U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Highway 3 PCE - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VII

Subject: **POLREP #12**
Indoor air and sub slab sampling
Highway 3 PCE
A7R4
Le Mars, IA
Latitude: 42.7941567 Longitude: -96.1655778

To:
From: Susan Fisher, OSC
Date: 7/19/2016
Reporting Period: May 9 to May 10, 2016

1. Introduction

1.1 Background

Site Number:	A7R4	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	8/21/2013
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	8/26/2013	**Start Date:**	8/26/2013
Demob Date:		**Completion Date:**	
CERCLIS ID:	IAN000706042	**RCRIS ID:**	
ERNS No.:		**State Notification:**	yes
FPN#:		**Reimbursable Account #:**	

1.1 Background

Site No.:	A7R4
Response Authority	CERCLA, §104(a)
Response Type	Time Critical
CERCLIS No.:	IAN000706042
Operable Unit	00
Type of Removal Action	RV – Removal
Lead	SUPR
NPL Status:	Non-NPL
State Notification	IDNR Notified
Action Memorandum Status	Approved August 21, 2013
Start Date:	8/26/2013
Demobilization Date:	N/A
Completion Date:	N/A

1.1.1 Incident Category

CERCLA incident category: Inactive Production Facility

1.1.2 Site Description

1.1.2.1 Site Location

The Highway 3 PCE Site (Site) is located southeast of the intersection of Plymouth Street West (Iowa Highway 3) and Central Avenue Northeast in Le Mars, Iowa. The approximate geographic coordinates of the Site are 42.792694 degrees north latitude and 96.165928 degrees west longitude (Google Earth 2011). The city of Le Mars, Iowa, has a population of 9,826 (U.S Census Bureau 2010), and is located in Plymouth County in northwestern Iowa about 25 miles northeast of Sioux City, Iowa, on U.S Highway 75. The Site is located in downtown Le Mars, Iowa, where current and past commercial and industrial use facilities may have released contaminants into soil and thus groundwater.

1.1.2.2 Description of Threat

Sources of hazardous substances include possible leaks or spills of tetrachloroethene (PCE) and/or trichloroethene (TCE) in Le Mars, Iowa. Likely sources at this Site include areas of contaminated soil resulting from spills or improper handling of dry cleaning solvents. Investigation activities at the Site sought to determine if a release of PCE to groundwater has occurred at any current or former dry cleaning facilities. Sample media included soil gas, soil and groundwater. Based upon the sample results, it appears that a contaminated soil source is present at an active dry cleaning property located approximately 175 feet east of the intersection of Plymouth and Central Avenue within the Site in Le Mars. The area or volume of this apparent source is unknown at this time. Based on investigations at the Site, dry cleaning operations at this facility use PCE. Analytical results from samples collected by the EPA indicate that hazardous substances have been released into the environment. PCE and TCE are hazardous substances as identified in CERCLA section 101(14) and as listed at 40 CFR section 302.4. PCE and TCE have been detected in soil, groundwater and air samples, and have exceeded removal action levels (RALs) and screening levels.

1.1.3 Removal Preliminary Assessment/Removal Site Inspection Results

PCE was first detected during an April 2008 Le Mars Coal Gas Plant site investigation. In 2009 the EPA completed a Pre-Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Screening Report for the Site. The Pre-CERCLIS report documented the presence of PCE in groundwater at levels that may pose an unacceptable risk to human health or ecological receptors. Therefore, further assessment activity at the Site was deemed warranted to assess the extent of the PCE contamination in Le Mars. The Site was subsequently entered into CERCLIS.

Field activities associated with a Preliminary Assessment (PA) investigation were conducted between July and October 2011. During the PA investigation, a sampling grid with approximately 50-by-50-foot cells (80-foot spacing across roadways) was established to conduct soil gas monitoring over the suspected source areas. At each node of the grid (32 locations), a passive soil gas module was installed and later collected. PCE was detected in 21 of the 33 samples collected. The highest concentrations of PCE were found in samples collected from locations adjacent to the active dry cleaning building.

