



EPA Proposes Cleanup Plan for Neighborhood Site

South Minneapolis Residential Soil Contamination Site
Minneapolis, Minnesota

May 2008

Share your opinions

EPA invites you to participate in the cleanup process at the South Minneapolis Residential Soil Contamination site. Your input helps EPA determine the best course of action.

There are two opportunities for your opinions to be heard. EPA representatives will discuss the proposed cleanup options at a public meeting (information below) and give you a chance to ask questions or share your opinions. A public comment period has been set to run from June 2 to July 1. This period is for written comments about the cleanup plan presented in this document.

To file written comments, you may fill out and mail or fax the enclosed form to Cheryl Allen, use an electronic form on EPA's Web site, submit written comments at the meeting or make oral statements at the meeting that will be preserved by a court reporter. Written comments must be postmarked by the last day of the comment period.

Cheryl Allen

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Public comment period

June 2 to July 1 (midnight), 2008

Public meeting

June 11, 2008
6:30 p.m.
YWCA
2121 E. Lake St.
Minneapolis, Minn.

Soil contaminated with arsenic will be removed from the South Minneapolis Residential Soil Contamination site under a plan proposed by U.S. Environmental Protection Agency. EPA wants to remove the arsenic-tainted soil and dispose of it off-site at a permitted landfill.

The plan calls for removing shallow soil with arsenic levels higher than 25 parts arsenic per million parts soil. Parts per million, or ppm, are expressed in the metric system as milligrams per kilogram, or mg/kg. As part of the proposed cleanup plan, EPA will take soil samples from each excavated property to show that only low amounts of arsenic remain after the digging. If soil one foot deep still contains arsenic higher than 95 mg/kg, workers will dig deeper. Once all contaminated soil is removed, EPA will fill in the yards with clean soil and restore the ground to its original condition, to the extent practical.

This proposed cleanup plan builds on work EPA has already done. By the end of 2008, EPA will have cleaned up 197 homes where the level of arsenic is greater than 95 mg/kg, a level that presented short-term health risks. EPA dug up one foot of soil in those areas. The Agency will re-visit those properties if the sample results showed levels above 95 mg/kg one foot below the surface. That will make the cleanup consistent with the rest of this proposed plan to address long-term health risks from arsenic contamination,

EPA proposes this cleanup plan based on the results of its investigation and after considering a number of cleanup alternatives. EPA recommends Alternative 2C described on Page 3. This alternative protects people and the environment, and once in place it will complete the cleanup at the site.

You have 30 days to file written comments on EPA's proposed plan. See the box at left to find out how. EPA could alter its proposed plan or even choose a new one based on public comments, so your input is important¹.

Health risks to people and the environment

Arsenic is a naturally occurring element found in soil in this area. People can face health risks, however, through contact with contaminated soil that has elevated levels of arsenic. The most direct way you can be exposed is by getting dirt on your hands and then touching your mouth or accidentally swallowing contaminated soil. Another way to be exposed is to eat a lot of unwashed garden vegetables grown in highly contaminated soil.

¹ Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act requires EPA to provide an opportunity for a public meeting and hold a comment period. It also requires a newspaper ad announcing the proposed plan and a brief analysis. This mailer summarizes the feasibility study and other site-related reports available at the Green Institute, City of Minneapolis Police Department, Minneapolis Central Library, the Minneapolis East Lake Branch Library and at the EPA Region 5 office in Chicago.

There is a very small risk of exposure from simply touching the soil and even lower risk from breathing dust particles in outdoor air. The cleanup options considered risks to plants and animals in the area. The low risks posed to them will be addressed by removing the potential that humans, plants and animals will have direct contact with the highly contaminated soil.

EPA generally considers you to be safe if the risk of getting cancer from toxic contamination is between one in 10,000 and one in 1 million. EPA's risk assessment for this site found normal or "background" arsenic levels in the area to be about 16 mg/kg. This level of arsenic has a maximum cancer risk of six in 100,000. The risk assessment found elevated cancer risk from long-term exposure of residents to soil with arsenic greater than 25 mg/kg. This level of arsenic has a maximum cancer risk of 1 in 10,000.

