



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

JUL 21 2010

ACTION MEMORANDUM

SUBJECT: Request for Removal Action and 12 Month Emergency Exemption at the Compass Plaza Well TCE Site, Rogersville, Greene County, Missouri

FROM: Doug Ferguson, On-Scene Coordinator
Planning and Preparedness North Section

THRU: Don Lininger, Chief
Planning and Preparedness North Section

TO: Cecilia Tapia, Director
Superfund Division

SITE ID#: A7W2
CERCLIS ID#: MON000706143
NATIONALLY SIGNIFICANT: No
CATEGORY OF REMOVAL: Time-critical

I. PURPOSE

The purpose of this Action Memorandum is to request funding and document approval of the proposed removal action described herein for the Compass Plaza Well TCE Site (the "Site"), Rogersville, Greene County, Missouri. The general objective of this removal action will be to eliminate, through the provision of a permanent alternate water supply or whole-house filtration, human exposures resulting from the inhalation, dermal contact, and/or ingestion of trichloroethylene (TCE) and/or other hazardous substances present in the groundwater at the Site. An emergency exemption from the 12-month limitation on response imposed by section 104(c)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is also being sought in this Action Memorandum.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation

In March 2010, the Missouri Department of Natural Resources (MDNR) Public Drinking Water Branch (PDWB) found TCE in two non-community wells and an irrigation well on the western edge of Rogersville, Missouri. MDNR's Superfund Section initiated a combined Preliminary Assessment/Site Investigation (PA/SI) integrated Removal Site Evaluation (RSE) on March 24, 2010. Ongoing sampling events have found 12 of the 63 wells sampled have detectable concentrations of TCE. Four drinking water wells within that sampling group have TCE concentrations above the maximum contaminant level (MCL) of 5 parts per billion (ppb). The source of the TCE release is unknown at this time. MDNR requested EPA to provide alternative water supply to the households drinking contaminated water. MDNR currently plans to continue the well water assessment work at the Site.

2. Physical location

The city of Rogersville (population 3,047) is located in southwest Missouri five miles east of Springfield, Missouri on State Highway 60 (Attachment 1). The City is primarily residential with agricultural areas surrounding.

3. Site characteristics

The wells with TCE detections are located on the southwestern edge of the City of Rogersville, which is primarily a rural area. The region is characterized by karst topography and dye tests reveal groundwater movement in all directions from the wells with TCE detections. Numerous historic abandoned wells are believed to be in the area and many wells are in use with little or no information regarding their method of construction or depth. The sources of contamination are still being investigated by MDNR.

4. Release or threatened release into the environment of hazardous substance, or pollutant, or contaminant

TCE has been detected in groundwater above the MCL near Rogersville, Missouri. This compound is listed as a hazardous substance pursuant to 40 CFR § 302.4. As such, TCE is a hazardous substance as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

5. National Priority List (NPL) status

This site has not been proposed for the NPL.

6. Maps, pictures, and other graphic representations

- Attachment 1 – Location of Rogersville, Missouri
- Attachment 2 – Location of TCE Detections in Groundwater

B. Other Actions to Date

1. Previous actions

None

2. Current actions

MDNR, EPA, the Missouri Department of Health and Senior Services (MDHSS) and the Greene County Health Department held a public meeting on May 25, 2010, to address questions regarding the Site. EPA assisted MDNR on June 15-16, 2010, in collecting additional water samples from private wells

C. State and Local Authorities' Roles

1. State and local actions to date

MDNR's Superfund Section initiated a combined PA/SI integrated RSE on March 24, 2010. MDNR plans to continue site assessment activities and work with EPA on addressing any additional contaminated wells as they are identified. MDNR has requested EPA to provide alternative safe drinking water.

2. Potential for continued state/local response

MDNR is expected to continue to be involved in the assessment of drinking water wells and review of Site activities.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

EPA has determined, in accordance with section 104(a)(1) of CERCLA and based upon the following factors set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 CFR § 300.415(b)(2) of the NCP, that there is a threat to the public health or welfare or the environment as a result of the release or substantial threat of the release into the environment of hazardous substances at the Site.

300.415(b)(2)(i) - Actual or potential exposure to nearby human populations, animals, or food chain from hazardous substances, pollutants, or contaminants.

TCE concentrations as high as 313 µg/L have been detected in drinking water wells near Rogersville, Missouri. Of the 63 wells sampled so far, 12 have TCE detections, 5 of which are above the MCL. 500 wells are known to exist within a 4 mile radius of wells found to be contaminated with TCE.