Subslab soil gas samples were collected beneath the slabs of various buildings that may be potential source areas for PCE, or that may be affected by vapor intrusion. All samples, except for the field blank, contained concentrations of PCE above the Regional Screening Level (RSL) for industrial air quality. The samples collected from buildings adjacent to the active dry cleaning building contained the highest concentrations of PCE.

Groundwater sampling locations were chosen to better define the migration pathway of the PCE plume and to delineate its hydrogeological extent. Twenty-three groundwater samples (including two field blank samples) were collected at 10 direct-push technology (DPT) temporary monitoring well (MW) locations. Nine water samples had concentrations of PCE that exceeded a Superfund Chemical Data Matrix (SCDM) benchmark value. Of those nine samples, seven had PCE concentrations greater than the Maximum Contaminant Level (MCL) of 5.0 micrograms per liter (µg/L). Two DPT soil borings were advanced for the purpose of subsurface soil sampling: one on the north side and one on the south side of the active dry cleaning building. Locations were selected based on PCE and TCE soil gas data obtained during the PA. PCE was detected in all of the subsurface soil samples; however, SCDM benchmark values were not exceeded.

A Removal Assessment (RA) was initiated in August 2012. Subslab and indoor air sampling was conducted during the RA. Data results from subslab soil gas and indoor air sampling of businesses and residential buildings showed PCE and TCE contamination inside of the buildings higher that the recommended industrial and residential RALs and screening levels for PCE and TCE.

PA and RA soil, soil gas, groundwater, subslab soil gas, and indoor air sample result tables can be found in the document section.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

Analytical results from samples collected by the EPA during the PA and RA indicate that hazardous substances have been released into the environment. PCE and TCE were detected in soil, groundwater and air samples, and have exceeded RALs and screening levels.

On August 21, 2013, a time-critical removal Action Memorandum with a 12-month exemption was signed for the Highway 3 PCE Site. The removal action addresses immediate threats to public health, welfare and the environment posed by the Site.

2.1.2 Response Actions to Date

Indoor air and sub-slab soil gas sampling was conducted to support a removal assessment on May 9 and 10, 2016. Removal assessment activities involved collection of the following samples:

(1) indoor air samples within buildings near suspected source areas or overlying the PCE plume, and

(2) sub-slab soil gas samples for analysis for soil gas vapors from beneath building foundations near

suspected source areas or overlying the PCE plume.

Eight indoor air samples were collected in 1-liter Tedlar bags at locations within businesses in close

proximity to the site (see Appendix A, Figure 4). The samples were collected within basements at most locations, including one business where a vapor mitigation system had been installed as part of an EPA removal action. The samples were collected as grab samples by use of a low-volume sampling pump. The indoor air samples were generally collected over a 1-minute sampling period. Access for collection of indoor air samples was denied at two businesses: Perfect Image at 18 Plymouth Street SW, and Piece of Cake at 25 Central Avenue SW.

Sub-slab soil gas sampling involved collection of six samples from ports installed during previous sampling events at businesses and residential dwellings (see Appendix A, Figure 4). All sub-slab soil gas samples were collected in 1-liter Tedlar bags as grab samples by use of a low-flow sampling pump (over a 1- to 2-minute sampling period). None of those samples were collected within buildings where vapor mitigation systems had been installed. To ensure integrity of the sub-slab ports, a small swab wetted with 70 percent isopropyl alcohol (IPA) was placed within 4 inches of each port during sample collection. Detection of IPA in a Tedlar bag sample would indicate a leak in the port. Figure 5 in Appendix A is a sketch of one basement area (121 1st Avenue NW) where five sub-slab ports had been installed (and sampled during the May 2016 activity).

At each sample location, a real-time reading for non-specific VOCs was obtained by use of a RAE Systems ppbRAE Plus photoionization detector (PID), and temperature and barometric pressure were also noted. All field measurements were recorded in a field logbook. The indoor air and sub-slab soil gas samples collected in Tedlar bags were analyzed by the EPA Region 7 mobile laboratory (mobile laboratory), which was temporarily stationed at the PCE Chestnut Street site in Atlantic, Iowa. Table 1 summarizes addresses, business names (if applicable), sample types, and field readings for the indoor air and sub-slab soil gas samples.

