



**Review of 2015 2nd Semi-annual Water Quality Monitoring Report
for
Tomoka Farms Road Landfill**

Review Date: 3/15/16	Reviewed By: Allen Rainey, Environmental Specialist III	WACS Facility ID #: 27540 (COM_153864: B5/B-37) COM_68271: LF1 AKA B-5)
Facility Name: Tomoka Farms Road Landfill	County: Volusia	
Monitoring Period: November 2015		
Type: Routine & Evaluation Monitoring	Facility Class Types: Class I, Class III	
Report Date: January 2016	Received Date: 1/26/16	Date Uploaded to WACS: 1/27/16 8:07 pm
Prepared By: HDR Engineering, Inc.	Submitted By: ----	
Report Title: 2015 Second Semiannual Water Quality Monitoring Report		

Review Details

Summary

- Exceedances occurring during this routine semi-annual monitoring period should be discussed with the facility. As stated in the Waste Cleanup Program's 2/17/16 letter regarding review of the November 2015 B-5 and B-37 contamination assessment report, the Department anticipates holding a meeting in mid-2016.
- Arsenic concentrations in wells B75 and B45-2 show an increasing trend since the May 2015 monitoring period. The arsenic concentration in well B45-2 is the highest at this facility since monitoring began.
- Chloride concentrations in intermediate well B8-2 have exceeded the chlorine groundwater quality standard during all monitoring periods since May 2013 and bear watching.
- There were no unionized ammonia detections in surface water locations, as had occurred in SW-5 during the May 2015 monitoring period.

Parameter Exceedances

- Benzene standard (1 µg/L) was exceeded in the following wells.

Well ID	Well Type	Concentration (µg/L)
B36	Background	2.4
B37-1	Compliance	11.3
B45-2	Compliance	1.8
B85-6	Assessment	1.7

- Arsenic standard (10 µg/L) was exceeded in the following wells:

Well ID	Well Type	Concentration (µg/L)
B33-2	Compliance	12.2
B39	Compliance	18
B45-2	Compliance	114
B73-2	Compliance	11.1
B75	Compliance	32.4

The graphs below depict all wells having more than one arsenic concentration exceedance since monitoring began at this facility. The concentration in well B45-2 is the highest since monitoring began at this facility. The report indicates that "arsenic has been historically detected above the PDWS in the groundwater at the landfill."

- Sodium standard (160 mg/L) was exceeded in compliance wells B37-1 at 225 mg/L and assessment well B85-6 at 173 mg/L. The sodium standard has been exceeded in well B37-1 during all monitoring periods since May 2010. Sodium concentrations in well B85-6 have exceeded the sodium groundwater standard since November 2013.
- Chloride standard (250 mg/L) was exceeded in intermediate well B8-2 at 648 mg/L and compliance well B45-2 at 278 mg/L. The chloride standard has been exceeded in well B8-2 during all monitoring periods since May 2013; at that time, the well concentration was 288 mg/L. Exceedances in well B45-2 have been sporadic since 2006.
- Ammonia 62-777 GCTL (2.8 mg/L) was exceeded in background well B2, compliance wells B64, B1-B, B43-2, and MO-5, and contamination assessment wells B85 and B85-6. Well B-1B had the highest concentration at 16.9 mg/L.
- Iron standard (0.3 µg/L) and total dissolved solids standard (500 mg/L) were exceeded in a majority of the groundwater monitoring wells. Four of the 10 Floridan aquifer wells had iron exceedances.
- Iron surface water standard (1,000 mg/L) was exceeded in SW-2 and SW-5 at 3,420 and 3,000 µg/L, respectively.
- pH in most of the groundwater wells was below within the range of 6.5 – 8. Fourteen wells had pH values within that range.

