the 1991 Remedy, MM-4, which called for pumping-and-treating the ground water, against monitored natural attenuation of the ground water, MM-2 and found no indication that MM-2 would address contaminants in the Southern Plume. Therefore, the management of migration remedy in the 1991 Remedy, MM-4, remains the same in this Proposed Plan, with some minor updating consistent with EPA guidance. A discussion of both the proposed source control remedy and the retained groundwater remedy follows:

The Mixed Alternative Remedy

Source Control Alternative (SC-A): The source control remedy will rely on contaminants from and beneath the landfill being conveyed by ground water to a treatment trench that will be constructed along the eastern, southern and western perimeter of the landfill. During the operation of the treatment trench, the landfill's surface will be kept in its present, natural state, with a protective soil cover. Two shallow, drainage ditches that exist around the perimeter of the site, one on the northern half of the site and the other that flows around the western, southern, and eastern sides of the site, presently act to intercept leachate emanating from the landfill. Arsenic-contaminated sediments greater than 50 parts per million will be removed from these shallow ditches and the ditches will be backfilled.

The treatment trench will be installed directly next to the landfill beginning at the northeast corner of the landfill and run approximately 3,000 feet to the western edge of the landfill. The treatment trench will span the aquifer, extending downward to a confining marine clay layer. In some areas the trench may be up to 100 feet deep. The treatment trench will be operated by injecting air into the subsurface and allowing it to rise to the surface. The injected air will cause volatile organic compounds such as vinyl chloride and benzene to dissolve from the water into the air and be conveyed to the surface for recovery. The injected air will also create an aerobic subsurface environment in the treatment trench that will degrade tetrahydrofuran into harmless components. Lastly, the aerobic environment in the treatment trench will cause arsenic and iron, dissolved in the ground water, to precipitate and be absorbed. The arsenic-iron precipitate will be recovered from the treatment trench. Once ground water throughout the site has been restored, an appropriate cap will be installed over the landfill.

The source control remedy also includes a localized treatment area for tetrahydrofuran (THF) that may not be captured in the treatment trench. This consists of extracting contaminated groundwater through a system constructed on the landfill itself. The treated water will be reinjected into the landfill. In addition, an area of localized ground water contamination on the northwest corner of the landfill will require additional investigation. Once the pre-design investigation has been performed and identified the location of contamination, it will be removed by excavation or other appropriate means of removing VOC-contaminants from soils and ground water.

Why do EPA and NHDES believe this remedy to be preferable to the 1991 Remedy? This remedy not only offers cost savings, it seeks to remove the contaminants from the subsurface in as expeditious manner as possible, thereby reducing the potential for migration to exposure points. In contrast, the 1991 Remedy, SC-7/7A, entombed the wastes under a cap to minimize migration. Because SC-A is an innovative technology, a contingent remedy is necessary in case this remedy fails. The contingent remedy is SC-7/7A, which will cap the landfill and use the treatment trench as a means to intercept, withdraw and treat contaminated ground water emanating from the landfill. In addition, given that SC-A is innovative, it will be implemented in phases with continuous monitoring.

Management of Migration (MM-2/MM-4): Two separate ground water plumes exist at the site. Because the conditions of each are markedly different from the other, two separate components will be used to restore ground water to

continued from page 4

acceptable levels. This remedial approach, allowing natural processes to work on ground water migrating towards the Cocheco River, while actively cleaning the aquifer migrating towards the Bellamy Reservoir, is the same remedy proposed in the 1991 Record of Decision. Therefore, there is no change of remedy for the management of migration.

The Eastern Plume remedy will remain as monitored natural attenuation, MM-2. Monitored natural attenuation has a specific protocol by which EPA ensures that natural processes are reducing contaminants to concentrations protective of human health and the environment.

