



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

US EPA RECORDS CENTER REGION 5



495113

MEMORANDUM

REPLY TO THE ATTENTION OF:

SUBJECT: Action Memorandum (short version): Request for an Emergency Removal Action at the Lincoln Elementary Mercury Response Site (SSID # C5EN) located in Green Bay, Brown County, WI 54303

FROM: Kathy Halbur, OSC
Emergency Response Section 1

THRU: James Augustyn, Chief
Emergency Response Section 1

TO: Jason H. El-Zein, Chief
Emergency Response Branch 1

I. PURPOSE

The purpose of this Action Memorandum is to request and document your verbal approval for the expenditure of \$46,368 used to conduct an emergency removal action that abated an imminent and substantial threat to public health and the environment posed by spilled mercury at Lincoln Elementary School, Franklin Middle School, and a private residence (collectively referred to as the "Site") in Green Bay, Wisconsin 54303.

There are no nationally significant or precedent setting issues associated with the proposed response at this non-National Priority List (NPL) site.

This Action Memorandum serves as approval for expenditures by the EPA, as the lead technical agency, to take actions described herein that abated the imminent and substantial endangerment posed by hazardous substances at the Site. The removal of hazardous substances was taken pursuant to Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415.

II. SITE CONDITIONS AND BACKGROUND

Site Name: Lincoln Elementary Mercury Spill
Superfund Site ID: C5EN

EPA ID: WIN 000507455
Location: Lincoln Elementary, 105 S. Buchanan St, Green Bay, WI 54303
Franklin Middle School, 1233 Lore Lane, Green Bay, WI 54303
Residence, [REDACTED] Shawano Avenue, Green Bay, WI 54303
Latitude: Lincoln: 44.5226492, -88.0401132
Franklin: 44.519510, -88.049116
Residence: [REDACTED], [REDACTED]
Category: Emergency Response

A. Site Description

1. Removal site evaluation

A custodian at Lincoln Elementary School, 105 S. Buchanan, in Green Bay (Brown County), WI, discovered students playing with mercury in the school on December 6, 2016. The Green Bay Area Public School District (GBAPSD) notified authorities (via 911) of the spilled mercury. Green Bay Fire, Green Bay Police, Brown County Health, Wisconsin Department of Health Services (WDHS), Wisconsin Department of Natural Resources (WDNR), and EPA responded to the elementary school.

The children who were playing with the mercury were isolated in the school's office area and the remaining students and staff (~320 people) were sequestered in the cafeteria. GBAPSD hired an environmental response contractor to assist with the response. Students and staff were screened for mercury contamination prior to being allowed to leave the school (Attachment 5, photo 2). Six students had contaminated shoes and clothing which were confiscated and replaced prior to sending them home. Elevated mercury levels were found in the gymnasium, one classroom, a bathroom, a locker, and the room in the office area where the children who were playing with the mercury were held. A vial of mercury was recovered from the contaminated classroom (Attachment 5, photo 1).

Interviews revealed that siblings of the elementary school children who were playing with the mercury also took the vial of mercury to Franklin Middle School, located at 1233 Lore Lane in Green Bay. Screening at the middle school indicated that everyone could leave the school, but that a classroom and small area of a hallway were contaminated with mercury.

The home of the students who brought the mercury to school was screened by public health. Mercury concentrations exceeded 50 µg/m³ (the upper range of the health department's Lumex).

A Letter Report summarizing the response, including the Lumex readings at each of the three locations, is available in the Administrative Record (Document 2).

2. Physical location

There are three locations involved in this response: Lincoln Elementary School, 105 S. Buchanan Street; Franklin Middle School, 1233 Lore Lane; and a residence located at [REDACTED] Shawano Avenue. All three locations are in Green Bay, Brown County, Wisconsin 54303, within a one-mile radius of each other. The area is mixed residential and commercial. A figure depicting the three locations can be found in Attachment 2. The address for the CERCLIS ID number is [REDACTED] Shawano Avenue, Green Bay, WI 54303 where the fund lead activities occurred.

3. Site characteristics

An Environmental Justice (EJ) analysis for the Site is contained in Attachment 3. Screening of the surrounding area used Region 5's EJ Screen Tool. Region 5 has reviewed environmental and demographic data for the area surrounding this response and determined there is a potential for EJ concerns at this location based on proximity to Superfund and RMP Sites, lead paint indicator, and water discharge proximity.

