U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Keizer Mercury Spill - Removal Polrep
Final Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region X

Subject: **POLREP #2**
Final POLREP
Keizer Mercury Spill
10ZZ
Salem, OR
Latitude: 44.9874315 Longitude: -123.0252341

To: EPA HQ, EPA HQ (POLREP List)

From: Jeffrey Fowlow, On-Scene Coordinator
Date: 8/23/2016
Reporting Period: 8/15/16-8/22/16

1. Introduction

1.1 Background

Site Number:	10ZZ	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:	EPA	**Incident Category:**	Removal Assessment
NPL Status:		**Operable Unit:**	
Mobilization Date:	8/12/2016	**Start Date:**	8/12/2016
Demob Date:	8/22/2016	**Completion Date:**	8/22/2016
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
CERCLA

1.1.2 Site Description
The site is located in an apartment complex in a residential area nearby to commercial businesses and busy thoroughfares that carry motor vehicle, bicycle, and pedestrian traffic.

1.1.2.1 Location
The incident occurred at Wyatt Lee apartment community located on Manbrin Drive NE, Keizer, Marion County, State of Oregon 97303.

1.1.2.2 Description of Threat
Liquid elemental mercury has been spilled on private property. The affected spill area was uncontrolled and was accessible by a diverse tenant community as well as by visitors. These populations were at risk of exposure to elemental liquid mercury by dermal contact or accidental ingestion and were at risk of exposure to elemental mercury vapor by inhalation.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See section 2.1.2 for mercury vapor analyzer (MVA) results and locations screened, decontaminated, and cleared.

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2. Current Activities

2.1 Operations Section

2.1.1 Narrative
EPA began scene operations on August 12, 2016 upon arrival. Initial assessment of the mercury contamination continued through the evening and resumed the following morning.

START contractors used specialized mercury detection equipment to identify the areas where mercury contamination was present. START contractors also screened apartments associated with the garages where the mercury had been spilled as well as the apartments across the common thoroughfare from the garage area.

A Hazmat cleanup contractor arrived on scene on Saturday morning, August 13, 2016 on behalf of the owner/management company for the apartment complex. A specialized mercury vacuum was used by the cleanup contractor to remove the visible mercury liquid and employed proven mercury decontamination techniques in an attempt to clear the affected areas of mercury contamination. The cleanup contractor demobilized at the end of the day on Saturday due to limitations with funding from property management/owner.

On August 14 an agreement was made between the property management/owner to cover the cost of removal activities at the site of the apartment complex property.

EPA conducted removal of mercury-contaminated objects at the new residence of the former tenant of apartment 611 (the spiller of the mercury).

The PRP removal contractor (National Response Corporation Environmental Services, or NRCES), EPA, and START continued mercury removal and decontamination activities through August 19, and completed a final assessment on August 22. See section 2.1.2. below for further details.

2.1.2 Response Actions to Date

Apartment Community

Driveway In Between Garages

Each day, a mercury vacuum was used to suction mercury beads and contaminated debris from the #611 garage and from the driveway in front of this garage. Micronized (finely ground) sulfur powder was also used to treat paved surfaces and exposed gravel (sulfur can bind with elemental mercury, resulting in mercuric sulfide, which reduces the ability of mercury to vaporize into ambient air).

On August 16, a 2.5 x 9.5 square-foot concrete slab was removed parallel to the #611 parking garage containing MVA readings above 80,000 ng/m3. Post removal, underlying gravel was screened to locate remaining hot spots. Sulfur powder was placed on top of the gravel and a mercury vacuum was later used to remove powder resulting in MVA readings below clean-up level in the excavation zone on August 18. After numerous efforts of mercury vacuuming and sulfur treatments to the surface on the initial spill location, MVA readings were still elevated resulting in the decision to remove additional asphalt. On August 19, an area approximately 13.5 x 4.5 square-feet was removed between the excavated area and the storm water basin. Upon removal, START screened the gravel underlying the asphalt and exterior buffer of the excavation revealing elevated MVA readings. Two sulfur powder treatments followed by vacuuming was administered to both the gravel and exterior buffer of the excavation (approximate 1ft buffer). With some elevated readings beyond the clean-up levels, one additional sulfur treatment was applied to excavated area and left in place over the weekend, with reassessment on August 22. On August 22 all MVA readings were below established 6,000 ng/m3 clean-up level. NRCES vacuumed the residual sulfur powder. No further clean-up action is required; area is awaiting re-pavement by a PRP contractor.

