

Colbert Mercury
OSC Eric Delgado



Colbert Mercury

- ⊕ On March 20, 2008, ODEQ notified the NRC which notified the EPA Region 6 Prevention and Response Branch of a release of mercury due to intentional vaporization at a private single-family residence in Colbert, Bryan County Oklahoma.

- ⊕ The two occupants of the residence who were intentionally vaporizing elemental mercury were hospitalized in Durant, Oklahoma from mercury vapor exposure related to the release.

Background

- ⊕ Two individuals in Colbert were utilizing elemental mercury to extract gold from circuit boards and gold plated jewelry
- ⊕ The individuals of the residence transported themselves to the local hospital in Durant, Oklahoma
- ⊕ The male occupant was transported to the ICU in Tulsa where he later died of respiratory failure.



External Agency Coordination

- ⊕ Poison Control Center
- ⊕ Bryan County Sheriff's Department
- ⊕ Oklahoma Drug Task Force
- ⊕ Bryan County Health Department
- ⊕ Oklahoma State Health Department

Extracting Process

- ⊕ On contact with mercury, gold “dissolves” and forms an amalgam.
- ⊕ The “leftover” unreacted mercury is separated off through a cheese cloth
- ⊕ The amalgam was placed over a double boiler to vaporize the mercury to isolate the extracted gold

Double boiler





Actions Taken

- ⊕ Interviewed the one of the occupants at the hospital
- ⊕ Personal items at the hospital were analyzed and found to be 10X the level for reuse.
- ⊕ Screened hospital for cross contamination

Actions Taken

- ⊕ Arrived at residence and performed air monitoring around the perimeter and inside the home
- ⊕ The team backed out when readings exceeded $100 \mu\text{g}/\text{m}^3$
- ⊕ The team opened up all windows to bring the vapors levels down ($10\text{-}25 \mu\text{g}/\text{m}^3$)

Actions Taken

- ⊕ The team located a cast iron skillet containing mercury
- ⊕ The team removed all furniture, appliances, clothing, personal items, carpet, and flooring to stage them outside for screening
- ⊕ The items were bagged and screened (25-100 $\mu\text{g}/\text{m}^3$) and prepped for disposal



Actions Taken



- ⊕ Disposed 70 yd³ of mercury contaminated material
- ⊕ Applied chelating agent to walls and surfaces
- ⊕ Conducted air sampling of indoor air
- ⊕ Analytical data showed that ambient air was 6 to 25 times higher than the ATSDR recommended level for habitation

Actions Taken

- ⊕ The mercury vapors had permeated the structure and the threat of environmental contamination was abated
- ⊕ Remedial actions to make the home habitable would be intensive and potentially destroy the building
- ⊕ EPA provided results to the County and Health Officials

Actions Taken

- ⊕ Revisited the site to present the data to the living homeowner
- ⊕ The family decided to demolish the home
- ⊕ The total cost of demolition was approximately \$4000
- ⊕ EPA and TCEQ organized a mercury collection effort that collected 500 lbs of mercury

Lessons Learned

- ⊕ Need to get the local and state health agencies involved
- ⊕ EPA gets involved in residential mercury spills to prevent contamination to the environment
- ⊕ What do we do when the building itself is the source of contamination to the ambient air inside the home and is no longer a threat to the environment

Referral - Health Dept Listing Letter

HANCOCK COUNTY DEPARTMENT OF HEALTH

ROOM 105 COURT HOUSE

9 East Main Street

GREENFIELD, INDIANA 46140

RAY A. HAAS, M.D.
HEALTH OFFICER

TELEPHONE 462-1125
462-1127
462-1128

August 14, 2000

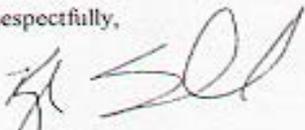
Steven L. Renninger
On-Scene Coordinator
USEPA Region 5
Superfund Division (B-2)
Emergency Response Section 1
26 W. Martin Luther King Drive
Cincinnati, OH 45268

Re: 69 South 400 East, Greenfield, IN 46140
222 East McKenzie, Greenfield, IN 46140*

Mr. Renninger,

The Hancock County Department of Health has identified residents and homes that likely were involved with mercury contamination. The listing of addresses above will give you specific addresses identified in our initial investigation. We refer these potentially exposed areas to you. Please contact us if you require any additional information.

Respectfully,


Kyle Schrink
Environmental Health Specialist
Hancock County Department of Health

cc: Ray A. Haas MD, Health Officer

Recon - Air Results & Health Dept Actions



Example action levels utilized in Ohio & Indiana (provided by ATSDR)

Table 1
SUMMARY OF ACTION LEVELS

Action Level	Mercury Vapor Levels	Immediate Action	Decontamination Procedure
Level 1	Greater than 10 $\mu\text{g}/\text{m}^3$	Relocate residents immediately.	Remove all potential sources of contamination including carpets, furniture, linoleum, floor tile, clothes, food, etc. Scrub all non-porous surfaces with a solution of HgX (MercX) TM powder and water. HgX(MercX) TM bonds to and breaks down mercury into a harmless compound. Heat the residence overnight, ventilate, and conduct air sampling.
Level 2	Between 0.31 and 10 $\mu\text{g}/\text{m}^3$	Schedule relocation for the residents as soon as possible.	Search all areas for potentially contaminated items and dispose of any items with mercury contamination. Remove all carpeting. Scrub all non-porous surfaces with a solution of HgX(MercX) TM powder and water. HgX(MercX) TM bonds to and breaks down mercury into a harmless compound. Heat the residence overnight, ventilate, and conduct air sampling.
Level 3	Less than 0.3 $\mu\text{g}/\text{m}^3$	No action necessary.	None.

Key: $\mu\text{g}/\text{m}^3$ = Micrograms per cubic meter.

Source: Ohio Department of Health and the Agency for Toxic Substances and Disease Registry established the mercury vapor action levels and U.S. EPA established the decontamination procedures.

Options for locals to respond

- ⊕ Monitoring instruments can be procured with Homeland Security money
- ⊕ Federal funds are available to local governments for costs related to temporary emergency measures conducted in response to releases or threatened releases of hazardous substances. These funds are available through the Local Government Reimbursement (LGR) Program

Options for locals to respond

- ⊕ The LGR provides supplemental funding to local governments that need assistance in paying for emergency response actions. Eligible local governments can submit applications to U.S. EPA for reimbursement of up to \$25,000 per incident.
- ⊕ If you have questions about the LGR Program and how it works, call the LGR HelpLine at (800) 431-9209 or e-mail questions to lgrinfo@epa.gov.

<http://www.epa.gov/superfund/programs/er/lgr/lgrfaqs.htm>

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