



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8

1595 Wynkoop Street  
Denver, CO 80202-1129  
Phone 800-227-8917  
www.epa.gov/region8

Ref: 8SEM-EM

**ACTION MEMORANDUM**

**SUBJECT:** Approval and Funding for an Emergency Removal Action at the Chipeta Mercury Spill Site in Grand Junction, Mesa County, Colorado, pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104

**FROM:** Craig Giggelman *Craig Giggelman 6/3/19*  
Federal On-Scene Coordinator

**THRU:** Laura Williams, Supervisor *L Williams 6/3/19*  
Response Section  
  
Deirdre Rothery, Branch Chief *D Rothery 6/3/19*  
Emergency Management Branch

**TO:** Betsy Smidinger  
Division Director  
Superfund and Emergency Management Division

Site ID #: B806

**I. PURPOSE**

The purpose of this memorandum is to document the decision to initiate emergency response actions described herein for the Chipeta Mercury Spill Site (Site) located in Grand Junction, Mesa County, Colorado pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104. This emergency response action involved the collection and disposal of elemental mercury from an elementary school and residential property. Conditions existing at the Site presented a threat to public health and the environment and met the criteria for initiating a removal action under 40 CFR §300.415(b)(2) of the National Contingency Plan (NCP).

This removal action involved no nationally-significant or precedent-setting issues. This emergency removal action does not establish any precedent for how future response actions will be taken and does not commit the United States Environmental Protection Agency (EPA) to a course of action that could have a significant impact on future responses or resources.

## II. SITE CONDITIONS AND BACKGROUND

Site Name: Chipeta Mercury Spill  
Superfund Site ID (SSID): B806  
CERCLIS Number: CON000820953  
Site Location: Elementary school/private residence, Grand Junction, CO  
Lat/Long: 39.0726914/-108.5566129  
Potentially Responsible Party (PRP):  
NPL Status : Non NPL  
Removal Start Date : 04/01/2019

### A. Site Description

#### 1. Removal Site Evaluation

On March 28, 2019, the Mesa County School District contacted the EPA Region 8 Emergency Operations Center (EOC) requesting assistance to address a release of an unknown amount of mercury spilled inside an elementary school in Grand Junction, CO. The incident occurred on March 26, 2019, when a student brought in two vials of elemental mercury and shared it with other students. Between 20-50 milliliters was spilled by the students, contaminating classrooms and the cafeteria. The school district temporarily closed the school as a precautionary measure. Upon receiving the school district's request, EPA deployed an On-Scene Coordinator (OSC) and a Superfund Technical Assessment and Response Team (START) contractor to assess the school. Ambient air mercury concentrations as high as 50,000 nanograms per cubic meter ( $\text{ng}/\text{m}^3$ ) were measured in the school using a Lumex Mercury Vapor Monitor. The OSC presented the results of the assessment to the school district Environmental Officer. The school district informed the OSC that they had hired an abatement contractor to remediate the school and did not require further assistance from EPA.

On April 1, 2019, the EPA OSC and START contractor re-deployed to evaluate the school after the contractor indicated that their removal efforts were complete. The OSC's evaluation identified one classroom where ambient mercury levels were still in excess of  $15,000 \text{ ng}/\text{m}^3$ . In addition, the OSC evaluated a residence where one of the students had brought an unknown amount of the mercury home from the school. Ambient air mercury concentrations greater than  $8,000 \text{ ng}/\text{m}^3$  were measured. Based on these findings, the OSC initiated an emergency removal at the school and the residence. The planned actions described in this Action Memorandum refer to the removal of mercury from the school and the residence to recommended levels protective of human health in schools ( $1,000\text{-}3,000 \text{ ng}/\text{m}^3$ ) and residential areas ( $1,000 \text{ ng}/\text{m}^3$ ).

#### 2. Physical Location

The Site consists of two structures: an elementary school and a single-family

apartment, both located in a residential suburban neighborhood in Grand Junction, Mesa County, CO. The elementary school is located at 950 Chipeta Avenue. The residence is part of an apartment complex located at 494 Harris Avenue.

### 3. Site Characteristics

The elementary school is a two-story concrete structure that was constructed in 2008. Ambient air mercury concentrations in a classroom exceeded the recommended levels protective of human health for schools.

The residence is a split-level apartment with two bedrooms, a living area, and a kitchen. Ambient air mercury concentrations exceeded the level recommended for residential properties in the apartment.

