EPA
United States
Environmental Protection
Agency

EPA Proposes Cleanup Plan for Contaminated Soil and Groundwater

Elm Street Groundwater Contamination Superfund Site

Terre Haute, Indiana August 2017

U.S. Environmental Protection Agency, working with the Indiana Department of Environmental Management, is proposing a cleanup plan for contaminated soil and groundwater associated with the Elm Street Groundwater Contamination Superfund site. "Groundwater" is an environmental term for underground supply of fresh water.

EPA recommends:

- Removing contaminated soil from areas accessible to the public. The contaminated soil will be disposed of off-site.
- Installing wells to extract vapors where soil contaminated by volatile organic compounds, or VOCs, is too deep to be removed.
- Monitoring groundwater until cleanup goals are met and to demonstrate the effectiveness of the soil cleanup, which will reduce contaminants in the groundwater.
- Implementing land-use restrictions to eliminate the disturbance of contaminated soil in the area where the contamination is too deep to be removed.

All the cleanup alternatives are explained beginning on Page 2.

EPA monitors and takes samples of groundwater at the Elm Street site.

Share your opinion

EPA encourages you to comment on the proposed cleanup plan. The Agency will only select a final cleanup plan after reviewing comments received during the public comment period, which runs from Aug 7 – Sept. 6.

Ways to submit written comments:

- Fill out and mail the enclosed comment sheet.
- Send an email to Cheryl Allen at allen.cheryl@epa.gov.
- Fax your comments to Cheryl Allen at 312-408-2234.

To request a public meeting, contact Community Involvement Coordinator Cheryl Allen by Monday, Aug. 14.

Read the proposed plan

More details are available on our website and at the local library.

You may review site-related documents at:
Vigo County Public Library
1 Library Square
Terre Haute

On the Web:
www.epa.gov/superfund/elm-street-groundwater

Contact EPA

For more information about the site contact:

Cheryl Allen
Community Involvement Coordinator
312-353-6196
allen.cheryl@epa.gov

Howard Caine
Remedial Project Manager
312-353-9685
caine.howard@epa.gov

You may call EPA's Chicago office toll-free at 800-621-8431, 9:30 a.m. – 5:30 p.m. weekdays.

[1] *Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) requires publication of a notice and a proposed plan for the site cleanup. The proposed plan must also be made available to the public for comment. This fact sheet is a summary of information contained in the proposed plan, remedial investigation, feasibility study and other documents in the administrative record for the Elm Street Groundwater Contamination site. Please consult those documents for more detailed information. All official site documents can be found at the repository at the Vigo County Public Library, or online at www.epa.gov/superfund/elm-street-groundwater.*

Soil cleanup alternatives

A total of four alternatives were considered to clean up the soil. The use of institutional controls such as deed restrictions to limit people's exposure to contaminated soil and groundwater are common elements in Alternatives S-2, S-3 and S-4.

Alternative S-1: No action.
The "no action" alternative is always evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the site to prevent exposure to the soil contamination.
Estimated Cost: $0

Alternative S-2: Capping in Combination with Institutional Controls.
Under this alternative, EPA would rely on a combination of institutional controls, in the form of deed restrictions, and installation of multiple clay, soil, asphalt or concrete caps in areas of the site where contamination remains at levels where direct contact with the contamination is unsafe and or where the levels of contamination in the soil are higher than the level IDEM established to protect groundwater from the contaminants in the soil. The caps would reduce the amount of rain, snowmelt, etc. from getting into the contaminated soil and carrying the contamination into groundwater. The deed restrictions would restrict certain areas from being zoned residential, require the caps to be maintained forever and prevent future land owners from digging into the soil thereby limiting people's exposure to contaminated soil and groundwater. Groundwater monitoring, as part of the groundwater remedy, would also be required to ensure that groundwater is not becoming further contaminated by soil.
Estimated Cost: $1.6 million

