U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Little Traverse Lake H2S - Removal Polrep
Initial Removal Polrep

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**Region V**

**Subject:** **POLREP #1**
**Initial POLREP**
**Little Traverse Lake H2S**

**Maple City, MI**

**To:** Tom Fountain, BLHD
Lisa Quiggle, MDCH

**From:** Ralph Dollhopf, OSC
**Date:** 2/12/2015
**Reporting Period:** December 18, 2015 - January 28, 2015

## 1. Introduction

### 1.1 Background

| | | | |
|---|---|---|---|
| **Site Number:** | | **Contract Number:** | |
| **D.O. Number:** | | **Action Memo Date:** | |
| **Response Authority:** | CERCLA | **Response Type:** | Emergency |
| **Response Lead:** | EPA | **Incident Category:** | Removal Assessment |
| **NPL Status:** | Non NPL | **Operable Unit:** | |
| **Mobilization Date:** | 12/18/2014 | **Start Date:** | 12/15/2014 |
| **Demob Date:** | | **Completion Date:** | |
| **CERCLIS ID:** | | **RCRIS ID:** | |
| **ERNS No.:** | | **State Notification:** | |
| **FPN#:** | | **Reimbursable Account #:** | |

#### 1.1.1 Incident Category
Emergency Response

#### 1.1.2 Site Description
Residential home on Little Traverse Lake where elevated levels of hydrogen sulfide were previously identified.

#### 1.1.2.1 Location
Maple City, Michigan

#### 1.1.2.2 Description of Threat
On December 15, 2014, the Michigan Dept of Community Health requested EPA assistance with evaluating a residential home for hydrogen sulfide. Reportedly, lake levels had risen in recent months and the homeowner had a sump pump installed in the crawl space of the home. Following installation, the homeowners noted a foul, rotten egg like smell and blackened copper pipes in the crawlspace of their home. A local environmental contractor was contacted and they identified elevated levels of hydrogen sulfide in the home. The sump crock was sealed and a water drainage system was installed to drain water away from the home. The local health department asked EPA to evaluate the air quality of the home and assist with the determination of its source and cause because of its concern that a more general public health threat in the area could develop.

#### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results
EPA and START mobilized to the site on December 18, 2014 and met with the homeowner and two loca health department representatives. Screening was conducted by START with a Jerome hydrogen sulfide analyzer, Thermo Electron FID/PID for methane and a MultiRAE Pro multigas meter for hydrogen sulfide, oxygen, LEL, VOCs and carbon monoxide. At the time of initial screening, contractors were painting in the crawl space and the first floor level of the home. At the request of the EPA OSC, contractors ceased painting while screening was being conducted inside of the home. First floor PID (VOC) breathing zone readings ranged from 1.4 to 1.6 PPM and FID readings ranged from 113 to 162 PPM. Crawl space VOC readings ranged from 2.7 to 4.7 PPM and hydrogen sulfide readings ranged from 0 to 26 ppb. During screening, START noted carbon monoxide levels ranging from 0 to 16 PPM in the crawlspace. The homeowner reported that the fire department was contacted the previous day because the first floor carbon monoxide detector alarmed. Reportedly, the fire department collected carbon monoxide readings in the home and since all readings were normal suggested their carbon monoxide detector was faulty

and recommended replacing it. Following the house screening, START screened the exterior of the home.

Outside ambient hydrogen sulfide readings ranged from 0 to 7 ppb around the exterior of the home. Above the drainage discharge pipes, the ambient hydrogen sulfide reading was 64 ppb. Under the manhole cover to the home drainage system, the hydrogen sulfide reading was 7,000 ppb. The furnace make-up air inlet was 84 ppb hydrogen sulfide. START collected water samples from the sump discharge and the whole-house drainage system discharge pipe prior to departing from the site. Water samples were submitted to an analytical laboratory for analysis of sulfate, sulfite, sulfide (precursors to hydrogen sulfide) and pH. Following the second screening on December 19, 2015, VOCs were added to the analysis. The discharge area for the groundwater diversion system was stained dark orangish-red and black and had an intermittent foul odor, consistent with iron and sulfate reducing bacteria.

