Groundwater Monitoring Plan Modification

Emerald Park Landfill
License No. 03290
Waukesha County, WI

Prepared for:
Advanced Disposal Services
Emerald Park Landfill
W124 S10629 124th Street
Muskego, WI 53150

Prepared by:
Environmental Sampling Corp.
P.O. Box 12
Muskego, WI 53150

October 2016

ENVIRONMENTAL SAMPLING CORPORATION

Dedicated to Environmental Monitoring, Science & Technology

October 11, 2016

Mr. Joe Lourigan, P.G.
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

RE: ADS Emerald Park Landfill, LLC
Groundwater Monitoring Plan Modification

Dear Mr. Lourigan:

On behalf of ADS Emerald Park Landfill (ADS-EPL), Environmental Sampling Corporation (ESC) is submitting this Groundwater Monitoring Plan Modification for your review and approval. This report proposes Preventative Action Limits (PALs) and Alternative Concentration Limits (ACLs) for various groundwater monitoring wells at the facility. The PALs and ACLs included in this report are intended to complete the values included in the Southwestern Expansion Plan of Operations, Emerald Park Landfill, approved and dated June 2011.

If you have any questions or concerns during your review, please call Michael Hackney, General Manager of ADS-EPL, at (414) 529-1360 or the undersigned at (414) 427-5033.

Sincerely,
Environmental Sampling Corporation

Scott Freimark/TI

Scott Freimark
Hydrogeologist

cc: Ms. Ann Bekta, P.E. – WDNR
Mr. Tim Curry – ADS (electronic copy)
Ms. Kari Rabideau – ADS (electronic copy)
Mr. Mike Hackney – ADS-EPL (electronic copy)
Mr. Brett Coogan – ADS-EPL (electronic copy)
Mr. Tyler Field – Cornerstone Environmental Group (electronic copy)
Mr. Jo Spear – JSA Civil Environmental Engineers (electronic copy)
Mr. Frank Perugini – ESC

ADS Emerald Park Landfill, LLC
Groundwater Monitoring Plan Modification

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Section 1

Certification

I, Anndelee J. Gregg, hereby certify that I am a licensed professional geologist in the State of Wisconsin in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code; that the preparation of this document has not involved any unprofessional conduct as detailed in ch. GHSS 5, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 538, Wis. Adm. Code.

Anndelee J. Gregg 10/4/16

Anndelee J. Gregg, P.G. Date

Wisconsin G-25

Section 2

Introduction

2.1 Background

Advanced Disposal Services Emerald Park Landfill, LLC. (ADS-EPL) operates a municipal solid waste disposal facility in the S ½ of the NE ¼, the E ½ of the SW ¼ and the SE ¼ of section 36, T5N, R20E in the city of Muskego, Waukesha County, Wisconsin.

This report proposes Preventative Action Limits (PAL) and Alternative Concentration Limits (ACL) calculations for various groundwater monitoring wells included in the June 9, 2011 facility permit (**Appendix A**). Full baseline monitoring was conducted at five groundwater monitoring wells that were either not installed prior to the Plan of Operations approval or were abandoned and replaced. Several of the 300 level groundwater monitoring wells are also included in this submittal because three parameters (COD, hardness and sodium) were not included in the original submittal. Finally, additional sampling was conducted at several groundwater monitoring wells for arsenic because the NR140 standards have changed. PALs and ACLs have not been calculated for the monitoring wells that have been abandoned and/or are no longer required to be monitored for detection monitoring parameters in accordance with the June 9, 2011 permit. **Table 1** summarizes all of the groundwater monitoring wells and parameters for which PAL or ACL assignments are requested by this submittal.

As specified in the Southwestern Expansion Plan of Operations Table 7, PALs for COD, hardness and sodium were “to be determined” at all 17 of the 300 level groundwater monitoring wells. Baseline monitoring for arsenic was conducted at several groundwater monitoring wells that were listed on Table 8 of the Southwestern Expansion Plan of Operations as “additional samples may be needed”. Baseline monitoring at MW-19AR and MW-120DR was conducted because both of the wells had been replaced. Baseline monitoring was conducted at MW-303D, MW-305D and MW-313D because the wells were installed and sampled after the Southwestern Expansion Plan of Operations was issued. MW-314D was also listed in the POO but was never installed.

TABLE 1

Groundwater Monitoring Well
Summary of Requested PALs and ACLs

	Parameter									
Well ID	Alkalinity	COD	Hardness	Sodium	Specific Conductance	Arsenic	Boron	Fluoride	Manganese	Sulfate
MW-4C	--	--	--	--	--	ACL	--	--	--	--
MW-5A	--	--	--	--	--	ACL	--	--	--	--
MW-19AR	PAL	PAL	PAL	PAL	PAL		--	--	--	ACL
MW-104B	--	--	--	--	--	ACL	--	--	--	--
MW-106B	--	--	--	--	--	ACL	--	--	--	--
MW-106D	--	--	--	--	--	ACL	--	--	--	--
MW-115E	--	--	--	--	--	ACL	--	--	--	--
MW-117C	--	--	--	--	--	ACL	--	--	--	--
MW-117D	--	--	--	--	--	ACL	--	--	--	--
MW-120C	--	--	--	--	--	ACL	--	--	--	--
MW-120DR	PAL	PAL	PAL	PAL	PAL	ACL	ACL	ACL	ACL	ACL
MW-121D	--	--	--	--	--	ACL	--	--	--	--
MW-125D	--	--	--	--	--	ACL	--	--	--	--
MW-126A	--	--	--	--	--	ACL	--	--	--	--
MW-131A	--	--	--	--	--	ACL	--	--	--	--
MW-131D	--	--	--	--	--	ACL	--	--	--	--
MW-301A	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-301B	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-301C	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-302A	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-302B	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-302C	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-303A	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-303B	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-303C	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-303D	PAL	PAL	PAL	PAL	PAL	ACL	ACL	ACL	--	--
MW-304A	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-304B	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-304C	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-305A	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-305B	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-305C	--	PAL	PAL	PAL	--	--	--	--	--	--
MW-305D	PAL	PAL	PAL	PAL	PAL	ACL	ACL	ACL	--	--
MW-313D	PAL	PAL	PAL	PAL	PAL	ACL	ACL	ACL	--	ACL

Section 3

Method of Analysis

3.1 Well Location and Data Compilation

The current site features map for the ADS-EPL site is presented on **Figure 1**. The locations of all of the environmental monitoring points at the site including all of the groundwater monitoring wells discussed in this report are shown on **Figure 1**.

Groundwater monitoring data for the wells evaluated in the report and the parameters included in the following tables were assembled and incorporated into a computer database at Environmental Sampling Corporation (ESC). This database was used to complete the evaluation presented below.

3.2 Data Evaluation

A number of techniques were employed to screen the groundwater monitoring data to be used for the PAL/ACL calculations. These methods are briefly discussed in the following subsections.

3.2.1 Preliminary Statistical Analysis

Data summary tables were used to identify regulatory exceedances of parameters monitored at the site and calculate statistics (mean, standard deviation, etc.) of each parameter with at least one detect. The data summary tables were also used to calculate the total number of values (i.e., sampling rounds) for each parameter at each well of concern. The data summary tables were then reviewed to identify the wells and parameters for which ACLs would be calculated based on the total number of rounds and wells and parameters displaying exceedances. The list of well/parameters for which ACLs would be calculated was then created. PAL calculations for indicator parameters were performed using the data summary tables.

3.2.2 Time-Concentration Graphing

As required by the WDNR reference guide, Publication WA 1105 Rev. 2007, time vs. concentration graphs provided in **Appendix B** were constructed for each of the wells and parameters for which PAL or ACL calculations were conducted. One parameter is presented on each graph. These graphs were used in combination with the data summary tables which included concentrations for each parameter to aid in the identification and elimination of any outliers.

3.2.3 Outlier Elimination

Outlier elimination was achieved by evaluating the preliminary statistics, the data summary tables and the time vs concentration graphs. Each of the outliers is noted and highlighted in the data summary tables. In general, statistical outliers were determined using practices outlined in ASTM paper E-178. Concentrations identified as significantly greater than or less than the majority of the historical data (potentially due to laboratory or reporting limits) were highlighted as outliers on the data summary tables. The concentrations determined to be outliers were not included on the final PAL/ACL calculations but are plotted on the time vs. concentration graphs and are labeled as outliers.

3.3 PAL/ACL Statistical Analysis

The procedures used to calculate the PALs and ACLs are consistent with the September 26, 2002 WDNR guidance document (Publication WA 1105 Rev. 2007). At least eight rounds of background data were used in each calculation. Values that were reported as less than the detection limit were assigned a value of half of the detection value to facilitate statistical analyses. The final PAL and ACL values were then rounded to two significant figures.

3.3.1 PAL Calculations

The PALs for each indicator parameter were determined by calculating the mean concentration plus three standard deviations from the mean. PALs were calculated for the following parameters: alkalinity, sodium, hardness, specific conductance and COD. The mean plus the NR 140.20 Table 3 increments for each parameter was also calculated, and then compared with the mean plus three standard deviations. The greater of the two values was then selected as the final proposed PAL. The proposed PAL calculations are presented on **Table 2**.

TABLE 2

Proposed PAL Calculations

Parameter	Sample Point (DID)	Sample Count	NR140 Min. Incr.	Mean	Std Dev	3X Std Dev	Mean + 3X Std Dev	Mean + Min. Incr.	PAL
Alkalinity (mg/L)	MW-19AR (091)	8	100	505	32.1	96	600	610	**610**
	MW-120DR(161)	8	100	131	32.9	99	230	240	**240**
	MW-303D (201)	15	100	128	6.2	19	150	230	**230**
	MW-305D (213)	15	100	115	5.4	16	140	220	**220**
	MW-313D (217)	15	100	105	7.0	21	130	210	**210**
Sodium (mg/L)	MW-19AR (091)	8	10	22.3	4.8	14.5	37.0	32.0	**37**
	MW-120DR(161)	8	10	92.0	7.2	21.5	120.0	110.0	**120**
	MW-301A (184)	8	10	63.0	5.5	16.5	80	73	**80**
	MW-301B (186)	8	10	124.9	11.4	34.3	160	140	**160**
	MW-301C (188)	8	10	61.1	2.4	7.1	69	72	**72**
	MW-302A (190)	17	10	25.1	10.0	30.0	56	36	**56**
	MW-302B (192)	17	10	108.1	5.3	15.9	130	120	**130**
	MW-302C (194)	17	10	57.5	4.0	12.1	70	68	**70**
	MW-303A (196)	17	10	96.1	43.0	129.0	230	110	**230**
	MW-303B (198)	17	10	117.6	8.1	24.2	150	130	**150**
	MW-303C (200)	16	10	57.6	3.8	11.3	69	68	**69**
	MW-303D (201)	15	10	51.1	2.2	6.5	58	62	**62**
	MW-304A (202)	17	10	28.0	6.1	18.3	47	38	**47**
	MW-304B (204)	16	10	133.7	8.8	26.3	160	150	**160**
	MW-304C (206)	17	10	61.0	2.8	8.4	70	71	**71**
	MW-305A (208)	17	10	155.4	34.1	102.2	260	170	**260**
	MW-305B (210)	17	10	126.9	9.0	26.9	160	140	**160**
	MW-305C (212)	16	10	88.5	4.6	13.8	110	99	**110**
	MW-305D (213)	15	10	50.2	2.0	5.9	57	61	**61**
	MW-313D (217)	15	10	81.8	4.1	12.2	94	92	**95**
Hardness (mg/L)	MW-19AR (091)	8	100	989.6	210.0	630	1,700	1,100	**1,700**
	MW-120DR(161)	8	100	212.0	82.0	246	460	320	**460**
	MW-301A (184)	8	100	1,417.5	45.9	137.7	1,600	1,600	**1,600**
	MW-301B (186)	8	100	121.8	9.2	27.5	150	230	**230**
	MW-301C (188)	8	100	111.4	126.8	380.5	500	220	**500**
	MW-302A (190)	17	100	406.1	87.5	262.4	670	510	**670**
	MW-302B (192)	17	100	124.4	8.6	25.8	160	230	**230**
	MW-302C (194)	17	100	157.5	159.6	478.7	640	260	**640**
	MW-303A (196)	17	100	852.1	70.2	210.6	1,100	960	**1,100**
	MW-303B (198)	17	100	157.3	11.4	34.1	200	260	**260**
	MW-303C (200)	15	100	49.7	3.5	10.6	61	150	**150**
	MW-303D (201)	15	100	81.5	7.4	22	110	190	**190**
	MW-304A (202)	17	100	528.8	40.2	120.5	650	630	**650**
	MW-304B (204)	17	100	176.1	14.7	44.2	230	280	**280**
	MW-304C (206)	16	100	59.7	6.3	18.9	79	160	**160**
	MW-305A (208)	16	100	1,317.5	80.4	241.1	1,600	1,500	**1,600**
	MW-305B (210)	16	100	218.2	38.6	115.9	340	320	**340**
	MW-305C (212)	16	100	106.6	18.7	56.0	170	210	**210**
	MW-305D (213)	15	100	80.0	4.7	14	95	180	**180**
	MW-313D (217)	15	100	107	9.0	27	140	210	**210**
Conductivity (umhos@25C)	MW-19AR (091)	8	200	1,256	141	422	1,700	1,500	**1,700**
	MW-120DR 161)	8	200	687	182	545	1,300	890	**1,300**
	MW-303D (201)	15	200	393	80	239	640	600	**640**
	MW-305D (213)	15	200	371	42	125	500	580	**580**
	MW-313D (217)	15	200	567	61	182	750	770	**770**

TABLE 2 (Cont.)

Proposed PAL Calculations

Parameter	Sample Point (DID)	Sample Count	NR140 Min. Incr.	Mean	Std Dev	3X Std Dev	Mean + 3X Std Dev	Mean + Min. Incr.	PAL
COD (mg/L)	MW-19AR (091)	8	25	10.8	5.7	17.0	28.0	36.0	**36**
	MW-120DR(161)	8	25	10.5	7.0	21.0	32.0	36.0	**36**
	MW-301A (184)	8	25	16.5	12.6	37.8	55	42	**55**
	MW-301B (186)	8	25	19.3	9.5	28.5	48	45	**48**
	MW-301C (188)	8	25	149.0	206.7	620.2	770	180	**770**
	MW-302A (190)	9	25	31.2	37.1	111.3	150	57	**150**
	MW-302B (192)	8	25	23.9	8.3	24.9	49	49	**49**
	MW-302C (194)	8	25	44.2	37.5	112.6	160	70	**160**
	MW-303A (196)	8	25	10.8	7.1	21.4	33	36	**36**
	MW-303B (198)	8	25	23.1	8.5	25.6	49	49	**49**
	MW-303C (200)	8	25	8.6	5.4	16.1	25	34	**34**
	MW-303D (201)	8	25	5.2	0.4	1.1	6.3	31	**31**
	MW-304A (202)	8	25	17.5	18.9	56.7	75	43	**75**
	MW-304B (204)	8	25	12.5	7.9	23.7	37	38	**38**
	MW-304C (206)	8	25	10.1	11.4	34.1	45	36	**45**
	MW-305A (208)	8	25	29.3	8.1	24.2	54	55	**55**
	MW-305B (210)	8	25	20.4	12.3	37.0	58	46	**58**
	MW-305C (212)	8	25	13.9	5.2	15.7	30	39	**39**
	MW-305D (213)	8	25	5.2	0.3	1.0	6.1	31	**31**
	MW-313D (217)	8	25	6.0	2.1	6.4	13	31	**31**

3.3.2 ACL Calculations

The ACLs for each parameter at each well were determined by calculating the mean concentration plus two standard deviations from the mean. ACLs were calculated for the following parameters: arsenic, boron, fluoride, manganese and sulfate. The proposed ACL calculations are presented on **Table 3**.

TABLE 3

Proposed ACL Calculations

Parameter	Sample Point (DID)	Sample Count	Mean	Std Dev	2X Std Dev	Mean + 2X Std Dev	ACL
Arsenic (ug/L)	MW-4C (028)	8	8.88	5.64	11.28	21.0	**21**
	MW-5A (030)	8	2.40	2.51	5.02	7.5	**7.5**
	MW-104B (118)	8	3.99	3.44	6.88	11	**11**
	MW-106B (122)	8	1.48	0.46	0.92	2.4	**2.4**
	MW-106D (126)	8	1.97	2.13	4.26	6.3	**6.3**
	MW-115E (149)	13	5.88	0.93	1.86	7.8	**7.8**
	MW-117C (152)	8	1.89	0.49	0.98	2.9	**2.9**
	MW-117D (154)	8	5.41	0.44	0.88	6.3	**6.3**
	MW-120C (158)	8	1.59	0.22	0.44	2.1	**2.1**
	MW-120DR 161)	8	1.51	0.19	0.38	1.9	**1.9**
	MW-121D (166)	8	1.18	0.16	0.32	1.6	**1.6**
	MW-125D (122)	8	2.60	0.66	1.32	4.0	**4.0**
	MW-126A (124)	8	3.59	1.33	2.66	6.3	**6.3**
	MW-131A (178)	8	1.85	0.73	1.46	3.4	**3.4**
	MW-131D (182)	8	3.81	1.00	2.00	5.9	**5.9**
	MW-303D (201)	8	4.22	0.32	0.65	4.9	**4.9**
	MW-305D (213)	8	5.67	0.75	1.49	7.2	**7.2**
	MW-313D (217)	8	4.78	0.41	0.82	5.6	**5.6**
Boron (ug/L)	MW-120DR (161)	8	418	32.4	64.9	490	**490**
	MW-303D (201)	8	344	14.6	29.1	380	**380**
	MW-305D (213)	8	341	7.4	14.8	360	**360**
	MW-313D (217)	8	387	17.1	34.2	430	**430**
Fluoride (mg/L)	MW-120DR (161)	8	0.70	0.12	0.24	0.94	**1.0**
	MW-303D (201)	8	1.21	0.11	0.22	1.4	**1.5**
	MW-305D (213)	8	1.20	0.09	0.17	1.4	**1.4**
	MW-313D (217)	8	1.06	0.08	0.17	1.3	**1.3**
Manganese (ug/L)	MW-120DR (161)	8	20.3	21.9	43.9	65	**65**
Sulfate (mg/L)	MW-19AR (091)	8	422.00	47.80	95.60	520	**520**
	MW-120DR (161)	8	216	15.80	31.60	250	**250**
	MW-313D (217)	15	163	4.06	8.12	180	**180**

Notes:

NR 140 Table 1 – Public Health Groundwater Quality Standards:
Arsenic =1 ug/L
Boron = 200 ug/L
Fluoride = 0.8 mg/L
Manganese = 60 ug/L

NR 140 Table 2 – Public Welfare Groundwater Quality Standards:
Sulfate = 125 mg/L

Section 4

Results of Analysis

The results of the statistical analysis are provided in the following subsections. A summary of the groundwater monitoring well data that were used for the PAL and ACL calculations are presented in **Table 2** and **Table 3**, respectively. The time vs concentration graphs for each PAL or ACL calculated for a well are included in **Appendix B**. A summary of all of the groundwater monitoring data for parameters used in the calculations is provided in **Appendix C**. Any values identified as outliers and eliminated from the calculations are identified in the graphs and data summaries.

4.1 PALs for indicator Parameters

A summary of the proposed PAL calculations for the indicator parameters is presented in **Table 2**. PALs were calculated for the following parameters: alkalinity, sodium, hardness, specific conductance and COD. At least eight rounds of data were used in each of the PAL calculations.

4.2 ACLs for Public Welfare and Public Health Parameters

The summary of calculations for the proposed ACLs for public welfare and public health parameters is presented in **Table 3**. ACLs were calculated for the following public welfare parameters: manganese and sulfate and for public health parameters: arsenic, boron and fluoride. At least eight rounds of data were used in each of the ACL calculations.

Section 5

Request for PAL Assignments and NR 140 Parameter Exemptions

A summary of the proposed PALs for the indicator parameters is presented as **Table 4**. A summary of the requested NR 140 exemptions for the public welfare and public health parameters is presented as **Table 5**. These parameter groups are explained in greater detail in the following subsections.

5.1 PAL Assignments and Exemptions

The proposed PALs for the indicator parameters: alkalinity, sodium, hardness, specific conductance and COD were sorted by well and presented as **Table 4**.

TABLE 4

Proposed PALs for Indicator Parameters

Parameter					
Well ID	**Alkalinity**	**COD**	**Hardness**	**Sodium**	**Specific Conductance**
MW-19AR	**610**	**36**	**1,700**	**37**	**1,700**
MW-120DR	**240**	**36**	**460**	**120**	**1,300**
MW-301A	**--**	**55**	**1,600**	**80**	**--**
MW-301B	**--**	**48**	**230**	**160**	**--**
MW-301C	**--**	**770**	**500**	**72**	**--**
MW-302A	**--**	**150**	**670**	**56**	**--**
MW-302B	**--**	**49**	**230**	**130**	**--**
MW-302C	**--**	**160**	**640**	**70**	**--**
MW-303A	**--**	**36**	**1,100**	**230**	**--**
MW-303B	**--**	**49**	**260**	**150**	**--**
MW-303C	**--**	**34**	**150**	**69**	**--**
MW-303D	**230**	**31**	**190**	**62**	**640**
MW-304A	**--**	**75**	**650**	**47**	**--**
MW-304B	**--**	**38**	**280**	**160**	**--**
MW-304C	**--**	**45**	**160**	**71**	**--**
MW-305A	**--**	**55**	**1,600**	**260**	**--**
MW-305B	**--**	**58**	**340**	**160**	**--**
MW-305C	**--**	**39**	**210**	**110**	**--**
MW-305D	**220**	**31**	**180**	**661**	**580**
MW-313D	**210**	**31**	**210**	**95**	**770**

Notes: "--" = Calculations not need for particular groundwater monitoring wells, PALs already established.

5.2 Public Welfare Parameter Exemptions

The proposed ACLs for the public welfare parameters manganese and sulfate are presented on **Table 5**.

5.2.1 Manganese

PAL or ES exceedances for manganese were reported for samples collected from one well: MW-120DR. Manganese has been reported at elevated concentrations in samples collected from several upgradient and downgradient wells across the site. The reported manganese concentrations represent naturally occurring manganese within the environment. The WDNR has established ACLs for existing site monitoring wells for this parameter. Therefore, an exemption to NR 140 for manganese is warranted for the above well.

5.2.2 Sulfate

PAL or ES exceedances for sulfate were reported in samples collected from three wells: MW-19AR, MW-120DR and MW-313D. Sulfate has been reported at elevated concentrations in samples collected from a number of upgradient and downgradient wells across the site. The reported sulfate concentrations in samples collected from these wells are similar to concentrations reported across the site which indicates that the presence is naturally occurring. Additionally, concentrations reported prior to landfilling operations are consistent with those after operations began. The WDNR has established ACLs for existing site monitoring wells for this parameter. Therefore, an exemption to NR 140 for sulfate is warranted for the above wells.

5.3 Public Health Parameter Exemptions

The proposed ACLs for the public health parameters: arsenic, boron and fluoride are presented on **Table 5**.

5.3.1 Arsenic

PAL or ES exceedances for arsenic were reported in samples collected from 18 wells: MW-4C, MW-5A, MW-104B, MW-106B, MW-106D, MW-115E, MW-117C, MW-117D, MW-120C, MW-120DR, MW-121D, MW-125D, MW-126A, MW-131A, MW-131D, MW-303D, MW-305D and MW-313D. Arsenic has been reported in samples collected from several wells across the site at elevated concentrations. The reported arsenic concentrations represent naturally occurring arsenic within the environment. The WDNR has established ACLs for existing site monitoring wells for this parameter. Therefore, an exemption to NR 140 for arsenic is warranted for the wells listed above.

5.3.2 Boron

PAL exceedances for boron were reported in the samples collected from four wells: MW-120DR, MW-303D, MW-305D and MW-313D. Boron has been reported in several samples collected from wells across the site at elevated concentrations. The reported boron concentrations are similar to

existing site well concentrations which indicates that the presence is naturally occurring. The WDNR has established ACLs for existing site monitoring wells for this parameter. Therefore, an exemption to NR 140 for boron is warranted for the above wells.

5.3.2 Fluoride

PAL exceedances for fluoride were reported in samples collected from four wells: MW-120DR, MW-303D, MW-305D and MW-313D. Fluoride has been reported in samples collected from several wells across the site at elevated concentrations. The reported fluoride concentrations are similar to existing site well concentrations which indicates that the presence is naturally occurring. The WDNR has established ACLs for existing site monitoring wells for this parameter. Therefore, an exemption to NR 140 for boron is warranted for the above wells.

TABLE 5

Proposed ACLs for Public Welfare and Health Parameters

	Parameter				
Well ID	**Arsenic**	**Boron**	**Fluoride**	**Manganese**	**Sulfate**
MW-4C	**21**	**--**	**--**	**--**	**--**
MW-5A	**7.5**	**--**	**--**	**--**	**--**
MW-19AR	**--**	**--**	**--**	**--**	**520**
MW-104B	**11**	**--**	**--**	**--**	**--**
MW-106B	**2.4**	**--**	**--**	**--**	**--**
MW-106D	**6.3**	**--**	**--**	**--**	**--**
MW-115E	**8.3**	**--**	**--**	**--**	**--**
MW-117C	**2.9**	**--**	**--**	**--**	**--**
MW-117D	**6.3**	**--**	**--**	**--**	**--**
MW-120C	**2.1**	**--**	**--**	**--**	**--**
MW-120DR	**1.9**	**490**	**1.0**	**65**	**250**
MW-121D	**1.6**	**--**	**--**	**--**	**--**
MW-125D	**4.0**	**--**	**--**	**--**	**--**
MW-126A	**6.3**	**--**	**--**	**--**	**--**
MW-131A	**3.4**	**--**	**--**	**--**	**--**
MW-131D	**5.9**	**--**	**--**	**--**	**--**
MW-303D	**4.9**	**380**	**1.5**	**--**	**--**
MW-305D	**7.2**	**360**	**1.4**	**--**	**--**
MW-313D	**5.6**	**430**	**1.3**	**--**	**180**

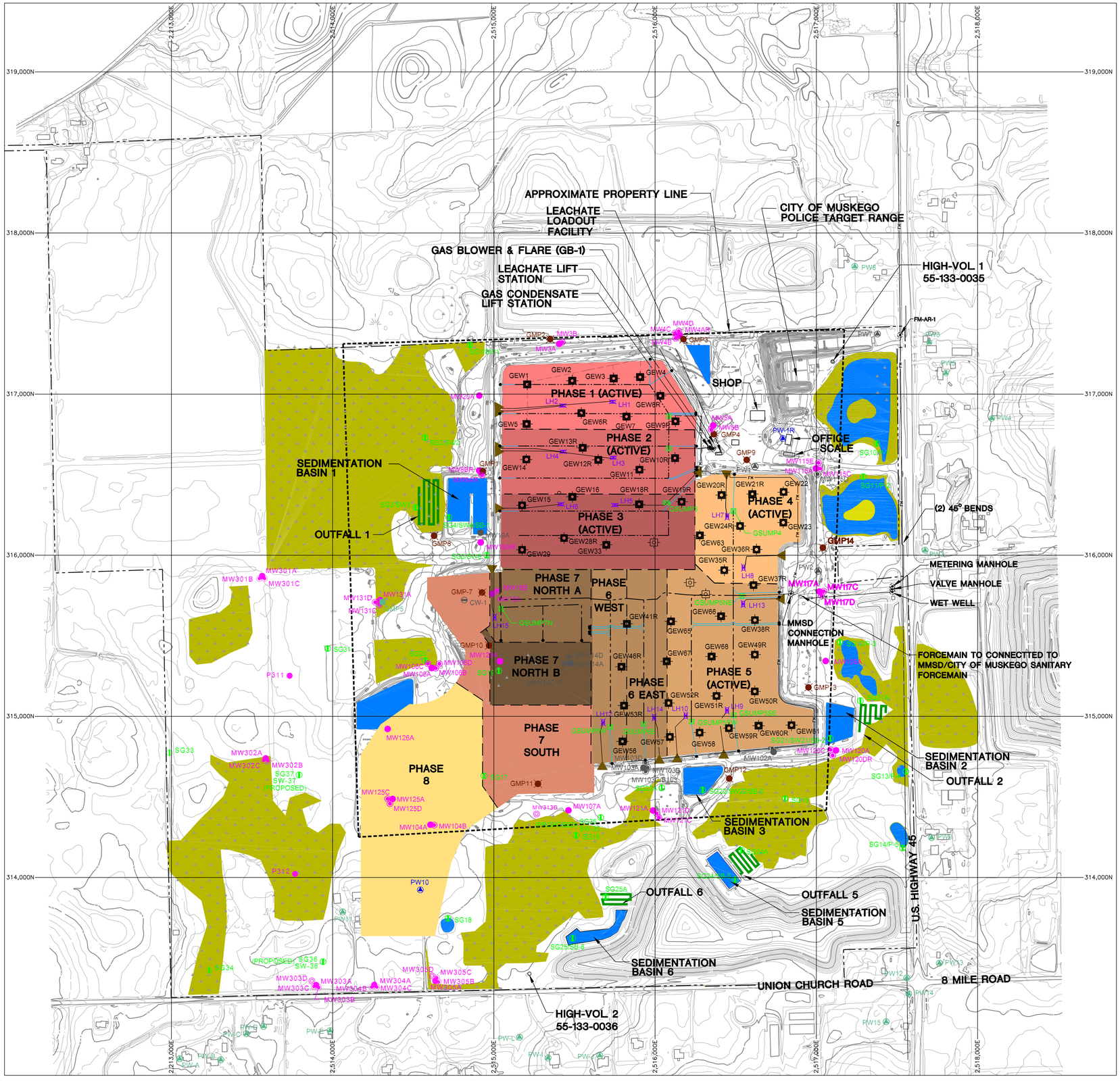
Notes: "--" = Calculations not need for particular groundwater monitoring wells, PALs already established.

5.4 Justification for Parameter Exemptions

Based on the data presented in this Groundwater Monitoring Modification plan, the groundwater at the ADS-EPL site appears to naturally contain arsenic, boron, fluoride, manganese and sulfate at concentrations exceeding NR 140 standards.

Based upon the fact that concentrations prior to landfilling operations are consistent with those after operations began, the concentrations exceeding NR 140 standards are unrelated to landfill activities. The ADS-EPL design includes a composite liner, a leachate collection system and a gas extraction system, therefore, the lowest possible concentrations for these constituents in groundwater that are technically and economically feasible will be achieved. Since operations at ADS-EPL began, there have been no leachate or gas condensate spills, leaks or seeps; no gas migration or confirmed VOC detections. Monitoring of the surface water, gradient control system and the gas extraction system also indicates that the landfill is operating as designed. The existing concentrations of the above parameters do not currently present any threat to public health or welfare. Given these reasons, the proposed exemptions to NR 140 are justified.

FIGURE 1



NOTES

1. TOPOGRAPHIC BASEMAP WAS DEVELOPED FOR ADVANCED DISPOSAL SERVICES EMERALD PARK LANDFILL, LLC. AERIAL PHOTOGRAPHY WITHIN THE "2013–2015 BOUNDARY" BY SOUTHERN RESOURCES MAPPING CORPORATION, DATED APRIL 01, 2015. AERIAL PHOTOGRAPHY OUTSIDE THE "2013–2015 BOUNDARY" BY AYERS AND ASSOCIATES, DATED APRIL 16, 2013. GROUND CONTROL SURVEY PERFORMED BY CQM ON MARCH 25, 2013.
2. THE NUMBERING SEQUENCE USED FOR STAFF GAUGES OMITS 6, 7, 8, 9, & 19; THERE ARE NO STAFF GAUGES WITH THESE DESIGNATIONS.
3. LOCATION OF WELL MW115E IS APPROXIMATE.

LEGEND

- 2013 – 2015 TOPOGRAPHIC BOUNDARY
- APPROXIMATE PROPERTY LINE
- PAVED ROAD
- UNPAVED ROAD
- FENCE
- BUILDING
- 800 10' CONTOUR
- 2' CONTOUR
- TREES AND/OR BRUSH
- DELINEATED WETLAND
- SURFACE WATER BODY
- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- PHASE 6
- PHASE 7 NORTH
- PHASE 7 SOUTH
- PHASE 8
- PROPOSED BIOFILTER
- CELL DELINEATION LINE
- GRID LOCATION
- MW107A MONITORING WELL LOCATION AND NUMBER
- MW115C PIEZOMETER LOCATION AND NUMBER
- GMP14 GAS MONITORING PROBE LOCATION AND NUMBER
- GMP10 PROPOSED GAS MONITORING PROBE LOCATION AND NUMBER
- MW108D ABANDONED
- PW3 PRIVATE WELL LOCATION AND NUMBER
- PW3 NON PROGRAM WELL
- SG21 STAFF GAUGE LOCATION AND NUMBER
- SG1/SW1 STAFF GAUGE LOCATION AND NUMBER/ SURFACE WATER MONITORING STATION LOCATION AND NUMBER
- SG10/P-1 STAFF GAUGE LOCATION/POND NUMBER
- SG21A STAFF GAUGE LOCATED NEAR BASIS OUTFALL
- LEACHATE LIFT STATION LOCATION
- GEW1 EXISTING GAS EXTRACTION WELL AND NUMBER
- PROPOSED GAS EXTRACTION WELL LOCATION
- LEACHATE HEADWELL MONITORING PORT
- LH8 LEACHATE HEADWELL LOCATION AND NUMBER
- LEACHATE COLLECTION LINE
- LEACHATE COLLECTION SYSTEM CLEANOUT RISER
- GSUMP3 LEACHATE COLLECTION SUMP
- FM LEACHATE FORCEMAIN
- GAS HEADER PIPE

0 100 300 500
SCALE: 1" = 300'

Advanced Disposal

NO.	REVISION	BY	CHK'D	DATE

SITE FEATURES MAP

EMERALD PARK LANDFILL, LLC.
CITY OF MUSKEGO, WAUKESHA COUNTY, WISCONSIN
LICENSE NO. 3290

PROJECT NO.	16-0506
DESIGNED BY:	SF
DRAWN BY:	TMS 05.06.2016
CHECKED BY:	SF 05.06.2016
APPROVED:	FP 05.06.2016
2016-ESC\Emerald Park\16-0506	

ENVIRONMENTAL SAMPLING CORPORATION
W135 S9808 North Cape Road
Muskego, Wisconsin 53150

SHEET 1 OF 1

FIGURE 1

APPENDIX A

Correspondence

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee WI 53212-3128

Scott Walker, Governor
Cathy Stepp, Secretary
John Hammen, Acting Regional Director
Telephone 414-263-8500
FAX 414-263-8606
TTY Access via relay - 711

File Ref: FID 268244130
Waukesha County
SW Approval

Mr. Matt Kingsley
Veolia ES Emerald Park Landfill, LLC
W124 S10629 South 124th Street
Muskego, WI 53150

Subject: Southwestern Expansion Plan of Operation, Veolia ES Emerald Park Landfill (#3290)

Dear Mr. Kingsley:

We have completed our review of your plan of operation for the proposed Veolia ES Emerald Park Landfill Southwestern Expansion and determined that it is consistent with Wisconsin's solid waste regulations. Therefore, the plan of operation is approved subject to compliance with chs. NR 500-538, Wis. Adm. Code and the conditions of the attached approval.

This document also contains approval of a Milwaukee Metropolitan Sewer District gas-to-energy processing facility, an organic stability plan, a soil stockpiling plan on the Future Parkland Landfill property, and approval to discontinue pumping groundwater from the Phase 4 and 5 gradient control systems.

We have provided a summary of the facility's approval conditions (attachment #3). This condition summary is for informational purposes and does not relieve you of the compliance requirements of any condition prior to issuance of the summary.

We have modified the groundwater monitoring program to more closely align with the requirements of Table 1 in Appendix I of ch. NR 507, Wis. Adm. Code. In doing so, we dropped semi-annual monitoring for cadmium, lead, selenium, and fluoride. There is a lot of sampling data for these parameters and these parameters are typically only sampled in baseline monitoring and added as assessment monitoring if a confirmed PAL or ES exceedance is observed. Table 8 of attachment 2 identifies two wells and parameters that need NR 140 groundwater exemptions. The Department will follow-up with a short plan modification in the near future to address those and grant exemptions and ACLs where appropriate. The issue of whether MW-120D and MW-109A were replaced in the past with MW-120DR and MW-109AR remains unresolved. The Department would like Veolia to verify the status of these two wells. If the two wells were replaced, the Department needs the well construction reports for both the old wells and the replacement wells.

During a site visit to the Future Parkland property by Joe Lourigan and Ann Bekta on May 24, 2011, it was noted that there are groundwater monitoring wells on the Future Parkland property and what appeared to be another monitoring or reference point on the EPL property which are located in an area where a truck access between the two properties may occur. Before truck movement occurs in this area, the monitoring points may need to be moved or adequately protected. In addition, there appears to be wetlands on the Future Parkland property. Therefore a wetland assessment will need to be done and all wetland boundaries delineated before any soil stockpile placement can begin. The WDNR Water Regulation and Zoning Specialist

assigned to the area will need to be consulted to ensure that the wetlands have been properly delineated and to ensure that any Department permits that may be required are obtained.

This approval does not relieve you of obligations to meet all other applicable federal, state and local permits, as well as zoning and regulatory requirements.

If you have any questions regarding this approval, please contact Ann Bekta at (608)743-4845 or Joe Lourigan at (262)884-2347.

Sincerely,

Frank C. Schultz, Supervisor
Waste and Materials Management Program
Southeast Region

attachments

c: Ann Bekta – Janesville
Joe Lourigan - Sturtevant
Bob Grefe - WA/5
Colleen Stork (financial responsibility file) – WA/5
Dennis Marshall – RMT, Inc.

PROJECT SUMMARY
VEOLIA ES EMERALD PARK LANDFILL SOUTHWEST EXPANSION

GENERAL INFORMATION

AUTHORIZED CONTACT: Mr. Matt Kingsley
Veolia ES Emerald Park Landfill, LLC
W124 S10629 South 124th Street
Muskego, WI 53150

LICENSEE AND PROPERTY OWNER: Veolia ES Emerald Park Landfill, LLC

SITE LOCATION: Veolia Emerald Park Landfill is located in the S ½ of the NE ¼, the E ½ of the SW ¼ and the SE ¼ of Section 36, T5N, R20E, in the City of Muskego, Waukesha County, Wisconsin.

ACREAGE AND ACCESS: The proposed horizontal expansion will add approximately 38.7 acres to the landfill footprint. The total licensed disposal area will be approximately 121.6 acres (82.9 existing acres + 38.7 proposed acres) of an approximately 630-acre parcel of land owned by Veolia. Access to the facility will be via the existing route for the site from State Highway 45.

PROPOSED CAPACITY: The proposed horizontal and vertical expansion will provide approximately 7,945,800 cubic yards of design capacity. The proposed capacity added to the existing approved landfill capacity (13,191,360 cubic yards) provides a total site capacity of 21,137,160 cubic yards. Veolia anticipates that it will receive about 500,000 cubic yards of waste annually.

Horizontal Expansion	**Phase 7**	**Phase 8**
Phase size (acres)	17.37	21.34
Design capacity (cy)	3,655,400	4,290,400
Waste in-place (cy)	3,249,200	3,813,700
Daily and intermediate cover (cy)	406,200	476,700
Active life of phase (approx. years)	4.00	5.00

WASTE TYPES AND GENERATORS SERVED: The site will accept non-hazardous industrial special wastes, residential, commercial, and construction/demolition wastes for disposal. The anticipated general service area includes Kenosha, Jefferson, Milwaukee, Ozaukee, Racine, Rock, Walworth, Washington and Waukesha counties in Wisconsin and McHenry County in Northeastern Illinois. Veolia utilizes contaminated soils (both direct landfill and bioremediated), auto shredder fluff, concrete debris, foundry sands, waste water treatment sludges and other alternative daily cover material as Beneficial Reuse Material (BRM's). BRM's are utilized for daily cover materials, long term road subbase material, waste and waste core screening berm material, and slope reclamation materials.

A Special Waste Acceptance Plan is approved for the site as part of the plan of operation. This plan will be used to screen industrial waste (referred to as "special wastes"). The program calls for specific testing protocols and disposal procedures based on the waste type. Under this program the landfill is able to accept many specifically categorized special wastes without additional Department review and may self-approve various additional special wastes for beneficial use. The program identifies certain waste types which must receive prior Department approval on a case-by-case basis.

PERIOD OF LONG TERM CARE RESPONSIBILITY: Veolia must, by law, provide financial assurance sufficient to care for the landfill for a period of 40 years following landfill closure. However, Veolia will be responsible for long term care of the facility in perpetuity.

SITE CHARACTERISTICS

For a detailed description of the site characteristics refer to the Feasibility Determination for the proposed expansion to the Veolia Emerald Park Landfill issued by the Department October 22, 2010.

FACILITY DESIGN

SUBBASE GRADES: The subbase grades have been designed with 3:1 interior sideslopes on all sides of the landfill. Elevations of the subbase excavation range from approximately 710 ft MSL in the southern portion of Phase 8 to approximately 730 ft MSL in the middle portion of Phase 7. The maximum cut below existing grade is approximately 70-feet. Once subbase grades (below gradient control layer) have been established, a subbase soil investigation will be performed to identify granular or silty soil within 5 feet of the subbase grades. The investigation will consist of a visual inspection at the surface and 5-foot-deep borings, test pits, or equivalent, on a 100-foot grid pattern across the entire landfill base. If areas of unsuitable material are encountered, the unsuitable material will be over excavated and replaced with a minimum of 5-feet of material meeting the specifications for the compacted selected clay fill.

GRADIENT CONTROL SYSTEM: The gradient control system will consist of a 6-inch-thick granular layer with a minimum hydraulic conductivity of 1×10^{-3} cm/sec, and will be placed on top of the final excavation subgrades. The gradient control layer will allow groundwater to flow into the collection channels that will have strip drain (a geocomposite drain of geonet protected by geotextile covering), which will route the collected water to sumps for removal. The water collected in the sump will be pumped though a sideslope riser to the outside perimeter of the landfill where it can discharge into the surrounding wetlands. At the bottom of each sump will be a 12-inch-diameter SDR 9 HDPE perforated collection pipe attached to a 12-inch-diameter SDR 9 HDPE solid-wall inclined riser pipe. The elevations of the gravity drain pipe are designed to maintain the groundwater table at or below the composite liner subbase grades at all locations. The volume of the groundwater collected in the gradient control layer and pumped though the riser will be recorded by a metering system located along the perimeter berms. The removal of the groundwater will allow construction of the clay and geomembrane components of the composite liner below the water table. The gradient control system will be actively pumped until the Department grants approval to reduce groundwater pumping operations.

BASE GRADES: The base grades are designed so that the sideslope risers and the bottom of the cleanout pipes are no more than approximately 70-feet below the top of the perimeter berm at each pipe. The base grades (top of composite clay liner) over the base of the landfill range from approximate elevation of 714 MSL in Phase 8 to an approximate elevation of 737 MSL in Phase 7. The base of the landfill will have a minimum slope in grade of 2.0 percent and a maximum distance of 260-feet between leachate collection pipes.

COMPOSITE LINER: The liner will consist of 4 feet of compacted clay overlain by a 60-mil HDPE geomembrane. The clay used in the liner will meet the specifications listed in s. NR 504.06(2), Wis. Adm. Code. The 60-mil HDPE geomembrane will be placed directly on top of the compacted, tested, and smoothed clay liner. The 3:1 side slopes will be covered by a textured 60-mil HDPE geomembrane. The geomembrane will be covered by a 12-oz/sy nonwoven geotextile and a one-foot-thick drainage blanket.

DRAINAGE BLANKET: The 1-foot-thick granular drainage blanket will have a permeability of 1 cm/s or greater. The drainage blanket will meet the specifications listed in s. NR 504.06(5)(t), Wis. Adm. Code.

LEACHATE LEVEL MONITORING: There will at least two leachate headwells in each phase of the landfill. The headwells will consist of 3-inch-diameter HDPE SDR 9 pipe with a 5-foot perforated section at the end of the headwell. The rest of the headwell will be solid pipe extending up the sidewall to the surface. The headwell piping will be bedded at the base of the granular drainage blanket.

LEACHATE COLLECTION SYSTEM: The proposed leachate collection system will consist of 6-inch-diameter, SDR 9 HDPE pipes installed in shallow v-shaped trenches. The primary leachate collection trenches are sloped at a minimum of 0.9 % (based on design calculations required by s. NR 514.06(14), Wis. Adm. Code) with the direction of flow to the north and the south. The collection lines in Phase 7 have a high point in the middle of the phase. A minimum of 4 inches of gravel will be placed in the trenches prior to installation of the leachate collection pipes. The pipe bedding material will consist of washed stone. After the pipes have been installed the remaining backfill will be placed so that a minimum of 6 inches of material is above the top of the pipe after the trenches are filled. Cleanouts will be installed on both ends of each pipeline segment. The three leachate lines within Phase 7 of the expansion area will be greater than 1,200 feet. The longest leachate collection line will be 1,525 feet. The leachate collection lines in Phases 5 and 6 will be longer than 1,200 feet after the northern cleanouts are extended.

Phase	Leachate Collection Line	Pipe Identification	Pipe Length
5	North collection line east berm to north toe of slope	LCO-51 to LCO-6K	1,730 feet
5	North collection line north berm to east toe of slope	LCO-6K to LCO-51	1,710 feet
6	East collection line south berm to north toe of slope	LCO-6A to LCO-6J	1,890 feet
6	East collection line north berm to south toe of slope	LCO-6J to LCO-6A	1,860 feet
6	West collection line south berm to north toe of slope	LCO-6D to LCO-6I	1,665 feet
6	West collection line north berm to south toe of slope	LCO-6I to LCO 6D	1,670 feet
7	East collection line south berm to north toe of slope	LCO-7A to LCO-7B	1,515 feet
7	East collection line north berm to south toe of slope	LCO-7B to LCO-7A	1,525 feet
7	Middle collection line south berm to north toe of slope	LCO-7C to LCO-7D	1,425 feet
7	Middle collection line north berm to south toe of slope	LCO-7D to LCO-7C	1,480 feet
7	West collection line south berm to north toe of slope	LCO-7G to LCO-7H	1,210 feet
7	West collection line north berm to south toe of slope	LCO-7H to LCO-7G	1,250 feet

The leachate conveyance system will consist of six sumps connected to the collection pipe trenches. At each sump location, one inclined 18-inch diameter SDR 9 HDPE riser pipes will extend from the bottom of the sump up to an access vault at the top of the landfill perimeter berm. Each pump (approximately 60 gpm) will be fitted with a pressure transducer to monitor leachate heads and control pump operation. Each of the collection sumps is designed to minimize the volume of liquid that remains in the sump after pumping. The leachate holding capacity of the sump below the elevation of the leachate collection pipe trench will be approximately 7,800 gallons. The volume of each sump will be the same. The bottom dimensions of the sump will be approximately 20 feet wide and 28 feet long. The top dimensions of the sump will be approximately 42.5 feet wide and 43 feet long. The depth of the sump is approximately 3 feet.

The sump area design will include (bottom to top) a 4 foot clay liner, a 60 mil HDPE geomembrane liner, a 12-oz/sy geotextile cushion and a 60 mil HDPE geomembrane rub sheet.

One-inch-thick HDPE plates will be installed over the base of the sump for additional protection of the geomembrane liner.

Once the pipes are in place, the sumps will be leak tested. Each area being tested will be filled with water and observed for bubbling. The area will be left undisturbed for 24 hours and the volume checked for losses. After the area is drained it will be inspected for soft spots. All detected leaks will be repaired and retested until the area passes the 24-hr leak test. Alternatively, the sumps may be tested using electrical resistivity testing. The preconstruction report for each phase of liner will state which method will be used.

A 6X9 foot concrete perimeter access vault will be installed at the top of the perimeter berm at each sump location. Leachate pumped up the riser pipes will be transferred to leachate forcemain piping at these vaults. The leachate transfer line will be equipped with check valves so that leachate cannot pump from the sump in one phase into the sump of another phase when the pump in that phase is not operating. The leachate forcemain transfer line for Phases 7 and 8 will mainly run inside the limits of waste. When the forcemain is outside of the waste limits it will be a double contained pipe consisting of 4-inch-diameter SDR 17 HDPE forcemain pipe within a 6-inch SDR 17 HDPE containment pipe. The leachate forcemain pipe will exit the landfill on the east side of Phase 5 as a double-walled pipe and run due east to the MMSD manhole located next to U.S. Highway 45.

The side slope riser vaults will also provide access points for maintenance of the pumps. The pumps will be fitted with rollers or the equivalent to facilitate installation and removal through the inclined riser pipes and are designed to be maneuvered from the top of the riser pipe by lift cables.

LEACHATE STORAGE: There is one existing 20,000-gallon double-walled STI-P3 cathodically protected epoxy-lined steel leachate storage tank located east of Phase 2. This tank was installed in 1994. Presently leachate collected from the landfill is either recirculated or transported by forcemain pipe to the existing Milwaukee Metropolitan Sewer District (MMSD) sanitary sewer line located along Highway 45. Because the tank has not reached the end of its life expectancy, Veolia will keep it as a backup. When the tank reaches the end of its life, Veolia will remove the tank according to regulatory protocol.

LEACHATE TREATMENT: Leachate that is not recirculated back into the waste mass will be routed through the MMSD sewer system and treated at the City of Milwaukee wastewater treatment plant. The City of Burlington WWTP and the City of Waukesha WWTP are backup treatment plants for the leachate.

LEACHATE RECIRCULATION: The site has been recirculating leachate since 1998. Leachate recirculation is currently being used under a Research, Development and Demonstration Plan (RD&D) that was approved on September 22, 2007 and renewed on September 21, 2010. The RD&D Plan will assess the operational feasibility of 1) adding liquids other than recirculated leachate to the waste mass, and 2) expand the allowable methods and location of leachate recirculation and other liquids addition. The objective is to increase the moisture content within the waste mass in order to increase the rate of waste decomposition, as measured by landfill gas production. Please refer to the Department's September 22, 2007 Research, Development and Demonstration plan of operation approval modification for warning symptoms, failure thresholds, monitoring and reporting requirements.

If Veolia decides to continue recirculating leachate after the RD&D plan expires, a leachate recirculation plan of operation modification would need to be submitted to the Department for review and approval.

PHASES: The Expansion will be divided into two phases (Phases 7 and 8) consisting of two to possibly four construction events. Construction of Phase 7 will include tying into the existing Phase 6 liner along the western side of Phase 6. Temporary delineation berms will be used between construction events to separate waste, waste contact water and leachate in developed areas from undeveloped areas. The berms will be constructed with the same select aggregate fill that is used for the 1-foot-thick drainage layer. The aggregate will be placed 5.5 feet high with a 2:1 sideslope and will be covered with a geomembrane. The geomembrane material covering the berm will be removed when the next portion of the phase is constructed, and the aggregate fill material will be used for the leachate collection drainage layer. Permanent delineation berms will be used between Phase 6 and Phase 7, and Phase 7 and Phase 8. These berms will be constructed of compacted clay that will be placed four feet high with a 3:1 sideslope and will be covered with geomembrane, geotextile and 1 foot of drainage blanket material.

FINAL COVER: The maximum elevation of the landfill will be approximately 1003 ft MSL. The final cover will consist of (top to bottom): 6 inches of topsoil, 2 to 6 feet of rooting zone, a geocomposite drainage layer, 40-mil PE textured geomembrane, 2 feet of recompacted clay and a 6-inch grading layer. A vegetative cover will be established over the final cover to minimize erosion.

Perimeter drainage pipes will be installed at the toe of the slope of the geocomposite drainage layer as required by s. NR 504.07(6)(b), Wis. Adm. Code. The perimeter drainage pipe will consist of 4-inch-diameter SDR 17 perforated pipe which will be bedded in coarse aggregate with a hydraulic conductivity of $1x10^{-2}$ or greater. The drainage pipe will outlet every 200 feet along the perimeter of the landfill. Riprap will be provided at each outlet to prevent scouring.

SURFACE WATER DRAINAGE: Surface water runoff will be controlled by drainage channels, diversion berms, downslope discharge structures, culverts, and a sedimentation basin. Diversion berms will be installed along the final cover system to limit erosion and to collect and transfer surface water to a downslope discharge flume.

The ditch created by the diversion berm will be a minimum of 2 feet deep and will be seeded. The minimum slope along the flow line will typically be 2%. The downslope flumes will convey surface water runoff collected by the diversion berms to the perimeter drainage ditches. The inlets to the discharge structures will consist of pipe end sections. The main downslope flumes will be 18-inch to 30-inch-diameter SDR 17 HDPE pipe. The downslope flumes will terminate in concrete energy dissipators with internal baffles prior to discharging into the sedimentation basins.

Grass-lined ditches have been designed for a maximum velocity of 4 feet per second. In areas where velocities exceed 4 fps, erosion matting and/or riprap will be proposed for limiting erosion and for reducing velocities. Clean surface water runoff from intermediate cover and final cover areas will be directed by temporary and permanent drainage ditches to the sedimentation basins.

Six sedimentation basins (No. 1, 2, 3, 7, 8, and 9) will receive surface water runoff from the landfill for removal of sediment prior to discharging water to the surrounding wetland areas. Existing sedimentation basing No. 1 will be enlarged to receive additional water from the Expansion area. Existing sedimentation basin No. 3 will also be modified for the Expansion. The new (No. 7, 8 and 9) and modified (No. 1 and 3) sedimentation basins will be designed to settle 0.003 mm size particles for storms up to, and including, a 25-year, 24-hour storm event. The emergency spillway will be designed to pass a 100-year storm event.

GAS EXTRACTION SYSTEM: The site gas extraction system will include 112 gas extraction wells to be installed within the waste mass. The proposed well placement will be based on an approximate 150-foot radius of influence. The borings for the wells will be 36 inches in diameter and will extend to 10 feet above the leachate collection system. A six-inch-diameter Sch. 80 perforated pipe will be placed in the 36-inch-diameter gravel pack. The solid portion of the extraction well will be six-inch Sch. 80 pipe. The bottom 2/3 to 3/4 of the pipe within each well will be perforated. The non-perforated piping will extend through the landfill cover for maintenance access and flow rate adjustments. The wells will be connected to a looped HDPE header pipe which has condensate knockout points that will drain to the leachate collection system. The condensate knockouts will be located within the landfill limits of waste and will remove condensate from the transfer pipes to prevent the condensate from leaving the landfill. The system is designed to achieve a minimum vacuum of 10 inches of water column at the gas extraction well that is located the furthest distance from the blower.

The leachate collection system cleanouts and recirculation system will be connected to the gas collection system to draw gas from the leachate collection system.

The gas collection system will consist of HDPE pipe and will transport the extracted landfill gas from the wells to the existing blower and flare facility located east of Phase 2 of the existing site. The existing blower is capable of a maximum flow rate of 3,850 cfm. The existing flare has a capacity of 4,398 cfm, which is limited by the maximum velocity of 90.4 fps. The gas flow extraction rate of the existing landfill and the proposed expansion is projected to be approximately 4,841 cubic feet per minute and will require approximately 24 inches of water column vacuum. Prior to reaching their capacity, the existing blower and pedestal flare will be replaced with larger equipment that can handle the additional flow from the Expansion.

GAS UTILIZATION: Veolia has entered into a 20-year agreement with the Milwaukee Metropolitan Sewage District (MMSD) to provide landfill gas via approximately 17 mile pipeline to the Jones Island Water Reclamation Facility (JIWRF) for use as turbine fuel. The landfill gas will be routed from the landfill to JIWRF via low pressure (<100 psig) HDPE pipeline that will be designed, constructed, owned and operated by MMSD. The design, construction, and operation of this transmission pipeline are being regulated by the Wisconsin Public Service Commission.

The landfill gas will be utilized at JIWRF to fuel three new dual-fuel gas turbines. These turbines will produce electrical power to meet the needs of JIWRF and thus reduce the amount of grid power that MMDS must purchase. Waste heat from the turbines will be utilized to dry the wastewater sludge to produce Milorganite, a soil amendment product. At the landfill, the project will require installation of a landfill gas conditioning/compression station capable of processing up to 6,000 cfm of landfill gas. This includes treatment to remove moisture and contaminants, and compression to supply the transmission pipeline. The landfill gas conditioning/compression station will interconnect with the existing landfill gas collection and control system near the blower/flare station. The landfill gas conditioning/compression station is designed to process 100% of the landfill gas recovered from the landfill and supply it to the transmission pipeline. In the event that MMSD is not able to utilized 100% of the landfill gas supplied, the excess will be combusted in the existing flare. The plan of operation Addendum #1 includes the design for the landfill gas processing and compression facility for the delivery of the landfill gas.

The installation of this facility will require modifications to the existing landfill gas and leachate collection systems. Modifications to the existing landfill gas collection and control system include:

- A new 30-inch HDPE header pipe that will extend from the condensate knockout pot (KOP-1E) to the proposed landfill gas conditioning/compression station.
- The existing blower, silencer, and KOP-2E will be removed and a blind flange installed on the 12-inch outlet of KOP-1E.
- A new 12-inch HDPE pipe will connect the out of the multi-stage centrifugal blowers to the inlet of the flare.
- The existing flare will be fitted with a continuous LFG pilot, which will be supplied via a new 1-inch HDPE pipe from the outlet of the multi-stage centrifugal blowers.
- A new 8-inch carbon steel pipe will route off-gas from the Siloxane removal system to the existing flare stack for combustion.

Modifications to the existing condensate/leachate management system include:

- A new 3-inch x 6-inch dual-contained HDPE pipe will collect and convey condensate from the landfill gas condition/compression station to LS-1E.
- A new straw drain, SD-1P, will isolate a section of the new 3-inch x 6-inch dual-contained HDPE pipe from atmospheric pressure to allow condensate knockout pots located on the inlet side of the blower to be drained without the need for pumps.
- A new condensate knockout pot (KOP-2P) will be installed at the end of the on-site LFG transmission pipeline.

Certain components of the landfill gas conditioning/compression station including blowers, pre-cooler, compressors, dryer, and Siloxane removal system, will be located within a new building that will be constructed northeast of the existing blower/flare station on the other side of the access road. The pre-engineered metal building (approximately 32-ft x 150-ft) will be constructed with one side open to provide full ventilation, and a full concrete floor with drains to collect any maintenance fluids. The floor drains will discharge to the condensate gravity drain system. Other components including aftercoolers, chillers, oil coolers, and hydrogen sulfide removal system, will be located outdoors adjacent to the building. Outdoor equipment skids will be affixed to engineered foundations and the surrounding areas finished with gravel. Process piping and wiring will penetrate the building walls as necessary to interconnect the indoor and outdoor skids. The building will also include a climate-controlled control room to house electrical cabinets and control equipment.

The existing surface water drainage pattern in the area of the proposed landfill gas conditioning/compression station is sheet flow to the northwest. A shallow swale is apparent between the access road and the larger paved area to the northeast. The post-construction surface water drainage pattern will remain the same and the existing swale will be preserved. Building downspouts will include energy dissipaters and discharge for sheet flow.

FACILITY OPERATION

BUFFER ZONE: Prior to beginning construction activities that involve the mobilization of heavy equipment of soil excavation, buffer zones and setbacks to wetlands will be established. The buffer zones between construction areas and wetlands will be established to prohibit construction equipment, materials, and contractors' staff from entering these areas. Wherever possible, a 50-foot wide undisturbed buffer zone between delineated wetlands and constructed features will be established. The undisturbed buffer zones will be demarcated using soil berms constructed end-to-end that will be visible to equipment operators. The berms will be constructed from on-site soil and will be 3-feet in height and have 2:1 side slopes. The base of the berms will be approximately 12-feet in width and will come to a peak at the top. The berms will be constructed in lengths between 10- and 50-feet with spacing between the berms of 4- to 6-feet. The berms will be constructed for each construction event as needed to protect the

wetlands, and will be the first thing constructed and vegetated during each construction event. These features will remain in place after construction has been completed to provide a visual warning to site operators that they are nearing a wetland area.

Erosion control fencing will be placed along the outside edge of the wetlands undisturbed buffer zones. Veolia will also place durable signs measuring approximately two-feet by two-feet with bold lettering that say "WETLAND PROTECTION AREA – THIS AREA NOT TO BE DISTURBED" along the delineated wetland boundary.

DISPOSAL OPERATION: Placement of waste will then begin in the horizontal expansion area in the northeast corner of Phase 7 North, and progress south and westward. Compaction equipment and procedures capable of consistently achieving a minimum waste density of 1,200 pounds per cubic yard of municipal waste will be used. At the end of each day 6 inches of daily cover soil or an alternate daily cover will be placed on the active face. Alternate daily cover (ADC) consisting of shredder fluff, contaminated soil, and other waste exempt from fees and approved as ADC through the special waste management plan will be used at the site.

The final cover and gas extraction systems will be installed in increments after the waste in each phase reaches final grades.