EPA's recommended alternative

Alternative S-3: Soil Vapor Extraction, or SVE, and Excavation in Combination with Off-site Disposal and Institutional Controls.
Under this alternative, EPA would install a soil vapor extraction, or SVE, system where the contaminated soil is too deep to be removed. SVE involves installing wells to remove vapors from the soil. The sandy soils at the site are expected to be very conducive to VOC vapor removal with the SVE system. It is unlikely that VOCs concentrations would exceed discharge limits, but if they do, then a carbon filter would be used to treat the emissions. The system would also be monitored to determine if it is effectively reducing the contamination. This alternative also involves excavating contaminated soil. Excavated soil would be disposed of off-site and replaced with clean soil. EPA would also require institutional controls, in the form of deed restrictions, to restrict development, installation of drinking water wells and/or the disturbance of contaminated soil in the area. Groundwater monitoring, as part of the groundwater remedy, would also be used to monitor the reduction and movement of groundwater contaminants. Based on the results of the groundwater monitoring, the deed restrictions for soil may be modified or discontinued.
Estimated Cost: $1.6 million

Alternative S-4: Capping and Excavation in Combination with Off-site Disposal and Institutional Controls.
Under this alternative, EPA would require capping of soil at locations where VOC-contaminated soil is too deep to excavate. It would also require excavation and off-site disposal of shallower contaminated soil (not located under a building foundation) to reduce movement of contaminants from the soil to groundwater. Clay and topsoil will likely be used for capping in all areas except for the area along the west side of the Gurman building. That area would likely require asphalt or concrete due to the vehicle traffic that would regularly occur as a result of their operations. EPA would require institutional controls in the form of deed restrictions to restrict access to soil in the capped areas of the site and prohibit future residential land use thereby preventing direct contact with or ingestion of any contaminated soil. Groundwater monitoring, as part of the groundwater remedy, would be used to monitor the reduction and migration of groundwater contaminants.
Estimated Cost: $1.6 million

Groundwater cleanup alternatives

EPA evaluated the following alternatives to clean up contaminated groundwater. The use of institutional controls such as deed restrictions to limit human exposure to contaminated groundwater are common elements in all groundwater cleanup alternatives. The type of restriction and method for enforcement would need to be determined for the selected remedy in the final cleanup decision document, called the record of decision, or ROD.

Alternative GW-1: No Action.
The "no action" alternative is always evaluated to establish a baseline for comparison. Under this alternative, EPA would take no action at the site to prevent exposure to the soil contamination.
Estimated Cost: $0

Alternative GW-2: Groundwater Monitoring and Institutional Controls.

EPA's recommended alternative

Under this alternative, EPA would rely on groundwater monitoring to measure groundwater contaminants and to evaluate the effectiveness of the soil cleanup. Institutional controls would be used to restrict groundwater use. Groundwater would be monitored until cleanup goals are met. Additional monitoring wells would be installed and used to evaluate the effectiveness and to monitor the progress of the remedy. Groundwater sampling to evaluate groundwater contamination would be performed quarterly for the first two years, semi-annually for the next seven years, then annually until cleanup goals are met.
Estimated Cost: $2.2 million

Alternative GW-3: Enhanced Reductive Dechlorination, or ERD, and Institutional Controls.
Under this alternative, EPA would treat the groundwater contamination through ERD. This involves injecting substances such as vegetable oils and microorganisms into the groundwater to speed up the breakdown of the contaminants. Additional monitoring wells would be installed to monitor progress of the remedy and to act as sentinel wells to alert the Agency if breakdown products from the contamination are moving toward the Terre Haute wellfield. The method of injection would depend on the accessibility of properties in targeted treatment areas. Institutional controls in the form of deed restrictions would be implemented to prevent people's exposure to contaminated groundwater until cleanup goals have been met.
Estimated Cost: $4.4 million

