169374 Plane 10/4/02

Basin Gallery I.3

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION REPORT

I. HEADING

DATE: September 17, 2002

SUBJECT: Commerce Road Mercury Spill, Milford, Oakland County, MI

FROM: Mark Durno, OSC, U.S. EPA, Region 5, ERB, West Lake, OH

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Polrep #1: CERCLA Emergency Response

II. BACKGROUND

Site ID No.:	B54R
Delivery Order Number:	FHI Task Order# 89
Response Authority:	CERCLA
NPL Status:	Not on NPL
State Notification:	Referral from MDCH
Latitude/Longitude:	42°35'30.30" North /83° 35'47.87" West
Start Date:	September 11, 2002

III. SITE INFORMATION

A. Incident Category

Emergency Response – Elemental Mercury Spill

B. Site Description

1. Site Location and Background

The incident occurred at an private residence located at 404 East Commerce Road in a residential neighborhood in Milford, Oakland County, Michigan. An antique grandfather clock contained two 10-pound weights. The weights were glass containers full of elemental mercury. The homeowners informed U.S. EPA that, during home renovation, they had removed the mercury weights and set them upright in the bottom of the clock base. Some time later, they observed that one of the weights had fallen over and released all of its contents, approximately 10 pounds of mercury. Most of the substance was cleaned up by hand, double bagged, and placed in their garage. The homeowners observed that some of the mercury had spilled along the wall and flowed between the floor and wall interface into the laundry room. Again, the homeowners cleaned up as much of the mercury as they could by hand and contained the substance.

2. Description of Threat

The amount of elemental mercury present in the house, poses a human health threat to people staying in the house. The health threat is magnified in this instance due to the elemental mercury's location within the forced air furnace. Mercury vapor is highly toxic when inhaled, especially for sensitive populations such as infants, children, and the elderly. At high levels, mercury exposure can result in damage to the brain and kidneys. Small quantities of uncontained mercury spilled indoors pose a threat to be tracked into the environment and to other dwellings.

IV. RESPONSE INFORMATION

A. Situation

1. Current situation:

U.S. EPA, START and ERRS mobilized to the site on September 11, 2002 and conducted cleanup activities which have included removal of approximately 23 pounds (approximately 10 pounds were spilled) of elemental mercury. Residual levels of mercury vapor were above the cleanup goal of 1 $\mu g/m^3$. Currently, the house is being ventilated to remove the residual mercury vapor, which will continue until vapor concentrations stabilize to less than the cleanup goal. START will continue to screen the residence to verify that the levels remain below the cleanup goal.

2. Site activities to date:

On September 11, 2002, the United States Environmental Protection Agency (U.S. EPA) and the Tetra Tech EM Inc. Superfund Technical Assistance and Response Team (START) mobilized to the site to screen the residence for the presence of mercury vapor. START screened the house for the presence of mercury vapor using a Lumex RA 915+ portable mercury vapor analyzer. Mercury vapor concentrations in the breathing zone throughout the house ranged from 2 to 8 $\mu g/m^3$. The highest concentrations were recorded in the area underneath the clock located on the first floor (20 $\mu g/m^3$) and in the basement laundry room (>50 $\mu g/m^3$). The residents agreed to vacate their house

temporarily during cleanup activities.

At approximately 1900, Ferguson Harbor, Inc., the Emergency and Rapid Response Services (ERRS) contractor, mobilized to the site and commenced clean up activities. ERRS vacuumed the visible mercury from the laundry room (using a mercury vacuum) and removed the washer and dryer from the laundry room. All windows were then opened and fans were placed in windows to allow any mercury vapor to be ventilated from the residence. The house was secured and allowed to ventilate overnight.

U.S. EPA , START, and ERRS returned to the residence on September 12, 2002. The house was re-screened using the Lumex. With the exception of the spill room (first floor) and the laundry room, mercury vapor concentrations in the house ranged from 0.8 to 2 $\mu g/m^3$. ERRS removed the rugs in the room where the spill occurred on the first floor and the baseboard along the wall where the spill occurred. In addition, the clock, floor and wall were cleaned using a mercury vacuum. The clock and floor were treated with HgX, a mercury binding solution. The room and clock were then ventilated using mechanical fans.

A false wall in the laundry room was removed by ERRS. It was then discovered that mercury had flowed behind and into duct work from the upstairs area where the initial spill had occurred. ERRS collected mercury from the duct work and removed approximately 5 feet of ductwork leading from the vent located in the spill room upstairs. The entire area was then vacuumed and treated with HgX. The house was allowed to ventilate overnight. In addition, the washer, which had been previously removed from the laundry room, was wiped down, vacuumed and treated with HgX.

Cleanup activities continued on September 13, 2002. ERRS placed propane heaters over the spill area in the laundry room and the room was allowed to heat for approximately 4 hours. Following heating, the concrete area below the duct work in the laundry room was then sealed using a concrete sealer.

After discussions with the homeowners it was determined that there were items that may have been in contact with the mercury when the spill originally occurred. These items were screened using a Lumex. If the items were above 10 $\mu g/m^3$, they were retained by ERRS and disposed of. These items included, several food items from the cupboard in the laundry room, clothing items from the laundry room, three area rugs from the spill area on the first floor, and the washer from the laundry room.

Following cleanup activities, the house was ventilated using portable mechanical fans over the weekend. On September 16, the house was re-screened by START. Residual mercury vapor concentrations ranged from 1.3 to 1.7 $\mu g/m^3$ in the breathing zone, which is slightly above the cleanup goal of 1 $\mu g/m^3$. In order to remove the residual mercury vapor, the heat in the house was tuned on and the house was allowed to continue to ventilate.

B. Planned Removal Activities

START will continue to monitor the residence for mercury vapors utilizing the Lumex. The house will be heated and ventilated until mercury vapor concentrations stabilize below the cleanup goal. Disposal arrangements are currently underway for the mercury contaminated debris and water associated with the removal actions.

C. Next Steps

START will screen the house following a full day of heating and ventilation. All waste collected during the removal action will be transported to an U.S. EPA-approved off-site facility for disposal.

D. Key Issues

Response to this spill was delayed. The Michigan Department of Community Health initially contacted U.S. EPA on September 9, 2002; however, it was unclear at that time weather or not the owner's insurance company would fund the response privately. The official referral to U.S. EPA was made on September 11, 2002. According to the home owner, the spill occurred the previous week.

Because the homeowners did not use their household vacuum to attempt to clean-up the spill, they significantly reduced the amount of clean-up that was required during this response.

V. COST INFORMATION

Estimated costs as of September 17, 2002:

U.S. EPA	$ 4,000
START	$ 2,500
ERRS	$10,000

The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report is written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.