

# Project Profile



HS

## Health & Safety Highlights

<b>Location</b>	Residential dwelling in Cape Coral, Florida
<b>Contract Type</b>	Health and Safety Plan
<b>Date of Performance</b>	January 2009
<b>Eagle-SWS Role</b>	Health and Safety Plan, Mercury Remediation

**Description:** Eagle-SWS was retained by Countrywide Residential Mortgage to conduct a survey for suspect mercury contamination within a single dwelling located in Cape Coral, Florida. The dwelling was vacated as a result of repossession. The prior occupants had established a clandestine marijuana growing operation and mercury had been observed in this dwelling's master bedroom. The building had been vacant 6-9 months prior to Eagle-SWS's arrival on December 15, 2008 to conduct this survey. All electric power had been disconnected from the dwelling for an unknown period of time.

Mercury is one of the few metals which liquid at room temperature that constantly emits vapors, the amount depending mostly on temperature and droplet surface area. Mercury evaporates very slowly, but the vapors can pose a chronic hazard at very low levels. Very high exposures to mercury vapor can cause acute poisoning and even death. Symptoms usually begin with cough, chest tightness, difficulty breathing, and upset stomach. Acute inhalation of mercury vapor may result in chills, nausea, general malaise, tightness in the chest, chest pain, difficulty breathing, cough, kidney damage, stomatitis, gingivitis, salivation, diarrhea, and death.

Mercury is considered a systemic poison and the routes of exposure include inhalation, ingestion and absorption. The most common route of exposure for elemental mercury is inhalation. The most common route for of exposure for organic mercury is ingestion. Mercury has a delayed burning sensation to the skin and eye of several minutes up to several hours. The central nervous system is very sensitive to mercury vapor. Mercury is toxic through inhalation, by ingestion and to a lesser degree, skin contact. Children, pregnant women and the elderly are most susceptible to the toxic effects from exposure.

Several approaches must be taken when dealing with mercury contaminated dwellings. The health and safety of individuals exposed or potentially exposed is the first priority when a mercury spill occurs. Performing the following activities will help to reduce the danger posed by mercury vapors located at this property. All access should be restricted or prohibited at this property and re-entry should not be permitted without appropriate personal protective equipment (PPE) and personnel training.

Upon arrival of a spill response team, the property should be re-evaluated using a Mercury Vapor Analyzer (MVA) to ensure contaminated areas where airborne mercury vapor concentrations are suspected is consistent with this survey. All contaminated areas should be identified as the "hot zone." Protect unaffected areas of this property from hot zone through the use of 6 mil poly sheeting.

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All HVAC ducts shall be sealed and secured. Spill response team should further prepare the property for mercury abatement activities so that cross contamination is avoided through the use of control zones including a contamination reduction corridor. No person should enter this “hot zone” unless trained and protected with a minimum of OSHA Level C protection.

In regards to Eagle-SWS’s response to the dwelling in Cape Coral, the purpose of this survey was to provide general information for the dwelling regarding the visible presence of mercury of accessible and/or exposed building materials. Visible mercury had been identified to be present in the master bedroom, garage, and outside driveway. Furthermore, the goal of this survey is to determine whether this dwelling would be considered habitable based upon indoor air quality criteria established by the Florida Department of Environmental Protection (FDEP). FDEP has adopted standards recommended by the United States Environmental Protection Agency, (U.S. EPA) and Agency for Toxic Substances and Disease Registry, (ATDSR) listed at 1ug/m<sup>3</sup> when analyzed using direct reading instrumentation such as a Lumex® MVA.

MVA analysis confirmed the following areas contain greater than 1ug/m<sup>3</sup> of mercury in ambient air: entry way, master bedroom, master bathroom, master closet, both living areas, dining area, kitchen, garage, and utility room.

Mercury analysis is generally conducted over a series of steps in order to ensure safety.