Alternative GW-4: In-situ Chemical Oxidation/In-situ Chemical Reduction, or ISCO/ISCR, and Institutional Controls.
Under this alternative, EPA would treat the groundwater contamination through ISCO or ISCR. If ISCO is selected, EPA would inject oxygen into the groundwater to help reduce the contamination in the groundwater. Oxygen feeds the bacteria that break down the contamination. If ISCR is selected, EPA would inject a substance known as "zero-valent iron." These microscopic particles of specially treated iron clean the groundwater chemically. Impact to Terre Haute's well field would be minimized by monitoring progress, and making adjustments as necessary to reduce the injections. Institutional controls such as deed restrictions would be implemented to prevent people's exposure to contaminated groundwater until cleanup goals have been attained.
Estimated Cost: $2.4 million

Alternative GW-5: Pump and Treat and Institutional Controls.
This alternative includes the installation of pumping wells and a treatment building and involves treating the contaminated water with a process called air stripping. The treated water would then be discharged to the Wabash River or re-injected into the groundwater. Air stripping exposes contaminated water to air, causing contaminants in the water to evaporate. The air is then treated with carbon filters before being released. The extraction wells would be designed and installed to hydraulically contain the contamination. Institutional controls in the form of deed restrictions would be implemented to limit people's exposure to contaminated groundwater as well as to restrict people from doing anything that could interfere with the remedy until cleanup goals are met. Five well pairs would be installed along the west side of North First Street to alert the Agency if the contamination is moving toward the Terre Haute wellfield.
Estimated Cost: $4.2 million

Evaluation of alternatives

EPA is required to evaluate these alternatives against nine criteria (*see box, Page 4*). The criteria are used to help compare how the options will meet cleanup goals. The table on Page 4 compares each alternative against the nine criteria.

EPA, in consultation with IDEM, recommends **Alternatives S-3 and GW-2** because they provide the best balance of eight of the nine criteria. Community acceptance will be evaluated after the public comment period. Alternative S-3 is the most protective of human health and the environment because portions of contaminated soil would be treated with an SVE system and portions of contaminated soil would be removed from the site. In Alternative S-3, air monitoring of the SVE system would be conducted to determine when the cleanup is complete and soil samples would be collected to evaluate the effectiveness of the excavation. Soil Alternative S-3 would likely restore soil at the site to unrestricted use. Alternative GW-2 would allow for cleanup goals to be reached while controls would limit human exposure to contaminated groundwater until the goals are met. It is also cost-effective. Alternative S-3 and GW-2 combined provide the best, cost-effective cleanup solution with the best protection of people and the environment. The alternative also satisfies EPA's preference for using treatment to clean up a site.

Explanation of evaluation criteria
EPA compares each cleanup option or alternative with these nine criteria established by federal law:

1. Overall protection of human health and the environment examines whether an option protects living things. This standard can be met by reducing or removing pollution or by reducing exposure to it.

2. Compliance with applicable or relevant and appropriate requirements, or ARARs, ensures options comply with federal, state and local laws.

3. Long-term effectiveness and permanence evaluates how well an option will work over the long-term, including how safely remaining contamination can be managed.

4. Reduction of toxicity, mobility or volume through treatment determines how well the option reduces the toxicity, movement and amount of pollution.

5. Short-term effectiveness compares how quickly an option can help the situation and how much risk exists while the option is under construction.

6. Implementability evaluates how feasible the option is and whether materials and services are available in the area.

7. Cost includes not only buildings, equipment, materials and labor but also the cost of maintaining the option for the life of the cleanup.

8. State acceptance determines whether the state environmental agency accepts an option. EPA evaluates this criterion after receiving public comments.

9. Community acceptance considers the opinions of nearby residents and other stakeholders about the proposed cleanup plan. EPA evaluates this standard after a public comment period.

	Soil Cleanup Alternatives				Groundwater Cleanup Alternatives				
Evaluation Criteria	**S-1**	**S-2**	**S-3***	**S-4**	**GW-1**	**GW-2***	**GW-3**	**GW-4**	**GW-5**
Overall Protection of Human Health and the Environment	☐	■	■	■	☐	❖	■	■	■
Compliance with ARARs	NA	■	■	■	NA	■	■	■	■
Long-Term Effectiveness Permanence	☐	■	■	■	☐	■	■	■	■
Reduction of Toxicity, Mobility, or Volume through Treatment	☐	☐	■	☐	☐	☐	■	■	☐
Short-Term Effectiveness	■	■	■	■	■	❖	■	■	■
Implementability	■	■	■	■	■	■	❖	❖	☐
Cost	$0	$1.6 million	$1.6 million	$1.6 million	$0	$2.2 million	$4.4 million	$2.4 million	$4.2 million
State Acceptance	Indiana Department of Environmental Management agrees with EPA's recommended alternative								
Community Acceptance	Will be evaluated after the comment period								

