



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

SUPERFUND AND
EMERGENCY
MANAGEMENT
DIVISION

April 27, 2021

SUBJECT: Action Memorandum for an Emergency Response Action at the Klamath Falls Motel Mercury Site, Klamath Falls, Klamath County, Oregon, Pursuant to the On-Scene Coordinator's Delegated Authority under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

FROM: Michael Boykin, On-Scene Coordinator
Emergency Response Section
Emergency Management Branch

THRU: Stephanie Wenning, Section Chief
Emergency Response Section
Emergency Management Branch

Beth Sheldrake, Branch Chief
Emergency Management Branch

TO: Administrative Record
Klamath Falls Motel Mercury Spill Response

Site ID: 10TF

I. PURPOSE

The purpose of this Action Memorandum is to document the decision to initiate emergency response actions described herein for the Klamath Falls Motel Mercury Emergency Response Site (Site) located in Klamath Falls, Klamath County, Oregon, pursuant to the On-Scene Coordinator's delegated authority under Section 104 of the CERCLA, 42 U.S.C. § 9604.

II. SITE INFORMATION

A. Site Description

Site Name:	Klamath Falls Motel Mercury
Superfund Site ID (SSID):	10TF
CERCLIS Number:	ORN001020577
Site Location:	See Confidential Enforcement Addendum
County:	Klamath
Lat/Long:	See Confidential Enforcement Addendum
Potentially Responsible Party (PRP):	See Confidential Enforcement Addendum

Access: Yes – Written Site Access Granted December 10, 2020
NPL Status: N/A
Removal Start Date: December 11, 2020

B. Site Background

1. Removal Site Evaluation

Reportedly, sometime in the early morning of November 21, 2020, a guest in a motel room in Klamath Falls, Oregon, spilled an unknown amount of elemental mercury from a vial onto the room carpet. The guest was transported by Klamath County Fire District 1 EMS (EMS) to the Sky Lakes Medical Center (SLMC) for treatment.

Local responders notified several Oregon State agencies, including the Oregon Department of Environmental Quality (DEQ). The DEQ State On-Scene Coordinator (SOSC) notified the EPA R10 Phone Duty Officer directly on November 23, 2020 and continued coordinating with the motel owner about securing the room and contracting with a clean-up company.

The motel owner contacted a local environmental clean-up company, who performed an assessment, found a vial with residual mercury on a dresser in the room, photographed mercury beads on the carpet, and provided a cost estimate to clean up the room.¹ The clean-up company estimated that, potentially, two ounces of elemental mercury may have been released to the carpet and other surfaces in the room. The motel owner did not contract with the clean-up company who performed the assessment; instead it hired a different company that removed a patch of carpet and bedding, overpacked the contaminated materials into a drum, and transported it for disposal under manifest on December 4, 2020.

On December 8, 2020, the DEQ SOSC requested EPA assessment and removal assistance because neither the SLMC nor the EMS vehicle's used in the initial response had been assessed for potential mercury contamination, and the motel owner did not have any data supporting a clearance decision to return the motel room to public use.²

On December 9, 2020, EPA and START contractors mobilized to Klamath Falls, Oregon. In the morning of December 10, EPA and START contractors went to both the SLMC and locations of the EMS vehicles that were used in the initial response. Each location was assessed for potential mercury contamination using a mercury



¹ First Strike Environmental Co (FSE), "Photo Report for work completed on the 11/21/20 Mercury Spill/Release – [Site Name Withheld]", FSE Project No. 20-11-31. March 18, 2021. Report.