WASTE SCREENING: Incoming waste loads will be weighed at the scale. If the gate attendant identifies unauthorized waste in a load, the load will not be accepted for disposal. The site manager will be consulted in instances when the gate attendant questions the acceptability of a waste load. The landfill has a random load inspection program to spot check for the presence of detectable hazardous or toxic wastes. The entrance gate will be locked during non-operating hours.

SOIL STOCKPILING PLAN: The Expansion design calculations indicate that approximately 3,025,000 cubic yards of clay/general fill/topsoil will be excavated from the Expansion footprint. There will be approximately 328,000 cubic yards of excess soil remaining after development of the Expansion and construction of the final cover for the existing landfill. As soil is excavated, the soil not needed for the phase being developed (excess soil) will be hauled and stockpiled on the Future Parklands Development Inc. (FPDI) property (now owned by VEPL) located north and adjacent to the VEPL property or to the Oakes property (also owned by Veolia) located off 8-mile road. A stockpile and grading plan for the FPDI was contained in the plan of operation. The plan shows the hauling route from the Expansion to the FPDI along with surface water controls, such as, perimeter ditching, silt fencing and sedimentation basins. Because stockpiling of soil is an on-going process of adding and taking of soil form the piles, detailed design calculations will be provided for each stockpile and submitted to the Department prior to the beginning of each liner and final cover construction event.

Prior to any soil stockpiling, Veolia will have a wetlands expert delineate the wetland boundaries on the FPDI property and will contact WDNR Water Regulation and Zoning for determining if Chapter 30 and NR 103 regulations apply. The soil berms that are used to protect the wetlands around the landfill will also be used on the FPDI property. The stockpile areas on the FPDI property will have temporary and permanent erosion control measures that include silt fences, drainage ditches, diversion berms, check dams, sedimentation basins, and the establishment of vegetation as soon as possible.

CONTROL OF TOTAL SUSPENDED PARTICULATE MATTER (TSP) AND WINDBLOWN DEBRIS: During construction TSP will be controlled primarily through the application of water to haul roads, limiting the number of haul roads, and limiting the speed of vehicles on haul roads to 15 mph. During daily landfill operations the primary means of controlling TSP generated by

vehicular traffic will be the application of dust suppressant and water to haul roads. The amount of bare soil onsite will be minimized by vegetating exposed soil areas and soil stockpiles. In addition, access roads and bare soil areas that produce visible amounts of dust will be watered. VEPL has a Dust and Odor Control Plan that is being followed for the existing landfill and will continue to be followed for the Expansion.

The primary methods of controlling windblown litter and debris will be: 1) maintaining a small working face, 2) covering portions of the active area as they are filled, 3) taking advantage of prevailing wind directions and orienting daily landfill operations accordingly, 4) collecting windblown litter on a routine basis, 5) positioning temporary fences or wind screens around the working area to intercept windblown debris and 6) permanent fences located around the landfill perimeter to intercept blowing debris.

ORGANIC STABILITY

An organic stability plan was included in the plan of operation report in accordance with NR 514.07(9), Wis. Adm. Code which requires landfills to submit a plan for significantly reducing the amount of degradable organic material remaining after site closing in order to materially reduce the amount of time the landfill will take to achieve landfill organic stability.

The objective of the landfill organic stability plan is achievement of all of the measured goals in NR 514.07(9)(c), Wis. Adm. Code and stated below.

Goals of the Organic Stability Plan

1. A monthly average total methane plus carbon dioxide gas production rate less than or equal to 5% of the maximum monthly average total gas production rate observed during the life of the facility, or less than 7.5 cubic feet of total gas per year for each cubic yard of waste in the facility.

2. A steady downward trend in the rate of total methane plus carbon dioxide gas production.

3. Production of total methane plus carbon dioxide gas cumulatively representing 75% or greater of the projected total gas production of the landfilled waste.

4. Reduction of the time necessary to reach landfill organic stability to 40 years or less after site closing.

Veolia's general approach to decrease the time required for the landfill to reach organic stability includes two elements:

1. Increase the moisture content in the waste mass to increase the waste degradation rate.

2. Evaluate the potential to divert additional organics from the landfill by expanding compost operations.

Leachate Recirculation

Increasing the moisture content is the primary strategy to reduce the amount of time required to reach organic stability. Increasing the moisture content is anticipated to increase the rate of waste degradation, which will reduce the amount of non-degraded organic material left in the landfill at the end of the post-closure period (40 years after closure). The moisture content will

be increased through leachate recirculation and the addition of other liquids approved under a Research, Development, and Demonstration (RD&D) plan. Total liquid addition will be limited to the currently approved allowable rate of 8,780 gallons per acre per day.

The Emerald Park Landfill has been recirculating leachate since August, 1998. Recirculation leachate helps accomplish the following:

- Stabilization of the waste mass through accelerated biodegradation
- Reduction of contaminants in the leachate
- Reduction of leachate treatment costs
- Improved compaction and maximization of approved airspace
- Improved waste mass stability and ultimately long-term integrity of the final cover through reduced post-capping differential settlement
- Enhanced gas production

Warning Symptoms

Leachate recirculation will be suspended upon discovery of warning symptoms and may not resume in the area where the problem occurred until changes are made to the system or the warning symptoms have declined to acceptable levels. Veolia will notify the Department in writing within 7 days of the discovery of warning symptoms and suspension of leachate recirculation. Warning symptoms may include the following:

- Leachate chemistry showing acidic conditions and high CODs and gas lacking in methane
- Leachate head wells showing persistent elevated liquid levels
- Gas wells flooded and /or showing little or no gas production
- Carbon monoxide detected in gas at levels indicating potential subsurface fire, and/or evidence of smoke, burning odors, or other signs of subsurface fire
- Leachate seeps that are constant or recurring in areas near active recirculation or liquids addition
- Ponded leachate over recirculation trenches or on the active fill area
- Gas or odor emissions that require major adjustments of the gas extraction system to control
- Gas generation that is close to or exceeding flare and /or gas utilization equipment capacity when keeping vacuum on all gas extraction wells
- Anomalous increase in leachate pumping in or near a leachate drainage basin being subjected to leachate recirculation

Failure Thresholds

Leachate recirculation will be suspended whenever any of the failure thresholds are exceeded. Leachate recirculation may not resume until the Department has reviewed and approved changes to the system that will result in meeting the thresholds. Veolia will notify the Department within 3 days of the discovery of exceeding any failure threshold. Failure thresholds may include the following:

- Flowing leachate seeps with constant liquid output and observable flow for many feet down a sideslope
- Cracks, open or closed, across the waste surface, or other signs of block movement of waste

- Abnormal vibration or shaking while standing on the waste surface from traffic several feet away
- Trucks or other vehicles sinking into soft MSW, particularly if waste is wet or saturated, but only if this problem is persistent and not weather-related
- Visible changes in outline of the waste mass (i.e., bulging or obvious changes in slope)
- Collapse of access roads or other soil structures such as biopiles or stockpiles
- Massive odor and gas release that cannot be readily controlled by operation of gas extraction controls

Monitoring and Evaluation

Implementation of the organic stability plan will be monitored and evaluated for effectiveness. The leachate recirculation monitoring will be in accordance with NR 507.215(1)-(4), Wis. Adm. Code which includes liquid mass balance, leachate head, leachate characteristics and landfill gas monitoring. A new flow monitoring point will be added to the gas header pipe from the South Expansion to allow direct measurement of the total horizontal expansion gas flow. Refer to the landfill gas monitoring table below.

Yard Waste Composting

Veolia currently operates a composting facility. The composting facility accepts yard waste and has been participating in a Food Waste Composting Pilot Program since March 2010. The food waste being managed with yard waste compost is limited to expired fruits and vegetables and some bread products.

Expanding Composting Operations

Veolia will evaluate the feasibility of expanding composting operations beyond yard waste. Other source-separated organic materials that could potentially be diverted for composting include food waste, farm crop residue, manure, or other suitable organic material. Separation of wastes after delivery to the landfill is not proposed for evaluation.

Contingency Plan

The contingency plan will need to be implemented if monitoring and evaluation of the organic stability plan indicate the facility is unlikely to achieve the goals outlined in NR 514.07(9)(c), Wis. Adm. Code and stated above. If it is determined that liquid addition may not achieve the landfill organic stability goals due to technical, operational, or political issues, then Veolia will evaluate the other options available at that time for achieving organic stability and will update the contingency plan as part of the annual reporting process. Contingency plan options could include but are not limited to the following:

- Expand composting operations to include source separated food or agricultural waste
- Divert other organic waste streams from the landfill
- Pre-process organic or hybrid waste (e.g. composting or shredding) before placement in the landfill
- Implement aerobic bioreactor approach to landfill operations
- Delay final cover installation for a longer period of time

Veolia will also continue to evaluate organic stability measures undertaken in its European operations for potential applicability in Wisconsin.

Reporting

Annual progress reports will be prepared as required by NR 514.07(9)(d), Wis. Adm. Code. Each annual report will include an evaluation of whether changes are needed in the plan to correct problems or improve results. Veolia may update the contingency plan at this time also. Veolia may submit the annual organic stability report as part of the Emerald Park landfill annual report required by the attached approval. Every 5 years, Veolia will examine progress against the approved plan to evaluate the likelihood that the plan will enable the facility to reach the goals listed above and determine whether the contingency plan will be implemented. A report describing the evaluation and determination will be submitted to the Department as part of the annual report for that year. The Department may require that the contingency plan be implemented if its review finds that the progress the landfill has made is significantly different than the approved plan.

ENVIRONMENTAL MONITORING

Environmental and performance monitoring will extend through active site operation and long-term care. Monitoring data will be reported to the Department in an electronic format specified by the Department, as required by s. NR 507.26(3), Wis. Adm. Code. See attachment 1.

CLOSURE AND LONG TERM CARE COSTS

Although Veolia will be perpetually responsible for the long term care of this landfill, proof of owner financial responsibility is only required for closure of the most expensive area, and for long term care of the entire facility for a period of 40 years. Actions to be taken during closure and long term care, along with the associated cost estimates, are summarized below. Closure costs reflect the most expensive area to close, which includes Phases 3, 6, 7 and 8 for a total of 65 acres. The closure cost includes the installation of a multi-layered composite cap and a vertical gas extraction system. The composite cap will require the placement of a clay barrier layer and geocomposite clay liner, a 40-mil LLDPE geomembrane, a geonet drainage layer, a rooting zone layer and topsoil. Long term care costs reflect estimated yearly expenses for: groundwater, surface water, gas, leachate, and settlement monitoring; leachate collection and treatment; gas extraction system operation and maintenance; site maintenance; site inspections; and erosion repairs. All costs are based on 2011 unit prices and are rounded to the nearest $100.

CLOSURE COSTS:

Item	Quantity	Unit cost	Estimated Cost
FINAL COVER			
Mobilization	1 each	$25,000/each	$25,000
Grading layer (6 inches)	21,000 cy	$3.50/cy	$73,500
Clay placement (2 feet)	209,700 cy	$4.00/cy	$838,800
40-mil LLDPE	2,832,000 sf	$0.50/sf	$1,416,000
Geonet drainage layer	2,832,000 sf	$0.50/sf	$1,416,000
Rooting zone (2.5 ft)	262,200 cy	$3.00/cy	$786,600
Topsoil (6 inches)	52,400 cy	$4.00/cy	$209,600
Seed, fertilizer & mulch	70 acres	$1,700/ac	$119,000
Rock picking	1 each	$4,000 LS	$4,000
SURFACE WATER MANAGEMENT			
Diversion berms	11,000 lf	$4.50/lf	$49,500
Downslope flumes with energy dissipators	4 each	$15,000/ea	$60,000
Subsurface drainage pipe & stone	5,450/lf	$5.00/lf	$27,300
GAS EXTRACTION SYSTEM			
Gas extraction wells & apparatuses	37 each	$7,000/each	$259,000
Gas header pipe	12,200/lf	$31.00/lf	$378,200
4” gas header pipe to cleanouts	270 lf	$18.00/lf	$4,900
Gas header pipe bedding material	12,470/lf	$1.00 lf	$12,500
Condensate knockout removal point	6 each	$3,500/each	$21,000
ENGINEERING FEES			
Engineering drawings and bid documents	1 each	$30,000 each	$30,000
Project Management	1 each	$10,000 each	$10,000
Construction Observation (QA/QC)	65 acres	$9,000/acre	$585,000
Surveying	65 acres	$1,500/acre	$97,500
		Subtotal	$6,423,400
		10% Contingency	$642,300
		Total	$7,065,700
		Cost/Acre	$108,700

- Assumes Phase 7 – Area 3, Phase 8 without final cover installed is worst case scenario (approx 65 acres).
- Assumes Phase 7 – Phase 3 has intermediate/grading cover installed & Phase 8 active (approx 26 acres).

LONG TERM CARE COSTS:

Item	Quantity	Unit Cost	Estimated Annual Cost
COVER SYSTEM MAINTENANCE			
Topsoil Repair (5% of 122 acres for yrs 1-5, 0.5% of 114 for yrs 6-40, use weighted average of 1%)	984 cy/yr	$5.31/cy	$5,200
Seeding Repair (10% of 122 acres for yrs 1-5, 3% of 114 for yrs 6-40, use weighted average of 4%)	4.9 ac/yr	$1,500/ac	$7,400
Mowing	122 ac/yr	$38/ac	$4,600
Sed Basin Cleaning (4/year) (Sed basins 1, 2, 3, 7, 8 & 9)	6 basins	$600/basin	$3,600
Drainage Ditch Cleaning	LS		$1,500
LEACHATE SYSTEM			
Leachate Disposal & Treatment (1"/yr over 122 ac)	3,300,000 gal	$0.005/gal	$16,500
Operation and Maintenance	Lump sum		$4,500
Replacement of leachate forcemain(4,700lf x $50/lf) /40yrs	Lump sum		$5,900
Leachate Line Cleaning	27,850 lf	$0.25/lf	$7,000
Pump Replacement (2/year)	2 each	$2,000/ea	$4,000
GAS EXTRACTION SYSTEM			
Operation & Maintenance	112 wells	$115/well	$12,900
Blower & Flare Replacement (2 replacements in 40 yrs)	Lump sum		$2,500
Gas Well Replacement (112 wells, 5 replaced every 5 yrs)	1 each	$7,000/each	$7,000
Air Emissions Monitoring (NSPS)	4 events	$1,600/event	$6,400
Header Repair	40 lf/yr	$35/lf	$1,400
Electricity	12 months	$500/month	$6,000
ENVIRONMENTAL MONITORING			
Groundwater Monitoring	Lump sum		$25,000
Leachate Monitoring	Lump sum		$4,500
Gas Monitoring	Lump sum		$21,000
INSPECTIONS & REPORTING			
Monthly Manhole Inspections	12 Months	$100/month	$1,200
Inspection of Leachate Headwells (21 wells)	12 Months	$200/month	$2,400
Inspection of Settlement	LS		$800
Annual Site Inspection	8 hours	$50/hour	$400
Annual Report	Lump sum		$5,000
		Subtotal	$156,700
		10% Contingency	$ 15,700
		Total	$172,400

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

CONDITIONAL PLAN OF OPERATION APPROVAL FOR THE VEOLIA ES EMERALD PARK LANDFILL SOUTHWESTERN EXPANSION (LICENSE NO. 3290)

FINDINGS OF FACT

The Department finds that:

1. Veolia ES Emerald Park Landfill, LLC (VEPL) owns and operates a solid waste disposal facility located in the S ½ of the NE ¼, the E ½ of the SW ¼ and the SE ¼ of Section 36, T5N, R20E, in the City of Muskego, Waukesha County, Wisconsin.

2. Conditional plan of operation approvals were issued by the Department for the facility on June 3, 1994 and January 14, 2000.

3. The Department issued a determination of need and feasibility approval for an expansion to the existing facility October 22, 2010. The Department modified the feasibility determination on February 3, 2011.

4. On February 1, 2011, RMT, Inc., on behalf of Veolia, submitted to the Department a plan of operation for the landfill expansion. The Department declared the plan of operation complete on April 5, 2011. The Department received the correct review fee of $7,700 for the plan of operation on March 2, 2011.

5. The information submitted in connection with the plan of operation review includes the following:

    a. A report and appendices entitled "Southwestern Horizontal Expansion, Plan of Operation, Veolia ES Emerald Park Landfill, LLC" and 29 accompanying plan sheets, dated February 1, 2011. This submittal was received by the Department on February 4, 2011.

    b. A report entitled “Addendum No. 1, Plan of Operation Report, Southwestern Horizontal Expansion, Veolia ES Emerald Park Landfill, LLC” dated March 15, 2011. The submittal was received by the Department on March 15, 2011.

    c. A report entitled “Request for additional information to the Plan of Operation Report for the Southwestern Horizontal Expansion, Veolia ES Emerald Park Landfill, LLC” dated March 30, 2011. The submittal was received by the Department on March 31, 2011.

    d. An e-mail from RMT, Inc. on behalf of Veolia, dated May 27, 2011 that pertains to the groundwater PAL and ACL calculations.

    e. An e-mail from Jay Warzinski –Veolia dated June 2, 2011 that pertains to the beneficial reuse materials used at the Emerald Park Landfill.

6. Additional documents considered in the review of the plan of operation include the following:

    a. The Department’s February 3, 2011 feasibility plan modification approval which replaced condition 2 of the determination and was in regards to the landfill footprint.

b. The Department's October 22, 2010 Feasibility Determination.

c. The Department's September 22, 2007 plan of operation approval for a research, development and demonstration plan and the September 21, 2010 research, development and demonstration plan renewal.

d. A report dated May 25, 2005, entitled Onyx Emerald Park Landfill, LLC, Groundwater Quality Information Report, prepared by Environmental Sampling Corporation (ESC) on behalf of Onyx Emerald Park, LLC. The report contains NR 140 groundwater preventative action limit (PAL) and alternative concentration limit (ACL) calculations.

e. The Department's September 25, 2003 plan of operation approval modification for final waste grades, final cover thickness and surface water management components.

f. A report dated April, 2002, entitled Additional Information Report, Superior Emerald Park Landfill, prepared by RMT, Inc.. The report contains NR 140 groundwater PAL and ACL calculations.

g. The Department's March 19, 2001 plan of operation approval modification for a special waste plan to include <50 ppm heavy metals and PCB dredge materials.

h. The Department's October 11, 2002 modification of plan of operation for environmental monitoring.

i. The Department's January 24, 1997 plan of operation approval modification for ceasing to pump the gradient control system under Phase 1.

j. The Department's October 31, 1995 plan of operation approval modification for the gradient control layer.

k. The Department's June 23, 1995 plan of operation approval for NR 140 Groundwater Exemptions, PALs and ACLs.

l. The Department's November 17, 1994 Construction Documentation Approval, Plan Modifications and Grant of Exemptions; Phase I of Emerald Park.

m. The Department's June 3, 1994 and January 14, 2000 plan of operation approvals.

n. The Department's December 9, 1992 and July 29, 1999 feasibility determinations.

o. Department files for the Veolia Emerald Park Landfill (#3290).

7. Additional facts relevant to the review of the plan of operation include:

a. "PCB bulk product waste", as defined in s. 761.3, TSCA, includes shredder fluff with PCB concentrations $\geq$ 50 ppm in solid form. PCB bulk product waste is derived from manufactured products containing PCBs in a non-liquid state, and several such wastes have been shown or can be demonstrated to show limited leaching behavior for PCBs.

b. Shredder fluff, regardless of PCB concentration, is a solid waste under Wisconsin statutes.

c. Shredder fluff from processing automobiles with average PCB concentrations of <50 ppm have been used, with Department approval, for reuse as daily cover at several landfills in Wisconsin.

d. S. 761.62(b)(1), TSCA allows certain PCB bulk product waste to be disposed of in a licensed nonhazardous solid waste landfill, with Department approval. This includes shredder fluff from the processing of automobiles and household appliances from which PCB-containing capacitors have been removed.

e. TSCA does not prohibit leachate recirculation for auto shredder residue under 40CFR 761.62(b)(1)(i) or for wastes that meet the PCB leachability standard of 10 ug/l under 40 CFR 761.62(b)(1)(ii). Other PCB wastes not defined under these sections have to be segregated from organic liquids.

f. Selected solid waste materials can be approved by the Department as an alternative daily cover under the provisions of ss. NR 506.055(1) and (3), Wis. Adm. Code.

8. Neither the applicant, nor any person owning a 10% or greater legal or equitable interest in the applicant, or the assets of the applicant:

a. Is in noncompliance with a plan approval or order issued by the Department for a solid or hazardous waste facility in Wisconsin;

b. Owns or previously owned a 10% or greater legal or equitable interest in a person, or in the assets of a person, who is not in compliance with a plan approval or order issued by the Department for a solid or hazardous waste facility in Wisconsin.

9. The applicant has demonstrated to the Department that the storm water control requirements for Veolia Emerald Park Landfill are at least as stringent as the applicable regulations under subch. II of ch. NR 216, Wis. Adm. Code.

10. Section 289.54(2), Wis. Stats., prohibits the department from approving a request by the operator of a solid waste disposal facility to accept dredged materials that contain PCBs or heavy metals in a concentration of less than 50 parts per million for disposal in the solid waste disposal facility until after the department holds a public meeting in the city, village or town in which the solid waste disposal facility is located, and requires the department to describe the nature of the requested disposal and solicit public comments.

11. A public information meeting was held on December 12, 2000 at the Muskego Public Library. During this meeting the department received oral comments from the public regarding the proposed special waste plan modification which included acceptance of PCB contaminated sediments.

12. Before the Department may approve an ACL, the Department must first grant an exemption to the groundwater standard established in ch. NR 140, Wis. Adm. Code for the respective groundwater monitoring point and parameter. The approvals listed below granted exemptions to the groundwater standards established in ch. NR 140, Wis. Adm. Code for the groundwater monitoring points and parameters that have an ACL listed in Table 8 of Attachment #2:

a. The October 22, 2010 Southwest Expansion Feasibility Determination.

b. The January 14, 2000 plan of operation approval.
c. The July 29, 1999 feasibility determination.
d. The June 23, 1995 plan of operation approval for NR 140 Groundwater Exemptions, PALs and ACLs.
e. The November 11, 1994 Construction Documentation Approval, Plan Modifications and Grant of Exemptions; Phase I of Emerald Park.
f. The December 9, 1992 feasibility determination.

13. The Department's June 23, 1995 plan of operation approval for NR 140 Groundwater Exemptions approved PALs and ACLs for parameters at wells MW-003 through MW-019A.

14. In 2002 and 2005, Veolia submitted proposed PALs and ACLs for parameters at wells MW-104A through MW-131D. Veolia's 2002 and 2005 submittals are listed in finding of fact 6, d and f, above.

15. In the February 1, 2011 Plan of Operation Report Veolia proposed PALs and ACLs for parameters at wells MW-301A through MW-305B.

16. In order to check Veolia's proposed PAL and ACLs, the Department calculated PALs and ACLs for those parameters and wells for which NR 140 groundwater exemptions have been granted and for which Veolia submitted proposed PALs and ACLs. The Department's approved PALs and ACLs are located in tables 7 and 8 of Attachment #2.

17. The NR 140 groundwater PALs for indicator parameters and the NR 140 groundwater ACLs established in this approval are based on at least 8 sample results for each substance at each groundwater monitoring point.

18. The PALs for indicator parameters established in this approval are equal to the mean background water quality plus 3 standard deviations or the mean background water quality plus the minimum increase specified in Table 3, ch. NR 140, Wis. Adm. Code, whichever is greater.

19. The ACLs established in this approval are equal to the mean background water quality plus 2 standard deviations.

20. The calculated PALs and ACLs were rounded up to 2 significant figures.

21. The Department has determined that the exemptions which were granted for the wells and parameters listed in the table below will need to be rescinded because they are not warranted for the reasons listed in the table:

Well	GEMS ID#	Parameter	Date Exemption was Issued	Reason for Rescinding Exemption
MW-115E	149	Cadmium	10/22/2010 Feasibility Determination	The NR 104 PAL is 0.5 ug/L. All samples since 2000 are below NR 140 PAL.
MW-117C	152	Lead	10/22/2010 Feasibility Determination	Data collected in 1996 had an LOD of 3 ug/L. No samples are above the LOD. We can't say there is a PAL exceedance simply because the LOD used is above the PAL.
MW-131D	182	Cadmium	10/22/2010 Feasibility Determination	Baseline samples are No Detect
MW-131D	182	Selenium	10/22/2010 Feasibility Determination	Baseline samples are below PAL
MW-302A	190	Lead	10/22/2010 Feasibility Determination	The 4/23/2007 sample had a detect of 43 ug/L which appears to be an outlier. All subsequent rounds were below the PAL or No Detect.
MW-302B	192	Lead	10/22/2010 Feasibility Determination	The 8/3/2007 sample had a detect of 7.03 ug/L which appears to be an outlier. All subsequent rounds were below the PAL or No Detect.
MW-303B	198	Lead	10/22/2010 Feasibility Determination	The 4/24/2007 sample had a detect of 32.2 ug/L which appears to be an outlier. All subsequent rounds were below the PAL or No Detect.

22. The October 22, 2010 Feasibility Determination granted code exemptions for the proposed Southwest Landfill Expansion. Except where otherwise specified in this approval, the exemptions granted in the October 22, 2010 feasibility determination apply to the Plan of Operation.

23. The Department granted an exemption from s. NR 512.09(6)(c), Wis. Adm. Code, which requires consolidation testing data in the October 22, 2010 feasibility determination. Veolia has demonstrated circumstances that warrant and exemption from s. NR 504 (6) (c), Wis. Adm. Code which requires primary and secondary settlement calculations, since the consolidation testing data is not available.

24. For the purpose of implementing conditions 21 and 23 of the October 22, 2010 feasibility determination, the intent of those two conditions is to monitor the private water supply wells which are within 1,200 ft of the limits of waste for the Southwest Vertical and Horizontal Expansion and for which NR 504 code exemptions were granted (the wells located on Union Church Drive).

25. Veolia has requested and demonstrated circumstances that warrant discontinued pumping and sampling from the gradient control layer under phases 4 and 5 (GSUMP-4, GSUMP-5NE, GSUMP-5SE and GSUMP-5SW). Phases 4 and 5 have adequate waste placement and liner uplfit is no longer a potential concern. The ability to sample if needed in the future will be maintained.

26. The special conditions set forth below are needed to assure that the landfill is operated in an environmentally sound fashion and will not inhibit compliance with the standards set forth in the applicable provisions of chs. NR 500-538, Wis. Adm. Code.

CONCLUSIONS OF LAW

1. The Department has authority under s. 289.30, Stats. to approve a plan of operation with special conditions if the conditions are needed to ensure compliance with chs. NR 500 to 538, Wis. Adm. Code.

2. The Department has authority under s. NR 140.28, Wis. Adm. Code, and ss. 160.19(8) to (10), Stats., to grant exemptions to groundwater quality standards and to establish corresponding alternative concentration limits.

3. The Department has authority under s. NR 140.20, Wis. Adm. Code, and s. 160.15(3), Stats., to establish preventive action limits for groundwater indicator parameters at waste disposal facilities.

4. The conditions of approval set forth below are needed to ensure compliance with chs. NR 500 to 538, Wis. Adm. Code.

5. In accordance with the foregoing, the Department has the authority under ch. 289, Stats., to issue the following conditional approval.

GRANTS OF EXEMPTION

1. The Department hereby rescinds the ch, NR 140, Wis. Adm. Code groundwater exemptions which were previously granted for the wells and parameters listed in the table under finding of fact #21, above, for the reasons listed in the table.

2. Veolia has demonstrated circumstances that warrant an exemption from s. NR 504.06(6)(c), Wis. Adm. Code, which requires primary and secondary settlement calculations. Since the consolidation testing data is not available an exemption is granted for this code requirement.

CONDITIONAL PLAN OF OPERATION APPROVAL

The Department hereby approves the Plan of Operation for the Southwestern Expansion at the Veolia Emerald Park Landfill subject to compliance with chs. NR 500-538, Wis. Adm. Code, and the following conditions:

1. The total design capacity of this landfill expansion (combined refuse, daily and intermediate cover volume) may not exceed 7,945,800 cubic yards.

2. All aspects of construction and operation of the landfill shall be performed in accordance with the plan of operation, the requirements of chs. NR 500 to 538, Wis. Adm. Code, and the conditions of the approval. In the case of any discrepancies between the approval conditions and the plan of operation, the approval conditions shall take precedence.

3. Any proposed changes to the plan or this approval shall be presented to the Department. If the changes are compatible with the desired performance of this landfill, as determined by the Department, an addendum will be added to this approval indicating acceptance of those changes. Written Department approval is necessary prior to implementing any changes with the

exception of minor field modifications that are documented in accordance with NR 516.04(3)(d), Wis. Adm. Code. All field modifications shall be discussed with the Department prior to implementation. Other changes may be handled as expedited plan modifications under s. NR 514.09, Wis. Adm. Code as appropriate.

Operation, Design, and Construction

4. Alternate daily cover material may not be used as daily cover or interim cover on exterior side slopes or final grades and may not contain free liquids.

5. All pumps and flow recording devices shall be tested and maintained to ensure that leachate is pumped out of the landfill continuously and the reported flows are accurate.

6. In case of malfunction of leachate extraction pump, the pump shall be made operational or replaced within five work days of detecting the malfunction or in accordance with an alternative schedule approved by the Department.

7. The side-slope riser leachate collection system design shall include a method of detecting when the sump pump is not properly operating.

8. Veolia shall remove accumulated sediment from behind silt fences, and make necessary repairs to the fencing, as soon as practicable after each storm event.

9. Veolia shall move gas monitoring probe GMP-18 to the west side of Phase 8, move gas monitoring probe GMP-19 to the south side of Phase 8, and shall install one additional gas monitoring probe (GMP-20) on the east side of Phase 8. Concurrence from the Department on the location of the gas monitoring probes shall be received prior to installation.

10. A description of the sump integrity test shall be included in the preconstruction report for each phase of liner. The sump integrity test shall be a water test, an electrical resistivity test, or other method approved by the Department. Details of the test shall be described in the report and shall be followed during in-field testing of the sump. Sump test results shall be included in the construction documentation report.

11. For recompacted soil used in subgrade and berm construction, the following tests shall be performed:

    a. For recompacted soil used in subgrade and berm construction, dry density and as-placed moisture content shall be determined on an approximate 100 foot grid pattern for each one foot thickness of soil placed. The grid pattern shall be offset on each subsequent layer of tests. A minimum of 2 density and moisture content tests for each one foot thickness of soil placed shall be performed to fully define the degree of soil compaction obtained in confined areas where equipment movement is hindered or hand compaction is necessary.

    b. For recompacted soil used in subgrade, one moisture-density curve or line of optimums analysis shall be developed for every 5,000 cubic yards or less of soil placed and for each major soil type utilized. At least 5 points shall be established on each curve. If a line of optimums analysis is performed, at least 2 curves shall be included for each analysis. A representative sample for every 5,000 cubic yards or less of soil placed shall be analyzed for Atterberg limits. If apparent changes in soil quality are observed during

soil placement, a one-point Proctor analysis shall be utilized to verify the applicability of previously analyzed moisture-density curves.

c. For recompacted soil used in berm construction, one moisture-density curve or line of optimums analysis shall be developed for every 20,000 cubic yards or less of soil placed and for each major soil type utilized. At least 5 points shall be established on each curve. If a line of optimums analysis is performed, at least 2 curves shall be included for each analysis. A representative sample for every 20,000 cubic yards or less of soil placed shall be analyzed for Atterberg limits. If apparent changes in soil quality are observed during soil placement, a one-point Proctor analysis shall be utilized to verify the applicability of previously analyzed moisture-density curves.

12. Prior to the beginning of each liner and final cover construction event, Veolia shall submit a detailed design calculation for each stockpile to be constructed on the Future Parkland Development, Inc. property. A plan sheet showing the location of the stockpile and associated surface water controls, such as, perimeter ditching, silt fencing and sedimentation basins shall also be provided. Veolia shall also submit documentation that it obtained all necessary local approvals and any other required Department approvals, such as NR 103, ch. 30, Stats., water quality certification or stormwater permits, or show that other approvals were not required.

13. The construction documentation report, required by NR 516, Wis. Adm. Code, for each phase of liner requiring removal of unsuitable or unstable soils shall include: information on the test pit logs, the volume of unsuitable soil removed, the volume of the backfill material placed as sub-base material, verification of acceptable soil material left in the subgrade of removed unsuitable or unstable soils, results of all testing performed on the unsuitable soil as well as the backfill material including Proctor curves, moisture and density test, Atterberg limits, and organic content.

14. The shear testing required by NR 516.04(5)(c), Wis. Adm. Code shall be performed for all phases of final cover construction even if the materials appear to be the same as those tested for a previous construction event.

15. Veolia shall notify the Department's waste management engineer assigned to this site a minimum of one week prior to beginning each of the construction events listed below for the purpose of allowing the Department to inspect the work. A fee shall be paid to the Department for each required inspection in accordance with s. NR 520.04(5), Wis. Adm. Code. The inspection fees shall be paid at the time the construction documentation review fee is submitted to the Department.

Liner Construction Events

a. Gradient control system construction
b. Clay placement
c. Geomembrane deployment and seaming
d. Sump construction/side slope riser placement
e. Drainage blanket placement/leachate line installation

Final Cover Construction Events

f. Clay layer placement
g. Geomembrane cap installation/seaming
h. Placement of piping within the drainage layer
i. Root zone and topsoil placement

Gas System Construction Events

j. Gas extraction well placement
k. Gas header pipe installation

This condition supersedes Condition 18 of the Department's June 3, 1994 plan of operation approval and Condition 33 of the Department's January 14, 2000 plan of operation approval.

16. Final cover placement may be delayed up to two years after attaining maximum waste filling grades in each phase of closure provided that the requirements of s. NR 514.07(3), Wis. Adm. Code are met. At no time shall the waste grades exceed the approved maximum waste filling grades for this facility as shown on plan sheet 27 of the plan of operation.

This condition supersedes Condition 14.c. of the Department's June 3, 1994 plan of operation approval.

17. Shredder fluff accepted for alternate daily cover shall be sampled and tested as follows below. The results of all testing shall be submitted to the Department in the annual report. The sampling collection dates and times shall be included with the submittal. Testing shall be performed on a semi-annual basis.

a. Ten samples of each source of shredder fluff shall be collected over a five-day period. Each sample shall be obtained by removing a shovel full of fluff from the conveyor once an hour for a four-hour period in the morning and then again for another four-hour period in the afternoon. Each day's sampling shall be composited into a single sample. The resulting daily sample shall be coned and quartered until 10 gallons of fluff remain. Each 10-gallon sample shall be coned and quartered into two five-gallon samples. The samples shall be stored in sealed containers made of inert material until they are analyzed in a laboratory. The 10 resultant five-gallon samples shall then be tested as outlined in (b) through (d) below.

Three samples from each source of shredder fluff shall be randomly selected and analyzed at a lab for lead, cadmium and mercury using the Toxicity Characteristic Leaching Procedure (TCLP) testing method and for PCB's using a total elemental extraction test method referenced in 40 CFR Part 761.358. If all three samples test below the regulatory limit, then the simple arithmetic mean for the three samples shall be reported as one test result. If any of the three samples tests are above the regulatory limit for any parameter, then the remaining seven samples as referenced in a. above shall be tested for the exceeded parameter and the simple arithmetic mean for the ten samples shall be reported as one test result. A rolling average shall then be used to determine the regulatory status of the shredder fluff. The rolling average shall be based upon the five most recent test results for the above parameters. The oldest test result shall be dropped from the average as each new value is added. Shredder fluff from an individual auto shredder shall not be accepted at the landfill if their rolling average exceeds 80% of regulatory limit for a parameter listed below.

b. Regulatory Limits

TCLP leach test		Solids analysis	
Lead	5.0 mg/l	PCB	50 mg/kg
Cadmium	1.0 mg/l		

Mercury 0.2 mg/l

If an individual sampling event (arithmetic mean for ten samples) exceeds a regulatory limit for any parameter, an additional sampling event in accordance with paragraph a., above, shall immediately be performed and the samples shall be analyzed for the exceeded parameter in accordance with paragraph b., above.

c. On an annual basis, one sample of shredder fluff from each source shall be subject to the ASTM D 3987-85 water leach test and the leaching fluid shall be analyzed for dissolved PCBs using an analytical method with a level of detection <10 microgram per liter.

This condition supersedes Condition 9 of the Department's November 17, 1994 plan of operation modification approval.

Environmental Monitoring

18. Any active vertical gas extraction well experiencing leachate head levels covering 50 percent or more of the screened interval shall be re-measured within 90 days of the initial measurement. Leachate extraction equipment shall be installed within 180 days after confirmation of the liquid level in any vertical gas extraction well that exhibits leachate head levels covering 50 percent or more of the screened interval during two or more consecutive monitoring periods or an assessment documenting the system's ability to control gas surface emissions in the area of the gas well with high liquids shall be submitted in the annual report and concurred to by the Department. The Department may require installation of leachate extraction equipment in wells that exhibit leachate head levels covering less than 50 percent of the open screened interval if, in the Department's opinion, dewatering is necessary to maintain an effective gas extraction system or if it is determined that the head levels are a result of actual leachate head levels in that location of the landfill.

19. a. Veolia shall perform environmental monitoring during both the active life and post-closure care in accordance with Environmental Monitoring Tables 1 through 6 in Attachment #1, as well as air quality and wastewater monitoring in accordance with the appropriate Department permits. The sub-title D wells are listed in Table 1a.

b. As requested, GSUMP-4, GSUMP-5NE, GSUMP-5SE and GSUMP-5SW are no longer required to be sampled; however, Veolia must maintain the ability to collect samples from these sumps, so that samples may be collected in the future if the Department determines that sampling is needed.

This condition supersedes all environmental monitoring requirements contained in previous approvals except the monitoring requirements in the Department's September 22, 2007 Research, Development and Demonstration plan of operation approval modification.

20. NR 140 Preventative Action Limits (PALs) and NR 140 Alternative Concentration Limits (ACLs) are established for the groundwater monitoring points and respective parameters listed in Tables 7 and 8 in Attachment #2.

21. a. For all future new or replacement groundwater monitoring devices located greater than 10 feet from the original well or screened in a different vertical interval and for each of the groundwater monitoring points listed in tables 7 and 8 of Attachment #2 which indicate that

baseline groundwater data is needed or that the well needs to be installed, Veolia shall collect baseline groundwater data in accordance with ch. NR 507, Wis. Adm. Code. Veolia may then request groundwater NR 140 exemptions where needed and propose PALs and ACLs for specific wells and parameters in accordance with Department's Solid Waste Technical Guidance for PAL/ACL Calculations. Submittal of the requested groundwater exemptions and proposed PALs and ACLs shall be done within two years from the date of well construction for the respective well. Ch. NR 520, Wis. Adm. Code, plan review fees shall apply to each submittal containing the requested exemptions and proposed PALs and ACLs for new PALs or ACLs.

b. If Veolia finds that a correction needs to be made to an approved PAL or ACL because of an error, then Veolia may inform the Department in writing and the Department will make any needed corrections as the Department determines through a unilateral plan modification approval.

22. Veolia shall respond to groundwater standards exceedances observed in groundwater monitoring wells or in the groundwater gradient control system in accordance with the applicable provisions of chapters NR 140 and NR 508, Wis. Adm. Code.

Inspection and Reporting

23. Veolia shall submit an annual report to the Department no later than April 30th of each year that summarizes the following activities from the previous calendar year:

General

a. Provide full size topographic map or plan view drawings to show the site and surrounding areas one-quarter mile in all directions. On the map show property boundary, any structures, private water supply wells, and property owner's name.

b. Provide a color coded site map showing all landfills phases marked, all wells including the abandoned wells numbered and labeled, the entire leachate collection and transfer piping system, gas system (including all buried component), and gas monitoring probes.

c. Provide a color coded site map showing all landfills phases marked, areas covered with final cover, areas covered with intermediate cover, and areas actively being filled.

d. Provide aerial survey for the purpose of settlement calculation of the final cover. At a minimum, vertical datum (MSL) and horizontal datum based on the Wisconsin state plan coordinate system will be provided for all gas extraction well locations.

Waste Volumes and Types

e. Total volume and tonnage of special wastes, and tabulation by waste category for each of the waste types in the special waste plan which were accepted for disposal the previous calendar year.

f. Computation of the total volume of all wastes disposed at this facility, and the proportions of special wastes compared to the total volume of landfill filled.

g. The use of alternate daily cover material. The report shall contain at a minimum the following:

i. Identification of the waste generator or hauler of the alternate daily cover material accepted for disposal.

ii. Quantity of material used as alternate daily cover (in units of cubic yards and tons).

iii. Estimated density of the daily cover materials.

iv. Coverage ratio.

v. Alternate beneficial use applications such as dikes, berms or other structures in the landfill.

vi. The ratio of waste to alternative daily cover by volume for the year.

vii. Discussion of problems encountered and recommendations.

Gas Extraction System

h. Records of periods of shutdown of the gas extraction system, length of time of shutdown, and corrective action for the system or individual extraction wells.

i. Any maintenance, cleaning, repair, or replacement of extraction wells, header or lateral lines, blower or gas combustion equipment components, or valve assemblies.

j. An assessment of the performance of the gas extraction system, including liquid levels in the gas extraction wells, the quality and quantity of gas and gas condensate produced from the facility, and the removal of volatile organic compounds and other substances in the gas and gas condensate.

Groundwater and Gradient Control

k. An assessment of the groundwater and surface water flow patterns and quality trends.

l. An assessment of the condition and operation of the gradient control system.

Leachate Collection and Recirculation System

m. Tabulation of volumes of leachate, leachate heads, and chemical quality data for the leachate.

n. Documentation of cleaning efforts and observations for leachate and gradient control collection pipes, and records of integrity of the secondary containment features of the leachate extraction, conveyance, and storage system.

Drainage and Cap Maintenance

o. Any evidence of differential settlement or impeded drainage, downslope soil slips or movements, exposed geomembrane or subsurface drain materials, integrity of surface

swales and other drainage features, any evidence of water ponding or formation of depressions, and cover condition in the surface water diversion berms and final cover spillways.

p. An assessment of vegetative cover vigor and diversity, evidence of animal intrusion, soil slumping or exposure of the capping layer.

q. A description of all repairs made to the cap and vegetative cover, protective structures, monitoring devices, and sedimentation ponds, etc.

r. The actions used to minimize wind blown debris. The report shall contain at a minimum the following information:

i. Dates when the wind speed was greater than or equal to 30 mph at the working face.

ii. Dates when the landfill was shut down due to wind.

iii. Dates when staff collected debris off-site.

This condition supersedes all annual report requirements contained in previous approvals except for the annual reporting requirements in the Department's September 22, 2007 Research, Development and Demonstration plan of operation approval modification.

This approval shall eliminate condition 37 (geomembrane coupon testing) of the Department's June 3, 1994 plan of operation approval.

24. Veolia shall include, as part of the landfill operating record required by s. NR 506.17, Wis. Adm. Code, the following information:

a. Special waste disposal records.

b. Alternate daily cover records.

25. For the first two years after a construction event, Veolia shall submit to the Department the quarterly visual inspection documentation of the stormwater discharge from the previous calendar year along with the annual report.

<u>Financial Responsibility and Long Term Care</u>

26. Revised proof of financial responsibility for closure and long term care shall be established prior to approval of the construction documentation of Phase 7 North liner, in accordance with ch. NR 520, Wis. Adm. Code. The proof of financial responsibility shall be established based upon the approved costs contained in the attached summary document.

27. Veolia shall continue to collect and treat leachate and landfill gas as they are produced until otherwise directed by the Department in writing.

28. Veolia and its successors and assigns shall be responsible for site maintenance, monitoring, and any necessary remedial activities identified by the Department, in perpetuity.

The Department retains the jurisdiction either to require the submittal of additional information or to modify this approval at any time if, in the Department's opinion, conditions warrant further modifications. Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

NOTICE OF APPEAL RIGHTS

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes and administrative codes establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, sections 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. You have 30 days after the decision is mailed or otherwise served by the Department to file your petition with the appropriate circuit court and serve the petition on the Department. The petition shall name the Department of Natural Resources as the respondent.

Dated: June 9, 2011

DEPARTMENT OF NATURAL RESOURCES
For the Secretary,

Frank C. Schultz, Supervisor
Waste and Materials Management Program
Southeast Region

Ann M. Bekta, P.E.
Waste Management Engineer
South Central Region

Joe Lourigan
Waste Management Hydrogeologist
Southeast Region

Attachment #1 for the Emerald Park Landfill Southwest Expansion Plan of Operation
License # 3290
Environmental Monitoring Tables

Table 1a
Detection Groundwater Monitoring NR 507 Wells

Wells	DNR ID#	WUWN	Comment[1.]	Wells	DNR ID#	WUWN	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
Non-Subtitle D Wells										
MW-003A	018	IM161		MW-120C	158	LO554		Sample and Report Semiannually April and October	04189	Elevation, Groundwater (feet above mean sea level)
MW-003B	020	IM162		MW-120DR	161	QH917			00001	Odor
MW-004AR	023	IM939		MW-121A	162	LO556			00002	Color
MW-004B	026	IM164		MW-121D	166	LO558			00003	Turbidity
MW-004C	028	IM165		MW-302A	190	PI951			00010	Temperature, of Water taken in field ^{0}C
MW-005A	030	IM172		MW-302B	192	PI952			00400	Field pH (standard units)
MW-005B	032	IM173		MW-302C	194	PA420			00094	Field Conductivity @ 25^0 C(umho/cm)
MW-008BR	050	IM941		MW-303A	196	PA416			39036	Alkalinity, filtered (mg/L)
MW-106A	120	LO535	To be abandoned	MW-303B	198	PA417			00940	Chloride (mg/L)
MW-106B	122	LO536	To be abandoned	MW-303C	200	PA415			00946	Sulfate, filtered (mg/L)
MW-106C	124	LO537	To be abandoned	MW-303D	201		To be constructed		22413	Total Hardness, filtered (mg/L)
MW-106D	126	LO538	To be abandoned	MW-304A	202	PA413			00930	Sodium, filtered (mg/L)
MW-107A	128	LO539		MW-304B	204	PA414				
MW-115A	144	LO547		MW-304C	206	PA412				
MW-115E	149	QH916		MW-305A	208	PA430				
MW-117A	150	LO550		MW-305B	210	VT600				
MW-117D	154	LO552		MW-305D	213		To be constructed			
MW-120A	156	LO553		MW-313D	217		To be constructed			
				MW-314D	218		To be constructed			
								Sample & Report Annually October	VOCs (ug/L)	Using EPA Solid Waste Method 8260 (NR 507, appendix III)
Subtitle D Wells										
MW-004D	029	LO522		MW-115C	146	LO548		Sample and Report Semiannually April and October	04189	Elevation, Groundwater (feet above mean sea level)
MW-008AR	048	IM940		MW-117C	152	LO551			00001	Odor
MW-19AR	091	QH915		MW-121C	164	LO557			00002	Color
MW-020A	092	IM197		MW-305C	212	PA429			00003	Turbidity
									00010	Temperature, of Water taken in field ^{0}C
									00400	Field pH (standard units)
									00094	Field Conductivity @ 25^0 C(umho/cm)
									39036	Alkalinity, filtered (mg/L)
									00940	Chloride (mg/L)
									00946	Sulfate, filtered (mg/L)
									22413	Total Hardness, filtered (mg/L)
									00930	Sodium, filtered (mg/L)
									VOCs (ug/L)	Using EPA Solid Waste Method 8260 (NR 507, appendix III)

1. Monitoring Points that are abandoned are no longer monitored.
Trip Blank (999) and/or Field Blank (997) Data must also be submitted electronically

Table 1b

Groundwater Monitoring NR 507 Wells

Wells	DNR ID#	WUWN	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
Groundwater Elevation Only Monitoring						
MW-016A	082	IM187	To be abandoned	Sample & Report Semiannually April and October	04189	Elevation, Groundwater feet above mean sea level
MW-016B	084	IM188	To be abandoned			
MW-104A	116	LO533	To be abandoned			
MW-104B	118	LO534	To be abandoned			
MW-109AR	136	LO543				
MW-125A	168	LO559	To be abandoned			
MW-125C	170	LO560	To be abandoned			
MW-125D	172	LO561	To be abandoned			
MW-126A	174	LO562	To be abandoned			
MW-128A	176	LO563	To be abandoned			
MW-131A	178	LO564				
MW-131C	180	LO565				
MW-131D	182	LO566				
P-311	214	PA419				
P-312	216	PA418				

1. Monitoring Points that are abandoned are no longer monitored.

Table 1c

Private Water Supply Wells

Well	DNR ID#	WUWN	Comment[1]	Sampling & Reporting Frequency	Parameter Codes	Parameters
PW-1R	003	NG843	EPL site well	Sample & Report Annually October	00001	Odor
PW-B: 21811 8Mi	220	TD599			00002	Color
PW-C: 21739 8Mi	221	KT783			00003	Turbidity
PW-D: 21735 8Mi	222	TF229			00010	Temperature, of Water taken in field ^{0}C
PW-E: 21647 8Mi	223	SS067			00400	Field pH (standard units)
PW-F: 21621 8Mi	225	SQ772			00094	Field Conductivity @ 25^{0} C(umho/cm)
PW-G: 21535 8Mi	226	SM175			39036	Alkalinity, filtered (mg/L)
PW-H: 21533 8Mi	227	VM000			00940	Chloride (mg/L)
PW-I: 21421 8Mi	229	NS846			22413	Total Hardness, filtered (mg/L)
PW-K: 21625 8Mi	224	UY429				
PW-L: 21431 8Mi	228	UK628			VOCs (ug/L)	Using EPA Solid Waste Method 8260 (NR 507, appendix III)

1. Monitoring Points that are abandoned are no longer monitored.

Trip Blank (999) and/or Field Blank (997) Data must also be submitted electronically

Table 2
Gradient Control Structure Monitoring

Monitoring Pt.	DNR ID#	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
GSUMP-6E	516		Read Daily Report Summary in Annual Report		Volume
GSUMP-6W	517				
GSUMP-7N	518				
GSUMP-7SC	521		Obtain & Report Quarterly January, April, July & October	04189	Elevation, Groundwater (feet above mean sea level)
GSUMP-7SE	519			00001	Odor
GSUMP-7SW	520			00002	Color
GSUMP-8SE	522			00003	Turbidity
GSUMP-8SW	523		Sample & Report Semiannually April & October	00001	Odor
				00002	Color
				00003	Turbidity
				00010	Temperature, of Water taken in field ^{0}C
				00400	Field pH (standard units)
				00094	Field Conductivity @ 25^0 C(umho/cm)
				00410	Alkalinity, total (mg/L)
				00940	Chloride, total (mg/L)
				00945	Sulfate, total (mg/L)
				00900	Total Hardness (mg/L)
				00929	Sodium, total (mg/L)
				VOCs (ug/L)	Using EPA Solid Waste Method 8260 (NR 507, appendix III)

1. Monitoring Points that are abandoned are no longer monitored.

Table 3a
Leachate Characteristic Monitoring

Monitoring Pt.	DNR ID#	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
Lift Station	400	MMSD Location	Record Daily Maintain weekly summary Report Semiannually April & October	00032	Leachate Volume Pumped (1000s of gallons)
			Sample & Report Quarterly January, April, July & October	00310 00094 00400 00340 00150	BOD (5 day @ 20°C (mg/L) Field Conductivity @ 25°C (umho/cm) Field pH, (standard units) COD, unfiltered (mg/L) Total Suspended Solids (mg/L)
			Sample & Report Semi-annually April & October	00410 00940 00900 74010 01051 01055 71900 00610 00625 00929 00945 01022 00951 01027 01147 VOCs (ug/L)	Alkalinity, total as CaCO3 (mg/L) Chloride, total (mg/L) Hardness, total (mg/L as CaCO3) Iron, total (mg/L) Lead, total (mg/L) Manganese, total (mg/L) Mercury, total (mg/L) Nitrogen, Ammonia, total (mg/L as N) Nitrogen, Kjeldahl, total (mg/L as N) Sodium, total (mg/L) Sulfate, total (mg/L) Boron, total (ug/L) Fluoride, total (ug/L) Cadmium, total (ug/L) Selenium, total (ug/L) Using EPA Solid Waste Method 8260 (NR 507, appendix III)
			Sample & Report Annually October	00720 34043 01002 01007 01034 01042 01067 71888 01077 01092 39516 Base/Neutral Extractable Compounds Acid Extractable Compounds (NR 507, appendix II)	Cyanide, total (ug/L) Phenolics, total (ug/L) Arsenic, total (ug/L) Barium, total (ug/L) Chromium, total (ug/L) Copper, total (ug/L) Nickel, total (ug/L) Phosphorus, total soluble, as PO_4 (ug/L) Silver, total (ug/L) Zinc, total (ug/L) PCBs in Whole Water Sample, total (ug/L)

1. Monitoring Points that are abandoned are no longer monitored.

Table 3b

Leachate Headlevel Monitoring

Monitoring Pt.	DNR ID#	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
LH-001	601	Phase 1, West Slope	Measure Monthly	00023	Elevation, Leachate Head feet above mean sea level
LH-002	602	Phase 1, West Slope	Report Semi-annually		
LH-003	603	Phase 2, West Slope	April & October	00031	Depth of Leachate from top of liquid level to bottom in feet
LH-004	604	Phase 2, West Slope			
LH-005	605	Phase 3A, East Slope			
LH-006	606	Phase 3A, West Slope			
LH-007	607	Phase 4, North Slope			
LH-008	608	Phase 4, East Slope			
LH-009	609	Phase 5, South Slope			
LH-010	610	Phase 5, Southeast Slope			
LH-012	612	Phase 6W, South Slope			
LH-013	613	Phase 4, East Slope			
LH-014	614	Phase 6E, Southeast Slope			
LH-015	615	Phase 7, Northwest Slope			
LH-016	616	Phase 6W, Southwest Slope			
LH-017	617	Phase 7S, South Slope			
LH-018	618	Phase 7S, Southwest Slope			
LH-019	619	Phase 8N, South Slope			
LH-020	620	Phase 8S, East Slope			
LH-021	621	Phase 8S, South Slope			
LH-011	611	Not used, Phase 6E, South Slope			

1. Monitoring Points that are abandoned are no longer monitored.

Table 4a
Landfill Gas Condensate Monitoring

Monitoring Pt.	DNR ID#	Comment[1.]	Sampling & Reporting Frequency	Parameter Codes	Parameters
Gas Condensate	406		Sample & Report Semiannually April & October	99187	Volume of Gas Condensate Collected or Pumped (gallons)
				00010	Field Temperature ^{o}C
				00094	Field Conductivity @ 25^{o}C (umho/cm)
				00400	Field pH, (standard units)
				00410	Alkalinity, total as $CaCO_3$ (mg/L)
				00900	Hardness, total (mg/L)
				00150	Total Suspended Solids (mg/L)
				00310	BOD_5 5 day @ 20 ^{0}C (mg/L)
				00940	Chloride, total (mg/L)
				00945	Sulfate, total (mg/L)
				00340	COD, unfiltered (mg/L)
				00929	Sodium, total (mg/L)
				00610	Nitrogen, Ammonia, total (mg/L as N)
				00625	Nitrogen, Kjeldahl, total (mg/L as N)
				01022	Boron, total (ug/L)
				00951	Fluoride, total (mg/L)
				01027	Cadmium, total (mg/L)
				01147	Selenium, total (ug/L)
				01051	Lead, total (mg/L)
				01055	Manganese, total (mg/L)
				71900	Mercury, total (mg/L)
				74010	Iron, total (mg/L)
					VOCs (ug/L) Using EPA Solid Waste Method 8260 (NR 507, appendix III)
			Sample & Report Annually October		Base/Neutral Extractable Compounds Acid Extractable Compounds (NR 507, appendix II)

1. Monitoring Points that are abandoned are no longer monitored.

Table 4b

Landfill Gas Extraction

Gas Extraction Well - DNR ID #						Sampling & Reporting Frequency	Parameter Codes	Parameters
Monitoring Pt	ID#	Comment[1.]	Monitoring Pt	ID#	Comment[1.]			
GEW-001	741		GEW-057	797				
GEW-002	742		GEW-058	798				
GEW-003	743		GEW-059	799				
GEW-004	744		GEW-060	735				
GEW-005	745		GEW-061	736		Sample & Report	46385	Well Head Pressure (inches of water column)
GEW-006	746		GEW-062	422		Quarterly	99098	Gas Flow Rate (cfm)
GEW-006R	737		GEW-063	423		January, April, July	46388	Gas Temperature (^{0} F)
GEW-007	747		GEW-064	424		& October	46387	Valve Opening (% open)
GEW-008	748		GEW-065	425			85547	Percent Methane, by volume
GEW-010	750		GEW-066	426			85550	Percent Oxygen, by volume
GEW-011	751		GEW-067	427			85544	Percent Carbon Dioxide (CO_2), by volume
GEW-012	752		GEW-068	428			99848	Percent Balance Gas, by volume
GEW-013	753		GEW-069	429				
GEW-014	754		GEW-070	430				
GEW-015	755		GEW-071	431				
GEW-016	756		GEW-072	432		Measure and Report	00023	Elevation, Leachate Head
GEW-017	757		GEW-073	433		Annually		feet above mean sea level
GEW-018	758		GEW-074	434		October	00031	Depth of Leachate
GEW-019	759		GEW-075	435				from top of liquid level to bottom in feet
GEW-020	760		GEW-076	436				
GEW-021	761		GEW-077	437				
GEW-022	762		GEW-078	438				
GEW-023	763		GEW-079	439				
GEW-024	764		GEW-080	440				
GEW-025	765		GEW-081	441				
GEW-026	766		GEW-082	442				
GEW-027	767		GEW-083	443				
GEW-028	768		GEW-084	444				
GEW-029	769		GEW-085	445				
GEW-030	770		GEW-086	446				
GEW-031	771		GEW-087	447				
GEW-032	772		GEW-088	448				
GEW-033	773		GEW-089	449				
GEW-034	774		GEW-090	450				
GEW-035	775		GEW-091	451				
GEW-036	776		GEW-092	452				
GEW-037	777		GEW-093	453				
GEW-038	778		GEW-094	454				
GEW-039	779		GEW-095	455				
GEW-040	780		GEW-096	456				
GEW-041	781		GEW-097	457				
GEW-042	782		GEW-098	458				
GEW-043	783		GEW-099	459				
GEW-044	784		GEW-100	460				
GEW-045	785		GEW-101	461				
GEW-046	786		GEW-102	462				
GEW-047	787		GEW-103	463				
GEW-048	788		GEW-104	464				
GEW-049	789		GEW-105	465				
GEW-050	790		GEW-106	466				
GEW-051	791		GEW-107	467				
GEW-052	792		GEW-108	468				
GEW-053	793		GEW-109	469				
GEW-054	794		GEW-110	470				
GEW-055	795		GEW-111	471				
GEW-056	796		GEW-112	472				
Gas Blower								
			GB-1	731		Sample Semi-monthly	46382	Header Pressure (inches of water column)
							98927	Gas Extracted, Total Monthly Volume (1000 cu. Ft. /month)
							99098	Gas Flow Rate (cfm)
						Report Semi-annually	46388	Gas Temperature (^{0} F)
						April & October	85547	Percent Methane, by volume
							85550	Percent Oxygen, by volume
							85544	Percent Carbon Dioxide (CO_2), by volume
							99848	Percent Balance Gas, by volume
						Sample & Report		
						Annually		Total Sulfur Compounds
						April		VOCs using USEPA Method TO-15 or TO-14A
Site Conditions								
			Site Conditions	730		Record Semi-monthly	00021	Ambient Air Temperature (^{0} F)
						at same time as GB-1	00025	Barometric Pressure (mm of Hg)
						Report Semi-annually	46381	Trend in Barometric Pressure
						April & October	00007	Ground Conditions
								1 = Frozen, 2 = Wet, 3 = Dry

1. Monitoring Points that are abandoned are no longer monitored.

Table 4c

Landfill Gas Monitoring Probes

Monitoring Point - DNR ID #						Sampling & Reporting Frequency	Parameter Codes	Parameters
Landfill Gas Monitoring Probes								
Monitoring Pt	**ID#**	**Comment[1.]**	**Monitoring Pt**	**ID#**	**Comment[1.]**			
GMP-001	701		GMP-011	711	To be abandoned	Sample & Report Quarterly January, April, July & October	00021	Ambient Air Temperature (^{0} F)
GMP-002	702		GMP-012	712			00025	Barometric Pressure (mm of Hg)
GMP-003	703		GMP-013	713			46381	Trend in Barometric Pressure
GMP-004	704		GMP-014	714			85547	Percent Methane, by volume
GMP-005	705		GMP-015	715			85550	Percent Oxygen, by volume
GMP-006	706		GMP-016	716			85544	Percent Carbon Dioxide (CO_2), by volume
GMP-007	707	To be abandoned	GMP-017	717			46389	Soil Gas Pressure (inches of water column)
GMP-008	708		GMP-018	718			46388	Gas Temperature (^{0} F) This is the air temp if no gas is present.
GMP-009	709		GMP-019	719				
GMP-010	710	To be abandoned	GMP-020	720				

