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Ref: 8SEM-EMR

ACTION MEMORANDUM

SUBJECT: Action Memorandum for a Removal Action at the Ward Mercury Site pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104.

FROM: Shun-Ping Chau, On-Scene Coordinator

THRU: Kerry Guy, Supervisor
Response Section

Dee Rothery, Manager
Emergency Management Branch

TO: Ben Bielenberg, Acting Director
Superfund and Emergency Management Division

I. Purpose

The purpose of this memorandum is to document the decision to initiate a Classic Emergency Response Action described herein for the Ward Mercury Site located in Ward, Boulder County, Colorado pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104. This emergency response involved the removal and disposal of various small chemical containers. Conditions existing at the Site present a threat to public health or welfare or the environment and meet the criteria for initiating a removal action under 40 CFR 300.415(b)(2) of the National Contingency Plan (NCP).

II. Site Information

A. Site Description

Site Name: Ward Mercury
Superfund Site ID: B8G3
NRC Case Number:
CERCLIS: Number:
Site Location: Ward, Boulder County, Colorado
Lat/Long: 40.1121510/-105.4404820
Potentially Responsible Party:
NPL Status: Non NPL Site

Removal Start Date: 04/23/2023

B. Site Background

1. Site Evaluation

On the morning of Sunday, April 23, 2023, a representative of the Boulder County Health Department (BCHD) made a report to the NRC requesting EPA assistance to address a potential release of mercury. A resident of Ward, Boulder County, Colorado had called the Health Department to report the discovery of an old “chemistry set” in the home. It was unclear where the set had come from, but possibly purchased at a flea market by a young resident of the home. The kit was also reported to have small vials labelled as containing arsenic as well the mercury. The homeowner also reported some medical symptoms that could be ascribed to mercury exposure.

2. Physical Location and Site Characteristics

The Site is at a private residence on Ranch Road at Ward, Boulder County, Colorado.

According to EPA’s Environmental Justice (EJ) Screening and Mapping Tool, the data does not indicate potential areas of EJ concern at or near the Site.

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

The hazardous substance, as defined by section 101(14) of CERCLA, is mercury. 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.^a 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).^b

^a 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.

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

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.^c

III. Threats to Public Health Welfare or the Environment

A. Nature of Actual or Threatened Release of Hazardous Substances, Pollutants or Contaminants.

The contaminant of concern at the Site is elemental mercury. Mercury, which is easily tracked from one area to another by shoes and clothing, is a hazardous substance as defined by Section 101(14) of CERCLA. 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). Chronic mercury poisoning due to intake of elemental mercury vapor is a disease of the central nervous system.

Elemental mercury (Hg^0) is rapidly oxidized in the body to inorganic mercury (Hg^{2+}), which has an affinity to the kidneys. The major target organs of elemental mercury are the central nervous system and the kidneys. The effects of mercury vapor exposure are neuropsychiatric in nature, and described as excessive shyness, insomnia, and emotional instability with depressive moods and irritability.

B. Factors from §300.415(b)(2) of the NCP that Form the Basis for EPA's Determination of the Threat Present and the Appropriate Action to be Taken:

- ☒ Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants [300.415(b)(2)(i)].
- ☐ Actual or potential contamination of drinking water supplies or sensitive ecosystems [300.415(b)(2)(ii)].
- ☐ Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that pose a threat of release [300.415(b)(2)(iii)].
- ☐ High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate [300.415(b)(2)(iv)].

^c www.epa.gov/mercury/exposure

- ☐ Weather conditions that may cause hazardous substances or pollutants to migrate or to be released [300.415(b)(2)(v)].
- ☐ Threat of fire or explosion [300.415(b)(2)(vi)].
- ☐ The availability of other appropriate federal or state response mechanisms to respond to the release [300.415(b)(2)(vii)].
- ☒ Other situations or factors that may pose threats to the public health or welfare of the United States or the environment [300.415(b)(2)(viii)].

IV. Selected Removal Action and Estimated Costs

A. Situation and Removal Activities to Date

1. Current Situation

BCHD had contacted the resident and advised them to secure any containers of suspect chemicals and await EPA assistance. Boulder County Sheriff met with EPA at the residence upon arrival to assist in communicating with the homeowner and other residents at the house. BCHD also made arrangements for follow-up medical evaluations.

2. Removal activities to date

a) Federal Government/Private Party

The OSC mobilized to the property with one START contractor. A thorough screening of the home with two different Lumex Mercury Vapor Analyzers showed no elevated levels of mercury vapors in the home. A visual inspection of the home found no evidence of the release of mercury from its container. The OSC took possession of the chemistry set and has arranged for the proper disposal of the mercury and other hazardous materials therein. EPA and START departed the Site on the afternoon of April 23, 2023.

The vial of mercury was taken to final disposal on April 24, 2023. Other chemicals from the chemistry kit were disposed of on April 28, 2023.

b) State/local

See above.

3. Enforcement

Where the responsible parties are known, an effort initially shall be made, to the extent practicable, to determine whether they can and will perform the necessary removal action promptly and properly.

B. Planned Removal Actions

There are no further actions planned at this Site.

1. Contribution to Remedial Performance

The proposed actions will, to the extent practicable, contribute to the efficient performance of any long-term action at the Site.

2. ARARs

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

Because this was a Classic Emergency Response to an unplanned event, all federal and state ARARs were not identified before this removal was initiated. Accordingly, the OSC worked closely with local government and health officials on various aspects of the response so as to promptly identify and address their concerns regarding human health, contamination mitigation, and waste disposal issues.

3. Project Schedule

This removal was initiated on April 23, 2023 and the vial of mercury was taken to disposal on April 24, 2023. Other chemicals from the chemistry kit were disposed of on April 28, 2023.

C. Estimated Costs

Contractor Costs (ERRS/START staff, travel, equipment)	\$7,500
Other Extramural Costs	
Contingency Costs (20% of subtotal)	\$1,500
Total Removal Project Ceiling	\$8,000

VI. Expected Change in the Situation Should Action be Delayed or Not Taken

Delayed action would have increased the threat to public health and the environment.

VII. Outstanding Policy Issues

None

VIII. Approvals

This decision document represents the selected removal action for this Site, developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet 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 \$8,000. This amount will be funded from the Regional removal allowance.

Shun-Ping Chau
On-Scene Coordinator

Date