² Thoms, Bryn, "Re: Mercury Spill Cleanup and Assessment Request – [Site Name Withheld], OERS 2020-2019." December 8, 2020. Email.

vapor analyzer (MVA). Neither location had mercury concentrations above background concentrations, approximately 100 nanograms per cubic meter (ng/m³) in air. Next, EPA and START used an MVA in the room at the motel where the incident occurred and observed mercury vapor concentrations above 6,000 ng/m³ at approximately 55 degrees Fahrenheit (°F) on the floor of the motel room around where carpet had already been removed. Mercury concentrations in air increase with temperature increases. The heat was turned up, to simulate normal motel room occupancy and START contractors added heaters to the room to bring the ambient temperature to approximately 70°F. EPA informed the motel owner that there was still mercury contamination in the motel room and that it required further cleanup. The vial with residual mercury was not found during the assessment.

2. Physical Location and Site Characteristics

The Site is located in the town of Klamath Falls, Oregon.

The Site is located on 0.65 acres of land in a commercial/residential area approximately 3 miles southeast of the town of Klamath Falls. The spill location is comprised of one motel room, approximately 16-foot by 16-foot with interior walls made of sheetrock attached to wood stud framing or paneling, and carpeted concrete floors. There is only one entrance to the room. The entrance to the Site is accessed via the main highway by an asphalt driveway. Several people live and/or are staying at the motel for an indeterminate extended amount of time. Other motel rooms are located directly adjacent to the affected room.

3. Release or threatened release into the environment of a hazardous substance, pollutant or contaminant

The attached photo of the mercury container shows an outer metal paint can labeled as containing two ounces of elemental mercury, and it is believed to have contained an inner vial of elemental mercury. A conservative estimate of up to two fluid ounces of elemental mercury could have been released into the environment with an unknown amount remaining as residue in the vial when the individual spilled the vial of mercury onto the motel room carpet and some bedding in the small 16-foot by 16-foot room.³



During the response, EPA observed multiple beads of mercury on the carpet and measured high levels of mercury vapor (up to 10,000 ng/m³ in ambient air) as well as in the air space just above surfaces in the motel room.

The DEQ requested that the motel owner secure Room 24 and not rent it out until a cleanup had been conducted. The room may have been rented after the motel owner's contractor removed part of the contaminated carpet and the room was cleaned and restocked for rental. EPA is not certain that the room was not rented between the time the motel owner's contractor conducted its cleanup and EPA

³ First Strike Environmental Co (FSE), "Photo Report for work completed on the 11/21/20 Mercury Spill/Release – [Site Name Withheld]", FSE Project No. 20-11-31. March 18, 2021. Report.

arrived on site. Had room rental continued, additional mercury releases from this Site could have occurred due to the continued use of the motel room by guests, employees, and owners of the motel, thus posing a substantial threat of future release and tracking of mercury outside the motel room to public and private locations. Mercury could also be spread by the handling of contaminated items located at the Site.

Mercury is a hazardous substance as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). The Agency for Toxic Substances and Disease Registry (ATSDR) has provided recommended action levels for mercury at various environmental settings or exposure scenarios.⁴ The action level for normal occupancy in residential settings is 1,000 ng/m³. For personal property and vehicles, the action level ranges from 3,000 ng/m³ to 6,000 ng/m³, depending on expected use of the property, expected duration of exposure, and circumstances such as age, health, and gender of the people exposed. ATSDR recommends that humans are immediately isolated from spilled mercury when a concentration exceeding 10,000 ng/m³ is determined. EPA selected 1,000 ng/m³ as the cleanup action level for the Site and 3,000 ng/m³ as cleanup action level for personal property based on the rationale of a potential exposure time of 24 hours for a residential setting.

4. National Priorities List

The Site is not on, nor is it proposed for, the National Priorities List.

III. THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT

The conditions at the Site meet the following factors which indicate that the actual or potential releases of hazardous substances at this Site may have presented an imminent and substantial endangerment to public health or welfare or the environment, and that a removal action was appropriate under 40 C.F.R. § 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

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

Elemental mercury was released at the Site when a small vial containing up to two fluid ounces of elemental mercury was spilled in the motel room across the carpeted floor and bedding. There was potential for the cross contamination of the SLMC and EMS with mercury.