1. Monitoring Points that are abandoned are no longer monitored.

Table 5

Surfacewater Monitoring

Monitoring Pt.	DNR ID #	Comments	Monitoring Pt.	DNR ID #	Comments	Sampling & Reporting Frequency	Parameter Codes	Parameters
Surfacewater Quality								
SW-001	811		SW-022	816		Sample and Report	00010	Temperature, Water taken in field ^{0}C
SW-002	812		SW-035	870		Quarterly	00094	Field Conductivity @ 25^0 C (umho/cm)
SW-003	813		SW-036	871		January, April, July & October	00150	Total Suspended Solids (mg/L)
SW-004	814		SW-037	872			00310	BOD_5 5 day @ 20 ^{0}C (mg/L)
SW-005	815						00400	Field pH (standard units)
							00937	Potassium, Total (mg/L)
							00929	Sodium, Total (mg/L)
							00940	Chloride (mg/L)
							00900	Hardness, total (mg/L as CaCO3)
							00945	Sulfate, Total (mg/L)
							00410	Alkalinity, total as CaCO3 (mg/L)
							99520	Elevation, Surface Water (ft. above mean sea level)
Sedimentation Basins								
SB-001	851		SB-007	858				
SB-002	852		SB-008	859		Sample and Report		Sediment Buildup
SB-003	853		SB-009	860		Quarterly	00150	Total Suspended Solids (mg/L)
SB-005	855		SB-010	861		January, April, July & October	00400	Field pH (standard units)
SB-006	856						00094	Field Conductivity @ 25^0 C (umho/cm)
Staff Gauges								
SG-001	801		SG-020	830				
SG-002	802		SG-021	831		Measure and Report	99520	Elevation, Surface Water (ft. above mean sea level)
SG-003	803		SG-022	832		Semi-annually		
SG-004	804		SG-023	833		April & October		
SG-005	805		SG-024	844				
SG-010	820		SG-025	845				
SG-011	821		SG-032	835				
SG-012	822		SG-033	836				
SG-013	823		SG-034	837				
SG-014	824		SG-035	839				
SG-015	825		SG-036	840				
SG-018	828	To be abandoned	SG-037	841				

1. Monitoring Points that are abandoned are no longer monitored.

Table 6

Settlement Monitoring

Gas Extraction Well - DNR ID #						Sampling & Reporting Frequency	Parameter Codes	Parameters
Monitoring Pt	ID#	Comment[1.]	Monitoring Pt	ID#	Comment[1.]			
GEW-001	741		GEW-057	797				
GEW-002	742		GEW-058	798				
GEW-003	743		GEW-059	799				
GEW-004	744		GEW-060	735				
GEW-005	745		GEW-061	736		Sample Annually	99422	Elevation, Ground Surface
GEW-006	746		GEW-062	422		October		feet above mean sea level
GEW-006R	737		GEW-063	423				
GEW-007	747		GEW-064	424				
GEW-008	748		GEW-065	425		Report in Annual Report		
GEW-010	750		GEW-066	426				
GEW-011	751		GEW-067	427				
GEW-012	752		GEW-068	428				
GEW-013	753		GEW-069	429				
GEW-014	754		GEW-070	430				
GEW-015	755		GEW-071	431				
GEW-016	756		GEW-072	432				
GEW-017	757		GEW-073	433				
GEW-018	758		GEW-074	434				
GEW-019	759		GEW-075	435				
GEW-020	760		GEW-076	436				
GEW-021	761		GEW-077	437				
GEW-022	762		GEW-078	438				
GEW-023	763		GEW-079	439				
GEW-024	764		GEW-080	440				
GEW-025	765		GEW-081	441				
GEW-026	766		GEW-082	442				
GEW-027	767		GEW-083	443				
GEW-028	768		GEW-084	444				
GEW-029	769		GEW-085	445				
GEW-030	770		GEW-086	446				
GEW-031	771		GEW-087	447				
GEW-032	772		GEW-088	448				
GEW-033	773		GEW-089	449				
GEW-034	774		GEW-090	450				
GEW-035	775		GEW-091	451				
GEW-036	776		GEW-092	452				
GEW-037	777		GEW-093	453				
GEW-038	778		GEW-094	454				
GEW-039	779		GEW-095	455				
GEW-040	780		GEW-096	456				
GEW-041	781		GEW-097	457				
GEW-042	782		GEW-098	458				
GEW-043	783		GEW-099	459				
GEW-044	784		GEW-100	460				
GEW-045	785		GEW-101	461				
GEW-046	786		GEW-102	462				
GEW-047	787		GEW-103	463				
GEW-048	788		GEW-104	464				
GEW-049	789		GEW-105	465				
GEW-050	790		GEW-106	466				
GEW-051	791		GEW-107	467				
GEW-052	792		GEW-108	468				
GEW-053	793		GEW-109	469				
GEW-054	794		GEW-110	470				
GEW-055	795		GEW-111	471				
GEW-056	796		GEW-112	472				

1. Monitoring Points that are abandoned are no longer monitored.

Table 7 Groundwater Indicator Parameter Preventative Action Limits (PALs)

Wells	DNR ID#	WUWN	Abandoned or to be Abandoned	Alkalinity (mg/L) GEMS ID#: 39036	COD (mg/L) GEMS ID#: 00341	Specific Conductance (umhos/cm) GEMS ID#: 00094	Hardness (mg/L) GEMS ID#: 22413	Sodium (mg/L) GEMS ID#: 00930	Comments
NR 140 Wells									
MW-003A	018	IM161		600	38	1300	780	99	These values, except sodium, were approved in the June 23, 1995 Approval
MW-003B	020	IM162		170	37	2600	1300	66	These values, except sodium, were approved in the June 23, 1995 Approval
MW-004A	022	IM163	X	NA	NA	NA	NA	NA	These values, except sodium, were approved in the June 23, 1995 Approval
MW-004AR	023	IM939		440	33	6600	3700	Need Baseline Samples	These values, except sodium, were approved in the June 23, 1995 Approval
MW-004B	026	IM164		260	55	6900	3700	Need Baseline Samples	These values, except sodium, were approved in the June 23, 1995 Approval
MW-004C	028	IM165		75	49	5900	2900	390	These values, except sodium, were approved in the June 23, 1995 Approval
MW-005A	030	IM172		400	36	870	470	39	These values, except sodium, were approved in the June 23, 1995 Approval
MW-005B	032	IM173		260	34	430	160	73	These values, except sodium, were approved in the June 23, 1995 Approval
MW-008BR	050	IM941		320	48	1300	400	99	These values, except sodium, were approved in the June 23, 1995 Approval
MW-016A	082	IM187	X	3000	32	2500	940	79	These values, except sodium, were approved in the June 23, 1995 Approval
MW-016B	084	IM188	X	730	38	3600	560	110	These values, except sodium, were approved in the June 23, 1995 Approval
MW-019A	090	IM727	X	430	33	1200	530	NA	These values, except sodium, were approved in the June 23, 1995 Approval
MW-104A	116	LO533	X	600	37	2000	810	36	PALs were requested in 2002 and 2005
MW-104B	118	LO534	X	210	45	970	260	110	PALs were requested in 2002 and 2005
MW-106A	120	LO535	X	620	39	1200	640	24	PALs were requested in 2002 and 2005
MW-106B	122	LO536	X	250	43	810	280	120	PALs were requested in 2002 and 2005
MW-106C	124	LO537	X	160	36	940	220	130	PALs were requested in 2002 and 2005
MW-106D	126	LO538	X	200	47	980	270	150	PALs were requested in 2002 and 2005
MW-107A	128	LO539		380	31	840	430	31	PALs were requested in 2002 and 2005
MW-109A (R?)	136	LO543		380	33	890	460	20	PALs were requested in 2002 and 2005
MW-115A	144	LO547		550	32	1400	690	160	PALs were requested in 2002 and 2005
MW-115E	149	QH916		190	52	2200	640	230	PALs were requested in 2002 and 2005
MW-117A	150	LO550		1200	40	2500	1100	72	PALs were requested in 2002 and 2005
MW-117D	154	LO552		200	67	1600	420	190	PALs were requested in 2002 and 2005
MW-120A	156	LO553		510	38	1100	500	77	PALs were requested in 2002 and 2005
MW-120C	158	LO554		200	38	1300	240	180	PALs were requested in 2002 and 2005
MW-120D	160	LO555	X	NA	NA	NA	NA	NA	PALs were requested in 2002 and 2005
MW-120DR	161	QH917		300	40	1100	430	160	PALs were requested in 2002 and 2005, Is MW-120DR the same as MW-120D?
MW-121A	162	LO556		490	34	980	550	36	PALs were requested in 2002 and 2005
MW-121D	166	LO558		190	44	1500	250	210	PALs were requested in 2002 and 2005
MW-125A	168	LO559		550	32	1600	870	110	PALs were requested in 2002 and 2005
MW-125C	170	LO560	X	170	37	880	220	120	PALs were requested in 2002 and 2005
MW-125D	172	LO561	X	160	37	1300	300	210	PALs were requested in 2002 and 2005
MW-126A	174	LO562	X	None	None	None	None	110	Used to sampled GW Elevation only
MW-128A	176	LO563	X	430	33	990	530	23	PALs were requested in 2002 and 2005
MW-131A	178	LO564		750	130	1300	700	40	PALs were requested in 2002 and 2005
MW-131C	180	LO565		170	38	830	180	110	PALs were requested in 2002 and 2005
MW-131D	182	LO566		220	68	1100	230	140	PALs were requested in 2002 and 2005
MW-301A	184	PI955		610	To Be Determined	3000	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-301B	186	PI954		180	To Be Determined	1100	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-301C	188	PI953		370	To Be Determined	570	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302A	190	PI951		680	To Be Determined	1100	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302B	192	PI952		180	To Be Determined	940	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302C	194	PA420		250	To Be Determined	630	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303A	196	PA416		710	To Be Determined	2000	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303B	198	PA417		180	To Be Determined	1100	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303C	200	PA415		230	To Be Determined	590	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303D	201			To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined	To be constructed, baseline sampling needed
MW-304A	202	PA413		670	To Be Determined	1300	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-304B	204	PA414		180	To Be Determined	1300	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-304C	206	PA412		240	To Be Determined	620	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305A	208	PA430		720	To Be Determined	3300	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305B	210	VT600		240	To Be Determined	1400	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305D	213			To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined	To be constructed, baseline sampling needed
P-311	214	PA419		None	None	None	None	None	Used to sampled GW Elevation only
P-312	216	PA418		None	None	None	None	None	Used to sampled GW Elevation only
MW-313D	217			To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined	To be constructed, baseline sampling needed
MW-314D	218			To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined	To be constructed, baseline sampling needed
Subtitle D Wells									
MW-004D	029	LO522		210	32	730	220	89	PALs & ACLs were requested in 2002 and 2005
MW-008AR	048	IM940		550	37	1300	680	23	These values were approved in the June 23, 1995 Approval
MW-19AR	091	QH915		To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined	New well - Need Baseline Sample Data or show that it meets condition 21
MW-020A	092	IM197		680	31	2000	1400	72	These values were approved in the June 23, 1995 Approval
MW-115C	146	LO548		170	67	1100	260	140	PALs & ACLs were requested in 2002 and 2005
MW-117C	152	LO551		530	35	1700	400	190	PALs & ACLs were requested in 2002 and 2005
MW-121C	164	LO557		190	36	930	230	130	PALs & ACLs were requested in 2002 and 2005
MW-305C	212	PA429		190	To Be Determined	890	To Be Determined	To Be Determined	PALs & ACLs were requested in 2011 as part of SW Expansion

NA = Not Applicable

Table 8
Groundwater Alternative Concentration Limits (ACLs)

Wells	DNR ID#	WUWN	Abandoned or to be Abandoned	Arsenic (ug/L) GEMS ID#: 01000	Boron (ug/L) GEMS ID#: 01020	Cadmium (ug/L) GEMS ID#: 01025	Chloride (mg/L) GEMS ID#: 00940 or 00941	Selenium (ug/L) GEMS ID#: 01145	Fluoride (mg/L) GEMS ID#: 00950	Iron (ug/L) GEMS ID#: 01046	Lead (ug/L) GEMS ID#: 01049	Manganese (ug/L) GEMS ID#: 01056	Nitrate (as N) (mg/L) GEMS ID#: 00618	Sulfate (mg/L) GEMS ID#: 00946	Comments
NR 140 Wells															
MW-003A	018	IM161		Additional Samples may be needed	None	1.4	320	None	None	None	None	150	3.3	220	These values were approved in the June 23, 1995 Approval
MW-003B	020	IM162		Additional Samples may be needed	None	2.9	None	None	None	None	None	52	None	1500	These values were approved in the June 23, 1995 Approval
MW-004A	022	IM163	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	These values were approved in the June 23, 1995 Approval
MW-004AR	023	IM939		Additional Samples may be needed	None	None	None	None	None	None	None	1500	None	4000	These values were approved in the June 23, 1995 Approval
MW-004B	026	IM164		12	None	3.5	None	None	None	1200	None	190	None	4600	These values were approved in the June 23, 1995 Approval
MW-004C	028	IM165		Additional Samples may be needed	None	None	None	None	None	None	None	None	None	3500	These values were approved in the June 23, 1995 Approval
MW-005A	030	IM172		Additional Samples may be needed	None	1.2	None	None	None	None	2.2	210	14	300	These values were approved in the June 23, 1995 Approval
MW-005B	032	IM173		Additional Samples may be needed	None	2.1	None	None	1.3	None	None	None	None	470	These values were approved in the June 23, 1995 Approval
MW-008BR	050	IM941		Additional Samples may be needed	None	1.5	None	None	None	None	None	280	None	530	These values were approved in the June 23, 1995 Approval
MW-016A	082	IM187	X	Additional Samples may be needed	None	1.6	None	None	0.92	None	None	190	None	260	These values were approved in the June 23, 1995 Approval
MW-016B	084	IM188	X	Additional Samples may be needed	None	None	None	None	None	None	None	None	None	790	These values were approved in the June 23, 1995 Approval
MW-019A	090	IM727	X	Additional Samples may be needed	None	None	None	None	None	9500	None	770	None	None	These values were approved in the June 23, 1995 Approval
MW-104A	116	LO533	X	Additional Samples may be needed	None	None	None	Only have 4 rounds	0.94	None	None	89	None	200	ACLs were requested in 2002 and 2005. Used to sample GW elevation
MW-104B	118	LO534	X	Additional Samples may be needed	550	None	None	None	1.1	None	None	180	None	290	ACLs were requested in 2002 and 2005
MW-106A	120	LO535	X	Additional Samples may be needed	None	None	None	None	None	None	None	75	None	130	ACLs were requested in 2002 and 2005
MW-106B	122	LO536	X	Additional Samples may be needed	620	0.9	None	None	None	None	14	None	None	190	ACLs were requested in 2002 and 2005
MW-106C	124	LO537	X	Additional Samples may be needed	560	None	None	None	1.5	None	None	71	None	310	ACLs were requested in 2002 and 2005
MW-106D	126	LO538		Additional Samples may be needed	550	1.9	None	None	1.3	None	None	110	None	310	ACLs were requested in 2002 and 2005
MW-107A	128	LO539		Additional Samples may be needed	None	None	None	31	None	None	None	None	6.8	None	ACLs were requested in 2002 and 2005
MW-109A	136	LO543		Additional Samples may be needed	None	None	None	31	None	None	None	None	8.8	None	ACLs were requested in 2002 and 2005
MW-115A	144	LO547		Additional Samples may be needed	280	None	None	65	None	None	2.1	690	None	380	ACLs were requested in 2002 and 2005
MW-115E	149	QH916		Additional Samples may be needed	710	None	None	None	1.4	None	None	110	None	510	ACLs were requested in 2002 and 2005
MW-117A	150	LO550		Additional Samples may be needed	None	None	None	92	None	None	None	120	None	210	ACLs were requested in 2002 and 2005
MW-117D	154	LO552		Additional Samples may be needed	540	None	None	None	None	None	None	260	None	630	ACLs were requested in 2002 and 2005
MW-120A	156	LO553		Additional Samples may be needed	None	None	None	29	None	None	None	120	None	340	ACLs were requested in 2002 and 2005
MW-120C	158	LO554		Additional Samples may be needed	560	None	None	None	1.2	850	None	60	None	Need an exemption	ACLs were requested in 2002 and 2005
MW-120D	160	LO555	X	Additional Samples may be needed	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	Was MW-120D abandoned and replaced by MW-120DR?
MW-120DR	161	QH917		Additional Samples may be needed	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	See Comment	380	New Baseline samples may be needed for MW-120-DR
MW-121A	162	LO556		Additional Samples may be needed	None	None	None	31	None	None	None	None	None	330	ACLs were requested in 2002 and 2005
MW-121D	166	LO558		Additional Samples may be needed	570	None	None	None	1.2	530	None	180	None	330	ACLs were requested in 2002 and 2005
MW-125A	168	LO559	X	Additional Samples may be needed	320	None	None	38	None	None	None	250	5.7	310	ACLs were requested in 2002 and 2005
MW-125C	170	LO560	X	Additional Samples may be needed	570	None	None	None	1.4	250	None	None	None	260	ACLs were requested in 2002 and 2005
MW-125D	172	LO561	X	Additional Samples may be needed	520	None	None	None	1.2	None	None	None	None	480	ACLs were requested in 2002 and 2005
MW-126A	174	LO562	X	Additional Samples may be needed	None	None	None	None	None	None	None	None	None	200	Used to sampled GW Elevation only
MW-128A	176	LO563	X	Additional Samples may be needed	None	None	None	None	None	None	None	120	11	None	ACLs were requested in 2002 and 2005
MW-131A	178	LO564		Additional Samples may be needed	None	0.79	None	None	None	None	None	370	6	450	ACLs were requested in 2002 and 2005
MW-131C	180	LO565		Additional Samples may be needed	490	None	None	None	1.5	None	None	None	None	210	ACLs were requested in 2002 and 2005
MW-131D	182	LO566		Additional Samples may be needed	Need to get an exemption	None	None	None	1.2	None	None	110	None	270	ACLs were requested in 2002 and 2005
MW-301A	184	PI955		None	420	None	None	None	None	None	None	290	None	1200	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-301B	186	PI954		4.5	510	None	None	None	1.2	None	None	49	None	320	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-301C	188	PI953		4.2	640	None	None	None	2.5	None	11	330	None	None	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302A	190	PI951		None	None	None	None	None	None	None	None	None	None	None	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302B	192	PI952		7.3	490	None	None	None	1.4	None	None	42	None	310	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-302C	194	PA420		3.1	370	None	None	None	1.6	None	8.3	300	None	None	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303A	196	PA416		None	470	None	None	None	None	None	None	150	None	550	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303B	198	PA417		4.4	490	None	None	None	1.2		None	54	None	350	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303C	200	PA415		1.3	390	None	None	None	2	None	None	None	None	None	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-303D	201														To be constructed, baseline sampling needed
MW-304A	202	PA413		None	None	None	None	None	None	None	None	None	None	200	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-304B	204	PA414		7.4	480	None	None	None	1.5	None	None	39	None	420	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-304C	206	PA412		3.3	370	None	None	None	2	None	7.1	270	None	None	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305A	208	PA430		1.7	310	None	None	None	None	None	None	260	None	1200	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305B	210	VT600		4.7	540	None	None	None	1.4	None	None	110	None	430	PALs & ACLs were requested in 2011 as part of SW Expansion
MW-305D	213														To be constructed, baseline sampling needed
P-311	214	PA419		None	None	None	None	None	None	None	None	None	None	None	Used to sampled GW Elevation only
P-312	216	PA418		None	None	None	None	None	None	None	None	None	None	None	Used to sampled GW Elevation only
MW-313D	217														To be constructed, baseline sampling needed
MW-314D	218														To be constructed, baseline sampling needed
Subtitle D Wells															
MW-004D	029	LO522		Additional Samples may be needed	390	2.9	None	None	1.6	None	None	None	None	220	ACLs were requested in 2002 and 2005
MW-008AR	048	IM940		Additional Samples may be needed	None	None	None	None	None	None	None	None	None	210	These values were approved in the June 23, 1995 Approval
MW-19AR	091	QH915		Additional Samples may be needed	None	None	None	None	None	None	None	None	None		New Well
MW-020A	092	IM197		Additional Samples may be needed	None	None	None	None	None	None	None	950	None	470	These values were approved in the June 23, 1995 Approval
MW-115C	146	LO548		Additional Samples may be needed	550	None	None	None	1.2	None	None	None	None	390	ACLs were requested in 2002 and 2005
MW-117C	152	LO551		Additional Samples may be needed	560	None	None	None	1	190	None	290	None	550	ACLs were requested in 2002 and 2005
MW-121C	164	LO557		Additional Samples may be needed	530	None	None	None	1.5	500	2.2	98	None	230	ACLs were requested in 2002 and 2005
MW-305C	212	PA429		2.3	510	None	None	None	1.7	None	None	None	None	190	PALs & ACLs were requested in 2011 as part of SW Expansion

NA = Not Applicable
"None" means that the established ch. NR 140, Wis. Adm. Code standards apply for that substance and monitoring well.

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
February 3, 2011 – Approval of Plan Modification to the October 22, 2010 Feasibility Report for the Proposed			
1	Condition Number 2 in October 22, 2010 feasibility determination is hereby modified as follows: The landfill footprint, base grades and final grades shall follow the drawings contained in Figures 1 and 2 of the December 9, 2010 e-mail, listed in finding of fact 7b.	Design	Active
October 22, 2010 – Determination of Site Feasibility for a Proposed Southwestern Expansion			
1	The maximum design capacity of the proposed MSWLF expansion shall not exceed 8,144,700 cubic yards including solid waste, daily cover and intermediate cover, minus the volume which may be lost in order to comply with conditions of this feasibility determination.	Design	Active
2	The horizontal limits of waste shall not exceed the boundary depicted in figure 3, Alternative 2 of the practicable. Alternatives analysis and shall not exceed all additional limitations resulting from the conditions set forth below.	Design	Superseded
3	The vertical limits of waste (the base grades and the final grades) shall be established in the plan of operation such that the grades do not exceed the grades (deeper or higher) than what are depicted in the alternative 5 ("preferred alternative") plan sheets contained in the feasibility report and so that the grades remain in compliance with the conditions set below and with applicable code requirements.	Design	Complete
4	The Plan of Operation shall contain a side slope riser (SSR) and leachate cleanout pipe design that does not include any pipe fittings between the top and toe of the slope.	Design	Complete
5	The plan of operation shall include an evaluation of the existing gas extraction system to determine if the additional landfill gas generated by the expansion will require changes to the current gas transfer piping, condensate removal system, blower, and flare.	Design	Complete
6	The Plan of Operation shall contain descriptive text and diagrams showing a detailed construction and closure phasing plan that considers the actual filling sequence and provides for the following in each phase:	Submittal	Complete
6a	Timely installation of gas extraction well field and other gas extraction system components;	Operations	Complete
6b	Timely tie-in of base phases;	Operations	Complete
6c	Timely installation and tie-ins of multi-layered final cover following intermediate cover placement, taking into consideration settlement;	Operations	Complete
6d	Minimizing length of interim outer side slopes; and	Operations	Complete
6e	Coordination of down slope flume, diversion berm and drainage swale installation.	Operations	Complete
7	The Plan of Operation shall contain a final cover design that complies with all of the requirements of s. NR 504.07 (5), Wis. Adm. Code, or that contains a proposed research, development and demonstration (RD&D) plan in accordance with s. NR 514.10, Wis. Adm. Code. If the Plan of Operation does not contain a proposed RD&D plan for an alternative final cover design, Veolia may submit a proposed RD&D plan after the Plan of Operation is approved.	Design	Complete
8	The Plan of Operation may include a maximum 5% overfill of the approved waste thickness in the area being filled. The Department will continue to evaluate overfills at landfills. This condition provides that as the Department continues its evaluation, if in the future it determines that that approving greater overfills may be warranted in some circumstances then Veolia may submit a plan modification request to the Department for a maximum 10% overfill after the plan of operation is approved. The Department may require certain criteria and justification to be met by the applicant before approving such a plan modification request.	Operations	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
9	The plan of operation shall include plan sheets showing the maximum elevations to which waste may be placed as well as the final waste elevation. The Plan of Operation shall contain a provision that those areas of overfill which do not settle to the approved waste final grades at the time of final cover construction shall have the overfilled waste removed to the approved waste final grades.	Submittal	Complete
10	The limits of waste shall not be less than 600 feet. to any existing water supply well located along Union Church Drive. (PW-A through PW-L)	Design	Active
11	The plan of operation shall contain a provision to properly abandon private water supply wells PW-10 and PW-11 in accordance with ch. NR 812, Wis. Adm. Code and the following provisions:	Submittal	Complete
11a	PW-10 and PW-11 shall be abandoned by a licensed pump installer or well driller.	Construction	Complete
11b	Well abandonment shall be completed before waste placement in the next phase of the landfill that would be located within 1,200 ft. of PW-10 and PW-11.	Operations	Complete
11c	The Department shall be notified at least ten (10) days prior to well abandonment so that a Department representative can observe the abandonment.	Submittal	Complete
11d	A completed well abandonment reprot shall be submitted to the Department at leasty sixty (60) days after well abbandonment.	Submittal	Complete
11e	Copies of the well abandonment reports for PW-10 and PW-11 shall be included in the preconstruction report for the phase where PW-10 and PW-11 are located.	Submittal	Complete
12	The Plan of Operation shall contain a provision that if a water supply well becomes contaminated from the landfill, as determined by the Department, it will be replaced with a new, safe potable water supply at Veolia's expense if required by the Department.	Condition	Complete
13	The plan of operation shall contain a provision to install four (4) piezometers that are completed in the bedrock, that will be added to the environmental monitoring program. The piezometers shall be installed according to the following provisions:	Submittal	Complete
13a	Veolia shall submit proposed specific locations for the piezometers to the. Department for concurrence prior to installation with the general locations following the criteria below:	Submittal	Complete
13ai	Two bedrock piezometers shall be located on the south side of the limits of waste, between the water supply wells on Union Church Drive and limits of waste.	Construction	Complete
13aii	Two bedrock piezometers shall be located at different locations on the EPL property north of the piezometers in sub-part i, above, such that groundwater flow direction in the bedrock can be measured using all four piezometers.	Construction	Complete
13b	The bedrock piezometers shall be installed within 90 days from the date of plan of operation approval and baseline groundwater data shall be collected from all of the piezometers within one year of installation:	Submittal	Complete
14	The plan of Operation shall contain a provision that Veolia will pay for the difference in cost actually insured by an affected well owner for any special well casting requirement that may be imposed by the Department on exemption from s. NR 504.04(3)(f), Wis. Adm. Code has been granted for an existing water supply well already serving that residence.	Submittal	Complete
15	The Plan of Operation shall contain a gradient control layer design which allows for the water from the gradient control layer to be sampled from under each phase of the landfill and allows for the ability to maintain or reestablish a pump and controls associated with each of the gradient control systems, so that pumping can continue or resume at a later date if determined necessary.	Design	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
16	The plan of Operation shall contain a wetland protection and erosion control plan. The plan shall include at a minimum the following items:	Operations	Complete
16a	All constructed features shall stay out of delineated wetland boundaries.	Construction	Complete
16b	Wherever possible the plan of operation shall maintain an undisturbed buffer area of at least 50 ft between the edge of construction activities and the delineated wetland boundaries. In areas where the toe of support berms and wetland boundaries do not afford a 50 ft. buffer, the plan of operation shall establish as much buffer as possible.	Design	Complete
16c	The plan of operation shall propose physical barriers (e.g. some buttressed against silt fence, large boulders etc.) between all construction activities and the undisturbed edges of wetlands or undisturbed buffers.	Design	Complete
16d	The use of signs that mark the areas not to be disturbed.	Operations	Complete
16e	The plan of operation shall contain procedures for informing contractors and landfill employees to stay out of wetland or buffer areas that are to be undisturbed and for the timing of placement for such barriers and markings before construction begins; to ensure the durability of sedimentation control devices and prevent the operation of construction equipment or disturbance within the undisturbed areas.	Operations	Complete
17	The plan of operation shall show calculations for Total Suspended Solid (TSS) control by using the SEWRPC rainfall depth for the 25 year, 6-hour storm event of3.44 inches and run-off curve number 91, in accordance with the requirements of s. NR 504.09(1)(e), Wis. Adm. Code, or shall justify the use of alternate parameters, and the resulting size of the sedimentation basin that would be needed.	Design	Complete
18	The plan of operation shall show calculations for 80% TSS control by using SEWRPC rainfall depth for the 1-year, 24-hour storm event. of 2.3 inches, or shall justify the use of alternate parameters, and the resulting size of the sedimentation basin that would be needed. lf the 80% reduction can not be achieved, the Plan of. Operation shall provide an explanation of why the 80% reduction is not attainable and shall show the maximum sediment load that is attainable.	Design	Complete
19	The Plan of Operation shall evaluate the inundation depth and period for stormwater flow to wetlands W4, WI0 and W11 and shall evaluate the effects from decreased run-off to wetland W9.	Design	Complete
20	The Plan of Operation shall evaluate the ability of the drainage ditch along Union Church Drive to adequately carry the increased surface water flow during peak storm events, including an evaluation of the maximum storm event the drainage ditch is capable of handling. The surface water features shall be .designed and constructed so that the landfill expansion does not cause flooding.	Design	Complete
21	The Plan of Operation shall include a environmental monitoring program in accordance with ch. NR 507, Wis. Adm. Code, which includes water sampling of those private water supply wells for which an exemption from s. NR 504.04(3)(f),Wis. Adm. Code has been granted and for which permission for sampling has been granted by the well owner, for the parameters listed in ch. NR 507, Appendix I, Table 1, Wis. Adm. Code, for municipal solid waste. The sampling frequency and schedule will be determined in the plan of operation; however, the private well sampling program shall begin no later than the sampling event following construction documentation approval of the landfill phase in which waste would be located within 1,200 ft. of the private wells. The Plan of Operation may show that a water supply well is located greater than 1,200 from the final approved limits of waste and may request to have the NR 504 exemption rescinded and the requirements of this condition for that respective well.	Monitoring	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
22	All new or replacement groundwater monitoring wells shall be constructed and developed in accordance with ch. NR 507, Wis. Adm. Code. Baseline sampling shall be conducted for all new or replacement wells as described in ch. NR 507, Wis. Adm. Code.	Monitoring	Active
23	The plan of operation shall contain an environmental monitoring program which includes at least 4 sample rounds separated by at least 3 months for baseline groundwater data from all private wells for which an exemption from the 1,200 foot set back distance requirement of s. NR 504,04(3)(f),Wis. Adm. Code has been granted and permission for sampling is granted by the well owner. Baseline monitoring shall be completed within 1.5 years from the date of Plan of Operation approval. The Plan of Operation may show that a water supply well is located greater than I ,200 from the final approved limits of waste and may request to have the NR 504 exemption rescinded and the requirements of this condition for that respective well. The baseline monitoring shall at a minimum include the following parameters:	Monitoring	Complete
September 21, 2010 – Area 2 Final Cover Construction Documentation Approval of Plan of Operation Approval Modification			
1	The test period for the renewal application of the RD&D plan shall be limited to a maximum of 3 years from the date of this approval.	Submittal	Active
August 22, 2008 – Approval of Plan Modification to Plan of Operation to Revise Closure and Long Term Care Cost and			
1	Construction Area 2 final cover and update of closure & long-term care cost	Construction	Complete
November 15, 2007 – Approval of Construction Documentation for Phase 6 West Liner			
	No conditions		
September 25, 2007 – Approval of 2005-07 Phase 5&6E Leachate Recirulation System and 2006 Phase 6E Gas Header Ext			
	No conditions		
September 22, 2007 – Approval of Plan Modification to Research, Development and Demonstration Plan			
1	The test period for the initial application of the RD&D plan shall be limited to a maximum of 3 years from the date of this approval.	Submittal	Active
2	Temporary rapid infiltration trenches may be used for liquid addition of material with pipe clogging potential. Veolia shall notify the Department by e-mail of each new waste stream proposed to be introduced into a rapid infiltration trench. The Department may limit the type of material utilized in this way. The rapid infiltration trenches shall be covered at the end of each day and may not be reused. Veolia may propose short term trials with the trench concept that differ from these requirements, after submitting written details from the Department's concurrence.	Operations	Active
3	The leachate collection lines in areas subject to liquids addition where waste over the line is 10 feet or less shall be subject to video camera inspections during the first year of liquids addition and at three year intervals thereafter. This schedule may be modified to that specified in s. NR 506.07(5)(e) with Department approval after demonstration that the condition of the piping is not affected differently from piping in areas subject to liquids addition that is initiated where waste thicknesses exceed 20 feet.	Submittal	Active
4	Emerald Park Landfill shall terminate the use of any or all of the changes to the leachate recirculation plan listed below, if the Department's opinion, they are causing operational or environmental problems.	Operations	Active
4a	Removal of the minimum horizontal distance between the exterior slope and leachate surface application.	Operations	Active
4b	Use rapid infiltration utilizing surface trenches constructed in the waste mass as a means of liquid application for liquid wastes that may contain solids or otherwise have pipe clogging potential.	Operations	Active

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
4c	Removal of the minimum allowable vertical distance of 10 feet from the landfill liner for leachate surface application.	Operations	Active
5	The proposed monitoring program shall include the following additional items:	Monitoring	Active
5a	The proposed leachate quality monitoring program shall include the parameters and frequencies in s. NR 507.215(3), Wis. Adm. Code and quarterly volatile fatty acids (VFAs).	Monitoring	Active
5b	The proposed waste sampling program at borings in areas subject to liquids addition shall be amended to include analyses for moisture content, we and dry weigh, and organic matter content, and elevation of any standing leachate levels in the borings. Gas extraction wells may be substituted for borings.	Monitoring	Active
5c	The proposed waste sampling program shall be amended so that the minimum number of borings performed prior to the end of the test period shall be one per every five acres of cells in which liquids addition has been conducted.	Monitoring	Active
6	Alternative methods for liquids addition other than specified in the leachate recirculation plan or RD&D plan shall be provided to the Department for concurrence prior to utilization. Performance of alternative methods of liquids addition shall be documented in annual and final reports.	Submittal	Active
7	Annual and final reports for the RD&D plan shall comply with the following as well as the requirements of s. NR 514.10 (1)(f), Wis. Adm. Code.	Submittal	Active
7a	Annual and final reports may be submitted with the annual report and in accordance with the approved deadline date for the annual report for the Emerald Park Landfill.	Submittal	Active
7b	Waste samples shall be o obtained from either borings for gas extraction wells or dedicated borings to define shear strength parameters of decomposed waste that will be used in the geotechnical stability analysis required by s. NR 514.10(2)(h), Wis. Adm. Code. The geotechnical stability analysis is not required initially or for the annual reports, but shall be submitted as part of the final 3 year report.	Submittal	Active
7c	Annual and final reports shall include data for samples taken from borings conducted in areas subject to liquids addition.	Submittal	Active
July 11, 2006 – Approval of Construction Documentation for Area 1 Final Cover			
	No conditions		
July 11, 2006 – Approval of Plan Modification for Phase 6 Western Slope			
	No conditions		
June 14, 2006 – Approval of Plan Modification for Supplemental Leachate Recirculation Lines			
1	This approval allows a six month trial period beginning at the date of this approval. The Department may reqire EPL to discontinue leachate recirculatio at any time if, in the Department's judgment, it is causing operation or environmental problems.	Operations	Inactive
2	Supplemental leachate recirculation lines shall only be installed in areas that have horizontal distribution lines below the proposed elevation of the supplemental lines. The horizontal distribution lines shall be constructed and operated to remove landfill gas from the waste mass or the supplemental lines may not be installed or shall discontinue being used for leachate recirculation.	Operations	Inactive
3	Within 45 days of the competion of the six month trial period, a report shall be submitted to the Department that contains the following:	Submittal	Complete
3a	An evaluation of the installation methods.	Submittal	Complete
3b	Leachate recirculation rates and volumes.	Submittal	Complete
3c	The ability of the supplemental lines to accept, distribute and absorb leachate into the waste mass, relative to site experience with recirculation without use of the supplemental lines.	Submittal	Complete
3d	The occurrence of seeps and how they were corrected.	Submittal	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
3e	The means used to protect the forcemain laterals, tees and valves from truck traffic and heavy machinery.	Submittal	Complete
3f	The performance of the alternative versions (Version 1: The distribution forcemain is on the east side of Phase 6E. Version 2: The distribution forcemain is on the west side of 6E.)	Submittal	Complete
3g	Any recommended design or installation changes for future installations of supplemental leachate recirculation lines.	Submittal	Complete
3h	A request for continued use of the supplemental leachate recirculation lines as filling progresses, with modifications based on experience accumulated during the trial period.	Submittal	Complete
September 30, 2005 – Approval of Construction Documentation for Phase 6 East Liner			
1	Clean out sedimentation basin number 3 and perimeter trenches by December 30, 2005. Construction inspections have observed excessive sediment built ups from cell dewatering these areas.	Operations	Complete
2	Submit documentation report for the placement of the granular drainage layer on the rest of the sideslope by October 31, 2006.	Submittal	Complete
3	Submit construction documentation report for northern header tie-in and pipe cleaning activities 60 days after its completion.	Submittal	Complete
June 24, 2005 – Approval of Plan Modification to the Plan of Operation for Leachate Collection Sump Elevation, Final			
1	OEPL shall clean siltation from the sedimentation ponds annually or when siltation in the ponds reaches an average depth of one foot, whichever occurs first.	Operations	Active
2	OEPL shall use testing method TO-15 for VOC's at the gas blower on an annual basis. Table 3 of the January 14, 2000 conditional plan of operation will be corrected to reflect this modification in the future.	Operations	Complete
May 13, 2005 – Approval of Construction Documentation of Gas Monitoring Probe Installation			
	No conditions		
April 7, 2005 – Approval of Construction Documentation of 2004 Phase 5, Leachate Recirculation System			
	No conditions		
April 5, 2005 – Approval of Construction Documentation of Phase 5 Gas Header			
	No conditions		
March 17, 2005 – Approval of Plan Modification of Leachate Recirculation System			
	No conditions		
March 17, 2005 – Approval of Construction Documentation of Phase 3 Liner			
	No conditions		
October 28, 2004 – Approval of Construction Documentation for Phase 5 Leachate Recirculation System			
1	OEPL shall submit a cross section drawing through phase 5 from east to west. This drawing shall be submitted to the Department by November 30, 2004.	Submittal	Complete
April 8, 2004 – Approval of Plan Modification to the Plan of Operation for Gas System Modification-Generator Installation			
1	OEPL shall conduct pressure test on gas pipes, leachate pipes, and sumps prior to the start up of gas-to-electricity engines. This information shall be included in the construction documentation report	Submittal	Inactive
2	OEPL shall monitor noise level annually at the main entrance gate. Noise level reading at this location shall be below 65 dba. The monitoring shall be done before or after normal business hours when truck traffic is absent. This information shall be reported in the annual report.	Submittal	Inactive
3	OEPL shall install temporary concrete barriers between the haul road leading from the scale to the north side of phase 1 and security fence adjacent to the flare complex by January 30, 2005.	Operations	Inactive
4	OEPL shall notify the Department's Southeast Waste Management Section one week prior to the start up of the generators so the Department staff can conduct final construction inspection	Submittal	Inactive
5	OEPL shall submit construction documentation in accordance with NR 516 Wis. Admin. Code	Submittal	Inactive

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
February 26, 2004 – Construction Doc. Approval Gas Blower & Flare Replacement, Gas Well & Header Installation			
1	SEPLI shall submit the construction documentation report review fee of $1,000 in the form of a check made to the Department of Natural Resources no later than March 24, 2004.	Submittal	Complete
September 25, 2003 – Approval of Plan Modification to the Plan of Operation for Revise Final Waste Grades, the Final			
1	OEPL shall maintain the site design capacity at 9,641,000 cubic yards as approved in plan of operation dated 1-14-2000.	Design	Superseded
2	OEPL shall maintain a minimum installed geomembrane liner slope of 4:1. OEPL shall provide stability analysis for geosynthetic liner and geocomposite for slopes other than 4:1. This information can be provided in the preconstruction report.	Design	Active
3	OEPL shall provide a minimum of three feet of soil cover over geocomposite drainage.	Design	Active
4	OEPL shall provide a minimum of 30 inches of soil before any tracked vehicle can drive over the geocomposite.	Operations/ Construction	Active
5	OEPL shall place a minimum of 36 inches of soil over the geocomposite before any trucks or wheeled hauling equipment can drive over the geocomposite.	Operations/ Construction	Active
6	The preconstruction report required by s. NR 516.04(5), Wis. Adm. Code, for geomembranes used in final cover construction shall include the following items specific to the geocomposite drain component of the final cover system:	Submittal	Active
6a	Identify any proposed revisions to the approved design, construction or documentation requirements including detailed diagrams incorporating all changes.	Condition	Active
6b	Identify the manufacturer of the geocomposite drain product and the manufacturer's qualifications, and provide technical specifications of the geosynthetics used to manufacture the geocomposite drain product.	Submittal	Active
6c	Identify the installation contractor for the geocomposite drain product, if different from the geomembrane installer, indicating specific on-site supervisory stall and a summary of their qualifications and experience, and quality control plans that the installation contractors will follow in the installation.	Submittal	Active
6d	Identify the quality assurance consultant indicating specific on-site stall and summarizing their qualifications and experience, and include a copy of the construction quality assurance plan to be used during documentation of the construction.	Submittal	Active
6e	Describe contractor-specific storage and material handling procedures, deployment methods, seaming and attachment methods, panel cutting to fit panel overlaps, patching, and any limits on installation due to weather and other conditions.	Submittal	Active
6f	Provide results of all shear strength and slope stability analyses required in this approval. Describe any measures intended to assure that an adequate slope stability safety factor will be present under all weather conditions and loading conditions.	Submittal	Active
6g	Describe the methods and equipment to be used to place the geocomposite drain panels over the geomembrane, and describe the deployment process.	Submittal	Active
7	The stability of the final cover system and the, drainage capacity of the geocomposite drain shall be verified prior to each final cover construction phase, using materials used in construction and engineering methods to define shear strength and slope stability; at a minimum, the verification shall include the following	Construction	Active

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
7a	Slope stability testing shall be performed using samples of the geosynthetics products and from the soil borrow sources to be used in the proposed phase of final cover construction. Sampling shall be conducted by the quality assurance engineer or a qualified technician. Laboratory testing shall be performed by the quality assurance engineer or at another laboratory not affiliated with the quality control testing.	Construction	Active
7b	Soil and geosynthetic samples shall be taken sufficiently in advance of construction to allow shear strength test results and slope stability analyses to be completed and included in the preconstruction report.	Construction	Active
7c	Shear strength testing scenarios shall include, at a minimum, the soil to upper geotextile and the lower geotextile to geomembrane upper surface.	Construction	Active
7d	Shear strength testing of the geocomposite drain material shall include a 100 hour seating period (or other appropriate seating period) in the testing apparatus to simulate to a practical extent the effect of interaction of drain, cover soil, and geomembrane.	Construction	Active
7e	Shear testing shall include the effect of saturation of cover soils and undrained shear strengths of soils and geosynthetics.	Construction	Active
7f	Selection of composite drain product, drain outlet spacing, cover soil types, cover soil saturated properties, appropriate geocomposite drain reduction factors, and conservative infiltration rates to the drain shall be used in an assessment of the potential for drain flooding.	Construction	Active
7g	Slope stability analyses shall be conducted using data from the shear strength test results and drain flooding analyses. The slope stability assessment methods shall be identified, along with all assumptions, selected cross-sections, and input values. The analyses shall be used to demonstrate whether the final cover system will be sufficiently stable under conservative infiltration rates and material properties to attain a factor of safety of 1.3.	Construction	Active
8	The placement of the geocomposite drain component of the final cover shall comply with the following:	Construction	Active
8a	A rub sheet shall be used for deployment of the geocomposite drain over the textured geomembrane, unless another method is approved by the Department's assigned plan review engineer.	Construction	Active
8b	If geocomposite drain panels are deployed by being pulled out over the textured geomembrane by a vehicle without use of a slip-sheet, the geocomposite drain and geomembrane shall be examined fur abrasion of the geomembrane and combing out of geotextile fibers. Representative samples shall be taken of both materials and subjected to shear strength testing. Shear strength test results shall be used to determine deviation from the slope stability analyses completed for the preconstruction report.	Construction	Active
8c	Vehicle traffic over the geocomposite drain and geomembrane and panel lay down by vehicles shall be minimized. Use of any vehicles other than all terrain vehicles with clean tires shall be subject to approval by the Department's assigned review engineer.	Construction	Active
8d	Adjoining panels of geocomposite drain shall be laid with a so that geonet components abut one another and allow for mechanical fastening. The overlying geotextile panels shall be connected by sewn seams.	Construction	Active
8e	The geotextiles used in manufacture of the geocomposite drain shall be certified needle-free through magnetic and metal detection tests.	Construction	Active

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
9	Daily inspector's summary reports shall be prepared by the quality assurance personnel for each day that installation of the geosynthetic drain is performed. The reports may be combined with daily inspector's reports for geomembrane installation. Outline drawings on 8 1/2"X 11" paper shall be prepared as necessary to record the construction events. These reports shall be appended to the construction documentation reports and shall include the following information:	Submittal	Active
9a	Amount and location of the geocomposite drain placed, with changes from the design plan noted.	Submittal	Active
9b	Methods and procedures used during placement of the geocomposite drain, minimum overlap of the panels, sewing and other attachment methods for geonet and geotextile components of the geocomposite drain, and any problems due to wind or other weather events.	Submittal	Active
9c	Methods and equipment used to place rooting zone soils over the geocomposite drain.	Submittal	Active
9d	Dates, locations and panel numbers where geocomposite drain samples were taken.	Submittal	Active
10	The Department's plan review engineer assigned to this project shall be informed a minimum of one week prior to each of the construction events listed below, in order to allow a Department representative to observe the work. A fee shall be paid to the Department for each required inspection in accordance with the rules in effect at the time of the inspection. The fee shall be submitted to the Department along with the construction documentation report.	Submittal	Superseded
10a	Placement of the geocomposite drain.	Submittal	Superseded
10b	Placement of the rooting zone soils over the geocomposite drain.	Submittal	Superseded
11	The construction documentation reports for the final cover shall include the following additional items concerning geocomposite drain construction listed below:	Submittal	Active
11a	Written certifications from the geocomposite drain installer's quality control representative, and the quality assurance consultant, that the construction was completed in accordance with approved plans with any deviations noted.	Submittal	Active
11b	Identification of all contractors and subcontractors involved with construction.	Submittal	Active
11c	Identification of the geocomposite drain supplier/manufacturer, material specifications of the installed geocomposite drain, and attachment methods used on the project. The report shall include the names of the on-site geocomposite drain installer and quality assurance personnel. A sample of the geocomposite used in the construction shall be provided to the Department's assigned plan review engineer.	Submittal	Active
11d	A narrative chronologically describing the construction including installation of the geocomposite drain, orientation, repairs and penetrations of the geocomposite drain, and placement of the rooting zone soil. The narrative shall include discussion of placement of the geocomposite drain over the textured geomembrane, including use of a slip-sheet and use of any vehicles in deploying the geocomposite drain. The narrative shall describe in detail the method used to connect the geocomposite drain to the previously constructed area and protection of edges for future connections.	Submittal	Active
11e	Photos/details documenting the following construction activities:	Submittal	Active
11ei	Equipment deploying the geocomposite drain and overlying materials.	Submittal	Active
11eii	Seaming methods for geotextile and specific connectors used for geonet.	Submittal	Active
11eiii	Tie-in of the geocomposite drain to previously placed drain layers.	Submittal	Active
11eiv	Protection of the edge of the geocomposite drain at the end of day and for future connections.	Submittal	Active
February 14, 2003 – Approval of Construction Documentation for Phase 5 Liner			

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
1	The disturbed areas associated with phase 5 construction shall be topsoiled and seeded as soon as practical but no later than June 30, 2003.	Construction	Complete
2	SEPLI shall clean out the sediments from sedimentation basin number 3 and Phase 5 perimeter trenches by June 30, 2003.	Operations/ Construction	Complete
3	SEPLI shall adjust their long-term care cost proof mechanism in 2003 to replace the segment of the leachate forcemain within the lined portion of Phase 4.	Submittal	Complete
February 3, 2003 – Approval of Construction Documentation for Phase 4 Gas Header			
1	SEPLI shall submit the construction documentation report review fee of $1,000 in the form of a check made to the Department of Natural Resources no later than February 28, 2002.	Submittal	Complete
October 11, 2002 – Approval of Plan Modification to the Plan of Operation for clarification of several conditions and			
1	SEPLI shall install two additional leachate headwalls to determine the Impact of leachate recirculation on the hydraulic capacity of the leachate collection system. The headwalls shall be installed at the following locations. SEPLI shall follow the proposed design for these headwalls. The headwalls shall be completed as the phases are constructed:	Construction	Complete
1a	LH-13 at coordinates 65+00E and 55+00N (Phase 5)	Construction	Complete
1b	LH-14 at coordinates 56+00E and 55+00N (Phase 6)	Construction	Complete
	This condition that supersedes condition #13 of the January 14, 2000 Plan of Operation Approval.		
2	SEPLI shall prevent surface water runoff from leaving the limits of waste at all access roads leading in to the active area. This condition supersedes condition #26 of the January 14, 2000 Plan of Operation Approval.	Operations	Active
3	Environmental monitoring shall be performed in accordance with Tables 1 through 5 of the attached monitoring summary document, plus air quality and wastewater monitoring performed In accordance with the appropriate Department permits. This monitoring program supersedes the monitoring programs required In conditions #29 and 31 of the January 14, 2000 Plan of Operation Approval.	Monitoring	Superseded
4	Condition #38(h) of the January 14, 2000 Plan of Operation Approval requiring annual video taping of leachate clean-out lines is rescinded.	Submittal	Complete
5	The requirements of condition 2B.a. of the plan of operation approval dated January 14, 2000, shall be replaced by the following requirement:	Operations	Active
	The gradient control for phase 4,5, and 6 shall be operated to maintain unsaturated conditions in the groundwater drain layer exterior of the sump. Groundwater shall be removed from the gradient control system in phases 4, 5, and 6 until the Department grants approval to reduce groundwater pumping operations.		Active
March 21, 2002 – Approval of Plan Modification for Base Grade Modifications for Phase 5			
1	SEPLI shall relocate LH 13 to within 50 feet of sump located between phase 5 in the northeast corner.	Operations	Complete
March 4, 2002 – Approval of Construction Documentation for Granular Drainage Layer Extension			
1	SEPLI shall submit a review fee of $1,000 (construction documentation review fee of $500 and inspection fee of $500) to the Department no later than March 30, 2002.	Submittal	Complete
February 7, 2002 – Approval of Plan Modification to the Plan of Operation for Leachate Design Modification (Phases 4, 5,			
1	SEPLI shall only pressure test the forcemain if it was used in the previous calendar year	Operations	Active
2	SEPLI shall camera survey the forcemain only every three years. The result shall be reported in the annual report	Submittal	Active
3	SEPLI shall use SDR 13 HDPE pipes for the leachate forcemain with the waste.	Construction	Active
4	SEPLI shall use six inches of bedding material under and over the forcemain within the limits of waste. The bedding material can be drainage blanket material.	Construction	Active

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
5	SEPLI shall submit with the Phase 5 pre-construction report plan sheets that detail the following construction elements:	Submittal	Complete
5a	Details showing the forcemain orientation with the existing gas/leachate header pipe located on the phase 4, 5, and 6 sideslope.	Submittal	Complete
5b	Detail plan view of forcemain manhole showing pressure and camera testing access valves to segregate segments of the line between manholes.	Submittal	Complete
6	SEPLI shall install geotextile and drainage blanket over the entire sideslope liners in future landfill phase construction.	Construction	Active
7	SEPLI shall submit revised long-term care cost estimates for replacing the forcemain with a conventional trench design around the perimeter of the site by 12-31-2002.	Submittal	Complete
8	SEPLI shall submit plan modification review fee of 1500.00 to the Department no later than 02-30-2002.	Submittal	Complete
March 19, 2001 – Approval of Plan Modification to Special Waste Plan			
1	SEPLI shall sample and analyze all Category 42 wastes (dredge material) from all sources for general parameters, metals, volatile organics, semi-volatile organics, pesticides & herbicides, and PCBs.	Operations	Active
2	SEPLI shall notify in writing the department southeast region staff assigned to this facility 14 days before disposal of any category 42-b dredged material. The notification shall include the completed waste profile with supporting analytical data and the anticipated dates of acceptance.	Submittal	Active
3	This approval applies only to dredge material with heavy metals and total PCBs concentrations of less than 50 ppm (part per million or mg/1).	Operations	Active
4	All dredged material shall pass the paint filter test for no free liquids prior to being received at the landfill.	Operations	Active
5	Dredged material shall not be used as daily cover. All dredged material shall be disposed of in a manner which prevents the generation of windborne dust, including the placement of adequate cover or other measures as needed.	Operations	Active
6	Dredge material with detectable concentration of PCBs or high concentration of heavy metals shall be covered with six inches of cover material at the end of each day.	Operations	Active
7	Dredged material placed in the facility shall not be commingled with any potentially incompatible waste (i.e., waste soils containing organic solvents, including petroleum compounds, and other oil- or solvent-containing wastes).	Operations	Active
8	Dredged material shall be placed in such a manner that it: a) supports its own weight and the weight of any materials placed over it without slumping, and b) maintains stable slopes.	Operations	Active
9	Dredged material shall not be placed within 10 feet of the liner system on the facility's base or interior sidewalls or within 10 feet of the subbase of the capping layer of the final cover system.	Operations	Active
10	SEPLI shall revise the waste acceptance plan and incorporates the conditions of this approval within 30 days of receipt of this approval. These revisions shall include a new disposal method (Appendix B) that reflects the requirements in conditions# 1 through #9 above.	Operations	Complete
January 31, 2001 – Approval of Construction Documentation for Phase 4 Liner			
1	The disturbed areas associated with phase 4 construction shall be topsoiled and seeded as soon as practical but no later than June 30, 2001.	Construction	Complete
2	SEPLI shall submit construction documentation for placement of leachate drainage blanket on the remaining upper portions of Phase 4 sidewalls. The documentation shall be submitted within 60 days of completion of any incremental placement.	Submittal	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
3	SEPLI shall propose construction alternatives for reducing or eliminating moisture on the surface of the clay liner under the geomembrane. A preliminary study indicated half the test locations shown an increase in moisture build up on the surface of clay. The report shall be submitted no latter than December 30, 2001.	Submittal	Complete
January 14, 2000 – Approval of Plan of Operation for a Proposed Horizontal and Vertical Expansion (Phases 4, 5, and 6)			
1	All aspects of the construction, operation, monitoring, and closure of this facility shall be performed in accordance with the plan of operation, the requirements of chs. NR 500to 538, Wis. Adm. Code, and the conditions of this approval. In the case of any discrepancies between the conditions of this or previous approvals and the approved plans, the conditions of this and previous approvals shall take precedence.	General	Active
2	A copy of the plan of operation, accompanying plan sheets, plan modifications, and this approval and any addenda shall be retained at the landfill office at all times and shall be available for reference by the personnel responsible for proper operation of this facility. Persons responsible for facility construction, operation, and closure shall be--informed of the conditions required in this approval.	Operations	Active
3	Any proposed modifications to the plan of operation or this approval shall be proposed to the Department for review and approval. If the modifications are compatible with the desired performance of this facility, as determined by the Department, an addendum will be added to this approval indicating acceptance of the modifications. The modifications shall not be implemented prior to issuance of an approval by the Department.	Submittal	Active
4	The Department approvals for initial construction dated September 29, 1999, shall be made apart of this approval. The conditions in those approvals shall continue to be applicable to construction of this facility.	Construction	Active
5	Final cover placement may be delayed up to two years after attaining final waste grades in each phase of closure provided that the requirements of s. NR 514.07(3), Wis. Adm. Code, are met. Final cover placement shall be in accordance with the phasing plan as described in the plan of operation. At no time shall the waste grades exceed approved final waste grades for this facility.	Construction	Active
6	SEPLI shall continue to collect and treat leachate and landfill gas as they are produced until otherwise directed by the Department in writing.	Operations	Active
7	SEPLI shall not construct the sump in phase 4 below elevation 740 feet mean sea level and in phases 5 and 6 below elevation 730 feet mean sea level.	Construction	Complete
8	SEPLI shall install geotextile over the entire composite liner before placement of granular drainage layer. SEPL/ shall install a nonwoven geotextile fabric with a minimum thickness of 12 once/square yard.	Construction	Superseded
9	SEPLI shall install an additional sheet of 60 mil smooth HDPE in the leachate collection trenches over the geotextile. The sheet shall extend five feet beyond the edge of vee-trenches in each direction. The sheet will provide additional protection during installation of leachate collection pipes and stone placement.	Construction	Active
10	SEPLI shall install an additional leachate storage tank with capacity of 20,000 gallons similar to the existing tank during construction of phase 5, if the MMSD forcemain is not completed by that time: SEPLI shall incorporate the construction documentation for the tank with the construction documentation for the phase 5.	Construction	Complete
11	SEPLI shall include a description of the sump integrity test in the preconstruction report for each phase. The sump integrity test shall be a water test, an electrical resistively test, or other method acceptable to the Department. Details of the test shall be described in the report and shall be followed during in-field testing of the sump. Sump test results shall be included in construction documentation.	Submittal	Active

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
12	SEPLI shall remove stones greater than one inch from the base before liner is installed.	Construction	Active
13	SEPLI shall install two additional leachate headwalls to determine the impact of leachate recirculation on the hydraulic capacity of the leachate collection system. The head wells shall be installed at the following locations. SEPLI can follow the proposed design for these head wells. The head wells are completed as the phases are constructed.	Construction	Superseded
13a	Coordinates 65+00E and 55+00N	Construction	Superseded
13b	Coordinates 56+00E and 55+00N	Construction	Superseded
14	SEPLI use of daily cover material is. limited to soil, tarps, geotextile and select wastes in accordance with SEPLI Waste Acceptance Plan protocols. SEPLI shall submit a waste acceptance profile to the Department for concurrence prior to using other waste materials as alternative daily cover.	Operations	Active
15	SEPLI shall construct perimeter waste screening berms with non municipal waste materials. Exterior slopes of these berms shall be covered with interim soil cover at the time of their construction.	Construction	Active
16	SEPL shall cover any areas that receive surface applied leachate as part of leachate recirculation with six inches of waste or daily cover immediately following application.	Operations	Superseded
17	SEPLI shall prevent leachate ponding as result of leachate recirculation on the landfill.	Operations	Superseded
18	SEPLI shall not use the same tanker truck for the transportation of leachate in the landfill area and clean water unless it is cleaned between each use.	Operations	Active
19	The leachate tanker shall be moving at all times while surface applying leachate on the waste mass.	Operations	Active
20	SEPLI shall not recirculate leachate within ten feet of the landfill's base, sidewall drainage blanket, and exterior sideslopes.	Operations	Superseded
21	Except for compactors no other vehicles should be allowed to drive on areas that has received leachate and yet to be covered.	Operations	Superseded
22	SEPLI shall terminate leachate recirculation upon written Department notification that the practice is determined to be contributing to operational or environmental problems.	Operations	Superseded
23	SEPLI shall collect and treat any run-offs from active and inactive areas as leachate unless it is covered with a minimum of two feet clean natural soil.	Operations	Active
24	SEPLI shall obtain approval for use of any material except clean soil as intermediate cover.	Operations	Active
25	SEPLI shall post signs at the construction access road entrance prohibiting waste delivery at that location.	Operations	Active
26	SEPLI shall install cattle walk bridges at all roads leading to the active areas of the landfill to prevent surface run-offs leaving the landfill.	Operations	Superseded
27	SEPLI shall, at a minimum, perform annual pressure testing of the leachate forcemains	Operations	Active
28	The operation of the gradient control system shall comply with the following:	Operations	Active
28a	a. The gradient control system for each phase shall be operated to maintain unsaturated conditions in the groundwater drain layer exterior of the sump. Groundwater shall be removed from the gradient control system in each liner phase until the Department grants approval to reduce groundwater pumping operations.	Operations	Superseded
28b	b. In case of malfunction of the groundwater extraction pump, the pump shall be made operational or replaced within seven (7) days of detecting the malfunction. The Department shall be notified in writing within seven (7) days of the completion of repairs of the cause of the malfunction and the nature of the corrective actions.	Submittal	Active