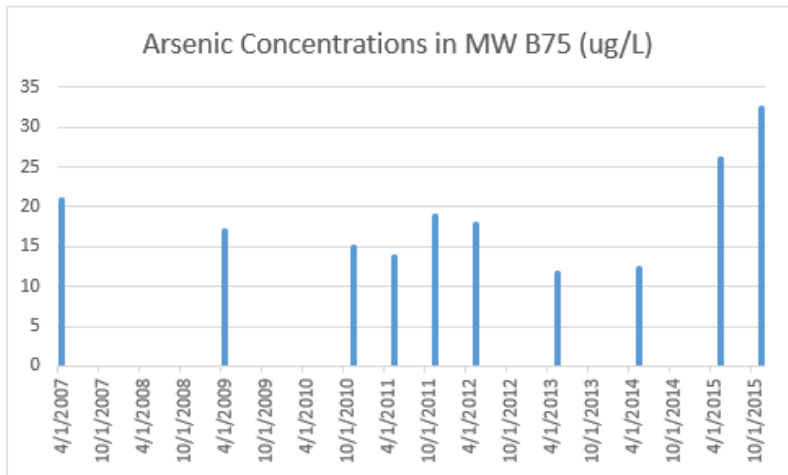
Notations

<ul style="list-style-type: none"> • There was no mercury surface water standard exceedance in surface water location SW-1, as had occurred during the previous May 2015 monitoring period. • For the surface water locations, the facility reported and uploaded to ADaPT the ammonia concentrations as ammonia-N (WACS Analyte ID 1515). In surface waters, however, the standard of 0.02 mg/L is for unionized ammonia (WACS Analyte ID 7664417). There were no reported unionized ammonia exceedances in surface water locations. • On 4/14/15, the Department agreed to the facility's request to discontinue evaluation monitoring for benzene and end sampling in 11 Evaluation Monitoring wells. Previously, the Department ended evaluation monitoring for ammonia. 		
Purging Completion		
Dissolved oxygen \leq 20% saturation? NO If no, \pm 0.2 mg/L or readings are within 10%? YES	Turbidity \leq 20 NTUs? NO If no, \pm 5 NTUs or readings are within 10%? NO *	
Temperature \pm 0.2° C? YES	pH \pm 0.2 standard units? YES	
Specific conductance \pm 5% of reading? YES		
* criteria not achieved for one well		
Sampling and Analysis		
Sampling dates: Nov. 12, 13, 14, 16, 17, 18, 19, 20	Last lab analysis date: 12/4/15	
# of active groundwater monitoring locations: 50 (May Monitoring = 31, November Monitoring = 50)		
# of active surface water monitoring locations: 7		
Initial sampling device: peristaltic pump	Re-sampling device: N/A	
All groundwater and surface water sampling points sampled? YES	All analyses performed? YES	
Trip blanks? YES	Field or equipment blanks? YES	
Lab certified under National Environmental Laboratory Accreditation Program? YES		
Unionized ammonia analysis? N/A	Phenols analysis? N/A	Unfiltered samples? YES
Monitoring Plan Implementation Schedule Reporting Requirements		
Revision Date: N/A	Effective Date: 7/27/15	Permits: 0078767-030-SO-01 (North Cell 1 Class I) 0078767-034-SO-T3 (Class III) SF64-0078767-028 (North closure and South Cell post-closure care)
Notification made within 14 days of sampling? NO		
Cover letter? NO		
Ground Water Monitoring Report, DEP Form 62-520.900(2) (or equivalent)? NO		Certification Date: N/A
Summary of exceedances & sampling issues? YES		
Groundwater contour maps? YES	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		
Conclusions and recommendations? YES		
Lab and field EDD files named correctly (27540_201511_swldd.txt & 27540_201511_swfdd.txt)? YES		
Report named correctly (27540_201511_swgwmr.pdf)? YES		
File(s) indicate successful data export? YES		
Report signed and sealed by P.G.? YES	Date signed and sealed: 1/26/16	
Report received within 60 days of completing lab analysis? YES		
Graphs		

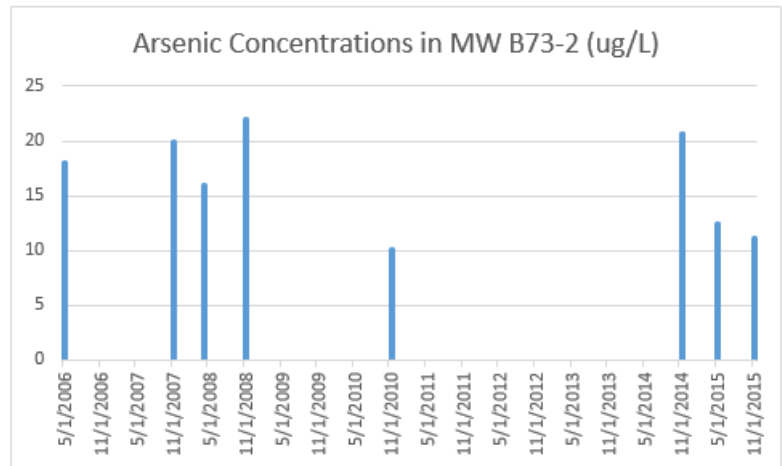
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Arsenic concentrations in monitoring wells (µg/L)