B. Applicable factors (from 40 C.F.R. § 300.415) which were considered in determining the appropriateness of a removal action.

1. 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)).

Upon mobilizing to the Site, EPA observed and documented the presence of mercury vapor concentrations inside the motel room. Mercury vapor concentrations were not detected in the EMS vehicles or at the SLMC and, therefore, no further actions were conducted by EPA at these two

⁴ ATSDR, Chemical-Specific Health Consultation for Joint EPA/ATSDR National Mercury Cleanup Policy Workgroup, Action Levels for Elemental Mercury Spills, March 22, 2012.

locations. EPA also observed beads of elemental mercury at the Site. Mercury vapor concentrations were greater than the recommended 1,000 ng/m³ ATSDR action levels for residential occupancy in the motel room. Continued handling of the contaminated materials and use of the motel room could have potentially resulted in tracking of mercury into the environment and then into other motel rooms, communal areas, and the community at large.

Mercury is highly transferable and can easily be spread by touching, handling, walking into or through, and thereby transferring from contaminated to non-contaminated surfaces. This is evidenced by the observations at this Site where the mercury was originally spilled onto the carpet and once sections of the carpet was removed, there were still measurable mercury vapor concentrations on the existing carpet around the removal area and throughout the room on the floor.

Other potential human receptors include the other residents/guests of the Site, employees, other family members and friends, as well as other visitors to the Site. There was potential for any of these human receptors to transfer contamination into the community and residences after visiting the Site. Per the ATSDR Chemical-Specific Health Consultation for elemental mercury spills,⁵ ambient conditions in residences should not exceed 1,000 ng/m³ in the breathing zone of the most sensitive person under normal conditions for use. Also, per the ATSDR Chemical-Specific Health Consultation, ambient conditions in occupational settings and for personal items should not exceed 3,000 ng/m³ of mercury in the breathing zone for sensitive persons.

Mercury primarily causes health effects when it is inhaled as a vapor where it can be absorbed through the lungs. These exposures can occur when mercury is spilled or when products that contain mercury break and release mercury to the air, particularly in warm or poorly ventilated indoor spaces. Dermal contact with free mercury is also a serious threat to humans. Mercury is known to cause irreversible damage to the developing nervous system. Most at risk are women who are pregnant or may become pregnant and nursing or young children. Other common health effects in adults include various neurological dysfunctions such as tremors, changes in vision, loss of hearing, muscle coordination, loss of sensation, and difficulties with memory.^{6 7}

2. The availability of other appropriate federal or state response mechanisms to respond to the release (300.415(b)(2)(viii)).

On November 23, 2020, the DEQ SOSC called the EPA OSC on Phone Duty to notify EPA that a mercury spill had occurred at a property in Klamath Falls, Oregon, and that Poison Control and the Klamath Falls Fire Department were also involved. The EPA OSC on Phone Duty coordinated with the SOSC about the spill. The SOSC informed EPA that they were working with the property owner to ensure a competent contractor would be hired to conduct the cleanup. On December 1st, the SOSC informed EPA that a cleanup contractor was going to provide the property owner with a cost estimate based on a visual inspection of the property. On December 7, 2020, DEQ informed EPA that the contractor did not complete a cleanup of the property. On December 8, 2020, DEQ officially requested the assistance of the EPA to respond to the mercury spill, further investigate the property where mercury

⁵ ATSDR, Chemical-Specific Health Consultation for Joint EPA/ATSDR National Mercury Cleanup Policy Workgroup, Action Levels for Elemental Mercury Spills, March 22, 2012

⁶ <https://www.epa.gov/mercury/health-effects-exposures-mercury>

⁷ <https://www.atsdr.cdc.gov/mercury/docs/healtheffectsmercury.pdf>

was known to have been spilled, assess possible contamination in the EMS vehicles used to transport the guest as well as the SLMC where the guest was evaluated. Neither DEQ, Klamath Falls Fire Department, nor Poison Control have the capability or appropriate instrumentation or equipment to effectively respond to and remove a mercury spill. There were no other known, appropriate federal or state response mechanisms capable of providing the appropriate resources in a prompt manner needed to address the potential human health threats described herein and, therefore, EPA response assets were deployed.