Currently, ground water in the Eastern Plume is discharging to the Cocheco River, however it does not pose a current risk to human health because all residents have been supplied with municipal water. Risk to future users of groundwater is controlled through restrictions that prohibit the use of groundwater for drinking water. These restrictions will remain in place until the aquifer is restored to drinking water status. Groundwater discharge to the Cocheco River does cause sediment concentration levels to exceed screening levels for an ecological risk; therefore, further assessment and monitoring will be performed to clearly characterize any risk and, if necessary, sediment will be excavated. It is believed that once contamination emanating from the landfill is cutoff, conditions will improve in the Eastern Plume and Cocheco River sediment within a reasonable amount of time. An assessment of the remedy will be conducted five years after the source control remedy has been implemented to verify that monitored natural attenuation is functioning as expected.

The Southern Plume is different from the Eastern Plume in that the ground water is slowly migrating toward a drinking water reservoir. Additionally, several of the contaminants in the plume, including arsenic, vinyl chloride and benzene, do not degrade adequately in the subsurface environment present in this area of the site. Therefore, EPA proposes to extract ground water from the extended plume to prevent the contaminants from discharging to the reservoir. The management of migration alternative, MM-4, consists of removing ground water from the extended plume using extraction wells, treating the contaminated water using air stripping and/or carbon filtration, and discharging the clean water to the surrounding wetlands. The combination of the source control treatment trench and active groundwater treatment is expected to restore the aquifer in the Southern Plume area to drinking water status within a reasonable amount of time.

Estimated Time for Design and Construction: 1.5 - 2.5 years.

Estimated Period of Operation: landfill area 100+ years, Eastern and Southern Plumes less than 20 years.

Estimated Total Cost: \$19,393,859 (Cost projections are for 30 years.)

Cleanup Levels: EPA has established interim target cleanup levels for the site which are protective of human health and the environment. The selected remedy must reduce contaminant concentrations to, or below, these levels. Target cleanup levels have only been established for ground water. The cleanup levels are the drinking water standards or groundwater standards whichever are more stringent. Ground water actions are focused on arsenic, vinyl chloride, benzene and tetrahydrofuran; however, these are not exclusive and several other volatile organic compounds that have also been found at levels slightly above drinking water standards in some wells will be addressed as well.

Why Does EPA Recommend this Proposed Plan?

Based on current information, EPA's Addendum and an analysis of the Revised Focused Feasibility Study (RFFS), EPA recommends a cleanup plan that recognizes the limitations of traditional remedies such as landfill caps, incorporates innovative technology to address site risks and utilizes natural cleanup processes where possible. This proposal is cost-effective yet still protective: It provides a balance between EPA's mission to protect human health and the environment yet acknowledges the limited resources of communities to fund and implement aggressive remedies. At the same time, the Amended Proposed Plan protects the Bellamy Reservoir and the Cocheco River, both important public resources.

The preferred alternative achieves the best balance among the criteria used to evaluate alternatives. It provides both short-term and long-term protection of human health and the environment, meets Federal and State environmental requirements, reduces the mobility and toxicity of contaminated ground water, utilizes permanent solutions to the maximum extent practicable, and is less-costly than the traditional capping remedy. EPA recognizes the risks in selecting an innovative technology and has elected to implement the technology in phases with continuous monitoring as well as provide for a contingent remedy to be employed in the event of the failure of this proposed source control component of the remedy. EPA also recognizes the potential benefits and applications of this remedy should it prove successful.

Four Kinds of Cleanup

EPA looked at four technical approaches to determine the best way to reduce the risks at the Dover Municipal Landfill site. Although reducing risks often involves combinations of highly technical processes, there are really only four basic options.

Take limited or no action: Leave the site as it is, or just restrict access and monitor it.

Contain contamination: Leave contamination in place and cover or contain it to prevent exposure to, or spread of, contaminants. This method reduces risks from exposure to contamination, but does not destroy or reduce it.

Move contamination off site: Remove contaminated material (soil, ground water etc.) and dispose of it or treat it elsewhere.