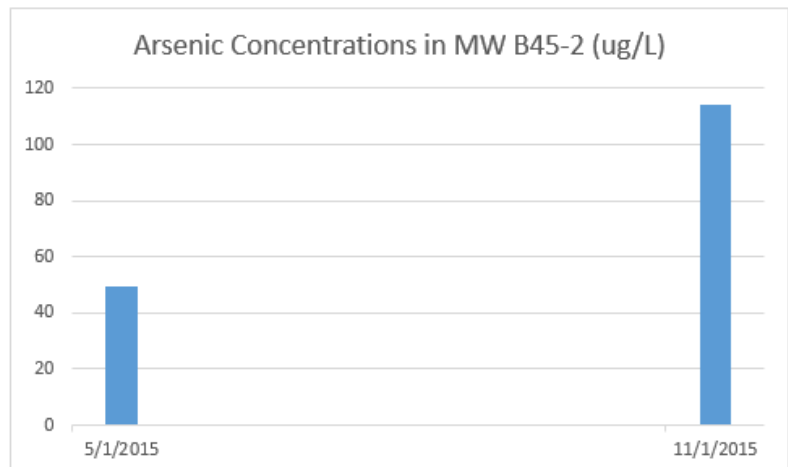
TESTSITE NAME	SAMPLE DATE	RESULTS
B75	4/25/2007	21
B75	4/15/2009	17
B75	11/10/2010	15
B75	5/11/2011	13.7
B75	11/8/2011	18.9
B75	5/2/2012	17.9
B75	5/8/2013	11.6
B75	5/23/2014	12.3
B75	5/7/2015	26
B75	11/16/2015	32.4



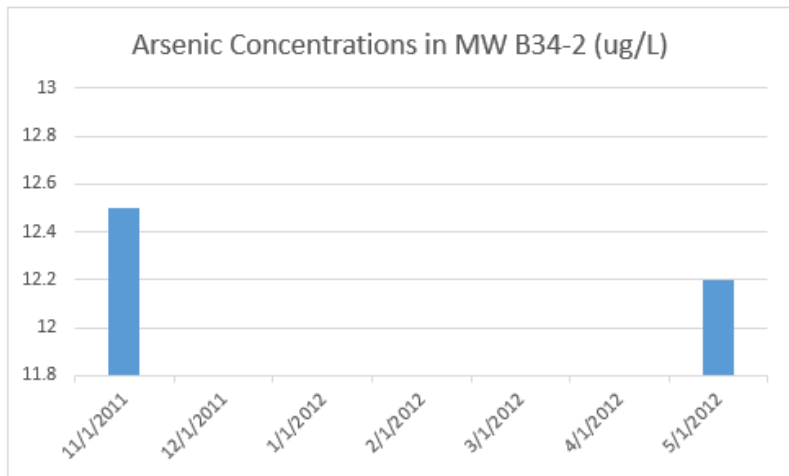
TESTSITE NAME	SAMPLE DATE	RESULTS
B73-2	5/2/2006	18
B73-2	11/8/2007	20
B73-2	4/22/2008	16
B73-2	11/5/2008	22
B73-2	11/10/2010	10.1
B73-2	11/13/2014	20.6
B73-2	5/7/2015	12.4
B73-2	11/17/2015	11.1