IV. SELECTED REMOVAL ACTION AND ESTIMATED COST

A. Removal Action

1. Removal Action Description

On December 9, 2020, EPA mobilized two OSCs and the START contractor to investigate the spill and assess the Site. EPA assessed the Site and conducted air monitoring at the property on December 10, 2020 and observed high levels of mercury vapor (up to 10,000 ng/m³) as noted above.

On December 10, 2020, the EPA OSC mobilized EPA's Emergency and Rapid Response Services (ERRS) contractor to the Site to conduct removal activities. Upon ERRS arrival on December 11, 2020, EPA determined the scope of the removal action, which included actions to:

- Confirm the extent and nature of elemental mercury contamination in the motel room and other key areas across the property;
- Contain and recover free mercury and contaminated items;
- Inventory and group items as safe for immediate return, for treatment required, or for disposal;
- Implement treatment methods and decontaminate contaminated items, if possible, to a level deemed safe for normal use;
- Dispose of mercury and mercury-contaminated items as needed; and
- Provide an itemized list with cost estimates for items that cannot be decontaminated and require disposal as hazardous waste.

As the main spill occurred inside a motel room, the items requiring assessment and decontamination included motel furniture, bedding, soft goods, and expendable items stocked in the room. START conducted a screening of the furniture items in the room during the initial assessment using an MVA with headspace cone attachment to evaluate the surfaces for contamination. Elevated concentrations were detected on the mattress and box springs. Concentrations on other surfaces were near the ambient levels in the room and could not be attributed to the surfaces themselves. No personal items of the individual involved in the spill were found in the room during the assessment and subsequent removal actions.

On December 11, 2020, ERRS removed and bagged all soft contents from the motel room, which were then assessed for mercury vapors and inventoried by START. The furniture items were removed and placed outside in a covered staging area in the parking lot in front of the room. START conducted additional screening of the furniture items as they were removed from the room and did not find any additional pieces of furniture impacted by mercury above applicable action levels. Once outside the

room, ERRS wiped down all hard furniture items with mercury decontamination wipes to remove any residual surface contamination that may have been caused by vapors.

Once the room's contents were removed, ERRS removed and bagged the remaining carpet and padding and then employed a mercury vacuum to remove any remaining elemental mercury and contaminated debris. Hg Cleaning Solution – 102 (HgCs-102), a mercury decontamination solution, was applied to the concrete and the bathroom floor in accordance with the manufacturer's instructions. All smooth surfaces, including mounted furniture items, appliances, the exterior of the Packaged Terminal Air Conditioner (PTAC) unit, the bathroom sink, and the mirror were wiped down with mercury decontamination wipes.

Following the removal activities, the room door and windows were closed and the PTAC unit heater was turned on, as were three additional small heaters, to bring the space back up to the proper monitoring temperature. Once the room was greater than 70°F and was able to equilibrate, START conducted a final assessment of the floor with an MVA fitted with the headspace cone attachment. The concentrations detected on the floor surface throughout the room averaged below 1,000 ng/m³ with a maximum reading of 2,081 ng/m³ at the initial spill location. All areas exceeding 1,000 ng/m³ were given a final treatment with the HgCs-102 solution, and the room was sealed in preparation for clearance sampling.

In addition to the carpeting, soft goods consisting of the mattress, box springs, curtains, bedding, and towels, were determined to have been impacted by ambient vapors while inside the room. Smaller items were bagged and heated to be further assessed. Items with elevated concentrations, including the carpeting, mattress, and box springs, were considered to be too contaminated, and not able to be decontaminated and were therefore placed directly into the roll-off container for disposal. No decontamination treatment of the soft goods was attempted. Additionally, the household vacuum used by the motel cleaning staff was determined to contain elemental mercury and was placed in the roll-off container for disposal. All items identified for disposal were documented by START. A Disposal Item Inventory Receipt was generated and supplied to the motel owner.