Treat contamination on site: Use a chemical or physical process on the site to destroy or remove the contaminants. Treated material can be left on site. Contaminants captured by the treatment process are disposed in an off-site hazardous waste facility.

EPA's amended proposed cleanup plan for the Dover Municipal Landfill incorporates two of the options noted above to reduce risks and protect human health and the environment. Specifically, the amended proposed plan will:

- **Take limited action** by establishing and maintaining institutional controls to restrict access to the landfill and to contaminated ground water until drinking water standards are reached and by monitoring ground water, surface water, indoor air and sediment.
- **Treat contamination on-site** by constructing an air-sparging trench that intercepts contaminated ground water moving off-site and restores water that passes through that trench.

Additionally, the contaminated ground water in the Southern Plume will be actively removed and treated by air stripping and / or carbon adsorption technologies to remove arsenic, tetrahydrofuran and other organic compounds.

Impacts to the Wetlands

Section 404 of the Clean Water Act and Executive Order 11990 (Protection of Wetlands) require a determination that federal actions involving dredging and filling activities or activities in wetlands have the least adverse effects on the environment compared to other alternatives and that mitigation be carried out to the extent practicable. Public notice of this determination is also required. Through its analysis of the alternatives, EPA has determined that there is no practicable alternative to the preferred alternative which would have less adverse impact on wetlands. Each active alternative evaluated had some adverse impact on wetlands through required excavation in these areas. Further, these areas have already been adversely impacted through prior activities at the site. Mitigation activities, such as erosion control, will be performed to minimize necessary impacts and the wetlands will be restored to the extent practicable.

Potential Impacts To The Community

The proposed cleanup plan as described above could potentially have the following impacts on the community:

Air Quality:

Significant excavation will be required to remove about 20,000 to 30,000 cubic yards of arsenic-contaminated soil, including that located in the existing drainage ditches around the landfill. The soil does not contain a high level of volatile organic compounds; however, air monitoring will be performed to protect workers and ensure that the surrounding neighborhood air quality is not impacted. Dust suppression methods will be employed as necessary.

Truck Traffic:

Significant truck traffic, possibly as many as 30 - 40 round-trips per work day, will be required throughout a minimum of four to six months during the excavation of soil in preparation for the treatment trenches. EPA will work with the community to determine the best route for minimizing traffic concerns and will notify the community before this activity begins.



Other Cleanup Alternatives Considered for the Dover Municipal Landfill Site

Typically a Feasibility Study reviews many options that EPA considers for cleanup at a Superfund site. However, in this case, there is an existing remedy already selected for the site and the universe of remedial alternatives evaluated have been reduced to just four. The first alternative is the No-Action alternative (SC-1 and MM-1), which is required to provide a baseline for comparison (i.e., what happens if nothing is done). The second alternative is the remedy selected in the original Record of Decision document, in this case the 1991 Remedy. The third alternative is that which is proposed to replace the original remedy, in this case SC-A for the landfill and MM-2 for contaminated ground water in both the Eastern and Southern Plumes. Finally, the fourth proposal consists of using source control remedy SC-A and retaining the management of migration remedy from the 1991 Remedy decision for the Eastern Plume, MM-2, and for the Southern Plume, MM-4.

During the comment period, EPA welcomes comments on the amended proposed cleanup plan, EPA's wetland impact determination, and the cleanup alternatives summarized below. Please consult EPA's Addendum and the Revised Focused Feasibility Study for more detailed information.

Common Actions There will be actions common to all of the alternatives. Some of these actions have already been performed. For instance, all remedies, except the no-action, require institutional controls which, through law or deed restriction, forbid the use of the land or ground water in such a manner as to create exposure or to hamper any remedial actions. These controls have already been enacted through municipal ordinances by the City of Dover and Town of Madbury. Monitoring is also common to all remedies, including indoor air monitoring. Also, it is expected that any work conducted in or near wetlands will be performed consistent with all applicable regulations. Finally, sediment in the Cocheco River will undergo further risk evaluation and will be removed if necessary.

