



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

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Ref: 8SEM-ER

ACTION MEMORANDUM

SUBJECT: Approval and Funding for an Emergency Removal Action at the Powell Residential Mercury Spill in Park County, Wyoming, pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104

FROM: Martin McComb
Federal On-Scene Coordinator

THRU: Laura Williams, Chief
Emergency Response Section

Dee Rothery, Chief
Emergency Response Branch

TO: Betsy Smidinger, Director
Superfund and Emergency Management Division

Site ID# B873

I. PURPOSE

The purpose of this Action Memorandum is to document the decision to initiate emergency response actions described herein for the Powell Residential Mercury Spill Site (Site) located in Powell, Park County, Wyoming, pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104. This emergency removal action involved the collection and disposal of lead-contaminated, elemental mercury at two residences. Conditions existing at the Site presented a threat to public health or welfare or 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 will not establish any precedent for how future response actions will be taken and will not commit the US 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:	Powell Residential Mercury Spill
Superfund Site ID (SSID):	B873
NRC Case Number:	
CERCLIS Number:	WYN000821058
Site Location:	Powell, Park County, Wyoming
Lat/Long:	44.7481240/ -108.7494250
Potentially Responsible Party (PRP):	
NPL Status:	Non NPL
Removal Start Date:	01/14/2021

A. Site Description

1. Removal Site Evaluation

On January 13, 2021, The Worland Wyoming Fire Department (WFD) requested assistance with a spill of mercury inside a residential garage that is adjacent to a park in Powell, Wyoming. The garage property is unoccupied and had recently been inherited. Upon inheriting the unoccupied property, the new owner discovered several abandoned containers of chemicals. These included a container of nitric acid, a bag of rat poison and one container of elemental mercury. The mercury container had an estimated capacity of 10 fluid ounces or 8.8 pounds of mercury.

The owner was packing the abandoned chemicals in the garage in order to facilitate their disposal when the mercury container broke and released its contents into the garage. The property owner then went to his truck and drove to his nearby home where he showered. The WFD secured the garage but remained concerned that the mercury may have also been tracked inside the unoccupied residence, as well as into the owner's truck and current home.

EPA dispatched an OSC, 4 ERRS and 3 START to Powell, Wyoming, on January 14, 2021. Upon arriving at the Site, the team collected monitoring results from the unoccupied garage, the occupied residence and the truck that the property owner used to return home after the spill.

Mercury vapor levels as high as 17,000 ng/m³ were detected in the occupied residence's front entry, closet and shower drain. Breathing zone levels in the occupied house exceeded 1000 ng/m³. Mercury vapor levels as high as 6,000 ng/m³ were detected in the truck and levels in the unoccupied garage were as high as 27,000 ng/m³.

2. Physical Location

The Site consists of two properties in Park County, Wyoming. The first property, the location of the spill, is an unoccupied garage located at 733 Madison Avenue. The second property is an occupied residence at 305 Madison Avenue. Both properties are in Powell, Wyoming.

In 2018, Powell, WY had a population of 6,350 people with a median age of 34.1 and a median household income of \$53,540 (source: Data USA website, <https://datausa.io/profile/geo/powell-wy>). Powell is roughly 4.2 square miles and the Site is located near the center of town so the OSC estimates that approximately 1000 people live within a one-mile radius of the Site.

3. Site Characteristics

Both the unoccupied garage and the occupied property are located in a residential neighborhood and are owned by the same property owner (as of January 20, 2021). There is a town park and playground immediately east of the unoccupied garage and the OSC witnessed that park to be well-used by children and youth groups. The property owner indicated that his granddaughter was a frequent visitor to the occupied home.

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

Based on the response team's initial assessment, mercury was released to the environment and this contamination was tracked to the property owner's vehicle as well as their nearby residence. Mercury is listed as a hazardous substance in 40 CFR §302.4 and 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.¹ 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).²

¹ United States of America, Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine Prevention, Response and Medical Support Branch Emergency Response Team. (2012, March 22). [Action Levels for Elemental Mercury Spills](#).

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

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:

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 ng/m³).

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.³

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. It is easily tracked and transferred. If these items are not properly disposed or cleaned, the mercury can linger for months or years and continue to pose a health threat.⁴

5. NPL Status

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

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

⁴ <http://www.epa.gov/mercury/exposure.htm>

6. Maps, Pictures, Other Geographic Representations

See Attachment 1.

B. Other Actions to Date

1. Previous Actions

The local fire department responded to the incident and called for assistance from a HazMat Team associated with the nearby Worland Fire Department. The fire department secured the Site, had the property owner put all the clothes he was wearing in a plastic bag and contacted the USEPA for assistance.

