U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Billings PCE Vapor Intrusion Systems - Removal Polrep
Final Removal Polrep

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**Region VIII**

**Subject:** **POLREP #2**
**Final Pollution Report**
**Billings PCE Vapor Intrusion Systems**
**08ME**
**Billings, MT**
**Latitude: 45.7700415 Longitude: -108.5341941**

**To:** Kerry Guy, EPA
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**From:** Joe Payne, On-Scene Coordinator
**Date:** 11/21/2024
**Reporting Period:** April 2023 through September 2024

## 1. Introduction

### 1.1 Background

| | | | |
|---|---|---|---|
| **Site Number:** | 08ME | **Contract Number:** | |
| **D.O. Number:** | | **Action Memo Date:** | 2/7/2023 |
| **Response Authority:** | CERCLA | **Response Type:** | Time-Critical |
| **Response Lead:** | EPA | **Incident Category:** | Removal Action |
| **NPL Status:** | NPL | **Operable Unit:** | OU1 |
| **Mobilization Date:** | 3/5/2023 | **Start Date:** | 3/6/2023 |
| **Demob Date:** | 9/12/2024 | **Completion Date:** | 11/12/2024 |
| **CERCLIS ID:** | MTD986073252 | **RCRIS ID:** | |
| **ERNS No.:** | | **State Notification:** | |
| **FPN#:** | | **Reimbursable Account #:** | |

#### 1.1.1 Incident Category

CERCLA Vapor Intrusion mitigation

#### 1.1.2 Site Description

The Site is in the city of Billings, Montana and is used for various types of public and private urban living. Approximately half of the affected area falls within the 80th percentile mark nationally for a potential Environmental Justice Area.

There are no federal, state, or local government ownership aspects of the Site. In 2007, the EPA conducted a removal action at the Site to mitigate one of the sources of contamination as discussed in the "Response Actions To Date" section of this document. This Pollution Report is concerning the removal action at 28 prioritized properties within a National Priority List (NPL) Superfund Site (Billings PCE Superfund Site) that are affected by indoor tetrachloroethylene (PCE) vapors intruding into the properties from a contaminated groundwater plume.

##### 1.1.2.1 Location

The Site is located in a residential and industrial section of downtown Billings, the most populous city in Montana. There are 298 residential, 4 schools, 8 condominium, and 179 commercial properties overlying the groundwater plume. There is an estimated population of 33,000 people affected by the plume's presence.

This action initially prioritized 9 residential homes with an approximate population of 40 people. These homes were identified as urgent by the Remedial Superfund team during indoor air and sub slab sampling activities, and therefore referred to the Removal program. While the Removal Team was in the field at these 9 homes, the Remedial team continued their sampling efforts at hundreds of other properties and identified 17 more to be addressed by the Removal Team in this action, bringing the total to 28 with an approximate population of 100 people. These 28 properties returned exceptionally high PCE sampling results in the sub slab concentrations, the indoor air concentrations, or both. Mitigation efforts could not be delayed.

##### 1.1.2.2 Description of Threat

Tetrachloroethylene (PCE) is the main contaminant of concern at the Site. It is listed as a hazardous

substance in 40 CFR § 302.4.

Exposure to PCE and its daughter chemicals can lead to a multitude of human health problems. PCE exposure can lead to nervous system and respiratory system defects, organ failure (particularly the liver), as well as several types of cancer (bladder, non-Hodgkin-lymphoma, and myeloma particularly). These health effects have been documented in both chronic and acute exposures.

#### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The Billings PCE Superfund Site consists of an 860-acre contaminant shallow groundwater plume that extends from 715 Central Avenue (the presumed primary source area) approximately 3 miles east northeast through residential, commercial, and school buildings and into downtown Billings, Montana. The contaminated groundwater plume contains chlorinated solvents, mainly PCE, from historic dry cleaning businesses. The site is listed on the National Priorities List and is currently undergoing Remedial Investigation/Feasibility Study (RI/FS).

The Site is undergoing expansive sampling studies by the Superfund Remedial Program as part of the RI/FS. In Spring 2022, an indoor air study was completed in several residential homes located within the Site. Both indoor air samples and sub-slab vapor intrusion air samples were collected. Sample results were found to be in exceedance of human health standards in multiple homes when compared against EPA's Indoor Air Vapor Intrusion Screening Levels (IA VI SLs), Indoor Air Vapor Intrusion Removal Management Levels (IA VI RMLs), and Sub-Slab Vapor Action Levels (SSALs). Based on the initial sampling results that triggered this action, the EPA determined that at least 9 of these homes required immediate prioritization for the installation of vapor mitigation systems. Below is a table comparing the PCE levels found in those 9 homes with EPA's human health standards.

| Standard (µg/m3) | | Sampled PCE ranges (µg/m3) |
|---|---|---|
| **Indoor Air Vapor Intrusion Screening Level** | 4.17 | 0.41-130 |
| **Indoor Air Vapor Intrusion Removal Management Level** | 125 | 0.41-130 |
| **Sub-Slab Action Level** | 139 | 1400-9900 |

As previously mentioned, the Remedial team continued their sampling efforts at hundreds of other properties and identified 17 more homes to be addressed by the Removal Team in this action. A total of 28 properties were addressed in this removal action. Because of this change of scope, the original Action Memorandum for this removal was amended on February 16, 2024 to include an exemption to the 12 month statutory limit.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

EPA Remedial Team requested assistance from the Removal Team to address the homes that exceeded action levels at the Site. Without Removal's assistance, these homes would not be addressed until the Remedial Action phase of the Superfund Site was underway.

