



Inspection and Sampling Summary Report

St. Joseph Sanitary Landfill

Permit #0102102

Inspection/Sampling Date: May 21, 2009 (*Inspection and sampling events were conducted simultaneously and began at 7:45 a.m. with a site meeting and concluded at 9:00 p.m. with completion of sampling.*)

Weather: Sunny, approximately 80° Fahrenheit

Operator: City of St. Joseph
Facility Contact Names: Bruce Woody and Bill Blacketer
Telephone #: (816) 253-9025
Address: 9431 50th Rd. S.E.
City, State, ZIP: St. Joseph, MO 64507
County: Buchanan
Location: 9431 SE 50th Rd., 7 miles south and 4 miles east of St. Joseph, MO

Regional Office: Kansas City Regional Office (KCRO)
Program Offices: Environmental Services Program (ESP) and Solid Waste Management Program (SWMP)

Inspectors/Samplers Names: Dennis Mullins (KCRO-solid waste), Jody Mayes (KCRO-water pollution), Alan Cortvrient (ESP), Ken Hannon (ESP), Pam Bos (ESP), Todd McVicker, (ESP), Sean Counihan (ESP), Carter Tharp (ESP), Dan Norris (SWMP) and Chris Nagel (SWMP)

Landfill Staff Assisting/Interviewed During Inspection and Sampling Event: Bill Blacketer and Delbert "Gene" Thorton

Background:

Due to recent health and environmental concerns over the proper management of tanning wastes generated by National Beef Leathers (formerly Prime Tanning and Blue Side Company), the Department conducted a multimedia inspection and sampling event at the St. Joseph Sanitary Landfill. The St. Joseph Sanitary Landfill is an active sanitary landfill that is currently receiving tanning wastes from National Beef Leathers. The landfill started accepting tanning wastes in 1981. This inspection and sampling event was conducted as a joint effort between the Department's KCRO, ESP and SWMP staff.

Activities:

Inspection- A routine quarterly sanitary landfill inspection and a routine water pollution inspection were conducted by Department staff and followed standard inspection procedures, using established checklists and forms. The inspectors observed daily operations for compliance with water and solid waste laws and regulation related to the overall operation of the landfill as well as interviewed landfill staff and reviewed landfill records and documentation related to the current and historical acceptance, handling and processing of tanning wastes (tanning water treatment sludge and hide shavings consisting of scrapings, hair, grease, oil and fat). The facility is currently filling in phase (cell) 5.

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The facility is working through the landfill permitting process to expand the landfill footprint between the current landfill boundary (phases/cells 1 and 3) and the Free Property to the south. If this expansion permit is approved, facility staff have indicated that it is their intent to pursue the removal of the waste in both the Wire Rope landfill and the South Sludge Disposal Area and to place that waste into the new landfill cell(s) that would be developed.

The following are findings from the discussions with landfill staff:

Mr. Blacketer indicated that the only other types of waste received by the landfill that may have contained chromium were the Mead Flex-o-Ink sludge and Wire Rope Corporation sludge that were previously disposed of in dedicated disposal areas. Mr. Blacketer was not aware of any other sources of chromium waste received by the landfill. Mr. Blacketer indicated that he was not aware of any changes over the years in the tanning sludge or hide shaving waste's physical or chemical composition. Mr. Blacketer also indicated that the St. Joseph landfill never used the sludge, a sludge mixture or hide shaving waste as alternative daily cover at the landfill. The landfill currently receives two to three loads of tanning sludge per day. Prior to the recent halting of land application by National Beef Leathers of tanning sludge on local farm land, the landfill received very little tanning sludge (none in 2006). However, the landfill has consistently received hide shaving waste for many years. Review of the landfills records revealed that the landfill is receiving less than 10% of its total daily intake of solid waste from the sludge waste as conditioned in the Department's June 13, 1990, letter that outlined the special waste approval requirements.

Discussions with Mr. Blacketer revealed that the Blue Side sludge cell (noted as the South Sludge Disposal Area on attached documents) started at a depth of approximately 16 to 18 feet deep and then day lighted towards the end of the hill (west side of the cell with an east to west fill progression). For the trench fill area (noted as the North Sludge Disposal Area on attached documents), the trenches started at depths of approximately 25-30 feet and then day lighted to the east ends of the trenches with a west to east fill progression. These depths were confirmed through the Department's Geoprobe soil/sludge sampling. As described by Mr. Blacketer, both the South and North Sludge Disposal Areas were usually covered daily with soil. Mr. Blacketer indicated that an old leachate basin that was used for the North Sludge Disposal Area was previously closed out and the former location is currently under the facility's parking lot near the maintenance building. When the basin was in operation, the water was routinely used to irrigate the side slopes of the landfill using a sprinkler system.

