

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
REEF Environmental - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP #8
Phase I - Completion
REEF Environmental

Sylacauga, AL
Latitude: 33.1888040 Longitude: -86.2640480

To:
From: David Andrews, OSC
Date: 12/20/2012
Reporting Period:

1. Introduction

1.1 Background

Site Number:	B4W3	Contract Number:	EP-S4-07-03
D.O. Number:	TO-0132 Mod 2	Action Memo Date:	12/3/2012
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	10/2/2012	Start Date:	10/2/2012
Demob Date:		Completion Date:	
CERCLIS ID:		RCRIS ID:	
ERNS No.:	1026286	State Notification:	ADEM
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Time-Critical Removal Action

1.1.2 Site Description

The Reef Environmental Services facility in Sylacauga, Alabama was a centralized waste treatment facility. The facility was permitted to accept industrial waste water (waste water and oily contact water) for treatment and discharge to the Sylacauga public operated treatment works (POTW) waste water treatment plant. Shortly after the first waste deliveries began, reports indicate that numerous odor complaints were received by the local and state government. Within the past few years, the facility has filed for bankruptcy. The State has taken various actions and had limited success in getting the wastes at the Site to be properly disposed. On October 1, 2012, after receiving information that totes were being removed from the facility and numerous odor complaints, Alabama Department of Environmental Management (ADEM) personnel investigated the Site. ADEM personnel could not make entry into the facility but did observe an oily sheen in a stream near the facility as well as a large bulge in the tarp covering the Biological Treatment Basin at the facility. Later in the day on October 1, ADEM requested assistance from the Environmental Protection Agency to assess the Site and to assist with implementation of emergency stabilization measures. On the morning of October 2, 2012, OSCs Francendese and Harper were mobilized from Birmingham, Alabama to meet with ADEM and assess the situation. Upon initial assessment, OSC Francendese secured the Site and ceased removal of on-site totes by private party contractors. In addition, he verbally notified the PRPs of potential hazards which included the accumulation of hazardous substances (including hydrogen sulfide) under the tarps/liners covering the basins. While the PRP provided verbal access, he indicated that he was not able to perform the necessary stabilization actions required by EPA. OSC Francendese requested the dispatch of the on call responder. EPA OSC Neal was dispatched to the scene. Assessment activities continued throughout the day and evening of October 2, 2012.

1.1.2.1 Location

71 Twin Street, Sylacauga, Talladega County, Alabama

1.1.2.2 Description of Threat

The abandoned facility has several priority issues that will be addressed under a phased approach. The first phase involved the emergency response action that mitigated the trapped gases under the 3 million gallon biological reactor tarp/liner of Equalization Basin No. 2 (EQ 2). An additional 3-million gallons treatment basin, Equalization Basin No. 1 (EQ 1) also has a failed tarp/gas retention system that was not under high pressure, but required mitigation work. Trapped gases exist under this liner and will be addressed under the emergency phase of the response action. The trapped gases total approximately 175,000 cubic feet contained dangerous elevated levels of volatile organics and hydrogen sulfide and presented a release and explosion risk. This facility exists within 1000 feet of a residential neighborhood.

Additional threats exist in the form of an oily sheen release to the nearby creek as well as abandoned

chemicals onsite.

The first phase addressed the release threat of the trapped gases and release of EQ 2 to Shirtee Creek followed by a series of chemical treatments of EQ 1 & 2 to stop the emissions of H₂S.

The second phase will involve an analytical assessment of the waste water inventory of the Site. Based on the technical review of the analytical a treatment and disposal scheme will be implemented for the estimated 14-million gallons of waste water in the three major waste water basins and two clarifiers.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The initial assessment identified the trapped gases under the tarp/liner as well as the oily sheen being released to the creek. The rotten egg odor was later identified to be both elevated volatile organics and hydrogen sulfide. Subsequent site walkthru identified abandoned hazardous substances at the facility both on the facility grounds proper and within the lab.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

The facility is an abandoned former waste treatment facility that was referred to the EPA ERRB by ADEM. Subsequent assessments identified unstable conditions relating to accumulating gases (organic and hydrogen sulfide) under the containment tarp/liner covering Equalization Basins 1 & 2.. Additional assessments identified an oily sheen being released from the facility as well as abandoned hazardous chemicals both on the facility grounds and in the onsite facility lab.