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
29	Environmental monitoring during the active periods shall be performed in accordance with this approval Tables 1 through 6 of the attached monitoring summary document, plus air quality and wastewater monitoring performed in accordance with the appropriate Department permits. This monitoring program supersedes the monitoring programs described in previous approvals.	Operations	Superseded
30	SEPLI shall submit any missing background groundwater quality data for existing monitoring wells and piezometers along with the data for any new monitoring wells. The Department will then evaluate the appropriateness of PAL and /or ACL calculations for exemtions.	Submittal	Superseded
31	SEPLI shall conduct stormwater management and monitoring in accordance with the conditions of this plan approval.	Operations	Superseded
32	SEPLI shall provide revised proof of financial responsibility for closure and long-term care within 60 days of the date of this approval, in accordance with ch. NR 520, Wis. Adm. Code. The proof of financial responsibility shall be established based upon the approved costs contained in the attached summary document.	Submittal	Complete
33	The Department's environmental engineer assigned to this project shall be contacted a minimum of one week prior to beginning the construction event listed. below, for the purpose of allowing the Department to inspect the work. A fee shall be paid to the Department for the required inspection in accordance with s. NR 520.04(5), Wis. Adm. Code. The inspection .fee shall be paid with the invoice for the construction documentation.	Submittal	Superseded
33a	Inspection for liner construction shall include:	Construction	Superseded
33ai	Placement of gradient control material at 30 percent completion. Subbase condition will also be inspected at this time.	Condition	Superseded
33aii	Construction of second six inch layer of the clay component of the liner.	Construction	Superseded
33aiii	Construction of the geomembrane component of the liner at 30 percent completion.	Construction	Superseded
33aiv	Placement of leachate drainage layer.	Construction	Superseded
33av	Construction of the sideslope riser and sump.	Construction	Superseded
33b	Inspections for the final cover construction shall include:	Construction	Superseded
33bi	Construction of the clay component of the capping layer.	Construction	Superseded
33bii	Construction of the geomembrane component of the capping layer.	Construction	Superseded
33biii	Construction of new gas extraction wells.	Construction	Superseded
33biv	Construction of gas extraction header pipes, drip legs, and gas recovery system.	Construction	Superseded
33bv	Placement of the geocomposite drain layer and rooting zone soils.	Construction	Superseded
34	SEPLI shall submit, within 60 days of this approval, the following revisions to the Special Waste Management Plan (Appendix Q), Analytical Requirements Table (Attachment 2):	Submittal	Complete
34a	Category26 (auto shredder residue) shall include a notation inserted to reflect the analytical protocol established condition #9 of the Department's November 17, 1994 Plan Modification Approval.	Submittal	Complete
34b	Category 37b (remediation waste- contaminated debris) shall have the disposal method "F" (waste used as daily cover) deleted. Department concurrence for this disposal method of this waste category shall be obtained	Submittal	Complete
34c	Category 36 (spill residue) and 37 (remediation waste) shall include a notation inserted establishing limiting criteria for daily cover materials from projects with complex or unknown sources or materials that have been treated as part of the remediation process.	Submittal	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
35	SEPLI shall submit, within 60 days of this approval, revisions to the Special Waste Management Plan (Appendix Q), Disposal Method Table (Attachment 8). Waste Disposal Method :F" (daily cover) shall be expanded to indicate cover application is limited to interior slopes. Waste materials in this category shall not be placed within 10 feet of exterior slopes or the facility's leachate drainage layer.	Submittal	Complete
36	SEPLI shall submit a copy of the formal agreement between MMSD and SEPLI to the Department by no later than June 30, 2000 for the acceptance, transport, and treatment of leachate.	Submittal	Complete
37	SEPLI shall submit within 60 days of this approval, an additional appendix to the Spetember 1999 Plan of Operation that identifies all facility inspections, their frequency, their reference in the Plan of Oepration and a sample inspeciton form.	Submittal	Complete
38	By April 1 of each year SEPLI shall submit an annual report to the Department which contains the following items. One copy shall be submitted to the Southeast Region and one copy shall be submitted to the Central office in Madison.	Submittal	Superseded
38a	Superior shall evaluate the performace of the landfill during active site life and the long-term care period.	Submittal	Superseded
38b	Provide a full size topographic map or plan view drawings to show the site and quarter a mile from all direction. On the map show property boundary, any structures, wells, owners name, etc.	Submittal	Superseded
38c	Provide a color coded site map showing all landfills phases marked, all wells including the abandoned wells numbered and labeled the entire leachate collection and transfer piping system, and gas system (including all buried component).	Submittal	Superseded
38d	Provide a color coded site map showing all landfills phases marked, areas covered with final cover, areas covered with intermediate cover, and are as actively being filled.	Submittal	Superseded
38e	Provide aerial survey for purpose of settlement calculation of the final cover. At minimum, MSL will be provided for all gas extraction well locations. This method replaced installation of settlement hubs and propsed grid surveying.	Submittal	Superseded
38f	A summary of the volume of leachate recirculated tabulated by surface application and injection method.	Submittal	Superseded
38g	A summary report on the impact of leachate recirculation on:	Submittal	Superseded
38g i	The rate of waste stabilization	Submittal	Superseded
38g ii	Differential settlement	Submittal	Superseded
38g iii	Gas generation	Submittal	Superseded
38g iv	Change in leachate volume and quality.	Submittal	Superseded
38g v	Operational problems.	Submittal	Superseded
38h	Summary of a camera survey of the leachate head wells and leachate collection lines (HDPE and PVC) to determine their durability, cleanliness, and delectation. The video tape of these inspections shall be available on site for review by the Department staff at all times.	Submittal	Superseded
38i	Result of annual pressure testing of the forcemain.	Submittal	Superseded
38j	A list of all gas extraction wells in a tabulated format. The report shall include well number, landfill base elevation, well base elevation.	Submittal	Superseded
38k	A summary of alternative daily cover material and their volume utilized tabulated by Waste Acceptance Plan categories and waste materials receiving prior Department concurrence.	Submittal	Superseded
38l	list of approved daily cover material and volume utilized.	Submittal	Superseded
38m	SEPLI shall describe the results of quarterly inspections of all final covered areas on the landfill; all surface water control structures, biofilters, sedimentation basins, and exclusion areas.	Submittal	Superseded
September 30, 1999 and October 1, 1999 – Approval of Initial Construction			

Attachment #3 for the Emerald Park Landfill Southwest Expansion Plan of Operation, License #: 3290
Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
1	Initial construction activities shall be performed in accordance with the proposed plan of operation dated. September 14, 1999.	Construction	Complete
2	Initial construction shall be limited to: site clearing and grubbing, placement of silt fencing and controls for water and sediment, construction of the surface water ditches, sedimentation basins, biofilters, berms and roads, excavation of phase 4, and stripping and stockpiling of topsoil from these areas.	Construction	Complete
3	Silt fencing shall be placed to confine any areas of initial construction prior to the initiation of clearing and grubbing, topsoil stripping and stockpiling, and grubbing, topsoil stripping and stockpiling, and construction of drainage features for surface water. Silt fencing shall be placed at a minimum diameter of 10 feet around monitoring wells and control monuments within the area of initial construction.	Construction	Complete
4	Seeding, mulching, and revegetation shall be performed as part of initial construction in accordance with proposed plan of operation and shall include: The drainage ditches, exterior slopes of confining berms, and perimeter berms for the sedimentation basins and biofilters, and soil stock piles.	Construction	Complete
5	SEPLI shall update the Department's Southeast Region engineer of the progress of construction of the initial construction on monthly basis.	Construction	Complete
6	Construction inspections shall be performed at this facility as indicated below.	Submittal	Complete
6a	At 50% completion of clay excavation.	Construction	Complete
6b	At 50% completion of stormwater control structures.	Construction	Complete
7	SEPLI shall incorporate construction documentation for initial construction activities into the construction documentation for Phase 4.	Submittal	Complete

Attachment #3 for the Emerald Park Landfill Southwest Expansion Plan of Operation, License #: 3290

Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
July 29, 1999 – Feasibility Determination for a Proposed Southern Expansion (Phases 4, 5 and 6)			
1	The maximum design capacity of the proposed Superior Emerald Park Landfill lateral and vertical expansion may not exceed 11,680,000 cubic yards, including solid waste, daily cover, and intermediate cover, minus any capacity lost in order to satisfy conditions 2, 3, 6, 11 and 12 of this determination.	Design	Superseded
2	Superior shall propose in the plan of operation and undisturbed buffer zone between delineated onsite wetland boundaries and any constructed feature of the landfill including the biofilter component of the drainage control system), as well as area needed for operation of construction equipment. This buffer zone shall be of sufficient width to protect wetlands from sedimentation and other disturbances, but in no case shall the buffer zone be less than 50 feet wide.	Design	Superseded
	The proposed shall include a means of clearly demarcating the undisturbed buffer zone using fencing or some other structure visible to equipment operators, prior to any size preparation activities. The proposal shall provide for erosion control measures to be placed on the landfill side of the demarcated buffer zone.	Operations/ Construction	Superseded
3	Superior shall modify the proposed limits or filling to eliminate constructed features of the landfill, expansion, including berms, drainage ways, roads, sedimentation basins, and soil stockpiles, but not biofilters, from the following area in the drainage basin of navigable pond P3: the area bounded by lines drawn from grid location 5080N, 7200E to 5150N, 6850E; from grid location 5150N, 6850E to 6000N, 6850E; and from grid location 6000N, 6850E to 6000N, 7140E.	Design	Complete
4	Superior shall establish and maintain permanent vegetative cover in upland areas between the limits of disturb rice and the navigable ponds and wetlands surrounding the lateral expansion area. Superior shall preserve existing areas. A landscaping and vegetation plan for these upland areas shall be proposed in the plan of operation. The plan shall emphasize the use of native species for vegetation.	Submittal	Complete
5	Superior shall, in the plan of operation, propose designs, specification, and performance criteria for biofilters to treat water discharging from the sedimentation ponds.	Design	Complete
5a	Biofiltration or other water quality protection measures for the outflows from sedimentation basin 4; and	Design	Superseded
5b	Gratings, sediment traps or other structural devices to prevent the accumulation of litter and debris in the sedimentation basins and biofilters.	Design	Complete
6	Superior shall, in the plan of operation, modify the design of the surface water management system, the closure phasing plan and, if necessary, the proposed limits of filling, to maintain 100% of the average predevelopment annual runoff to each individual wetland area analyzed in Appendix O of the Feasibility Report Addendum 2 during operation of the landfill, as well as post-closure (for Wetland 9, "predevelopment" means prior to development of the existing approved landfill; for other wetlands, "predevelopment" means prior to the development of the expansion).	Design	Complete
7	Prior to submitting a plan of operation, Superior shall determine whether a waterway forming a navigable water, as defined in Chapter 30, Stats., exists between wetlands 3 and 4, near local grid coordinate 43 + 00N, etc.	Submittal	Complete
8	Superior shall include, in the plan of operation, plan sheets an details of stockpiling of soils, surface water controls for soil stockpiles, sedimentation and erosion controls for the landfill and soil stockpiles, and provisions for the disposal or use of excess soils. The plan of operation shall include, at a minimum, the following:	Submittal	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
8a	Narrative and plans that describe the controls to be used in selecting clay soils suitable for liner and final cover purposes, stockpiling the suitable soils, and protecting the stockpiles from infiltration, desiccation, and erosion. The narrative shall describe the measures to be taken to modify the moisture content of stockpiled soil, if necessary, prior to use in the facility.	Submittal	Complete
8b	Stockpiles proposed to be located on and off the landfill property shall be located on plan sheets, Planned uses of soils shall be described. Details shall be included that illustrate the controls to be place on runoff and sediment as stockpile dimensions and surfaces are modified. Runoff and sediment controls shall be designed to intercept sediment as close to the point of generation as possible. The plan of operation shall include design and operation details that will prevent detrimental effects to ponds, wetlands and other surface waters from stockpile location or runoff.	Submittal	Complete
8c	A design of the soil stockpile in the southeast corner of the landfill property along Union Church Road that is limited to the present size and elevation of the existing stockpile. Alterations to the stockpile may not be made without Department review and approval of proposed revisions to stockpile layout, elevations, grades, and drainage. Proposals for revisions shall address any changes in local zoning and local approvals with regard to the soil stockpile.	Submittal	Complete
9	Superior shall include in the plan of operation a proposal for investigating soils below that gradient control layer to assure that any granular or silty soils are identified. The proposal shall include, at a minimum, the following:	Submittal	Complete
9a	An investigative program using backhoe pits or other means of exposing subsoils on a 100 foot grid to a minimum depth of 5 feet below the gradient control layer.	Submittal	Complete
9b	Measures to be taken from the elimination of all detected granular or silty soils, including removal and replacement with acceptable clay liner material that meets the requirements of s. NR 504.05 (5), Wis. Adm. Code.	Submittal	Complete
10	Superior shall include in the plan of operation the following revisions to the gradient control system:	Submittal	Complete
10a	The gradient control system trench design shall include a 6-inch diameter pipe or a strip drain over the base of the trench. The plan of operation shall demonstrate that the design of the trench will prevent significant loss of capacity of the pipe or strip drain until after the gradient control system is allowed to be turned off.	Design	Complete
10b	Operating instructions for the gradient control system that include pumping and removal of groundwater until the Department approves that cessation of pumping. The operating instructions shall include pumping of groundwater until sufficient waste has been placed to resist uplift of the sub-base and until the Department determines that the presence of water in the drain will not compromise the strength of soil adjacent to the successive liner phase.	Operations	Complete
10c	Details of the gradient control system pumps and extraction pipes that provide for removal and servicing of the pumps, removal of sediment from sumps should cleaning of the pipes be necessary, extraction pipe assembly that assures access to the sumps, and operating control systems for the pumps.	Design	Complete
10d	Details of pump controls, water level sensors, and water sampling equipment, instructions for use and service of the sensors and sampling equipment, depth of placement of the sensors, and methods of inserting and retrieving sensors and sampling equipment.	Design	Complete
11	Superior shall, in the plan of operation, propose construction materials and details of the leachate collection pipe system that comply with the following:	Submittal	Complete
11a	Pipes shall have a minimum diameter of the 6 inches, with sweep bends at changes of slopes that allow access by pipe cleaning and camera inspection equipment.	Design	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
11b	Pipe dimensions shall comply with PVC Schedule 120 standards and be composed of PVC compounds which meet or exceed Class 12454 as defined by ASTM D 1784-81.	Design	Complete
11c	Use of HDPE pipe may be proposed in the plan of operation or by plan modification with justification which demonstrates that the pipe dimensions and properties are acceptable. HDPE pipe may not be used for the leachate collection piping without Department approval.	Submittal	Complete
11d	The design of collection piping and cleanout access lines in Phases 3 to 6 shall comply with section NR 504.06(5)(g) with regard to cleanout lengths.	Design	Complete
12	Superior shall include in the plan of operation the following revisions to the design of the landfill base grades and the sideslope risers:	Submittal	Complete
12a	The base grades in the plan of operations shall be revised such that the depth of the sumps of the sideslope risers and the bottoms of the cleanout pipes are no more than 70 feet below adjacent perimeter berm crest elevations.	Design	Complete
12b	The design of the sump and sideslope riser system in Phases 5 and 6 shall include use of dual sideslope risers, with spacing between pipes wide enough so that, if one of the pipes were to collapse, any consequent movement of the pipe backfill would not cause an increase in overburden pressure on the remaining sideslope riser.	Design	Complete
12c	The design shall include a sump and sideslope riser system for each leachate collection pipe in each phase.	Design	Complete
12d	Sump design shall include larger sumps, with protective plates on the entire base of the sumps. The plan of operation shall describe corrective action activities associated with use of the sump as a target if a caisson had to be drilled into the sump as a corrective measure.	Design	Complete
12e	Design and construction details shall be included that assure proper support of the riser pipes. A trench shall be used to contain the riser pipes and granular backfill up to the springline of the riser pipe.	Design	Complete
13	Superior shall, in the plan of operation, evaluate the forces on the proposed sideslope risers and cleanouts and their ability to withstand these forces over the long term. The evaluation shall address:	Design	Complete
13a	The location of the sideslope risers and cleanouts on steep slopes, the associated difficulty of establishing and maintaining proper sidefill support for these pipes, and explicitly how these concerns were factored into the choice of variables used in the calculations required below.	Submittal	Complete
13b	Calculation of radial forces acting on the pipes and the concerns these forces represent with forces represent with respect to axial buckling or other failure mechanisms.	Design	Complete
13c	Calculation of axial forces on the pipes resulting from waste settlement and the concerns these forces represent with respect to axial buckling or other failure mechanisms.	Design	Complete
13d	Evaluation of how the forces identified in b. and c. above may interact and an evaluation of these forces with respect to all potential failure mechanisms.	Design	Complete
	Based upon this evaluation, the Department may require that base grades be raised further, or may allow base grades to be lowered to a depth not exceeding 100 feet below adjacent perimeter berm elevations.		Complete
14	Superior shall construct all screening berms located within 1,000 feet of the right-of-way of US Highway 45 entirely of clean soil or remediated contaminated soil and in such a manner that no solid waste, other than remediated contaminated soil, that is within 1,000 feet of the right-of-way of U.S. Highway 45 is visible at any time from the highway.	Construction	Complete
15	Superior shall document abandonment of private water supply wells PW-1 and PW-2 to the Department prior to beginning construction of the lateral expansion.	Submittal	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
16	Superior shall, in the plan of operation, propose an inspection and cleaning program for the sediment ponds and drainage ditches that provides for weekly inspection of the system and removal of littler, and removal of sediment as often as necessary to maintain the function of the surface water control system, but no less often than semiannually in the spring and fall.	Submittal	Complete
17	Superior shall, in the plan of operation, identify and discuss the availability of equipment capable of inspecting and cleaning the gradient control and leachate collection piping systems. The plan of operation shall propose a schedule for cleaning and inspecting the piping systems, and describe the access and support services to be provided to contractors for inspecting and cleaning piping systems.	Submittal	Complete
18	Superior shall perform additional sampling to provide a total of 8 rounds of data for all wells and parameters listed in the grant of exemption for exceedances of groundwater quality standards under chapter NR 140, Wis. Adm. Code, below. Samples shall be obtained no more frequently than monthly, and Superior shall provide the results of the sampling in the plan of operation and on diskette in Department format.	Submittal	Complete
19	Superior shall, in the plan of operation, propose a comprehensive facility environmental monitoring program consistent with the program presented in the feasibility report Addendum 2, and incorporating:	Submittal	Complete
19a	Provisions for monitoring volumes removed, heads, and water quality in the gradient control system;	Submittal	Complete
19b	Landfill settlement; and	Submittal	Complete
19c	Semiannual VOC sampling at designated Subtitle D monitoring wells.	Submittal	Complete
20	Superior shall modify as necessary, and provide additional justification for, its designation of Subtitle D monitoring wells in the plan of operation, taking into account the different flow directions in the shallow and deep flow systems, the depth at which the wells are screened, and the position of the wells with respect to the low areas of the proposed phases.	Submittal	Complete
21	Superior shall abandon all wells located within the conditionally approved limits of filling prior to construction in the vicinity of the well. Wells shall be abandoned sequentially such that only those wells located within a given module or phase are abandoned prior to development of that phase. Abandonment of wells shall be in accordance with scetion NR 141.25, Wis. Adm. Code.	Construction	Complete
22	Superior shall, in the plan of operation, propose air quality monitoring. The proposal shall include at least two total suspended particulate (TSP) monitors and one wind speed and wind direction station. The location of the TSP monitors and windstation, sampling procedures, and reporting procedures shall be discussed with and approved by Department of Natural Resources Air Management staff.	Submittal	Complete
23	Superior shall include in the plan of operation a copy of the application for the construction permit and operating permit submitted to the Department's Air Management program.	Submittal	Complete
24	Superior shall address in the plan of operation the design and operation of the landfill gas control system, consistent with the requirements of the Clean Air Act amendments to 40 CFR 51, 52, and 60 (as published in the Federal Register, Vol. 61, No. 49, March 12, 1996, pages 9905-9944), and with the Wisconsin Administrative Code requriements.	Submittal	Complete
25	Superior shall include in the plan of operation a copy of the application for a Wisconsin Pollutant Discharge Elimination System permit submitted to the the Department's watershed management program for discharges to surface water from the gradient control system or from any dewatering of excavations that takes place during construction or operation.	Submittal	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
26	Superior shall in the plan of opertion, propose actions to be taken in the event that groundwater, surface water, or gas mingration impacts are detected, and discuss potential alternatives that could be implemented to correct any contamination that might occur.	Submittal	Complete
27	Superior shall, in the plan operation, propose to evaluate the performance of the landfill annually during active site life and the long-term care period.	Submittal	Complete
28	Superior shall, in the plan of operation, and in consultation with the Wisconsin Department of Transportation, District 2, evaluate;	Submittal	Complete
28a	the need for additional merge or turn lane areas on U.S. highway 45 at the landfill acces road; and	Submittal	Complete
28b	measures needed to correct water surcharge to the drainage ditch system along U.S. Highway 45 caused by the artificial ponds near the entrance road to the landfill.	Submittal	Complete
January 24, 1997 – Phase I gradient control system pumping termination Plan Modification			
1	The requirements of condition 20.a. of the plan of operation approval dated June 3, 1994, shall be replaced by the following requirement:	Operations	Active
	The gradient control system for Phases 2 and 3 shall be operated to maintain unsaturated conditions in the groundwater drain layer exterior of the sump. Groundwater shall be removed from the gradient control system in Phases 2 and 3 until the Department grants approval to reduce groundwater pumping operations.		Active
2	Sampling and analysis of samples taken from the gradient control system for Phase 1 shall comply with the monitoring requirements listed in the environmental and performance monitoring summary attached to the Department's approval dated June 23, 1995.	Operations	Superseded
3	Water quality samples from the sump shall be obtained from within the sump in a manner that eliminates any potential for sampling water that is confined in the riser pipe;. A description of the sampling methods shall be provided to the Department within 30 days of the date of this approval.	Submittal	Complete
Aug. 26, 1996 – Approval of Phase 2 Construction Documentation and Plan Modification to the Plan of Operation to			
1	Conditions of the Department's plan of operation approval dated June 3, 1994, shall be modified as follows:	Operations	Complete
1a	Condition 9 concerning the termination of the drain layer in the final cover shall be deleted from the construction requirements for this landfill.	Construction	Superseded
1b	Condition 27b. and 27c. shall be modified such that the sampling frequency shall be one test per 100,000 ft. of geomembrane installed and a minimum of one test on rolls from each batch of resin used to manufacture rolls delivered on site.	Monitoring	Superseded
2	A report and diagram of the rain flap in Phase 2 shall be provided to the Department within 15 days of the date of this approval. The report shall describe how the edge of the area to be filled in will be marked for operator use until the rain flap is removed. The diagram or attached letter shall describe the alignment of the rain flap, any special instructions necessary to fill the trench in the drain layer after the rain flap is removed, pipe connections to be made, and location of the pumping point to remove water.	Submittal	Complete
3	The Department shall be notified by a letter report within 30 days after the rain flap in the south half of Phase 2 is removed and the continuity of the leachate collection pipe and sand drainage blanket have been reestablished. The letter report shall describe the construction procedures used, any problems encountered, the condition of the exposed geomembrane surface of the composite liner, and any repairs needed for the liner.	Submittal	Complete
4	The plan modification shall be implemented with the following changes:	Design	Complete
4a	The changes proposed in the plan modification to the thickness of the clay component of the liner shall not be implemented. Liner thickness shall on form to the approved design in the plan of operation.	Design	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
4b	The condensate sump proposed in the southwest corner of the final cover shall be replaced with a drip leg and condensate drain line. The drain line may discharge to one of the west leachate cleanout provided to the Department no later that the submittal of the preconstruction report for closure phase 2.	Design	Complete
4c	c. The preconstruction report for Phase 3 liner installation shall include details of the leachate sideslope riser which assure that a pump will not be caught on the transition between the 18 inch and 12 inch diameter sections.	Submittal	Complete
5	EPI shall demonstrate financial responsibility for the closure and long term care costs in the summary attached to this approval. The costs summarized in this approval shall supersede the costs summarized in the plan of operation approval dated June 3, 1994.	Submittal	Complete
6	Placement of fill above the grades shown in the approved plan of operation shall not proceed until:	Operations	Complete
6a	EPI has obtained the local agreement referenced in the plan modification and a copy of the local agreement has been provided to the Department's Southeast Region and Central Office.	Submittal	Complete
6b	EPI has obtained feasibility determination for the lateral/vertical expansion.	Approval	Complete

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
Oct. 31, 1995 – Approval of Plan Modification to the Plan of Operation to Change Gradient Control Layer from 12-inches thick Layer to 6-inch Thick			
1	The thickness of the sand drain layer of the gradient control system shall be a minimum of 6 inches. A geotextile shall be used to line the gradient control collection trenches. A geotextile panel of minimum width of 15 feet shall be placed on top of the sand drain layer along the centerline of the gradient control collection trenches.	Design	Superseded
2	The subgrade on the base and sidewalls for each phase shall be inspected for. the presence of granular soils and seams prior to construction of· the gradient control system. The base and sidewalls shall be inspected daily until completion of the construction of the gradient control system for the presence.. of seepage zones and softened soils.	Construction	Complete
3	Condition 5d. of the Department's plan of operation approval dated June 3, 1994, shall be modified such that the preconstruction report identify the construction quality assurance consultant or qualified staff of Superior Services, Inc. Qualifications, responsibilities, and training of the selected construction quality assurance persons shall be included in the preconstruction report.	Submittal	Superseded
4	Cleaning and documentation of the gradient control system shall comply with the following:	Operations	
	Condition 23c. of the Department's plan of operation approval dated June 3, 1994, shall be modified to substitute televised inspection of the gradient control system for the cleaning by use, of pressurized hoses and nozzles. Inspections shall be conducted no less often then every two years and shall continue until the Department grants approval to discontinue groundwater pumping operations, as required. by condition 20a. of the plan of operation approval dated June 3, 1994.	Operations	Superseded
	Documentation of the inspection of the gradient control system shall be submitted to the Department with the pipe cleaning report for the leachate collection system required by condition 23a. of the plan of operation approval dated June 3, 1994.	Submittal	Superseded
5	The continuous stage water level recorders proposed in the plan of operation for surface water facilities shall be replaced with staff gauges. Staff gauges shall be monitored in accordance with the environmental and performance monitoring summary attached to the plan of operation approval dated June 3, 1994.	Monitoring	Complete
6	The annual report required by condition 4 of the plan of operation approval dated June 3, 1994, shall be submitted no later than April 1 of each year. The annual report may be combined with the reports required for the approved special waste acceptance program required by condition 8 of the approval dated November 17, 1994, and the random inspection results required by condition 34.b. of the plan operation approval dated June 3, 1994, and this approval.	Submittal	Superseded
7	Random inspections of incoming waste loads shall be conducted as follows:	Operations	Superseded
7a	An inspection of incoming waste loads shall be conducted on every 5,000 tons of solid waste accepted, with a minimum inspection frequency of one per month. The first truckload of solid waste which exceeds the accumulated total of 5,000 tons of waste since the previous inspection shall be selected for inspection.	Operations	Superseded
7b	The inspection shall be conducted by discharging the contents of the selected vehicle in an area segregated from the active filling area and other solid wastes. The area shall be equipped to control any hazardous, toxic, statutorily banned, or other undesirable wastes that might be in the incoming waste load.	Operations	Superseded
7c	The discharged contents shall be viewed by and inspected by landfill staff trained to recognize the characteristics of hazardous, toxic, statutorily banned, or other undesirable wastes.	Operations	Superseded
7d	The conduct and findings of the inspection shall be documented by recording the following:	Operations	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
7di	The date and time solid wastes were received.	Operations	Superseded
7dii	The names of the firm transporting the solid waste and the driver of the vehicle.	Operations	Superseded
7diii	The license plate of the vehicle and the solid waste license number of the transporter.	Operations	Superseded
7div	The community or communities where the solid waste was generated	Operations	Superseded
7dv	The type or types of wastes such as commercial, industrial, residential, or any combination.	Operations	Superseded
7dvi	The name of the certified facility manager or certified site operator inspecting the load.	Operations	Superseded
7dvii	All of the observations of the inspector, including any actions taken to manage or return nonapproved waste or actions taken if hazardous, toxic, statutorily banned, or other undesirable wastes are discovered.	Operations	Superseded
7e	Wastes which are not approved for acceptance shall be rejected and properly disposed of The Department's Southeast District office shall be notified in writing within 15 days of discovery of non- hazardous waste that is not approved for disposal and within 2 days of discovery of hazardous or toxic wastes. The notification shall identify the unacceptable waste, their source, and their disposition.	Submittal	Superseded
8	Written operating records of the landfill shall be maintained by the landfill operator during the operational 1ife of the landfill and during the long-term care period following final closure. The operating record shall be made available to Department staff upon request. The operating record shall contain, at a minimum, the following:	Operations	Superseded
8a	Compliance with landfill locational restrictions.	Operations	Superseded
8b	Records of random inspections on incoming waste loads	Operations	Superseded
8c	Training procedures for landfill staff for operator certification, waste inspections, and landfill operations.	Operations	Superseded
8d	Notification procedures.	Operations	Superseded
8e	Closure and post-closure plans and financial responsibility documents.	Operations	Superseded
8f	All monitoring data required by approvals or solid waste regulatory codes.	Operations	Superseded
9	Emerald Park, Inc., shall provide a plan modification review fee of $1,500 to the Department within 30 days of the date of this approval.	Submittal	Complete
Oct. 31, 1995 – Design, construction and operation items Plan Modification			
1	The thickness of the sand drain layer of the gradient control system shall be a minimum of 6 inches. A geotextile shall be used to line the gradient control collection trenches. A geotextile panel of minimum width of 15 feet shall be placed on top of the sand drain layer along the centerline of the gradient control collection trenches.	Construction	Superseded
2	The subgrade on the base and sidewalls for each phase shall be inspected for the presence of granular soils and seams prior to construction of the gradient control system. The base and sidewalls shall be inspected daily until completion of the construction of the gradient control system for the presence of seepage zones and softened soils.	Construction	Complete
3	Condition Sd. of the Department's plan of operation approval dated June 3, 1994, shall be modified such that the preconstruction report identify the construction quality assurance consultant or qualified staff of Superior Services, Inc. Qualifications, responsibilities, and training of the selected construction quality assurance persons shall be included in the preconstruction report.	Submittal	Superseded
4	Cleaning and documentation of the gradient control system shall comply with the following:	Operations	
4a	Condition 23.c. of the Department's plan of operation approval dated June 3, 1994, shall be modified to substitute televised inspection of the gradient control system for the cleaning by use of pressurized hoses and nozzles.	Operations	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
4b	Documentation of the inspection of the gradient control system shall be submitted to the Department with the pipe cleaning report for the leachate collection system required by condition 23.a. of the plan of operation approval dated June 3, 1994.	Submittal	Superseded
5	The continuous stage water level recorders proposed in the plan of operation for surface water facilities shall be replaced with staff gauges. Staff gauges shall be monitored in accordance with the environmental and performance monitoring summary attached to the plan of operation approval dated June 3, 1994.	Monitoring	Complete
6	The annual report required by condition 34 of the plan of operation approval dated June 3, 1994, shall be submitted no later than April 1 of each year. The annual report may be combined with the reports required for the approved special waste acceptance program required by condition 8 of the approval dated November 17, 1994, and the random inspection results required by condition 34.b. of the plan operation approval dated June 3, 1994, and this approval.	Submittal	Superseded
7	Random inspections of incoming waste loads shall be conducted as follows:	Operation	Superseded
7a	An inspection of incoming waste loads shall be conducted on every 5,000 tons of solid waste accepted, with a minimum inspection frequency of one per month. The first truckload of solid waste which exceeds the accumulated total of 5,000 tons of waste since the previous inspection shall be selected for inspection.	Operation	Superseded
7b	The inspection shall be conducted by discharging the contents of the selected vehicle in an area segregated from the active filling area and other solid wastes. The area shall be equipped to control any hazardous, toxic, statutorily banned, or other undesirable wastes that might be in the incoming waste load.	Operation	Superseded
7c	The discharged contents shall be viewed by and inspected by landfill staff trained to recognize the characteristics of hazardous, toxic, statutorily banned, or other undesirable wastes.	Operation	Superseded
7d	The conduct and findings of the inspection shall be documented by recording the following:	Operation	Superseded
7di	The date and time solid wastes were received.	Operation	Superseded
7dii	The names of the firm transporting the solid waste and the driver of the vehicle.	Operation	Superseded
7diii	The license plate of the vehicle and the solid waste license number of the transporter.	Operation	Superseded
7div	The community or communities where the solid waste was generated.	Operation	Superseded
7dv	The type or types of wastes such as commercial, industrial, residential, or any combination.	Operation	Superseded
7dvi	The name of the certified facility manager or certified site operator inspecting the load.	Operation	Superseded
7dvii	All of the observations of the inspector, including any actions taken to manage or return nonapproved waste or actions taken if hazardous, toxic, statutorily banned, or other undesirable wastes are discovered.	Operation	Superseded
7e	Wastes which are not approved for acceptance shall be rejected and properly disposed of.	Operation	Superseded
8	Written operating records of the landfill shall be maintained by the landfill operator during the operational 1ife of the landfill and during the long-term care period following fina1 closure. The operating record shall be made available to Department staff upon request. The operating record shall contain, at a minimum, the following:	Operation	Superseded
8a	Compliance with landfill locational restrictions.	Operations	Superseded
8b	Records of random inspections on incoming waste loads.	Operations	Superseded
8c	Training procedures for landfill staff for operator certification, waste inspections, and landfill operations.	Operations	Superseded
8d	Notification procedures.	Operations	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
8e	Closure and post-closure plans and financial responsibility documents.	Operations	Superseded
8f	All monitoring data required by approvals or solid waste regulatory codes.	Operations	Superseded
9	Emerald Park, Inc., shall provide a plan modification review fee of $1,500 to the Department within 30 days of the date of this approval.	Submittal	Complete
June 23, 1995 – NR 140 Grant of Exemption and Subtitle D monitoring Plan Modification			
1	PALs and enforcement standards for all other substances shall be as specified in Tables 1 and 2 of ch. NR 140, Wis. Adm. Code.	Monitoring	Superseded
2	EPI shall submit to the department calculated PALs for indicator parameters at wells MW-4C and MW-18B after a total of 8 rounds of sampling results are available.	Monitoring	Superseded
3	Facility ACL's	Monitoring	Superseded
4	Environmental and performance monitoring shall be conducted in accordance with the revised Environmental and Performance Monitoring Summary, attached, which is part of this approval.	Monitoring	Superseded
5	In addition to the reporting requirements specified in the attached Environmental and Performance Monitoring Summary, EPI shall provide the results of any private water supply well sampling to the owners of the wells and to the occupants of any residences served by the sampled wells within 10 working days of receiving the results.	Monitoring	Superseded
6	Within 120 days of this approval, EPI shall abandon monitoring wells MW10A, MW-10B, MW-10C, MW-10D, MW-10E, MW-10F, MW-IA, MW-1C, MW-7A, MW-7B, and MW-7C, and properly document their abandonment, in accordance with the provisions of chs. NR 141 and NR 508, Wis. Adm. Code.	Monitoring	Superseded
November 17, 1994 – Approval of Construction Documentation, Plan Modifications, and Grant of Exemption			
1	The following details and narrative descriptions shall be drafted and submitted to the Department within 30 days of the date of this approval:	Submittal	Complete
1a	A revised geomembrane layout sheet to replace sheet 9 with corrected panel orientations, etc.	Submittal	Complete
1b	A revision to detail 1/11 showing the intersection of the leachate sump and sideslope riser and the proximity of the sideslope riser and adjacent leachate collection pipes.	Submittal	Complete
1c	A revision to the orientation of the pipes connected to the lift station, as depicted in the plan views of details 1/13 and 2/13.	Submittal	Complete
1d	A description of the actual thickness of the filter pea gravel placed over the leachate collection trenches and sideslope riser as shown in details 1/9, 3/11, and 5/11. The description should be accompanied by a grain size analysis of the filter pea gravel and filter calculations for the sand drain material and gravel bedding stone.	Submittal	Complete
1e	Any records of nondestructive seam testing of seams 129 through 140.	Submittal	Complete
1f	A description of how the temporary phase delineation berm will be modified during construction of Phase 2.	Submittal	Complete
2	Documentation shall submitted to the Department within 30 days of the date of this approval for the rolls of black, textured 60 mil HOPE geomembrane used for the 5 southern panels on the east sideslope.	Submittal	Complete
3	Condition 16f. of the plan of operation approval shall be modified to allow the use of nonwoven needle punched geotextile of minimum weight per unit area of 12 ounces per square yard as a scuff pad below the leachate sideslope riser and adjacent traffic areas for construction equipment used to place the sideslope riser and gravel cover.	Design	Complete
4	The Department shall be notified by a letter report within 30 days after each of the rain flaps is removed and the continuity of the leachate collection pipe and sand drainage blanket have been reestablished.	Submittal	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
5	Documentation shall submitted to the Department within 60 days of the date of this approval which verifies the labeling required by condition 39 of the plan of operation approval dated June 3, 1994, for groundwater monitoring wells, leachate headwalls, cleanout risers, gas probes, manholes, and other appetencies.	Submittal	Complete
6	The disposal of special wastes at this facility shall comply with the analytical protocols, concentration limits, and disposal operations described in appendix 26 of the Phase 1 construction documentation.	Submittal	Superseded
6a	A recertification requirement for waste generators to routinely reevaluate the quality and applicability of waste profiles.	Submittal	Superseded
6b	A modification of the waste profile sheet used by EPI to include the determination made by EPI for waste category, analytical profile, and waste handling.	Submittal	Superseded
7	The following items shall be reported to the Department's Southeast District office for review and approval for the waste types included in Category III of the attached Special Waste Review and Acceptance Procedures:	Submittal	Superseded
7a	Source of waste, geographic location, process or activity generating the waste, and name of generator.	Submittal	Superseded
7b	Waste type and anticipated volume generated at the source and profile identification.	Submittal	Superseded
7c	Discussion of any special waste handling required at the landfill for disposal.	Submittal	Superseded
7d	All analytical testing information developed for the waste proposed for disposal at this facility.	Submittal	Superseded
8	An annual report sha11 be submitted to the Department by Apri1 1 of each year which contains the following:	submittal	Superseded
8a	Total volume and tonnage of special wastes and tabulation by waste category for each of the waste types in the Special Waste Review and Acceptance Procedures which were accepted for disposal the previous calendar year.	Submittal	Superseded
8b	Computation of the total volume of all wastes disposed at this facility and the proportions of special wastes compared to the total volume of landfill filled.	Submittal	Superseded
8c	Any problems encountered and their resolution.	Submittal	Superseded
8d	Any modifications incorporated into site operations to contain, move, or cover special wastes accepted for disposal at this facility.	Submittal	Superseded
9	Use of shredder fluff as a substitute for soil as daily cover shall comply with the following:	Operations	Superseded
9a	Shredder fluff shall not be used as daily cover or interim cover on the waste final grades and exterior slopes.	Operations	Superseded
9b	Shredder fluff shall be sampled quarterly. Samples shall be stored in sealed containers made of inert material until subjected to analyses.	Operations	Superseded
9c	Quarterly samples of shredder fluff shall be composite and analyzed as follows: Pb TCLP procedure PCB's totals.	Operations	Superseded
9d	Annually, samples of shredder fluff shall be composited and subjected to the UW method R leaching procedure. Each evaluation shall be analyzed for the following: pH Al Conductance, Ba, Hardness, Cd, Alkalinity, Cr, COD, Cu, BOD, Fe, Cl, Mn, $S0_4$, Ni, Na, Zn	Operations	Superseded
10	A summary of the performance of the shredder fluff alternative daily cover shall be included with the annual report required in this approval for special waste acceptance. The summary shall include the following:	Submittal	Superseded
10a	Volume and tonnage of shredder fluff delivered to the landfill and tonnage utilized for alternative daily cover.	Submittal	Superseded
10b	Performance and usage of shredder fluff daily cover in differing weather conditions and seasons.	Submittal	Superseded
10c	Physical properties and handling characteristics of shredder fluff used as daily cover.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
10d	Problems encountered or adaptations incorporated into procedures used with shredder fluff daily cover.	Submittal	Superseded
10e	Problems encountered or adaptations required with use of shredder fluff daily cover due to special wastes disposal.	Submittal	Superseded
10f	Analytical data generated by quarterly and annual testing of samples of shredder fluff.	Submittal	Superseded
11	A letter report shall be submitted to the Department with a description of the procedure for monitoring the leachate headwells.	Submittal	Superseded
12	The continuous stage recorder and staff gauges proposed to be placed in the detention basin and biofilter in appendix T of the plan of operation shall be installed no later than March 31, 1995.	Operations	Superseded
13	EPI shall perform the following in response to the NR 140 groundwater standard exceedances detected in the EPI-Johnson and EPI-Weseljack wells (copies of reports and submittals shall be sent to both the Department's Southeast District water supply and solid waste management specialists):	Submittal	Complete
13a	By December 15, 1994, provide the occupants of any residences served by the wells with the results of previous sampling.	Submittal	Complete
13b	By December 31, 1994, provide the Department with the following information:	Submittal	Complete
13bi	The condition of the well pumps, production lines and sampling fittings, and the location of the fittings.	Submittal	Complete
13bii	The sample collection procedures used, including any alternate procedures used to determine the source of contamination (e.g., temporary portable sampling pumps).	Submittal	Complete
13biii	An evaluation of the compliance of the wells with applicable well construction and pump installation standards in ch. NR 812, Wis. Adm. Code, and the applicability of the safe drinking water standards in ch. NR 809, Wis. Adm. Code.	Submittal	Complete
13biv	An assessment of the cause and significance of the exceedances, and a description of actions taken to correct the problem.	Submittal	Complete
13c	By December 31, 1994, ensure that sampling fittings on the wells are constructed and installed in a manner that will not interfere with the collection of representative water samples. This may require multiple sampling fittings.	Construction	Complete
13d	In conjunction with the next 4 quarters of routine detection sampling, obtain a sample for total lead in addition to the previously required testing parameters.	Submittal	Complete
13e	Beginning with the next sampling round, provide a copy of the lab results to the Department's Southeast District solid waste management specialist within 10 working days of receiving the results, and attach a cover letter identifying all attainments and exceedances of PALs, enforcement standards, and any detections of other substances of concern.	Submittal	Complete
13f	By December 31, 1995, submit a report to the Department evaluating the results of the sampling program for the two potable wells and recommending follow-up actions necessary to abate any impacts to human health and welfare. Follow-up actions may include, but are not limited to, replacement of the pumps and production lines, redevelopment of the wells, or abandonment of the wells.	Submittal	Complete
14	A corrected plan sheet and Well Information Form shall submitted to the Department within 30 days of the date of this approval showing the correct actual location of MW-19A.	Submittal	Complete
15	EPI shall carry out the following actions to complete the background groundwater quality monitoring at this site:	Monitoring	Complete
15a	Prior to acceptance of waste at the facility, obtain one additional round of antimony data from wells MW-8AR, MW-13B, MW-19A and MW-20A, to confirm that previous detections of antimony reflected the use of contaminated sampling filters and were not characteristic of actual groundwater quality.	Monitoring	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
15b	By July 31, 1995, obtain four rounds of data for antimony, beryllium, cobalt, nickel, thallium and vanadium from well MW-13A. Round 1 shall be obtained prior to acceptance of waste at the (facility. Rounds 2, 3 and 4 may be obtained concurrent with the routine quarterly monitoring program for the facility. Four additional quarterly rounds must be submitted for any parameter for which:	Monitoring	Complete
15bi	One or more of the first 4 values exceeds the enforcement standard, or	Monitoring	Complete
15bii	Two or more of the first 4 values exceeds the preventive action limit {PAL), or	Monitoring	Complete
15biii	The average of the first 4 values is greater than the PAL.	Monitoring	Complete
15c	Collect 4 additional rounds of background data for the following substances during the next four quarterly sampling rounds to allow for calculation of alternative concentration limits for these substances and wells: MW-4C: MW-186: arsenic, cadmium, manganese, sulfate arsenic, cadmium, manganese, mercury, sulfate	Monitoring	Complete
16	By December 31, 1994, EPI shall submit to the Department a proposed plan modification which includes a summary of all background data, completed calculations for indicator preventive action limits and any alternative concentrations limits EPI wishes to request, and a revised groundwater monitoring plan.	Submittal	Complete
17	The Department hereby modifies Condition 38 and the Environmental and Performance Monitoring Summary of the June 3, 1994 Plan of Operation approval as follows:	Condition	Complete
17a	Boron {#01020) and sodium {#00930)are deleted from the list of groundwater monitoring indicator parameters, and sodium and potassium {#00935) are deleted from the list of routine detection parameters, because EPI does not currently plan to accept incinerator ash.	Monitoring	Complete
17b	Groundwater background sampling for the Subtitled parameters {antimony, beryllium, cobalt, nickel, thallium and vanadium shall follow the requirements for public health and public welfare parameters, i.e., 4 rounds with 4 additional rounds needed if the first 4 values include one or more ES exceedance, 2 or more PAL exceedances, or if the average of the first 4 values exceeds the PAL.	Monitoring	Complete
June 3, 1994 – Approval of Plan of Operation for the Proposed Emerald Park Landfill (Phases 1, 2 and 3)			
1	All aspects of the construction, operation monitoring, and closure of this facility shall be performed in accordance with the plan of operation, the requirements of NR 500 to 520, Wis. Adm. Code, and the conditions of this approval. In the case of any discrepancies between the conditions of this or previous approvals and the approved plans, the conditions of this and previous approvals shall take precedence.	General	Superseded
2	A copy of the plan of operation, accompanying plan sheets, plan modifications, and this approval and any addenda shall be retained at the landfill office at all times and shall be available for reference by the personnel responsible for proper operation of this facility. Persons responsible for facility construction, operation, and closure shall be informed of the conditions required in this approval.	Operations	Superseded
3	Any proposed modifications to the plan of operation or this approval shall be proposed to the Department for review and approval.	Submittal	Superseded
4	The Department approvals for initial construction dated July 20, 1993 and for limited clay excavation dated September 28, 1993, shall be made a part of this approval. The conditions in those approvals shall continue to be applicable to construction of this facility.	General	Inactive
5	A preconstruction report shall be submitted to the Department no later than seven days prior to the preconstruction meetings for the construction of the geomembrane component of the composite liner, the composite capping layer, and the ash monofill separation layer.	Submittal	Code

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
5a	Any revisions and detail diagrams incorporating all changes, agreements, and instructions between the owner, the installer, and the quality assurance contractor.	Submittal	Complete
5b	Identification of the manufacturer of the geomembrane and other geosynthetics used in construction, manufacturer qualifications technical specifications of the resin and polymer selected and results of the manufacturer's quality control tests on the geomembranes supplied to the project.	Submittal	Complete
5c	Identification of the installation contractor, contractor qualifications and onsite supervisory staff, and proposed seaming methods and equipment.	submittal	Complete
5d	Identification of the quality assurance consultant indicating on- site staff and a summary of their qualifications and experience.	Submittal	Complete
5e	Frequency of testing geomembrane materials and the proposed test methods to be used, including the identification of destructive and nondestructive testing methods.	Submittal	Complete
5f	A proposed method of removing coarse gravel and cobbles on the surface of the compacted clay component, a construction method to assure a smooth surface prior to geomembrane placement, and a documentation method to record the elimination of unacceptable materia1 on the surface of the compacted clay.	Submittal	Complete
5g	Panel layout pattern for geomembrane placement.	Submittal	Complete
5h	Source and construction of specialty connections between the geomembrane component and any-penetrations, and any-proposed revisions to details of connecting pipe penetrations to the geomembrane. The report shall identify methods to test the integrity of seams and connections to penetrations of the geomembrane.	Submittal	Complete
5i	Description of any revised or additional controls and guidance to be exercised during the placement of the leachate collection system or the drain and rooting zone soils in the final cover system.	Submittal	Complete
5j	Description of the selected materials and source of the sideslope riser pipe, methods proposed to assemble and place the sideslope riser pipe, and measures to be taken to prevent puncture of the geomembrane below the sideslope riser pipe and protective gravel.	Submittal	Complete
5k	Description of the installation of the drainage pipe for the gas extraction system below the composite capping layer. The report shall include any revisions to details of gas extraction wells and lateral pipes, repair of trenches or excavations in the compacted clay component, and placement of collars on penetrations of the final cover.	Submittal	Complete
5l	Description and detail drawing of the junction between separate phases of liner or final cover construction, with proposed protective measures.	Submittal	Complete
5m	Identification of the fabricator of geotextiles and other geosynthetics used in site construction, technical specifications of the products and materials to be used, methods used to bond the materials together and to connect panels together, installation contractor, contractor qualifications, and onsite supervisory staff.	Submittal	Complete
5n	Results of direct shear tests conducted on the soils and geosynthetic materials selected for use in construction of the liner system and the final cover system. The shear test results shall be used to evaluate the stability geomembrane component over the clay component and the sand layers placed on the geomembrane component.	Submittal	Complete
5o	For the first phase of final cover installation, identification of the blower, flare, valves, controls, and any revisions to the approved plans for the gas extraction system.	Submittal	Complete
6	A preconstruction meeting shall be held prior to the initiation of construction of each segment of the composite liner and the composite capping layer.	Submittal	Complete
7	The design and construction of the leachate collection and extraction system shall comply with the following:	Construction	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
7a	A protective layer shall be placed to cover the base of the leachate collection sumps prior to placement of the sideslope risers. The protective layer shall consist of a steel or HDPE plate a minimum of 0.5 inch think or an equivalent thickness of multiple layers of HDPE geomembrane welded together.	Construction	Complete
7b	The leachate discharge pipes between the sideslope risers and collection tank shall be equipped with valves to prevent backflow into the waste disposal area.	Construction	Complete
7c	The pipe connections between the leachate collection tanks shown in detail 1/19 shall be modified to eliminate connections through the sides of the tanks. All connections to the collection tanks shall be made by flanged connections to the access riser.	Construction	Complete
7d	EPI shall maintain access in all seasons to the manholes for the leachate discharge lines between the sideslope risers and the lift station.	Operations	Active
8	The phase junction detail show in detail 2/15 shall be revised to terminate the geomembrane on the crest or sideslopes of the phase delineation berm. The liner extending beyond the proposed edge of waste material over the geomembrane component of the composite liner. The detail shall be submitted with the preconstruction reports for liner construction.	Design	Complete
9	The drain layer in the final cover shall be terminated for a 10 foot radius around penetrations of the final cover structure, including gas extraction well risers, gas probes within the waste, leachate headwell risers, and cleanout pipe risers for the leachate and groundwater extraction systems. The soil placed over the geomembrane around the penetrations shall be rooting zone soil.	Design	Superseded
10	Penetrations of the geomembrane component of the composite capping layer shall be constructed of prefabricated collars of polyethylene pipe and membrane or plate, welded at the same angles which the penetrations make with the final cover slope. The geomembrane shall be welded to the plate section of the collars such that the geomembrane and plate are in the same plane.	Construction	Complete
11	the design and construction of the final cover system shall comply with the following:	Design	Superseded
11a	A minimum thickness of 30 inches of drain layer sand, rooting zone soil, and topsoil shall be maintained over the geomembrane component of the final cover at all locations on the final cover, except in the vicinity of the inverts of the channels of the diversion berms and final cover spillways.	Design	Superseded
11b	A minimum of 30 inches of soil, topsoil, or erosion control materials shall be maintained over the final cover in the vicinity of the diversion berms, and final cover spillways.	Design	Superseded
11c	The inverts of the channels of the diversion berms shall be lined with erosion control mat. The channels of the diversion berms and final cover spillways shall be planted with vegetation which is resistant to erosion, abrasion, and temporary submergence cause by flowing surface water.	Design	Superseded
11d	The topsoil on the final cover system shall be seeded with a cover crop within 30 days of placemat of the topsoil.	Construction	Superseded
11e	The selected seed mix shall be amended with seed mixes 20 or 70, using seed rates in the Wis. DOT 1989 Standard Specifications for Road and Bridge Construction, if use of native seed mixes does not result in an erosion-resistant vegetative cover by June of the year following topsoil placement on the final cover.	Construction	Superseded
12	Earthwork construction below and over the geomembrane component of the liter and final cover shall comply with the following, unless other methods are approved by the Department:	Construction	Superseded
12a	Clay extraction from the borrow source shall be conducted under the supervision of a registered professional engineer or qualified soils technician. The engineer or technician shall be present at the clay borrow source at all times during which clay is being excavated.	Construction	Superseded