Tanning Sludge and Hide Shaving Waste Tonnage by Year					
Year	2005	2006	2007	2008	2009 (through May 21)
Sludge (tons)	58.50	0	22.99	94.14	783.91
Hide Shavings (tons)	2869.43	2410.32	2893.97	2574.13	417.18

*Information obtained from the on site facility operating records

The visual inspections of the landfill were conducting by traveling the access roads of the landfill in a counter clockwise direction starting on the northwest side of the landfill near the scale house and then proceeding to the southern boundary, then east to the eastern boundary and then to the northeast boundary and back to the northwest boundary. The landfill's infrastructure (gas monitoring and extraction wells, ground water monitoring wells, storm water control structures, leachate management

structures, etc.) and waste disposal cells and soil borrow area were inspected. The findings from the inspections are contained in the attached water pollution and solid waste landfill inspection reports and attached aerial photos with captions. Below is a general summary of those findings:

Unsatisfactory Features / Required Actions Needed

- Storm water from the Blue Side North Sludge Disposal Area, the citizen drop/off area and yard waste/mulch area must discharge to a permitted outfall (Areas must be modified or relocated to regain compliance with water pollution outfall requirements)
- All disturbed and active areas within the landfill footprint must also drain to a sediment basin
- Re-grade slopes and water courses as necessary to control surface water runoff so as to reduce excessive erosion
- Repair existing erosion rills and install rock check dams in water courses as needed
- Remove excess sediment from all sediment basins
- Properly manage all sediment removed from the basins
- Remove all trees growing within the sediment basins or on the basins berms
- Several areas around road ways, water let down structures and outfalls need the soil stabilized and permanent vegetation established to control erosion
- A Storm Water Pollution Prevention Plan must be prepared for the site and followed
- A separate land disturbance permit (Missouri State Operating Permit) is required for the construction of new cells and the soil borrow areas as these areas are not covered under the existing storm water permit
- Best Management Practices (BMPs) must be implemented in land disturbance areas
- Remove trees on the berm of the old clay lined leachate basin west of Outfall #1
- Continue efforts to address migrating methane (currently working with the SWMP Compliance/Enforcement Section)
- Leachate, believed to originate from the Wire Rope disposal area is entering the creek on the south side of the facility (Outfall #1, Area #1). (The facility must work with the SWMP Engineering Section to install an acceptable control structure to eliminate the discharge)
- Route storm water from the Wire Rope and Blue Side South Sludge Disposal Areas to a storm water basin

General Comments

- Vegetation on North Sludge Disposal Area is comprised of annuals along with some tree saplings (the area must be mowed to maintain a healthy stand of perennial grass)
- Soil testing should be implemented to ensure a healthy stand for vegetation on all non active areas
- The South Sludge Disposal Area has several trees growing on or near the cell (area must be mowed to maintain a healthy stand of perennial grass)
- Small erosion rills noted on North Sludge Disposal Area (repair as necessary)
- Both the North and South Sludge Disposal Areas have small areas with marginal cover (repair as necessary)
- It appears that rock piles and a haul road could have been placed over a small portion of the South Sludge Disposal Area (Exact borders of the cell are unclear, the disposal area should be managed to reduced damage to the cap)
- Remove trees and brush from the banks/berms and surrounding areas of all the leachate and sediment basins

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- Remove trees next to gas extraction wells on the western slope of the landfill
- Re-grade and reseed landfill slopes as necessary to reduce erosion and obtain a healthy stand of perennial grass
- Continue work to establish a healthy stand of perennial grass around the sediment basins to reduce erosion and sediment deposition into the basins
- Gas probe GP-4 needs the soil sedimentation removed from the surface completion
- Work on the Free Property (south of the landfill footprint) will require a sediment basin as it appears greater than 10 acres is disturbed
- Facility should consider adding shot rock around the sediment basin riser pipes to reduce clogging of the risers
- Access roads around the landfill boundary should be crowned for better flow and control of storm water
- Rock should be used for surface water let down structures or some other engineered design should be used to reduce the significant erosion that is occurring
- Outfalls should be lined with rock as needed to reduce the significant cuts that are forming on the back side of several of the outfalls

Sampling- Sampling was conducted by staff from the Department's ESP, Field Services Unit and EER Section following approved Department sampling procedures and protocol. Sample boring locations were documented through the use of GPS using Department approved location data (UTM), photographs of the location and sample chain of custody forms (see attached sampling report and supporting documents). Ground water samples were documented through the use of the existing ground water well identification numbers, photographs and sample chain of custody forms (see attached sampling report and supporting documents).

The following sampling was conducted:

Ground Water- Grab samples were taken from the facility's ground water wells nearest to the North and South Sludge Disposal Areas (GW #s 201, 203, 309, 320, 323, 324, 326 and 327). Attempts were made to sample well 202 but the well contained insufficient water to take a sample. The ground water samples were analyzed for both total chromium and hexavalent chromium (see attached results). The results appear to be in consensus with previous ground water sampling reports. Sample results were non-detect for hexavalent chromium in all ground water monitoring well samples taken during this sampling event. Total chromium levels were at trace levels near the practical quantitation limit.