2. Current Actions

There are no current activities on the Site.

C. State and Local Authorities' Role

1. State and Local Actions to date

A local fire department facility will be used to store Universal Waste (as defined by RCRA) while USEPA awaits the results of TCLP sampling and prior to final disposal at a CERCLA-approved landfill. Note: all free mercury will be transported separately to an appropriate disposal subcontractor.

2. Potential for Continued State/Local Response

State and local entities do not have the resources or authority to conduct this removal action and requested EPA's assistance.

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

Conditions at the Site present a threat to public health and the environment and meet 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:”

EPA's initial assessment indicated that mercury from the spill was visible on the floor and shelves of the unoccupied garage. EPA's data shows that this mercury had been tracked outside the garage to at least one vehicle and a nearby occupied residence.

Two individuals live in the occupied residence and at least one young child is a frequent visitor. EPA's initial readings of mercury vapor in the breathing zone were roughly 27,000 ng/m³ in the garage and 17,000 ng/m³ in the residence. Continued exposure to levels this high is potentially hazardous to human health.

Should the mercury contamination not be contained and removed, the material could be tracked further into the town park and playground that is immediately east of the spill location, to a church that is across the street to the south, and to other residences. The park and playground in particular, appear well-used by children and youth groups.

Both the abandoned nitric acid and rat poison containers are displaying signs of instability and must be disposed of properly to prevent the release of these hazardous substances. Crystals have formed in the abandoned nitric acid container and the bag holding the rat poison is old, weak and shows exposure to moisture and sunlight.

“(iii) Hazardous substance or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release:”

Local fire officials identified a container of nitric acid and a bag of rat poison abandoned in the unoccupied property's garage. Both containers are old and the nitric acid container displayed signs of instability.

“(viii) The availability of other appropriate federal or state mechanisms to respond to the release:”

Local and state governments did not have the capability to conduct the action in a timely manner. The USEPA's assistance was requested by local fire department authorities.

IV. SELECTED REMOVAL ACTION AND ESTIMATED COSTS

A. Planned Actions

1. Planned Action Description

1. Identify areas in the following three impacted exposure units where mercury vapor levels exceed 300-1,000 ng/m³: (1) the occupied residence; (2) the owner's truck; (3) and the inherited residence.
2. Collect and package all visible elemental mercury from the three exposure units.

3. Remove and properly dispose of contaminated clothing, rugs and other materials from the three exposure units as needed.
4. Reduce mercury vapor levels to below 300-1,000 ng/m³ in the breathing zones of all three exposure units to the extent practical.
5. Remove and properly dispose of all the abandoned chemical containers, including the mercury found at the inherited residence.

Off-Site disposal shall comply with the off-site Rule 40 CFR 300.440.

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 removal action.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

This Action Memorandum addresses the proposed emergency response removal action at the Powell Residential Mercury Spill Site. Mercury is the principal contaminant of concern. 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 were identified by the OSC during this emergency response.

While the CERCLA off-site rule is not an ARAR, RCRA requirements concerning waste analysis, manifesting, packaging, and transporting were adhered to for off-site shipments of hazardous wastes.

5. Project Schedule

This emergency removal action started on January 14, 2021. EPA demobilized its response resources on January 20, 2021 and expects to complete its response action in February 2021.

B. Estimated Costs*

	Estimated Costs
ERRS contractor	\$ 75,000
START contractor	\$50,000
SUBTOTAL	\$ 125,000
Contingency costs (20% of subtotal)	\$ 25,000
Total Removal Project Ceiling	\$ 150,000

*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 ACTION BE DELAYED OR NOT TAKEN

A delay in action or no action at this Site would have increased the actual threat to the property owners and any visitors (including children) to their residence. A delay in action or no action at this Site would have also increased the potential threat to nearby sensitive receptors should the mercury be tracked to a nearby playground, park, church and other residences.

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 Powell Residential Mercury Spill Site in Powell, Park County, Wyoming, 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)(2) criteria for a removal action, and, through this document, I am approving the proposed removal action. The total project ceiling is \$150,000; this amount will be funded from the Regional removal allowance.