- Step 1 - Removal of Visible Mercury:
  - Physically remove all visible mercury using approved mercury specific vacuum.
  - Wash impacted area with mercury suppression solution.
  - Dispose of mercury in accordance to local, state and federal regulations.
  - Remove filters from HVAC. And evaluate decontamination or replacement of HVAC system.
  - Due to history of this property it would be recommended to remove all drain traps and replace.
- Step 2 - Removal of Porous Materials:
  - All carpeting within hot zone should be removed and properly disposed in accordance with local, state and federal regulations.
  - Curtains within hot zone shall be removed and disposed in accordance with local, state and federal regulations.
  - Any other item considered fabric or porous should be removed and disposed in accordance with local, state and federal regulations.
- Step 3 - Structure (Hot Zone) Decontamination:
  - Wash all structure components areas with mercury vapor suppression solution.
  - Allow for appropriate reaction time for mercury vapor suppression solution to work.
  - Rinse all areas with clean, clear water and change often.
  - With Hot zone secured and sealed Heat air to a temperature of at least 80 degrees Fahrenheit for 8 hours.
  - Ventilate Area for 24 hours.

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- Re-screen for mercury vapor as appropriate.
- If screening is above action levels, a mercury source likely still exists.
- If screening is below action levels, consider heat/ventilate cycles.
- Screen using MVA both impacted and non-impacted areas to measure effect of decontamination.
- Maintain records of screening location(s) and changes over time; along with any activity(s) that may have occurred to cause such as change.
- If screening is well below action levels, sampling may be conducted.
- Laboratory air sampling should be conducted utilizing modified NIOSH Method 6009. The analytical method detection limit should be set at 0.1 ug/m<sup>3</sup>. Using an individual, under the direction of a CIH, collect samples from 3 – 4 feet above floor (breathing zone for children) for 8 hours in each of the identified areas of decontamination.
- Repeat cleanup action of heating, ventilating and testing until occupancy levels are achieved.
- Driveway (Hot Zone) Decontamination:
  - Physically remove all visible mercury using approved mercury specific vacuum.
  - Sample soil adjacent to driveway to determine the extent of contamination. If contamination is above the residential cleanup target levels, excavation and disposal is recommended.

The following scope was utilized during this specific survey:

- An inspector credentialed as a Certified Industrial Hygienist, (CIH) as certified by the American Board of Industrial Hygiene and as a Certified Hazardous Materials Manager, (CHMM) as certified by the American Board of Hazardous Materials Managers, conducted a visual survey of the property to identify suspect mercury
- Conduct an ambient air sampling throughout property using a Lumex® MVA
- Quantify all suspected mercury materials
- Preparation and submission of this report, which includes a summary of all ambient air readings obtained during this survey, recommendations, photographic documentation of the survey, inspector certification, and USEPA guidance documentation.

This particular survey was generally conducted in phases:

- Phase 1 - Information Gathering: Drawings, floor plans and historical data are obtained through interview or made available on site for history and layout of the facility. This data was used to focus the walk through and scope of work to be followed over the course of our visual inspection and sampling.
- Phase 2 - Visual Inspection: A visual inspection of the property was conducted to identify, quantify and assess the extent of suspect mercury. The inspection team accessed each area/inhabitable room and recorded the presence of visual mercury.
- Phase 3 - Sample Collection: Airborne concentrations measured within the space using a Lumex® MVA. Measurements were conducted in the center of each respected room and within the breathing zone and within 0-4 feet from the surface of the ground. Average readings from every three results every 10 seconds were recorded. SWS conducted inspection of areas

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representative of living space within the area. SWS conducted assessment of areas representative of living space within the area.

- Phase 4 - Project Report: This report outlines the assessment findings based on the interviews, field observations and testing results. The report also discusses other observations concerning the property which would identify conditions which would contribute to further contamination of the property. Finally, this report includes a discussion of the results and recommendations for remedial action. The visual inspection and sampling activities were conducted on December 15<sup>th</sup>, 2008 by SWS. Prior to commencement of mercury survey activities, Countrywide provided site contact information and assisted in providing access to the facility. A visual inspection and sampling survey of the property was conducted in accordance to generally accepted industry standard practices. Mr. Val Garner, CHMM, CIH and Mr. Marty Searcy of SWS performed the mercury survey. An initial property walkthrough was conducted to determine the presence and approximate quantities of suspected mercury which was accessible or exposed to each habitable area.

The survey was completed and a recommendation to perform remediation services to remove mercury contamination was made to Countrywide.