U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Bennett Landfill Fire - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: **POLREP #13**
Completion of Final Clay Cap
Bennett Landfill Fire
B44Y
Chester, SC
Latitude: 34.7874300 Longitude: -81.4502500

To:
From: Perry Gaughan, OSC
Date: 8/14/2015
Reporting Period: 8/7/2015 - 8/14/2015

1. Introduction

1.1 Background

Site Number:	B44Y	**Contract Number:**	EP-S4-07-02
D.O. Number:	0134	**Action Memo Date:**	4/30/2015
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	5/26/2015	**Start Date:**	5/26/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	SCN000402727	**RCRIS ID:**	
ERNS No.:	1100014	**State Notification:**	11/2/2014
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
Time-critical removal action.

1.1.2 Site Description
The Bennett Landfill Fire Site is a former construction debris and nonhazardous industrial waste landfill (defined by state regulations as a Class II landfill) that was additionally permitted to accept certain types of asbestos waste.

The landfill ceased accepting waste in 2014. On November 2, 2014, the landfill was found to be on fire and was believed to have been extinguished by November 7th. Due to increasing smoke concentrations in January 2015, SCDHEC requested that the EPA conduct a Removal Site Evaluation (RSE). EPA signed an Action Memorandum on April 30, 2015 to conduct a Time-Critical Removal Evaluation and mobilized to the Site to begin removal activities on May 26.

Additional information for this section is available in POLREP #4 from 6/5/2015.

1.1.2.1 Location
The Site is located at 4399 Pinkney Road, Chester, Chester County, South Carolina. The geographic coordinates of the Site are 34.7874300 degrees north and 81.4502500 degrees west.

Additional information for this section is available in POLREP #4 from 6/5/2015.

1.1.2.2 Description of Threat
The fire at the Bennett Industrial Landfill is actively releasing chemical compounds into the air, including benzene and formaldehyde, which are measured near the fire at concentrations exceeding industrial RMLs for air and concentrations within the surrounding community that are greater than three times the residential RSL. Conditions at the Site, if not addressed, will continue to deteriorate over time and resulting in increasing quantities of exposed asbestos which are susceptible to transport by wind and other weather conditions to the nearby population.

Additional information for this section is available in POLREP #4 from 6/5/2015.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results
Additional information for this section is available in POLREP #4 from 6/5/2015.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

ERRS contractors temporarily demobilized from the Site on 8/7/2015 for a brief period and remobilized to the Site on 8/11/2015. A rainfall event of 0.4" on 8/11/2015 caused minor rill erosion on some working surfaces of the Site and re-filled the detention pond with water but did not cause damage to the landfill face. On 8/12/2015, ERRS crews resumed work which included installation of the fourth and final 6" clay layer on the landfill face. Other work included repairs to access roads which were impacted with water and construction of a small diversion berm to prevent runoff from the undisturbed north slope of the site from discharging to active working areas. By the morning of 8/14/2015, the final clay layer on the landfill face was complete.

START's engineer developed a design for the proposed slope of the designated asbestos cell cover and a drainage path between the asbestos cell and the landfill face. START and ERRS crews arrived the afternoon of 8/11/2015 to install grade stakes around the KNOLL BORROW ZONE in order to delineate the shape of the drainage path. A discrepancy of 5-8 ft between the true existing grade and the marked existing grade developed from the June aerial overflight was discovered in this area. START subsequently identified discrepancies between two ground control point elevations and the drawn elevations from aerial overflight data. START will pursue modification to the grade elevation data.

On 8/12/2015, ERRS crews began removing soil from the KNOLL BORROW ZONE and relocating the soil to the immediately adjacent top surface of the designated asbestos disposal cell. At the south end of the KNOLL BORROW ZONE where the access road begins to reach the toe of the landfill face, ERRS crews uncovered roofing materials below the roadway and other materials which were suspected to contain asbestos waste. Excavation in this area at the south end of the zone ceased and a bulk sample of suspected asbestos containing material was collected for laboratory analysis.

A work plan for asbestos activities was developed and distributed to ERRS and START for finalization. The work plan includes procedures that mostly restrict asbestos waste disturbance and define methodology by which fill and cover material will be installed from the perimeter, ensuring that equipment does not have to come in contact with asbestos waste. Materials will be wetted throughout all operations and daily air samples will be collected. Work will proceed with Level D PPE unless asbestos fibers above 0.01 f/cc are detected in a daily air sample; if this occurs, PPE will be upgraded to Level C and a personnel decontamination system will be installed.