The guidance outlined in *USEPA National Elemental Mercury Response Guidebook* (USEPA, 2019) was utilized and followed for all clearance activities. Three air samples were collected overnight following National Institute of Occupational Safety and Health (NIOSH) Method 6009. Air samples were collected at 2 locations (one duplicate) in the main area of the room and one location in the bathroom. ERRS placed all furniture items back in the room prior to clearance sample collection. The room was sealed and allowed to equilibrate to a temperature of 75°F or greater on all surfaces.

The air sample pumps were operated overnight on December 11, 2020, for a duration of 8 hours and the samples collected the following morning. The ambient concentration of the room was measured with a calibrated MVA when the samples were deployed and when they were collected. The ambient concentration in the room was 627 ng/m³ at the time of deployment and 609 ng/m³ at the time of collection the following morning. The samples were analyzed at Eurofins Test America – Phoenix according to NIOSH Method 6009. The mercury concentrations of all three air samples collected in the room, were below the USEPA/ATSDR Mercury Action Level for Ambient Air (Adult/Child Breathing Zones) of 1,000 ng/m³.

ERRS arranged for the delivery of a 40-cubic-yard roll-off container for disposal of the contaminated items, and investigation derived waste generated by EPA. The roll-off container was removed from the

Site on December 21, 2020, and transported to Chemical Waste Management of the Northwest, in Arlington, Oregon, for disposal. It was manifested as UN 3077 Environmentally Hazardous Substance, Solid, NOS, (Mercury) 9.

2. Contribution to Remedial Performance

This removal action is expected to be the final removal action for the Site. However, if future actions are required, the emergency removal described herein will not impede those actions based upon available information.

3. ARARs

The NCP requires that removal actions conducted under CERCLA attain Applicable or Relevant and Appropriate Requirements (ARARs) under federal or state environmental or facility siting laws, to the extent practicable (40 C.F.R. § 300.415(j)). In determining whether compliance with ARARs is practicable, the EPA may consider the scope of the removal action and the urgency of the situation. Given the emergency nature of this action, EPA had developed the following list of ARARs.

Federal ARARs:

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901, et seq.), Subtitle C Hazardous Waste Management (40 C.F.R. Parts 260 to 279). Federal hazardous waste regulations specify hazardous waste identification, management, and disposal requirements. Mercury was found at the Site and is a RCRA hazardous waste. RCRA requirements for management, including disposal of those wastes will be applicable requirements for the Site. Applicable or relevant and appropriate requirements of RCRA Subtitle C (or the state equivalent) may be satisfied by off-site disposal, consistent with the Off-Site Rule, 40 C.F.R. §300.440. RCRA Subtitle C also provides treatment standards for debris contaminated with hazardous waste which is also applicable to any debris contaminated with hazardous waste at the Site.

Mercury Export Ban Act (MEBA) of 2008. The Mercury Export Ban Act of 2008 (MEBA) amends the Toxic Substances Control Act (TSCA) to prohibit the export of elemental mercury from the United States effective January 1, 2013. MEBA also prohibits the sale, distribution, or transfer of elemental mercury under the control or jurisdiction of federal agencies to any other federal, state, or local government agency or to any private individual or entity, except for the transfer of elemental mercury to facilitate storage under MEBA.

State ARARs:

Oregon Environmental Cleanup Rules (OAR 340-122) are applicable for the establishment of cleanup levels and the selection of response actions at the Site. OAR 340-122-0040(2) requires that hazardous substance response actions achieve one of four standards: 1) acceptable risk levels, 2) generic soil numeric cleanup levels, 3) remedy-specific cleanup levels provided by DEQ as part of an approved generic remedy, or 4) background levels in areas where hazardous substances naturally occur. The Oregon Hazardous Substance Remedial Action Rules require consideration of treatment of hot spots to the extent feasible (OAR 340-122-0040).

