

**United States Environmental Protection Agency
Region IV
POLLUTION REPORT**

Date: Tuesday, May 12, 2009

From: Matthew Huyser

Subject: Continued Investigation
Smokey Mountain Smelters
1508 Maryville Pike, Knoxville, TN
Latitude: 35.9191830
Longitude: -83.9264810

POLREP No.:	3	Site #:	A4MD
Reporting Period:	4/27/2009 - 4/30/2009	D.O. #:	
Start Date:	11/18/2008	Response Authority:	CERCLA
Mob Date:	11/17/2008	Response Type:	Time-Critical
Demob Date:		NPL Status:	Non NPL
Completion Date:		Incident Category:	Removal Action
CERCLIS ID #:	TND098071061	Contract #	
RCRIS ID #:			

Site Description

See POLREP #1 for site description and background information.

Current Activities

OSC Huyser, EPA ERT, REAC, START and ERRS mobilized to the Site on April 27, 2009, to begin the integrated sampling event that will provide (1) data to complete the Hazard Ranking System package for RPM Nolen, and (2) data to characterize the reactivity of dross wastes for the ongoing removal action. From April 27 to 29, the following samples were collected:

- Surface soil samples yards in the Knoxville Community Development Corp.'s Montgomery Village, located across the railroad line from the Site, to determine if airborne contaminant deposition occurred from the previous aluminum smelting operation at the Site
- Approximately 9 residential drinking water wells to determine if groundwater contamination was present and available from the previous agricultural chemical manufacturing operation at the Site
- Surface water samples at the leachate seep and downstream of the leachate seep from the Site to measure increases or decreases in discharge of contaminants
- Sediment samples at the leachate seep and downstream of the leachate seep from the Site to measure increases or decreases in discharge of contaminants
- Waste samples from the dross, saltcake and leachate to determine the presence and concentration of hazardous substances
- Waste samples from the dross piles at varying depths to evaluate the material for reactivity and treatability

ERRS assisted EPA ERT with collecting samples from the dross piles by digging trenches into the piles with a miniature excavator. The operation generated mild clouds of dust and the operator wore level C protection. A strong ammonia odor was observed when the pile was opened. EPA provided a MultiRAE meter with NH3 Ammonia sensor to monitor the air for ammonia releases; the device consistently read 0 ppm NH3 in the breathing zone and never exceeded 1 ppm NH3 in the breathing zones both near the pile and while walking onto the pile. Significantly higher readings of ammonia were observed when the monitoring instrument was placed closer to the pile (Table 1).

TABLE 1 – Ammonia (NH3) Readings on Dross Piles

Large Pile, SE Corner	NH3 ppm	Small Piles, North Wall	NH3 ppm
Adjacent Headspace	0	Adjacent Headspace	0
Crevice at waist height	45	Crevice at waist height	37
Crevice at ankle height	60	Shovel full	38
Fresh hole, 1-ft deep	32	Fresh hole, 1-ft deep	94
Fresh hole, 2-ft deep	140	Fresh hole, 2-ft deep	127

Work that was completed by ERRS crews in January, 2009, was inspected on April 28 to determine whether the access and security measures were effective. The driving paths and parking areas were stable and functional; it may become overgrown by summer of 2010 if the paths remain unused. All of the signs that had been installed were standing and visible. The gate was securely locked, and none of the repaired holes in the perimeter fence had been breached. Finally, the piles of vegetation that had been constructed were undisturbed and foliage was growing throughout them to make access more difficult. No worn paths were found leading into the facility and no new signs of trespassing were observed.

Planned Removal Actions

- Install security measures to prohibit access to the Site by unauthorized personnel (COMPLETE)
- Investigate the nature and extent of waste materials dumped at the Site, and hazardous substances, pollutants, and contaminants being released from the Site, including control measures to prevent future releases (ONGOING)

Next Steps

EPA ERT will conduct treatability and reactivity studies on the aluminum dross waste. Analytical data from samples collected will be returned and reviewed by mid-May.

Key Issues

Several small “pops” or “cracks” were observed when the large dross pile in the southeast corner of the building was excavated. The intensity and sound was approximately 20% of a small firecracker; no flames or fires were observed and the only visual indications were miniature dust clouds that produced by the reaction. The reactions began when excavation was initiated and continued for several hours after excavation ceased; they did not increase or decrease in frequency when excavation paused or restarted. The interval between reactions was approximately 30 to 60 seconds. One current hypothesis for what causes the reactions is: *the pile may contain small pockets of hydrogen at concentrations above it's UEL. When the pile is opened, the hydrogen would mix with air to reach the explosive range between LEL and UEL. The gas could then be ignited by heat generated from dross reacting with moisture in the air.*

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