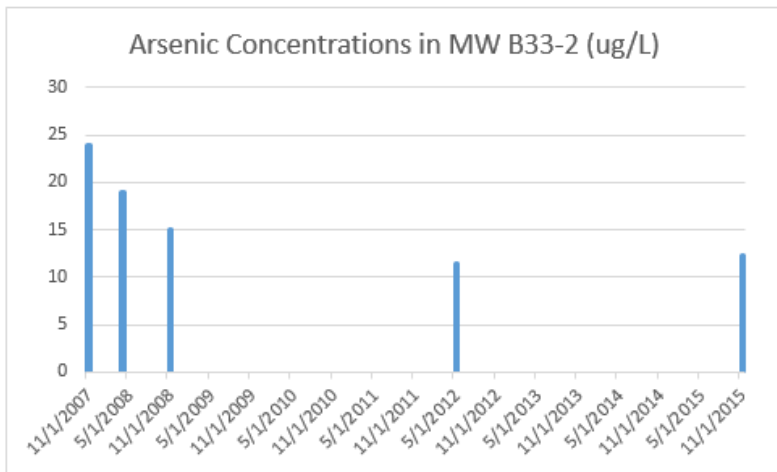
TESTSITE NAME	SAMPLE DATE	RESULTS
B45-2	5/6/2015	49.2
B45-2	11/14/2015	114



TESTSITE NAME	SAMPLE DATE	RESULTS
B34-2	11/14/2011	12.5
B34-2	5/2/2012	12.2

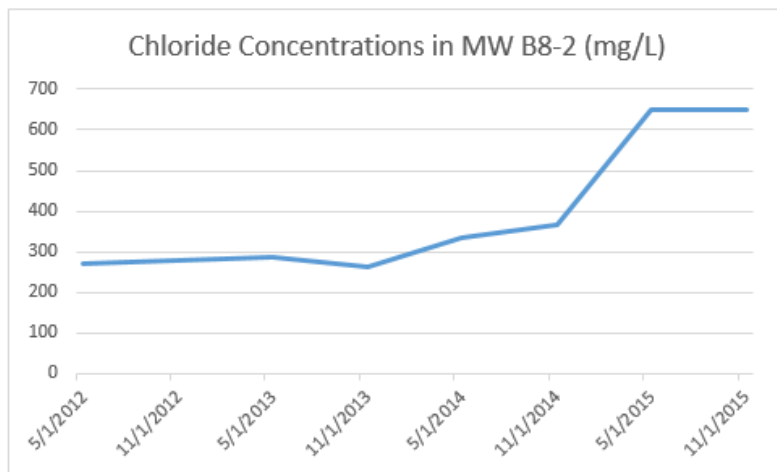


TESTSITE NAME	SAMPLE DATE	RESULTS
B33-2	11/7/2007	24
B33-2	4/23/2008	19
B33-2	11/6/2008	15
B33-2	5/2/2012	11.4
B33-2	11/19/2015	12.2



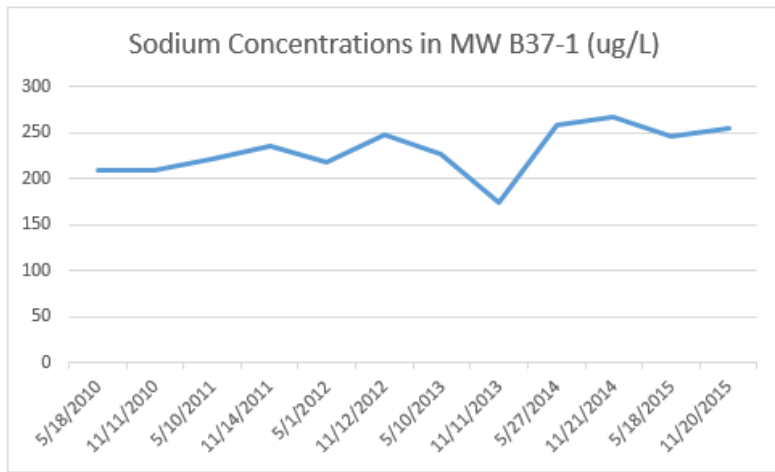
Chloride concentrations in monitoring wells (mg/L)

TESTSITE NAME	SAMPLE DATE	RESULTS
B8-2	5/2/2012	271
B8-2	5/13/2013	288
B8-2	11/7/2013	262
B8-2	5/23/2014	335
B8-2	11/13/2014	367
B8-2	5/12/2015	648
B8-2	11/17/2015	648