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
12b	All clay layers in the liner and capping layer shall be constructed using sheepfoot-type compaction equipment having feet at least six inches long. Clay shall be disked prior to compaction to break up clods and allow for moisture content adjustment as needed.	Construction	Superseded
12c	Any grade stakes or other construction or surveying appetencies shall be removed from the clay component of the 1iner and capping layer., and the holes shall be backfilled with compacted clay soil or bentonite-amended soil.	Construction	Superseded
12d	Grade stakes or other construction or surveying appetencies placed in soil above geomembrane surfaces shall be tipped with a flat plate or otherwise prevented from puncturing the geomembrane.	Construction	Superseded
13	Construction and traffic on the geomembrane shall comply with the following:	Construction	Superseded
13a	The minimum thickness of soil which must be present over the geomembrane component before vehicular travel may occur shall be 1 foot for low-pressure tracked dozers and 2 feet for all other tracked vehicles.	Construction	Superseded
13b	Trucks and other wheeled hauling equipment shall be confined to corridors or locations with a soil thickness of 3 or more feet over the geomembrane component.	Construction	Superseded
13c	Guidance to machine operators placing soil on the geomembrane component shall be provided by the use of an observer with unobstructed view of the advancing lift of soil.	Construction	Superseded
14	Final cover placement may be delayed up to two years after attaining final waste grades in each phase of closure provided the requirements listed below are followed:	Construction	Superseded
14a	Intermediate cover consisting of a minimum of one foot of soil shall be placed and the area shall be seeded as portions of a phase reach waste final grades.	Operations	Superseded
14b	The gas extraction system components shall be installed and made operational immediately following attainment of waste final grades within each phase.	Operations	Superseded
14c	No additional waste placement shall occur in areas which have reached waste final grades and received intermediate cover.	Operations	Superseded
14d	The blower, flare, driplegs, controls, condensate handling, and appurtenances of the gas extraction system shall be installed prior to or as part of the construction of the initial phase of the final cover construction.	Construction	Superseded
15	A plan modification shall be submitted to the Department for review and approval if the ash monofill cell will not be used for the disposal of municipal incinerator residue.	Submittal	Superseded
16	Construction of the geomembrane component of the liner and final cover shall comply with the following:	Construction	Superseded
16a	Polyethylene geomembranes composed of resins specifically formulated for waste containment purposes shall be utilized in the construction of the geomembrane components of the composite liner and the composite capping layer. Use of alternative geomembrane materials shall be proposed to the Department for review and approval prior to utilization.	Construction	Superseded
16b	The geomembrane installation quality assurance consultant shall be an independent party not affiliated with the owner, manufacturer, or installer.	Construction	Superseded
16c	Quality assurance personnel shall be on site at all times that the geomembrane is being deployed, seamed, or tested.	Construction	Superseded
16d	The geomembrane panels shall be installed parallel to all slopes in excess of 10%, providing alignment of the seams is in a direction along and not across the slope.	Construction	Superseded
16e	Department approval shall be obtained prior to geomembrane installation for ambient temperatures below 32 degrees F.	Construction	Superseded
16f	Geomembrane panels under the alignment of the sideslope riser pipe and gravel cover shall be covered with a geomembrane scuff layer prior to placement of the sideslope riser.	Construction	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
16g	Installed geomembrane shall be covered with earthen material within 30 days of completing quality control and quality assurance testing of the installation.	Construction	Superseded
16h	All areas of composite liner and leachate collection blanket shall be covered by an initial lift of solid waste or other acceptable material as soon as possible following Department approval to begin waste placement.	Construction	Superseded
17	Daily quality assurance inspector's records shall be prepared for each day that significant geomembrane installation is either attempted or accomplished.	Construction	Superseded
17a	Identification and location of geomembrane panels placed, with modifications of the fabrication plan noted.	Construction	Superseded
17b	Location of field seams and ends of panels, and results of all destructive and nondestructive field tests of test seams and installed seams.	Construction	Superseded
17c	Methods and procedural steps taken prior to field seaming of geomembrane panels.	Construction	Superseded
17d	Location of wrinkles that were large enough to double over and were cut out and repaired.	Construction	Superseded
17e	Location of repairs and destructive samples and the results of the nondestructive testing of those repairs.	Construction	Superseded
17f	Amount and location of geotextile and other geosynthetics used in construction of the composite liner, leachate collection system, and final cover system.	Construction	Superseded
17g	Weather conditions and constraints.	Construction	Superseded
18	Construction inspections shall be performed at this facility as indicated below.	Construction	Superseded
18a	Inspections for liner construction shall include:	Construction	Superseded
18ai	Subbase excavation and installation of the gradient control layer.	Construction	Superseded
18aii	Construction of the clay component of the liner.	Construction	Superseded
18aiii	Construction of the geomembrane component of the liner.	Construction	Superseded
18aiv	Placement of the leachate collection system over the liner.	Construction	Superseded
18av	Construction of the sideslope riser.	Construction	Superseded
18b	Inspections for final cove construction shall include:	Construction	Superseded
18bi	Construction of the clay component of the capping layer.	Construction	Superseded
18bii	Construction of the geomembrane component of the capping layer.	Construction	Superseded
18biii	Construction of the gas extraction wells.	Construction	Superseded
18biv	Construction of the gas extraction header pipes, sumps, driplegs, blower, and flare.	Construction	Superseded
18bv	Placement of the drain layer and rooting zone soils.	Construction	Superseded
18c	Inspections for the ash monofill separation layer shall include:	Construction	Superseded
18ci	Construction of the geomembrane component of the separation layer.	Construction	Superseded
19	The design of the sediment trap shall be altered to delete the pipes which drain runoff water directly to wetlands to the north and south of the biofilter area. All runoff water entering the sediments trap shall be directed to the detention basin and biofilter.	Design	Superseded
20	The operation of the gradient control system shall comply with the following:	Operations	Superseded
20a	The gradient control system for each phase shall be operated to maintain unsaturated conditions in the groundwater drain layer exterior of the sump. Groundwater shall be removed from the gradient control system in each liner phase until the Department grants approval to reduce groundwater pumping operations.	Operations	Superseded
20b	Incase of malfunction of the groundwater extraction pump, the pump shall be made operational or replaced within 7 days of detecting the malfunction. The Department shall be notified in writing within 7 days of the completion of repairs of the cause of the malfunction and the nature of the corrective actions.	Operations	Superseded
21	The operation of the leachate collection and extraction systems shall comply with the following:	Operations	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
21a	Leachate levels shall be removed from the sumps daily, including weekends and holidays.	Operations	Superseded
21b	Leachate shall not be stored within the leachate collection system. The leachate production to maintain a rolling 15 day average of daily leachate level measurements in the sumps no higher than the invert elevations of the leachate collection pipes intersecting the sumps.	Operations	Superseded
21c	In case of malfunction of the leachate extraction pump, the pump shall be made operational or replaced within 2 days of detecting the malfunction. The Department shall be notified in writing within 7 days of the completion of repairs of the cause of the malfunction and the nature of the corrective actions.	Operations	Superseded
21d	A cover or plug shall be placed at the entry of the sideslope riser to eliminate the loss of landfill gas through the leachate collection system or entry of ambient air into the leachate collection system.	Operations	Superseded
22	The operation of the ash monofill are shall comply with the following:	Operations	Superseded
22a	Ponded water on the as monofill area shall be removed by pumping or drainage to the ash leachate collection system.	Operations	Superseded
22b	All wastes placed in the ash monofill shall be graded, compacted, and covered with daily cover on the same day as the wastes are deposited in the ash monofill.	Operations	Superseded
23	Cleaning of the gradient control system, the leachate collection system, and the leachate extraction system wall be conducted as follows in addition to the requirements of s. NR 506.07 (4)©, Wis. Adm. Code:	Operations	Superseded
23a	Documentation shall be prepared and submitted to the Department which describes the lines that were cleaned, access ports used, lengths to which the cleaning apparatus was inserted, and problems encountered during the cleaning operations, blockages or obstructions in the lines, and repairs performed on the lines.	Submittal	Superseded
23b	Cleaning apparatus shall include a pressurized nozzle with jetting action, unless another method is approved by the Department.	Operations	Superseded
23c	The gradient control system piping shall be cleaned within 6 months of completion of installation of the gradient control pipes and every two years thereafter.	Operations	Superseded
23d	The leachate transfer lines between the leachate sump manholes and the leachate collection tank shall be pressure tested annually.	Operations	Superseded
23e	The secondary containment features of the leachate collection and handling system shall be inspected quarterly for presence of liquids in manholes, the annular space for the leachate collection tank, and lift station.	Operations	Superseded
24	Intermediate cove shall be placed on the exterior slopes of waste placed on the waste final grades within one working day of waste placement operations. Waste placement and covering operations shall be conducted to minimize the volume of runoff over exposed refuse or ash which drains to perimeter drainage ditches.	Operations	Superseded
25	The management and restoration plan for the Emerald Park landfill and adjacent areas shall follow the guidelines in Appendix T of the plan of operation, with the following modifications:	Operations	Superseded
25a	A baseline analysis shall be conducted by a qualified botanist or restoration ecologist on the landfill area, the management areas to the west of the landfill, and the areas adjacent to US 45.	Submittal	Superseded
25b	A revised management schedule shall be developed and submitted with the baseline analysis, with identification of specific tasks proposed for each unit or submit during each quarter of the year.	Submittal	Superseded
25c	The baseline analysis shall whether burning, moving, and other active management methods are limited by local ordinances or approval requirements.	Operations	Superseded
25d	The baseline analysis shall include any proposed changes to the management plan.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
25e	Burning shall not be used as a control measure for vegetation on the landfill or within the perimeter drainage ditches surrounding the landfill.	Operations	Superseded
25f	Mowing shall be conducted no more often than twice a year and shall be restricted to periods when soil conditions are dry and capable of supporting moving equipment without rutting.	Operations	Superseded
26	Field shear and peel tests of geomembrane seams and membranes shall be performed using standardized specimen sizes in tensile testing machines with mechanically or electrically controlled rates of jaw separation, etc.	Construction	Superseded
27	Conformance sampling and testing shall be conducted on geomembrane materials delivered on site and used in construction of the liner, final cover, or ash monofill separation layer.	Construction	Superseded
27a	Geomembrane thickness shall be tested upon receipt at the facility at the rate a minimum of 5 areas measured per roll.	Construction	Superseded
27b	Geomembrane tensile properties (strength and elongation in yield and break) shall be tested at a minimum of one test per 40,000 ft 2 of geomembrane installed and a minimum of one test on rolls from each batch of resin used to manufacture rolls delivered on site.	Construction	Superseded
27c	Geomembrane density and melt index of the polymer shall be tested at a rate of one test per 40,000 ft' of geomembrane installed and a minimum of one test on rolls from each batch of resin used to manufacture rolls delivered on site.	Construction	Superseded
27d	Geomembrane: environmental stress cracking resistance shall be tested at a rate of one test per 200,000 ft2 of geomembrane installed unless documentation is provided that the manufacturer performed a minimum of one test for each batch of resin used to manufacture rolls delivered on site.	Construction	Superseded
28	Prequalification tests for geomembrane welding machines shall be conducted by a minimum of two prequalification seams run per welding machine each day by each seaming technician performing geomembrane welding, with additional test runs following work interruptions or weather changes.	Construction	Superseded
29	Documentation of seams and connections shall be conducted on geomembrane materials and used in construction of the liner, final cover, or ash monofill separation layer.	Construction	Superseded
29a	Nondestructive field seam testing shall be performed on all seams of geomembrane attached by welding or mechanical attachments to other geomembrane sheet, plastic plate, and pipe penetrations.	Construction	Superseded
29b	Destructive field and laboratory seam test samples shall be taken at a rate of one sample per 500 feet of fusion seam accomplished, unless another frequency or spacing is approved by the Department. Destructive seam test samples shall be tested under the same protocol as the welding machine test seams.	Construction	Superseded
29c	A destructive sample shall be taken from at least one end of each fusion weld and tested using a calibrated field tensile testing machine. Sampling may be waived fro butt seams or seams subjected to extrusion welds of tee joints or repairs, where such welds are subjected to integrity tests specific to extrusion welds.	Construction	Superseded
30	Three copies of site construction documentation shall be submitted to the Department for review and approval within 90 days of completion of construction of the liner for each filling sequence, within 90 days of completion of the final cover for each final cover segment, and within 90 days of completion of each segment of the ash monofill separation layer. Two copies shall be submitted to the central office in Madison and one copy shall be submitted to the southeast District office.	Submittal	Superseded
31	Site construction documentation shall include the following additional plan sheets and graphics:	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
31a	Plan sheets shall indicate the location of all soil and geomembrane test locations, geomembrane panel placement, geomembrane patches and seam repairs, geomembrane destructive sample locations, and pipe penetrations. All seams and panels shall be identified on plan sheets with appropriate identification codes and markings indicating sequence of construction.	Submittal	Superseded
31b	Plan sheets for liner construction documentation shall include location of manholes and header lines for the leachate drainage system, groundwater and leachate headwells, alignment of discharge pipelines and manholes, and locations of manholes, lift stations, and collection tanks. Plan sheets for final cover construction shall include the location of gas extraction wells, gas system lateral and header pipes, and the alignment of the final cover drainage systems.	Submittal	Superseded
31c	Plan view drawings shall document the gradient control trench undercuts and invert elevations performed by spot elevation readings at no more than 50 foot intervals unless pipe grades are set using laser survey equipment.	Submittal	Superseded
31d	Detail drawings shall be constructed and photographs shall be taken that record the construction of the following:	Submittal	Superseded
31di	Leachate line penetrations, leachate headwells, groundwater headwells, gas extraction wells and header and lateral pipes in the final cover, sequence of placement of construction materials, bedding and assembly of the lateral and header pipes, pipe joining details, and welded and mechanical attachments to penetrations and geomembrane.	Submittal	Superseded
31dii	Compaction methods used in placement of the soil components of the liner, leachate collection system, and final cover, including equipment specifications and number of passes.	Submittal	Superseded
31diii	Anchorage details for geosynthetics used in construction of the liner, final cover, or ash monofill separation layer, and use and type of protective materials to protect areas that will be spliced to future construction sequences.	Submittal	Superseded
31div	All manufactured components installed as part of construction, including groundwater and leachate collection sumps, sideslope riser, sump manholes, leachate conveyance piping and manholes, collection tank, controls for the leachate and groundwater pumps, gas extraction wells, gas probes, the blower and flare installation, and condensate handling system.	Submittal	Superseded
31dv	Collection and header pipe assembly for the gradient control system, leachate collection system, and gas extraction system, including pipe joining details, welded and mechanical attachments, and pipe stubs and seals for future construction.	Submittal	Superseded
32	Site construction documentation shall include the following in the narrative and appendices of the bound report:	Submittal	Superseded
32a	Written verification by the person listed below that the construction was complete in accordance with approved plans with any deviations noted:	Submittal	Superseded
32ai	Supervisor of earthwork leachate collection and extraction system construction.	Submittal	Superseded
32aii	The geomembrane installer's quality control person including signed acceptance forms for subbase and completion of geomembrane.	Submittal	Superseded
32aii	Quality assurance staff	Submittal	Superseded
32b	Construction in chronological fashion based upon the daily inspector's reports required by this approval and including the following:	Submittal	Superseded
32bi	Any deviations from the approved plans and the rational for such deviations.	Submittal	Superseded
32bii	Description of all actions taken to prepare or condition the compacted clay component and to eliminate coarse material in the surface of the compacted clay.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
32biii	Description of controls and machinery used to place the leachate collection blanket on the composite liner or the drain layer and rooting zone soils on the composite capping layer in terms of machine weights, limits on machine maneuvers, lift thickness, and hallway and dumping controls.	Submittal	Superseded
32biv	A chronological record of the start and completion of placing each component of the liner, final cover, or as monofill separation layer.	Submittal	Superseded
32bv	Identification of contractors and subcontractors involved in the construction of soil layers, geosynthetics, piping systems, and other landfill appetencies.	Submittal	Superseded
32bvi	Identification of the sources and product information for manufactured items used in site construction, including all geosynthetics, pipes, pumps, and collection tanks.	Submittal	Superseded
32c	The report shall include narrative, observations, and tabulated data for all tests conducted on subgrade investigations, compacted clay and other soil materials used in construction of the liner final cover or ash monofill separation layer, the leachate collection system, or the gas extraction system.	Submittal	Superseded
32d	The report shall include narrative and tabulated data for all geomembrane installation and tests, including test performed by the resin, supplier, manufacturer, installer, and quality assurance consultant.	Submittal	Superseded
32e	The report shall include documentation that the sideslope riser pumps and conveyance systems for leachate and groundwater have been tested and are operating as designed. Documentation shall include results of pressure tests of leachate conveyance piping, explanation of failed tests, and repairs and retests.	Submittal	Superseded
32f	The report shall include identification of the sources and models of pumps and pump controls for the leachate and groundwater collection systems, piping used for the sideslope risers and discharge lines, and methods used to connect pipe segments of the sideslope risers and discharge lines for the leachate and groundwater extraction systems.	Submittal	Superseded
32g	The report shall identify seeding mixes and seeding rates used for revegetation of the topsoil, including use of any cover species, mulch, fertilizer, and other soil amendments.	Submittal	Superseded
32h	Well logs depicting as-constructed features for each gas extraction well, in waste gas monitoring probes, and gas probes outside the waste limits, including: surface elevation and depth of borehole, elevation and length of perforated pipe, and elevation of gravel backfill, general soil backfill, and seals.	Submittal	Superseded
32i	The construction documentation for Phase 1 of liner construction shall include the following additional items:	Submittal	Superseded
33	The construction documentation for Phase 1 of liner construction shall include the following additional items:	Submittal	Superseded
33a	Description of the methods and equipment used to measure heads in the leachate and groundwater headwells and cleanout risers.	Submittal	Superseded
33b	Construction documentation for new and replacement groundwater monitoring wells required to be installed as part of Phase 1 of liner construction, abandonment reports for wells abandoned as part of Phase 1, construction of surface water staff gauges, construction of gas monitoring probes installed as part of Phase I, and	Submittal	Superseded
33c	Construction documentation for the perimeter drainage ditches, sediment trap, detention basin, and biofilter, including:	Submittal	Superseded
33ci	All discharge pipes, outfall structures, control valves, and internal dikes.	Submittal	Superseded
33cii	Elevations of the perimeter and internal berms and dikes for the sediment trap, detention basin, and biofilter.	Submittal	Superseded
33ciii	Chronology of the planting of the vegetation in the perimeter drainage ditches, detention basin, and biofilter, sources of soils used as rooting medium, seed mixes used, and species and quantity of plant specimens used.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
33civ	Photographs of the inlet and outlet structures, dikes, berms, overflow locations, outfall structures and vegetation in the sediment trap, detention basin, and biofilter.	Submittal	Superseded
33d	A revised plan sheet and summary of site monitoring, with locations of all existing and new instruments plotted, elimination of duplicative instrument names, and location of all groundwater wells installed on the Future Parklands landfill (license no. 3120) adjacent to the north property line of the Emerald Park Landfill.	Submittal	Superseded
34	An annual report shall be submitted to the Department no later than February 1 of each year and shall assess the performance of the landfill for the previous calendar year. The annual report may be combined with the annual report required after construction of the first phase of the final cover system. The annual report shall include the following:	Submittal	Superseded
34a	A summary of the tonnage of municipal incinerator residue and other wastes disposed of the in the ash monofill by source and waste type, summary of ash testing data required of combustor operators by s. NR 502.14(7) for the ash sources contributing to the ash monofill, a summary of dust control measures implemented, and operational changes form the approved ash management plan in the plan of operation. The report shall include an estimate of the remaining capacity of the as monofill.	Submittal	Superseded
34b	A summary of the tonnage of municipal refuse, utility and boiler ash, sewage treatment plant sludge, other water and wastewater sludges, foundry wastes, demolition wastes, and other miscellaneous wastes disposed of at this facility. The report shall include an estimate of the remaining capacity of the landfill. The report shall include records of random inspections of incoming waste loads to prevent the disposal of hazardous water and PCB containing wastes.	Submittal	Superseded
34c	A summary of the leachate collection records, assessment of leachate heads as shown by pumping records and leachate headwells, and records of downtime and servicemen of leachate pumps.	Submittal	Superseded
34d	A summary of the groundwater collection records, assessment of groundwater heads as shown by groundwater monitoring wells and groundwater headwells, records of downtime and servicing of groundwater pumps, and a summary of the chemical characteristics of groundwater extracted from the gradient control system.	Submittal	Superseded
34e	Tabulation of records of volumes of leachate and gradient control groundwater, tabulation of leachate heads and groundwater heads in the gradient control system, and tabulation of chemical quality data for leachate and gradient control groundwater.	Submittal	Superseded
34f	An evaluation of the effect of site operations on leachate volumes, heads, and quality, including changes in waste acceptance practices, areas and depths of wastes in active areas, and the presence and extent of intermediate and final cover.	Submittal	Superseded
34g	A summary of the testing results from the geomembrane coupon samples extracted from the leachate collection tanks, with identification of the panels from which the coupons were taken, dates of immersion in the tank, and comparison of test results to specifications for the geomembrane panels from which the coupons were taken.	Submittal	Superseded
34h	A summary of the occurrence of liquids in the secondary containment for the leachate discharge lines, manholes, and collection tanks, including records of observation of the presence of liquids, changes in liquid levels, comparison of chemical or other characteristics to those of leachate, and corrective actions taken to reduce or eliminate leaks.	Submittal	Superseded
34i	A summary of the progress of the restoration and management plan, including site monitoring and data evaluation by a qualified restoration ecologist.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
34j	A summary of the vigor and diversity of vegetation in the detention basin and biofilter, an analysis of the water quality for the surface water released by the detention basin and biofilter, a summary of the condition of the vegetation in the areas receiving water from the biofilter, and summary of any evidence of sediment or excessive water discharges from the biofilter.	Submittal	Superseded
34k	Summary of erosion control and surface stabilization efforts and maintenance, including documentation of the removal of sediment from sedimentation ponds and drainage ditches, repairs made to sedimentation ponds, ditches, and other surface water controls, seeding and other stabilization measures used on soil stockpiles and other exposed soil areas, and use of mowing and other vegetation controls.	Submittal	Superseded
34l	Documentation of cleaning efforts and observations for leachate and gradient control collection pipes, pressure testing of leachate conveyance lines, and records of integrity of the secondary containment features of the leachate extraction, conveyance, and storage system.	Submittal	Superseded
34m	A description of the patterns and magnitude of total suspended particulates intercepted by the air quality monitoring system approved by the Air Management program.	Submittal	Superseded
34n	A summary of construction activities over the past year and list of items to be constructed over the next construction season.	Submittal	Superseded
35	An annual report shall be submitted to the Department after construction of the first phase of the final cover system. The annual report shall document the performance of the final cover and gas extraction systems. The annual report shall be submitted no later than February 1 of each year. The report shall include the following:	Submittal	Superseded
35a	Any evidence of differential settlement or impeded drainage, exposed geomembrane or subsurface drain materials, soil slumping or exposure of the capping layer, integrity of surface swales and other drainage features, any evidence of water ponding or formation of depressions, and cover condition in the surface water division berms and final cover spillways.	Submittal	Superseded
35b	An evaluation of the condition of the final cover vegetation, vegetative cover vigor and diversity, and animal intrusion.	Submittal	Superseded
35c	Records of the periods of shutdown of the gas extraction system, length of time of shutdown, summary of the operation of the gas extraction blower and flare, and corrective actions for the system or individual extraction wells.	Submittal	Superseded
35d	Any maintenance, cleaning, repair, or replacement of extraction wells, header or lateral lines, blower or gas combustion equipment components, or valve assemblies.	Submittal	Superseded
35e	Any blockage of header, lines, operation of the buried service valves, clogging or flooding of header lines, or excessive differential settlement of the header line alignment as defined by settlement hub records.	Submittal	Superseded
35f	Any proposed changes to the environmental or performance monitoring due to changes in the gas generation rate, changes in the gas quality, or other facility behavior.	Submittal	Superseded
35g	A description of all reparative actions taken for erosion, vegetative cover, protective structures, monitoring devices, and sedimentation ponds.	Submittal	Superseded
35h	As assessment of the performance of the gas extraction system including the quality and quantity of gas condensate produced from the facility and the removal of volatile organic compounds and other substances in the gas and gas condensate.	Submittal	Superseded
36	The annual report for each fifth year after the completion of the final cover on the first filling sequence shall evaluate the facility for geomorphic ad topographic stability, longevity of the final cover system, and achievement of waste mass equilibrium with the final cover system.	Submittal	Superseded
36a	Summary of site construction and schedule of additional remedial work.	Submittal	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
36b	Updated plan sheets of surface topography and features, including drainage patterns and remedial actions taken to correct settlement effects.	Submittal	Superseded
36c	Photo documentation of overviews as well as construction details, vegetation assemblages, and geomembrane exposures, if any.	Submittal	Superseded
36d	Visual observations and evaluations of geomembrane appearance and stress effects at several points over the final cover and near the edges of each phase. The final cover soils shall be temporarily removed at these selected areas and replaced after observations are completed.	Submittal	Superseded
36e	Evaluation of settlement, ponded water, and drainage patterns, the necessity for drainage modifications, the necessity for modification of berm crest elevations, and construction details of geomembrane or geotextile repairs.	Submittal	Superseded
37	Geomembrane coupon testing as proposed in Appendix Q of the plan of operations shall be modified to include coupon samples immersed in the leachate collection tank for periods up to five years.	General	Superseded
38	Environmental and performance monitoring for this facility shall be conducted in accordance with the schedules of sampling locations, parameters, and frequencies listed in the Monitoring Summary Document attached to this approval.	Monitoring	Superseded
38a	Groundwater monitoring for all existing wells, replacements wells, and wells to be abandoned shall commence with the July 1994 monitoring period with quarterly sampling for groundwater elevation, field pH, and field conductivity and shall continue until the Department issues approval for the construction of Phase 1.	Monitoring	Complete
38b	Replacement groundwater monitoring wells MW-4AR, MW-8AR, and MW-8BR and new groundwater monitoring wells MW-19A and MW-20A shall be installed as part of the construction of the liner of Phase 1. Background groundwater monitoring in compliance with ch. NR 140, Wis. Adm. Code, shall begin no longer than the month after construction of the replacement and new wells.	Monitoring	Complete
38c	Background groundwater monitoring for wells MW-8AR, MW-13, MW19A and MW20A to demonstrate compliance with RCRA Subtitle D groundwater monitoring requirements shall begin no later than the month after construction of the new wells MW-8AR, MW-19A, and MW-20A.	Monitoring	Complete
38d	Existing round water monitoring wells MW-4AR, MW-16A, MW-8A, and MW-8B, MW-14A, and MW-14B shall be abandoned in accordance with ch. NR 141 as part of the construction of the liner of Phase 1.	Monitoring	Complete
38e	A monitoring program for all of the members of well nest MW-10 shall be submitted to the Department for review and approval no later than the date of submittal of the construction documentation of the liner for Phase I.	Monitoring	Complete
38f	The gas monitoring probes adjacent to liner Phases 1 and 2 shall be installed as part of the construction of Phase 1.	Monitoring	Complete
38g	Surface water sampling at the detention basin shall be taken at the outfall location for detention basin when flow is evident during the sampling date and shall be taken from the pool at the inlet of the outfall when flow does not occur during the sampling date.	Monitoring	Complete
38h	The secondary containment features of the leachate and condensate transfer lines and the interstitial space for the collection tanks shall be inspected monthly for the presence of accumulation of liquids.	Monitoring	Complete
38i	The in waste gas monitoring probes shall be constructed with screens set at a minimum of 20 feet below the waste final grades.	Monitoring	Complete
38j	Settlement hub locations shall be established on the landfill final cover on a 200 foot grid, with adjustments to locate hubs adjacent to gas header lines, the access road, and surface water diversion berms.	Monitoring	Complete
39	Distinctive labeling and point identification shall be placed on each monitoring instrument or protective casing, including all groundwater monitoring wells, gas probes, in-waste gas monitoring probes, leachate and groundwater headwells, leachate and groundwater cleanout risers, manholes, and gas extraction wells.	Monitoring	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
40	All environmental and performance monitoring data required by this approval shall be submitted to the Department at quarterly intervals.	Monitoring	Complete
41	A final leachate treatment agreement from a treatment plant capable of treating the volume and strength of leachate to be produced by the Emerald Park landfill shall be provided to the Department prior to the acceptance of waste in Phase 1.	Submittal	Complete
42	EPI shall demonstrate financial responsibility for the closure and long-term care costs in the summary attached to this approval. Proof of financial responsibility shall be provided with the Phase 1 construction documentation in accordance with NR 520, Wis. Adm. Code.	Submittal	Complete
43	EPI shall continue to collect and treat leachate, landfill gas, and gas condensate and to remove groundwater from the gradient control system as they are produced until otherwise directed by the Department.	Operations	Complete
44	EPI shall submit a management plan for drainage of surface water adjacent to the access road and US 45. The plan shall be submitted no later than June 30, 1994. .	Submittal	Complete
45	A plan modification shall be submitted to the Department which demonstrates whether the Emerald Park landfill complies with all RCRA Subtitle D requirements. The plan modification shall demonstrate compliance with the following, at a minimum:	Submittal	Complete
45a	Subpart B, s. 258.16 - Location Restrictions: location with regard to airports, unstable areas, Holocene faults, and seismic zones.	Submittal	Complete
45b	Subpart C, s. 258.20 - Operating Criteria: random inspections of incoming trucks, selection procedures, training of inspectors, recordkeeping, and disposition of unacceptable loads. I	Submittal	Complete
45c	Subpart C, s. 258.29 - Operating Record: Format, content, and location of an operating record, which includes all regulatory approvals, demonstrations of compliance with RCRA Subtitle D, data from monitoring programs, and closure and long-term care plans, cost estimates, and demonstration of financial assurance.	Submittal	Complete
46	A special waste acceptance and testing program shall be proposed as a plan modification to the Department.	Submittal	Complete
47	An assessment shall be performed on all existing structures on the EPI property prior to demolition of the structures. The assessment shall be conducted by qualified personnel for the presence and types of asbestos materials used in the structures.	Construction	Complete
48	EPI shall obtain approval from the Department's Air Management program for the proposed particulate matter air monitoring plan in appendix U of the plan of operation.	Monitoring	Complete
September 28, 1993 – Approval of Clay Excavation			
1	Initial clay excavation shall be limited to the limits of Phase I as defined by the plan of operation and the proposed clay excavation area.	Construction	Complete
2	Sedimentation fencing of geotextile and straw bales shall be placed in all drainage channels for the excavation area as part of the initiation of clearing and grubbing, topsoil stripping and stockpiling, and clay excavation.	Construction	Complete
3	Excavated clay for use on EPLI shall not stockpiled outside of the excavation for periods greater than 1 week.	Construction	Complete
July 20, 1993 – Approval of Initial Construction			
1	Initial construction shall be limited to:	Construction	Complete
1a	The clearing and grubbing of brush, trees, fence lines, and other debris within the limits of the confining berms of the fill area and surface waster control structures.	Construction	Complete
1b	Construction of perimeter berms, surface water ditches, sediment trap, and detention basin.	Construction	Complete
1c	Placement of silt fencing.	Construction	Complete

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
1d	Stripping of topsoil within the area of the excavation for Phase I, perimeter berms, stockpiles, and construction. east of the drainage ditches, sediment trap, and detention.	Construction	Complete
1e	Construction and widening of the access road from and to the proposed location of the landfill.	Construction	Complete
1f	Installation of fencing for access control.	Construction	Complete
2	Silt fencing shall be placed to confine any areas of initial construction prior to the initiation of clearing and grubbing, topsoil stripping and stockpiling, and construction of drainage features for surface water.	Construction	Complete
3	Seeding, mulching, and revegetation shall be performed as part of initial construction and shall Include:	Construction	Complete
3a	The drainage ditches, exterior slopes of confining berms, and perimeter berms for the sediment trap and detention basin shall be seeded with the seed mixes listed in appendix T of the plan of operation.	Construction	Complete
3b	The topsoil stockpiles shall be seeded with the cover crop seeding rates and species listed 1n Table 2 on page 37 of appendix T of the plan of operation, with the seed mix amended with a minimum of 25 lb/acre of perennial species.	Construction	Complete
4	Weekly written or telephone contacts shall be made by the project manager to the Department's Southeast District office and the central office to describe the progress of construction of the initial construction.	Construction	Complete
5	Construction inspections shall be performed at this facility as indicated.	Construction	Complete
5a	Installation of the silt fencing around the area of initial construction, wetland areas, monitoring wells, and control monuments.	Construction	Complete
5b	Seeding of drainage ditches, sediment trap, detention basin, and topsoil stockpiles.	Construction	Complete
6	Unless construction documentation for initial construction is incorporated into the construction documentation for Phase I, construction documentation for initial construction shall be submitted to the to the Department for review and approval within 90 days of completion of initial construction.	Submittal	Complete
6a	Plan sheets shall indicate the location of all topsoil stockpiles, drainage ditches, and surface water centro1s, and narrative describing the use of specialty materials such as culverts and erosion control products.	Submittal	Complete
6b	Locations of all alignments of silt fencing.	Submittal	Complete
6c	A description of the repair or replacement of monitoring wells and control monuments damaged during construction.	Submittal	Complete
6d	Description of any construction on the access road and intersection with US 45.	Submittal	Complete
6e	Description of the seeding rates and species mixes used on all areas seeded, with records of seeding dates and use of mulch, fertilizer, and other soil amendments.	Submittal	Complete
Dec. 9, 1992 – Determination of Site Feasibility for the Proposed Emerald Park Landfill (Phases 1, 2 and 3)			
1	The maximum design capacity of the proposed landfill shall not exceed 3,550,360 cubic yards, including wastes, daily cover, and intermediate cover. The volume o the separation and barrier layers between the incinerator residue and refuse fill volumes are not included in the design capacity volume.	Design	Superseded
2	The plan of operation shall include an archaeological survey plan as recommended by Robert Birmingham, staff archaeologist of the State Historical Society of Wisconsin in his July 26, 1988 letter to Deanna Clarkoski of RMT.	Submittal	Superseded
3	The restoration plan presented in Attachment 10 of the September 10, 1989 Feasibility Addendum, shall be expanded to include Area "B", located immediately west of the waste fill area.	Submittal	Superseded
	The plan of operation shall include an analysis of the changes in the groundwater recharge and surface water flow caused by the landfilling operation.	Submittal	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
4	The plan of operation shall include a proposed plan for investigation of soils below the gradient control layer to assure that any granular or silty soils are identified. The plan shall include, at a minimum, the following:	Submittal	Superseded
4a	An investigative program using backhoe pits or other means of exposing subsoils on a 100 foot grid to a minimum depth of 5 feet below the gradient control layer.	Construction	Superseded
4b	Measures to be taken from the elimination of all detected granular or silty soils, including removal and replacement with acceptable clay liner material that meets the requirements of s. NR 504.05 (5), Wis. Adm. Code.	Construction	Superseded
5	The plan of operation shall include the following revisions to the gradient control system:	Design	Superseded
5a	A geotextile or other means of filtering soil fines shall be proposed between the in situ subbase clay soils and the sand drainage blanket.	Design	Superseded
5b	A groundwater collection pipe system shall be proposed which provides for the following:	Design	Superseded
5bi	Pipes of a minimum of 6 inches in diameter, with sweep bends at changes of slopes that allow access of pipe cleaning equipment and camera inspection equipment.	Design	Superseded
5bii	Pipe dimensions that comply with PVC Schedules 80 or 120, composed of PVC compounds which meet or exceed Class 12454 as defined by ASTM D 1784-81.	Design	Superseded
5biii	Placement of the groundwater collection pipes on the base and sideslopes in a protective trench that complies with the design requirements of s.NR 504.05 (6) (d), Wis. Adm. Code.	Design	Superseded
5c	Each east-west lateral groundwater collection pipe in each Phase shall be drained by a sump, pump, and discharge line. The header lines within the limits of filling shall be deleted from the proposed groundwater collection system.	Design	Superseded
5d	The sand specifications and source characteristics shall be included in the plan of operation with quality control and quality assurance measures that assure permeability of the drainage blanket of greater than 1 x 10 cm/sec.	Design	Superseded
5e	The plan of operation shall specify construction methods and supervisory controls for the placement of the sand over the geotextile. The plan of operation shall include traffic patterns, machine weights, lift thicknesses, compaction methods, and any other measures necessary to limit construction damage to the geotextile and collection trenches.	Construction	Superseded
5f	Details of the gradient control system and pumps and extraction pipes shall be included in the plan of operation that provide for removal and servicing of the pumps, etc..	Design	Superseded
5g	Details of pump controls, water level sensors, and water sampling equipment shall be included in the plan of operation, along with instructions for use and service of the sensors and sampling equipment, depth of placement of the sensors, and methods of inserting and retrieving sensors and sampling equipment.	Design	Superseded
5h	The plan of operation shall include narrative and instructions for the potential use and maintenance of the gradient control system throughout the active life of the facility and the long-term care period.	Operations	Superseded
6	The plan of operation shall propose specifications for construction of the soil component of the composite liner that include the following:	Construction	Superseded
6a	Clay soil specifications shall be included that meet the requirements of s. NR 504.05 (5), Wis. Adm. Code.	Design	Superseded
6b	The plan of operation shall include construction methods and supervisory controls for the placement of the first lift of compacted clay over the gradient control system.	Construction	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
	The plan of operation shall include construction methods and supervisory controls for preparing the surface of the compacted clay prior to the installation for the geomembrane component of the compost liner.	Construction	Superseded
7	The plan of operation shall provide design details, specifications, and installation plans for the geomembrane component of the liner that include, at a minimum, the following:	Construction	Superseded
7a	The geomembrane shall be fabricated from polyethylene resins specifically formulated for waste containment purposes. Minimum resign density shall be 0.94. Minimum geomembrane thickness shall be 60 mils.	Construction	Superseded
7b	The plan of operation shall include a description of the proposed geomembranes to be used in the facility, including resins and additives, physical properties, chemical resistance properties, and potential suppliers.	Design	Superseded
7c	The plan of operation shall include a draft installation plan that identifies the orientation of geomembrane panels in relation to slope, collection trenches, anchor trench and phase boundaries, seaming methods, and phased construction.	Construction	Superseded
7d	The plan of operation shall include typical design details of geomembrane seams and seaming methods, anchor trenches, patches, collars for all penetrations, installation in corners, and leachate collection trenches.	Design	Superseded
7e	The plan of operation shall include a description of measures to be taken to store and protect the geomembrane, transport geomembrane panels from storage to the working area 1 and construction methods to be used to place geomembrane panels.	Construction	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
7f	The plan of operation shall include a proposed testing method for testing the compatibility of geomembranes, joining methods, and other polyethylene components if geomembranes used in one or more phases are obtained from different manufacturers or are made from different resins.	Construction	Superseded
7g	The plan of operation shall propose a draft construction quality control plan that will be followed by the owner and all contractors constructing the geomembrane liner, preparing the surface of the compacted clay liner, and placing drainage blanket and initial lifts of waste.	Construction	Superseded
7h	The plan of operation shall propose a draft construction quality assurance plan.	Construction	Superseded
7hi	The plan of operation shall propose the contents of a preconstruction submittal to be used to provide the Department with specific information concerning geomembrane construction prior to each construction event. The preconstruction submittal shall include, at a minimum, the following:	Submittal	Superseded
7hi i	Identification of the fabricator and contractors selected for geomembrane source and installation.	Construction	Superseded
7hi ii	Final versions of the construction quality control plan and construction quality assurance plan, incorporating input from the selected contractors and project experience, and documenting qualifications of the third party construction quality assurance organization and testing laboratory;	Construction	Superseded
7hi iii	Any modifications to the installation plan, with final versions of the panel layout and any revisions to details of seaming, patching, penetrations, use of refabricated specialty sections, or repair methods.	Construction	Superseded
7j	The plan of operation shall propose a testing program for geomembrane samples from each construction phase, with schedules of testing as-delivered geomembrane and geomembrane exposed to leachate, specific test methods, number of replicate tests, etc.	Construction	Superseded
8	The plan of operation shall propose specifications for the drainage blanket that comply with the following:	Design	Superseded
8a	The plan of operation shall include operating instructions and control methods for placing the drainage blanket of the leachate collection system and the first 10 feet of wastes over the drainage blanket.	Construction	Superseded
8b	The plan of operation shall include design calculations that demonstrate the stability of the drainage blanket material on the selected geomembrane material used to line the interior sideslopes of each phase.	Design	Superseded
9	The plan of operation shall include modifications to the leachate collection piping system design as follows:	Design	Superseded
9a	The soil component of the liner shall be increased in thickness to provide an undercut below the collection trench. The undercut shall be a minimum of 1.5 feet for a zone of 8 or more feet wide below and cantered along the alignment of the leachate collection pipe and cleanout access lines.	Design	Superseded
9b	The composite shall be formed in a vee trench along the alignment of the collection lines, with shoulders no further apart than the width of the undercut. The invert of the trench shall be set no less than 1.5 feet below the plane of the liner.	Design	Superseded
9c	The geomembrane surface shall be covered with a nonwoven needle-punched geotextile of minimum weight of 12 oz/yd2 or an equivalent protective measure approved by the Department.	Design	Superseded
9d	The pipe shall be placed in the invert of the trench with 4 to 6 inches of gravel below the pipe. The crown of the pipe shall be no higher in elevation than 6 inches below the plane of the shoulders of the trench.	Design	Superseded
9e	The gravel surrounding the pipe and the drainage blanket shall be shown to be stable and self-filtering by use of soil filter analyses, or additional measures shall be taken to assure the maintenance of porosity of the gravel. The gravel shall be sized to achieve a permeability of greater than 1 x 10 ' cm/sec.	Design	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
9f	Proposed construction of the leachate collection pipe system shall comply with the following:	Construction	Superseded
9fi	Pipes of a minimum of 6 inches in diameter, with sweep bends at changes of slopes that allow access of pipe cleaning equipment and camera inspection equipment.	Construction	Superseded
9fii	Pipe dimensions that comply with PVC Schedules 80 or 120, composed of PVC compounds which meet or exceed Class 12454 as define by ASTM D 1784-81.	Construction	Superseded
10	The plan of operation shall include modifications to the leachate extraction system design as follows:	Design	Superseded
10a	The leachate extraction system shall be designed to conform to one of the following alternatives:	Design	Superseded
10ai	A single leachate extraction point for the landfill that shall include a double lined drain line that exits the waste fill area and conveys leachate by gravity flow to a lift station outside the limits of fill.	Design	Superseded
10aii	Sump pump and sideslope riser for each east-west lateral leachate collection line, with the sideslope riser positioned in a vee trench, the end of the riser in a gravel-filled sump of minimum dimensions of 1,000 ft' by 5 feet deep, etc.	Design	Superseded
10b	The collection tank shall be designed to contain a minimum of 4 days of accumulation of leachate gene-rated at the maximum generation rate. The tank shall be double walled for secondary containment.	Design	Superseded
10c	Unless direct discharge to a sewer system is proposed, the leachate pumpout station shall be designed with a paved surface and turnaround area, with slopes and piping that collect spilled leachate and allow its removal or discharge to the collection tank.	Design	Superseded
10d	All leachate header lines and discharge lines outside the limits of filling shall be double-lined, with provisions for monitoring the presence of liquid in the annular space between the pipes.	Design	Superseded
11	The plan of operation shall include modifications to the final cover design that include, at a minimum, the following:	Design	Superseded
11a	The barrier layer in the final cover shall be designed to be a composite liner with a minimum of 2 feet of compacted clay that meets the specifications of s. NR 504,05(5), Wis. Adm. Code, covered directly by a polyethylene geomembrane with a minimum thickness of 60 mils.	Design	Superseded
11b	The plan of operation shall propose a phasing plan for final cover construction that minimizes the number of separate construction events and minimizes percolation into the closed waste mass.	Construction	Superseded
11c	The cover soil and topsoil layers over the composite barrier layer shall consist of a minimum of 24 inches of soil materials. vegetative seed mix shall be proposed that is consistent with the selected final use of the facility, erosion control measures, and characteristics of the topsoil to be used.	Design	Superseded
11d	The plan of operation shall propose a subsurface' drainage system to limit deleterious effects of percolation on the retention of soil on the surface of the composite barrier layer.	Design	Superseded
11e	The plan of operation shall propose modifications to the surface drainage system on the top slopes and sideslopes that limit length of flow in ditches perpendicular to the slope. Any proposed use of riprap shall be supplemented by the use of erosion control fabrics and vegetative seed mixes.	Design	Superseded
12	The plan of operation shall include the following modifications to the design and operation of any disposal area for industrial wastes and residue from incineration of municipal wastes, waste tires, or medical wastes:	Design	Superseded

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Summary of Approval Conditions

COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
12a	The disposal of incinerator residue shall be confined to a monofill separated from municipal or codisposed wastes by a structure made of supporting material, a barrier layer, a 60 mil synthetic geomembrane liner and a drainage blanket with a separate leachate collection system. The plan of operation shall include the following design modifications:	Design	Superseded
12ai	The supporting material shall consist of sufficient thickness of soil or granular wastes to support the weight of incinerator residue above and eliminate any significant differential settlement and disruption by municipal or codisposed wastes below the supporting layer.	Design	Superseded
12aii	The barrier layer shall consist of a minimum of 4 feet of compacted clay meeting the specifications of s. NR 504.05(5), Wis. Adm. Code compacted against the supporting material. The barrier layer shall have a minimum grade of 5% slopes to a leachate collection line.	Design	Superseded
12aiii	The geomembrane liner shall be fabricated from polyethylene resins specifically formulated for waste contaminant purposes. Minimum resin density shall be 0.94. Minimum geomembrane thickness shall be 60 mils.	Design	Superseded
12aiv	The drainage blanket shall consist of a minimum of 1 foot of granular material meeting the specifications of s. NR 504.05(3)(i), Wis. Adm. Code. The incinerator residue, drainage layer, and leachate collection trench backfill shall be shown to be stable and self-filtering by use of soil filter analyses or additional measures shall be taken to assure the maintenance of porosity of the drainage system.	Design	Superseded
12av	The leachate collection system shall be protected by a trench structure meeting the requirements of s. NR 504.05(6)(d), Wis. Adm. Code.	Design	Superseded
12b	The plan of operation shall propose a record keeping and monitoring program for the disposal of incinerator residue.	Operations	Superseded
12c	The plan of operation shall re-evaluate industrial waste and incinerator ash sources and quantities anticipated for disposal at the EPI landfill at the time the plan of operation is prepared.	Operations	Superseded
12d	The plan of operation shall propose a pre-acceptance report for notifying the Department of the characteristics of each source of industrial waste and incinerator residue and their respective generation rates.	Operations	Superseded
12e	EPI shall comply with all other applicable provisions found in s. NR 502.14 and s. NR-504.08, Wis. Adm. Code.	General	Superseded
13	The plan of operation shall include modifications to the gas extraction system that include the following:	Design	Superseded
13a	Gas condensate shall be routed to a collection tank separate from the leachate collection tank. The plan of operation shall include design details for the sampling and quantification of condensate.	Design	Superseded
13b	Drip-leg dimensions shall be defined such that a liquid barrier is maintained between the condensate collection tank and the vacuum system under all conditions of vacuum application. Drip legs shall be designed for access for inspection and service.	Design	Superseded
13c	Polyethylene pipe shall be used for the transfer of gas and condensate from the extraction wells to the condensate tank and the blower building. The location and type of mechanical and welded joints shall be identified.	Design	Superseded
13d	Pipes carrying gas and condensate from the extraction wells to the condensate collection tank and the blower building shall be placed below the barrier layer in the final cover system.	Design	Superseded
13e	The portions of the extraction wells above the final cover shall be protected by a protective structure.	Operations	Superseded
13f	The schedule of installation and documentation of the gas extraction system in each phase shall be described. The schedule shall include the sequence of final cover construction.	Construction	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
13g	The installation of the gas extraction wells shall be described with control measures necessary to achieve removal of gas from the majority of the depth of the waste mass while assuring that extraction wells do not disturb the composite liner or drainage blanket.	Construction	Superseded
14	The plan of operation shall include modifications to the leachate headwall design and operation as follows:	Design	Superseded
14a	Leachate headwell design shall not utilize the proposed vertical well casing extending from the landfill base grades to the final cover surface, Instead, horizontal well screens shall be placed in the• drainage blanket, and solid walled connecting pipe shall be routed to the landfill perimeter.	Design	Superseded
14b	A minimum of two monitoring locations shall be proposed for each phase, The locations shall be approximately 50 feet from the leachate collection pipe laterals and approximately one third of the distance from the east and west ends of each phase.	Monitoring	Superseded
14c	Connecting pipe from the well screen to the landfill sideslope shall be maintained at a level or declining grade,	Operations	Superseded
14d	A method measuring both leachate head and quality from the margin of the waste fill area shall be included in the design. A method of withdrawing stagnant leachate from the pipe prior to extracting leachate samples for quality analyses shall be provided.	Monitoring	Superseded
15	The plan of operation shall include plan sheets and details of stockpiling of soils, surface water controls, and sedimentation and erosion controls. The plan of operation shall include, at a minimum, the following:	Submittal	Superseded
15a	Narrative and plans shall be included that describe the controls to be used to select clay soils suitable for liner and final cover purposes, stockpile the suitable soils, and protect the stockpiles from infiltration desiccation, and erosion.	Submittal	Superseded
15b	Stockpiles shall be indicated on plan sheets and be located to avoid disturbance of wetland areas.	Submittal	Superseded
15c	The plan of operation shall include specific details for controlling and handling surface water during operation and after closure.	Submittal	Superseded
15d	All precipitation and surface water contacting waste shall be considered contaminated, handled as leachate, and treated appropriately.	Operations	Superseded
15e	Narrative and details shall be included for spring and fall cleaning• of the sediment pond and drainage ditches, Reparative measures shall be included for erosion features and drainage ditches, including the use of specialty vegetation, erosion control mats, silt fences, check dams and auxiliary sedimentation ponds.	Condition	Superseded
15f	The plan of operation shall include plans, specifications, and performance criteria for a biofilter to provide treatment of water discharging from the sedimentation basin.	Design	Superseded
16	The plan of operation shall include identification and availability of equipment capable of inspection and cleaning the gradient control and leachate collection piping systems.	Operations	Superseded
17	The plan of operation shall include the following design and operation items concerning the control of dust and windblown material:	Design	Superseded
17a	The plan of operation shall include a proposal for sitting and monitoring procedures for Hi-Val Total Suspended Particulate (TSP) monitors. A device that records wind direction and velocity shall accompany the Hi-Vol monitors.	Monitoring	Superseded
17b	The plan of operation shall describe measures to be implemented to control dust during all construction and operation phases of the facility. At a minimum, the measures shall include use of vegetation screening, cover crops, surface treatments, water sprays, and dust control fencing.	Operations	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
17c	The facility approach on STH 45 shall include a deceleration/turnoff lane. The access road shall be paved or effectively surfaced between STH 45 and the active dumping area to prevent the formation of dust.	Design	Superseded
17d	The plan of shall propose waste compaction machinery and practices that are capable of consistently achieving a minimum waste density of 1,200 lb/yd for municipal refuse, without admixtures of foundry wastes and ash, or sludge's.	Operations	Superseded
17e	The plan of operation shall include details for fencing and patrolling the facility for removal of windblown material.	Design	Superseded
17f	The plan of operation _shall propose an operational plan for the use of daily and intermediate cover. The plan shall include the selective removal of fine grained daily or intermediate cover from closed cells prior to the placement of waste over those cells.	Condition	Superseded
18	The plan of operation shall contain a comprehensive groundwater monitoring program as outlined below;	Monitoring	Superseded
18a	The wells shall be monitored.	Monitoring	Superseded
18b	Quarterly measurements of the parameters. Sample analyses shall include notation of color, odor, and turbidity at the time of sampling. Dissolved lead, dissolved cadmium, and VOC scan with quantification in feet mean sea level and annually for field PH and field conductivity.	Monitoring	Superseded
18c	Wells shall be measured quarterly for water elevation in feet mean sea level and annually for field PH and field conductivity.	Monitoring	Superseded
18d	In addition, monitoring wells and shall be measured quarterly for field PH and field conductivity, as part of an annual report to the Department, the changes in PH and conductivity over time shall be evaluated, etc.	Monitoring	Superseded
18e	All groundwater monitoring wells installed within the proposed waste fill area shall be properly abandoned prior to construction in the vicinity of the well.	Monitoring	Superseded
18f	The groundwater sampling plan shall include all requirements as specified ins, NR 508.10(5), Wis. Adm. Code.	Monitoring	Superseded
19	The plan of operation shall include a monitoring program which includes monthly head level measurements recorded in both feet MSL and in feet above the liner.	Monitoring	Superseded
20	The plan of operation shall contain a detailed leachate collection system monitoring program which includes.	Monitoring	Superseded
20a	Separate monitoring points for the refuse area and the dedicated incinerator residue disposal area.	Monitoring	Superseded
20b	Measurement of leachate volumes, with records tabulated no less frequently than weekly, to be submitted to the Department quarterly with the environmental monitoring data.	Monitoring	Superseded
20c	Use of a sampling point for the leachate from the main waste area which is at a point upstream from the point of any gas condensate additions.	Monitoring	Superseded
20d	The analytical results of any leachate monitoring required as part of wastewater disposal shall be submitted quarterly.	Monitoring	Superseded
21	The plan of operation shall include a proposed gas extraction system monitoring program which includes;	Monitoring	Superseded
21a	Location, design, and methodology for sampling.	Monitoring	Superseded
21b	Measurement of condensate values, with records tabulated no less frequently than weekly, to be submitted to the Department quarterly with the environmental monitoring data.	Monitoring	Superseded
21c	Quarterly measurement of condensate parameters	Monitoring	Superseded
21d	Annual measurement of condensate for base/neutral and acid extractable semivolatile organic compounds with quantification.	Monitoring	Superseded
21e	Gas monitoring within the waste fill area shall be proposed in the plan of operation and include the following components:	Monitoring	Superseded
21ei	A minimum of three gas monitoring wells within each phase.	Monitoring	Superseded
21eii	Quarterly measurements of gas pressure, methane, and oxygen.	Monitoring	Superseded
21eiii	Design and sampling plans for the gas sampling points.	Monitoring	Superseded

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COND #	DESCRIPTION	CONDITION TYPE	STATUS AS OF 04/08/2011
22	The plan of operation shall contain a proposed surface water monitoring program which includes:	Monitoring	Superseded
22a	Quarterly sampling of the sedimentation basin when water is present with measurement of the following parameters.	Monitoring	Superseded
22b	Quarterly monitoring of the wetland basin west of the landfill including:	Monitoring	Superseded
22bi	Water Elevation (feet above MSL)	Monitoring	Superseded
22bii	Water quality as in Condition 22 a above.	Monitoring	Superseded
23	Detailed description of the monitoring of the underdrain dewatering system below the composite liner shall be provided in the plan of operation. The proposed system shall include.	Monitoring	Superseded
23a	Two discrete monitoring points which are centered between underdrain pipe laterals and one third of the distance from the east and west ends of phase shall be included in each landfill phase.	Monitoring	Superseded
23b	Quarterly monitoring of the underdrain monitoring points required above for water level measurements, both in feet mean sea level and in feet relative to the elevation of the top of the liner above the monitoring point, etc.	Monitoring	Superseded
23c	Annual monitoring of the underdrain monitoring points required above for VOCs with quantification, dissolved lead and dissolved cadmium.	Monitoring	Superseded
23d	Water elevation in feet mean sea level shall be measured quarterly at any underdrain cleanout or pumping access point.	Monitoring	Superseded
23e	Quarterly monitoring of the quantity and quality of water pumped from the underdrain dewatering system. Sampling point locations and access and sampling methodology shall be included, Each phase of the landfill shall be monitored separately.	Monitoring	Superseded
23f	Annual monitoring .of the quality of water pumped from the underdrain system at the sampling points required above for VOCs with quantification, dissolved lead and dissolved cadmium	Monitoring	Superseded
24	A description of the landfill gas monitoring system outside of the waste area shall be included in the plan of operation. Locations screen lengths, relevant construction details, sampling frequency and parameter lists shall be included	Monitoring	Superseded
25	A proposal for monitoring landfill settlement shall be included in the shall be included in the plan of operation.	Monitoring	Superseded
26	The plan of operation shall include a draft leachate treatment agreement for disposal of leachate generated by the facility. A final, signed leachate treatment agreement shall be provided to the Department with the construction documentation for the construction of Phase 1.	Submittal	Superseded
27	The plan of operation shall include a plan of action to be taken in the event that groundwater 1 surface water, or gas migration impacts are detected.	Operations	Superseded
28	The plan of operation shall' contain a proposal to evaluate the performance of the landfill after the end of filling operations in Phase 1 and each subsequent phase and annually during the long-term care period.	Operations	Superseded
29	The estimated closure and long-term care costs shall be revised in the plan of operation, etc.	Submittal	Superseded

1	All aspects of the construction, operation monitoring, and closure of this facility shall be performed in accordance with the plan of operation, the requirements of NR 500 to 520, Wis. Adm. Code, and the conditions of this approval. In the case of any discrepanci	General	Superseded

2	A copy of the plan of operation, accompanying plan sheets, plan modifications, and this approval and any addenda shall be retained at the landfill office at all times and shall be available for reference by the personnel responsible for proper operation of this facility. Persons responsible	General	Superseded

3	Any proposed modifications to the plan of operation or this approval shall be proposed to the Department for review and approval. If the modifications are compatible with the desired performance of this facility, as determined by the Department, an addendum	Submit	Superseded

4	The Department approvals for initial construction dated July 20, 1993 and for limited clay excavation dated September 28, 1993, shall be made a part of this approval. The conditions in those approvals shall continue to be applicable to construction of this	General	Inactive

5	A preconstruction report shall be submitted to the Department no later than seven days prior to the preconstruction meetings for the construction of the geomembrane component of the composite liner, the composite capping layer, and the ash monofill separation	Submit	Code

	a. Any revisions and detail diagrams incorporating all changes, agreements, and instructions between the owner, the installer, and the quality assurance contractor. The report shall include any proposed changes to details of the design or construction requried by this		

	b. Identification of the manufacturer of the geomembrane and other geosynthetics used in construction, manufacturer qualifications technical specifications of the resin and polymer selected and results of the manufacturer's quality control tests on the geomembranes		

	c. Identification of the installation contractor, contractor qualifications and onsite supervisory staff, and proposed seaming methods and equipment. The report shall include a quality control plan that the installation contractor will follow in the installation f the		

	d. Identification of the quality assurance consultant indicating on- site staff and a summary of their qualifications and experience. The report shall indicate the proposed equipment and test methods to be used for construction- quality assurance and the laboratory to be used		

	e. Frequency of testing geomembrane materials and the proposed test methods to be used, including the identification of destructive and nondestructive testing methods.		

	f. A proposed method of removing coarse gravel and cobbles on the surface of the compacted clay component, a construction method to assure a smooth surface prior to geomembrane placement, and a documentation method to record the elimination of		
	g. Panel layout patern for geomembrane placement.		

	h. Source and construction of specialty connections between the geomembrane component and any-penetrations, and any-proposed revisions to details of connecting pipe penetrations to the geomembrane. The report shall identify methods to test the integrity of seams and		

	i. Description of any revised or additional controls and guidance to be exercised during the placement of the leachate collection system or the drain and rooting zone soils in the final cover system.		
	j.		
	k.		
	l. Description and detail drawing of the junction between separate phases of liner or final cover constructio n, with proposed protective measures.		

	m. Identification of the fabricator of geotextiles and other geosynthetics used in site construction, technical specifications of the products and materials to be used, methods used to bond the materials together and to connect panels together, installation contractor,		

	n. Results of direct shear tests conducted on the soils and geosynthetic materials selected for use in construction of the liner system and the final cover system. The shear test results shall be used to evaluate the stability geomembrane component over the clay		

	o. for the first phase of final cover installation, identificaito n of the blower, flare, valves, controls, and any revisions to the approved plans for the gas extraction system.		
6			
7			
8			
9			

10	a. Penetrations of the geomembrane component of the composite capping layer shall be constructed of prefabricated collars of polyethylene pipe and membrane or plate, welded at the same angles which the penetrations make with the final cover slope. The		
6	Preconstruction meeting requirements	General	Code
7	b. Leachate sump rub sheet design	Design	Superseded

	c. Leachate riser back flow valve design	Design	Superseded
	d. Eliminates leachate tank sidewall connections	Design	Superseded
	e. Maintain all season access to manholes	Operation	Superseded
8	Revised base liner interface detail	Design	Superseded
10	Final Cover penetrations seal details	Design	Superseded
11	Final cover design	Design	Code
12	Specifications for earth work activities in areas above composite cover	Construction	Code
13	Traffic limitations on geomembrane	Construction	Code

14	Final cover installation schedule	Operation	Superseded
16	Geomembrane construction specifications	Design	Code
17	Geomembrane daily installation logs	Design	Code
18	Construction observation inspection schedule	Construction	Superseded
20	c. Continue a pump gradient control system until modified schedule approved	Operation	Superseded
	d. Gradient control pumps repair and notification requirements	Operation	Code
	b. Remove leachate daily	Operation	Code

	c. Leachate elevation maintenance criteria	Operation	Superseded
	d. Leachate pump repair and notification requirements	Operation	Code
	e. Leachate riser covers requirement	Operation	Code
23	b. Leachate and gradient control line clean-out documentation report elements	Submit	Active
	c. Leachate and gradient control line clean-out devise description	Design	Code

	d. Leachate and gradient control line clean-out schedule	Operation	Superseded
	e. Leachate transfer line pressure testing equipment	Design	Active
	f. Secondary containment structures inspection schedule	Operation	Active
24	Interim cover specifications	Operation	Active
25	e. Management schedule for habitat units	Operation	Active
	g. No vegetation burning on landfill or drainage ditches	Operation	Active

	h. Mowing schedule and limitations	Operation	Active
26	Geomembrane shear and peel test protocols	Construction	Code
27	Geomembrane confirmation testing protocols	Construction	Code
28	Welding equipment testing protocols	Construction	Code
29	Geomembrane destructive and non-destructive documentation protocols	Construction	Code
30	Construction documentation submittal requirements	Submittal	Code
31	Construction documentation submittal content	Submittal	Code

32	Construction documentation narrative content	Submittal	Code
34	Annual report requirement	Submittal	Superseded
35	Final cover annual report requirement	Submittal	Inactive
36	Final cover five year report	Submittal	Inactive
37	Phase 1 and 2 geomembrane cooupon testing schedule	Operation	Active
38	g. Surface water basin sampling protocols	Monitoring	Superseded
	i. In-waste gas probe design specifications	Design	Inactive
	j. Final cover settlement hub location	Design	Active

39	Surface feature labeling requirements	Operation	Active
40	Quarterly submittal of monitoring data	Monitoring	Superseded
43	Maintain collection and treatment of Leachate, gas and consdensate	Operation	Superseded

APPENDIX B

Time vs. Concentration Graphs

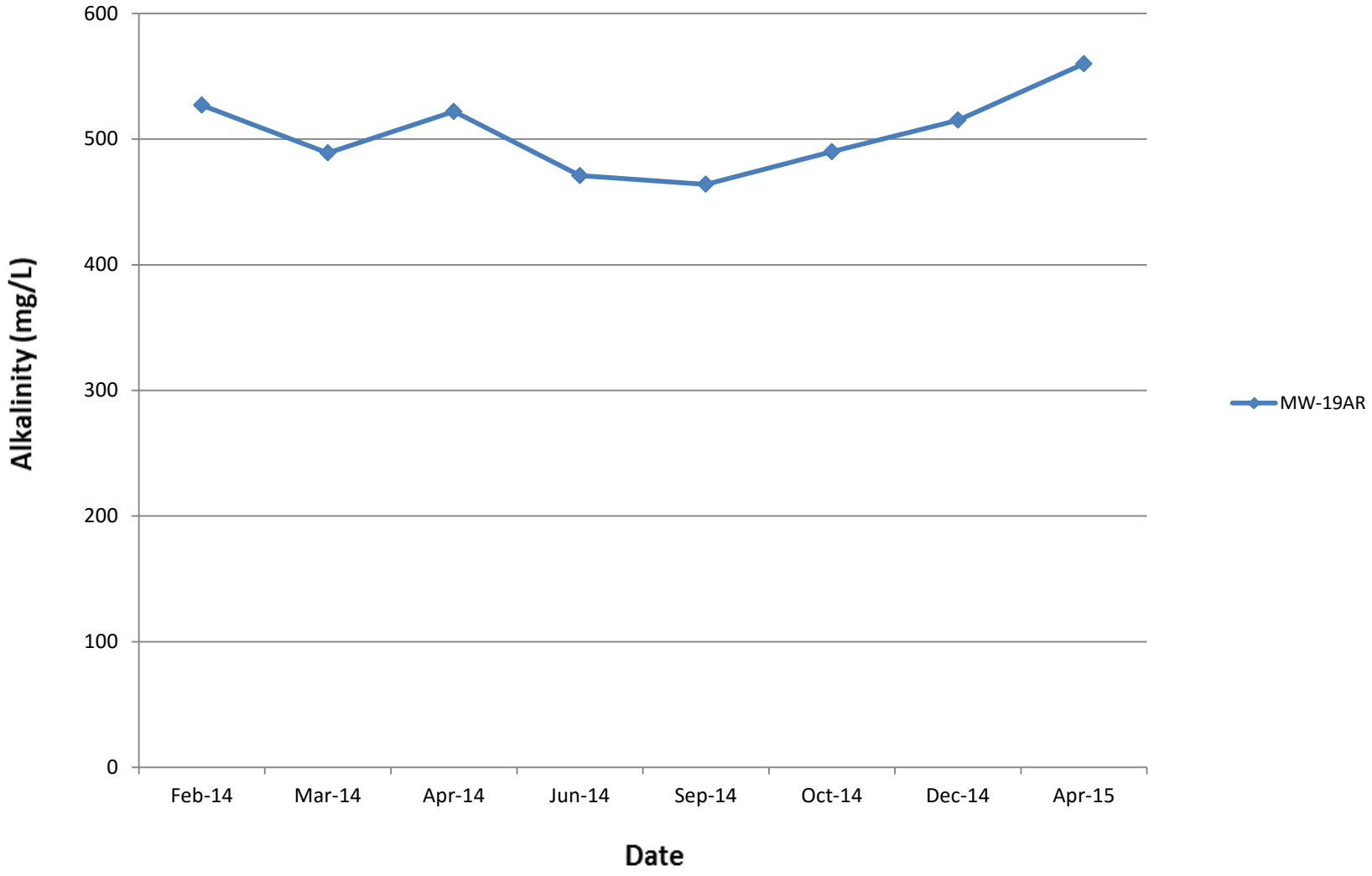
APPENDIX B-1

Time vs. Concentration Graphs for Indicator Parameter

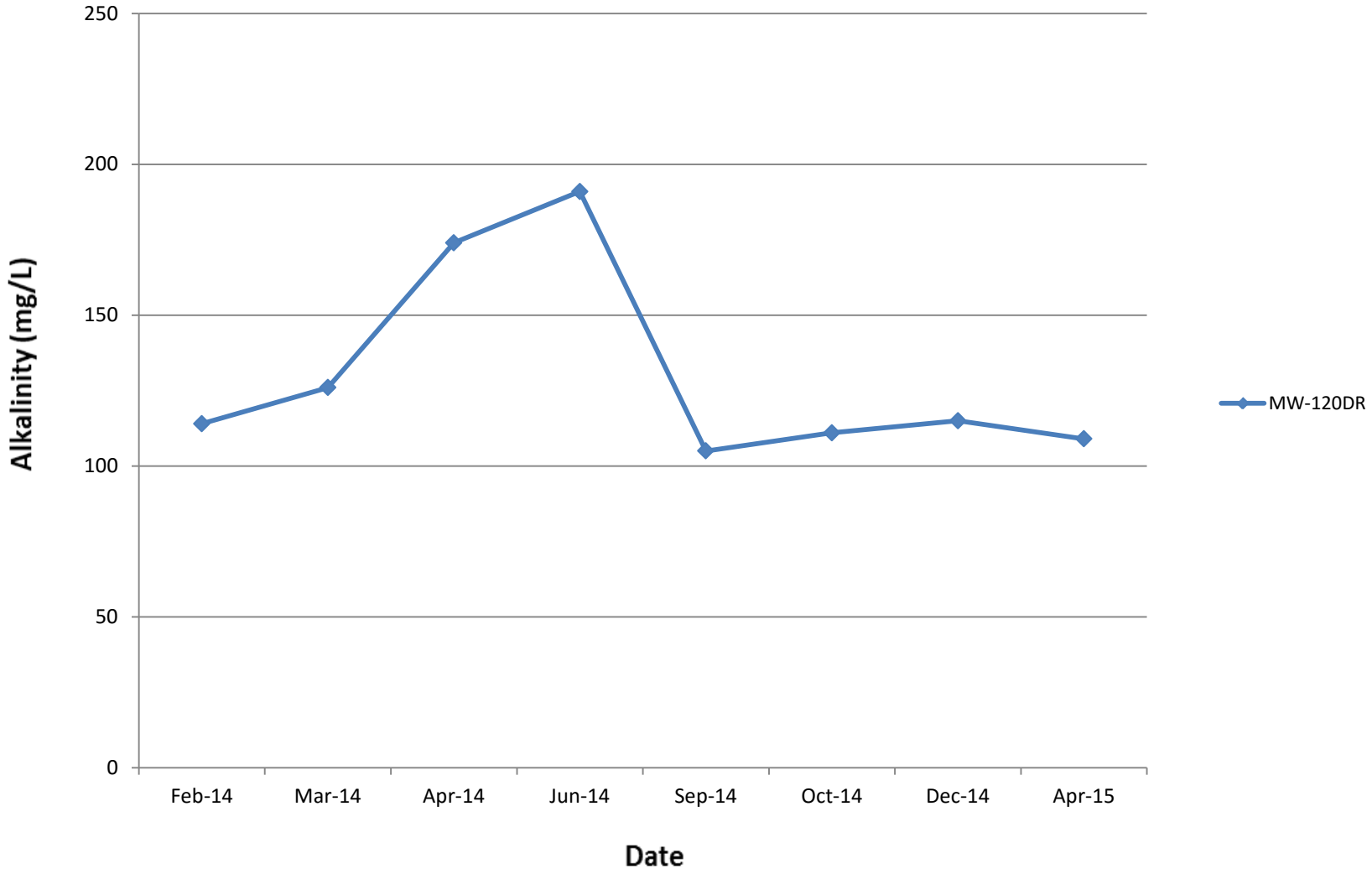
Alkalinity
Sodium
Hardness
Conductivity
COD