2.1.2 Response Actions to Date

10/2/2012

EPA OSCs (Lead OSC Neal and supporting OSCs, Francendese, Harper and Ball) mobilized to assess the site and assume the lead OSC role. START and ERRS were also mobilized.

An initial exclusion zone was established at the fence line.

OSCs conducted initial Level B entry to collect air monitor data. MultiRae, TVA 1000 photoionization detector and flame ionization detector (PID/FID) Electronic Personnel Dosimeter (EPD), HCN monotox sensor and CH₄ monitor were used to assess ambient and local air conditions.

Initial air monitoring results are follows:

- Biological Treatment Basin (approx 3 million gallon)
 - FID - sustained reading at surface of approximately 60 ppm and background in the breathing zone.
 - H₂S - sustained reading of 10 - 20 ppm at the surface and 10 ppm in the breathing zone.
- Pump Station (approx 1000 gallons)
 - FID - sustained readings of 60 ppm total volatile organics at the surface with max of 2000 ppm and approx 50 ppm in the breathing zone.
 - Hydrogen sulfide (H₂S) - sustained readings of 20 ppm with max of 125 ppm at the surface and 10 ppm in the breathing zone.
- No other parameters were detected.
- Air monitoring results outside the immediate area of the basins and within the property boundaries were at background.
- Air monitoring results outside the fenceline and at the closest residence were at background.

Additional actions:

- OSCs conducted an additional entry to collect samples for hazardous categorization as well as waste profiling.
- Liquid and sludge samples will be sent for 24 hours turn around analysis.

OSC Neal also conducted a scoping meeting with ERRS based on air monitoring data collected.

10/3/2012

The following actions were conducted:

1. Continuous, 24 hour, perimeter air monitoring was established using AreaRaes and MultiRaes coupled with the VIPER telemetry system to generate real time remote air monitoring. The perimeter was established around the two basins of concern to monitor primarily for VOCs and hydrogen sulfide. Periodic air monitoring was also established in the nearby community.
2. IC coordinated with various participating agencies concerning the threats and potential actions being considered.
3. Operational tactics were evaluated with the ERRS contractor and acquisition of resources were initiated to safely access the trapped gases and treat them thru a mobilized scrubber.

10/4/2012

The following actions were conducted:

1. VIPER perimeter monitoring was maintained. Periodic air monitoring was also established in the nearby community.

2. Lab results for the sludges indicate elevated disulfides, hydrocarbons and BTEXs.
3. Operations continued as the site was prepped for the acquired scrubber as it was en route. These actions included:
 - Setup of water suppression system to act as a protective tactic during gas treatment. The water suppression system has access to a sequestering agent to mitigate any unintentional releases of hydrogen sulfide. The delivery system was tested and also acted to reduce the growing pressure and size of the bulge by cooling the tarp. Elevated atmospheric temperatures had increased the rate of the exothermic reaction.
 - Preparation and execution of methods to safely access the gases either thru the existing pipeworks of the scrubber which is in disrepair or thru a PVC 'under the tarp/liner' access system.
 - Soft boom was placed in the creek at effective locations to minimize the effect of the ongoing oily discharge.
 - Staging and setup area for arrival of the mobile scrubber which was temporarily delayed in transport.
 - Upon arrival late in the afternoon, the mobile scrubber was staged and hooked up to necessary power sources.

10/05/2012

1. VIPER perimeter monitoring was maintained. Periodic air monitoring was also established in the nearby community.
2. Operations continued till approximately midnight to mitigate the bulge in the biological treatment basin. Approximately 165,000 cubic feet of gases (hydrogen sulfide and organic vapors, including BTEXs) were successfully treated via the mobile scrubber supported by water suppression activities.
3. An inventory of the additional hazardous substances was completed.
4. EPA and ADEM continued coordination and outreach with local media outlets and the EMA community.

10/06/2012 thru 10/7/2012

1. VIPER perimeter monitoring was maintained. Periodic air monitoring was also established in the nearby community.
2. Operations for the 6th and 7th were as follows:
 - Remaining bulges in tarp/liners for both the equalization basin and the biological treatment basin were processed via fire suppression rain curtain with sequestering agent to minimize hydrogen sulfide migration. This operation was assisted via long reach excavator tarp/liner manipulation.
 - Tarps/liners in both basins were gathered via long reach to appropriate locations along the inner edge of the ponds for removal in later stages. The tarp were left in the ponds to prevent liner contamination and allows residual contaminant drainage.
 - Hydrated lime stabilization and mixing was initiated in both ponds on the evening of the 6th. The intent of this operation was to increase the pH in both ponds to short circuit the hydrogen sulfide gaseous releases.
 - Hydrated lime stabilization continued throughout the day on the 7th. The equalization basin received approximately 75 tons. The biological basin received approximately 50 tons.
 - Overflow containment measures were constructed in the low spot of the adjacent road to the basins to mitigate and capture potential oil releases from the basins thus preventing discharge to the storm sewer.