Source Control

Alternative SC-1: No Action

The site would remain as it is. Contaminants would continue to flow from the landfill. Only monitoring would occur.

Estimated Period of Operation: 100+ years

*Estimated Total Cost: \$1,527,119**

Alternative SC-7/7A: Leachate Removal and Capping

The landfill would be covered with an impermeable liner consistent with Resource Conservation and Recovery Act (RCRA) landfill capping standards and a 25-foot deep diversion trench would be installed around the landfill to lower the ground water out of the waste, intercept shallow ground water entering or exiting the landfill. Certain future use of the landfill surface would be prohibited due to the need to maintain the soundness of the cap. SC-7 would discharge extracted groundwater that is treated on-site into the Cocheco River, while SC-7A would convey extracted contaminated groundwater to the municipally-owned water treatment plant for treatment and discharge.

Estimated Time of Construction: 2 years

Estimated Period of Operation: 100 years

*Estimated Total Cost: \$29,034,531**

Alternative SC-A: Sparging Trench

The landfill would be left in its present state, uncapped with a soil cover that allows precipitation to leach contaminants into the groundwater at the landfill. A treatment wall would be installed to intercept ground water contaminants exiting the landfill. SC-A is described in EPA's amended proposed cleanup plan on page 4.

Estimated Time for Design and Construction: 1.5 - 2.5 years

Estimated Period of Operation: 30 + years

*Estimated Total Cost: \$15,870,872**

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Management of Migration

Alternative MM-1: No Action

Contaminants would remain in the extended plumes, continuing to discharge to the Cocheco River and ultimately discharging to the Bellamy Reservoir. The only cost would be for monitoring.

Estimated Period of Operation: 100+ years

*Estimated Total Cost: \$1,527,119**

MM-2 (Southern Plume)

Contaminated ground water in the Southern Plume, migrating towards the Bellamy Reservoir would be allowed to degrade naturally and only monitoring would occur. This would be a fundamental change from the 1991 Record of Decision.

Estimated Time for Design and Construction: less than 1 year

Estimated Period of Operation: 20+ years

*Estimated Total Cost: \$1,787,999**

Alternative MM-4 (Southern Plume)

The Southern Plume would be actively restored through pumping-and-treating contaminated ground water in the area of the plume. MM-4 is as described in the 1991 Record of Decision and in EPA's amended proposed cleanup plan on page 4.

Estimated Time for Design and Construction: 1.5 to 2.5 years

Estimated Period of Operation: 20 years

*Estimated Total Cost: \$3,522,987**

* all cost projections are only for 30 years

The Nine Criteria for Choosing a Cleanup

Nine criteria are used to evaluate the cleanup alternatives and select a remedy. Of the nine, protection of human health and the environment and compliance with ARARs are considered threshold requirements that must be met by the selected remedy. EPA balances its consideration of alternatives with respect to long term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short term effectiveness; implementability; and cost. State and community concerns are modifying criteria and may prompt EPA to modify the preferred alternative or choose another alternative. Following are definitions of the nine criteria.

1. Overall protection of human health and the environment: Will it protect people and the plant and animal life on and near the site? EPA will not choose a 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? EPA will not choose a plan that does not meet this basic 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: Does the alternative reduce the harmful effects of the contaminants, the spread of contaminants, and the amount of contaminated material through treatment?

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 (i.e. treatment machinery, space at an approved disposal facility) available for the plan?

7. Cost: What is the total cost of an alternative over time?

8. State acceptance: Do state environmental agencies agree with EPA's proposal?

9. Community acceptance: What objections, suggestions or modifications does the public offer during the comment period?

Evaluation of Alternatives

EPA uses nine criteria to balance the pros and cons of various cleanup alternatives. As described below, EPA has evaluated how well each of the cleanup alternatives meets the first seven criteria (See also summary table on the p. 10.). Once public comments are received; EPA will select the final cleanup plan.