ALKALINTY

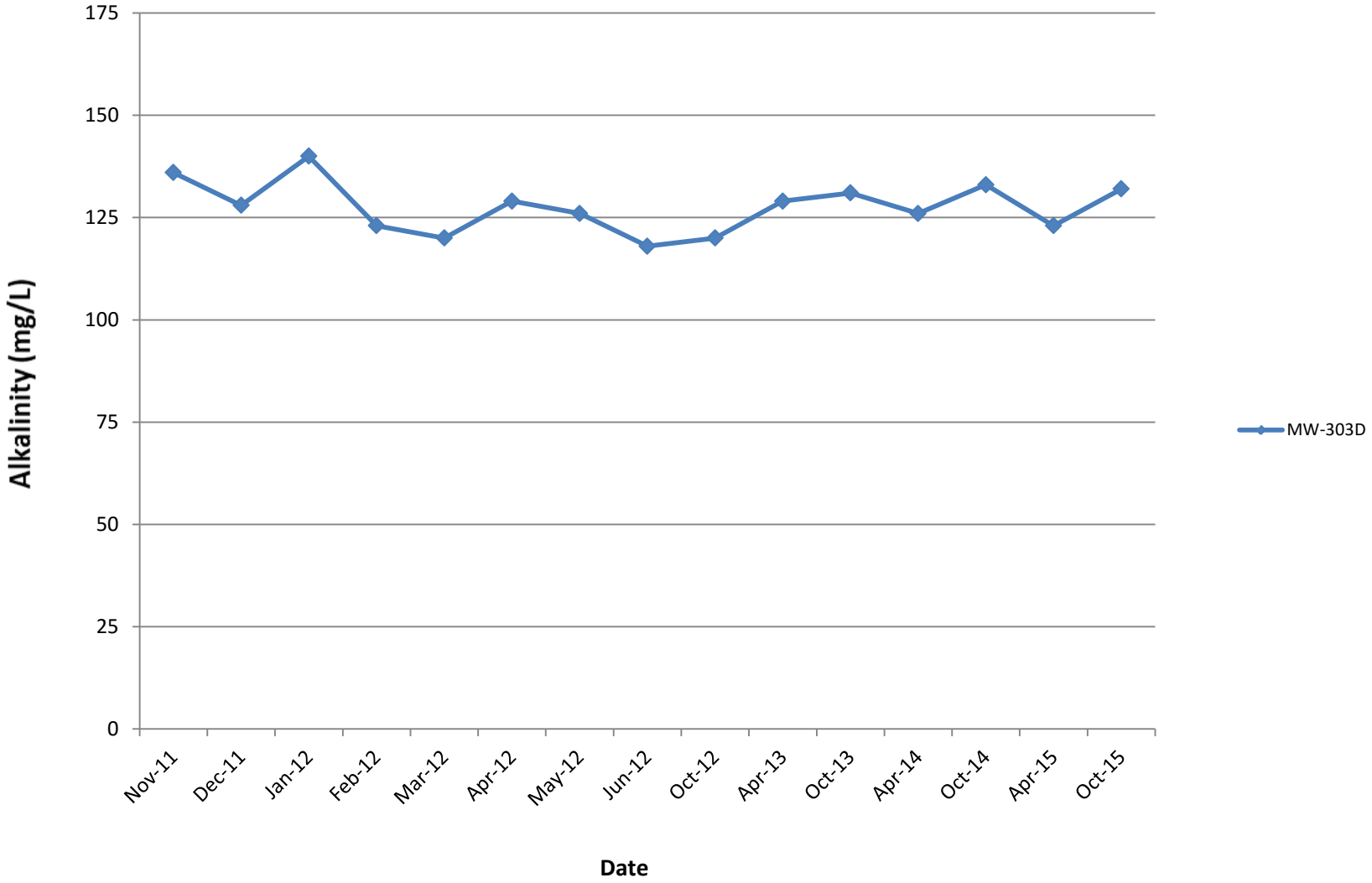
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Alkalinity)



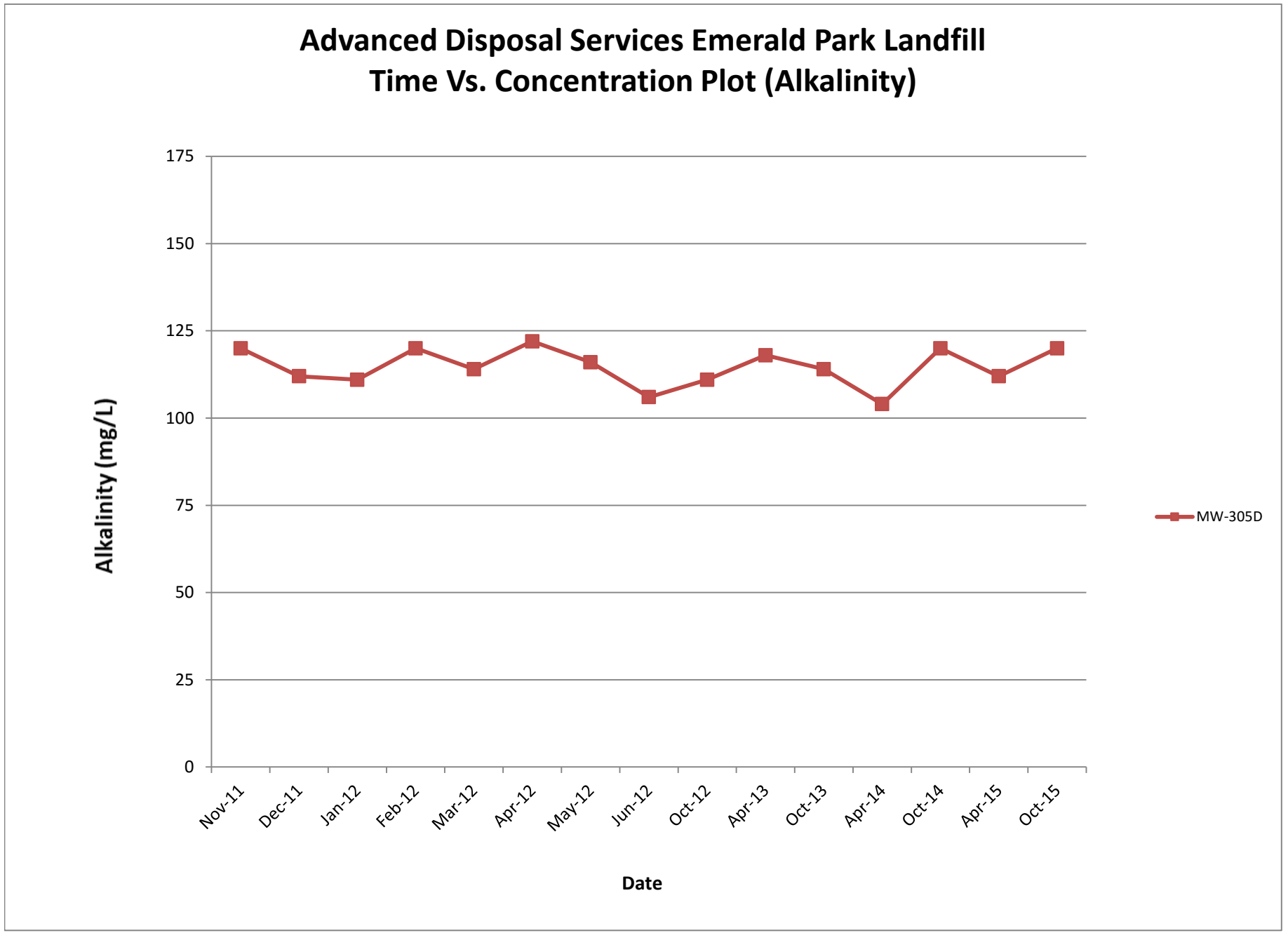
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Alkalinity)



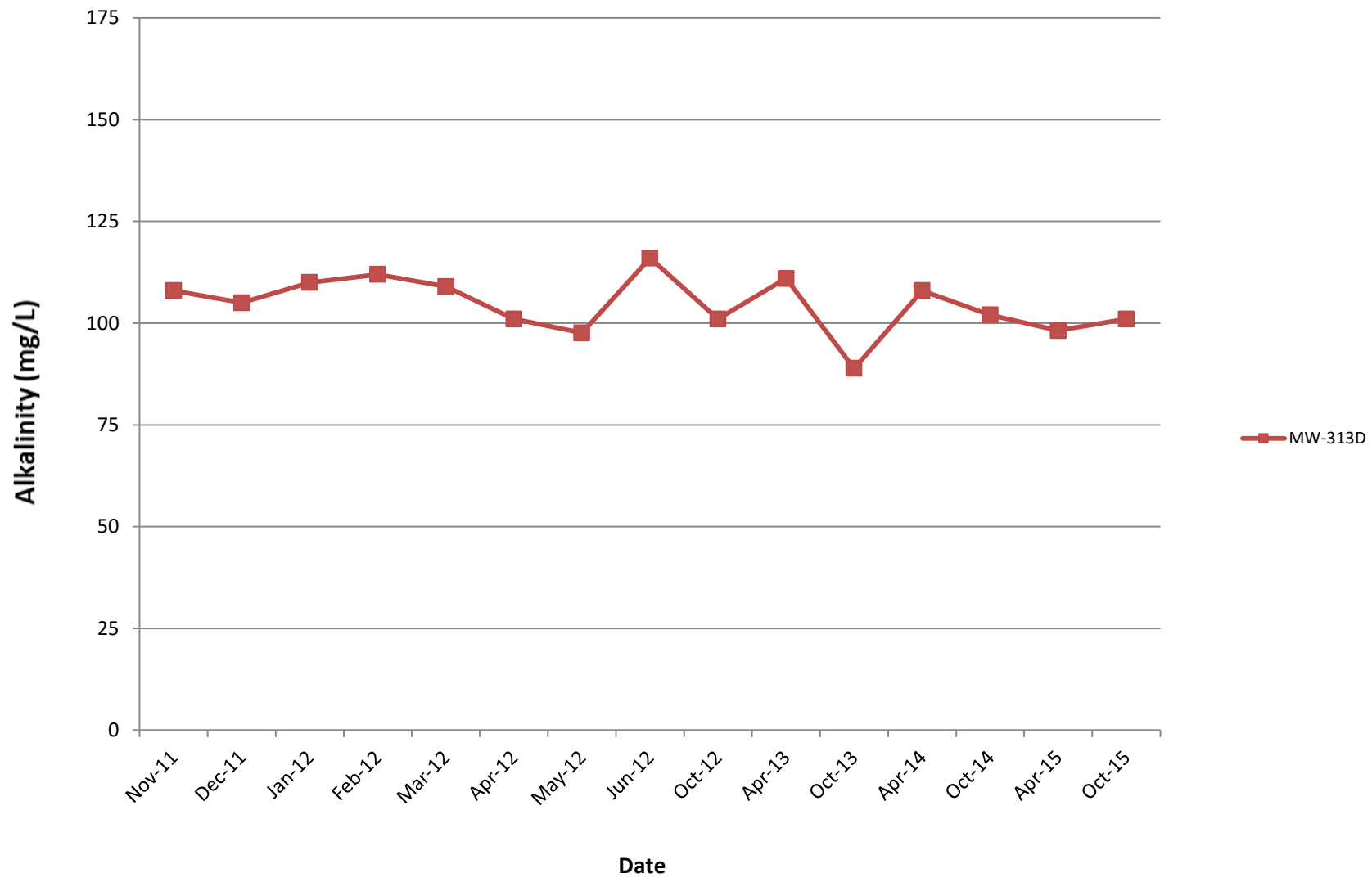
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Alkalinity)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Alkalinity)

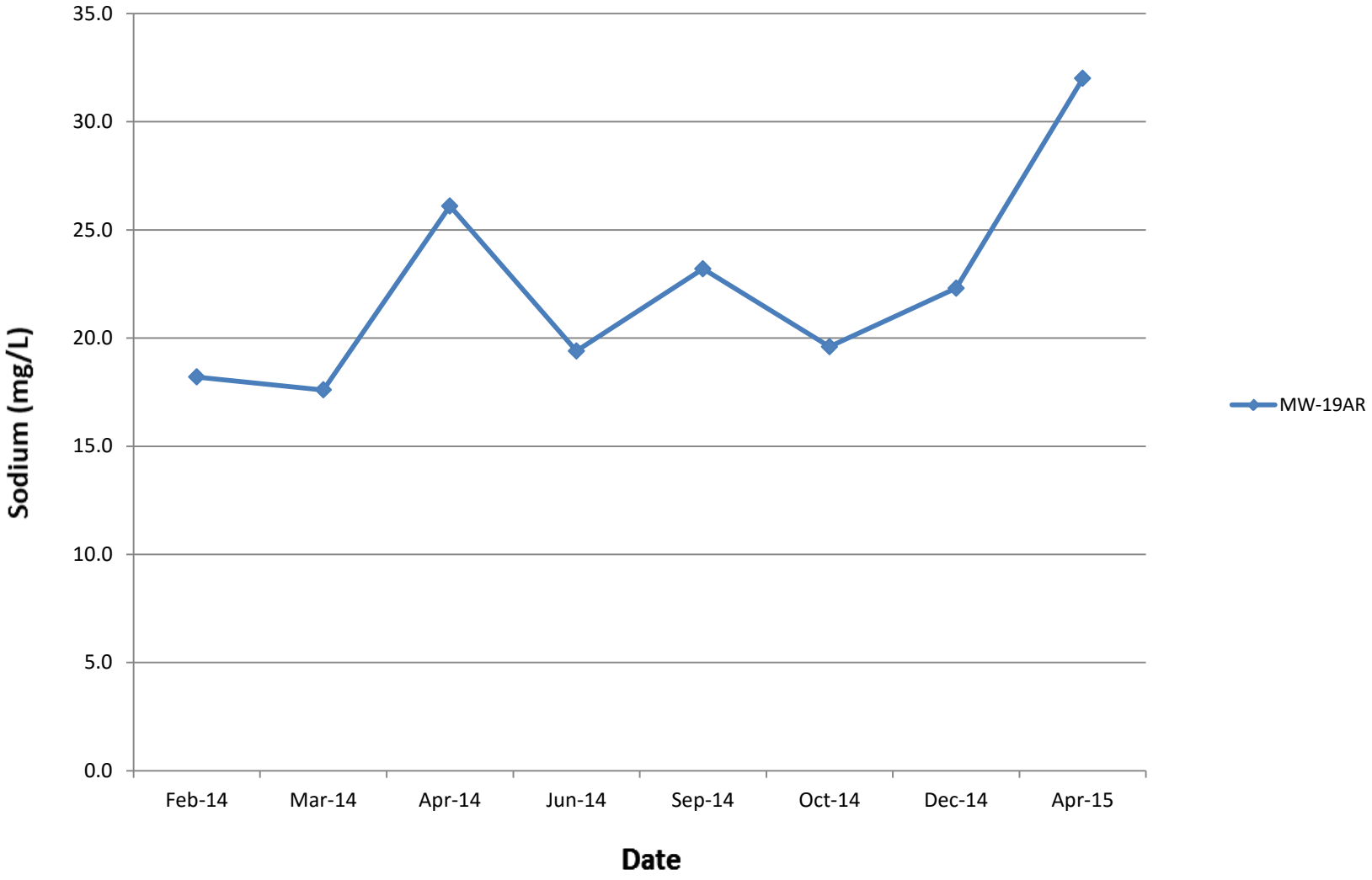


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Alkalinity)

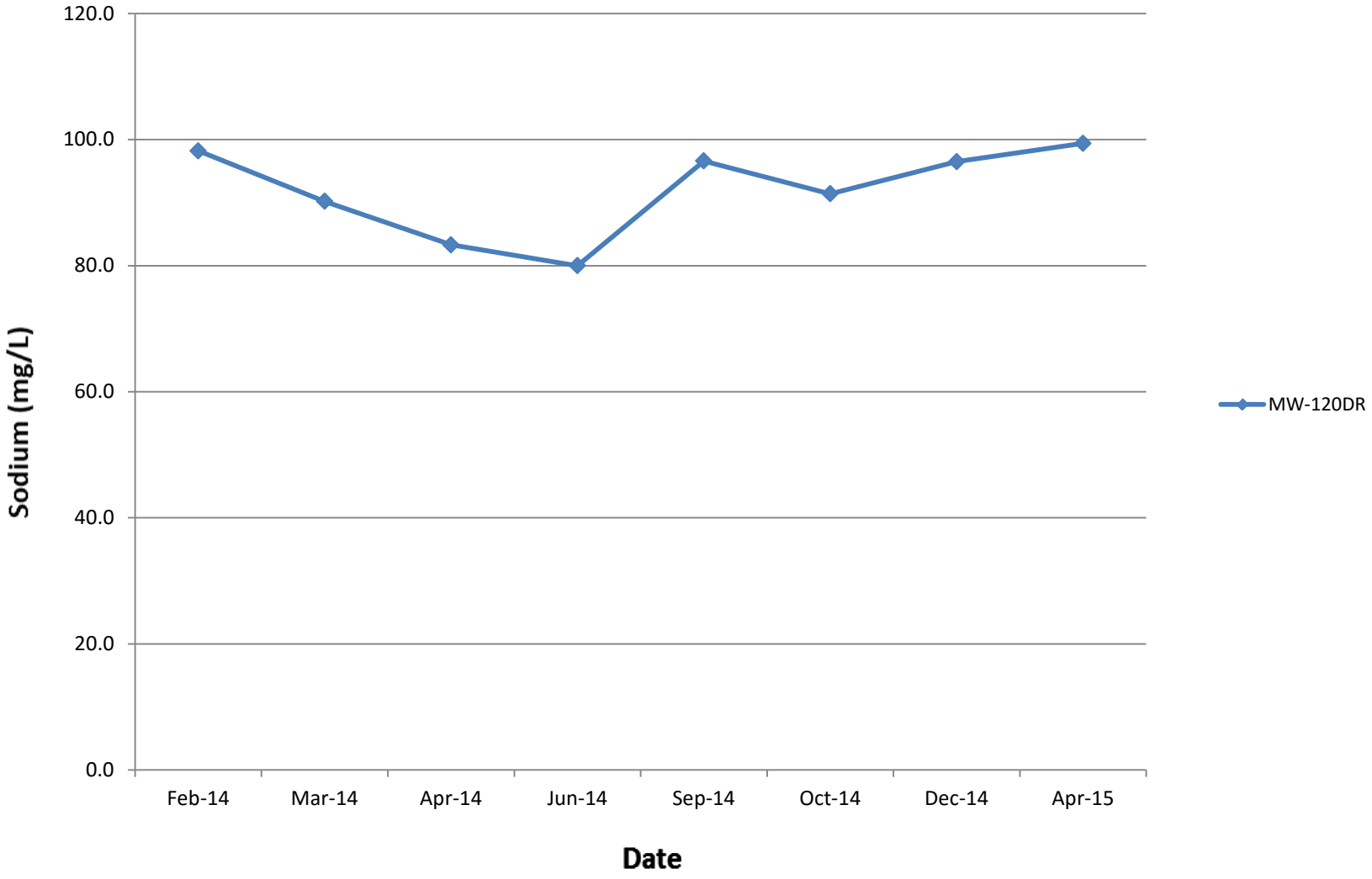


SODIUM

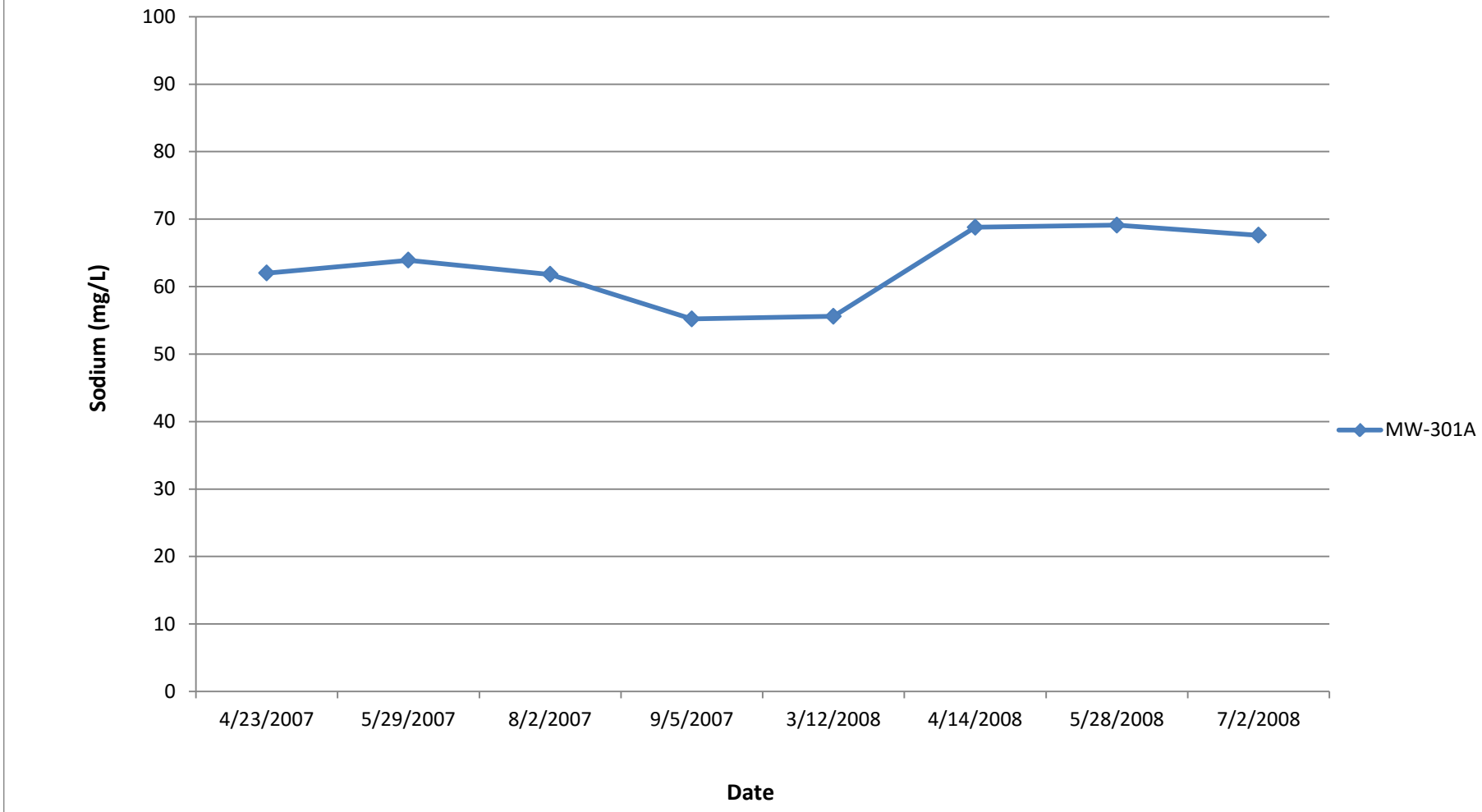
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



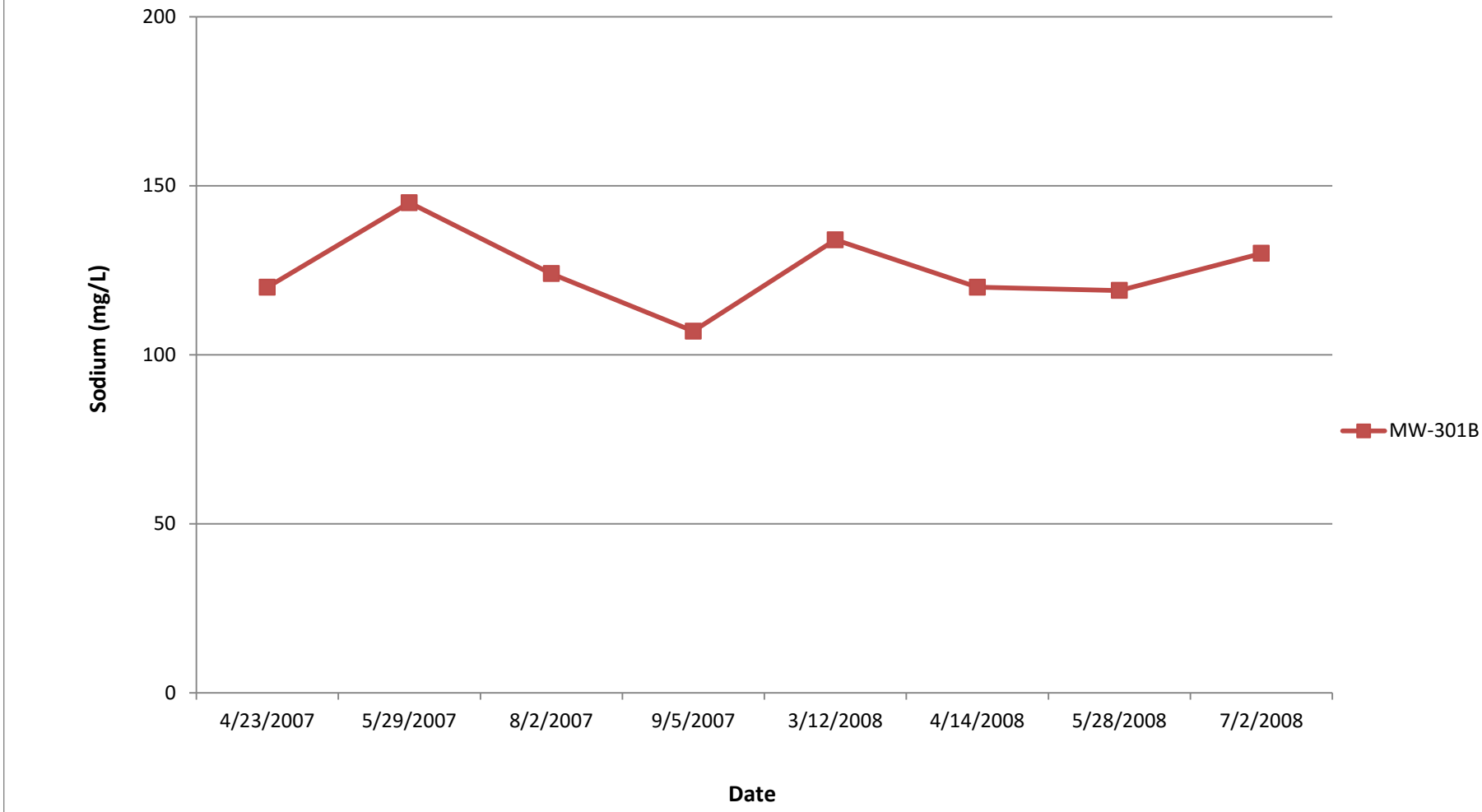
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



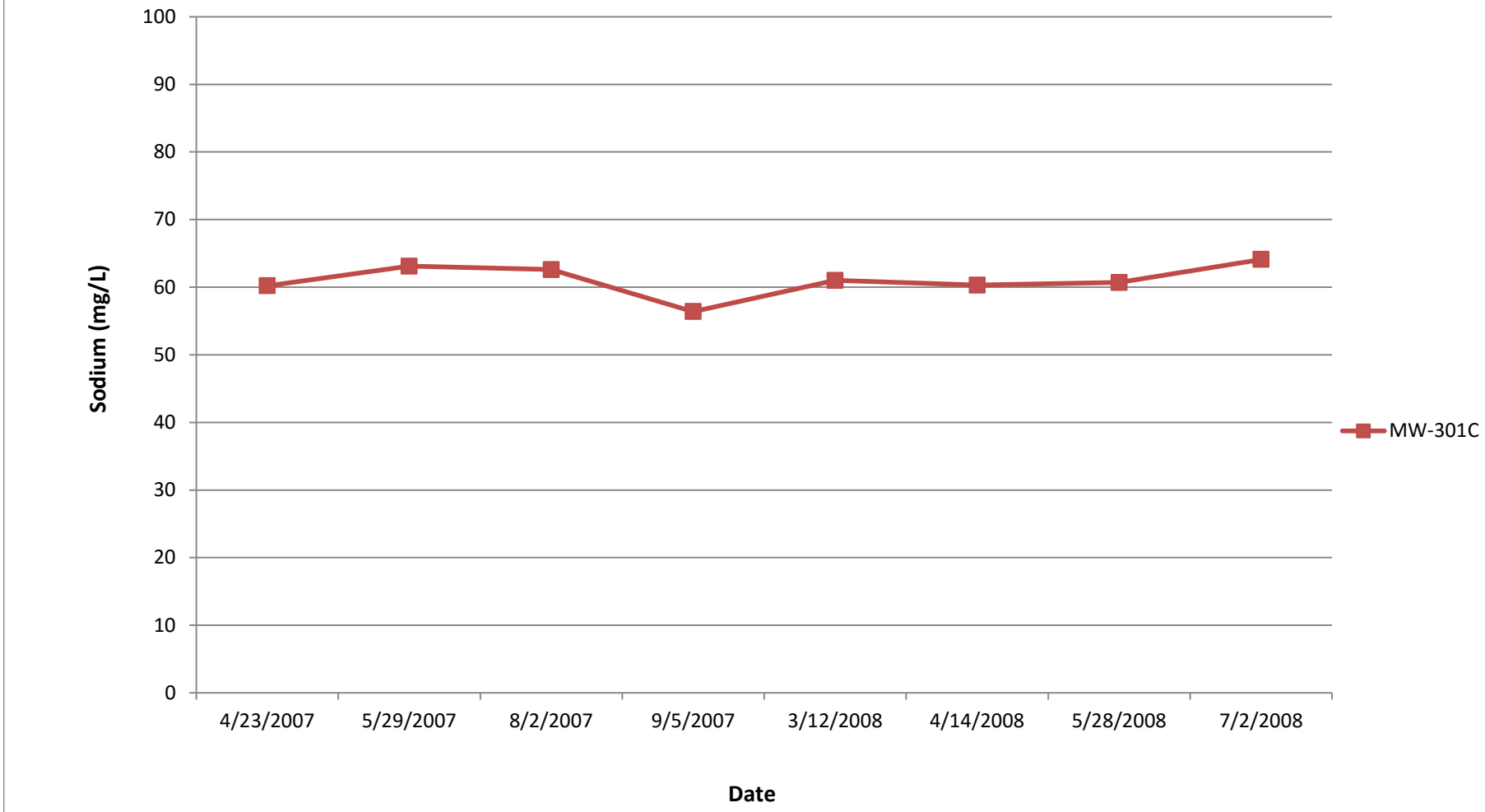
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



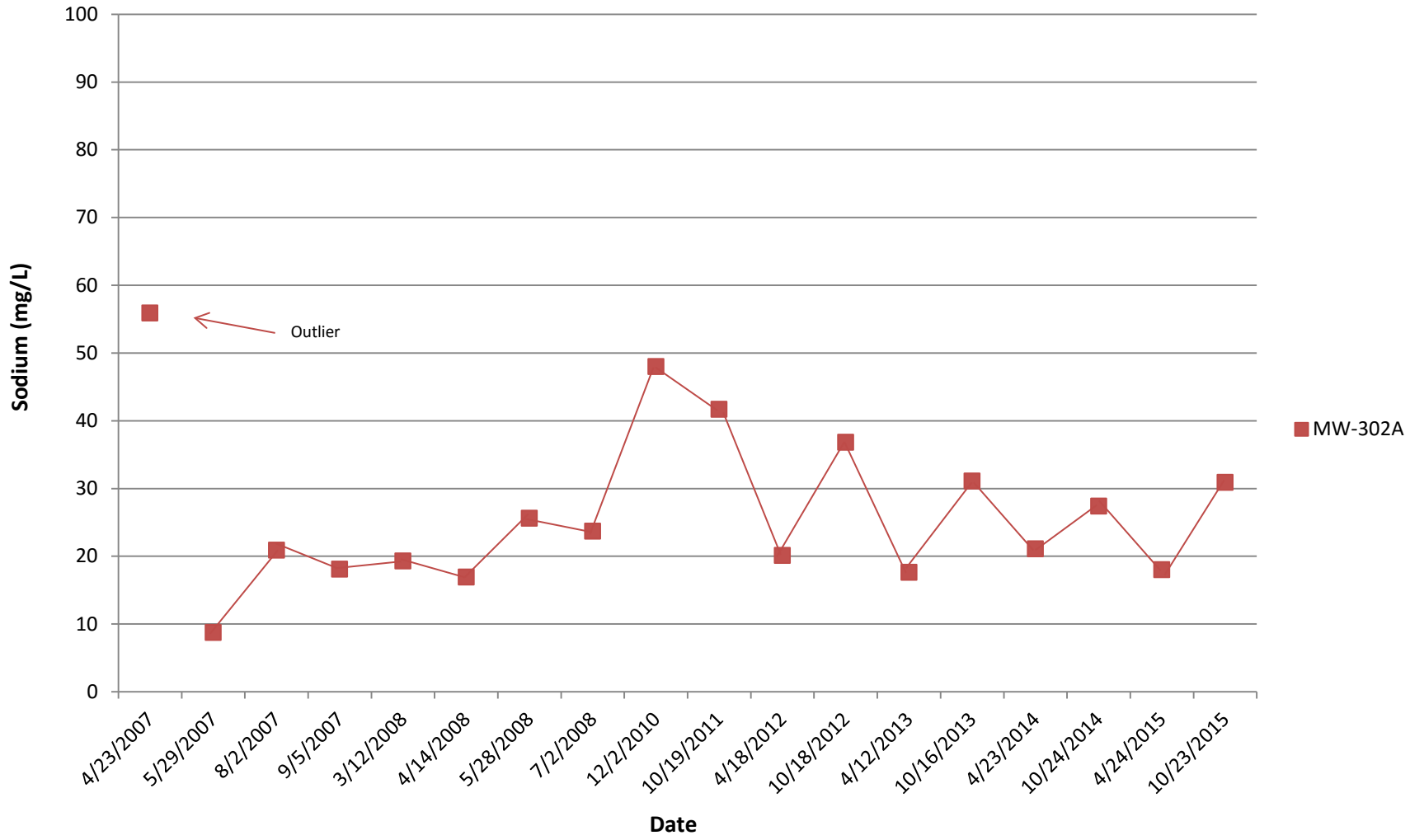
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



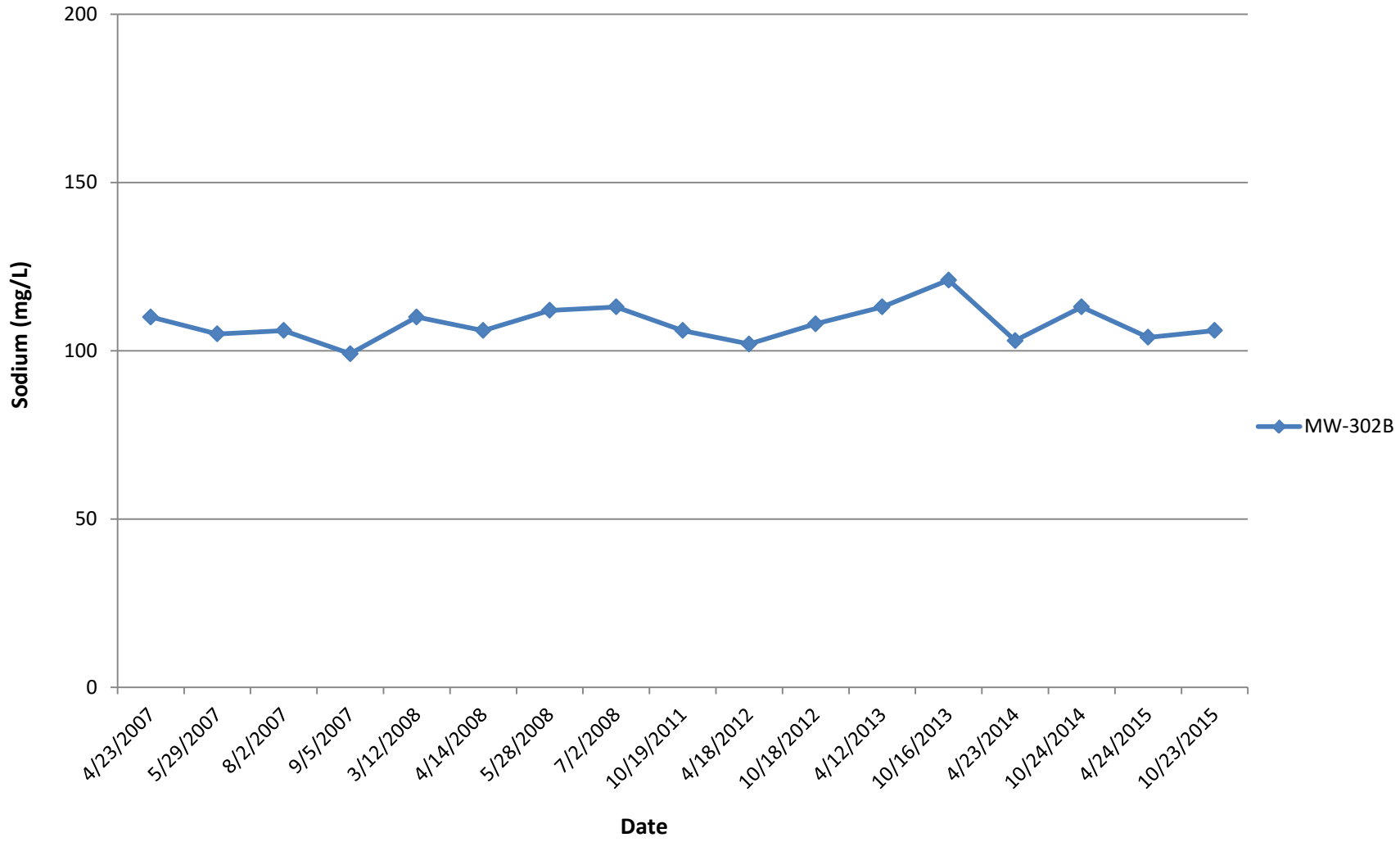
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



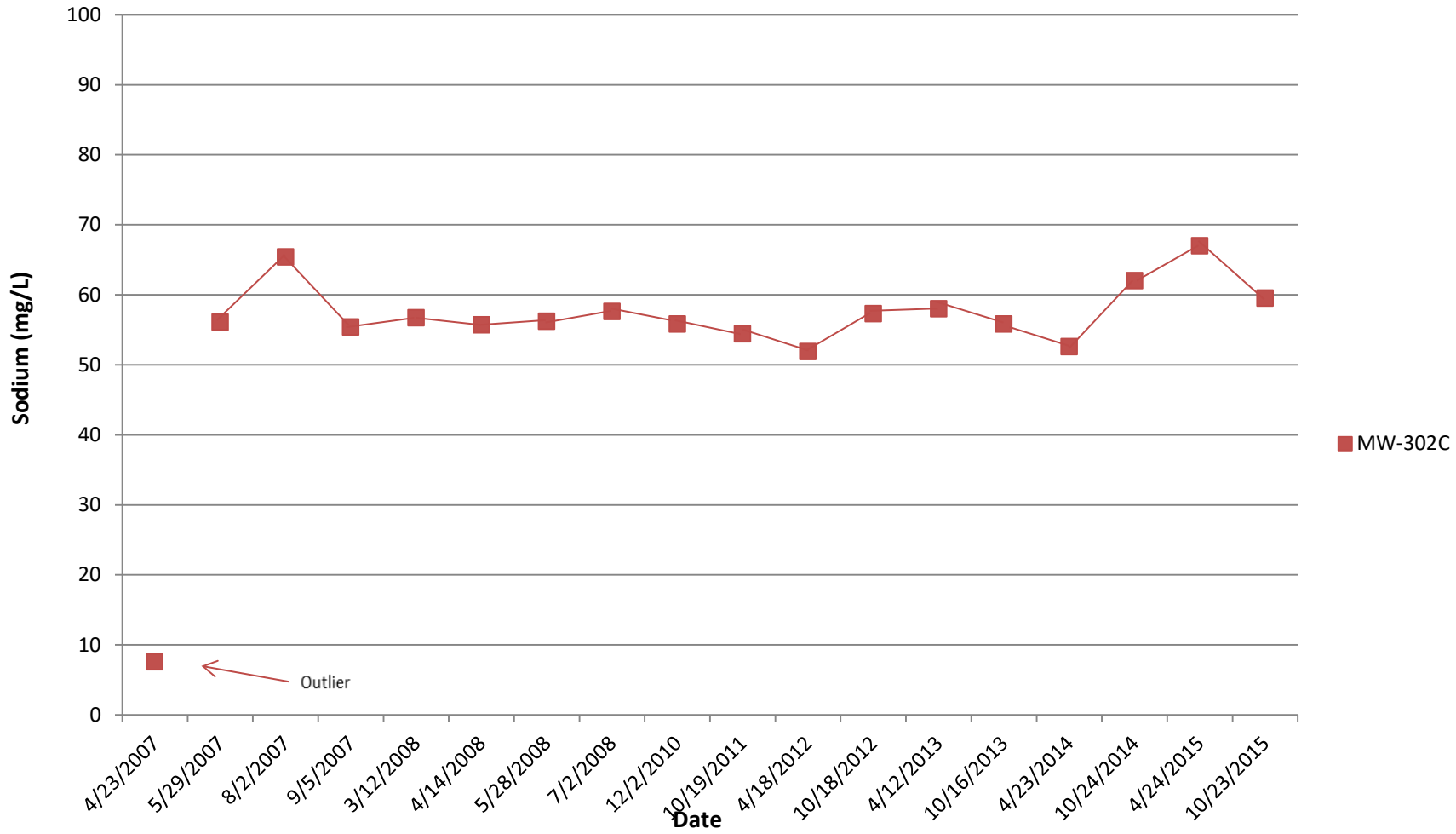
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



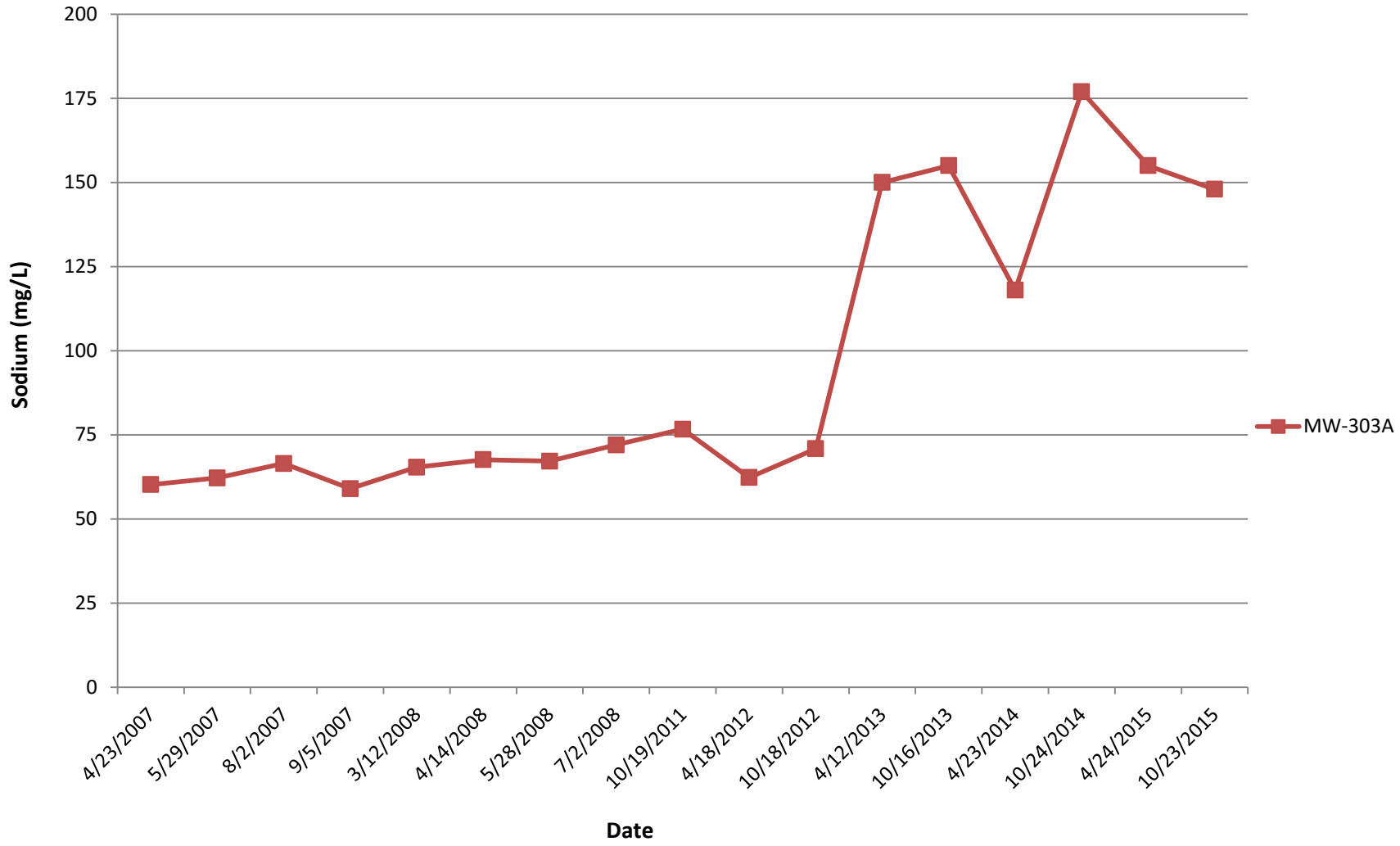
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



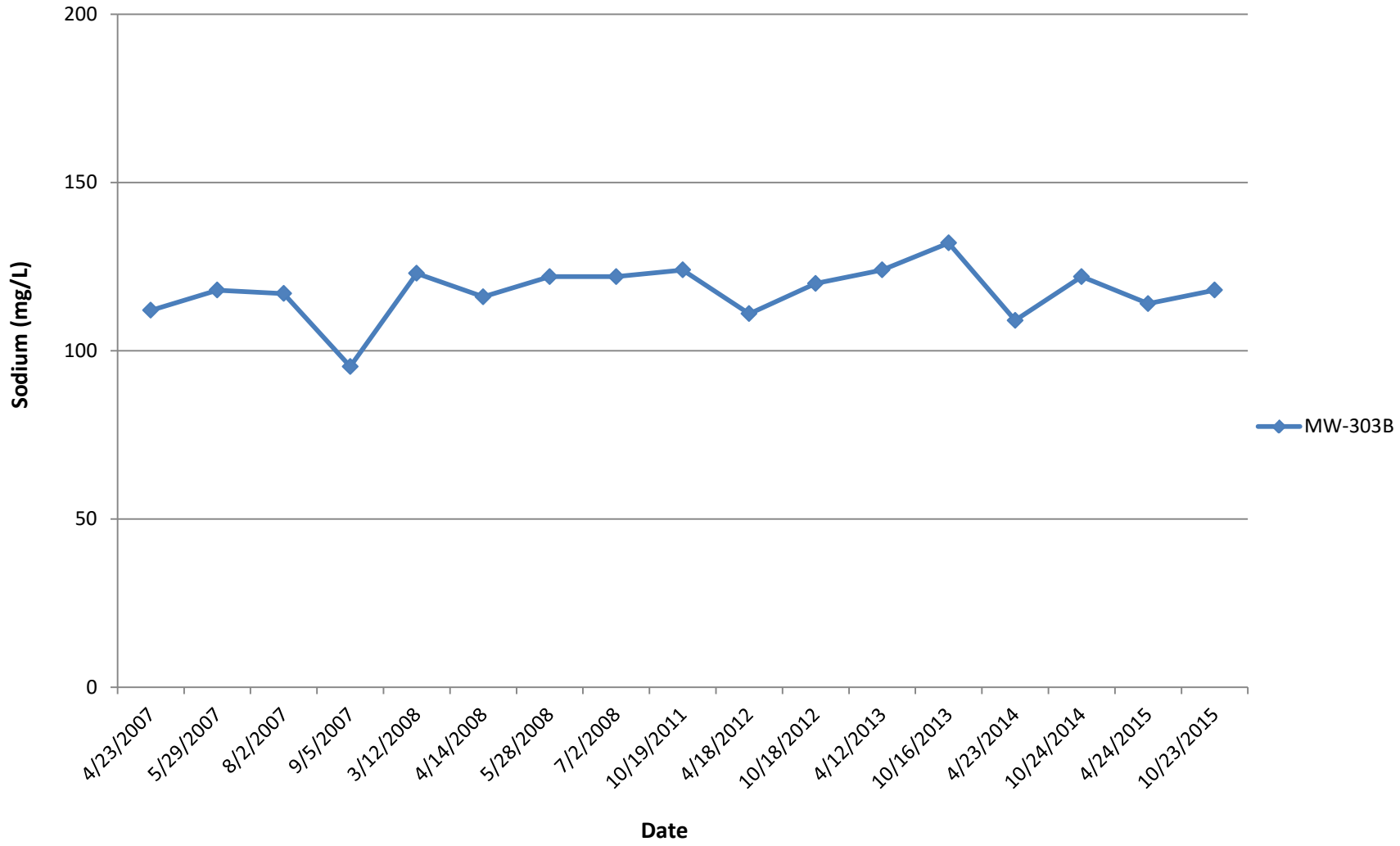
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



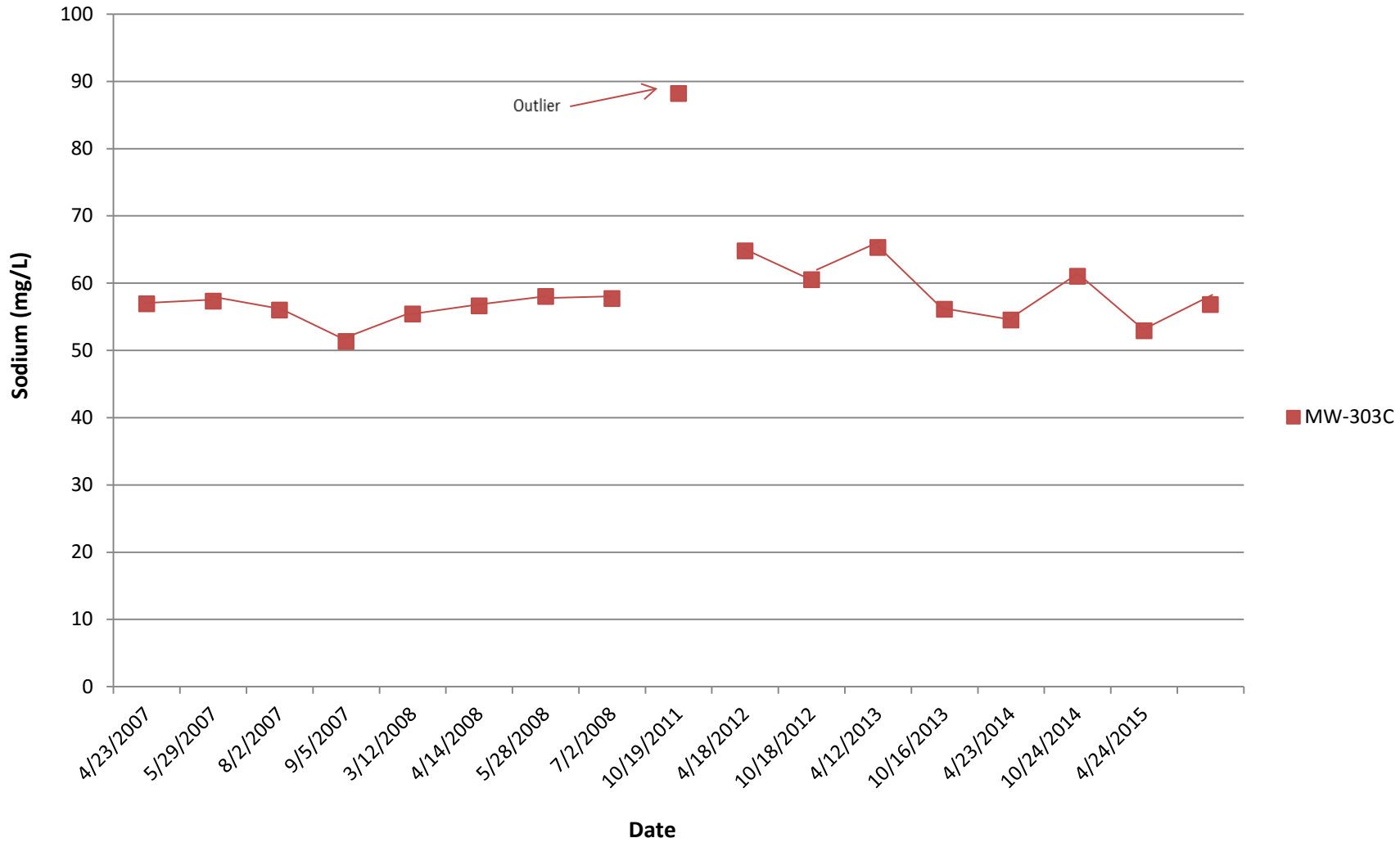
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



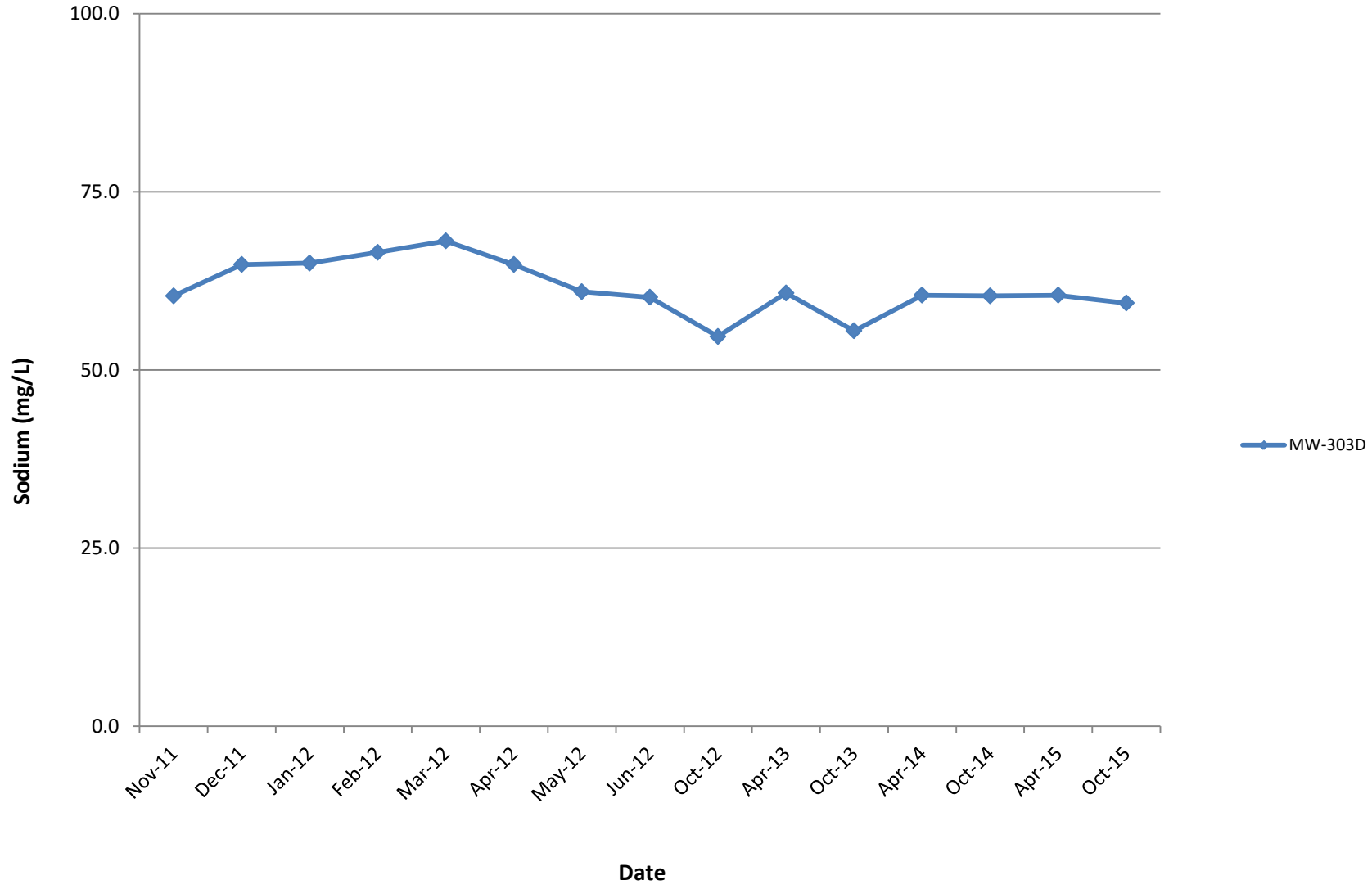
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



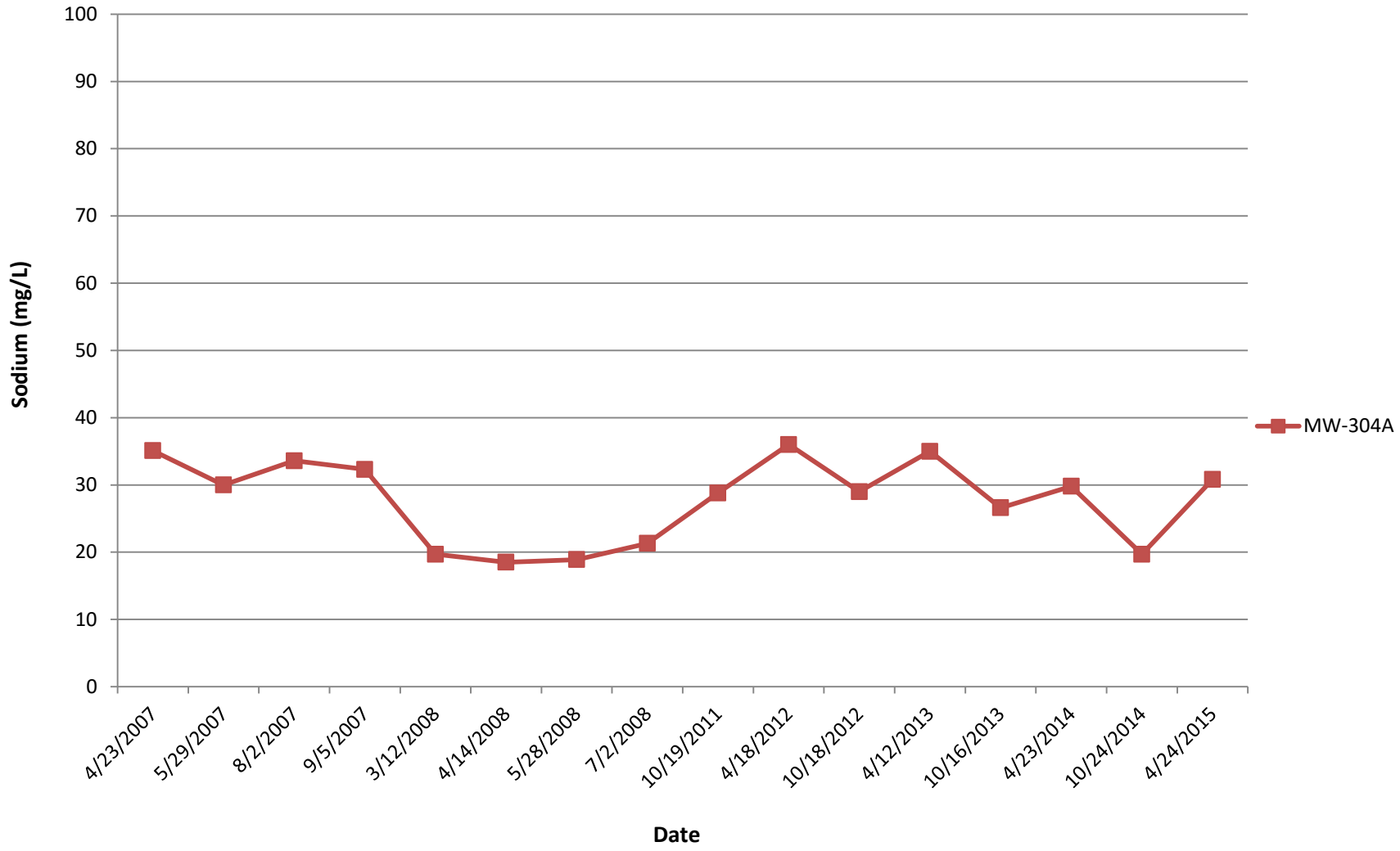
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