About the South Minneapolis site

The South Minneapolis Residential Soil Contamination site covers about 1,480 acres including residential, commercial, industrial and municipal properties. The area is largely residential, with much of the housing built from the early 1900s through 1930s. The site has been investigated for residential arsenic contamination, some of which may have drifted through the air from the former CMC Heartland Lite Yard property located in the neighborhood.

Between 1938 and 1963, arsenic-based pesticides and herbicides were blended and distributed at the CMC Heartland property by Reade Manufacturing. From 1963 to 1968, another company manufactured, shipped and stored herbicides from the CMC Heartland plant property. In January 1968, a storage tank containing liquid sodium arsenate ruptured and released around 3,000 gallons. The plant operator covered the spilled material with six inches of sand to try to limit its impact.

Arsenic contamination was discovered in 1994 by the Minnesota Department of Transportation during reconstruction of the Hiawatha Avenue corridor adjacent to the CMC Heartland plant site. By 1996 the plant site was covered with crushed asphalt and clean dirt to keep dust from blowing off-site. Soil cleanup work was done in 2004 and 2005 at the plant site to remove highly contaminated soil and to minimize human exposure to contaminated shallow soil. Since then, the plant site has been redeveloped. There is a light industrial building there now.

In 2004, the state asked for EPA's assistance to manage contamination in the surrounding residential areas. Since 2004, EPA has dug up soil at 163 properties where

arsenic was greater than 95 mg/kg. EPA plans on completing excavation at an additional 34 properties this year. The cleanup plan proposed in this fact sheet will cover those properties with arsenic levels below 95 mg/kg, but above 25 mg/kg.

Recommended cleanup options

EPA considered a number of options for cleaning up the contaminated soil and evaluated each option against nine criteria, as required by law (see box on P. 7 for an explanation of the criteria). Alternatives have not yet been evaluated for state and community acceptance because these criteria are typically judged after EPA proposes a plan and gets comments from the public. In EPA's opinion, the options presented here provide the best balance of the nine criteria and meet the requirements of federal law. They protect public health and the environment over the long term, comply with state and local regulations and are cost-effective. Full details of site investigation work and alternatives to deal with the contamination are provided in the site investigation report and feasibility study reports on EPA's Web site and at the four information repositories (see Page 7 for locations).

EPA considered six cleanup options. The figure on the back page shows the affected area. Each alternative, except the no-action alternative, includes preparing the site, using fencing to control access to the site and site restoration.

Fencing and other types of land-use control help prevent people from coming into contact with contaminated soil. The controls might be necessary in a cleanup option that does not call for complete excavation, or at a property where EPA is not allowed to dig. If they are needed they could be in the form of easements, deed restrictions or building permit restrictions. They will only be used when cleanup standards are not met everywhere on a property. EPA will be required to monitor these controls to make sure they remain effective.

The six alternatives are summarized below:

Alternative 1 – No further action: Nothing would be done to clean up or monitor the contamination. EPA always includes a no-action option for comparison purposes. **Cost: \$0**

Alternative 2A – Removal of soil with arsenic levels above 25 mg/kg, to a depth of 12 inches and landfill disposal: This option consists of removing soil from residential yards with arsenic levels higher than 25 mg/kg. Workers will dig up a foot of soil from grass and play areas. Within gardens and planting beds, they will

remove 18 inches. No soil will be removed where there are buildings or paved areas. Property owners will be notified of the pending cleanup efforts. They must sign an access agreement and complete an inventory of the plants that will be removed. Before cleanup begins, workers will do a survey so the yard can be restored – as much as practical – to the condition it was in before the cleanup. Once the contaminated soil is removed, soil samples will be taken to document the remaining arsenic concentrations. Workers will then fill the yard with clean dirt and restore plants. If digging goes deeper than expected, workers will install controls or post notices on the property to prevent or control digging into any remaining contaminated soil. **Cost: \$15.6 million**