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

Mercury is designated as hazardous substances in 40 CFR §302.4. Mercury vapors were detected at levels above the Action Levels set by the Agency for Toxic Substances and Disease Registry (ATSDR) at Lincoln Elementary School, Franklin Middle School, and throughout a residence where a mother and her eight children live. In some locations, concentrations exceeded the maximum detection level of the Lumex, 50 micrograms per meter cubed ($\mu\text{g}/\text{m}^3$). ATSDR's suggested action levels for residential settings and schools can be found in Attachment 4.

According to ATSDR, the nervous system is very sensitive to mercury. Mercury vapors are more harmful than other forms of mercury exposure because more mercury reaches the brain in this form. Short-term exposure to high levels of mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Very young children are more sensitive to mercury than adults. A copy of ATSDR's ToxFAQs for mercury is available in the Administrative Record (Document 1).

5. NPL status

The Site is not on the NPL.

6. Maps, pictures and other graphic representations

See Attachment 2 for site map, Attachment 3 for environmental justice analysis, and Attachment 5 for pictures of the emergency response actions.

7. Other Actions to Date

1. Previous actions

WDNR requested EPA assistance with mercury screening upon learning of the incident. Three entities responded to the elementary school with mercury vapor meters, North Shore Environmental Construction (NSEC) who was hired by GBAPSD, WI Department of Health Services (WDHS), and Tetra Tech (EPA START). All are located more than two hours away from the school. NSEC was the first to arrive. Upon arrival, a team was diverted to conduct preliminary screening at Franklin Middle School. Based on the screening, students and staff were allowed to go home.

Students and staff at Lincoln Elementary School were screened for contamination (Attachment 5, photo 2). Screening occurred after the normal end to the school day and required late dismissal procedures. There was a significant amount of media coverage and many anxious parents outside the school. Six students had contaminated shoes and clothing which were confiscated and replaced prior to reuniting the children with their parents. After all students were released, NSEC and EPA START screened both schools to identify contaminated areas (Attachment 5, photo 3). Five areas were identified at Lincoln Elementary School that required decontamination and two areas at Franklin Middle School. GBAPSD closed Lincoln Elementary the following day (December 7, 2016) for cleaning. The contaminated areas at Franklin Middle School were isolated and cleaned after the school day on December 7, 2016.

WDHS personnel screened the residence at [REDACTED] Shawano Avenue upon arrival to Green Bay on December 6, 2016, and identified readings greater than 50 $\mu\text{g}/\text{m}^3$ throughout the home. The Brown County Health Department condemned the home (Attachment 5, photo 5) and required the tenants to evacuate. The American Red Cross assisted with evacuation of the tenants.

NSEC decontaminated both schools on December 7, 2016, (Attachment 5, photo 4). EPA START conducted clearance monitoring, in consultation with Brown County Health, WDHS, and WDNR. GBAPSD took the opportunity to dispose of all mercury containing devices within the district; 615 pounds of mercury containing waste (D009) was shipped to Veolia's retort facility in Port Washington, WI.

Also on December 7, 2016, EPA secured access from the property owner of the impacted residence and mobilized ERRS. EPA and its contractors screened and decontaminated the home in accordance with EPA's Mercury Response Guidebook on December 7-10, 2016, (Attachment 5, photos 6-9). WDNR and the Brown County Health Department

assumed control of the residence on December 11, 2016. The City of Green Bay and Brown County Health conducted additional inspections and lifted the condemnation order on December 12, 2016.

Non-hazardous waste from the residence cleanup was stored at a nearby secure City of Green Bay Public Works and Police Department lot pending approval of a waste profile and off-site disposal. Mercury containing waste was stored at a secure ERRS facility pending approval of a waste profile and off-site disposal. The non-hazardous waste was shipped to Waste Management Ridgeview RDF landfill in Whitelaw, WI, on January 4, 2017. The hazardous waste (D009) was shipped to Waste Management Mercury Waste in Union Grove, WI on January 23, 2017.

A Letter Report summarizing the response is available in the Administrative Record (Document 2).

2. Current actions

This response action is complete. No additional activities are anticipated.

3. State and Local Authorities' Roles

a. State and local actions to date

As indicated above, numerous local and state agencies were involved in this emergency removal action. GBAPSD hosted an after action discussion on February 27, 2017. All responding agencies participated in the meeting.

b. Potential for continued State/local response

No additional activities are anticipated.

