Review of 2015 1st Semi-annual Groundwater Monitoring Report
for
J.E.D. Solid Waste Management Facility

Review Dates: 10/5/15 & 2/19/16	Reviewed By: Allen Rainey, Environmental Specialist III	WACS Facility ID #: 89544
Facility Name: J.E.D. Solid Waste Management Facility		
Monitoring Period: May 2015		
Type: Routine and Evaluation Monitoring	Facility Class Types: Class I, Construction & Demolition Debris	
Report Date: 8/14/15	Received Date: 8/14/15	WACS Upload Date: 8/18/15
Prepared By: Geosyntec Consultants	Submitted By: ----	
Report Title: 22nd Semi-annual Water Quality Monitoring Report		

Review Details

Summary

- There are no immediate actions needed to protect groundwater. However, the Department is concerned that benzene concentrations in several wells show an increasing trend since the conclusion of evaluation monitoring in 2014 (see table and graphs below). The report indicates that a likely source of benzene in the wells is landfill gas.

Parameter Exceedances

- Benzene standard (1 µg/L) was exceeded in groundwater wells as follows. The report indicates that a likely source of benzene is landfill gas. The values in the table represent the highest benzene concentrations for the following wells since 2010: MW-3A, MW-6A, MW-10A, MW-12A, MW-13A

Well ID	Well Type	Concentration (µg/L)
MW-3A	Detection	8.9*
MW-4A	Detection	2.1
MW-6A	Detection	5.4*
MW-8A	Detection	3.3
MW-9A	Detection	11*
MW-10A	Detection	7.7*
MW-11A	Detection	11*
MW-12A	Detection	8.9*
MW-13A	Detection	3.9*
MW-1B	Detection	1.2

* concentrations have trended up (see graphs)

- Sodium standard (160 mg/L) was exceeded in detection well MW-1A at 282 mg/L. Qualifier code "J" accompanied the result, indicating there were quality control recovery issues.
- Chloride standard (250 mg/L) was exceeded in detection well MW-1A at 542 mg/L.
- Ammonia 62-777 GCTL (2.8 mg/L) was exceeded in 11 A-zone groundwater wells and 3 B-zone groundwater wells. All of the A-zone wells contain contained concentrations below the background of 10 mg/L established in the facility's Monitoring Plan Implementation Schedule for wells MW-5A, MW-9A, MW-10A, and MW-11A.
- Total dissolved solids standard (500 mg/L) was exceeded in 6 A-zone groundwater wells and 7 B-zone groundwater wells.
- Iron standard (0.3 mg/L) exceeded in a majority of groundwater wells. Detection wells MW-25 and MW-26 contained dissolved iron concentrations of 0.920 mg/L and 1.650 mg/L, respectively.
- pH in all of the wells was below the range of 6.5 to 8.5.

Notations

- There are no suspected impacts to surface water bodies.
- WACS reports the ammonia as nitrogen concentration in the surface water locations as exceedances. In surface waters, however, the standard of 0.02 mg/L is for unionized ammonia. The ADaPT Lab EDD data and the laboratory reports indicate that unionized ammonia was not detected above the laboratory practical quantitation limit of 0.01 mg/L.
- On 5/14/14, the Department granted approval to end total phenols analyses.
- The Department intends to modify the facility's MPIS to eliminate phenol analyses and change well classifications and statuses.

Purging Completion

Dissolved oxygen ≤ 20% saturation? NO If no, ± 0.2 mg/L or readings are within 10%? NO*	Turbidity ≤ 20 NTUs? NO If no, ± 5 NTUs or readings are within 10%? YES
Temperature ± 0.2° C? YES	pH ± 0.2 standard units? YES
Specific conductance ± 5% of reading? YES	
** did not achieve optional stabilization criteria for 5 wells for DO (wells 10B, 8B, 5B, 2B, and 1B)*	

Sampling and Analysis		
Sampling dates: May 7, 14, 18, 19, 20	Last lab analysis date: 5/30/15	
# of active groundwater monitoring locations: 46	# of active surface water monitoring locations: 2	
Initial sampling device: peristaltic pump	Re-sampling device: N/A	
All groundwater and surface water sampling points sampled? NO [A]	All analyses performed? YES	
Trip blanks? YES	Field or equipment blanks? YES	
Lab certified under National Environmental Laboratory Accreditation Program? YES		
Unionized ammonia analysis? YES	Phenols analysis? N/A [X]	Unfiltered samples? YES

[A] *Installation and baseline sampling of monitor wells MW-27A/B, MW-28A/B & MW-29A/B is in a separate Geosyntec report dated and received 9/18/15. The Department's review of that report is separate from this semi-annual monitoring review.*
[X] *Department approval granted on 5/14/14 to end total phenols analyses.*

