

Hammer Consulting Services Observation Report



GENERAL INFORMATION

SITE NAME: <u>Bridgeton Landfill</u>	CLIENT: <u>Missouri DNR</u>	DATE: <u>06/14/12</u>
ADDRESS: <u>Saint Charles Rock Rd, Bridgeton, MO</u>	IMPACTS: <u>St Louis International Airport</u>	REPORT NO. <u>1</u>
STATUS: <u>Closed Facility</u>	<u>St. Rams Training Facility, Commercial,</u>	PAGE <u>1 of 4</u>
	<u>Industrial and Residential areas</u>	HIGH

WEATHER CONDITIONS

SKIES <u>Pt. Cloudy</u>	TEMPERATURE: <u>81</u> F	WINDS: <u>10 mph</u>	PRECIPITATION: <u>None - Dry Period</u>
	BP: <u>30.05</u> in Hg	DIRECTION: <u>SE</u>	FUEL COVER TYPE: <u>Grass and HDPE</u>
			FUEL CONDITION: <u>Dry - Ignitable</u>

SUMMARY OF ACTIVITIES/REMARKS

6/14/2012 - Performed an area evaluation around the landfill with Missouri Dept. Natural Resources staff before the site meeting.

Arrived at the facility for a site visit. Met with the landfill operators and their consultants along with MDNR and its consultants. The facility operators provided a brief on the current conditions and issues. The facility noted odor issues related to their flare and gas collection system. The facility is in the process of upgrading its flare capacity and is also installing a heat exchanger to cool the gas before it enters the flare. The landfill manager also noted the flame arrestor is experiencing weekly maintenance issues due to a tar-soot like substance.

Observations

Performed a site visit and observed site conditions. Based upon the field observations, Bridgeton Landfill is experiencing two distinct areas of subsidence. The first area is called the west bowl (Northwest corner of the solid waste facility) and the second area is called the east bowl (Southeast corner of the solid waste facility). Geomembrane has been installed in both locations in attempt to control odors. In both areas the liner was inflated to the gas pressure (See Photos). Landfill gas extraction system is not performing to its design goal. The landfill operators have stated they are committed to quickly resolving the issue. Measured one well head/valve at 170F with IR gun supplied by MDNR. Numerous elevated temperatures were observed during the field visit. Significant settlement was observed and reported by the landfill operators in the east bowl area. The settlement was reported to be approximately 20 ft. A number of fissures were noted in the settlement area. Also observed bubbling leachate in the west bowl next to the power poles at the toe of slope. The sound was very distinct.

Odors

Two distinct odors were noted on the site visit.

The first odor was associated with the east bowl. This odor was similar to previous smoldering events I have observed. The odor had a pungent burnt, acrid, chemical odor. The odor also had a musty, hydrocarbon component.