III. THREATS TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the site presented a substantial threat to the public health, or welfare, or the environment, and meet the criteria for an emergency removal action as provided for in the NCP at 40 C.F.R. § 300.415(b)(2). These criteria include, but are not limited to, the following:

- 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)].
- 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. ENDANGERMENT DETERMINATION

Given the site conditions, the nature of the known and suspected hazardous substances on site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this site presented an imminent and substantial endangerment to public health, or welfare, or the environment if not addressed by implementing the emergency response actions described in this Action Memorandum.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The OSC completed the following emergency removal actions to mitigate threats posed by the hazardous substances at the Lincoln Elementary Mercury Response:

- a. Conduct air monitoring to determine the extent of mercury contamination at two schools and a residence;
- b. Conduct oversight of decontamination at two schools and perform clearance sampling;
- c. Decontaminate residence;
- d. Identify and remove contaminated possessions at the residence;
- e. Perform clearance sampling of impacted residence; and
- f. Any other response actions to address a release or threatened release of hazardous substances, pollutants or contaminants that the EPA On-Scene Coordinator determines may pose an imminent and substantial endangerment to public health or the environment.

All hazardous substances, pollutants or contaminants removed off-site pursuant to this emergency removal action for treatment, storage and disposal were treated, stored or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

The removal action was conducted in a manner not inconsistent with the NCP. The OSC initiated planning for provisions of post-removal site control consistent with the provisions of 40 C.F.R. § 300.415(l).

2. Contribution to remedial performance:

The actions taken will not impede future actions based on available information.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Not Applicable

4. Applicable or relevant and appropriate requirements (ARARs)

All applicable, relevant and appropriate requirements (ARARs) were complied with to the extent practicable considering the exigencies of the circumstances.

Federal

The regulations at 49 U.S.C. § 5101 et seq. govern the transportation of hazardous waste and hazardous substances by aircraft, railcars, vessels, and motor vehicles. It is applicable if hazardous materials are transported to or from a site. No other chemical-specific, performance, or location-specific requirements were found.

5. Project Schedule

This response took approximately ten working days to complete spread over two months.

6. Estimated Costs

REMOVAL ACTION PROJECT CEILING ESTIMATE	
<u>Extramural Costs:</u>	
<u>Regional Removal Allowance Costs:</u>	
Cleanup Contractor Costs	\$23,640
<u>Other Extramural Costs Not Funded from Regional Allowance:</u>	
START	\$15,000
Subtotal	\$38,640
Costs Contingency	\$7,728
Total Removal Project Ceiling	\$46,368

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the site conditions, the nature of the hazardous substances and pollutants or contaminants documented on site; the potential exposure pathways to nearby populations described in Sections II, III and IV above; actual or threatened release of hazardous substances and pollutants or contaminants from the site; failing to take or delay in taking action may present an imminent and substantial endangerment to public health, welfare or the environment, increasing the potential that hazardous substances will be released, thereby threatening the adjacent population and the environment.

VII. OUTSTANDING POLICY ISSUES

None

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Confidential Enforcement Addendum.

Direct Costs	+	(Indirect Costs)	=	Estimated EPA Costs for Removal Action
(\$46,368 + \$10,000)		[(61.96) x (\$56,368)]		\$91,293

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$91,293.

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**NOT RELEVANT TO SELECTION
OF REMOVAL ACTION**

ENFORCEMENT ADDENDUM

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ENFORCEMENT CONFIDENTIAL

NOT SUBJECT TO DISCOVERY

FOIA EXEMPT

NOT RELEVANT TO SELECTION

OF REMOVAL ACTION

ATTACHMENT 1

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION**

**ADMINISTRATIVE RECORD
FOR THE
LINCOLN ELEMENTARY MERCURY RESPONSE SITE
GREEN BAY, BROWN COUNTY, WISCONSIN**

**ORIGINAL
MARCH 2017**

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	916277	4/1/99	ATSDR	Public	ToxFAQs Fact Sheet - Mercury - CAS #7439-97-6	2
2	932340	3/6/17	Villicana, M., Tetra Tech	Halbur, K., U.S. EPA	Final Letter Report for Emergency Response (<i>Redacted</i>)	60
3	-	-	Halbur, K., U.S. EPA	El-Zein, J., U.S. EPA	Action Memorandum re: Request for an Emergency Removal Action at the Lincoln Elementary Mercury Response Site (<i>PENDING</i>)	-

