

ATSDR Record of Activity

Site: Lutherville mercury site Activity: Technical Assists Date: 3/18/2009 Time:

UID: Gfu6 Date: 3/18/2009 Time:

Site Name: Lutherville mercury site

City: Lutherville County: Baltimore State: MD

CERCLIS: Cost Recovery: 3AMS Region: 3

Site Status (1): Non-NPL Site Status (2): Emergency Response

Activity

Technical Assists

Record of Activity Type= General AROA

Requestor: EPA

Contacts and Affiliation: Greg Ham, EPA Region 3 OSC

Address:

City: State: Zip:

Request Text

OSC Ham requested that ATSDR provide concurrence with his decision to conclude cleanup activities and permit reoccupancy at the Lutherville residence. The OSC determined cleanup was complete and the house safe for reoccupancy based on Lumex monitoring data which reported mercury vapors below 1 microgram per cubic meter (ug/m3) and validated laboratory mercury results from Fort Meade following NIOSH method 6009 which showed one detection at the laboratory detection limit of 0.2 ug/m3 out of eight samples.

Narrative Summary:

Site Background

On February 12, 2009, EPA On-Scene Coordinator (OSC) Greg Ham issued a "Special Bulletin A and Pollution Report #1" to conduct emergency assessment and removal activities at a residence in Lutherville, Baltimore County, MD. The Maryland Department of Environment responded to the property on December 20, 2008 and based upon mercury monitoring results and the visible presence of elemental mercury, requested the family evacuate the home (EPA 2009). The source of the mercury was determined to be from a fire detection system which utilized a "J-tube" as a mercury switch. The homeowner contacted the insurance company to report the incident and to open a claim. The insurance company considered the matter for about seven weeks, including sending out an industrial hygienist to evaluate the home, before reaching the conclusion that they would not cover the cleanup costs (EPA 2009).

The family includes two small children, a mother of child-bearing age, and the father. The family was displaced from the residence since the spill on December 20, 2008 (EPA 2009).

Site Assessment and Cleanup Activities

On February 12, 2009, EPA and its consultants conducted mercury vapor monitoring with a Lumex RA915+ instrument (Lumex), identifying mercury vapors above 10 micrograms per cubic meter (ug/m3) in the basement where the spill occurred (EPA 2009). Elevated mercury vapors were detected in the stairwell and kitchen on the first floor and trace levels were detected throughout the house (EPA 2009). These mercury vapor readings were detected at ambient air temperatures below 68 degrees Fahrenheit.

EPA contractors conducted an emergency cleanup at the property, removing all visible elemental mercury, using a mercury-specific vacuum to collect mercury from exposed areas, treating areas with mercury vapor absorbent material, and heating and venting indoor air to the outside.

Clearance Sampling and Analytical Data

After completing cleanup activities, EPA consultants conducted mercury vapor monitoring with the Lumex and clearance sampling following the NIOSH method 6009 for mercury vapor sampling and analysis. The samples were sent to EPA's Fort Meade laboratory for analysis. Each hour during NIOSH method 6009 sampling, monitoring was conducted with the Lumex and room temperatures were documented. Attachment A provides a summary of the temperatures, sampling locations, sample identifiers, flow rates, start/stop times, sample volumes, pump identifiers, and computed results. Attachment B is a supplemental report from the Fort Meade laboratory which reports all results as non detect or at the detection limit. Attachment C provides the

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hourly Lumex mercury readings and the mean for each sampling location.

Analytical Results and Lumex Mean Concentrations

All results reported by Fort Meade (see Attachment B) were at or below the detection limit of 0.2 microgram per sample tube. Sample air volumes ranged from 67 to 123 liters of air for 8 hour sample run times (480 minutes). By dividing the quantity of mercury sorbed to the sample media by the total volume of air, a quantity of mercury per liter of air can be estimated. Seven of the eight results were not detected above the laboratory detection limit, so the detection limit of 0.2 micrograms was divided by the volume of air sampled. The results provided in the final column of Attachment A provides these computed mercury results. All these results were well below the EPA cleanup goal of 1 microgram per cubic meter.

Mean concentrations of mercury from Lumex monitoring (see Attachment C) was calculated from hourly readings collected near the NIOSH sampling tubes each hour that sampling was conducted. The maximum mean concentrations from Lumex monitoring was 0.865 microgram per cubic meter (ug/m3) at one foot above the floor in the utility room. This is the location nearest to the original spill. All other Lumex results were below this concentration and ranged from 0.407 ug/m3 to 0.858 ug/m3.

Conclusion

Based on the validated laboratory results and the Lumex monitoring results, ATSDR concurs with EPA's conclusion that the house is safe for all family members (children included) from mercury vapors resulting from the spill which was identified December 20, 2008.