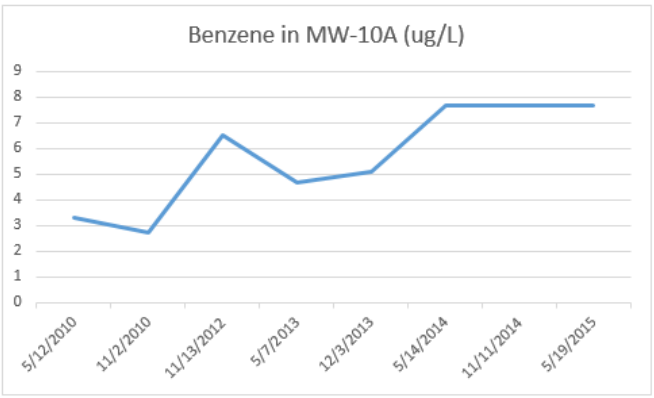
Monitoring Plan Implementation Schedule Reporting Requirements		
Revision Date: N/A	Effective Date: 1/30/15	Permit: SO49-0199726-022
Notification made within 14 days of sampling? YES		
Cover letter? NO		
Ground Water Monitoring Report, DEP Form 62-520.900(2) (or equivalent)? YES	Certification Date: 7/21/15	
Summary of exceedances & sampling issues? YES		
Groundwater contour maps? YES [a]	Contour maps signed and sealed? YES	
Water levels & water elevation table? YES	Water level measurements made within one-day period? YES	
Groundwater Sampling Logs, DEP Form FD 9000-24? YES		
Chain of custody forms? YES[N]		
Conclusions and recommendations? YES		
Lab and field EDD files named correctly (89544_201505_swldd.txt & 89544_201505_swfdd.txt)? YES		
Report named correctly (25473_201505_swgwmr.pdf)? YES		
File(s) indicate successful data export? YES		
Report signed and sealed by P.G.? YES	Date signed and sealed: 7/21/15	
Report received within 60 days of completing lab analysis? NO		

[a] *contour map for A-zone wells only; groundwater flow shifted back to historical NE and E directions*
[N] *none of the Chain of Custody forms are signed as received by the laboratory*

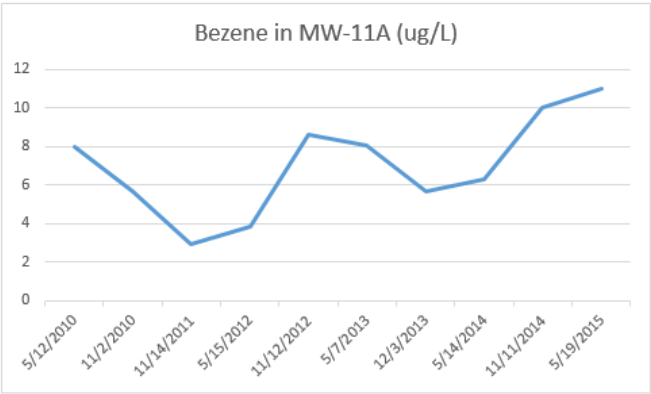
Graphs

(see following pages)

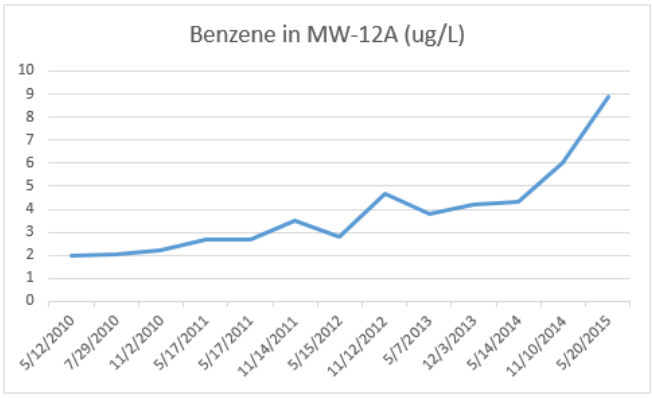
MW-10A	5/12/2010	3.3	ug/L
MW-10A	11/2/2010	2.74	ug/L
MW-10A	11/13/2012	6.5	ug/L
MW-10A	5/7/2013	4.7	ug/L
MW-10A	12/3/2013	5.1	ug/L
MW-10A	5/14/2014	7.7	ug/L
MW-10A	11/11/2014	7.7	ug/L
MW-10A	5/19/2015	7.7	ug/L



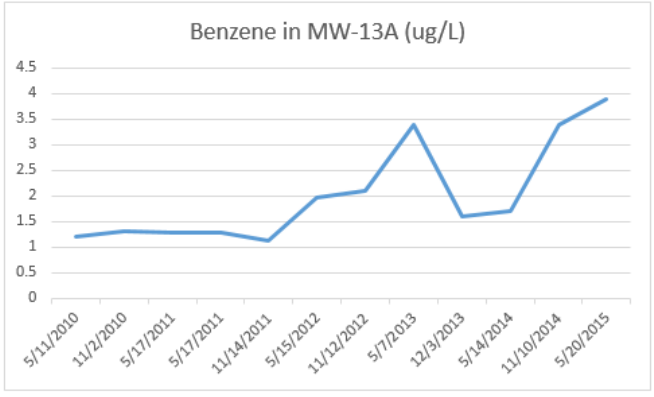
MW-11A	5/12/2010	8	ug/L
MW-11A	11/2/2010	5.65	ug/L
MW-11A	11/14/2011	2.95	ug/L
MW-11A	5/15/2012	3.84	ug/L
MW-11A	11/12/2012	8.6	ug/L
MW-11A	5/7/2013	8.1	ug/L
MW-11A	12/3/2013	5.7	ug/L
MW-11A	5/14/2014	6.3	ug/L
MW-11A	11/11/2014	10	ug/L
MW-11A	5/19/2015	11	ug/L