ATTACHMENT 2
SITE LOCATION MAP
LINCOLN ELEMENTARY MERCURY RESPONSE
GREEN BAY, BROWN COUNTY, WISCONSIN
MARCH 2017



ATTACHMENT 3

ENVIRONMENTAL JUSTICE SCREEN LINCOLN ELEMENTARY MERCURY RESPONSE GREEN BAY, BROWN COUNTY, WISCONSIN MARCH 2017



EISCREEN Report (Version 2016)



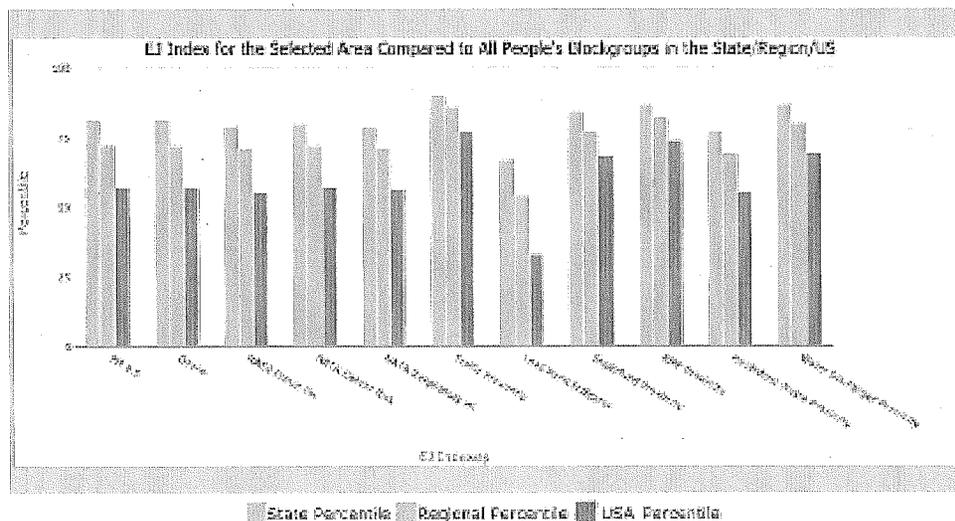
1 mile Ring Centered at [REDACTED] WISCONSIN, EPA Region 5

Approximate Population: 17,911

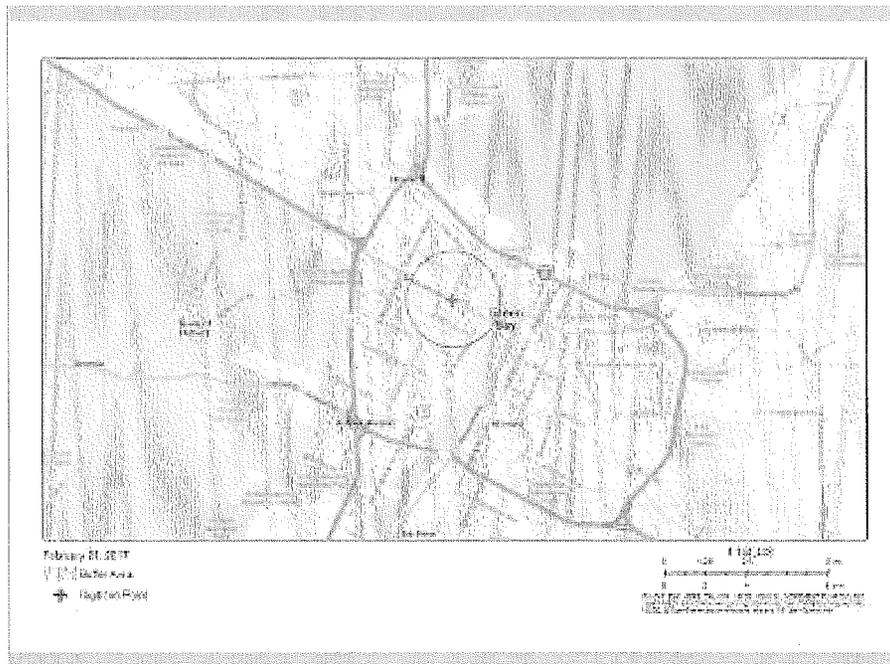
Input Area (sq. miles): 3.14

Lincoln Elementary Mercury Spill

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EI Indexes			
EI Index for PM2.5	81	72	57
EI Index for Ozone	81	72	57
EI Index for NATA ¹ Diesel PM	73	71	55
EI Index for NATA ¹ Air Toxics Cancer Risk	80	72	57
EI Index for NATA ¹ Respiratory Hazard Index	75	71	55
EI Index for Traffic Proximity and Volume	90	85	77
EI Index for Lead Paint Indicator	67	54	33
EI Index for Superfund Proximity	84	77	68
EI Index for RMP Proximity	87	82	74
EI Index for Hazardous Waste Proximity ²	77	69	55
EI Index for Water Discharger Proximity	87	80	65



This report shows the values for environmental and demographic indicators and EISCREEN Indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected blockgroup or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 25th percentile nationwide, this means that only 25 percent of the US population has a higher blockgroup value than the average person in the location being analyzed. The year for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EISCREEN documentation for discussion of these issues before using reports.