1. Overall Protection of Human Health and the Environment: SC-1, MM-1 and MM-2 for the Southern Plume are not protective of human health and the environment as contaminants are allowed to flow off-site and potentially impact critical receptors.

SC-A and SC7/7A combined with MM-2 in the Eastern Plume and MM-4 in the Southern Plume are both protective of human health and the environment. In this context, SC-A, functioning correctly, has a slight advantage over SC7/7A in that it causes less short-term risks and offers more long-term permanence and reduction of toxicity, mobility and volume since ultimately, all contamination at the site is permanently reduced to levels that are protective and institutional controls can be lifted.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs): SC-1 would allow for the continued contamination of the surrounding aquifers and therefore does not meet all ARARs. SC-A and SC-7/7A would meet all ARARs.

MM-1, which allows for the continued migration of contaminated ground water beneath homes on Tolend Road and the continued discharge to the Cocheco River and eventual discharge to the Bellamy Reservoir, does not meet all ARARs. MM-2 has not been demonstrated to attain cleanup levels in the Southern Plume and does not meet all ARARs. MM-4, which would prevent the discharge of contaminated water to the Bellamy Reservoir and eventually restores the aquifer, does meet all ARARs.

3. Long-term Effectiveness and Permanence: SC-1 and MM-1 would not ensure long-term protection to human health and the environment. Alternatives SC-7/7A and SC-A would be protective of human health and the environment and be permanent. Alternatives MM-2 in the eastern plumes and Alternative MM-4 in the Southern Plume would be protective in combination with an effective source control remedy. With no further contamination entering the aquifer, it is expected to restore itself in a reasonable amount of time in the eastern plume through natural processes and through active treatment in the southern plume. Given subsurface conditions in the southern plume area of the site, MM-2 would fail to reduce concentration levels in groundwater leaving the aquifer unusable for drinking water purposes and would allow contamination to reach the Bellamy Reservoir.

4. Reduction of Toxicity, Mobility, or Volume through Treatment: SC-1 and MM-1, with no treatment, would not reduce toxicity, mobility or volume. SC-7/7A would reduce mobility within the landfill through capping; however, there would be no reduction in toxicity or volume until the waste dried out under the cap and all contaminants were intercepted by the ground water diversion trench which may take a considerable time in the future.

SC-A would increase mobility to transport contaminants to a ground water treatment trench where toxicity and volume would be eliminated.

Once the source is cutoff, Alternative MM-2 should reduce toxicity and volume in the Eastern Plume. It is unknown if MM-2 would reduce toxicity or volume in the Southern Plume; however, given subsurface conditions, it is unlikely. MM-4 will reduce mobility, toxicity and volume in the Southern Plume through active treatment.

5. Short-term Effectiveness: SC-1, MM-1 and MM-2 (in either plume) are not anticipated to pose additional risks or impacts to the local community or environment beyond those posed by current site conditions. MM-4 will pose minor amounts of truck traffic and some construction in wetlands. MM-4 may also discharge between 20 to 50 gallons per minute into local surface water bodies. Alternative SC-A will include a significant amount of truck traffic in order to transport material onto the site to construct the treatment trench and to transport excavated aquifer material off-site. However, SC-7/7A will require a much greater amount of truck traffic as the amount of material to cap the landfill (160,000 cubic yards) is significantly more than the excavation for SC-A (20,000 to 30,000 cubic yards). Both SC-A and SC-7/7A may generate dust and odors; however, these issues can be managed during construction.

6. Implementability: SC-1, MM-1 and MM-2 are readily implementable due to the limited nature of the actions involved. MM-4, although requiring specialty contractors and equipment to install the trench at depth also is readily implementable once a pre-design study has been conducted to determine the best way of deploying and operating it.