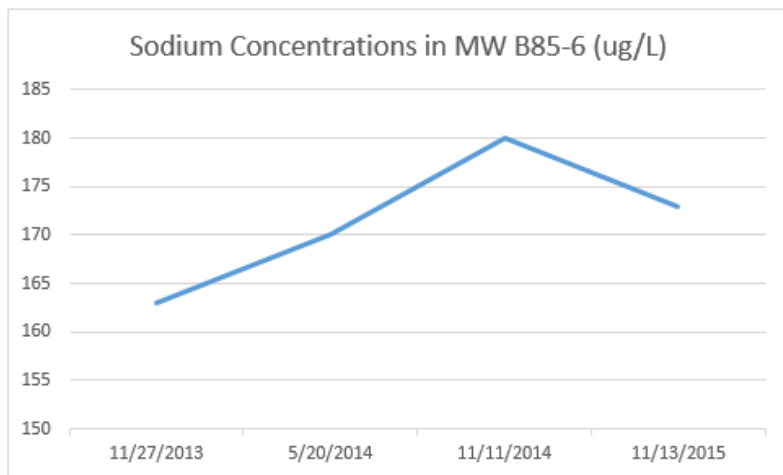


Sodium concentrations in monitoring wells (µg/L)

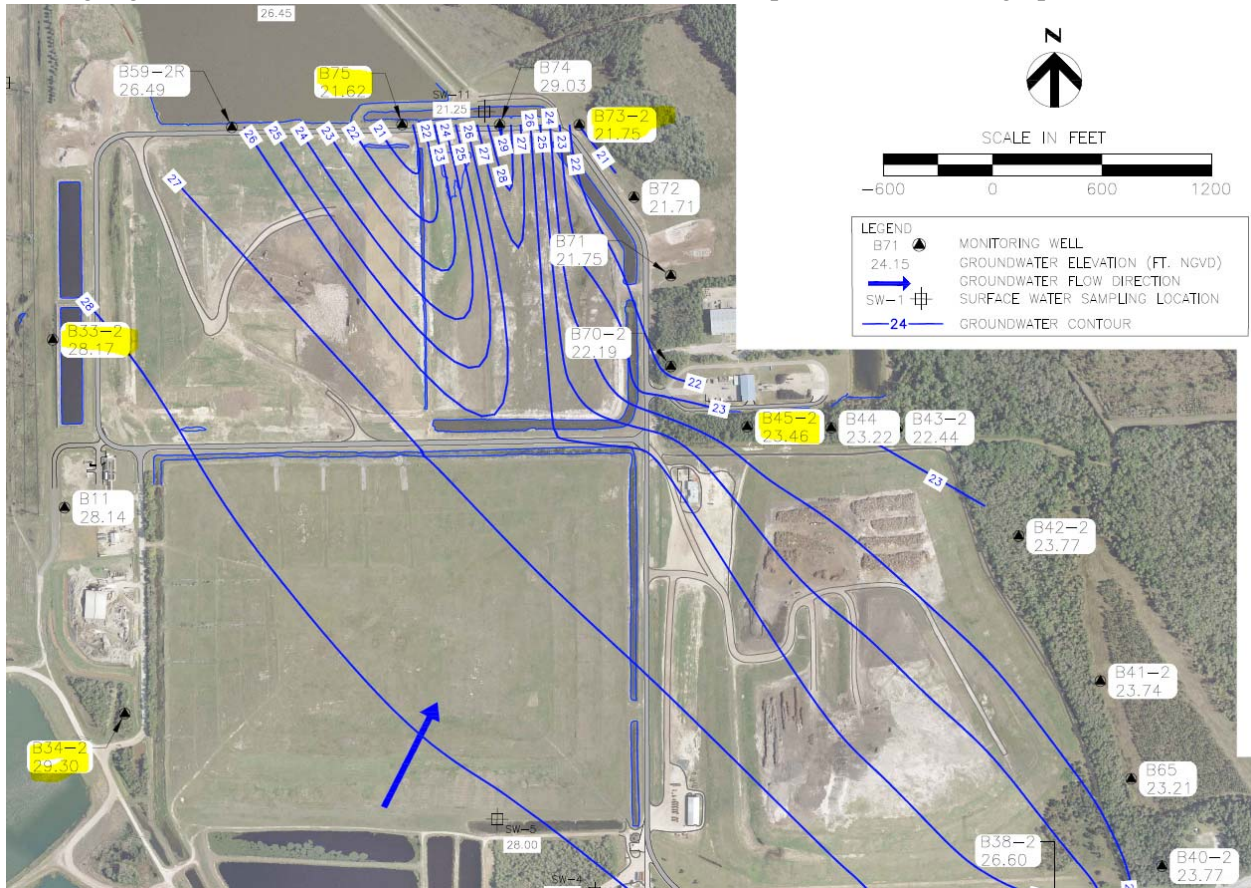
TESTSITE NAME	SAMPLE DATE	RESULTS
B37-1	5/18/2010	210
B37-1	11/11/2010	209
B37-1	5/10/2011	221
B37-1	11/14/2011	236
B37-1	5/1/2012	218
B37-1	11/12/2012	249
B37-1	5/10/2013	227
B37-1	11/11/2013	174
B37-1	5/27/2014	258
B37-1	11/21/2014	267
B37-1	5/18/2015	246
B37-1	11/20/2015	255