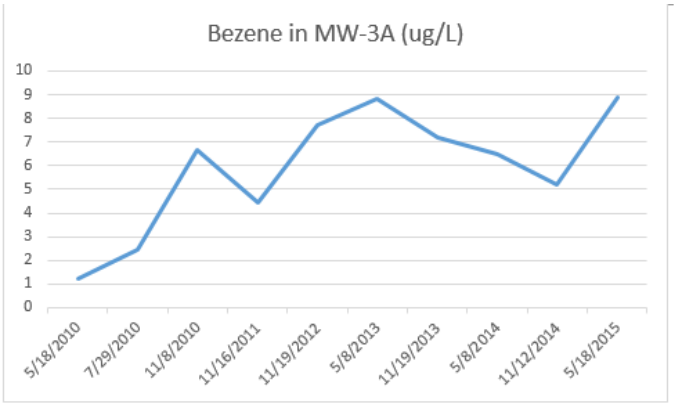
MW-12A	5/12/2010	2	ug/L
MW-12A	7/29/2010	2.03	ug/L
MW-12A	11/2/2010	2.19	ug/L
MW-12A	5/17/2011	2.69	ug/L
MW-12A	5/17/2011	2.69	ug/L
MW-12A	11/14/2011	3.5	ug/L
MW-12A	5/15/2012	2.83	ug/L
MW-12A	11/12/2012	4.7	ug/L
MW-12A	5/7/2013	3.8	ug/L
MW-12A	12/3/2013	4.2	ug/L
MW-12A	5/14/2014	4.3	ug/L
MW-12A	11/10/2014	6	ug/L
MW-12A	5/20/2015	8.9	ug/L



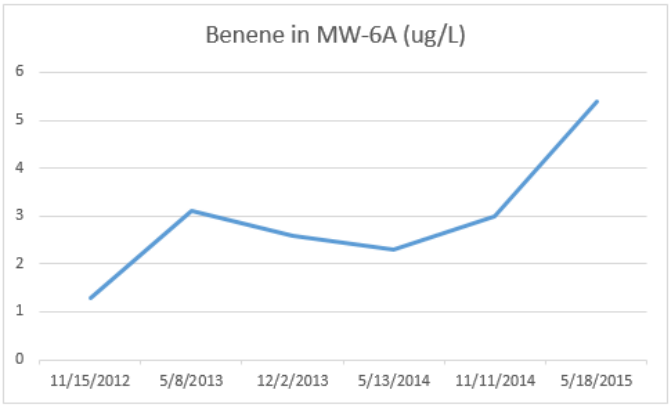
MW-13A	5/11/2010	1.2	ug/L
MW-13A	11/2/2010	1.31	ug/L
MW-13A	5/17/2011	1.28	ug/L
MW-13A	5/17/2011	1.28	ug/L
MW-13A	11/14/2011	1.14	ug/L
MW-13A	5/15/2012	1.98	ug/L
MW-13A	11/12/2012	2.1	ug/L
MW-13A	5/7/2013	3.4	ug/L
MW-13A	12/3/2013	1.6	ug/L
MW-13A	5/14/2014	1.7	ug/L
MW-13A	11/10/2014	3.4	ug/L
MW-13A	5/20/2015	3.9	ug/L



MW-3A	5/18/2010	1.2	ug/L
MW-3A	7/29/2010	2.43	ug/L
MW-3A	11/8/2010	6.65	ug/L
MW-3A	11/16/2011	4.46	ug/L
MW-3A	11/19/2012	7.7	ug/L
MW-3A	5/8/2013	8.8	ug/L
MW-3A	11/19/2013	7.2	ug/L
MW-3A	5/8/2014	6.5	ug/L
MW-3A	11/12/2014	5.2	ug/L
MW-3A	5/18/2015	8.9	ug/L



MW-6A	11/15/2012	1.3	ug/L
MW-6A	5/8/2013	3.1	ug/L
MW-6A	12/2/2013	2.6	ug/L
MW-6A	5/13/2014	2.3	ug/L
MW-6A	11/11/2014	3	ug/L
MW-6A	5/18/2015	5.4	ug/L



MW-9A	5/13/2010	11	ug/L
MW-9A	11/3/2010	11.5	ug/L
MW-9A	11/15/2011	10.3	ug/L
MW-9A	5/16/2012	5.24	ug/L
MW-9A	11/13/2012	1.4	ug/L
MW-9A	5/7/2013	2.3	ug/L
MW-9A	12/2/2013	3.7	ug/L
MW-9A	5/15/2014	6.6	ug/L
MW-9A	11/11/2014	8.5	ug/L
MW-9A	5/19/2015	11	ug/L