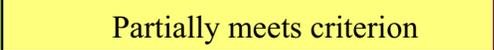
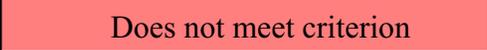
SC-7/7A is also readily implemented; however, it will require considerably more effort in comparison to SC-1 and SC-A given the need for recontouring and the acreage to be capped. SC-A may have limitations itself, as the technology for constructing the trench at 100-foot depths will be difficult. Moreover, the injection and proper dispersion of the air will require monitoring and additional effort. Lastly, the treatment trench proposes to use several techniques simultaneously to treat ground water which have not been conducted together before.

7. Cost: The preferred source control remedy SC-A is the least costly (other than No Action). The management of migration remedy for the Southern Plume, MM-4, is more costly than MM-2, however, MM-4 will prevent the discharge of contaminated ground water to the Bellamy Reservoir.

8. State Acceptance: NHDES has reviewed and approved of the preferred alternative listed for the site.

9. Community Acceptance: Community acceptance will be evaluated based on comments received.

Comparison of Cleanup Alternatives for the Dover Municipal Landfill

| | Source Control, Landfill area | | | Management of Migration, Southern Plume | | |
|--|---|---|---|---|---|---|
| | SC-1 No-Action | SC-7/7A 1991 remedy | *SC-A Treatment wall | MM-1 No-Action | MM-2 Natural Attenuation Southern Plume | *MM-4 Pump-and- treat Southern Plume |
| Nine Criteria | | | | | | |
| Overall Protection of Human Health and the Environment |  |  |  |  |  |  |
| Compliance with Applicable and Relevant and Appropriate Regulations |  |  |  |  |  |  |
| Long-term Effectiveness and Permanence |  |  |  |  |  |  |
| Reduces Toxicity, Mobility, or Volume through Treatment |  |  |  |  |  |  |
| Short-term Effectiveness |  |  |  |  |  |  |
| Implementability |  |  |  |  |  |  |
| Cost | \$0 | \$29 million | \$15.8 million | \$1.5 million | \$1.8 million | \$3.5 million |
| State Agency Acceptance | To be determined after the public comment period. | | | | | |
| Community Acceptance | To be determined after the public comment period. | | | | | |
| KEY | | | | | | |
| *EPA's preferred alternative |  | |  | |  | |
| | Meets or exceeds criterion | | Partially meets criterion | | Does not meet criterion | |

What is a Formal Comment?

To make a **formal** comment you need only speak during the public hearing on **Monday, July 19, 2004** or submit a written comment during the comment period, which ends on July 22, 2004.

Federal regulations require EPA to distinguish between "formal" and "informal" comments. While EPA uses your comments throughout the cleanup process, EPA is **required to respond in writing only to formal comments on the proposed plan**. EPA will not orally respond to your comments during the formal hearing on **Monday, July 19, 2004**.

The fact that EPA responds in writing only to formal comments does not mean that EPA cannot answer questions. Once the meeting moderator announces that the formal hearing portion of the meeting is closed, EPA can respond to informal questions.

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.

Next Steps

This fall, EPA expects to have reviewed all comments and signed an Amended Record of Decision document describing the chosen cleanup plan. The Amended Record of Decision and a summary of responses to public comments will then be made available to the public at the site information repositories listed here, as well as on EPA's Dover Municipal Landfill web site noted on this page.

FOR MORE INFORMATION

Site Contacts

If you have any questions about the site or would like more information, you may call or write to:

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or

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Information Repositories

This publication summarizes a number of reports and studies. All of the technical reports and studies prepared to date for the site are available at the following information repositories:

Dover Public Library
72 Locust Street
Dover, NH
(603) 743-6050

EPA Records Center
1 Congress Street
Boston, MA 02114

Please call to schedule an appointment
(617) 918-1440

Information is also available for review on the world wide web:

www.epa.gov/region01/superfund/sites/dover

All documents may be downloaded and printed.
Adobe Acrobat Reader is required.

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public comment sheet (continued)





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here

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