United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Saturday, October 10, 2009
From: Matthew Huyser, OSC

To: Matt Taylor, USEPA R4 ERRB Shane Hitchcock, USEPA R4 ERRB

Subject: Impacted Conveyor
FedEx Mercury Spill
2903 Sprankle St, Memphis, TN
Latitude: 35.0645607
Longitude: -89.9661307

POLREP No.:	3	**Site #:**	
Reporting Period:	10/10/2009 0600 to 10/11/2009 2400	**D.O. #:**	
Start Date:	10/8/2009	**Response Authority:**	CERCLA
Mob Date:	10/8/2009	**Response Type:**	Emergency
Demob Date:		**NPL Status:**	Non NPL
Completion Date:		**Incident Category:**	Removal Action
CERCLIS ID #:		**Contract #**	
RCRIS ID #:			

Site Description
See site description from POLREP #2 dated 10/9/2009.

Current Activities
USES continued remediation activities through the night from 10/9/2009 to 10/10/2009 of the floor and scale where the impacted AMJ was located. EPA and START arrived at 0600 on 10/10/2009 to begin screening for further hotspots and assess the progress of remediation efforts. Although it was determined on 10/9/2009 that the building bay doors would be closed following the night sort and up until the day sort to reduce air flow for screening of hotspots, the bay doors were not closed until 0700 and had to be reopened by 0800 to prepare for the day sort. Mercury vapor levels on the scale and floor grate in the impacted AMJ area averaged below 5,000ng/m3 with small hotspots of 30,000ng/m3. Based on earlier levels measured at the scale, decon activities appeared to be successful and were encouraged to continue to reach acceptable vapor levels of 3,000ng/m3.

A sample of in-transit packages was collected and bagged from piles being temporarily set down by employees on chutes connected to impacted conveyor R2. Two of the packages measured mercury levels above 30,000ng/m3; the in-transit packages from those chutes (numbers 22 and 30) were bagged and FedEx ceased use of the chutes by employees to set packages on. At 1300hrs, OSC Huyser consulted with ATSDR and EPA's Technical Services Section (TSS) to determine that the in-transit packages from these chutes, which had been bagged, could be repackaged with a FedEx procedure that would dispose of the exterior packaging and prevent contact to the inside contents during transfer. USES decontaminated chutes 22 and 30 using a mercury vacuum and HgCS102 solution; the chutes were rescreened by START mercury vapors had been reduced below 3,000ng/m3. The chutes will remain unused until closure procedures are complete.

At 1015hrs, 10 empty boxes were placed on conveyor section R2-10; this section consists of steel slats measuring approximately 4"x36" and 1/2" gap between them, each slat having a rubber "shoe" used to push packages off the conveyor. The boxes were allowed to travel down the conveyor's 400' length. The boxes were then bagged and screened; mercury vapors from the first thee boxes exceeded 50,000ng/m3. START conducted a comprehensive screening of conveyor R2 and identified several short hotspots which measured between 10,000ng/m3 and 25,000ng/m3, and a 30' length with multiple areas exceeding 50,000ng/m3. Initial observations suggested that the readings resulted from mercury in troughs below the conveyor surface where material could fall between the 1/2" gaps. However, when the conveyor was turned for a 50% revolution, the targeted troughs measured below 1000ng/m3 – indicating that only the previously identified metal strips and/or shoes were impacted.

At approximately 1130hrs, EPA conducted an initial screening of the R2 conveyor upstream of section R2-10 and discovered a length of conveyor measuring 1000'-1500' feet and 4 stories high that was contaminated up to and beyond vapor levels of 50,000ng/m3. Several small mercury beads were identified on the edges of several rubber conveyor belts, in catch pans between belts, and between steel rollers. A second screening of the upstream conveyor identified the initial source leak point, determined by a drastic drop in levels from above 50,000ng/m3 to below 1500ng/m3 over a short distance.

A command staff meeting was held at 1400hrs to identify tasks that had been completed, ongoing activities and needed resources to support them, and new objectives from latest results. The following is a prioritized list of the operational objectives which were identified:

1. Conveyor R2 - Conduct decon of conveyor section R2-10 (400' foot section of steel slats) by removing the individual steel sections and the rubber shoe, then wiping with HgCS102 solution. USES will implement a decon process for the rubber belts along the 1000'-1500' upstream on R2 (sections R2-9, R2-8, R2-7… etc.) that will likely include replacement of the belts. The R2-8 through R2-10 sections will be the most critical because they are capable of being utilized in a modified mode while the upstream rubber belts are addressed. EPA pointed out that a testing procedure is necessary to determine whether decon of conveyors is successful, with emphasis given to evaluating cross-contamination of in-transit packages along the conveyor(s) during operation.
2. Bagged In-Transit Packages - Repackaging of these in-transit packages was conducted according to the procedures determined by FedEx and agreed upon by EPA at 2100hrs.
3. Floor and Chute - The floor drains were opened and cleaned manually. USES will move a majority of its resources to Conveyor and R2 and will allow the the floor, chute, and scale at the original source package location to aerate. Perimeter monitoring will be conducted by START at regular intervals. Continued decon efforts of the scale will occur as resources allow.

