U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Charleston WV Chemical Leak - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III

Subject: **POLREP #1**
Initiation of an Emergency Response/Response Activities
Charleston WV Chemical Leak

Charleston, WV
Latitude: 38.3685800 Longitude: -81.6066300

To: Cindy Santiago, USEPA R3

From: Dennis Matlock, Melissa Linden, On-Scene Coordinators
Date: 1/12/2014
Reporting Period: 1/9/14 through 1/12/2014

1. Introduction

1.1 Background

Site Number:		**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Emergency
Response Lead:		**Incident Category:**	Removal Assessment
NPL Status:		**Operable Unit:**	
Mobilization Date:	1/9/2014	**Start Date:**	1/9/2014
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Tank failure and subsequent chemical release into the Elk River, Etowah, WV.
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1.1.2 Site Description

The Site consists of one breached tank, which is component to the facility, along with the soils beneath the tank, the pathway towards the Elk River, and the affected portion of the Elk River.

1.1.2.1 Location

The incident occurred at the Freedom Industries, located at 1015 Barlow Drive, Charleston, Kanawha County, WV 25311.

1.1.2.2 Description of Threat

An imminent substantial endangerment to welfare and/or the public caused by a chemical release

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

WVDEP conducted the initial assessment of the scene. Following EPA's arrival on scene and discussions with WVDEP, EPA assumed a support role to WVDEP. EPA received reports through WVDEP that the chemical was identified as "Eastman Crude MCHM", which is a mixture of components, predominantly 4-methylcyclohexanemethanol. There is a licorice odor to the compound, which is caused by 4-(methoxymethyl) cyclohexanemethanol. The material was classified as non-toxic. However, analytical testing for this particular compound is still being developed; there is no drinking water method available. Dupont was assisting the West Virginia American Water Company (WVAWC) with the testing procedure.

The spill occurred from one of three tanks that contain the MCHM. The secondary containment around the tanks was inadequate and failed. It was estimated that 5,000 gallons of the material were released. However, the volume of the compound that actually entered the river is uncertain.

The RP utilized facility personnel and initiated the hiring of contractors to place boom along the left descending bank of the Elk River, adjacent to the area of the spill. The RP also hired contractors to

conduct land clean-up operations.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

At 1545 hours, the NRC received an initial report that there was a strong chemical smell in the air from an unknown source in the Charleston, WV, area. Following, the National Response Center issued a notification report concerning a "Do Not Use Water Notice" that was issued by West Virginia American Water Company (WVAWC). The notice was issued for all West Virginia American Water customers in Kanawha, Boone, Putnam, Lincoln, Logan, Clay, Roane, and Jackson Counties, as well as customers in Culloden in Cabell County. Customers were told that as a precaution, customers should not use their water for any purpose. Certain areas were not affected, as they receive water from a different water source/intake, including the City of Hurricane, St. Albans, Putnam Public Service District (PSD), Montgomery and Cedar Grove/East Bank. Following the issuance of the "Do Not Use Water Notice", Governor Tomblin issued a State of Emergency for the affected counties. Consequently, the National Guard and Office of Emergency Services worked in a cooperative effort to provide water and supplies through the county emergency services as quickly as possible. Initially, an estimated 100,000 customers were without water. Priority was given to hospitals, nursing homes, and schools to receive water first.

The cause of the odor was determined to be a release of a chemical, reportedly 4-Methylcyclohexane Methanol, which is used in the froth flotation process of coal washing and preparation. The chemical was released from a storage tank located at Freedom Industries, near Charleston, WV. The amount of chemical that was released was initially estimated at 5,000 gallons. An intake for WVAWC is located 1.5 miles downstream from the facility. The chemical was detected both by odor and by GC analysis at the Dupont Chemical Plant, located 10 miles downstream from the facility. The chemical was determined to be combustible, not flammable, as it has a flash point of 80 degrees Celcius. The chemical is lighter than water, having a density of 0.884 g/cm3.

2.1.2 Response Actions to Date

Upon arrival at the scene on January 10, 2014, EPA met with WVDEP and received an update of what was initially assessed. The source of the release was identified as a tank containing MCHM, which has a capacity of 40,000+ gallons. The tank failed at the valve and approximately 5,000 gallons of MCHM were released into the secondary containment, which failed. The MCMH seeped beneath the containment and into the materials between the tanks and the river. An unknown amount of the MCHM was released into the Elk River. Three tanks containing the MCHM were located in the spill area. The other two tanks, located on either side of the failed tank, were apparently stable.