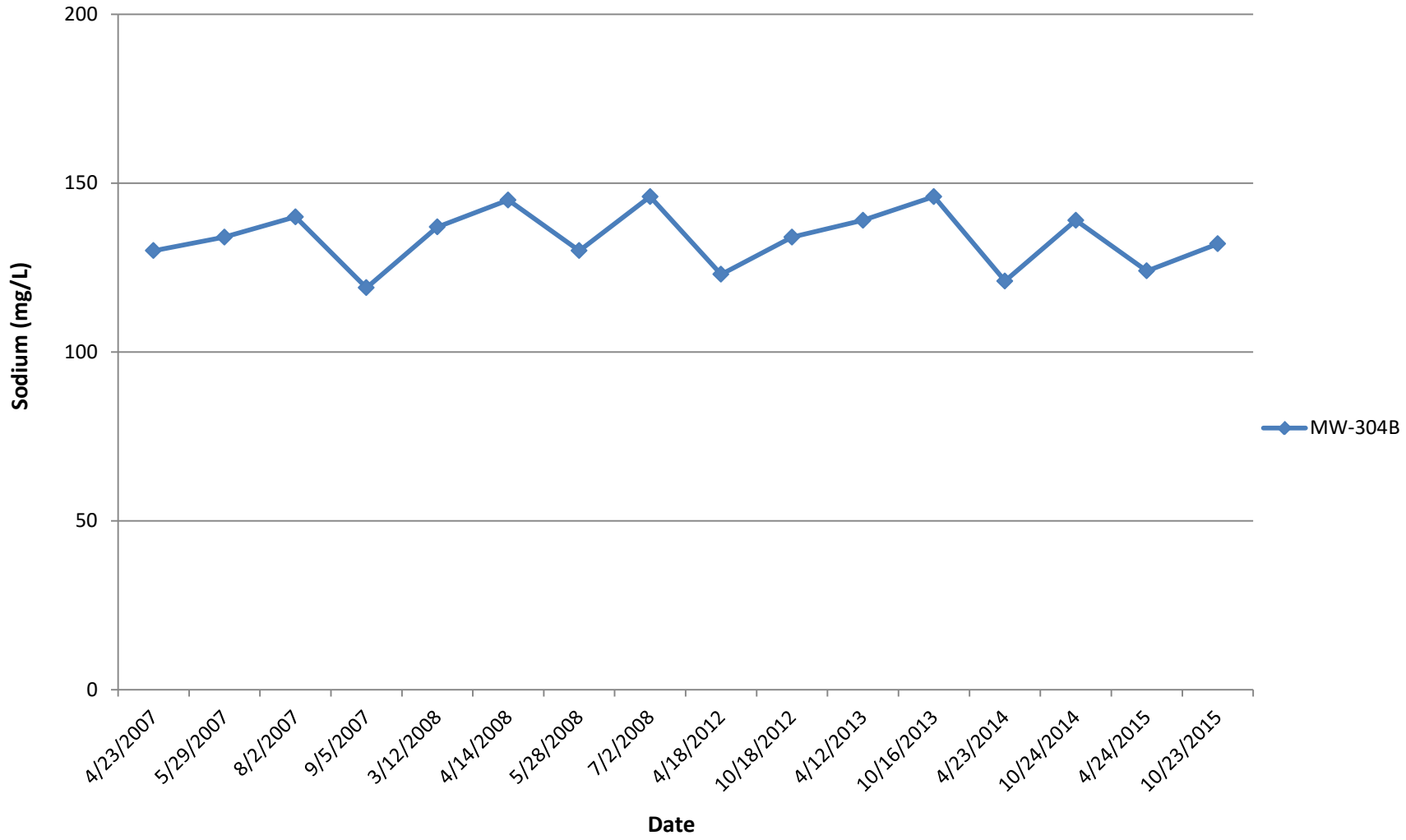
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



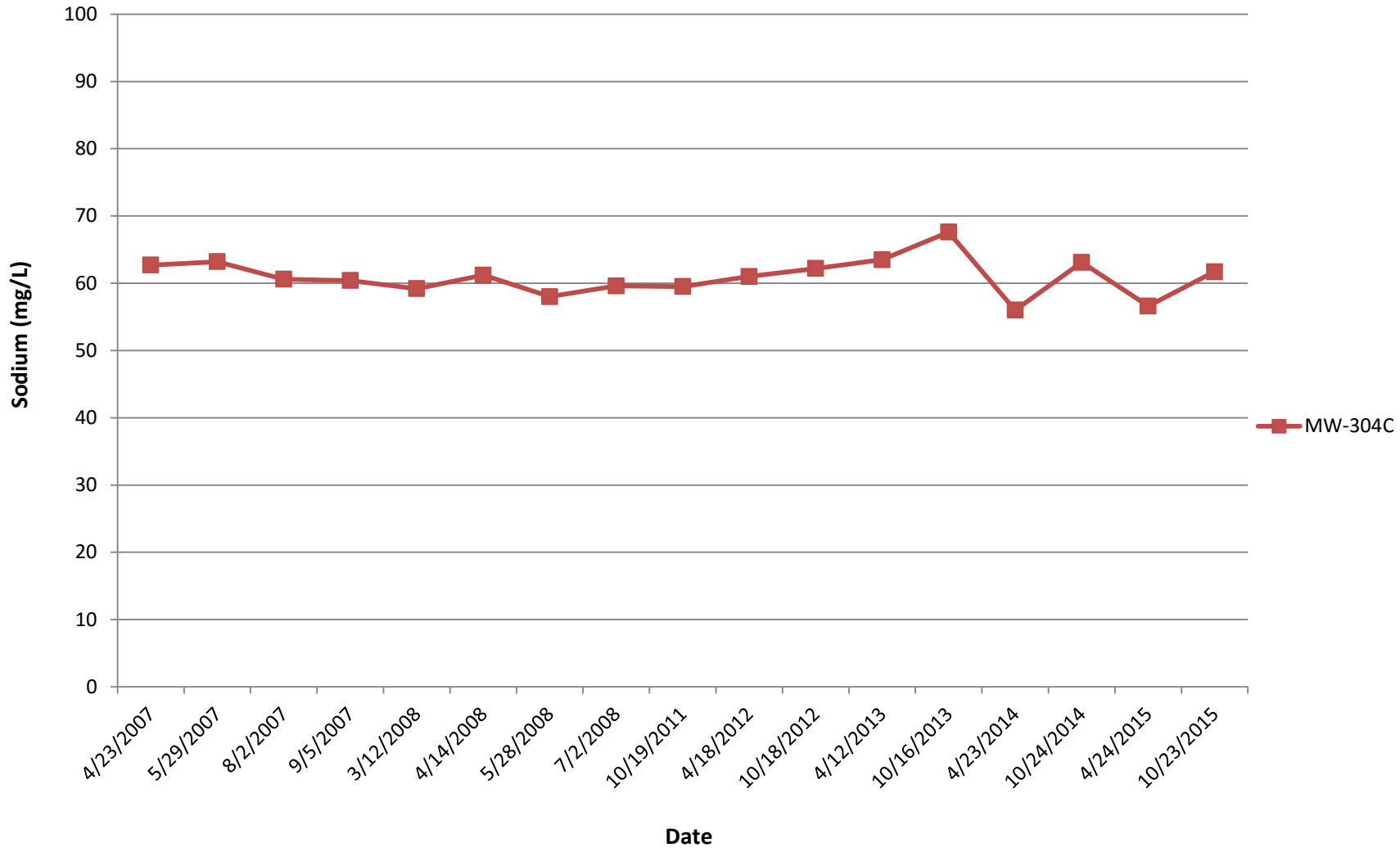
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



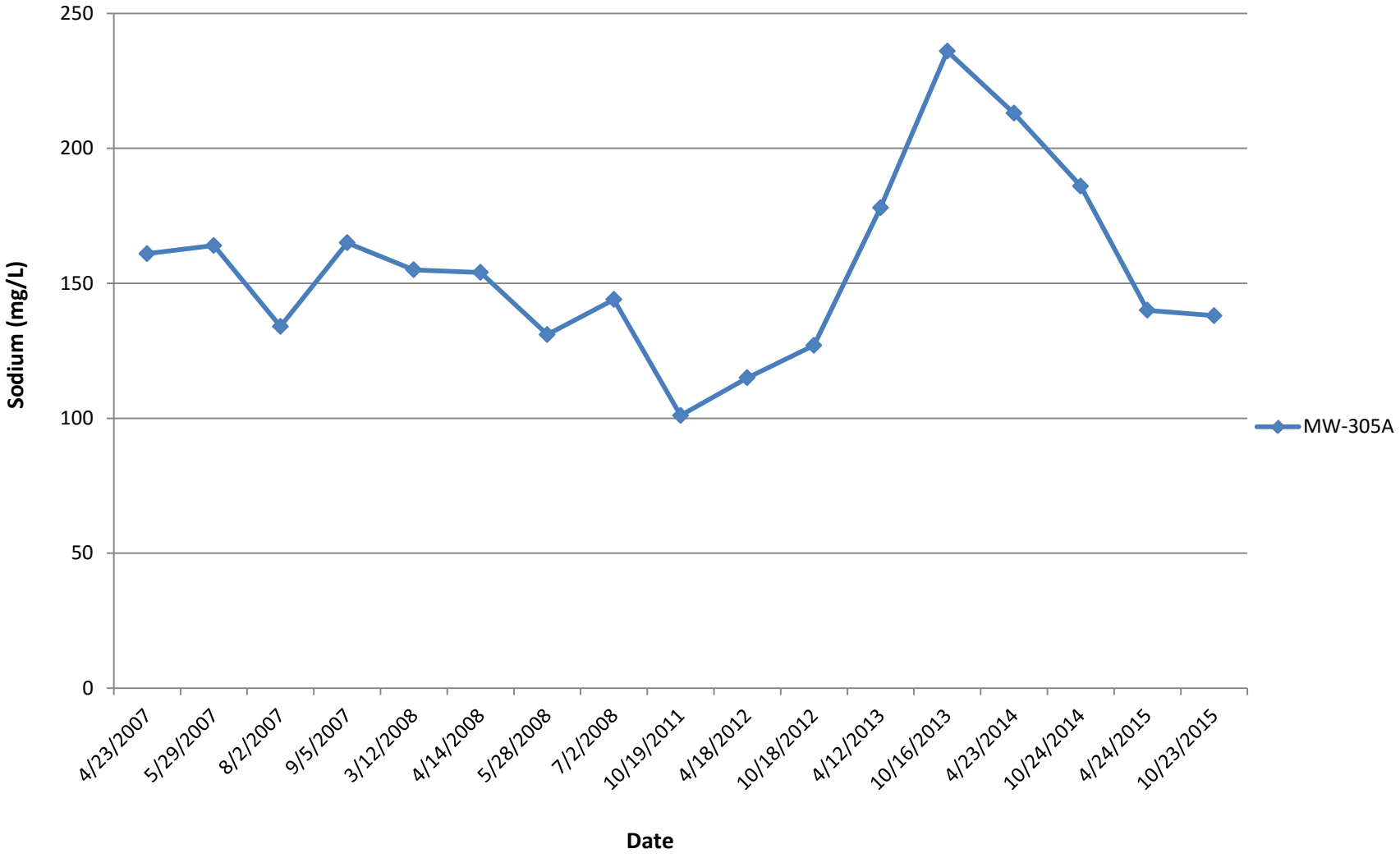
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



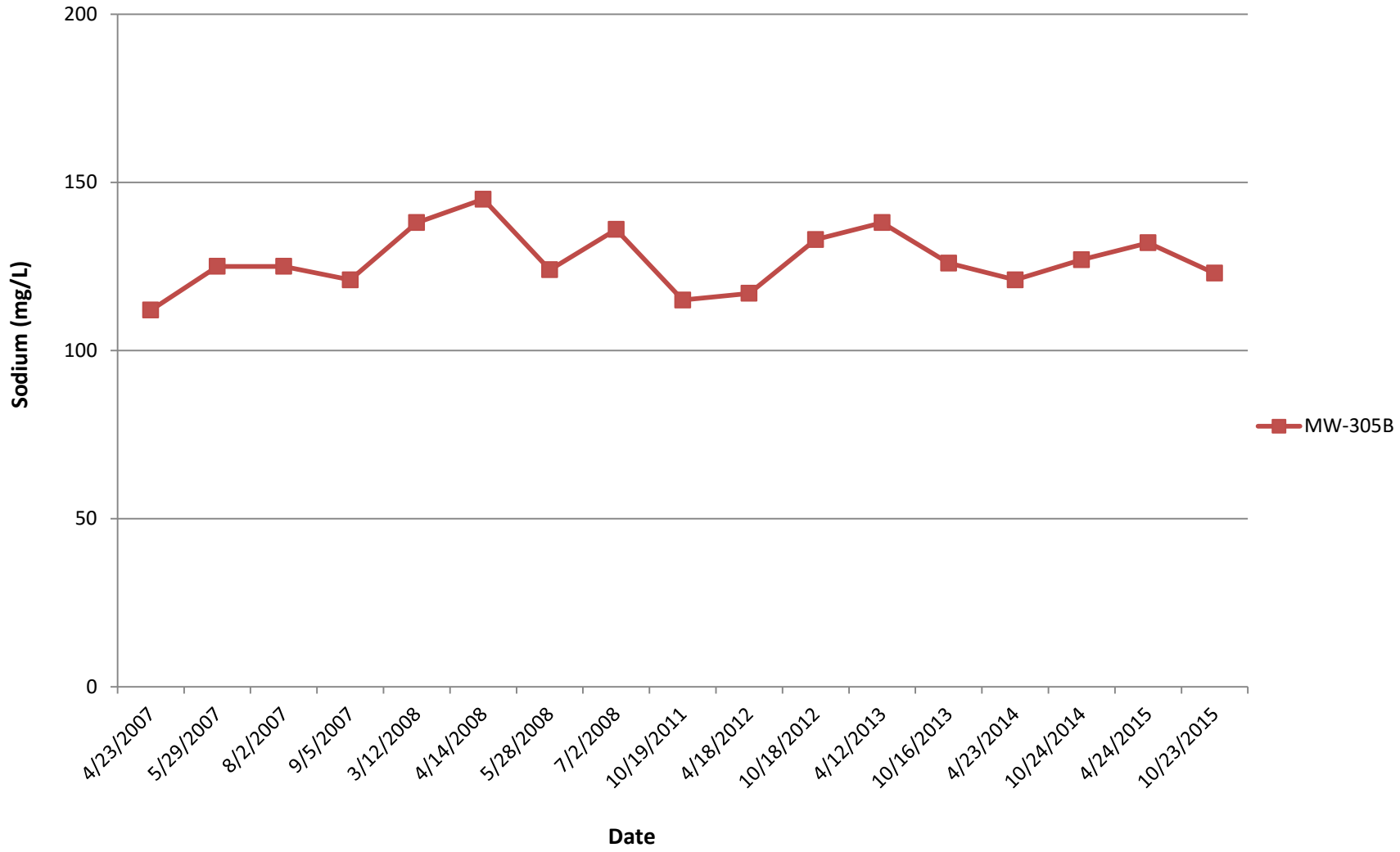
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



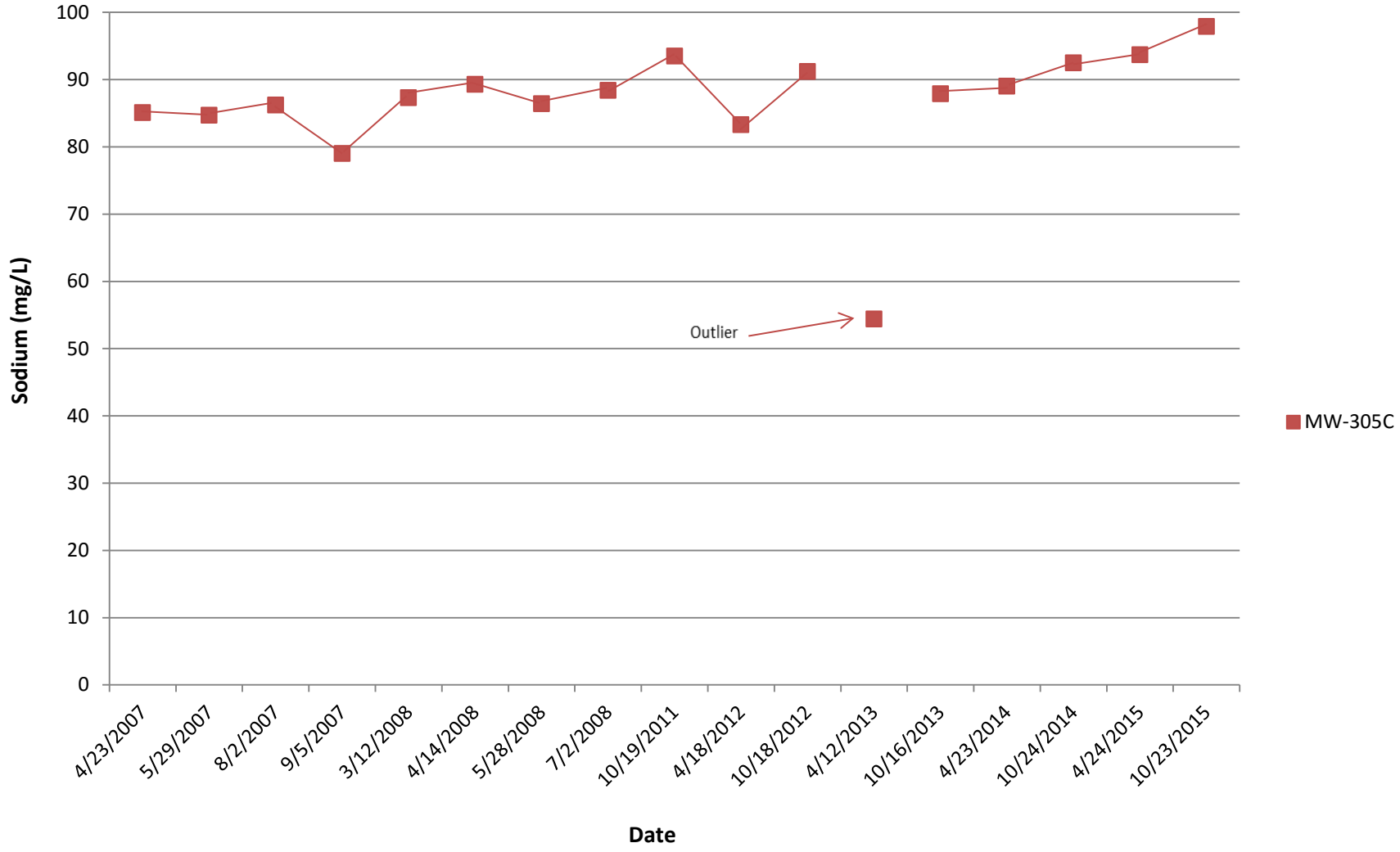
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



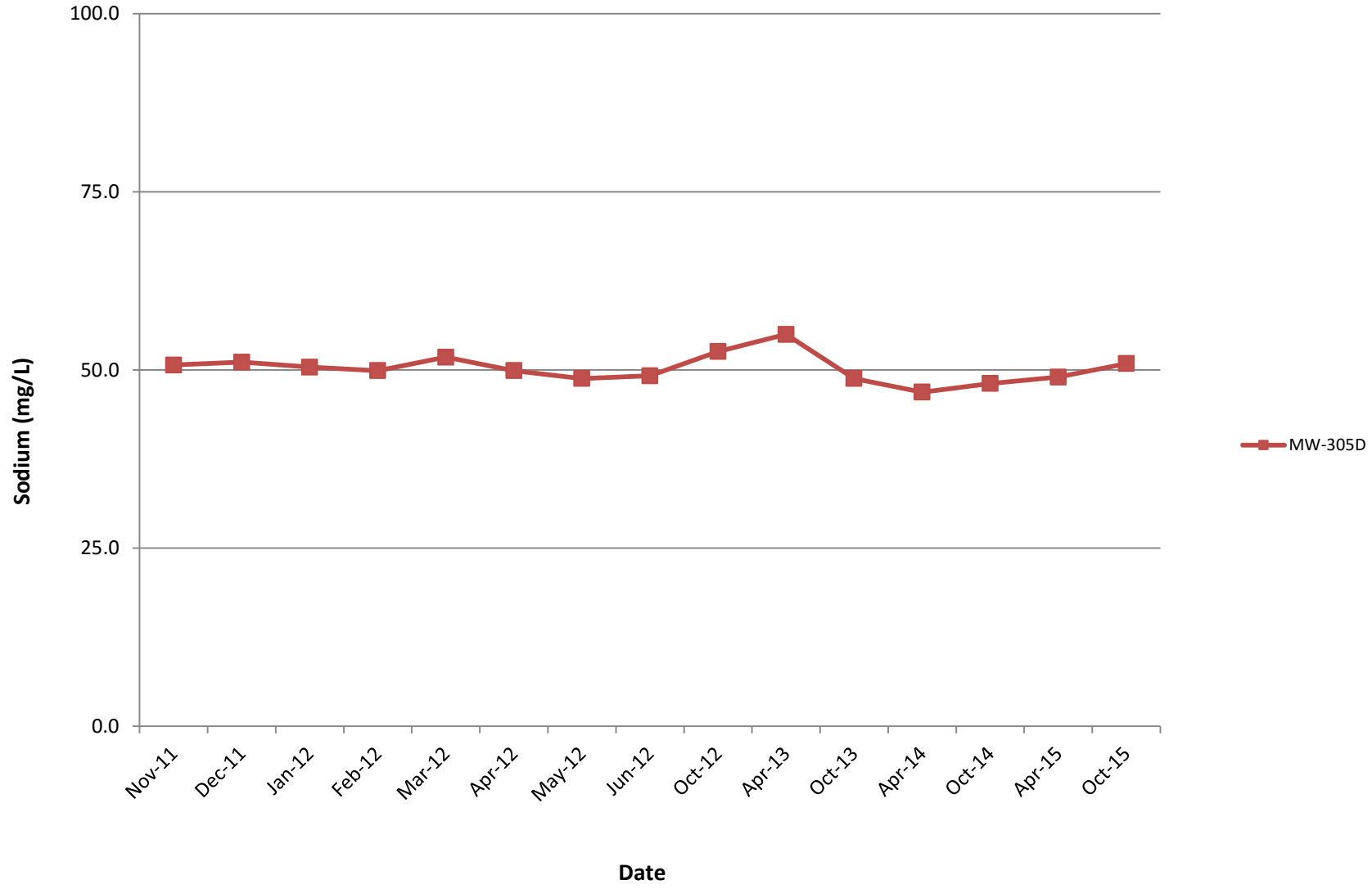
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



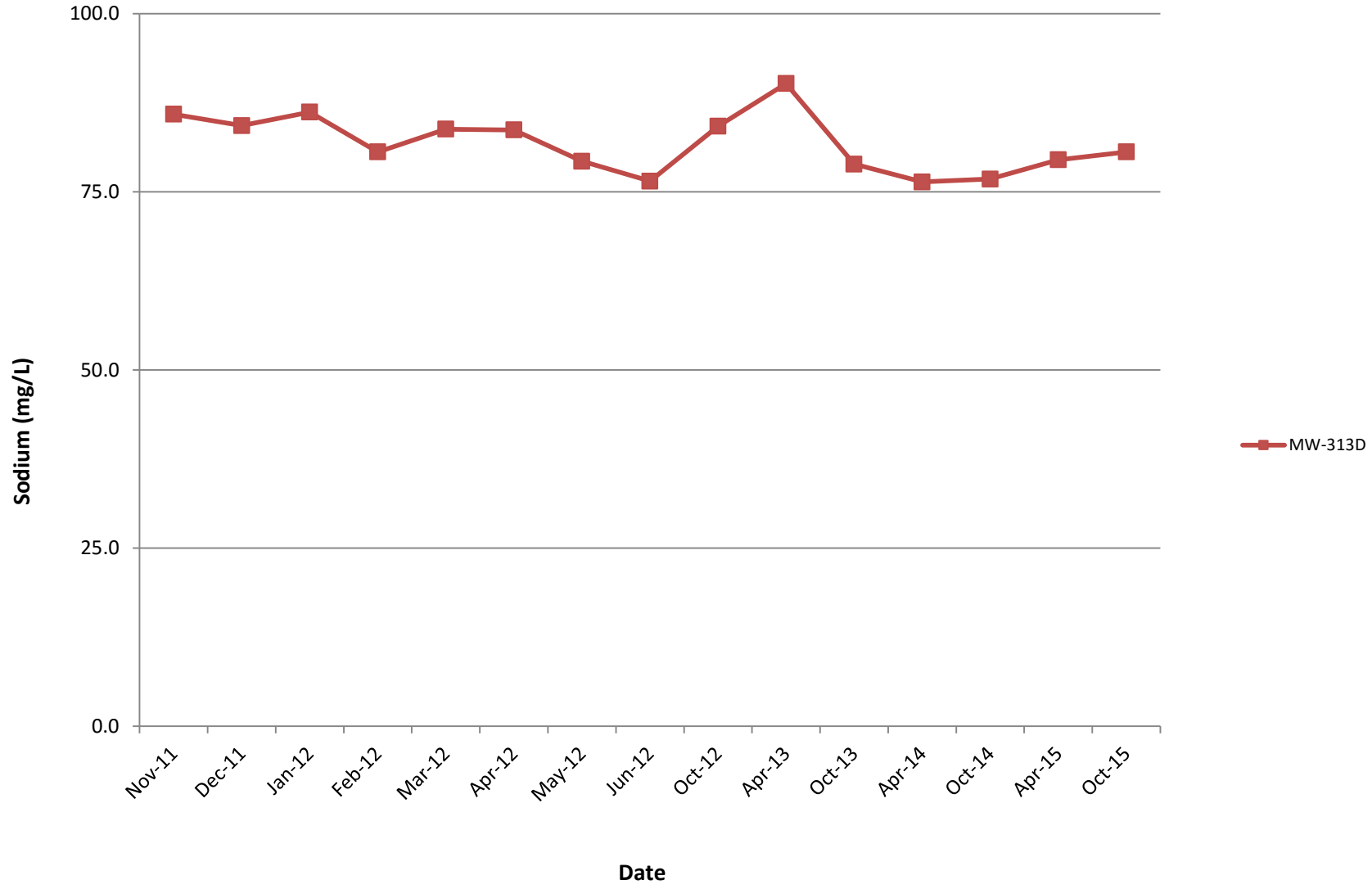
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)

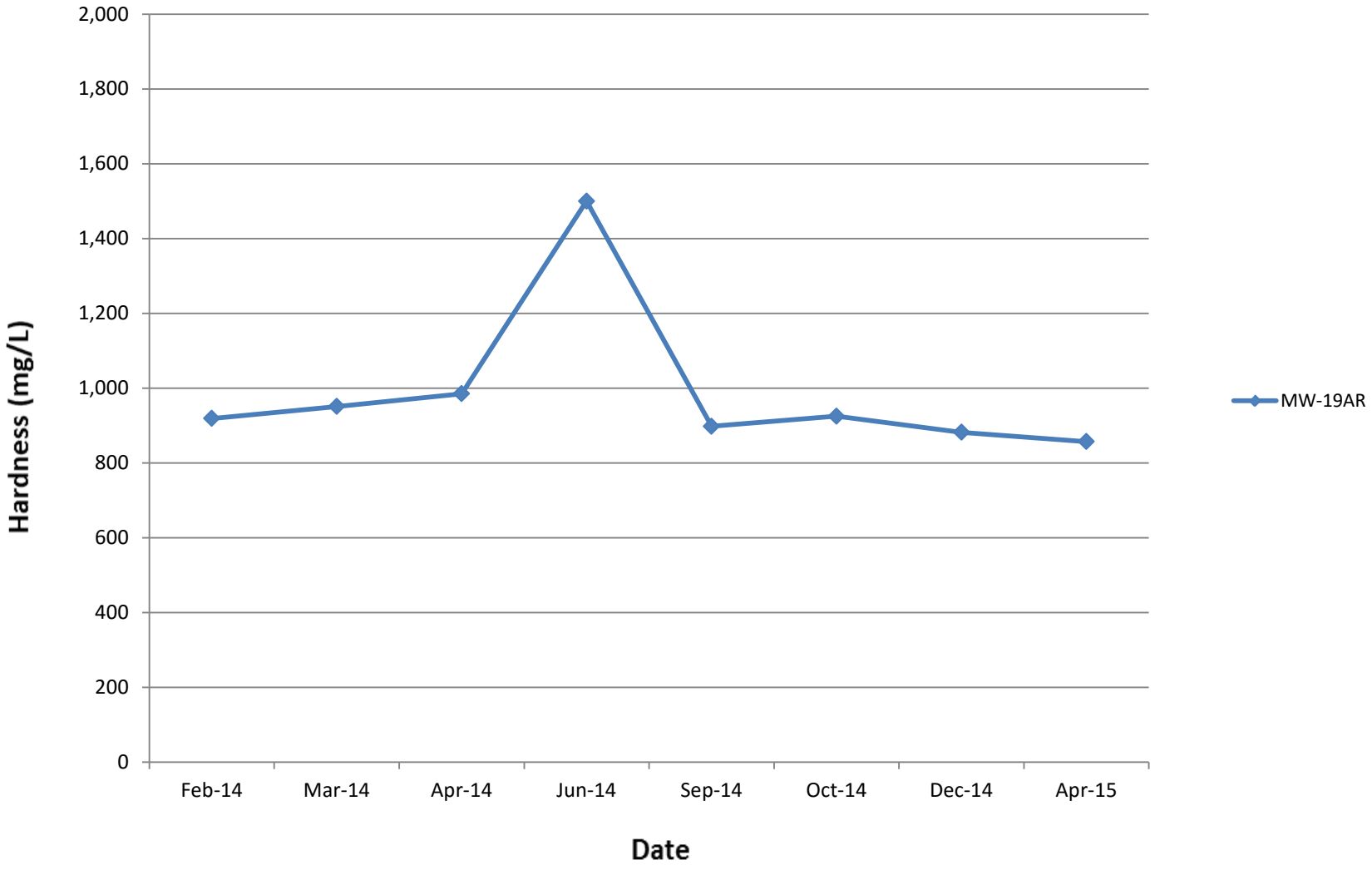


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sodium)

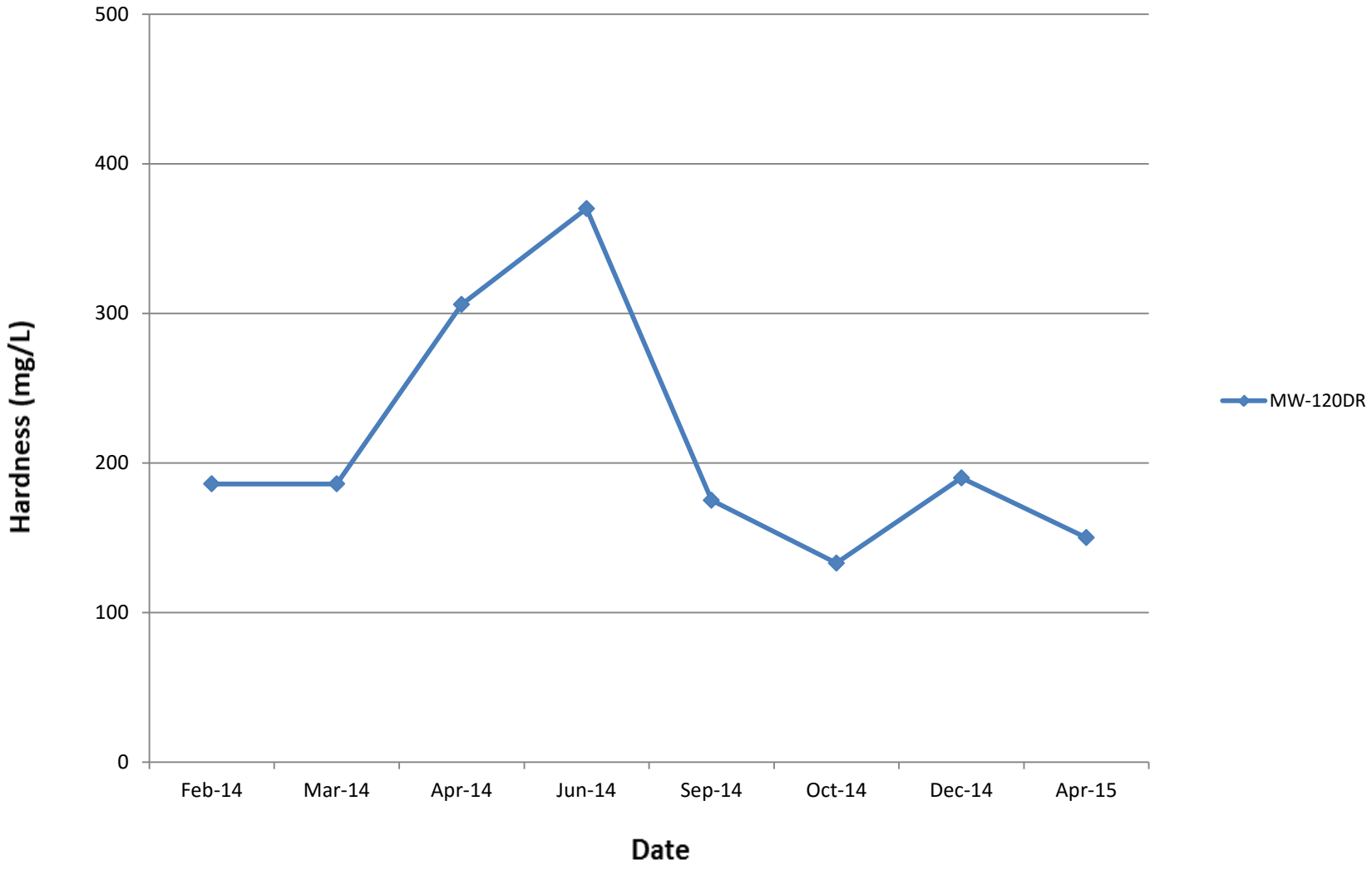


HARDNESS

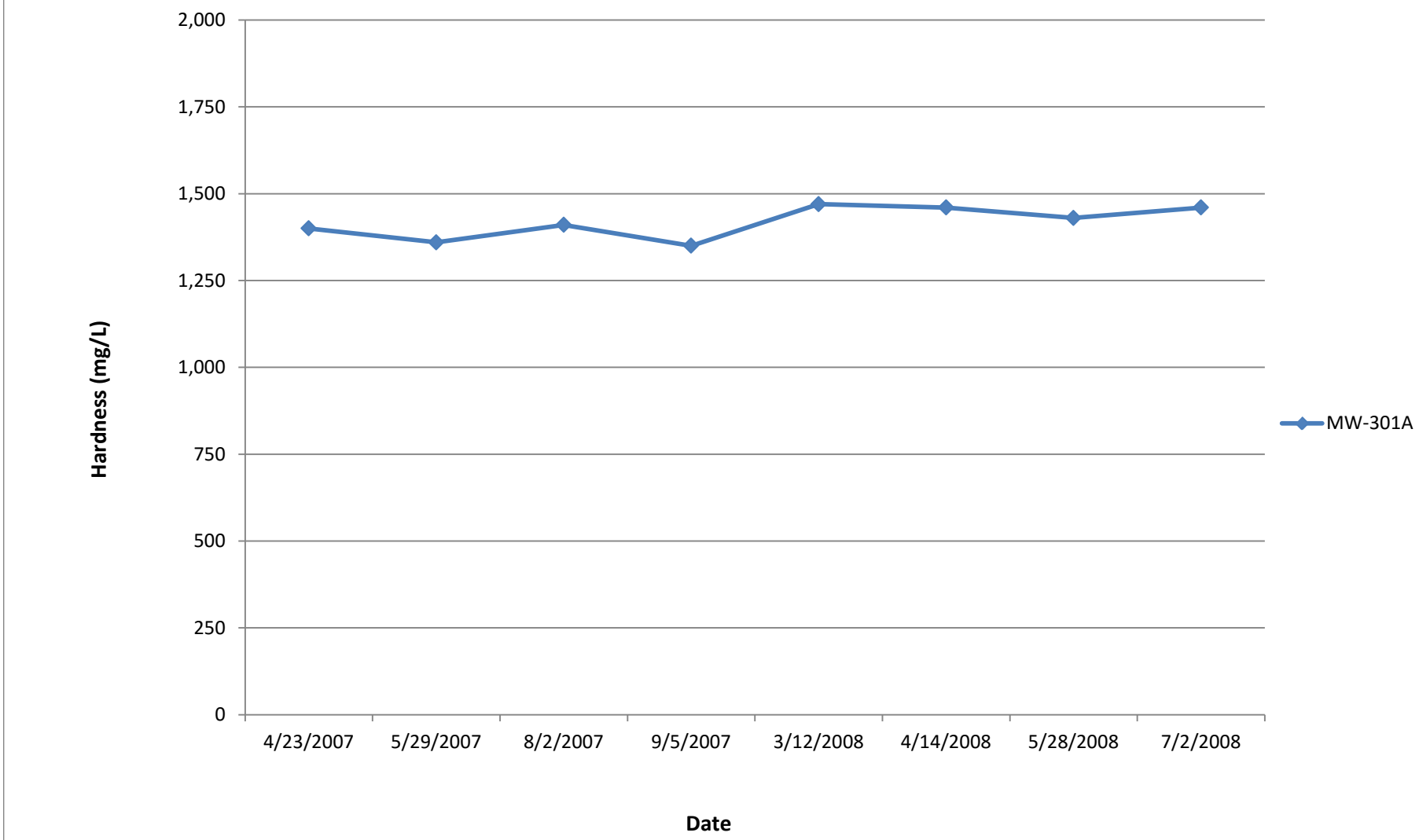
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



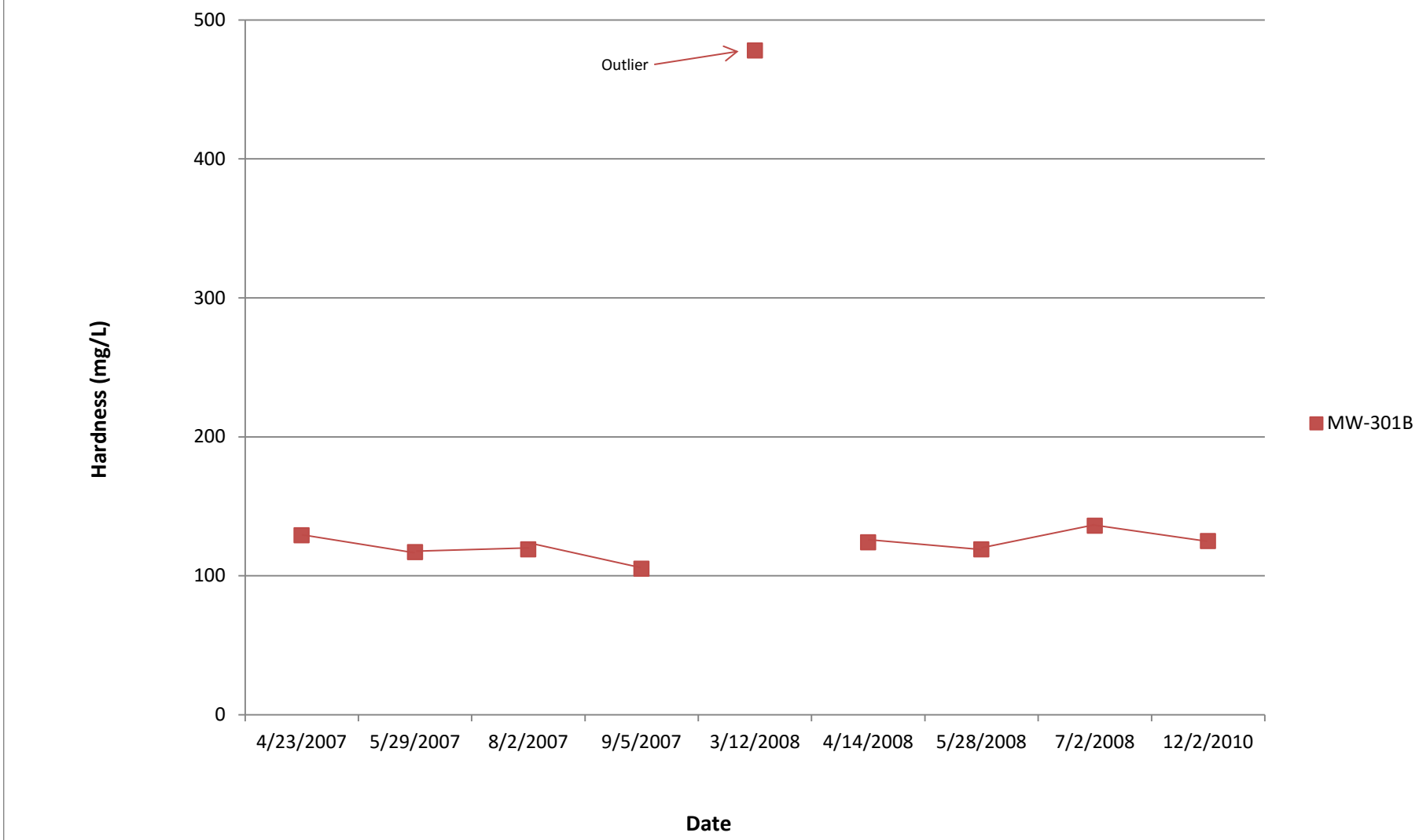
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



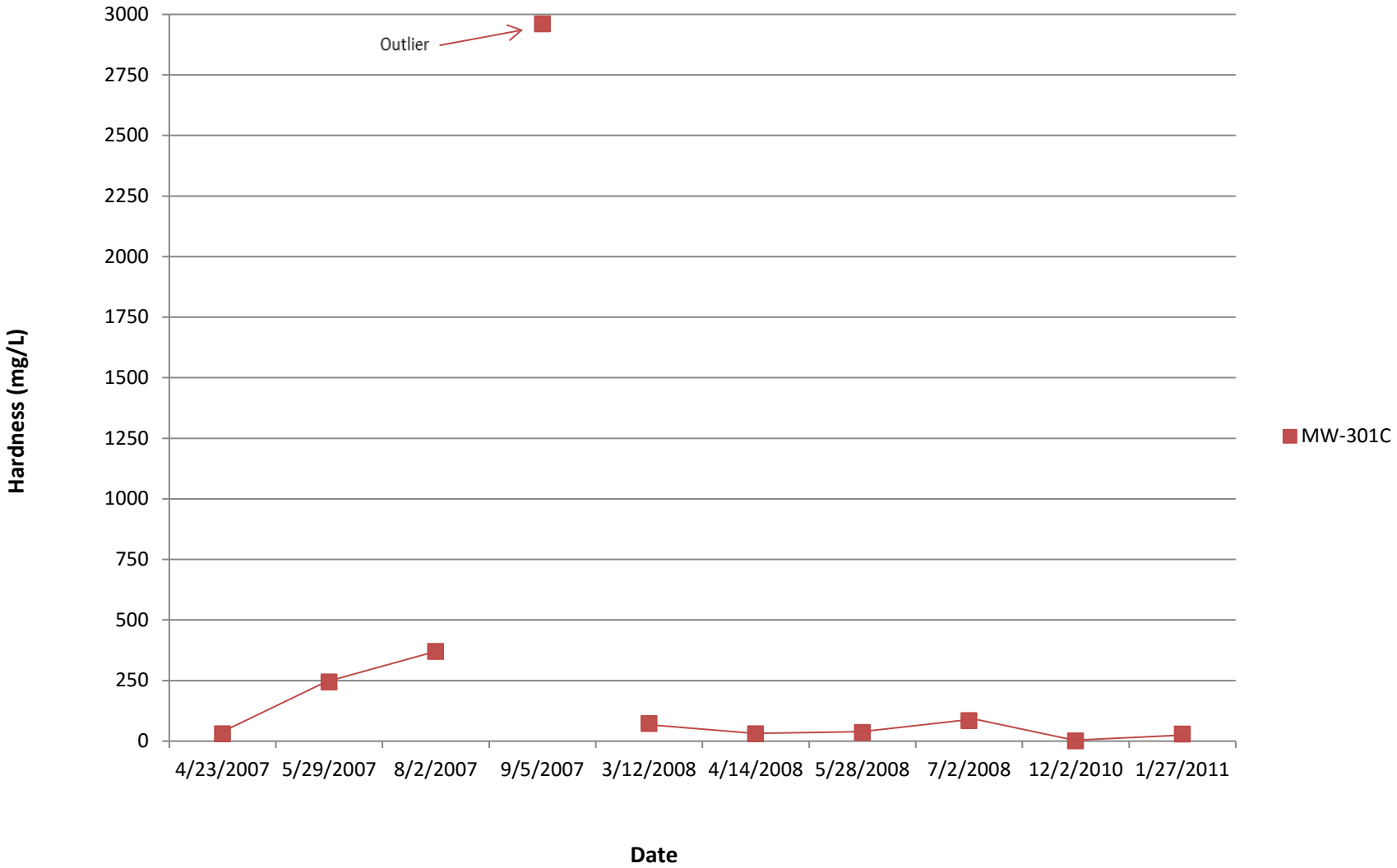
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



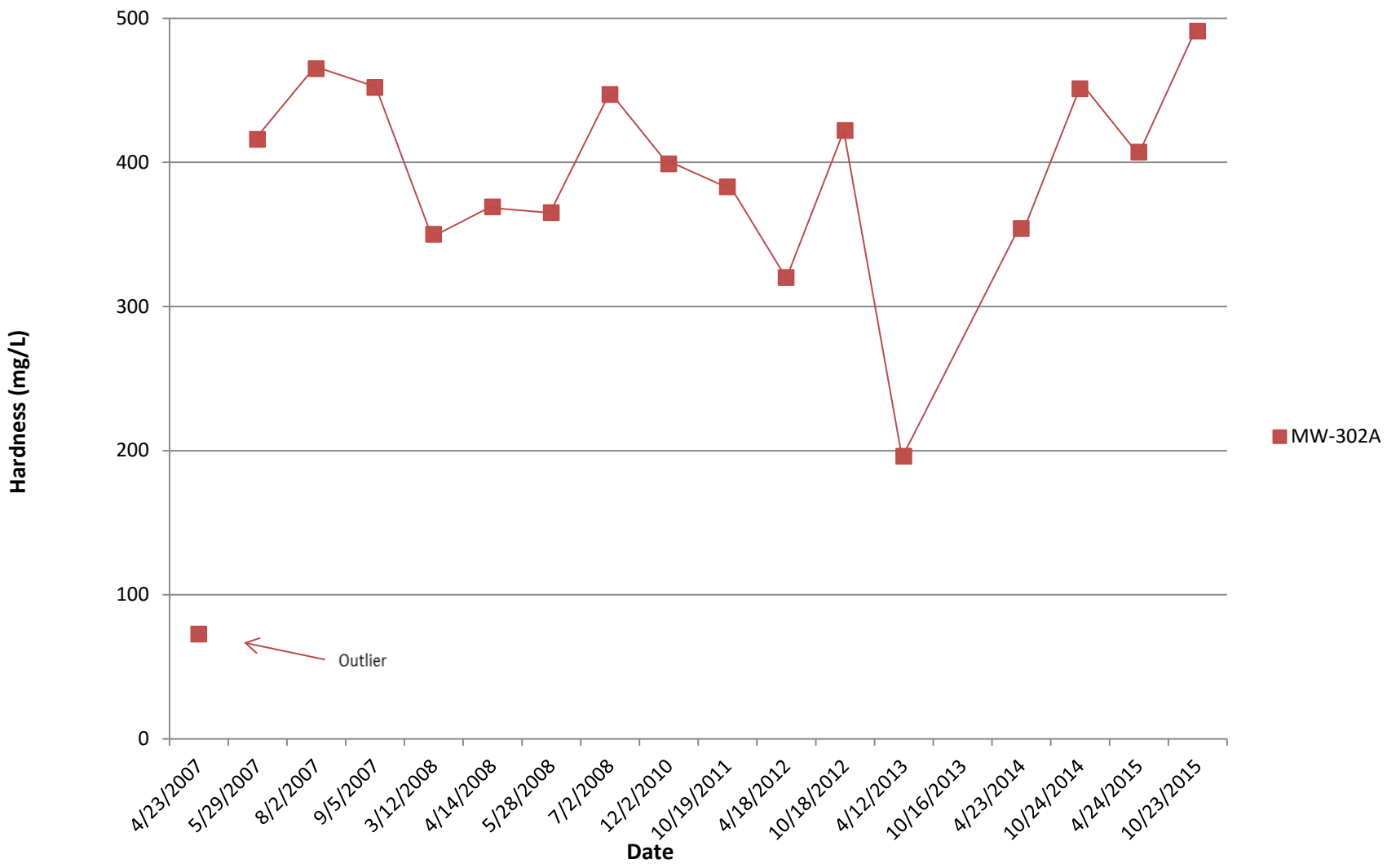
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



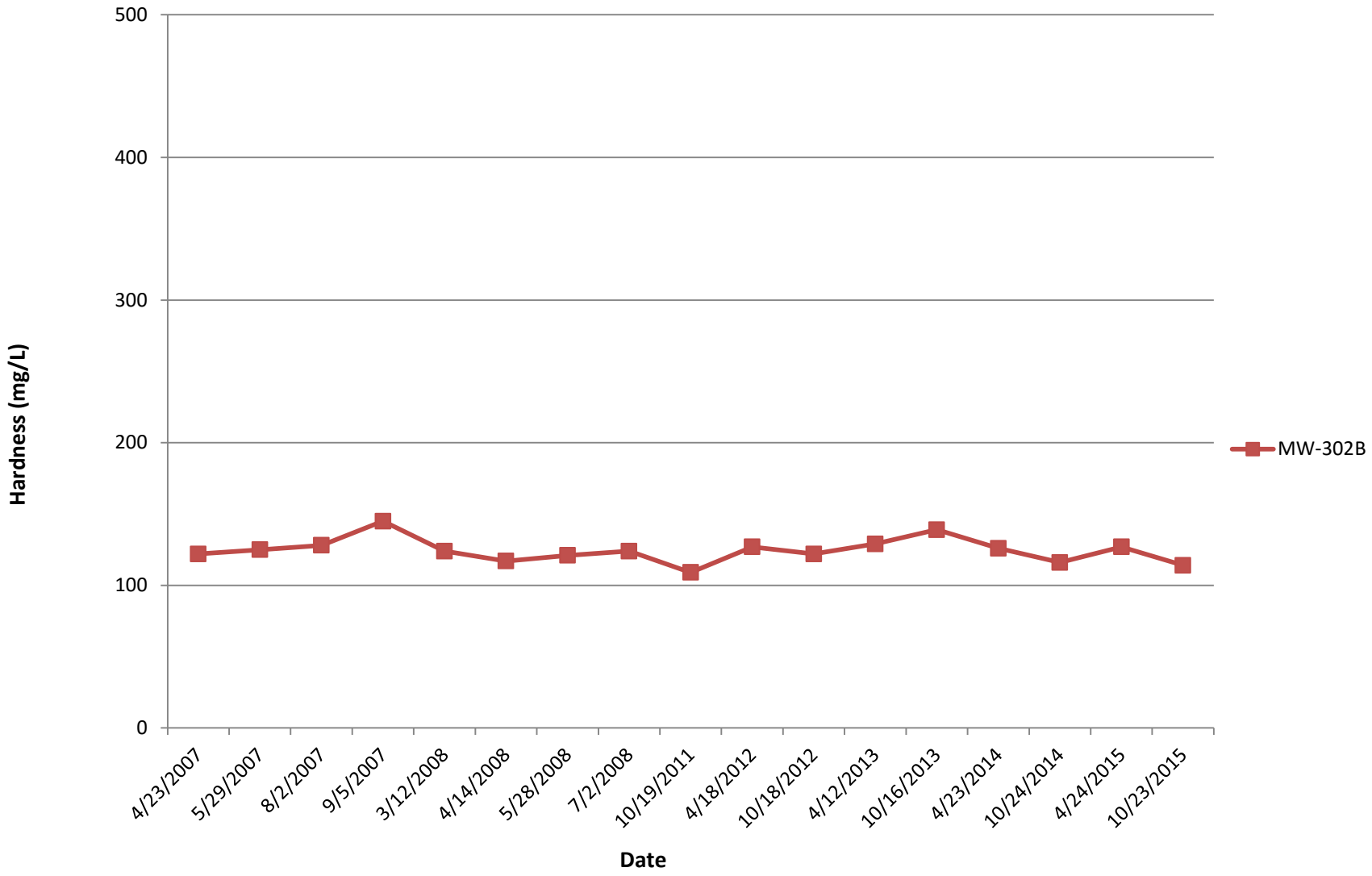
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



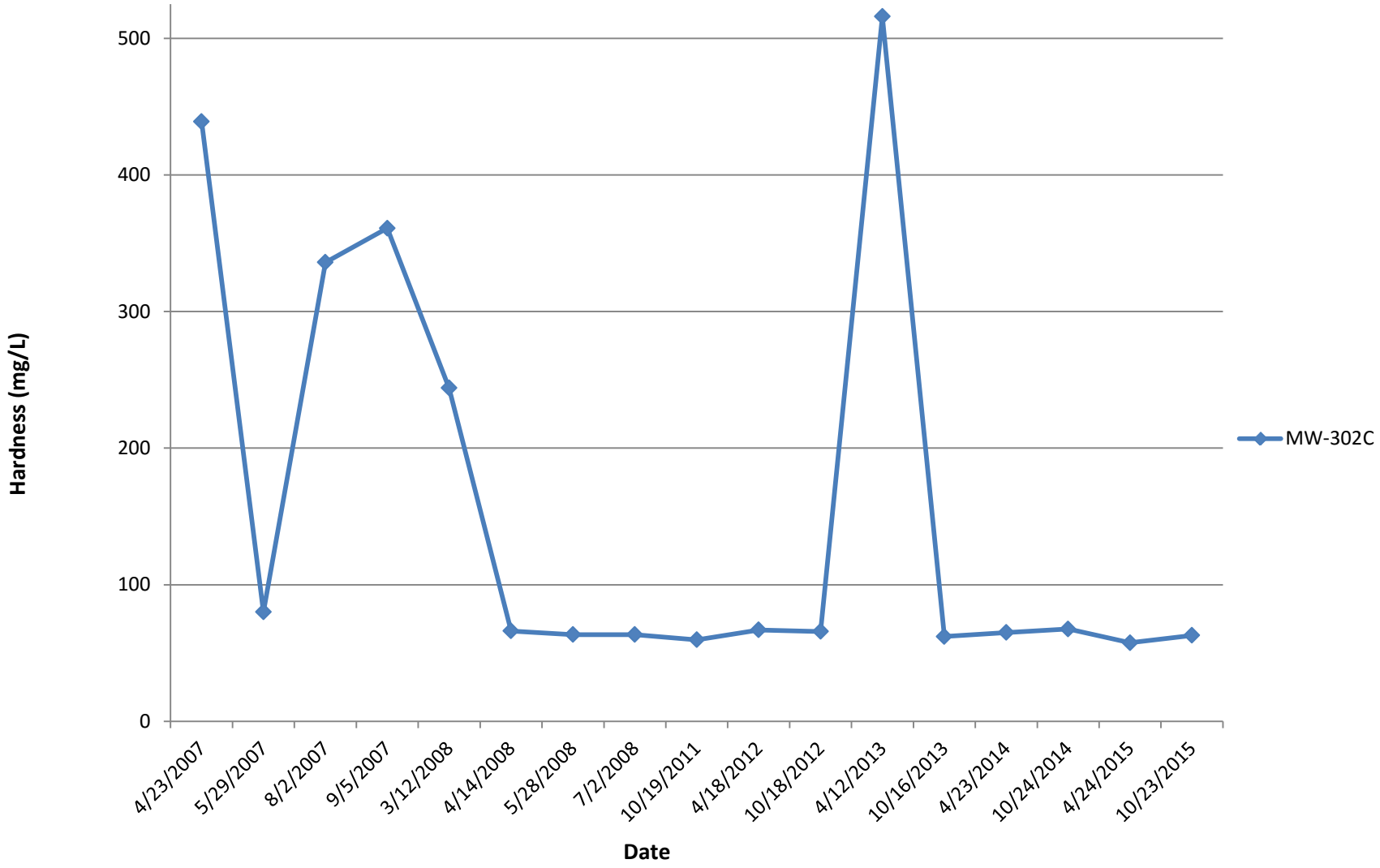
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



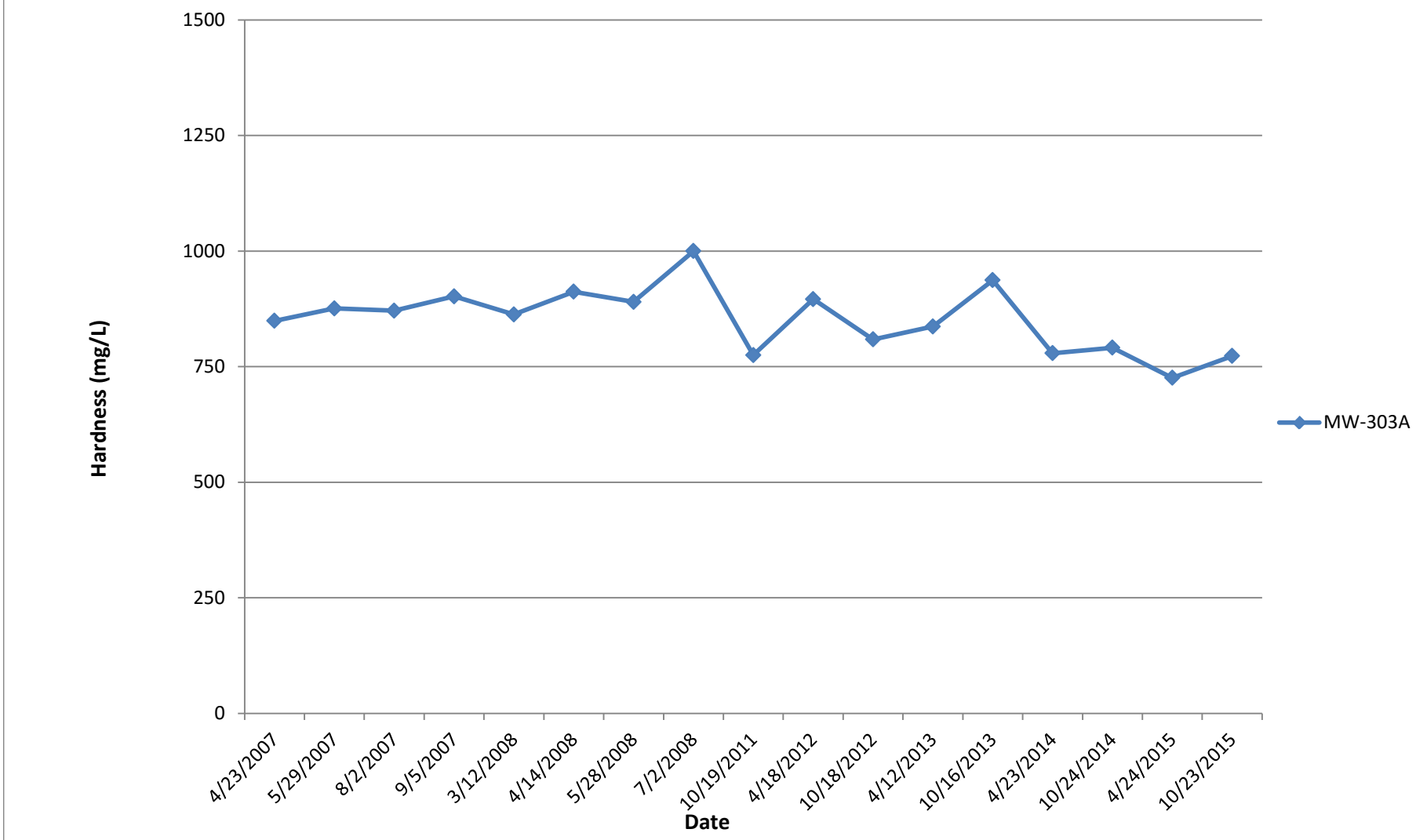
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