Sludge- Stratified samples of the buried sludge in the North and South Sludge Disposal Areas (two separate cell areas) were taken at the approximate upper 1/3, middle 1/3 and lower 1/3 of the vertical strata. The total sludge depth for each boring was determined through probing and recorded. Sludge samples were analyzed for total chromium and hexavalent chromium (see attached results). A total of four Geoprobe borings were taken per fill area (four borings in each of the North and South Sludge Disposal Areas). Grab samples were taken at each of the three strata mentioned above. Each grab sample was analyzed separately. The exact location of the trenches was confirmed on site through discussions with St. Joseph Sanitary Landfill staff and the use of an excavator. Overall, the sample results for the sludge revealed hexavalent chromium at levels of up to 24 parts per million (ppm) down to non-detect. The total chromium levels varied from a high of 20,000 ppm down to 18.7 ppm. The variation in results does not appear to be related to a particular strata level or disposal area.

- A grab sample of tanning sludge was taken at approximately 11:15 a.m. from an Osborne Trucking tractor trailer that delivered a load of sludge from National Beef Leathers. The material was spongy and the odor from the sludge was very noticeable. See sample result #0914003. The sample analysis revealed 494 ppm for total chromium and 29 ppm for hexavalent chromium. All tanning sludge and hide trimming waste were reported to be mixed with municipal solid waste at the working face as soon as the load is delivered. The material is very heavy due to moisture content and slick. Landfill equipment operators move the material in small quantities to avoid sliding and the creation of soft spots in the landfill waste mass. Mr. Blacketer indicated that during very wet periods, the landfill often times will refuse to accept tanning sludge as the material becomes very difficult to manage during wet weather conditions.

Leachate- A water sample was taken from the landfill's leachate collection system (standpipe in area 3, sample # 0913592). The sample was analyzed for total chromium and hexavalent chromium. The hexavalent chromium and total chromium results showed trace quantities very near the practical quantitative limits.

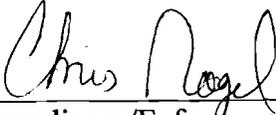
-An additional water sample was taken from the creek (at Outfall #1, south of Area #1) where it appeared that leachate from the Wire Rope disposal area was impacting the creek (see sample #0913594). The results of the analysis of the water sample from the creek do not appear to indicate a violation of the primary standards under the Missouri Clean Water Law related to metals (results were non detect for most of the tested metals including Hexavalent Chromium). However, there may be a violation of a secondary standard related to water color.

Conclusion

Overall, the inspection revealed some areas needing improvement related to the use of storm water controls, overall management of erosion control, and the need to modify the North Sludge Disposal Area, citizen drop off area and mulching area so they are located within a permitted outfall, as well as proper management of leachate that was discharging into the creek south of Area #1. The facility is currently working with the SWMP Compliance/Enforcement Section to correct the facilities methane gas migration. Daily operations of the landfill appeared to be satisfactory. The landfill needs to continue with routine maintenance related to soil and vegetative cover on side slopes and non-active areas as well as make repairs and keep up on maintenance related to siltation and trees in the sediment basins and erosion control on water control structures.

The findings of the sampling and inspections do not reveal any concerns as related to the disposal of tanning sludge and hide trimming waste in the current Subtitle D landfill. Sampling results also do not reveal any apparent impact to the ground water sampled down gradient of the North and South Sludge Disposal Areas. Leachate sampled from the landfill does not reveal high levels of chromium or hexavalent chromium.

Summary Report Submitted and Prepared by:



Compliance/Enforcement Section Chief
Solid Waste Management Program

7/31/09.
Date

Attachments

- ✓ Active Sanitary Landfill Inspection Report and cover letter dated June 16, 2009
- ✓ Water Pollution Inspection Report
- ✓ Site Sampling Investigation Report, cover page dated May 21, 2009
 - Appendix A- Site Maps
 - Appendix B
 - Department Sample Analysis report (sludge samples) dated June 10, 2009
 - Department Sample Analysis report (ground water and water samples) dated June 25, 2009
 - Appendix C
 - Field Notes and Chain of Custody Reports
 - Table 1- Soil/Sediment Sample Descriptions
 - Table 2- Water Sample Descriptions
- ✓ Aerial photo with data overlay showing St. Joseph SLF facility layout dated May 21, 2009
- ✓ Aerial photo depicting South Sludge Disposal Area sampling locations dated May 21, 2009
- ✓ Aerial photo depicting areas of concern related to South Sludge Disposal Area dated May 21, 2009
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