■ = Meets criterion ❖ = Partially meets criterion ☐ = Does not meet criterion

* Denotes EPA's recommended alternative

Public Comment Sheet

Use this space to write your comments

EPA is interested in your comments on the proposed cleanup plan for soil and groundwater contamination at the Elm Street Groundwater Contamination Superfund site. You may use the space below to write your comments. Detach, fold, stamp and mail to EPA Community Involvement Coordinator Cheryl Allen. Comments must be postmarked by Sept. 6. If you have questions, contact Cheryl at 312-353-6196, or toll-free at 800-621-8431, Ext. 36196, 9:30 a.m. – 5:30 p.m., weekdays. You may also email comments to cheryl.allen@epa.gov or fax them to Cheryl at 312-408-2234.

Name: _____

Affiliation: _____

Address: _____

City: _____

State: _____ Zip: _____

Elm Street Groundwater Contamination Site – Comment Sheet

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

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Name _____
Address _____
City _____
State _____ Zip _____

Cheryl Allen
Community Involvement Coordinator
U.S. EPA Region 5
Superfund Division (SI-6J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

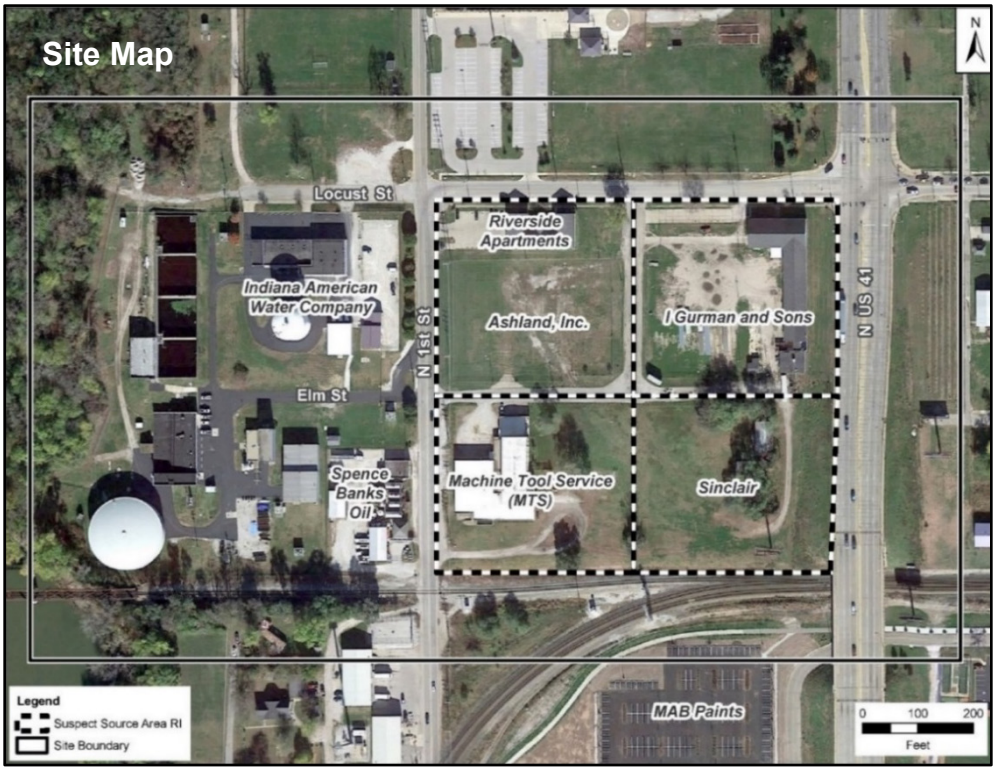
Background

The 18.5-acre Elm Street site is located in Terre Haute, Vigo County, Ind. Surrounding land uses include an apartment complex and open/recreational land to the north, commercial and residential property to the east, commercial and industrial property to the south and the Indiana American Water Co. to the west.