10/08/2012 thru 10/09/2012

1. VIPER perimeter monitoring was discontinued after completion of basin stabilization by early afternoon of the 8th.
2. Operations for the 8th were as follows:
 - Final application and mixing of approximately 25 tons of lime was completed by early on the afternoon of the 8th.
 - Both basins were stabilized at an approximate ph of 10.
 - Power panel shutdown was completed at all relevant buildings including aeration, discharge stations, sludge press and laboratory.
 - Decontamination and demobilization of equipment and contractor personnel began during the afternoon of the 8th.
3. OSCs Neal, Francendese and Ball demobed during the afternoon of the 8th and facility gate was secured.
4. Remaining equipment was demobilized on the morning of the 9th.

10/15/2012

1. Site operations continues as an emergency action pending a ceiling increase in funding under a time-critical action memorandum. A verbal increase for an additional \$200,000 was approved by the Superfund Division Director to support operations at the Site.
2. Periodic air monitoring continues in the neighboring community.

10/17/2012

- ERRS and START conducted a joint sampling event to collect waste water to support future treatment and disposal operations from Equalization Basin No. 2 (3-million gal capacity) and the Aeration Basin (7-million gal capacity).
- EPA OSC collected documents from the Laboratory building to support enforcement and cost recovery.
- Periodic air monitoring continues in the neighboring community.

10/23/2012

- ERRS remobilizes to prepare for extended operations and to set up field offices.
- Periodic air monitoring continues in the neighboring community.
- EPA conducts public meeting in Sylacauga, Alabama at the Cromer Recreation Center. EPA, ATSDR, ADEM & Talledega EMA fielded questions from an estimated 200 attendees. EPA OSCs David Andrews and Timothy Neal discussed EPA's response efforts and future goals regarding the ongoing removal operations. ATSDR addressed questions concerning health concerns pertaining to the persistent odor from the site. ADEM outlined Reef's regulatory history.

10/24/2012 thru 10/26/2012

- ERRS utilized a 100-ft extended man-lift to inventory 8 above ground bulk storage tanks located in the loading bay where inbound tanker truck deliveries were off loaded.
- Periodic air monitoring continues in the neighboring community.
- ERRS begins grubbing the site.
- Office trailers to accommodate EPA, ERRS & START were delivered. Utility installation is being coordinated.
- Subcontractor for odor control/elimination conducted initial site-walk to discuss with EPA chlorine dioxide treatment for the site's waste water basins.
- ERRS continues to monitor seepage and maintains soft boom in Shirtee Creek.

10/29/2012 thru 10/30/2012

- EPA's Environmental Response Team (ERT) mobilized to the site to conduct air sampling to assess low level concentration of sulfur compounds that may compose the nuisance odor emitting from the site waste water basins. This sampling event supplements the ongoing air monitoring by START. ERT will collect grab samples over the next 4 to 6 weeks at established sampling locations during the early morning (pre-sunrise) hours that has been identified as the peak time when odor complaints have taken place.
- Periodic air monitoring continues in the neighboring community.

10/31/2012

- ERRS identifies "lime" (from Equalization Basin No. 2) at the seepage point on the bank of Shirtee Creek and excavates a portion of the bank to better reflect the seepage and control the discharge.
- Periodic air monitoring continues in the neighboring community.