Oregon Hazardous Waste Regulations (OAR 340-100 to 340-106). Oregon’s regulations provide standards for the identification, management, and disposal of solid and hazardous waste. The state regulations pertaining to determining whether a waste is hazardous are applicable, as well as regulations relating to disposal.

Oregon Solid Waste Management Rules (OAR 340-093 through -097) are applicable to any treatment and disposal of solid waste that may be generated at the Site during conduct of the response action.

Oregon General Emission Standards for Particulate Matter (OAR 340-208-0100 through -210) are potentially applicable to visible emissions and nuisance conditions that may be generated by conduct of the cleanup action.

To-Be-Considered Materials:

To-Be-Considered Materials (TBCs) are non-promulgated advisories or guidance issued by Federal or State governments that are not legally binding, and do not have the status of potential ARARs. However, in many instances, TBCs may be considered along with ARARs in determining the level of cleanup for protection of health or the environment.

Chemical-Specific Health Consultation for Joint EPA/ATSDR National Mercury Cleanup Policy Workgroup, Action Levels for Elemental Mercury Spills, March 22, 2012.

Per EPA/ATSDR guidance, ambient conditions in residences should not exceed 1,000 ng/m³ of mercury near the surface of the floor or in child or adult breathing zones. At or below this level, normal occupancy for even the most sensitive persons is acceptable, assuming normal conditions of use. ATSDR recommends headspace readings for belongings that may have been contaminated by vapors from a mercury spill that are in the range of 3,000 to 6,000 ng/m³ of mercury be considered protective of human health. Measurements should be taken at the vents of appliances or headspace of bags containing the belongings being evaluated. Bags should be warmed passively to ambient conditions and appliances/electronics should be at operating temperatures.

4. Project Schedule

The EPA and START mobilized to the Site on December 9, 2020 followed by the ERRS contractor on December 11, 2020. The removal action was completed, and all personnel demobilized on December 12, 2020.

B. Estimated Costs*

Contractor costs (ERRS/START staff, travel, equipment)	\$51,411
Other Extramural Costs (Strike Team, other Federal Agencies)	\$ 0
Contingency costs (10% of subtotal)	\$ 5,141
Total Removal Project Ceiling	\$56,552

* 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

If the proposed removal action had been delayed or not taken, there would have remained a continued potential for direct exposure to dangerous levels of mercury and mercury vapor. If the source of mercury had not been removed immediately, there would have been a high potential for the CERCLA hazardous substance to continue to be tracked into other motel rooms, residences, vehicles, and/or other areas in the community where vapors would potentially present an unacceptable risk to humans.

VI. OUTSTANDING POLICY ISSUES

None.

VII. ENFORCEMENT

See attached confidential enforcement addendum.

VIII. APPROVALS

This decision document represents the selected removal action for this Site, developed in accordance with CERCLA, and not inconsistent with the NCP. This decision was based on the Administrative Record established for the Site.

Conditions at the Site met the criteria in Section 300.415(b) of the NCP for a removal action. Through this document and pursuant to Delegation R10 14-2 dated April 15, 2019, which redelegates authority to the On-Scene Coordinator for taking emergency response actions pursuant to Section 104 of CERCLA costing up to \$250,000, I have approved the described removal actions which took place between December 10 and 12, 2020. The total project ceiling is \$56,552. This amount is funded from the Regional Removal Allowance.

	04/27/2021
Michael Boykin	Date
On-Scene Coordinator	
Emergency Management Branch	

VIII. SECTION 106 IMMINENT AND SUBSTANTIAL ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health or welfare or the environment.

	04/27/2021
Beth Sheldrake, Branch Chief	Date
Emergency Management Branch	