START contractors continued to collect data from the subsurface air monitoring wells along the northern and eastern edge of the landfill face. Oxygen concentrations remain at or near zero in all four monitoring wells. Methane and Temperature readings also remain constant. A slight increase in Hydrogen Sulfide was observed in all four wells from the previous week. The Balance gas in wells 1, 3, and 4 remain constant from previous readings, but the Balance gas in well 2 has increased from 20% in previous weeks to above 30% beginning 8/12/2015; the goal for Balance gas is below 20%. The increase in Carbon Monoxide that was observed in the previous week was confirmed from 8/12/2015-8/14/2015 and the discrepancy between the Landtec and MultiRAEpro devices may have been corrected (this issue is discussed in Section 2.2.1.2).

On 8/13/2015, a Site visit was held with the EPA R4 ERRP Branch Chief, the City of Lockhart Mayor, and several managers and directors from SCDHEC. The meeting included a tour of the Site and discussions regarding the completion conditions of the Site at the end of the removal action. The removal action will continue to focus on completion of encapsulating the former burn area and the designated asbestos disposal cell. Air monitoring wells will be closed at the end of the removal action. Additional cover on the top of the landfill, including reduction of waste piles at the northeast corner, will be addressed based on available time and resources following the completion of these objectives.

2.1.2 Response Actions to Date

- May 25-29: ERRS mobilization, site preparation (access roads, entrance**,** trailer, work zones)
- June 1-2: Grading and wetting burned area
- June 3: First record of no morning smoke observed
- June 3-5: Continue grading and wetting burned area. Moved cover soils from borrow area to burned area
- June 5-26: Continue grading and covering operations.
- June 16: Exhausted stockpile of cover soil at top center of Site
- June 26 Initial cover soil installation completed.
- June 29 Initial six inches of clay cap begun. Completed on July 3rd.
- July 2nd Three additional gas monitoring wells installed to monitor landfill carbon monoxide and temperatures near former burn area.
- July 13-17: Began removal of trees and topsoil from West Ridge Borrow Zone
- July 14: Exhausted Old Yard Stockpile at the south side of the Site
- July 14-17: Begin installation of second 6" clay layer on burn area
- July 20-22: Complete second 6" clay lift on burn area
- July 22: Conducted compaction testing by PSI Inc - 30 of 34 grids passed
- July 23: Begin installation of third clay layer on landfill face area
- July 28: Complete excavation of 3 vertical feet of sediment from detention pond
- July 29: Consultation with Clemson University Extension Office for Soil quality and vegetation
- July 27-31: Continue installation of third clay layer on landfilled face area reaching 90% completion
- Aug 6: Conducted round 2 of compaction testing, 27 of 28 grids passed.
- Aug 14: Completed fourth and final clay layer on the face area
- Aug 12: Begin removal of Knoll Borrow Zone
- Aug 12: Begin initial cover installation on Asbestos Cell

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Information for this section is available in POLREP #4 from 6/5/2015.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Start Date*	*Treatment*	*Est. % Complete*
Burning Area	Debris	Approx 3.0 acres	6/1/2015	Cover	18" of cover soils completed on 6/26. Initial clay cap completed 7/3. Final clay cap completed 8/14. (topsoil remains)
Asbestos Cell	Debris	Approx 19,500 CY	n/a	Regrade & Cover	20% of initial cover installed by 8/14/2015

2.2 Planning Section

2.2.1 Anticipated Activities

The first priority of the removal action will be to address the burning debris pile by installing a soil cover. Isolation of the burning material and reduction of oxygen supply will significantly reduce emissions from the smoldering fire. The second priority of the removal action will be to address the eroding asbestos disposal cell by re-grading and covering the area.

Air sampling and monitoring activities will be conducted on-site for worker health and safety and continued site investigation purposes. Air monitoring for respirable particulate matter (PM2.5) will continue off-site outside the fenceline and in downtown Lockhart, SC for the duration of the action.

Soil for cover and encapsulation will be obtained from on-site sources to the greatest extent possible. The disturbed areas of the Site will be secured with vegetation to provide a stable erosion-resistant surface. Total project time is estimated at approximately 3 months.

2.2.1.1 Planned Response Activities

- Isolation of burning material by removal and relocation of available fuel path and installation of earthen cover; ***(ONGOING)***
- Isolation of designated asbestos disposal cell through the installation of earthen cover; ***(ONGOING)***
- Re-grading waste materials and native soils for purpose of cover installation; ***(ONGOING)***
- Installation of temporary measures to prevent off-site migration of dust or contaminants as removal operations are conducted; and, ***(ONGOING)***
- Continue sampling and monitoring, as needed, for site safety purposes and to further delineate or identify contaminants. ***(ONGOING)***