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0
National Pollutant Discharge Elimination System (NPDES)	0

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	3.03	3.48	24	10.6	7	3.32	39
Ozone (ppb)	45.1	48.3	20	50.3	12	47.4	38
NATA ¹ Diesel PM ($\mu\text{g}/\text{m}^3$)	1.01	0.655	90	0.93	60-70th	0.957	60-70th
NATA ¹ Cancer Risk (lifetime risk per million)	35	29	84	34	60-60th	40	>=0th
NATA ¹ Respiratory Hazard Index	1.9	1.3	89	1.7	70-90th	1.8	60-70th
Traffic Proximity and Volume (daily traffic count/distance to road)	480	300	83	370	81	590	77
Lead Paint Indicator (% Pre-1960 housing)	0.77	0.38	95	0.35	95	0.3	90
Superfund Proximity (1/5th closest/1/4th distance)	0.34	0.12	93	0.12	93	0.13	92
RMP Proximity (1/4th closest/1/4th distance)	2.1	0.55	95	0.51	95	0.42	95
Hazardous Waste Proximity ⁴ (1/4th closest/1/4th distance)	0.033	0.067	28	0.11	22	0.11	18
Water Discharger Proximity (1/4th closest/1/4th distance)	2.1	0.29	98	0.31	99	0.31	98
Demographic Indicators							
Demographic Index	34%	24%	90	29%	71	35%	55
Minority Population	23%	17%	78	24%	55	37%	44
Low Income Population	45%	31%	79	33%	73	35%	69
Linguistically Isolated Population	2%	2%	75	2%	68	5%	63
Population With Less Than High School Education	12%	9%	74	11%	54	14%	55
Population Under 5 years of age	7%	8%	65	8%	63	8%	61
Population over 64 years of age	12%	14%	41	14%	44	14%	48

¹The National-Cities Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to profile air toxics, identify sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risk over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <http://www.epa.gov/national-air-toxics-assessment>.

⁴The hazardous waste environmental indicator and the corresponding E-Index will appear as N/A if there are no hazardous waste facilities within 50 km of a selected location.

ATTACHMENT 4

ATSDR MERCURY ACTION LEVELS LINCOLN ELEMENTARY MERCURY RESPONSE GREEN BAY, BROWN COUNTY, WISCONSIN MARCH 2017

Action Level ($\mu\text{g}/\text{m}^3$)	Use of Action Level	Rationale for Action Level	Sampling Suggestions and other Considerations
Less than 1	Acceptable level for normal occupancy for most sensitive persons. No further response action needed	Experience has shown that response actions to reach levels lower than $1 \mu\text{g}/\text{m}^3$ can be disruptive enough to cause more harm than benefit. $1 \mu\text{g}/\text{m}^3$ is within an order of magnitude of health guidance values and indoor background levels. This concentration is 25 times lower than the concentrations referenced in the development of health guidance values.	No visible mercury; highest quality data. [*] Sampling in breathing zone of most sensitive person under normal conditions for use.
3-6	Acceptable level for unrestricted use of family vehicles under most conditions.	Exposure duration in most vehicles is short compared with other settings, allowing a higher concentration as the "floor" of this range. Requirement for no visible mercury means the source of vapors has been removed and concentrations should continue to fall. The "ceiling" of the range is based on the presumption that liquid mercury may still be present but not yet discovered.	No visible mercury; highest quality data. [*] Sampling in the passenger compartment under normal use conditions. Unusual use of the vehicle in this case would be extended family vacations.
3-6	Acceptable level to allow personal belongings to remain in owner's possession.	The sampling point suggested in the column to the right tends to concentrate the vapors higher than typical exposure conditions. Exposure frequency should be intermittent and	Survey instrument data generally acceptable. [*] Readings should be at the vents of appliances or headspace of bags. Bags should be warmed passively to ambient conditions and
		the duration should be short. The $6 \mu\text{g}/\text{m}^3$ is based on the possibility that liquid mercury is present but may not have been discovered.	appliances/ electronics should be at operating temperatures.
Greater than 10	Isolation of contamination from residents or evacuation of residents	Indications are that $10 \mu\text{g}/\text{m}^3$ may be the concentration at which urinary levels of mercury begin to increase. Other studies indicate this concentration may be the lowest toxic concentration (TCLo) for humans. Continued exposure may be harmful.	Survey instrument data acceptable. [*] Exposure to contaminant should be minimized.