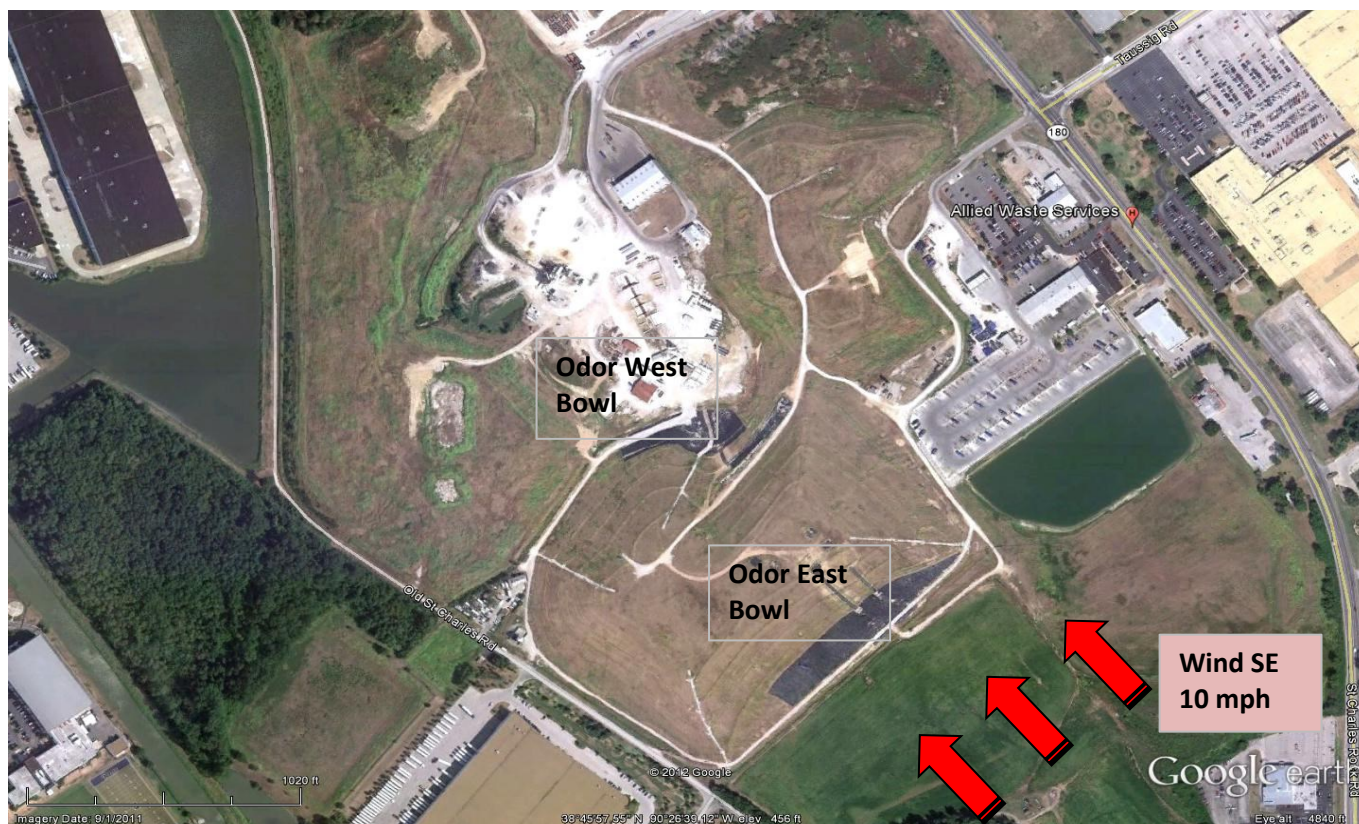
The second odor was significantly stronger in the west bowl. This odor was more pungent than the east bowl odor and had more of a sulfide, decomposition, burnt smell. Both odors caused slight nausea and I had a noticeable dry mouth.

The odors were strong during the site visit. The current gas extraction system is not able to control the odors at the facility. No strong odors were observed off-site during the area evaluation. Only a slight odor was noticed in the northwest area of the landfill.

The following guidance and recommendations were provided to the landfill operators:

1. Repair and cover all fissures in the areas around settlement
2. Evaluate settlement daily, look for fissures
3. Hydrate the soil cover to repair and prevent fissures
4. Relocated the two power pole in the west bowl
5. Implement incident command system and develop an incident action plan
6. Collect air samples of the odor
 - A. Evaluate the odors for toxic and/or hazardous gases
 - B. Collect a minimum of three air samples in a summa canister from each odor location
 - i. Up wind of the odor (background)
 - ii. At the odor location
 - iii. Under the cover
 - C. Air sampling plan should be designed by an industrial hygienist
7. Reduce oxygen to less than 1% on all interior gas extraction wells

Facility Aerial Photograph (Source: Google Earth 9/1/2011)



General odor locations noted.



Photo 1: Bridgeton Landfill, St. Louis Area, Missouri, Todd Thalhamer, June 14, 2012.
Inflated geomembrane cover in the east bowl settlement area. Significant odors observed.




Photo 2: Bridgeton Landfill, St. Louis Area, Missouri, Todd Thalhamer, June 14, 2012.
Inflated geomembrane cover in the west bowl settlement area. Significant odors observed.



Photo 3: Bridgeton Landfill, St. Louis Area, Missouri, Todd Thalhamer, June 14, 2012.

Fissure located in east bowl area due to settlement. Approximate length is 24 inches, depth was observed to be over 12 inches.

SIGNATURE/PRINTED NAME:

 Todd Thalhamer, P.E. No C055197

DATE: 6/24/2012

Todd Thalhamer