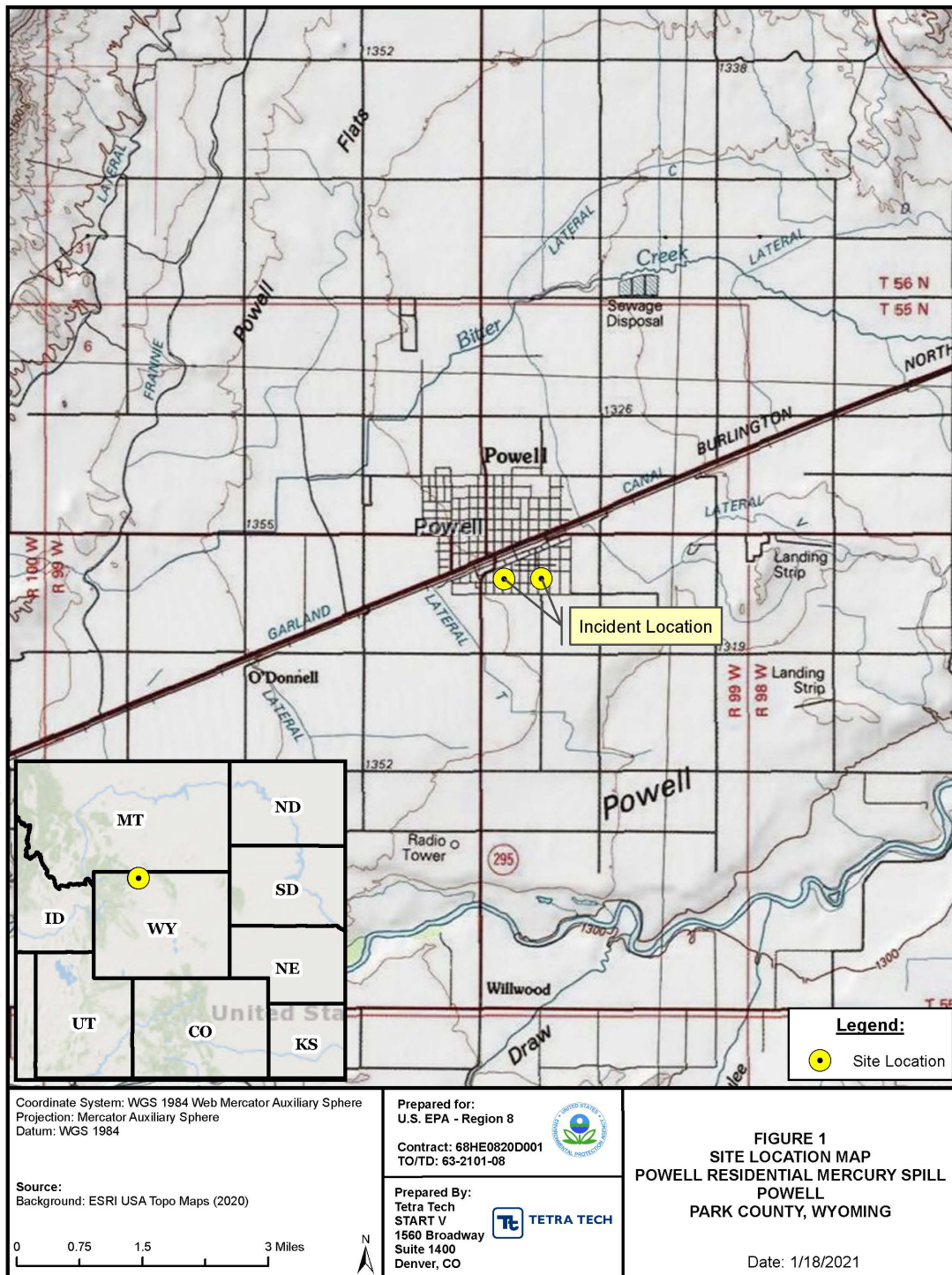
APPROVE

Martin McComb
Federal On-Scene Coordinator

Date

Attachment 1: Maps and Site Photos

Pain: C:\Users\audha.graves\Desktop\Projects\Powell Residential Mercury Spill\GIS\PowellResidentialMercurySpill\Map\Figure 1 Site Location Powell Residential Hg Spill.mxd



Path: C:\Users\juddia.graves\Desktop\Projects\Powell Residential Mercury Spill\GIS\PowellResidentialMercurySpill\Map\Figure 2 Vicinity Map Powell Residential Hg Spill.mxd



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

Source:
Background: ESRI World Imagery (2021)

0 200 400 800 Feet



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Legend:
 Approximate Site Boundary

FIGURE 2
SITE VICINITY MAP
POWELL RESIDENTIAL MERCURY SPILL
POWELL
PARK COUNTY, WYOMING

Date: 1/18/2021

Image 1: The plastic jar of mercury contained approximately 10 ounces of mercury prior to the release. An estimated 1-2 ounces of mercury may have spilled during the break. Photo: Powell Resident, date unknown



Image 2: Mercury beads captured at the threshold of the side door at the garage after the release.



Image 3: Mercury beads found on the stone pathway leading to the side doors of the residential garage after the release.