1-3	Acceptable level for schools to resume normal operations.	Concentration is based on residential action level of $1 \mu\text{g}/\text{m}^3$ adjusted for a typical school day.	No visible mercury; highest quality data. Taken in breathing zone of most sensitive person under normal conditions for use. Pregnant workers and students should be offered temporary alternatives to working or attending the school.
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ATTACHMENT 5

**PHOTO LOG
LINCOLN ELEMENTARY MERCURY RESPONSE
GREEN BAY, BROWN COUNTY, WISCONSIN
MARCH 2017**



Photo 1: Vial of Mercury Recovered at Lincoln Elementary School

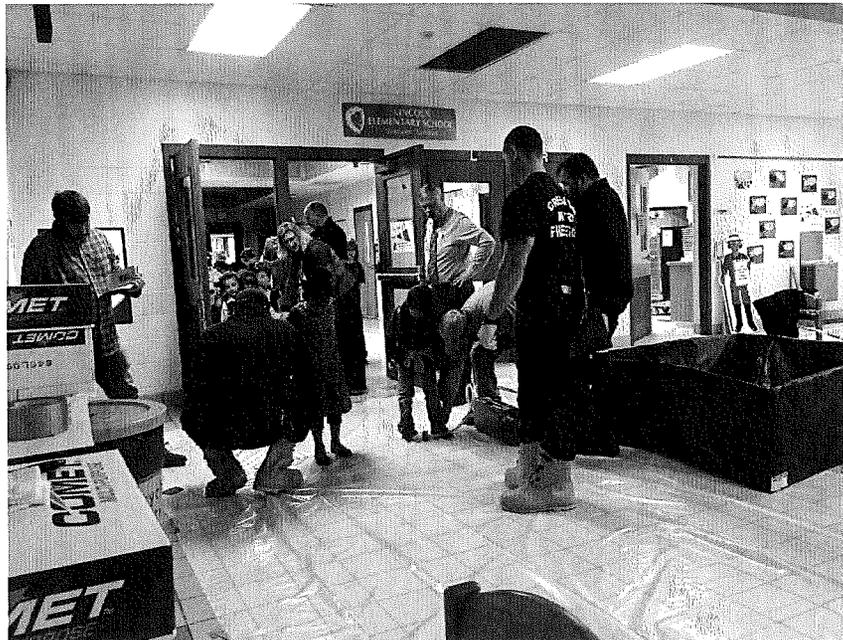


Photo 2: Screening students and children at Lincoln Elementary School



Photo 3: Bead of mercury on student desk at Lincoln Elementary School

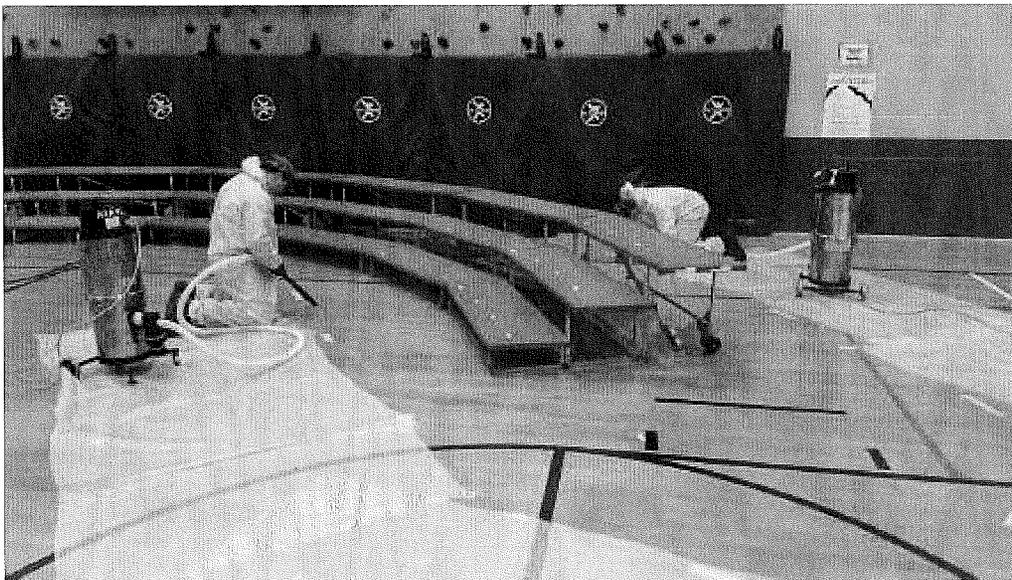


Photo 4: NSEC vacuuming mercury from Lincoln Elementary gymnasium floor

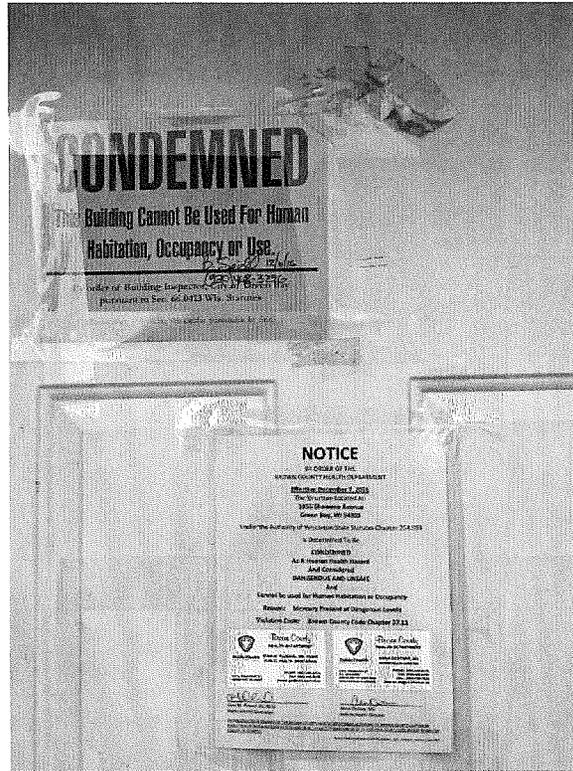


Photo 5: Brown County Health Department Condemnation Order at [redacted] Shawano Avenue