11/5/2012 thru 11/9/2012

- As an ongoing and weekly event, EPA's Environmental Response Team (ERT) mobilized to the site to collect air samples to assess low level concentration of sulfur compounds that may compose the nuisance odor emitting from the site waste water basins. ERT collected air samples, in canisters, at five locations off site within the neighboring community to the southeast of the site and three on site next to the basins which are the source of the odors. Samples are collected at daybreak which has been the highest period of reported odor complaints.
- Periodic air monitoring continues in the community by the Superfund Technical Assessment and Response Team (START) contractor in the early morning and late afternoon hours.
- The Emergency and Rapid Response Services (ERRS) contractor has completed installation of site office trailers and utilities connection to the trailers. ERRS also completed detailed grubbing the site to permit safe access to major site features or structures and identify areas of concern. ERRS continues maintenance of the seepage from Basin 2 that impacted the bank of Shirtee Creek.
- START mobilized a waste water treatment (WWT) engineer to consult with the OSC and ERT Technical Support and ERRS over treatment issues for the odor and treatment and discharge options of the 13-million gallons of waste water. At this time, the OSC has reconsidered the use of chlorine dioxide (ClO₂) gas as an oxidative treatment for the odor and is considering the use of hydrogen peroxide (H₂O₂) which may be an equally effective, cheaper and safer oxidative treatment option for this project.
- The OSC is drafting a scope of work and Action Memorandum and will brief the Superfund Division Director on the first week of December to address the health threat, odor control, treatment and disposal for the 13+ million gallons of waste water.

11/11/12 thru 11/17/12

- ERRS completes the task of grubbing the Site which has reflected additional surface features of the facility's plumbing and will provide safe crossing of the property for operations. The release to Shirtee Creek was identified with a fracture in the containment wall of EQ 2 and a recirculation sump pump was reactivated to stop the seepage and off site migration of the waste water.
- START continues scheduled weekly air monitoring of the mill village neighboring the Site to the southeast.
- ERT TAGA team conducts their second of four consecutive weeks of air sampling to identify low level sulfur compounds consistent with the odor emissions associated with the Site.
- The technical team is considering using 35% hydrogen peroxide for the oxidative treatment of the basins to control and eliminate the emissions of H₂S from the waste water.

11/18/12 thru 11/24/12

- ERRS begins stabilization of the contact water and sludge located in the drying beds located on the east side of the Site. ERRS used the wood chip stockpile adjacent to the drying beds used by Reef during their facility operations for this matter.
- START continues scheduled weekly air monitoring of the mill village neighboring the Site to the southeast.

- ERT TAGA team conducts their third of four consecutive weeks of air sampling to identify low level sulfur compounds consistent with the odor emissions associated with the Site.
- The OSC has completed the draft Ceiling Increase Action Memorandum that will fund the remainder of the first phase of operations and a significant portion of the second phase development and implementation.
- Site operations will be on demobe from the COB November 21 through 25, 2012. Operations will resume on November 26, 2012.

11/25/12 thru 12/1/12

- ERRS begins preparation of EQ 2 for oxidation treatment by removing the material in and around the basin that served as the gas containment dome and additional organic solids floating in the waste water. Stabilization of the drying bed sludge and contact waste water continues.
- START continues scheduled weekly air monitoring of the mill village neighboring the Site to the southeast. START is tasked with conducting a sampling event to precede oxidation treatment of the basins to establish an analytical baseline based on discharge parameters established by ADEM.
- ERT TAGA team conducted the fourth and final week of air sampling to identify low level sulfur compounds consistent with the odor emissions associated with the Site.
- The OSC, enforcement team, and ERRB management briefed the Superfund Division Director with the draft Ceiling Increase Action Memorandum. The draft document outlined the ongoing threat and funding request to implement strategies to mitigate the threat(s).

12/2/12 thru 12/8/12

- The OSC, ERRS and technical support by ADEM conducted a treatment bench trial using 35% hydrogen peroxide to establish a dose range for full scale treatment of the waste water basins.
- START receives incremental funding on TDD No. TTEMI-05-001-0185. START implemented a sampling event to establish an analytical baseline on EQ Basins 1 & 2, the 7-million gallons Aeration Basin and Clarifiers No. 1 & 2. The requested analytical data were established by ADEM based on proposed discharge parameters in Phase II. START continues scheduled weekly air monitoring of the mill village neighboring the Site to the southeast.
- ERRS completes stabilization of the drying bed sludge and contact water with wood chips and mixed media. Final stabilization will include amendment of Portland cement prior to off-site shipment and disposal.
- ERRS completes bid submittal for equipment supporting peroxide treatment and begins mobbing equipment (frac "Baker" tanks and pumps) to the Site. The system under construction will circulate the hydrogen peroxide.