#### 2.1.2 Response Actions to Date

The Montana Department of Environmental Quality (MDEQ) completed a preliminary assessment of the Site from 1992- 1993. The preliminary assessment findings were "no further action" based on lack of drinking water usage of the affected aquifer. Subsequent field investigations were conducted by the MDEQ in 1994. MDEQ conducted a CERCLA site investigation in 1999 and 2001. The MDEQ site investigation revealed an east-northeast trending groundwater contaminant plume and potential indoor air contamination associated with the groundwater contamination.

In 2007, EPA conducted a removal action that included removing and disposing of contaminated soil, injecting chemicals to help reduce groundwater contamination, and installing a barrier wall around the most highly contaminated groundwater. EPA also installed vapor mitigation systems at 7 structures overlying the contaminated groundwater plume. Since that time, the EPA Region 8 Remedial Team has been documenting plume characteristics through the RI/FS.

In 2019, MDEQ issued a remedial investigation report to document the current nature and extent of contamination, if other sources were contributing to contamination, and if vapor intrusion was continuing to occur. Results found multiple sources of contaminated soil, and that subsurface soils at several source locations were continuing to contaminate groundwater. Groundwater contamination did decrease after EPA's removal work in 2007 but the issue was not fully resolved.

This removal action included the installation of sub slab depressurization systems to mitigate vapor intrusion in prioritized properties. 28 properties received systems and they were primarily installed in basements. Follow up samples were taken in 26 of these properties to ensure efficacy of the systems. The 2 remaining homes were unresponsive to EPA's efforts to conduct further sampling, or otherwise denied access. A list of all properties and details as to which were sampled after installations and other notable comments is available in the document "Billings PCE Vapor Intrusion Removal Action Installation List" located in the Site File. Efficacy sampling results varied from 55% to 99% decrease in vapor concentrations. In all homes sampled, indoor air concentrations were brought below action levels.

For those properties where follow up sampling was conducted, results letters were sent to each property

owner documenting their sampling results and the efficacy of their system. These letters are available in the document “Property Owner Results Letters” located in the Site File.

Additionally, each property was given an owner's manual documenting the details of their sub slab depressurization system. These manuals are available in the document “Billings PCE Property Owner Manuals” located in the Site File.

#### 2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

A separate Enforcement Addendum has been prepared providing a confidential summary of current and potential future enforcement activities. This document is available in the Site File.

#### 2.1.4 Progress Metrics
N/A

### 2.2 Planning Section

#### 2.2.1 Anticipated Activities
All response activities have concluded at the site. The EPA Remedial Team is currently in the RI/FS stage at the greater Superfund Site and plans to conduct more activities in the future to continue mitigating the contamination.

#### 2.2.1.1 Planned Response Activities
There are no further response activities planned as part of this removal action.

#### 2.2.1.2 Next Steps
N/A

#### 2.2.2 Issues
As stated in the Action Memorandum located in the Administrative Record, the purpose of this removal action was to reduce indoor air contamination exposure in the prioritized properties. The contamination is likely the result of historical dry-cleaning processes in the Billings area. This goal was achieved by implementing sub- slab depressurization systems in all properties. These systems draw vapors as they gather underneath buildings, before they can enter into breathable areas, and push them outside the home where they dilute and break apart. Efficacy sampling of these systems showed up to 99% reduction in contaminant concentrations and in all cases brought indoor air concentrations below removal management levels.

### 2.3 Logistics Section

The largest logistical consideration for this site was coordinating the schedule of the homeowners and the schedule of the EPA and the EPA's contractors.

### 2.4 Finance Section

#### 2.4.1 Narrative
The accounting table of expenditures is an estimate based on figures known to the OSC at the time this report was written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

## Estimated Costs *

| | Budgeted | Total To Date | Remaining | % Remaining |
|---|---|---|---|---|
| **Extramural Costs** | | | | |
| ERRS - Cleanup Contractor | $175,000.00 | $147,000.00 | $28,000.00 | 16.00% |
| TAT/START | $122,500.00 | $115,000.00 | $7,500.00 | 6.12% |
| **Intramural Costs** | | | | |
| | | | | |
| **Total Site Costs** | $297,500.00 | $262,000.00 | $35,500.00 | 11.93% |

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

### 2.5 Other Command Staff

#### 2.5.1 Safety Officer
All members of the response team wore proper personal protective equipment while working, and paid particular attention to slips, trips, and fall hazards.

**2.5.2 Liaison Officer**
N/A

**2.5.3 Information Officer**
N/A

## 3. Participating Entities

**3.1 Unified Command**
N/A

**3.2 Cooperating Agencies**
N/A

## 4. Personnel On Site

Personnel on site included the following:

1-2 EPA Federal On Scene Coordinators
1 START scientist
1 ERRS Removal Manager
1-2 Person Subcontractor team

## 5. Definition of Terms

START- Superfund Technical Assessment and Response Team
ERRS- Emergency Rapid Response Services
OSC- On-Scene Coordinator
PCE- tetrachloroethylene
NPL- National Priorities List
MDEQ- Montana Department of Environmental Quality

## 6. Additional sources of information

**6.1 Internet location of additional information/report**

For more updates on site activities, please see the Notices section of the response page here:
https://response.epa.gov/site/site_profile.aspx?site_id=15883

**6.2 Reporting Schedule**
This is the Final Pollution Report for this removal action, there is no further reporting scheduled.

## 7. Situational Reference Materials

No information available at this time.