### 4. Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant or Contaminant

The contaminant of concern at the Site is elemental mercury. Mercury is a hazardous substance as defined by Section 101(14) of CERCLA. Mercury is the only metal that is liquid at room temperature. In its pure form (often called metallic or elemental), mercury is a shiny, silver-white, odorless liquid. At room temperature, mercury vaporizes into a toxic, colorless, odorless gas.<sup>1</sup> In its vapor form, mercury is easily inhaled and extremely toxic. For elemental mercury, the most important route of absorption is through inhalation. Because of the chemical nature of elemental mercury vapor, deposition and retention in the lungs are quite high (on the order of 80 percent in humans).<sup>2</sup>

In a 1997 Mercury Study Report to Congress the EPA states:

*Effects on the nervous system appear to be the most sensitive toxicological endpoint observed following exposure to elemental mercury. Symptoms associated with elemental mercury-induced neurotoxicity include the following: tremors, initially affecting the hands and sometimes spreading to other parts of the body; emotional lability, often referred to as "erethism" and characterized by irritability, excessive shyness, confidence loss, and nervousness; insomnia; neuromuscular changes (e.g., weakness, muscle atrophy, muscle twitching); headaches; polyneuropathy (e.g., paresthesia, stocking glove sensory loss, hyperactive tendon reflexes, slowed sensory and motor nerve conduction velocities); and memory loss and performance deficits in test of cognitive function. At higher concentrations, adverse renal effects and pulmonary dysfunction may also be observed.*

EPA's 1997 study, in reference to elemental mercury, concluded:

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<sup>1</sup> Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for Mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service

<sup>2</sup> Arch Environ Health, 1976 Nov-Dec; 31(6):302-9. Clearance of mercury (HG-197, HG-203) vapor inhaled by human subjects

*Neurotoxicity is the most sensitive indicator of adverse effects in humans exposed to elemental mercury and methylmercury.*

*An RfC for inhaled elemental mercury based on neurotoxic effects in exposed workers is  $3 \times 10^{-4} \text{ mg/m}^3$  ( $300 \text{ ng/m}^3$ ).*

*Elemental mercury is a developmental toxicant in experimental animals. If the mechanisms of action producing developmental toxicity in animals occur in humans, elemental mercury is very likely to produce developmental effects in exposed human populations. U.S. EPA has made no estimate of dose response for developmental effects of elemental mercury.<sup>3</sup>*

When spilled or tracked into a small or poorly ventilated room, mercury can pose significant health threats. Very small amounts of mercury, released into an enclosed space (such as a home or classroom), can raise air concentrations to harmful levels. Metallic mercury is extremely difficult to remove from shoes, clothes, furniture, carpet, and other porous items and is easily tracked and transferred. If these items are not properly disposed or cleaned, the mercury can linger for months or years, continuing to pose a health threat.

## **5. NPL Status**

This Site is neither on nor currently being considered for inclusion on the NPL.

## **6. Maps, Pictures & Other Graphic Representations**

Site map is presented in Attachment 1. Site photographs are presented in Attachment 2.

## **B. Other Actions to Date**

### **1. Previous Actions**

A contractor was hired by the school district to remediate the school. The contractor established containment around the classroom, applied negative air pressure, removed the carpet and wet-wiped the floor. No previous actions had been conducted at the residence.

### **2. Current Actions**

There are no current activities at the Site.

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<sup>3</sup> Mercury Study Report to Congress, Volume V: Health Effects of Mercury and Mercury Compounds, December 1997, <http://www.epa.gov/mercury/report.htm>

**C. State and Local Authorities' Roles**

**1. State and Local Action to Date**

The school district hired an abatement contractor to remediate the school. No other actions were previously taken by local or state authorities at the school or residence.

**2. Potential for Continued State/Local Response**

Local and state governments did not have the capability or resources to conduct this action in a timely manner.

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

Conditions at the Site presented a threat to public health and the environment and met the criteria for initiating a removal action under 40 CFR §300.415(b)(2) of the NCP.

EPA has considered all the factors described in 40 CFR §300.415(b)(2) of the NCP and determined that the following factors apply at the Site.

- (i) *“Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants;”*

Elemental mercury was the contaminant of concern at this Site. For elemental mercury, the most important route of absorption is through inhalation. Because mercury is easily tracked to other areas by foot-traffic, it is of immediate concern to remove mercury-contaminated materials and to clean impacted areas of free and residual mercury. If left unabated, mercury from the two areas of the Site posed an immediate concern to students in the school as well as residents at neighboring homes.

- (vii) *“The availability of other appropriate federal or state response mechanisms to respond to the release.”*

No other local, state or federal agency had the capability or the resources to independently implement a timely, effective response action to address the ongoing threat presented at the Site.

**IV. SELECTED REMOVAL ACTIONS AND ESTIMATED COSTS**

**A. Planned Actions**

**1. Planned Action Description**

The abatement contractor employed by the school district to remediate the school established containment around the class room, applied negative air pressure, removed the carpet and wet-wiped the floor. As discussed previously, unsafe levels of

mercury remained, so the EPA's Emergency Response and Removal Services (ERRS) contractor applied a mercury vapor suppressant and heated the room with space heaters while maintaining negative air pressure, recycling the air within the room approximately every two minutes. The floor was then sealed with an epoxy-based, clear sealant. Final ambient air mercury concentrations were between 1,000 – 3,000 ng/m<sup>3</sup>, the range recommended to be protective of human health at schools.