40 CFR § 300.415(b)(2)(ii) – Actual or potential contamination of drinking water supplies or sensitive ecosystems.

TCE concentrations as high as 313 µg/L have been detected in drinking water wells near Rogersville, Missouri. Of the 63 wells sampled so far, 12 have TCE

detections, five of which are above the MCL. 500 wells are known to exist within a four mile radius of wells found to be contaminated with TCE.

40 CFR § 300.415(b)(2)(v) - Weather conditions exist that may cause hazardous substances to migrate or be released.

Precipitation events and storm water runoff are expected to contribute to future releases in the Rogersville area. This is due to the effects of the additional hydraulic head that may be formed at the affected areas after rainfall events or storm water runoff, exacerbating the effect of contaminant migration or transport.

300.415(b)(2)(vii) – The availability of other appropriate federal or state response mechanism to respond to the release.

There are no other federal, state, or local mechanisms available to address this release. EPA will continue to work with MDNR and other relevant agencies in the implementation of this removal action.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMIT

As described further below, the presence of TCE in the residential drinking water at the Site poses an immediate risk to public health or welfare or the environment. Residents at the Site are currently exposed to TCE at levels in excess of the MCL and removal action level (RAL) for TCE. It is unknown how long this exposure has lasted, but the exposure may have existed for years, compounding the exposure and the potential for harm. Response actions are immediately required to prevent, limit, or mitigate an emergency. The karst topography and dye tests that show groundwater movement in all directions from the wells with TCE detections suggest that new contaminated wells will be discovered and identification of a source(s) of contamination will be difficult and take time. It is anticipated that timely response actions will continue to be required without interruption beyond the statutory 12-month period in order to prevent further unacceptable exposures. In the absence of this removal action, assistance will not otherwise be provided on a timely basis as neither the State or local authorities have the resources to address this situation.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

For residential wells that have been identified as contaminated with TCE, as well as those that may be impacted in the future, whole-house carbon filtration systems, service connection to the municipal water supply system and other alternative safe water supply will be evaluated. It is anticipated that the initial response will be the installation of whole-house

carbon filtration systems at the residences that have already been identified with TCE contaminated wells. Sampling of the carbon filtration systems will be needed to verify system effectiveness as well as the need for replacement filter cartridges. Additional groundwater sampling will be needed to identify new potential exposures and locate potential TCE source areas.

Health Consultation and Removal Action Level Concentration Discussion

EPA guidance for determining threshold concentrations in private drinking water wells is provided in EPA's *Final Guidance on Numeric Removal Action Levels for Contaminated Drinking Water Sites* (OSWER Directive 9360.1-02, October 1993). RALs are defined in this directive as "drinking water concentrations of contaminants that are considered, along with other factors, in determining whether to provide alternate water supplies under Superfund removal authority." This guidance further defines two types of RALs: (1) numeric levels for individual substances, which apply generally across most sites, and (2) site-specific levels which are determined on a case-by-case basis, using a more detailed analysis of conditions at a particular site. The numeric RAL for TCE is 300 ug/l, which was last updated in April 1997. During sampling conducted in 2010, the highest concentration of TCE found in any private drinking water well at this site was 313 ug/l.

In discussing site-specific RALs, the guidance provides that "a significant health threat may exist at a site even if no substance is currently present in drinking water at a concentration exceeding its numeric RAL. A removal action may be initiated if the health risk at a site has been analyzed in detail and the analysis indicates that a serious risk is present due to site-specific factors. Examples of such factors include . . . people have been drinking contaminated water for a long period of time already."

While the health risk at this site has not been analyzed in detail, the Region recently considered RALs with regard to a removal action conducted at a site with similar contaminants and exposures.¹ With regard to that site, an EPA toxicologist performed a detailed analysis of potential health risks. The analysis accounted for the latest TCE toxicity information and all potential routes of exposure, including ingestion of drinking water, inhalation of volatiles released into the air during household water use, and dermal contact while showering/bathing. A range of potential site-specific RALs were provided, including the MCL, and values based on an excess individual cancer risk of 1×10^{-6} to 1×10^{-4} and non-cancer hazard quotient of 1. The EPA toxicologist concluded:

Given the length of past exposure, the unlikelihood of any future remedial action, and the scientific evidence supporting increased TCE toxicity, it would be prudent to consider a RAL at the lower end of the range of values.