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

Currently a PRP has not been identified.

2.1.4 Progress Metrics

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

- Conduct soil and groundwater collection and analysis at additional locations in the investigation area.
- Based on the results of these analyses, it may be necessary to address source areas which could include soil removal, soil remediation or groundwater remediation activities.
- Install vapor abatement systems in residential homes and businesses containing either indoor air or subslab soil gas PCE and/or TCE vapor concentrations exceeding the site-specific RALs for soil gas contaminants. Site-specific action levels were prepared by the EPA's toxicologists, to eliminate direct exposure to potentially harmful PCE and/or TCE vapors. Initially, abatement systems will be installed in homes and businesses exceeding the RALs. Additional systems may be installed depending on sample results, and could include schools and day care facilities.
- Monitor the effectiveness of the vapor abatement systems by conducting verification indoor air sampling following the installation of the systems.

2.2.1.2 Next Steps

Address source area.

2.2.2 Issues

No outstanding issues at this time.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.3 Information Officer

Pam Houston with the EPA is the CIC on this site.

3. Participating Entities

3.1 Unified Command

3.2 Cooperating Agencies

The City of Le Mars, Iowa, has assisted the EPA by providing office space for the on-site project manager and providing a meeting space for public meetings. The City is supportive of the Removal Action.

4. Personnel On Site

Personnel on site include:
1 EPA OSC
1 START employee
2 ERRS employees
2 ERRS subcontractors

5. Definition of Terms

ATSDR	Agency for Toxic Substance Disease Registry
CFR	Code of Federal Registration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
DCE	dichloroethene
EC	electric conductivity
EPA	Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
fbgs	feet below grade surface
IDNR	Iowa Department of Natural Resources
MCL	Maximum Contaminant Level
MW	monitoring well
OSC	On-Scene Coordinator
PCE	Tetrachloroethene
PID	photoionization detector
ppm	parts per million
PRP	Potentially Responsible Party
RAL	removal action level
SB	soil boring
START	Superfund Technical Assessment & Response Team
TCE	Trichloroethene
µg/L	micrograms per Liter
µg/kg	micrograms per kilogram
$\mu g/m^3$	micrograms per cubic meter
VOCs	volatile organic compounds

6. Additional sources of information

6.1 Internet location of additional information/report

PCE - A hazardous substance in CERCLA section 101(14) as listed at 40 CFR section 302.4. A man-made chemical that is widely used for dry cleaning clothes and for metal degreasing. It evaporates easily into the air and has a sharp, sweet odor. Exposure to PCE at very high concentrations (particularly in closed, poorly ventilated areas) can cause dizziness, headache, drowsiness, confusion, nausea, difficulty in speaking and walking, unconsciousness and death. PCE has been shown to cause liver tumors in mice and kidney tumors in rats. It has been determined that PCE is a Class 2A carcinogen via inhalation based on long-term exposure.

TCE - A hazardous substance in CERCLA section 101(14) as listed at 40 CFR section 302.4. A man-made chemical typically used in metal degreasing. The Agency for Toxic Substances and Disease Registry reports that inhalation exposure to TCE at very high concentrations may affect the central nervous system, with symptoms such as dizziness, headaches, confusion, euphoria, facial numbness and weakness. Recent studies have linked TCE with structural heart malformations associated with exposure during the prenatal period.

For more information on these chemicals go to:
http://www.atsdr.cdc.gov/toxprofiles/index.asp

Vapor Intrusion - Occurs when vapors produced by a chemical spill or groundwater contamination plume migrate through soil and the foundations of structures and into the indoor air. When chemicals are spilled on the ground, they will seep into the soil and make their way into the groundwater. VOCs, including PCE and TCE, produce vapors that travel through soil. These vapors can enter buildings, through cracks in the foundation, or a basement with a dirt floor, or concrete slab or crawl space.

For more information about vapor intrusion got to:
http://www.epa.gov/region07/factsheets/2010/faq_about_vapor_intrusion_201002.htm

7. Situational Reference Materials

No information available at this time.