At the residence, the ERRS contractor removed bedding, a rug and a vacuum cleaner and disposed of these items at an appropriate facility. The resident's washing machine also contained elevated ambient mercury levels, but the contractor ran multiple wash cycles using a mercury vapor suppressant, resulting in concentrations that were below levels of concern. Final ambient air mercury concentrations were less than the recommended residential level protective of human health of 1,000 ng/m<sup>3</sup> within the entire residence.

## **2. Contribution to Remedial Performance**

This effort will, to the extent practical, contribute to any future remedial effort at the Site. However, no further federal action is anticipated at this time.

## **3. Engineering Evaluation/Cost Analysis (EE/CA)**

An EE/CA is not required for an emergency response action.

## **4. Applicable or Relevant and Appropriate Requirements (ARARs)**

Removal actions conducted under CERCLA are required, to the extent practicable considering the exigencies of the situation, to attain ARARs. In determining whether compliance with an ARAR is practicable, the lead agency may consider appropriate factors including the urgency of the situation and the scope of the removal action to be conducted.

No ARARs have been identified for this removal action. RCRA requirements concerning waste analysis, manifesting, packaging, and transporting, while not ARARs, apply to off-site shipments of hazardous wastes.

## **5. Project Schedule**

This emergency removal action was initiated on April 1, 2019. Waste transportation and disposal activities are anticipated to be completed by July 1, 2019.

**B. Estimated Costs\***

Contractor costs	
START	\$12,000.00
ERRS	\$20,000.00
Contingency costs (20% of subtotal)	\$6,400.00
<b>Total Removal Project Ceiling</b>	<b>\$38,400.00</b>

\*EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Liable parties may be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA.

**V. EXPECTED CHANGE IN THE SITUATION SHOULD ACTIONS BE DELAYED OR NOT TAKEN**

A delay in action or no action at this Site would have increased the actual or potential threats to public health and the environment.

**VI. OUTSTANDING POLICY ISSUES**

None.

**VII. ENFORCEMENT**

An investigation to evaluate potential enforcement options will be undertaken. A separate Enforcement Addendum will be prepared if appropriate providing a confidential summary of potential enforcement activities.

**VIII. APPROVALS**

This decision document represents the selected removal action for the Chipeta Mercury Spill Site in Grand Junction, Mesa County, CO, developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site met the NCP section 300.415(b) criteria for an emergency action and, through this document, I am approving the selected removal action. The total project ceiling is \$38,000.00; this amount will be funded from the Regional removal allowance.