For that action an RAL of 5.0 micrograms per liter ($\mu\text{g/L}$) was selected by the Region. The EPA toxicologist has been consulted on this Site as well. In response, he reiterated the recommendation that he made with regard to the Wilcox, Murray site, that an RAL in the lower end of the range of values be used.

¹ Wilcox, Murray Property Site, Duenweg, Jasper County, Missouri, SSID 07SQ, Action Memorandum dated February 19, 2010.

In addition to risk assessment considerations, the guidance also provides that costs should be considered. This removal action offers a protective, permanent solution to affected private well owners in the area at a relatively low cost, and would eliminate the need for the future sampling (and associated costs) of affected wells. For these and other reasons, and consistent with the EPA toxicologist's conclusions and previous RAL's used by the Region, I am recommending the adoption of a RAL for this Site of 5.0 µg/L for TCE and carbon tetrachloride. This is also the MCL for each contaminant and falls within the more health-protective spectrum of the cancer risk range.

2. Contribution to remedial performance

The actions proposed in this Action Memorandum should not impede any future remedial plans or other response. This removal action is consistent with any long-term remedy in that it fully addresses the exposure threat posed by TCE contamination in drinking water wells at this site.

3. Applicable or relevant and appropriate requirements (ARARs)

The NCP at 40 CFR § 300.415 requires that removal actions shall, to the extent practicable, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental, state environmental, or facility-siting laws. The following ARARs have been identified as being potentially applicable for this action:

Federal

Occupational Safety and Health Act Standards - 29 CFR Part 1910 and Part 1926.20 - 1926.26, will be applicable to all actions.

RCRA Subtitle D Disposal Facility for disposal of spent filters – 40 CFR Part 257.

Safe Drinking Water Act regulations for MCLs – 40 CFR Part 141.

State

EPA requested that MDNR identify requirements that the state of Missouri wanted EPA to consider as potential state ARARs for this removal action. To qualify as state ARARs, these requirements must be (1) promulgated, (2) identified by the state within the time period specified in this letter, and (3) more stringent than federal requirements.

4. Project schedule

Planning for this removal action may commence immediately following the approval of this Action Memorandum.

A. Estimated Costs

The costs associated with this removal action are estimated as follows:

<u>Extramural Costs</u>	
Removal Costs	\$471,212
Contingency (20%)	\$ 94,242
Removal Project Ceiling	\$565,454

EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Refer to the enforcement action section for a breakout of these costs.

B. Intramural Costs:

EPA Direct Extramural Costs	\$565,454
EPA Direct Intramural Costs	\$ 50,000
EPA Indirect (44.97% of all costs)	\$276,770
Total Removal Project Costs	\$892,224

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs consistent with the full cost-accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the recourse of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' rights to cost recovery.

Based on the previous extramural costs calculation, an estimate of EPA's intramural direct costs (\$50,000), and an indirect regional cost rate of 44.97 percent, the total estimated EPA costs for this removal action based on full cost-accounting practices eligible for cost recovery are estimated to be \$892,224.

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will increase public health risks to the adjacent population through the increased possibility of hazardous substances migrating via groundwater.

VIII. OUTSTANDING POLICY ISSUES

No outstanding policy issues are associated with this removal action.

IX. ENFORCEMENT

See Attachment 3: Enforcement Addendum.

X. RECOMMENDATION

This decision document represents the selected time-critical removal action for the Compass Plaza Well TCE Site located in Rogersville, Missouri, developed in accordance with CERCLA as amended and not inconsistent with the NCP. The decision is based upon the Administrative Record for the Site.

Conditions at this Site meet the criteria set forth at 40 C.F.R. § 300.415(b)(2) for a removal action and CERCLA section 104(c) emergency exemption from the 12 month limitation. The total removal project ceiling is \$565,454 which comes from the Regional Removal Allowance. I recommend your approval of the proposed action.