MCHM is manufactured by Eastman Crude. The mixture is mainly comprised of 4-methylcyclohexanemethanol (68-89%). The mixture has a licorice odor, which is caused by 4-(methoxymethyl)cyclohexanemethanol.

WVDEP had issued a cease and desist order, a notice of violation from their air division, and a notice of violation of the facility's NPDES permit. WVDEP also directed the facility to contract a certified OSRO, as the initial responders were not certified.

The facility alerted EPA of a threat that was called in to the facility. The appropriate law enforcement arrived on scene to secure the location.

WVDEP directed the facility to dig a cut-off ditch because the chemical had permeated through the ground and was emerging from a storm drain outfall, continuing to enter the river. The facility's contractors (land clean-up) excavated the ditch, which was initially not deep enough. After further excavation, the ditch began to collect a combination of the chemical and water. The land contractors pumped the chemical/water mix up the hill into tanker trucks for disposal.

The land contractors excavated a pit in the tank farm area and was vacuuming the chemicals out of the pit. The materials in the tank farm area (secondary containment) are very porous, reportedly filled with old bricks and tile. The land contractors were also vacuuming the chemicals from the leaking tank, #396. The land clean-up crew had utilized vacuum trucks to empty the chemicals from all three of the MCHM storage tanks. The report from the facility to EPA was that approximately 1,200 gallons of the chemical remained in the two "sister" tanks, and that the leaking tank was empty. The vacuum operations were 24-hour operations. WVDEP conducted oversight of these operations in shifts, also for 24-hour operations.

The RP hired a certified OSRO. WVDEP directed them to deploy hard boom in the river, which was accomplished upon arrival of the OSRO. The OSRO deployed boom along the left descending bank of the river, adjacent to the spill location. The OSRO was also attempting to use vacuum pumps to collect the materials from the river's surface. However, the chemicals were trapped beneath the ice that lined the shores of the river. As the ice was broken, the chemicals quickly dispersed into the river. The chemical appeared to be coffee-colored.

WVDEP enforcement personnel were on scene and were collecting water samples from the spill area in the river. Dupont assisted with analysis of the samples.

EPA offered support to WVDEP with air monitoring. Subsequently, EPA's START contractor (TechLaw) conducted air monitoring on Site. The TVA-1000 (FID) and Multi-Rae (PID) were used to conduct the air monitoring. At the source, the FID detected 49-50 ppm. In the area of the tanks, the FID detected 7-15 ppm. Along the fence-line, the FID detected 1-7 ppm. In the "background", which was designated along the road adjacent to the facility, the FID detected 0.5 ppm. The PID did not detect any significant concentrations of the chemical. START conducted written and photographic documentation of Site

conditions.

An inventory of the facility was provided to EPA. This inventory consisted of raw glycerin, finished glycerin, calcium chloride, lignin, MCHM, and RDC 777.

According to EPA toxicologists, the air health criteria for similar compounds are very high (none for the mixture itself), meaning not vey toxic. The vapor pressure value indicates you won't find much of the chemical in the air. No information is available on odor thresholds but for one or more of the compounds in the mixture, it/they must be very low.

Throughout the day, local media was on Site. The media remained outside the facility gate and did not enter the property.

On January 11, 2014, USCG discussed boom deployment downstream at the WVAWC. WVAWC had deployed boom around their water intake, which is 15 feet below the river surface. USCG suggested a strategy to further divert the chemical around the water intake; WVDEP and EPA were in agreement. The boom was deployed at an angle starting from the LDB of the river. START documented deployment of the boom, which consisted of absorbent boom in front of hard boom.

During the morning hours, heavy rains occurred on Site. This contributed to release of the chemicals that were trapped beneath the ice that lined the river banks, as all of the ice was melted during the rain storm and increased temperatures (low-50's). Throughout the day, rains continued, until approximately 1300 hours. During a brief break in the rain showers, START conducted additional air monitoring with the FID. Along the fence-line, 1-4 ppm was detected. In the vicinity of the tanks, up to 7 ppm was detected.

EPA and START conducted a Site walk to observe operations. The contractors had placed poly liner in the trench and extended the length of trench in the direction of the initial release. The contractors continued to vacuum the chemicals from both the trench area and from beneath the tanks. The contractors also continued to vacuum the MCHM from the leaking tank; by dusk, the facility reported that the leaking tank was empty.