Alternative 2B – Removal of soil with arsenic levels above 16 mg/kg, to a depth of 12 inches and landfill disposal: This option consists of removing soil from residential yards with arsenic levels higher than 16 mg/kg. Normal arsenic levels in the area can be as high as 16 mg/kg. Workers will dig up a foot of soil from grass and play areas. Within gardens and planting beds, they will remove 18 inches. No soil will be removed where there are buildings or paved areas. Property owners will be notified of the pending cleanup efforts. They must sign an access agreement and complete an inventory of the plants that will be removed. Before cleanup begins, workers will do a survey so the yard can be restored – as much as practical – to the condition it was in before the cleanup. Once the contaminated soil is removed, soil samples will be taken to document any remaining arsenic concentrations. Workers will then fill the yard with clean dirt and restore plants. If digging goes deeper than expected, workers will install controls or post notices on the property to prevent or control digging into any remaining contaminated soil. **Cost: \$20.4 million**

Alternative 2C (EPA’s recommended alternative) – Removal of soil with arsenic levels above 25 mg/kg, to a depth of 12 inches and landfill disposal; removal of soil deeper than 12 inches with arsenic levels above 95 mg/kg: This option consists of removing soil from residential yards with arsenic levels exceeding 25 mg/kg. Workers will dig up a foot of soil from grass and play areas. Within gardens and planting beds, they will remove 18 inches. No soil will be removed where there are buildings or paved areas. Property owners will be notified of the pending cleanup efforts. They must sign an access agreement and complete an inventory of the plants that will be removed. Before cleanup begins, workers will do a survey so the yard can be restored – as much as practical – to the condition it was in before the cleanup. Soil samples will be taken after a foot of contaminated soil has been removed. If those samples

show arsenic at levels above 95 mg/kg, workers will keep digging until all highly contaminated soil is removed (to a maximum depth of 10 feet). Workers will then fill the yard with clean dirt and restore plants. Those most likely to come in contact with the deep soil are construction workers, and the risk assessment shows they would be safe even at levels higher than 95 mg/kg. Residents would also be safe from short-term exposure. EPA does not expect any long-term exposure to these levels. If digging goes deeper than expected, workers will install controls or post notices on the property to prevent or control digging into any remaining contaminated soil. **Cost: \$17.9 million**

Alternative 3A – Removal of all soil with arsenic levels above 25 mg/kg and landfill disposal: This option consists of removing soil from residential yards with arsenic levels above 25 mg/kg. Workers will dig up soil from grass and play areas, gardens and planting beds to a depth where the arsenic concentrations are below 25 mg/kg, or a maximum depth of 10 feet. No soil will be removed where there are buildings or paved areas. Property owners will be notified of the pending cleanup efforts. They must sign an access agreement and complete an inventory of the plants that will be removed. Before cleanup begins, workers will do a survey so the yard can be restored – as much as practical – to the condition it was in before the cleanup. Once all of the contaminated soil is removed, soil samples will be taken to document the remaining concentrations. Then workers will fill the yard with clean dirt and restore plants. Controls or notices would only be needed on a property if contaminated soil remains because of problems with access or excavation is not possible. They would be put in place to prevent or control digging into any remaining contaminated soil **Cost: \$24 million**

Alternative 3B – Removal of all soil with arsenic levels above 16 mg/kg and landfill disposal: This option consists of removing soil from residential yards with arsenic levels higher than 16 mg/kg. Workers will dig up soil from grass and play areas, gardens and planting beds to a depth where the arsenic concentrations are below 16 mg/kg, or a maximum depth of 10 feet. No soil will be removed where there are buildings or paved areas. Property owners will be notified of the pending cleanup efforts. They must sign an access agreement and complete an inventory of the plants that will be removed. Before cleanup begins, workers will do a survey so the yard can be restored – as much as practical – to the condition it was in before the cleanup. Once all of the contaminated soil is removed, soil samples will be taken to document the remaining arsenic concentrations. Then workers will fill the yard with clean dirt and restore plants. Controls or notices would only be needed on a

property if contaminated soil remains because of problems with access or excavation is not possible. They would be put in place to prevent or control digging into any remaining contaminated soil. **Cost: \$30.8 million**

Evaluation of alternatives

Each cleanup option was evaluated against the nine criteria set by Superfund regulations (see evaluation chart below). EPA staff recommended Alternative 2C because it provides the best balance among the nine evaluation criteria and is the most cost-effective. There were other considerations:

- EPA concluded the “no action” alternative would not protect people or the environment. It was eliminated from consideration.
- Alternatives 2B and 3B have lower arsenic cleanup levels than 2C, but the risk reduction is not justified because of increased short-term risks, difficulties implementing the remedies and higher costs.
- Alternatives 2C, 3A and 3B would provide a higher degree of long-term protection from exposure to arsenic than Alternatives 2A and 2B because more contaminated soil would be removed from the yards.
- Alternatives 2A and 2B may result in some elevated levels of contamination being left at

deeper depths. However, Alternatives 2A and 2B minimize this difference by using restrictions or notices to discourage digging at depths where contamination remains.

- Alternatives 2A, 2B, 2C, 3A and 3B have some risk from arsenic dust. Air monitoring would be done to protect workers or residents. If necessary, dust suppressants would be used to minimize potential exposure to arsenic dust. Alternative 2A has the lowest risk to workers and the community. Fewer properties are affected and less soil would be dug up.
- Alternatives 2C, 3A and 3B require deeper holes that pose higher risk of damage to structures, increased truck traffic and a longer time to complete the work. Proper construction management can help control those risks. The alternatives can be implemented with readily available materials and methods.
- Alternatives 3A and 3B could be more difficult because of the challenge in determining the correct depth for digging. This could be accomplished by collecting vertical soil samples from the yards with a hand auger or a direct-push rig before removing soil. However, this approach would make this more complex and require additional administrative tracking.

Chart comparing cleanup options with nine Superfund remedy selection criteria

Evaluation Criteria	Alt. 1	Alt. 2A	Alt. 2B	Alt. 2C	Alt. 3A	Alt. 3B
Overall Protection of Human Health and the Environment	1	3	3	4	4	4
Compliance with ARARs	1	4	4	4	4	4
Long-Term Effectiveness and Permanence	1	3	3	4	4	4
Reduction of Toxicity, Mobility, or Volume through Treatment	1	1	1	1	1	1
Short-Term Effectiveness	1	3	2	3	2	2
Implementability	4	3	2	3	2	2
Cost	4	3	2	3	1	1
State Acceptance	Will be evaluated after the comment period					
Community Acceptance	Will be evaluated after the comment period					
Total Score	13	20	17	23	18	20

Note:

1- Poor, 2-Satisfactory, 3-Good, 4-Excellent

Evaluation criteria

EPA uses nine criteria to compare cleanup options:

1. **Overall protection of human health and the environment** addresses whether an alternative adequately protects both human health and the environment. The cleanup plan can meet this criterion by reducing or eliminating contaminants or by reducing exposures to them.
2. **Compliance with applicable or relevant and appropriate requirements** assures that each project complies with federal, state and local laws and regulations.
3. **Long-term effectiveness and permanence** evaluates how well an option will work in the long term, including how safely remaining contaminants can be managed.
4. **Reduction of toxicity, mobility or volume through treatment** addresses how well the option reduces the toxicity (the chemical makeup of a contaminant that makes it dangerous), movement and amount of contaminants.
5. **Short-term effectiveness** is how quickly the project achieves protection, as well as its potential to be harmful to human health and the environment while it's being constructed and operated.
6. **Implementability** evaluates the technical feasibility of the cleanup plan, and whether materials and services are available to carry out the project.
7. **Cost** includes estimated capital or startup costs, such as the cost of buildings, treatment systems and monitoring wells. The criterion also considers costs to implement the plan, and operate and maintain it over time. Examples include laboratory analysis and personnel to operate equipment.
8. **State acceptance** is whether the state environmental agency, in this case the Minnesota Department of Agriculture, agrees or disagrees with EPA's recommended alternative.
9. **Community acceptance** evaluates how well the community near the site accepts the option. EPA evaluates community acceptance after it receives and evaluates public comments on its recommended alternative.

Next steps

EPA will review comments from the public before making a decision on the proposed cleanup plan. Any new information in these comments could cause EPA to modify its proposed plan or select a different cleanup option. EPA encourages you to review and comment on the proposed cleanup plan. Much more detail on the cleanup options is available in the official documents on file at the information repositories (listed below) or EPA's Web page:

<http://www.epa.gov/region5/sites/cmcheartland>.