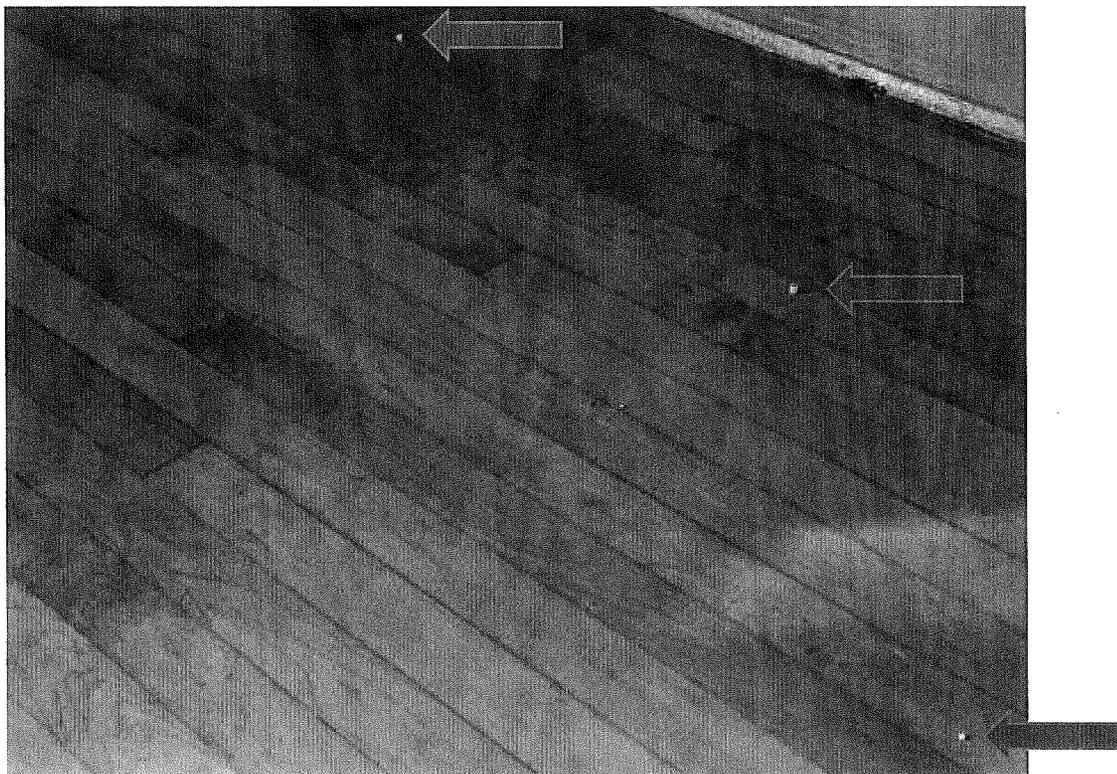


Photo 6: Beads of mercury on bedroom floor

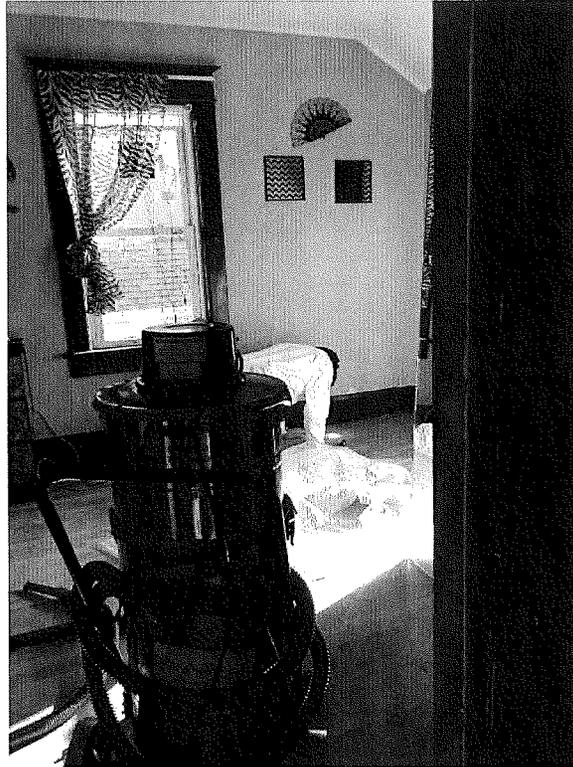


Photo 7: ERRS vacuuming mercury beads from floor of impacted residence

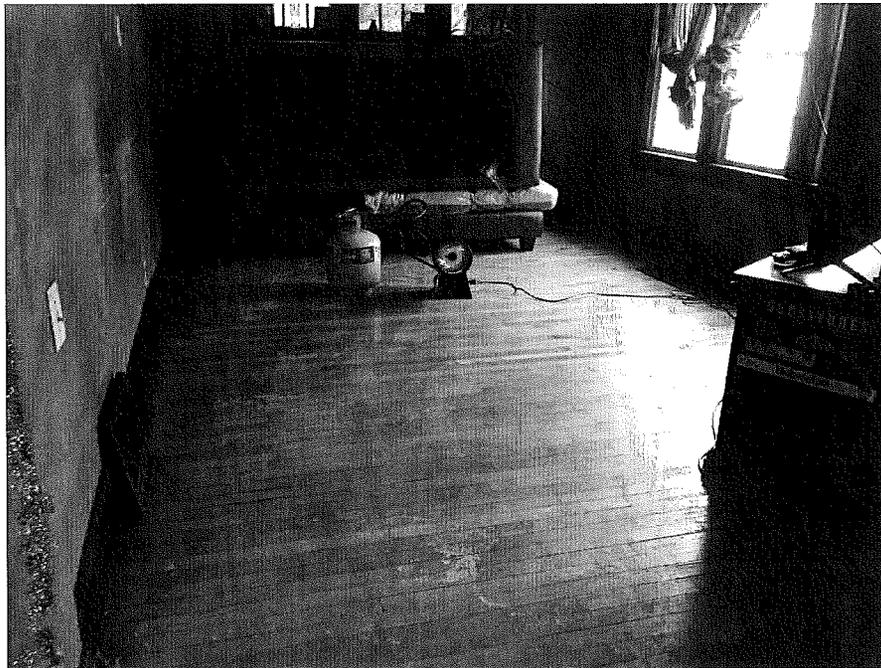


Photo 8: Heating after vacuuming and treatment with mercury decontamination solution



Photo 9: Mercury contaminated household items staged for additional screening, documentation, and disposal

ATTACHMENT 6

INDEPENDENT GOVERNMENT COST ESTIMATE

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NOT RELEVANT TO SELECTION

OF REMOVAL ACTION