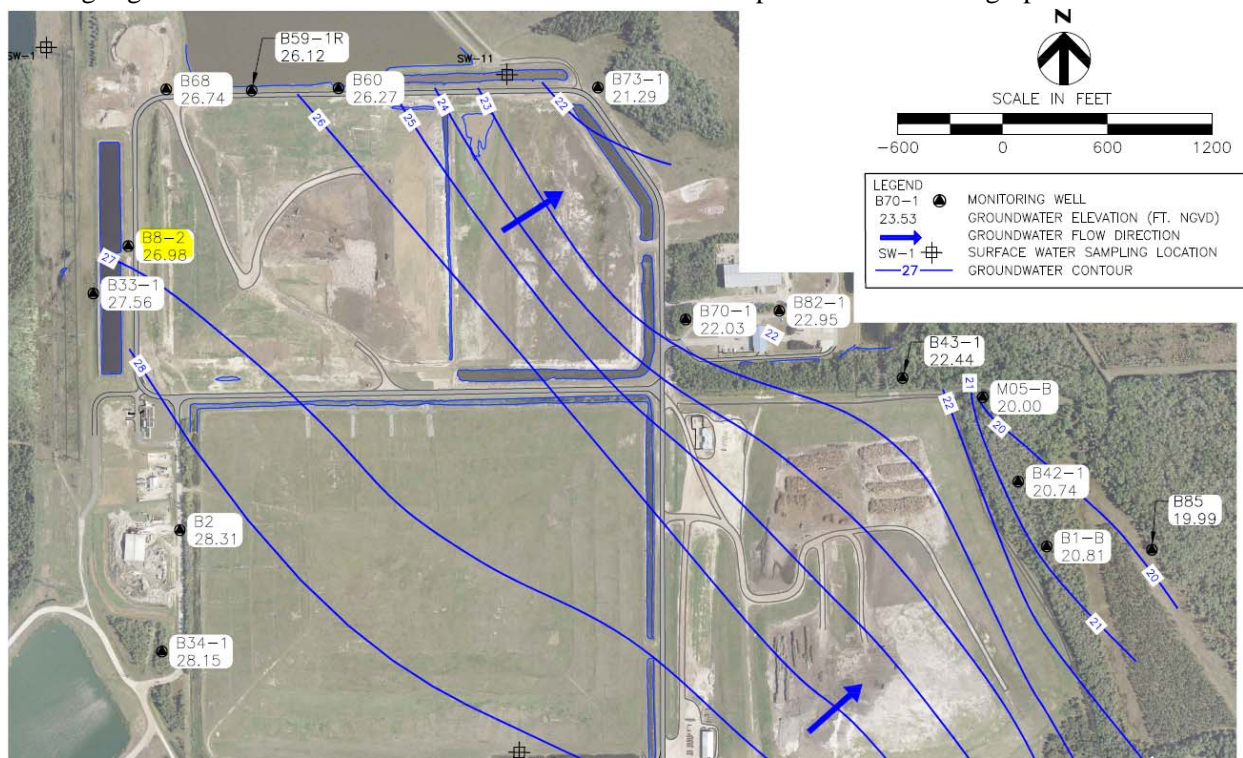
TESTSITE NAME	SAMPLE DATE	RESULTS
B85-6	11/27/2013	163
B85-6	5/20/2014	170
B85-6	11/11/2014	180
B85-6	11/13/2015	173



The highlighted wells have arsenic concentration exceedances depicted in the above graphs.



The highlighted well has chloride concentration exceedances depicted in the above graphs.



The highlighted wells have sodium concentrations depicted in the above graphs.