2.2.1.2 Next Steps

- Complete landfill cover operations with installation of topsoil, seed, fertilization, and matting
- Finalize landfill design plans
- Continue asbestos cell covering operations
- Continue monitoring 4 well locations
- Continue close scrutiny of CO and temperature levels particularly at MW 1 and MW 2

A new Landtec GEM2000+ was mobilized to the Site and is reporting the same carbon monoxide readings as the previous Landtec device, reducing the likelihood that the previous Landtec was reporting incorrect CO levels. The MultiRAEpro reported increased levels of CO at or near those measured by the Landtec but the MultiRAEpro required a latent period of approximately 5-10 minutes. Recordings of the MultiRAEpro readings in the previous week may have been made after a latent period of less than 5 minutes and falsely interpreted that the instrument had stabilized. This latent period is not required by the instrument documentation or the sensor documentation, so it is uncertain why the slow response time is occurring. This may be due to the pump performance of the instrument. The measurement procedures have temporarily been changed to ensure that the MultiRAE pro is first attached to the tube used by the Gillian pump to purge the well.

2.3 Logistics Section

Installation of straw matting on landfill face may require mobilization of additional labor personnel to complete.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

OSC Matthew Huyser
OSC Perry Gaughan

3. Participating Entities

SCDHEC continues to provide technical assistance and information regularly

South Carolina Forestry Commission has offered to provide assistance with tree removal, if necessary

Chester County EMA and Union County EMA will provide technical assistance and information, as needed

Clemson Chester County Extension Office will provide technical assistance for soil amendment and seeding needs regarding final cover and vegetation

4. Personnel On Site

EPA (1)
SCDHEC (varies)
County EMA (varies)
ERRS (11)
START (1)

5. Definition of Terms

µg/m3	Micrograms per cubic meter (= 0.001 mg/m3)
AEGL	Acute Exposure Guideline Levels
AQI	Air Quality Index
C	Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Conc	Concentration
ConcHR	Hourly (HR) average value recorded by an EBAM instrument
ConcRT	Real time (RT) concentration recorded by an EBAM instrument based on a rolling four-minute average
DHEC	South Carolina Department of Health and Environmental Control
EMA	Emergency Management Agency
EPA	U.S. Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
mg/kg	Milligram per kilogram (= 1 ppm)
mg/L	Milligram per liter
mg/m3	Milligram per cubic meter (= 1000 µg/m3)
NAAQS	National Ambient Air Quality Standard (primary and secondary NAAQS for PM2.5 24-hour average is 35 µg/m3)
NPL	National Priorities List
OAQPS	EPA Office of Air Quality Planning and Standards
OSC	On-Scene Coordinator
PM2.5	Airborne particulate matter with particle diameters below 2.5 microns
ppb	Part per billion (cannot be used to describe a mass per volume unit such as µg/m3)
ppm	Part per million (cannot be used to describe a mass per volume unit such as mg/m3)
RML	Removal Management Level
RSL	Regional Screening Level
SCDHEC	South Carolina Department of Health and Environmental Control
START	Superfund Technical Assessment and Response Team
TWA	Time-weighted average

5.1 Regional Screening Levels (RSL) and Removal Management Levels (RML)
Regional Screening Levels (RSL) are conservative risk-based screening values developed by the U.S. EPA to help identify contaminants of potential concern. Contaminants that exceeded a RSL in at least one sample are then screened against industrial air Removal Management Levels (RML) that were calculated for this evaluation. RMLs are risk-based screening values developed by the U.S. EPA to determine whether sample concentrations are sufficiently elevated that they may warrant a removal action. Exceedance of a RML by itself does not require a removal action, nor does it imply that adverse health effects will occur.

6. Additional sources of information

6.1 Internet location of additional information/report
Site updates will be provided to the "Bulletins" section of epaosc.org/bennettlandfill

Documents, reports, and videos for public release will be posted to the "Documents" section of epaosc.org/bennettlandfill

The Agency for Toxic Substances and Disease Registry (ATSDR) has reviewed chemical constituent and other sampling and monitoring data collected at the Bennett Landfill Fire Site as part of EPA's Removal Site Evaluation. A final version of at Health Consultation Letter and Fact Sheet were released on June 19, 2015. These materials are posted to the documents section of the epaosc.org/bennettlandfill webpage. ATSDR is currently in the finalization process of a Health Consultation Letter and Fact Sheet for particulate monitoring results. The data for the particulate monitors was released on June 11, 2015 and is also posted to the documents section of the epaosc.org/bennettlandfill webpage.

6.2 Reporting Schedule
New POLREPS will be issued weekly on Fridays for the duration of on-site activities.

Daily photos of site conditions and progress are being posted to the "Images" section of epaosc.org/bennettlandfill. These photos are collected from the same general locations each day.

7. Situational Reference Materials

No pertinent information to report at this time.