Craig Giggelman  
Federal On-Scene Coordinator

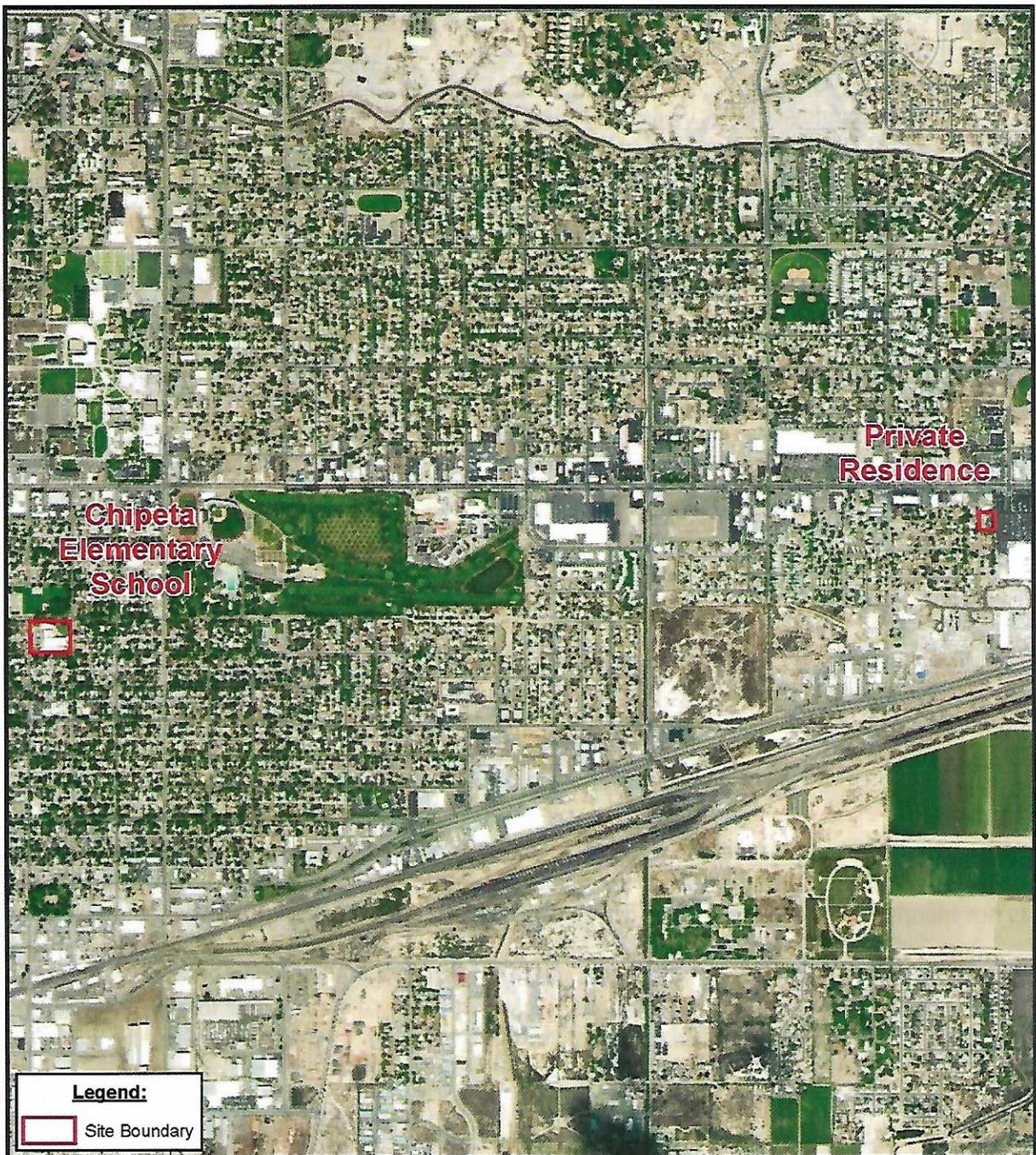
6/3/19

Date

Attachment 1: Site Map  
Attachment 2: Site Photographs

Attachment 1 – Site Map

Path: C:\R8Projects\0001-1904-01 Chipeta Mercury Spill RV2 - Maps-Figures\Maps\Figure 2 Chipeta Mercury Spill Site Vicinity Map.mxd



**Legend:**  
 Site Boundary

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
 Projection: Mercator Auxiliary Sphere  
 Datum: WGS 1984

Source:  
 Site Boundary: Georeferenced Aerial (Google Earth 2019)  
 Background: ESRI World Imagery (2019)



Prepared for:  
 U.S. EPA - Region 8



Contract: EP-S8-13-01  
 TO/TDD: 0001/1904-01

Prepared By:  
 Weston Solutions, Inc.  
 START IV  
 Suite 100  
 1435 Garrison St.  
 Lakewood, CO



**FIGURE 1**  
**SITE VICINITY MAP**  
**CHIPETA MERCURY SPILL**  
**CHIPETA ELEMENTARY SCHOOL**  
**AND PRIVATE RESIDENCE**  
**GRAND JUNCTION, MESA COUNTY,**  
**COLORADO**

Date: 4/29/2019

Path: C:\R88\Projects\0001-1904-01 Chipeta Mercury Spill RV2 - Maps\Figures\Maps\Figure 2 Chipeta Elementary School Site Vicinity Map.mxd



**Legend:**  
 Site Boundary

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere  
Datum: WGS 1984

Source:  
Site Boundary: Georeferenced Aerial (Google Earth 2019)  
Background: ESRI World Imagery (2019)



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**FIGURE 2**  
**SITE VICINITY MAP**  
**CHIPETA MERCURY SPILL**  
**CHIPETA ELEM. SCHOOL**  
**950 CHIPETA AVE., GRAND JUNCTION**  
**MESA COUNTY,**  
**COLORADO**

Date: 4/25/2019

Path: C:\RFR\Projects\0001-1904-01 Chipeta Mercury Spill RV2 - Maps\Figures\Maps\Figure 3.494 Harris Road Apt. 214 Site Vicinity Map.mxd



**Legend:**  
[Red Rectangle] Site Boundary

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere  
Datum: WGS 1984

Source:  
Site Boundary: Georeferenced Aerial (Google Earth 2019)  
Background: ESRI World Imagery (2019)



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**FIGURE 3**  
**SITE VICINITY MAP**  
**CHIPETA MERCURY SPILL**  
**PRIVATE RESIDENCE**  
**494 HARRIS RD. APT. 214, GRAND JUNCTION**  
**MESA COUNTY,**  
**COLORADO**

Date: 4/25/2019

Attachment 2 – Site Photographs



Beaded elemental mercury in schoolroom carpet.