The facility arranged for transport tankers to continually load the chemicals on Site. These operations were conducted throughout the day.

The WVAWC proposed a concentration of MCHM of 1 ppm or less in order to lift the Do Not Use ban on the water. ATSDR and CDC both agreed to this limit. This detection level must be maintained for a period of 24-hours.

On January 12, 2014, USCG and EPA met on scene. WVDEP was called in to the meeting. It was agreed that daily meetings should occur to update all personnel in the command structure and to set tasks for operational periods. Activities were to continue 24 hours a day, with WVDEP oversight. The RPs actions on Site to date were discussed. USCG stated that they observed a direct leak from the tank. All were in agreement that the source was the major concern and that it had to be contained. The RP was called into the meeting, along with an engineering consultant. Following discussion, all were in agreement that the following actions needed to be taken: removal of all of the materials from all three of the tanks; steam clean all three of the tanks; and remove the tanks from the containment area. The first two tasks were identified by the RP to be completed by this evening. Following these aforementioned activities, the next task will be to determine what chemicals are beneath the concrete pad in the containment area.

The boom is still deployed in the river. The river's current has increased from the rain that occurred yesterday, lessening the effectiveness of the boom. Also, the increased river speed and level has contributed to an increased amount of debris that is being collected in the boom. The boom that is located near the water intake still has both skirted boom and absorbent boom and pads. WVDEP directed the facility to regularly change out the absorbent boom upon visual inspection of saturation.

There is a skimmer deployed where the boom is extended across the entire width of the river. The RP's contractor reported that the sheen is not as visible today because of the speed of the river, and reported that no more than 1,000 gallons of the chemical has been recovered in the absorbents, skimmer, and by vac truck from the river operations.

EPA and START conducted a Site walk to observe operations and the condition of the hillside/trench area. The surface soils were saturated and the chemical odor remained detectable.

EPA and FEMA conducted a meeting. FEMA's concern was to lift the Do Not Use order. A Civil Support Team from Tennessee has been called in. Analysis of 40 samples per day per laboratory can be conducted. A total of 120 samples are going to laboratories today. They will continue to do testing to ensure that the water quality does not change over the next week.

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

The Responsible Party is identified as Freedom Industries, and is under orders from WVDEP. There are two orders, one is cease and desist, and the other is development of a plan to empty all 14 tanks on Site.

2.1.4 Progress Metrics

Waste Stream	***Medium***	***Quantity***	***Manifest #***	***Treatment***	***Disposal***
MCHM	liquid	7,500 gallons (estimated)			transport off-site

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

EPA, EPA's contractors, and the USCG will support WVDEP's oversight of removal activities. Removal activities include: remove all of the MCHM from the leaking tank and the two adjacent sister tanks; clean out/steam clean all three tanks; cut the tanks and remove them; excavate beneath the tanks to determine what is present; remove the chemicals beneath the tanks, both in liquid and solid forms (soils); and contain the source. EPA will provide support to WVDEP with sampling activities, and other technical support, upon request.

2.2.1.2 Next Steps

- Complete development of facility/incident location ICS structure by COB 1/13/2014;
- Remove the MCHM from the three tanks on Site;
- Clean out the MCHM from the three tanks on Site;
- Cut/remove or relocate the three tanks on Site;
- EPA OSC will continue to update and share all information and data collected at the facility with the established FEMA IMAT Operations Sections Chief, and other FEMA personnel as requested.

2.2.2 Issues

- The MCHM is still leaking from the tank;
- There is the possibility of an unknown amount of MCHM and potentially other chemical liquids may exist beneath the tank;
- There is an unknown amount of MCHM that has seeped into the soils/materials located along the river bank;
- It is uncertain if the chemicals are still leaking into the Elk River from locations along the river bank, adjacent to the facility;
- The source, as of 1600 hours 1/12/2014, has not been completely contained.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

EPA OSC on Site

2.5.2 Liaison Officer

EPA Mark Ferrell

2.5.3 Information Officer

3. Participating Entities

3.1 Unified Command/Facility (Freedom Industries)

WVDEP
USEPA
USCG
Freedom Industries

3.2 Cooperating Agencies

WVDHHR
National Guard
WVDNR
ORSANCO
WVAWC

4. Personnel On Site

WVDEP
USCG
USEPA
START (TechLaw)
FEMA

Freedom Industries
Clean Harbors
Diversified Services LLC
Conestoga Rovers and Associates

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

No information available at this time.