Approved:



Cecilia Tapia, Director
Superfund Division

7/21/10

Date

Attachments (3)

Attachment 1

Location of Rogersville, Missouri

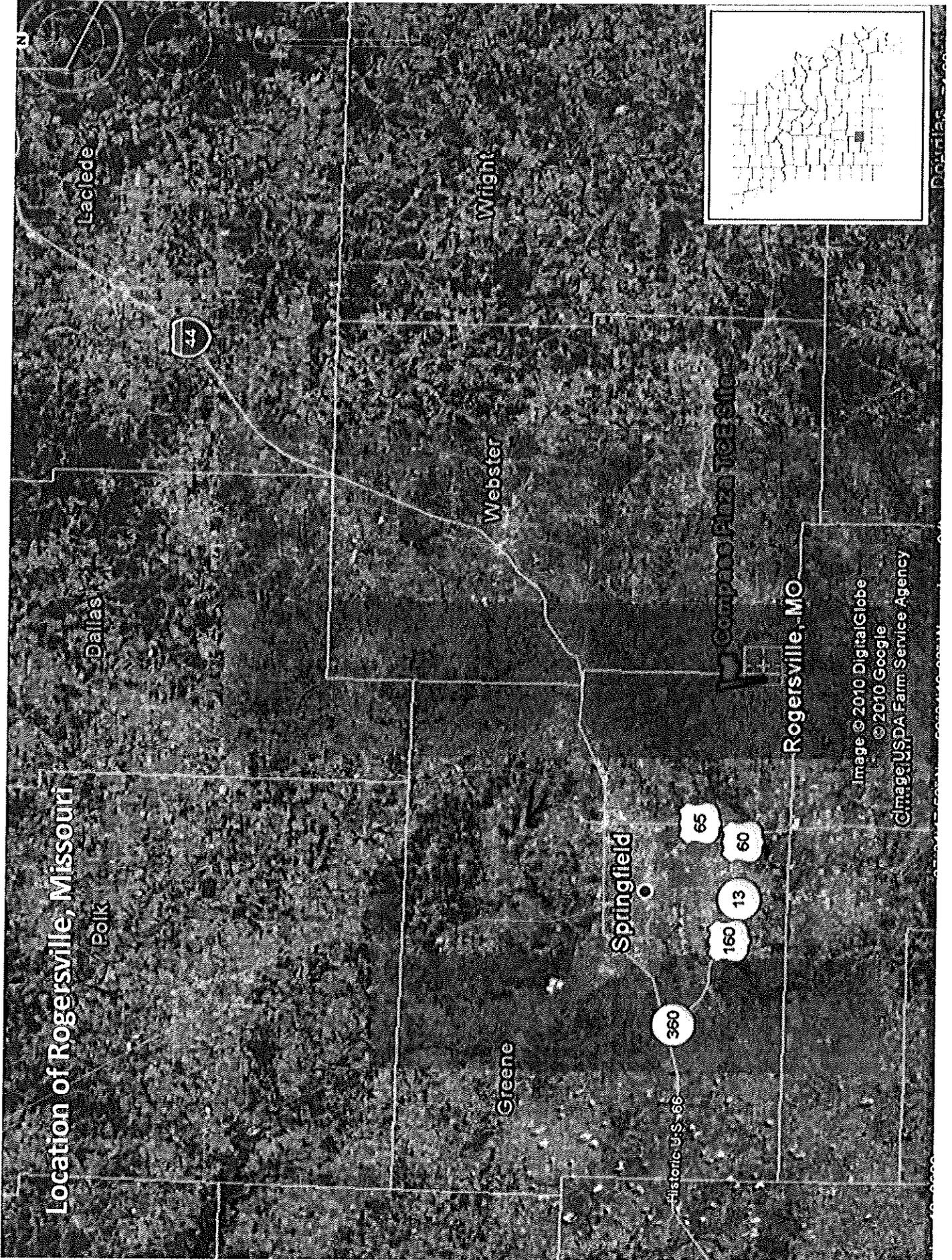


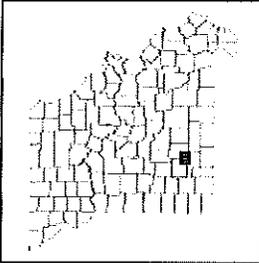
Image © 2010 DigitalGlobe
© 2010 Google
Image © USDA Farm Service Agency

Attachment 2

**Sample Location Map
Past and Proposed Sample Areas
Compass Plaza Site
Rogersville
Webster County, MO**

Legend

- Private DW Well
- Public DW Well
- TCE Above 5.0 ppb
- TCE below 5.0 ppb
- Spring with TCE below 5.0 ppb
- Phase I Sampling Area March-May 15, 2010
- Phase II Sampling Area May 16 - June, 2010
- County Boundary
- Municipal Boundary



Created on: April 22, 2010 by: [Name] Title: [Title]
 Date: [Date] Version: [Version]
 Missouri Department of Natural Resources
 Division of Environmental Quality
 Hazardous Waste Program