Reference

EPA. 2009. Special Bulletin A and Polrep #1, Lutherville Mercury Spill. February 12. Available online at: http://www.epaossc.org/site_profile.asp?site_id=4750

Preparer: Robert Helverson, ATSDR
US EPA Region III
1650 Arch Street (3HS00)I
Philadelphia, PA 19103-2029

 3.18.09

SAMPLE ID	LAB SAMPLE ID	LOCATION	DATE	START TIME	STOP TIME	ELAPSED TIME	START FLOW RATE AVG	STOP FLOW RATE AVG	AVG FLOW RATE	VOLUME	PUMP ID	Reported Quantity (ng/m3)
LM-022609-CS-01A	MC03R8	Upstairs Hall	2/26/2009	17:13	1:13	480	0.2327	0.2815	0.2571	123.408	20070602012	<162
LM-022609-CS-02A	MC03R9	Kitchen	2/26/2009	17:13	1:13	480	0.2273	0.0680	0.14765	70.872	14479	<282
LM-022609-CS-03A	MC03S0	Living Room	2/26/2009	17:13	1:13	480	0.2108	0.1947	0.20275	97.32	13842	<206
LM-022609-CS-04A	MC03S1	Downstairs Family Room 4'	2/26/2009	17:13	1:13	480	0.1880	0.1681	0.17805	85.464	13901	<234
LM-022609-CS-05A	MC03S2	Downstairs Family Room 1'	2/26/2009	17:13	1:13	480	0.2013	0.1965	0.1989	95.472	13841	<209
LM-022609-CS-06A	MC03S3	Utility Room 4'	2/26/2009	17:13	1:13	480	0.2040	0.1769	0.19045	91.416	13839	<219
LM-022609-CS-07A	MC03S4	Utility Room 1'	2/26/2009	17:23	1:23	480	0.1871	0.2862	0.22665	108.792	20070602011	184
LM-022609-CS-08A	MC03S5	Utility Room 1' Duplicate	2/26/2009	17:23	1:23	480	0.1837	0.0960	0.13985	67.128	20070602010	<298



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: March 12, 2009

SUBJECT: Supplemental Report – Lutherville Mercury Site (WO# 0902021)

FROM: 
Cynthia Caporale, Chief
OASQA Laboratory Branch (3EA21)

TO: Case File (WO# 0902021)

For Work Order #0902021, the final report submitted on 3/6/09 for Lutherville Mercury Site (R33162) had incorrect units for the filter samples. The method followed was EPA NIOSH 6009. However, due to a LIMS method-related entry, mercury results were reported as 0.2 ug/L. The correct units are ug/filter. Below are the corrected results with associated sample numbers and sample locations. Data in LIMS (Element) have been corrected.

Lab number	Sample Name	Result Units
0902021-01	LM-022609-CS-01A	<0.02 ug/filter
0902021-02	LM-022609-CS-02A	<0.02 ug/filter
0902021-03	LM-022609-CS-03A	<0.02 ug/filter
0902021-04	LM-022609-CS-04A	<0.02 ug/filter
0902021-05	LM-022609-CS-05A	<0.02 ug/filter
0902021-06	LM-022609-CS-06A	<0.02 ug/filter
0902021-07	LM-022609-CS-07A	0.02 ug/filter (only detectable result)
0902021-08	LM-022609-CS-08A	<0.02 ug/filter

cc: Greg Ham, OSC (3HS31)
Jill Bilyeu, Quality Assurance Officer
Robin Costas
Sue Greco

Lunrex Monitoring Results during NIOSH 6009 Sampling Event
Lutherville Mercury Site

LOCATION	Time	Temp	Concentration	Time	Temp	Concentration	Time	Temp	Concentration	Time	Temp	Concentration	Avg. Concentration												
Upstairs Hall	6:13	81	510	7:15	81	509	8:14	81	539	9:15	82	474	10:15	82	451	11:13	81	391	12:15	80	378	1:03	81	372	453
Kitchen	6:12	79.2	515	7:14	79.2	467	8:13	78.6	449	9:15	79.2	464	10:15	79.3	396	11:12	78.6	330	12:14	79.5	334	1:02	79.5	305	407.5
Living Room	6:11	80.2	511	7:13	80.6	489	8:12	80.4	473	9:15	80.6	455	10:15	81	433	11:11	80.6	361	12:14	81	352	1:02	81	324	424.75
Downstairs Family Room 4'	6:14	72.3	550	7:16	72.1	514	8:15	71.6	505	9:15	72.5	449	10:15	72.5	444	11:14	72.5	378	12:16	73.6	327	1:04	73.6	291	432
Downstairs Family Room 1'	6:15	72.3	589	7:16	72.1	646	8:16	71.6	530	9:15	72.5	564	10:15	72.5	608	11:14	72.5	432	12:16	73.6	460	1:05	73.6	442	533.875
Utility Room 4'	6:16	86.4	610	7:18	84.3	673	8:17	81.1	552	9:15	84.9	512	10:15	81.7	507	11:16	84.4	470	12:17	81.7	436	1:06	83.8	408	520.875
Utility Room 1'	6:16	86.4	672	7:19	84.3	1181	8:18	81.1	968	9:15	84.9	942	10:15	81.7	942	11:16	84.4	1003	12:18	81.7	658	1:07	83.8	552	864.75
Utility Room 1' Duplicate	6:17	86.4	636	7:19	84.3	1071	8:18	81.1	1183	9:15	84.9	984	10:15	81.7	853	11:17	84.4	898	12:18	81.7	647	1:07	83.8	594	858.25