START returned to the residence on the morning of December 19, 2015 to screen the house again and conduct soil gas screening. Six temporary soil gas probes were installed upgradient and around the perimeter of the home between 1 and 3 feet below ground surface. The depth of screening was limited by the depth to water. Upgradient hydrogen sulfide and FID readings were below instrument detection limits. Proximal to the home, hydrogen sulfide and FID readings ranged from 0 to 10 ppb and 0 to 30 PPM, respectively. The highest readings were detected on the south side of the house. Ambient hydrogen sulfide readings were 17 ppb proximal to the manhole cover to the house drainage system.
Intermittent odor characteristic of reduced sulfur compounds (rotten egg smell) was present during screening of the exterior of the house. Below the manhole cover, readings were 28.1 ppm hydrogen sulfide, 8.5 PPM VOCs, and 100 PPM on the FID. The elevated VOC and FID readings triggered the request to add VOCs to the analysis of the water samples collected the previous day. Prior to site departure, START screened the interior of the home again. All hydrogen sulfide and carbon monoxide readings were below instrument detection limits.

START remobilized to the site on January 27, 2015, two weeks following the cessation of all interior house painting activities. All interior hydrogen sulfide and carbon monoxide readings were below instrument detection limits. Interior VOC readings ranged from 0 to 0.35 PPM. Silicone lined summa canisters equipped with 24-hour regulators were placed on the main floor, crawl space and in the garage of the residence. In addition, a summa canister was placed on the south side of the home to collect an ambient air sample.

On January 28, 2015, START mobilized to the site a fourth time to retrieve air samples and collect water samples. Air sampling canisters were collected and submitted for analysis of reduced sulfur compounds, methane and VOCs. Water levels in the yard and apparently Little Traverse Lake reduced significantly from the December and January site visit. In December, the sump discharge pipe (water from below the house) was discharging every one to two minutes and the main discharge (area around the house) was discharging several times per minute. In January, the main discharge was still discharging several times per minute but the volume appeared significantly less. Over a forty-five minute period, the sump did not discharge at all. The staining and level of water was much reduced in January as opposed to December as well. Therefore, water was collected only from the main drainage pipe for VOCs on January 28, 2015. During the initial water sample analysis, the analytical lab made an error and pH was not measured. Thus, in addition to VOCs, pH was also collected on January 28, 2015.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

Screening and sampling results will be presented to the Benzie Leelanau Healrth Department and to MDCH.

#### 2.1.2 Response Actions to Date

Initial and follow-up screening and sampling has been conducted.

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

The homeowner provided EPA with a signed access agreement to conduct screening and sampling activities.

#### 2.1.4 Progress Metrics

| *Waste Stream* | *Medium* | *Quantity* | *Manifest #* | *Treatment* | *Disposal* |
|---|---|---|---|---|---|
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| | | | | | |
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### 2.2 Planning Section

#### 2.2.1 Anticipated Activities

Follow-up activities referred to BLHD.

#### 2.2.1.1 Planned Response Activities

None at this time.

#### 2.2.1.2 Next Steps
None at this time.

### 2.2.2 Issues
None.

## 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
No information available at this time.

### 2.5.2 Liaison Officer
No information available at this time.

### 2.5.3 Information Officer
No information available at this time.

# 3. Participating Entities
## 3.1 Unified Command

## 3.2 Cooperating Agencies
BLHD
Michigan Department of Community Health

# 4. Personnel On Site
Initially:
EPA: 1
START: 2
BLHD: 2

Follow-up:
START: 1-2

# 5. Definition of Terms
No information available at this time.

# 6. Additional sources of information
## 6.1 Internet location of additional information/report
No information available at this time.

## 6.2 Reporting Schedule
No information available at this time.

# 7. Situational Reference Materials
No information available at this time.