FedEx contracted CTEH, who arrived at 2330 on 10/10/2009, to provide remediation consultation, personnel air sampling, and further air monitoring. USES conducted remediation of 10' rubber conveyor sections R2-9 and R2-8 through Saturday night with CTEH assistance.

On the 10/11/2009 at 0700 FedEx, EPA, START, CTEH, and USES met to discuss the work accomplished over the preceding 10 hours and determine what would be required to remediate and open R2-8 through R2-10. During the night, conveyors R2-8 and R2-9 were cleaned of gross contamination by USES, dismantled by FedEx, and cleaned extensively by USES using the mercury vacuum and HgSC102 solution. CTEH had established perimeter air sampling stations and personal air samplers on work crews. After the conveyors were allowed to dry, CTEH determined that the remediation was successful on those sections and FedEx began installing new rubber belts; EPA and START were able to confirm, during the new surface installation, that mercury vapor levels from R2-8 and R2-9 were below 1000ng/m3.

CTEH and START reassessed the conveyor R2-10 and reconfirmed that a 30' length was impacted by measuring levels of mercury vapor of that section with a range of 5000ng/m3 to 35,000ng/m3. USES began decontaminating R2-10 by removing the 4"x36" steel slats and hand washing them in a 5-gallon bucket of HgCS102 solution. CTEH measured mercury vapor levels from the slats with a Lumex after they dried. EPA requested that CTEH also measure the void space beneath the conveyor while it was more easily accessible when slats were removed. CTEH initially determined that 1000ng/m3 would be the target cleanup level of the steel slats, measured by screening with a Lumex above the slat. START conducted regular air monitoring of breathing zones throughout the building, and oversight monitoring of the conveyor decon activities.

At 1200hrs, OSC Huyser held a conference call with ERRB management, OEA, TSS, and ATSDR to discuss the site situation, key matters of concern that may not have bee addressed, and potential oversight mechanisms beyond an emergency response phase. ATSDR and TSS provided several suggestions for items to incorporate into a draft decon and clearance testing procedure that could then be provided to USES and CTEH. Based on that discussion, START began drafting a written procedure which was reviewed and commented on by ATSDR and TSS. The determined objective for clearance testing of the belts was to ensure that no packages traveling on the conveyor(s) would be impacted with mercury at levels which it could be measured above 10,000ng/m3. The draft procedure was provided to CTEH for consideration and was adopted as an appropriate method.

Decon of the steel slat conveyor section R2-10 was completed in the evening on 10/11/2009 and allowed to run at operating speed for at least one hour. Mercury vapor levels directly above the conveyor while it operated and warmed were similar to ambient levels. A clearance test was attempted at 2000hrs. The test consisted of 10 prescreened boxes placed on the conveyor at the beginning at intervals representing

10% of the conveyor rotation period. The boxes traveled with a contact time of 45 seconds to the end of the conveyor, where they were removed and bagged. The boxes remained in the bags for 10 minutes, and were then screened with a Lumex. Mercury vapor levels from the boxes measured below 1000ng/m3 for six, above 2000ng/m3 from two, above 5000ng/m3 from one, and above 26,000ng/m3 from one. Due to the box that measured 26,000ng/m3, CTEH and EPA recommended that further decon of the conveyor would be necessary.

USES mobilized additional crews on 10/11/2009 and established a consistent day shift an night shift with 12-hour operational periods. Decon activities on conveyor section R2-10 began again that evening after the failed test. EPA recommended removing as many of the metal slats as possible from the 30' affected area, as well as from an additional 10'-20' on either side, then establishing an outdoor decon line where binding solution and/or heat could be aggressively applied. FedEx and USES elected to set up and run the decon from a maintenance area on the catwalk adjacent to the belt (layers of plastic sheeting was used to prevent solution or other materials from falling through the floor grating); the decon procedure was similar to the one conducted before the first box test, but it included scrubbing, regularly refreshed HgCS102 solution, avoided submersion of slats in previously used solution, and replacement of the shoe.

Planned Removal Actions

- Assess extent of migration of mercury; (ONGOING)
- Ensure safety of response and facility personnel; (ONGOING)
- Conduct oversight of removal activities; and, (ONGOING)
- Support removal activities with air monitoring and technical assistance where needed. (ONGOING)

Next Steps

Conduct decon of conveyor section R2-10 (400' foot section of steel slats) by removing the individual steel sections and the rubber shoe, then scrubbing with HgCS102 solution and replacing the shoe. USES will simultaneously implement a decon process for the rubber belts along the 1000'-1500' upstream on R2 (sections R2-9, R2-8, R2-7… etc.) that will likely include replacement of the belts.

Decon of the floor and scale where the source package was discovered has ceased for the time-being until conveyor sections R2-8 through R2-10 are operating. START found several hotspots on the affected scale with mercury vapors above 30,000ng/m3, but noted that the breathing space in the same area was below 3,000ng/m3. The area remains segregated by caution tape and cones; FedEx employees in the building have been briefed on the situation and told to not enter the area.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
TAT/START	$10,000.00	$0.00	$10,000.00	100.00%
Intramural Costs				
Total Site Costs	$10,000.00	$0.00	$10,000.00	100.00%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. 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.