Garage 611

On August 15, the base course of the side wall sheathing (oriented-strand board) in this unit was removed in order to reach the base plate (a treated lumber beam) where small beads of mercury were present. A mercury vacuum was used along the walls to suction up any remaining beads and sulfur powder was applied along the base of the plate. Final readings on August 18 revealed MVA results below clean-up levels.

Garage 613

On August 15, the garage was initially screened revealing hot spots along the base of the wall adjoining garage 611 and later a mercury vacuum was used by NRCES to suction small beads of mercury. On August 17 the base of the site wall in this unit was removed to reach the base plate (same plate as in #611) where small beads of mercury were present. On August 17, NRCES used a mercury vacuum and applied sulfur powder to the base place area. On August 18, MVA results were below mercury clean-up levels.

Garage 609

On August 13, an initial inspection of the garage resulted in ambient MVA readings of approximately 4,000 ng/m3. After speaking with the resident about items used in the garage, bicycles were removed from the garage and placed in full sun in the parking lot to allow the tires to be heated and ventilate mercury vapors. With increased temperatures in the afternoon, tires were reassessed with a maximum MVA reading of 8,790 ng/m3. On August 14, bike tires were reassessed as well as within the garage, bike tires averaged 1,500 ng/m3 while the ambient air 1,000ng/m3. Six bins containing baby clothing and accessories

were assessed on August 18 with readings slightly above 1,000 ng/m3. Clothing bins were opened and aired out in the sunlight in the parking lot and reassessed August 18, with the maximum readings of 79 ng/m3. Further, bike tires were reassessed with the highest reading of 235 ng/m3, and the maximum floor reading inside the garage of 492 ng/m3. All readings were below the clean-up level of 6,000 ng/m3 and no further action was required. The resident requested that the garage be ventilated whenever EPA was present on site. The resident was notified by EPA of average results below clean-up levels on August 20 and reviewed the results on August 22.

Garage 615

On August 13, screening of the garage in the afternoon revealed ambient MVA readings above 9,000 ng/m3. The garage door was naturally heated and ventilated and reassessed August 14 revealing highest MVA readings of approximately 1,500 ng/m3. The area had been cleared below site clean-up levels of 6,000 ng/m3 with no further action needed. The tenant to the corresponding garage was notified of clearance for vehicle re-occupation.

Storm Drains

On August 14 ambient MVA readings within the storm drain averaged 1,500 ng/m3. On August 15, debris from the storm drain were placed into plastic bags and dried to obtain best MVA measurement of the basin material. Material in the basin nearest spill location was approximately 47,000 ng/m3, while material in the second storm water basin approximately 25 ft and downgrade from the first basin measured 120 ng/m3. On August 16, NRCES removes material in the stormwater basin nearest to the spill location and ventilated it with an industrial confined space blower to dry the basin and promote volatilization of residual mercury. Later that afternoon, MVA readings were taken at the base of the stormwater basin and were approximately 1,000 ng/m3, below clean-up levels of 6,000 ng/m3. No further action was required.

Residential Screening

An EPA Community Involvement Coordinator (CIC) tried to contact each residence, knocking on each door to provide information for mercury awareness and contact numbers for questions or concerns. Additionally, START accompanied EPA to conduct MVA screening as each resident desired. Five residences were not addressed because no one answered the door despite multiple attempts. All screened residences within the complex were below the residential clean-up level of 1,000 ng/m3.

Complex Garbage Bins

On August 16, two garbage bins located behind the #611 garage were assessed (waste pickup service was suspended, but the bin had been emptied multiple times since the #611 tenant had moved out): one bin was elevated above the 6,000 ng/m3 clean-up level with vapors at 15,000 ng/m3. On August 18, the garbage bin with elevated mercury vapor was emptied and each bag of trash was screened with the MVA. Three bags of trash exceeded the cleanup level, and were put into the mercury waste stream by NRCES. The inside bottom of the emptied bin was assessed with the MVA with a result of 22,000ng/m3. NRCES applied sulfur powder, let it sit to react, and used the mercury vacuum to clean up the residue. The resulting MVA levels were below 6,000 ng/m3. No further action was required and garbage pick-up was resumed August 19.