EPA will respond to the comments in a document called a "responsiveness summary." This will be part of another document known as the "record of decision." This is the final cleanup plan. The Agency will announce the plan in a local newspaper and will place a copy on file in each of the four information repositories.

For more information

If you have any questions or need special accommodations for the meeting contact:

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For questions on the cleanup contact:

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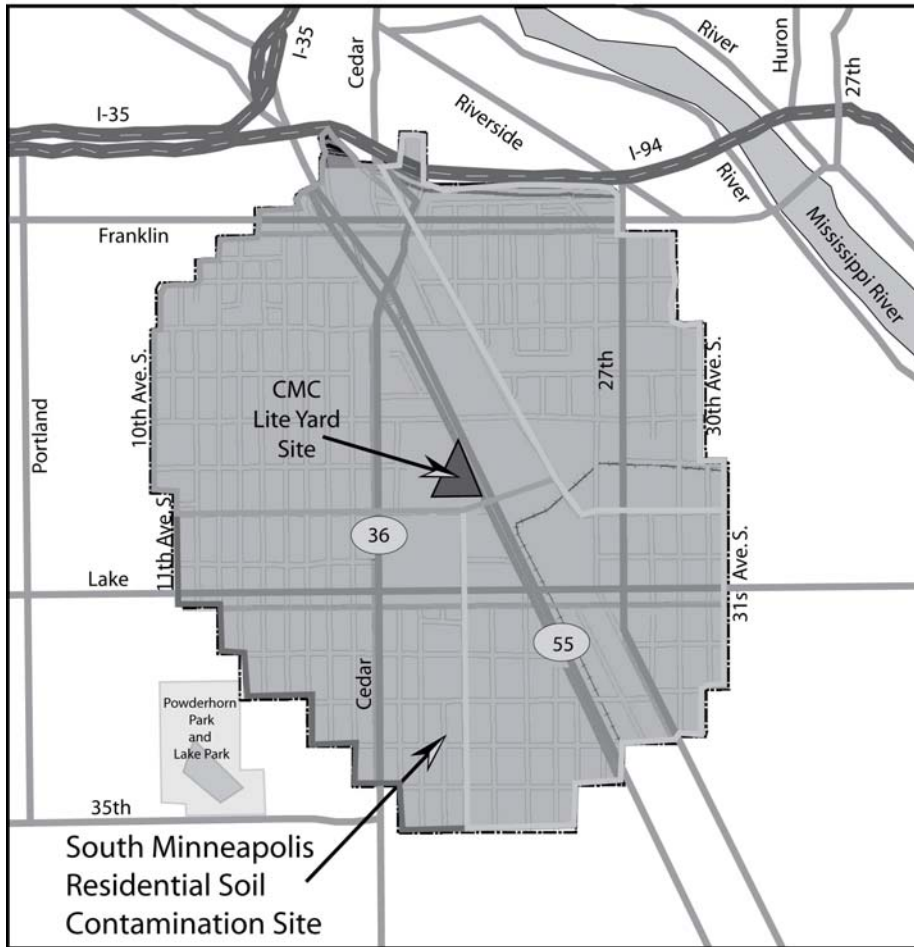
Official documents about the site can be viewed at the following locations:

Green Institute
2801 21st Ave. S.
Suite 100
Minneapolis

City of Minneapolis Police Dept.
Attn: Carla Nielson
1201-B E. Franklin Ave.
Minneapolis

Minneapolis Central Library
300 Nicollet Mall
2nd Floor
Minneapolis

Minneapolis Public Library
East Lake Branch
2727 E. Lake St.
Minneapolis



United States
Environmental Protection
Agency

Region 5
Superfund Division (P-19J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

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**South Minneapolis Neighborhood Soil Contamination Site:
EPA Proposes Cleanup Plan**

**SOUTH MINNEAPOLIS RESIDENTIAL SOIL CONTAMINATION SITE
PUBLIC COMMENT SHEET**

Detach this page, fold on dashed lines, staple, stamp, and mail

Name _____
Address _____
City _____
State _____ Zip _____

FIRST CLASS

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