In the 1980s, several wells in Terre Haute's Elm Street municipal well field were found to have volatile organic compounds, or VOCs, in them. VOCs are organic compounds that can easily turn to gases. In response, Indiana American Water Co. installed a radial collector in 1991 outside the contaminated area. The city's water is primarily provided through this collector. It is also important to note that all of the city's water is treated at the water treatment plant to meet safe drinking water standards.

Source identification

IDEM identified three potential source areas for the VOC contamination through the site assessment process conducted from 1987 to 1989. The potential source areas include the Gurman Container and Supply property, the Ashland (formerly known as BiState Products, now owned by Valvoline) property and the Machine Tool Service, or MTS (*See map below*). The Gurman facility has been in operation since 1922. From 1930 to 1980, Gurman primarily reconditioned and sold steel barrels. It is believed that Gurman accepted drums containing various types and likely small quantities of product or waste material. The standard practice for most of its operational history was to open the drums and dump their contents onto the ground and then rinse the remaining contents down the storm sewer located in the process areas prior to refurbishing. The Ashland facility served as a local supplier of Texaco products from the 1930s through the 1980s. Petroleum products were stored in bulk and distributed, and solvents were used for parts cleaning at local service stations. In 1980, MTS purchased the property and leased it to BiState, which operated the facility for collection and storage of waste oils. In addition, a Sinclair Oil facility also stored petroleum products and solvents on the eastern portion of the MTS property. A former locomotive repair and maintenance facility (roundhouse) also existed on the eastern side of the Sinclair portion of the property. Although no evidence exists to substantiate the use of solvents during locomotive repair operations at the facility, the use of solvents is considered common practice during that period.



Investigation and voluntary removal activities

In 1999 and 2000 IDEM sampled soil and groundwater and found that some of the chemicals detected in the municipal wells were also detected in soil and groundwater at the three facilities investigated. From about 2003 to 2006, EPA issued a series of letters to Ashland, Gurman and MTS requesting information regarding their operations. Each of the parties submitted to EPA their response to the information requests. On March 7, 2007, EPA placed the site on the National Priorities List, a list of Superfund sites nationwide. All parties considered potentially responsible for the contamination declined to participate in conducting the site investigation and developing the cleanup alternatives, called a remedial investigation and feasibility study, or RI/FS. Therefore, in 2008, EPA began the RI/FS with federal funds. During the RI, which examines the extent of the contamination, VOCs were detected in the groundwater and surface and subsurface soil. Arsenic was found in the groundwater and soil. Other metals, PCBs and pesticides were also found in the soil.

In 2013, Ashland notified EPA that it would voluntarily remove contaminated soil from its property and demolish several on-site buildings and structures. An inactive railroad spur, seven subsurface pipes and fluid in the pipes were also disposed of off-site.

The RI was completed in October 2016 and the FS, which evaluates cleanup alternatives, was completed in July 2017.

Next steps

Before making a final decision, EPA will review comments received during the public comment period. If new information is presented, EPA may modify its proposed plan or select another option.

The Agency encourages you to review and comment on the proposed cleanup plan. More detailed information on the cleanup options is available in the official documents on file at the information repository at the Vigo County Public Library, 1 Library Square, Terre Haute, or on EPA's website at www.epa.gov/superfund/elm-street-groundwater.

EPA will respond to the comments in a document called a "responsiveness summary." This will be part of another document called the "record of decision" that describes the final cleanup plan. The Agency will announce the selected cleanup plan in the *Tribune Star,* place a copy in the information repository and post it on the Web.

ELM STREET GROUNDWATER CONTAMINATION SITE:
EPA Proposes Cleanup Plan for Contaminated Soil and Groundwater

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Region 5
Superfund Division (SI-6J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590