Former Apartment 611 Tenant - New Residence

Residential Screening

On August 14, EPA and START gained access to the residence for MVA screening. START screened the entire residence, with MVA results up to 2,000 ng/m3 on adult shoes within the bedroom closet. EPA recommended that shoes be placed outside to be naturally heated and ventilate before returning to closet. Further inspection revealed the residential vacuum (36,000 ng/m3), garage garbage can (15,000 ng/m3), and washing machine (15,000 ng/m3) would all need to be disposed as hazardous waste. All other MVA screening levels within the residence were below the residential clean-up level of 1,000 ng/m3. No further action was required.

Vehicle Screening

On August 17, START and EPA were granted access and decontamination approval for the personal vehicle (pickup truck) of the resident. The resident was informed that porous and carpeted surfaces would likely need to be removed. Interior truck readings were elevated with highest reading of approximately 80,000 ng/m3. An initial attempt to remove mercury from the back carpet and seat surfaces with a mercury vacuum was unsuccessful. Floor carpet, seat, backrest, and under seat storage compartment lid were removed from the rear passenger seat area. The plastic liner (subsurface to the carpet) and cavity under the rear

passenger seat was vacuumed by START with a mercury vacuum and sulfur powder was applied. After three applications of sulfur powder and use of mercury vacuum after each application, MVA results were below the 6,000 ng/m3 clean-up level used on the vehicle and no further action was required.

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

PRPs have been identified

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*
Plastic Drum	PPE and Cleanup Materials	2	TBD	TBD	TBD
8 oz glass jar	Liquid Elemental Mercury	10	TBD	TBD	TBD
Waste Wrangler	PPE and Cleanup Materials	2	TBD	TBD	TBD
Waste Wrangler	Washing Machine and Vacuum	1	TBD	TBD	TBD

2.2 Planning Section

2.2.1 Anticipated Activities

EPA has communicated to the property owners and the property management company that mercury cleanup activities have concluded. The property owners/property management company will take responsibility for whatever site restoration activities they deem necessary.

2.2.1.1 Planned Response Activities

NRCES will arrange for disposal of all waste generated during the removal at the apartment complex. EPA is negotiating with ODEQ to arrange for disposal of wastes generated at the residential property.

2.2.1.2 Next Steps

EPA does not anticipate any further action.

2.2.2 Issues

No issues at this time.

2.3 Logistics Section

Oregon State Hazmat Team 13 assets were deployed to the scene and were later demobilized from on August 12, 2016 as authorized by the on-scene coordinators.

EPA Region 10 Portland and Seattle assets were deployed to the scene on August 12, 2016 and remained on-scene until demobilized by the EPA OSC August 19, 2016

2.4 Finance Section

2.4 Finance Section

The PRP has agreed to finance the clean-up of the apartment complex property with EPA providing oversight and assessment of mercury contamination. EPA has assumed responsibility for cleanup activities of the new home and belongings of previous tenant.

2.5 Other Command Staff

2.5.1 Safety Officer

Initially Oregon State Hazmat Team 13 on August 12th, 2016, then transitioned to EPA on August 13th, 2016 for the remainder of site activities through August 22, 2016.

2.5.2 Liaison Officer

2.5.3 Information Officer

Initially Oregon State Hazmat Team 13 on August 12th, 2016, then transitioned to EPA on August 13, 2016 for the remainder of site activities through August 22, 2016.

3. Participating Entities

3.1 Unified Command

The EPA Federal OSC, the PRP (property management company) representative, and ODEQ have joined to create Unified Command on site.

3.2 Cooperating Agencies

The Cities of Salem and Keizer (code enforcement and environmental staff) provided planning and technical support.

4. Personnel On Site

EPA - 2 OSCs

START - 3 personnel

Property Management Representative - 1

NRCES – 1 supervisors and 3 technicians

5. Definition of Terms

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (and as amended), commonly referred to as “Superfund”
EPA – U.S. Environmental Protection Agency (Region 10)
IC – Incident Commander

MVA - Mercury Vapor Analyzer/Analysis

ODEQ- Oregon Department of Environmental Quality

OSC – On-Scene Coordinator
PRP – Potentially Responsible Party (under CERCLA law)
ng/m3 – nanograms per cubic meter (at this site, nanograms [mass] of mercury vapor per cubic meter [volume] of air)
NRCES – National Response Corporation Environmental Services (do not confuse with the United States Coast Guard National Response Center)
START – Superfund Technical Assessment Response Team (EPA science and technology support contractor)
UC – Unified Command
ug/m3 - micrograms per cubic meter (at this site, micrograms [mass] of mercury vapor per cubic meter [volume] of air)

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.