12/9/12 thru 12/15/12

- ERRS received incremental funding on EPS 40703 TO No. 132 Mod 2. ERRS contractor began full-scale pilot oxidation treatment of the waste water basins during this reporting period. Over the next two reporting periods, ERRS dosed EQ 2 with approximately 4,479 gallons of 35% hydrogen peroxide. The treatment successfully eliminated the emissions of hydrogen sulfide gas from the waste water. This pilot study will establish data reflecting a treatment trend in chemical oxygen demand (COD), total kjeldahl nitrogen (TKN), and dissolved oxygen (DO) in the waste water. The treatment effect on the aforementioned parameters will aide in the future treatment decisions and support the eventual disposal operations. Approximately 3,000 gallons of EQ 1 was transferred to Aeration Basin to increase freeboard in the basin. Floating solids generated from the oxidative treatment and mixing were removed from EQ 2.
- START continues scheduled weekly air monitoring of the mill village neighboring the Site to the southeast. START mobilized AreaRAE monitoring equipment and established perimeter air monitoring around the Site prior to ERRS oxidation treatment. Coordinated with ERT regarding installation of ERT's air monitoring equipment and weather station. Received initial data from Dec 6-7, 2012 sampling event.
- ERT mobilized AreaRAE equipment with VIPER network and weather station and in attendance for the initial oxidation treatment of EQ 2.

Dec 16 thru Dec 22, 2012

- ERRS continues oxidation treatment of 7-5 million gallons Aeration Basin and amended treatment of EQ 2. During this reporting period, 13,470 gallons of 35% H₂O₂ was dosed into the waste water at the Site. On-site monitoring indicated "non-detect" emissions of H₂S from the surface of the waste water basins. EQ 1 was not treated with H₂O₂. ERRS continues removal of the oil/sludge layer from EQ 1. Removal of the floating sludge is a labor intensive operation. The process involves a vacuum-truck and material handling with pumps on one side of the three acre basin to push product and drawn into the vacuum hoses on the other side/corner of the basin. Removal of the gas containment cover floating inside the EQ 1 was completed. During bench trials, EQ 1 presented a negligible emission of H₂S. However, the sludge layer on EQ 1 emits a strong offensive odor when agitated and when the tarp/dome was removed from the basin and into roll-off container. Sludge from EQ 1 was transferred by vac truck and off-loaded into the drying beds and contained under poly-tarps to control odor and protect from weather.
- START received the remaining data from their Dec 6-7, 2012 sampling event. Provided air monitoring support during the oxidation treatment. START completed the last off-site air monitoring event of the neighboring mill village. START waste water treatment engineer was on-site during this week's treatment event to observe operations and consult with the OSC regarding future treatment options and advise on treatment relevant to the conditions and current data of the waste water.

Dec 22, 2012 thru Jan 1, 2013

- Operations will be on demobe during this period. Skeleton ERRS crew will conduct temporary aeration in the treated ponds on Dec 26-29 and consolidate chemicals in the Lab for lab-pack.

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

The Office of Environmental Accountability (OEA) is pursuing enforcement.

2.1.4 Progress Metrics

Currently, Initial oxidative treatment listed below is 35% hydrogen peroxide to control hydrogen sulfide gas emissions.:

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
Aeration Basin	Water	7-mil gal	N/A	Oxidation	TBA
Equalization Basin No. 2	Water	3-mil gal	N/A	Oxidation	TBA
Equalization Basin No. 1	Water	3-mil gal	N/A	Oil Removal	TBA
Clarifier No. 1	Water	250K gal	N/A	TBA	TBA
Clarifier No. 2	Water	1-mil gal	N/A	Oxidation	TBA

2.2 Planning Section

2.2.1 Anticipated

Continue coordination with ADEM and Local officials.

2.2.1.1 Planned Response Activities

In January the removal action will begin Phase II that will focus on development of a treatment system that will treat waste water (approx 14-million gallons) and allow disposal per parameters established by ADEM.

Additionally, there are eight (8) above ground storage tanks/silos in the plant's receiving area totalling approximately 100,000 gallons of waste water/oil that have not been pre-treated..

2.2.1.2 Next Steps

Initialtion of Phase II.

2.2.2 Issues

- Media and public relations have been positive during the end of Phase I
- Waste water parameters parameters TKN and COD to be worked on and resolved prior to disposal

2.3 Logistics Section

N/A

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

2.5.2 Liaison Officer

2.5.3 Information Officer

Ms. Kerisa Coleman (Region 4 CIC)

3. Participating Entities

3.1 Unified Command

EPA
ADEM

3.2 Cooperating Agencies

City of Sylacauga
Talladega County EMA
Alabama EMA

4. Personnel On Site

- EPA (OSC) - 1
- START (Tetra Tech) - 1 + Waste Water Engineer
- ERRS (WRS Compass)- 6

- ADEM - 1

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

None available at this time