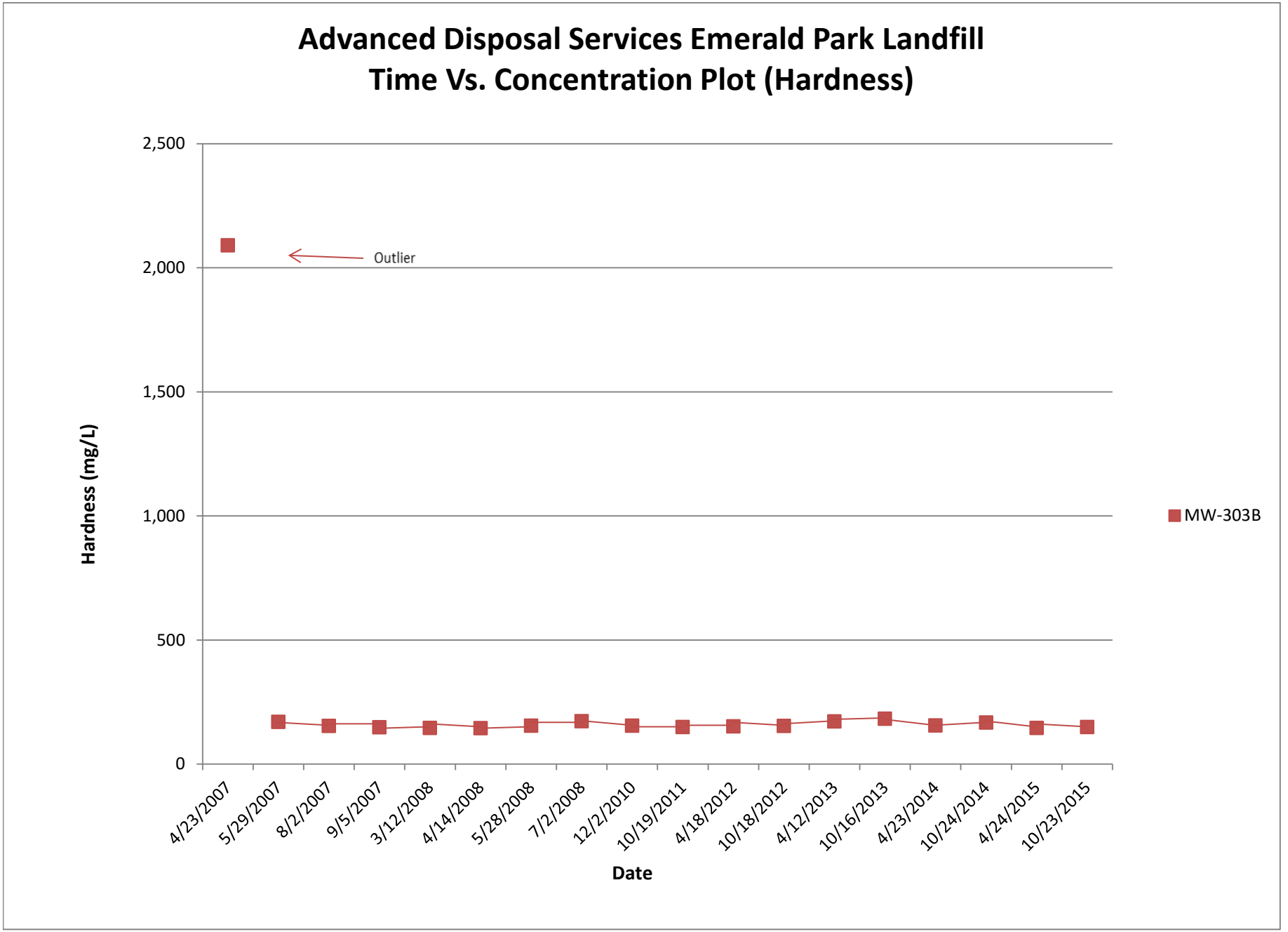
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



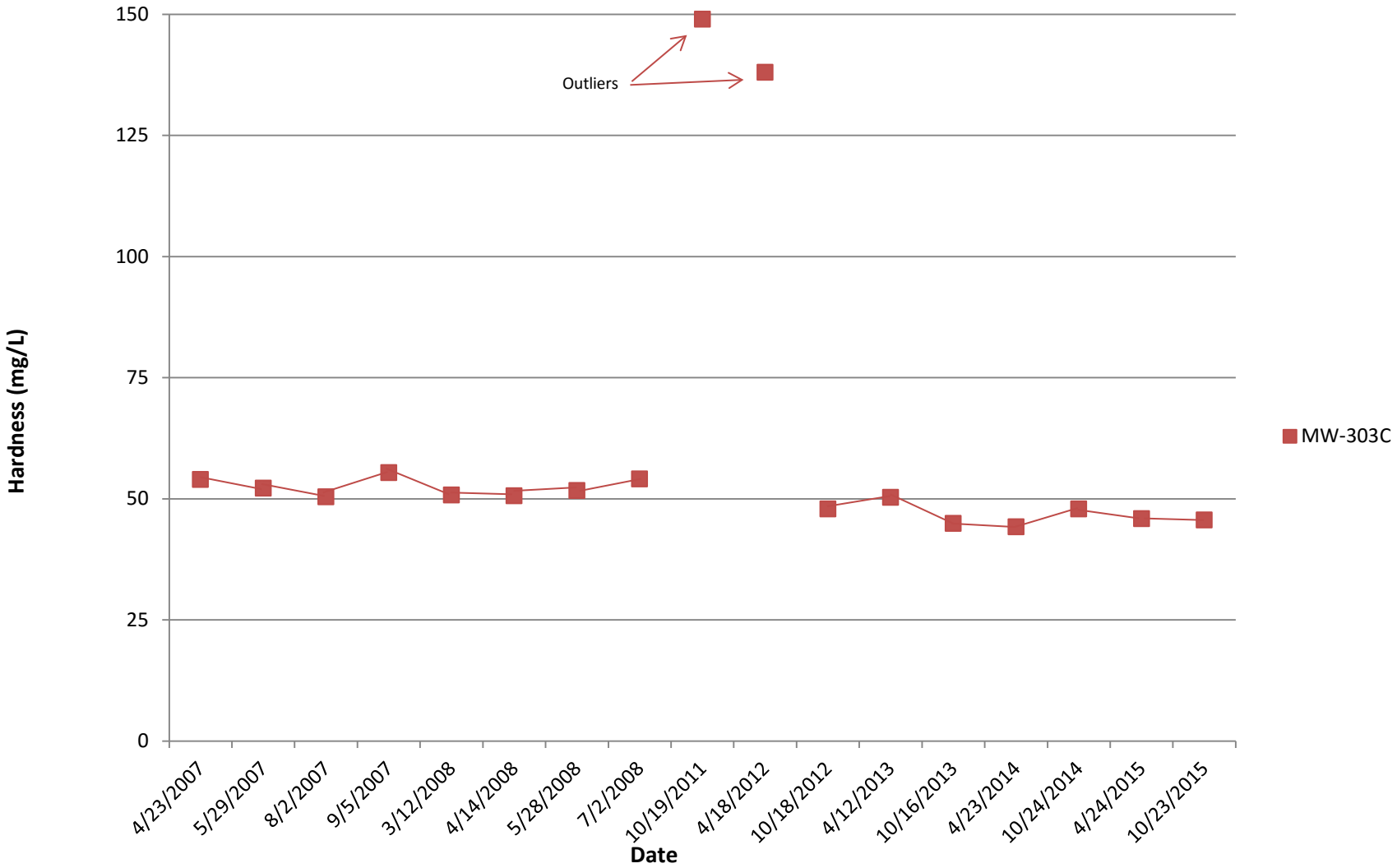
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



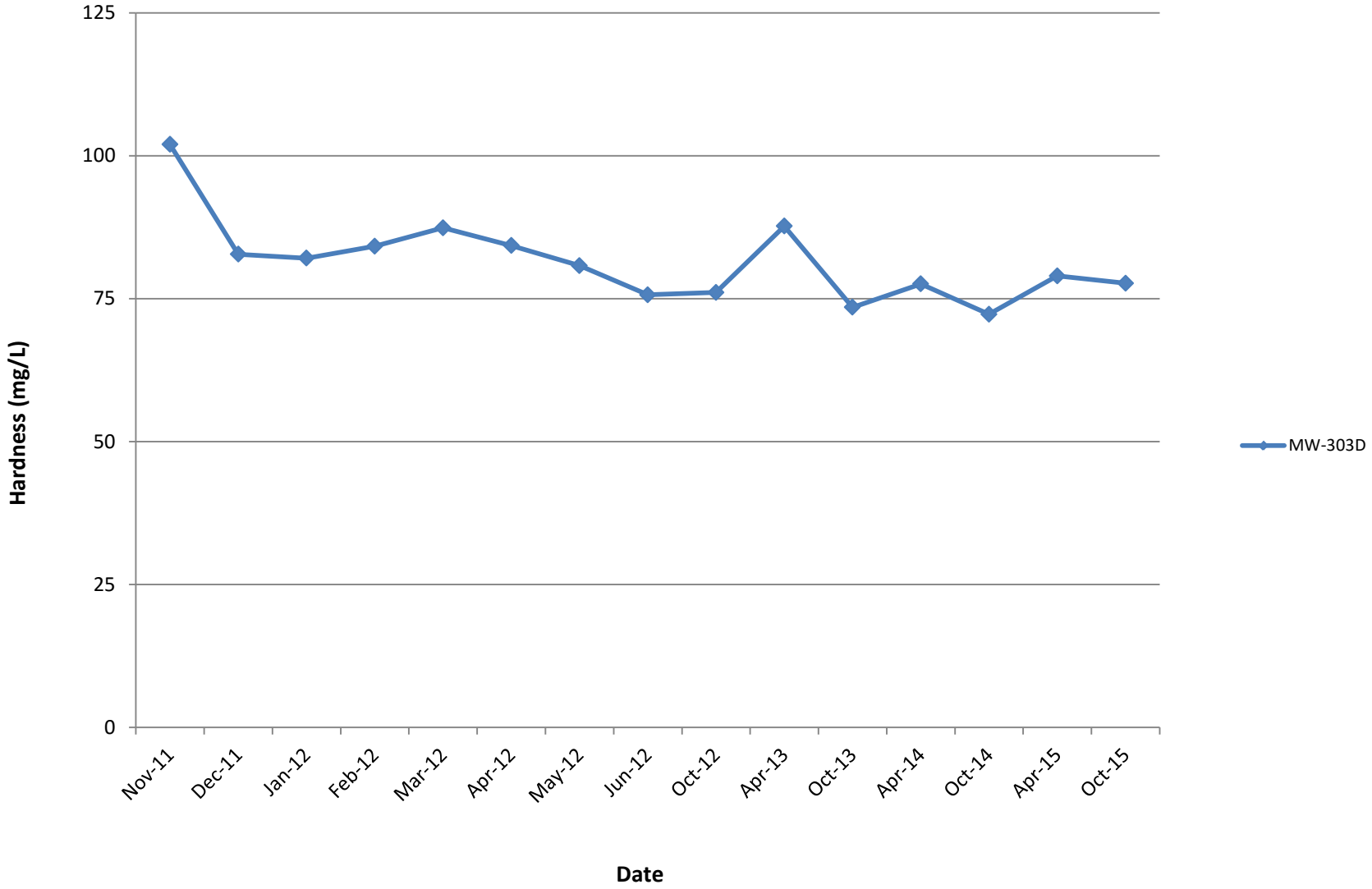
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



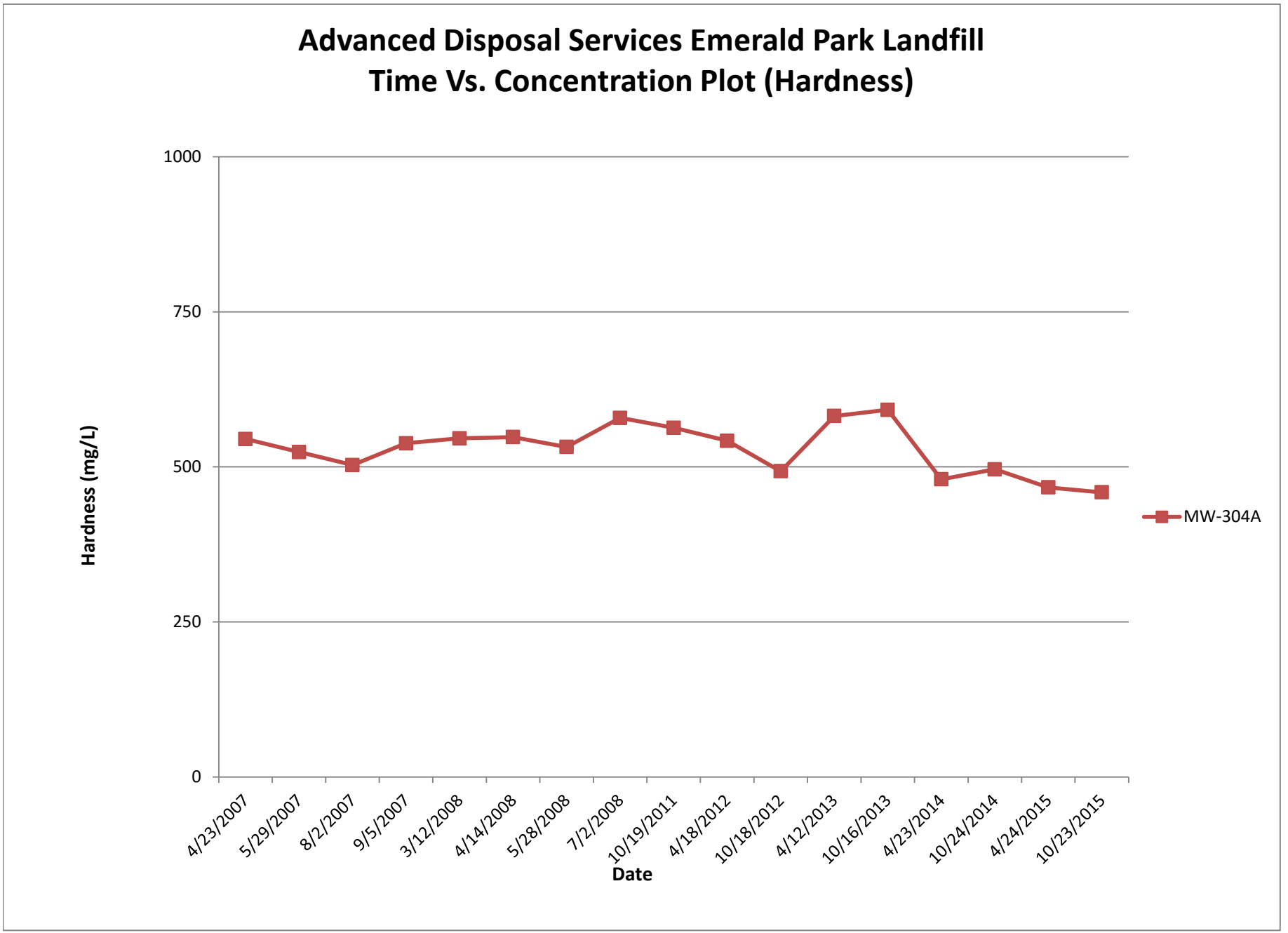
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



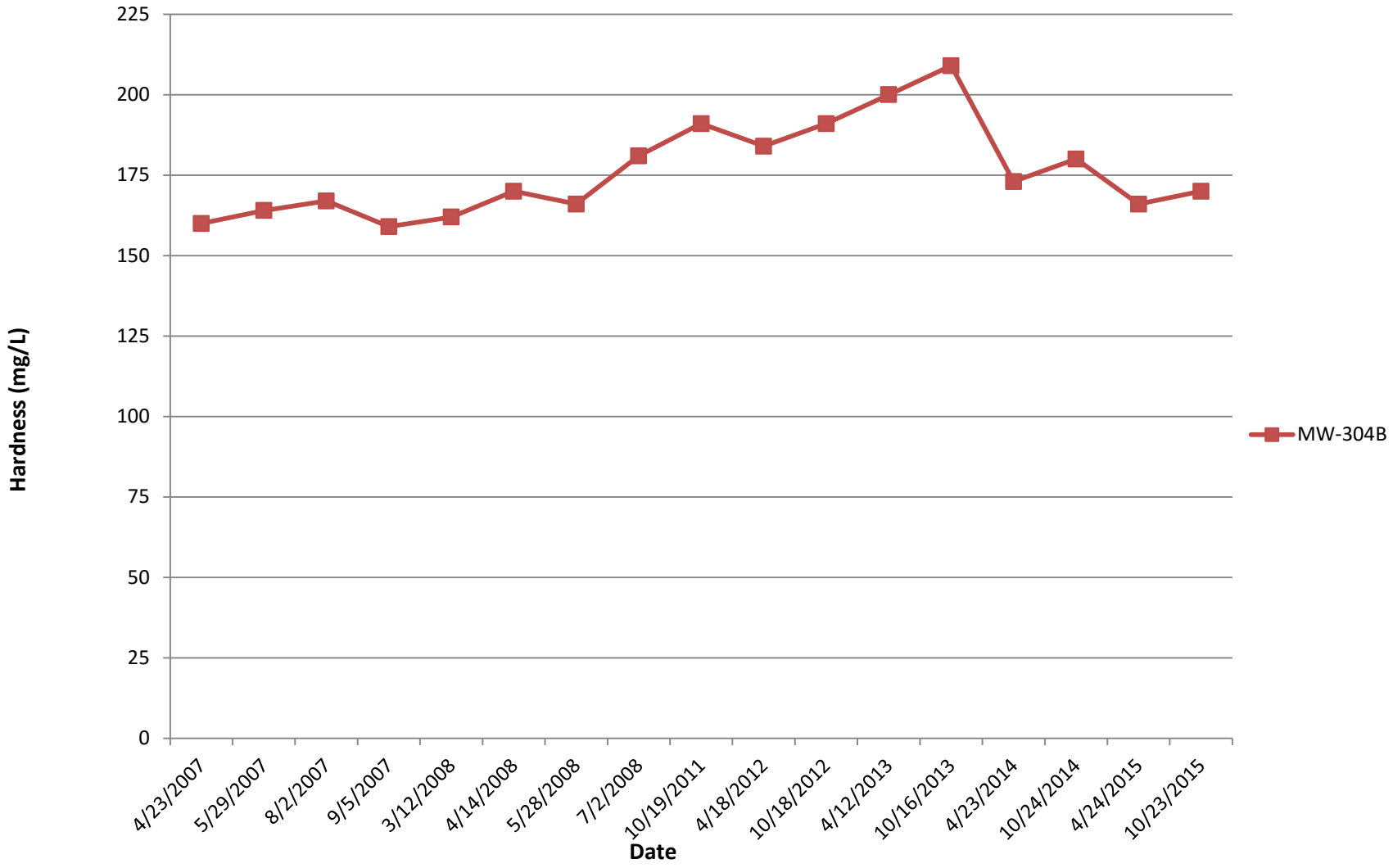
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



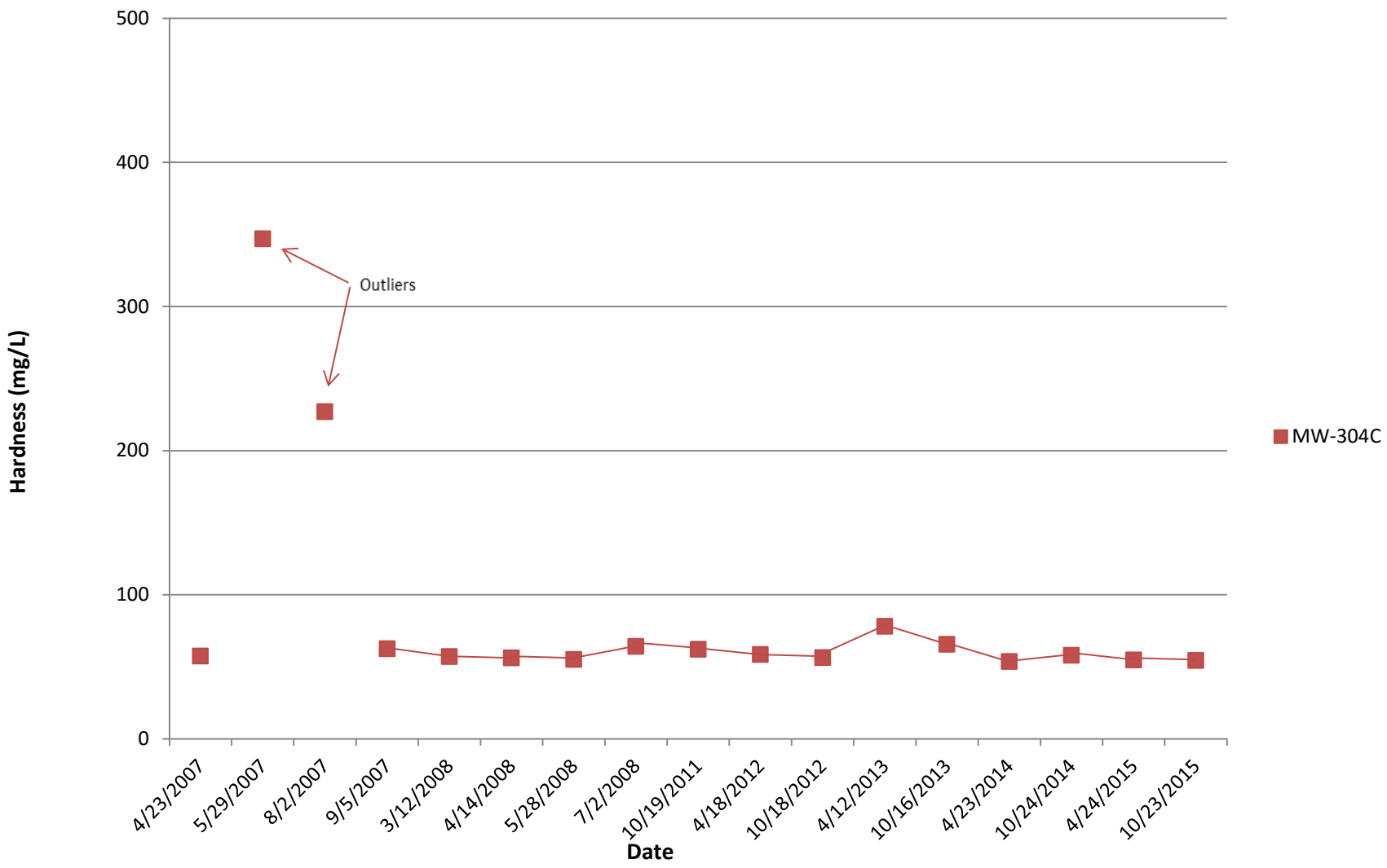
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



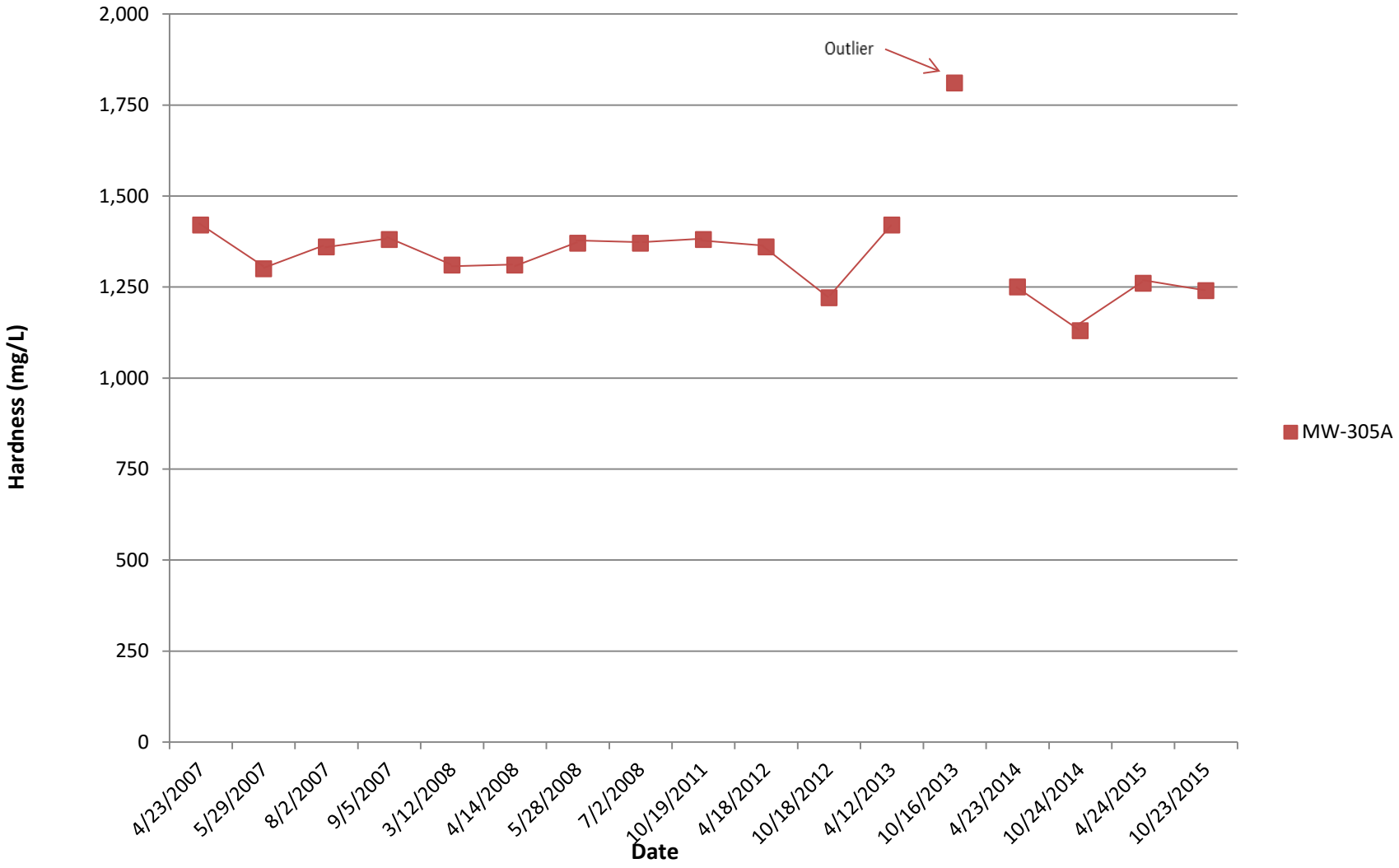
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



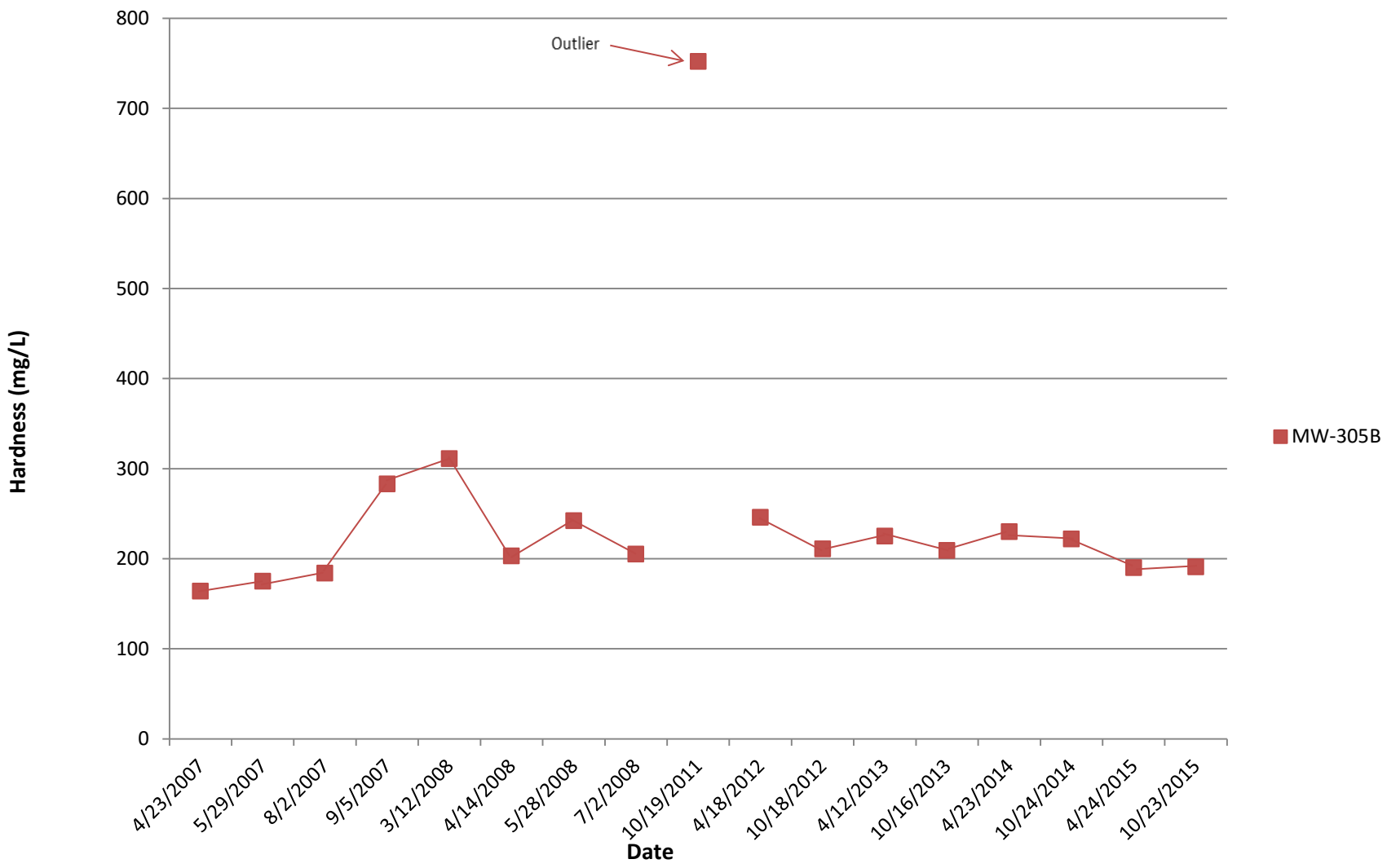
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



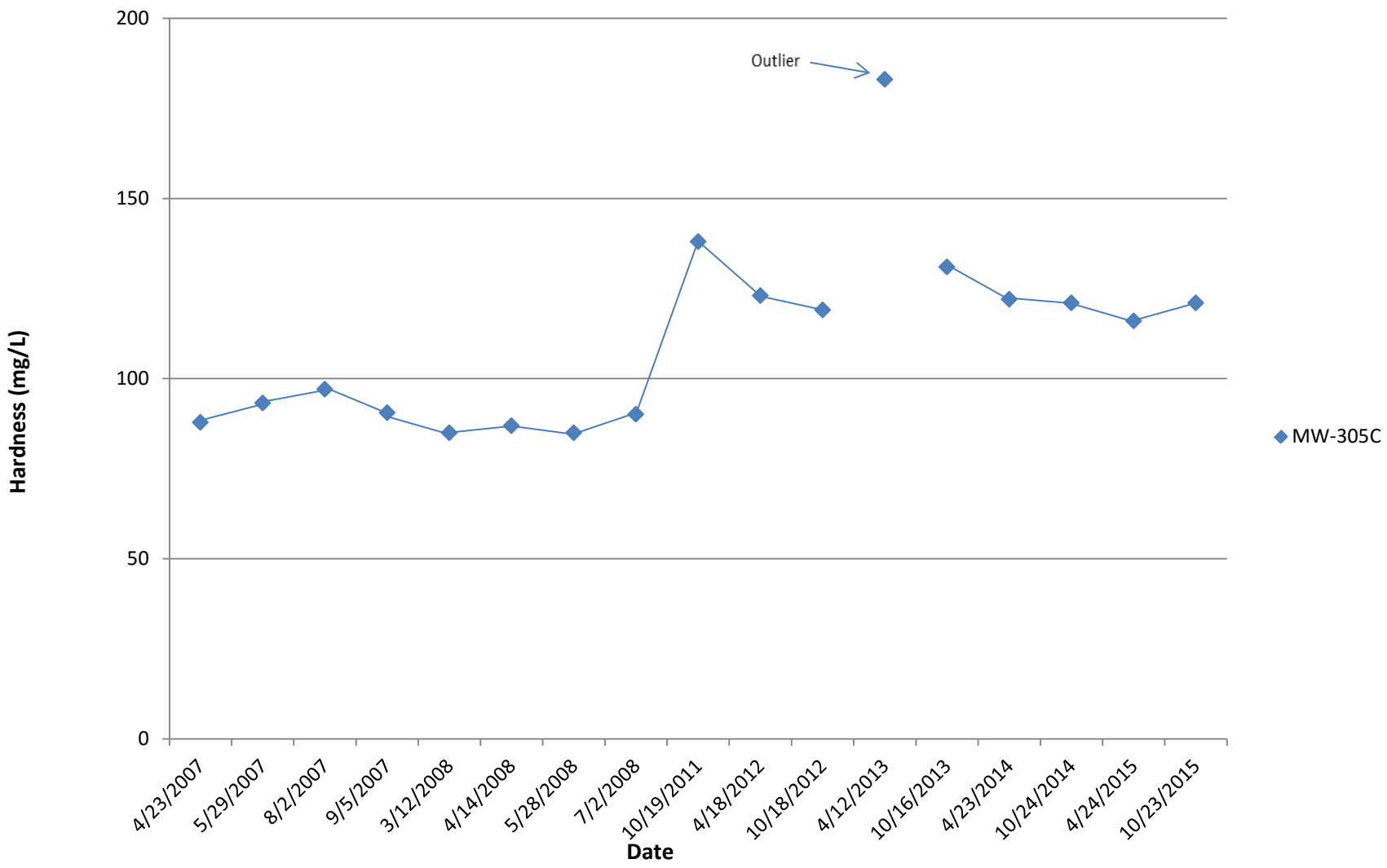
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



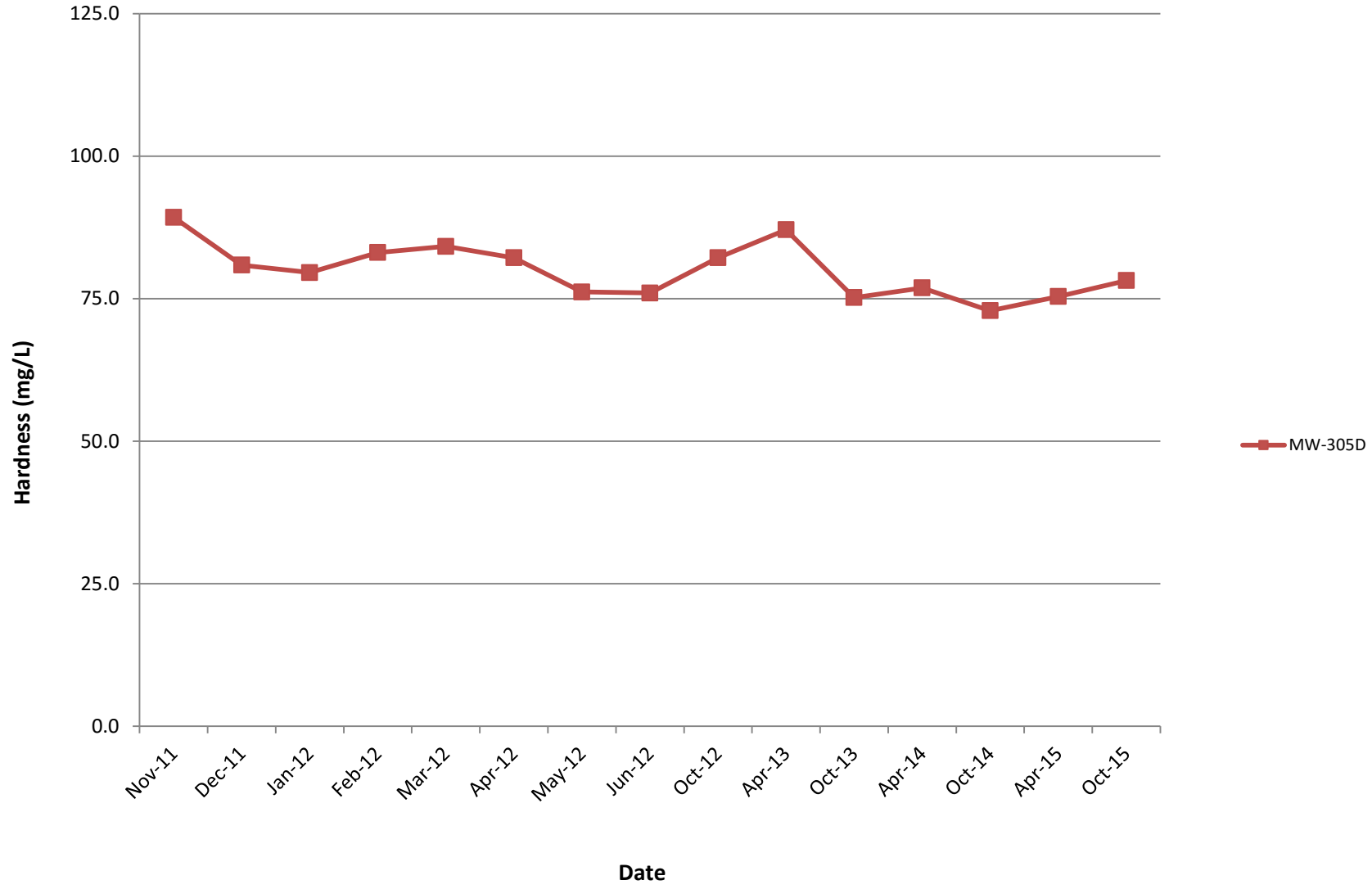
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



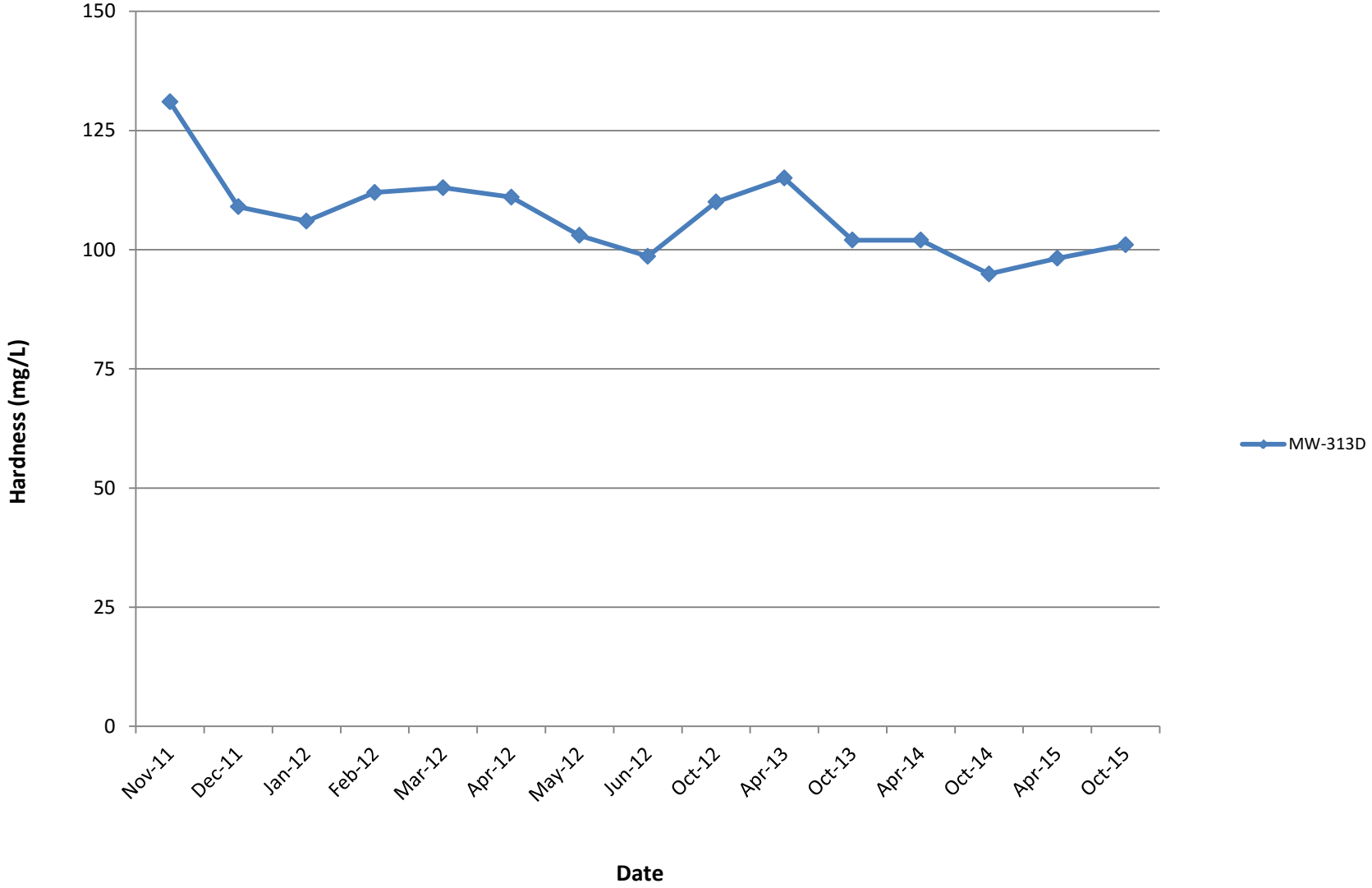
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)

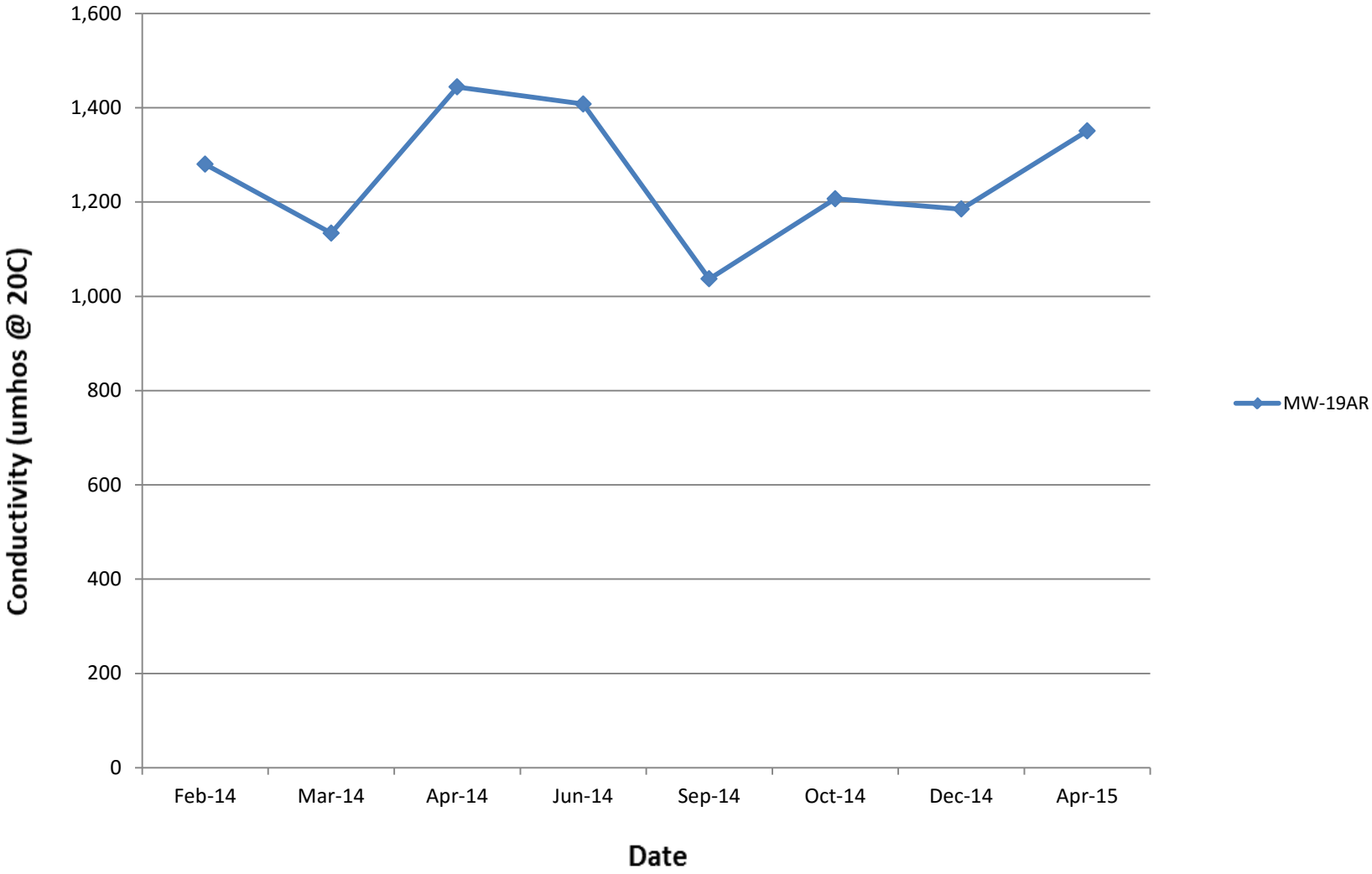


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Hardness)

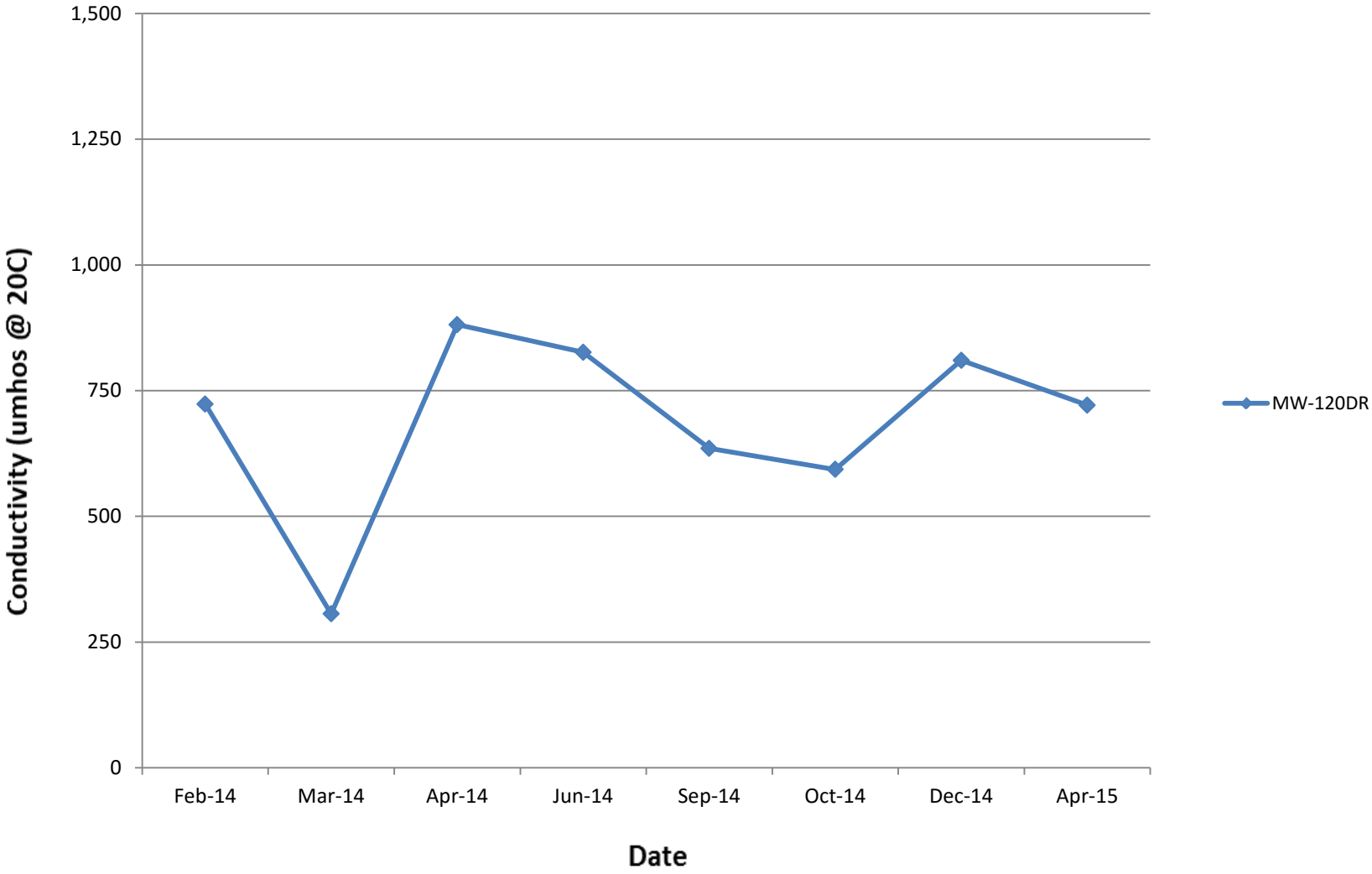


CONDUCTIVITY

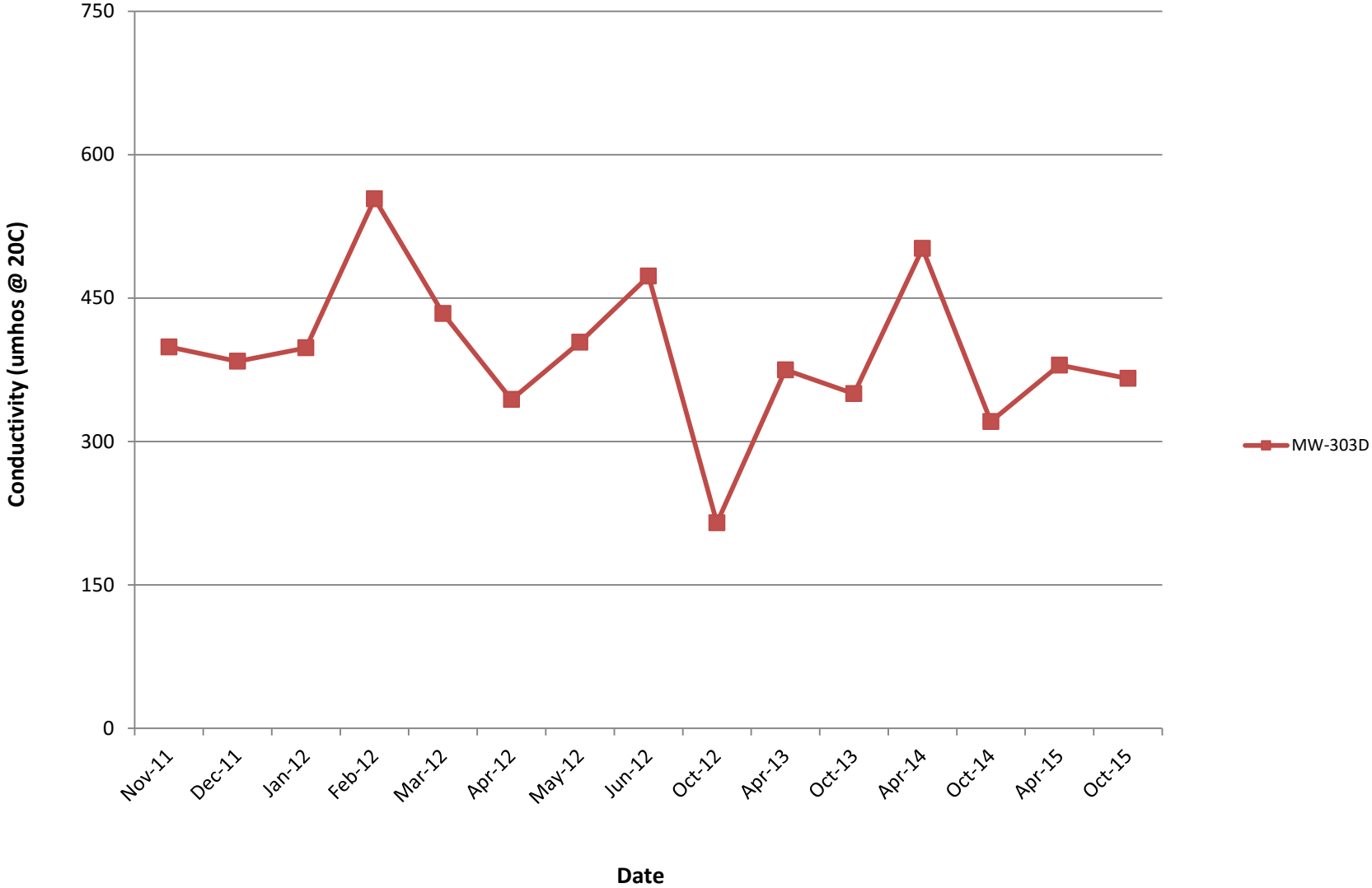
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Conductivity)



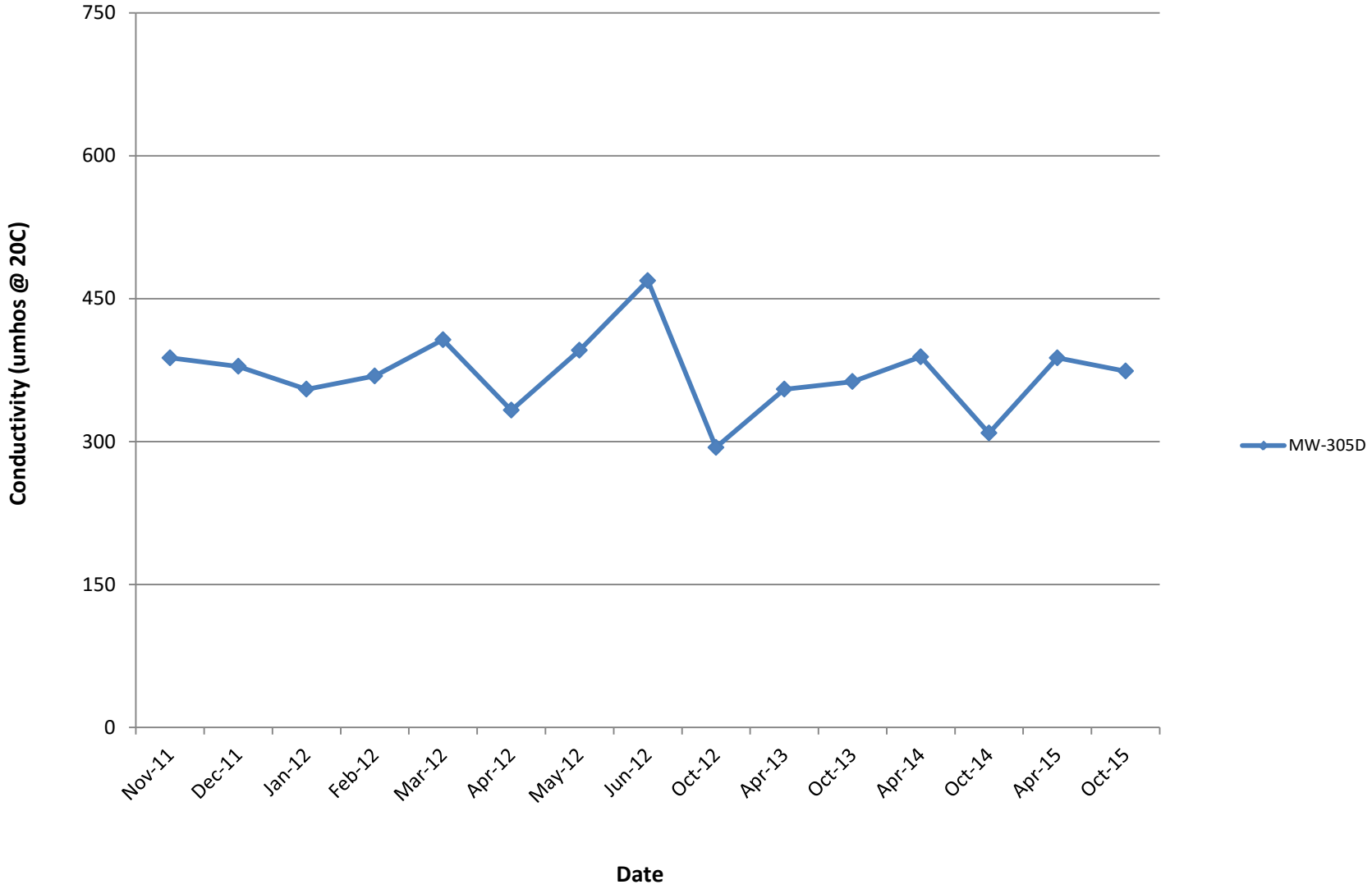
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Conductivity)



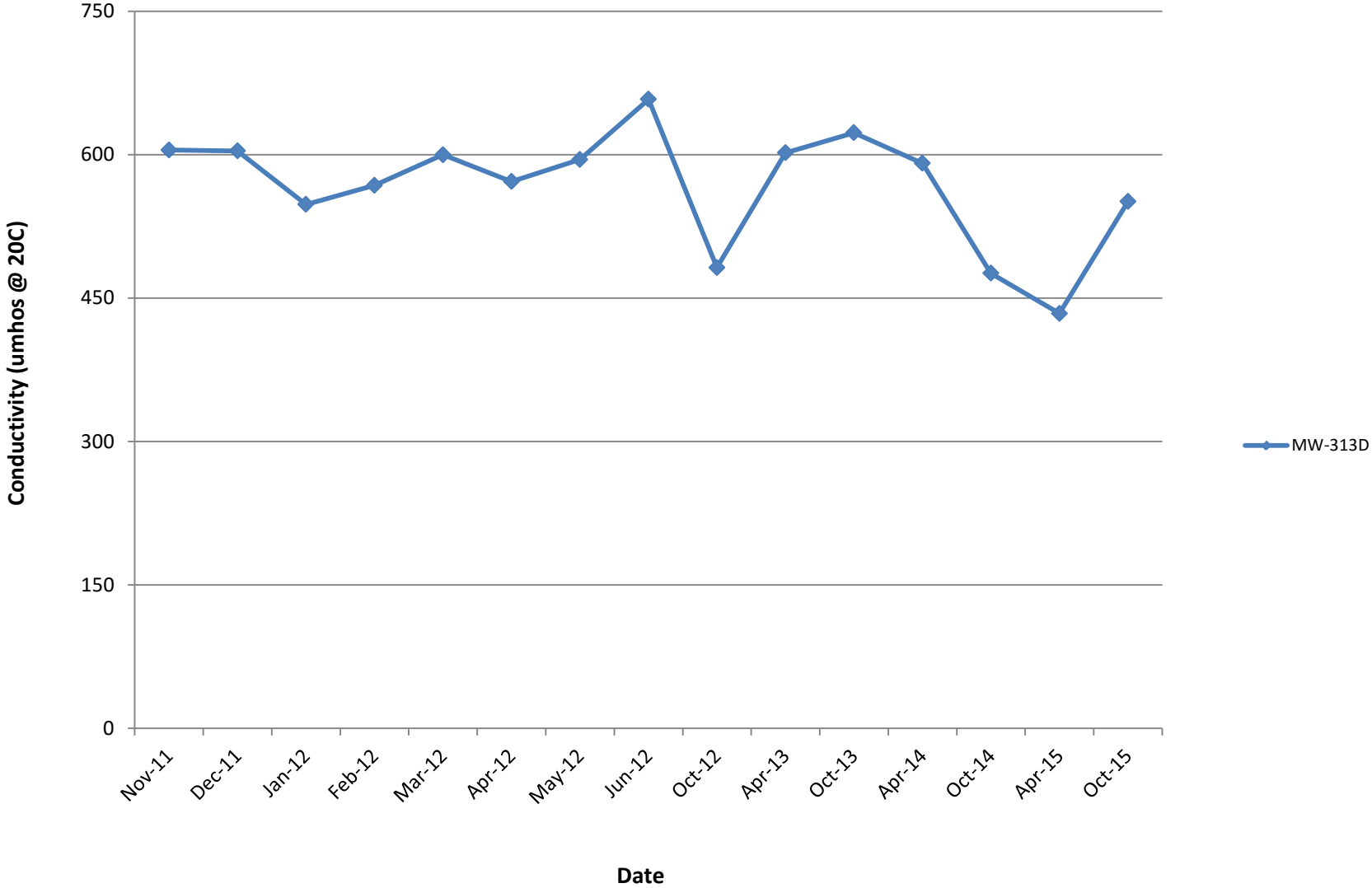
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Conductivity)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Conductivity)

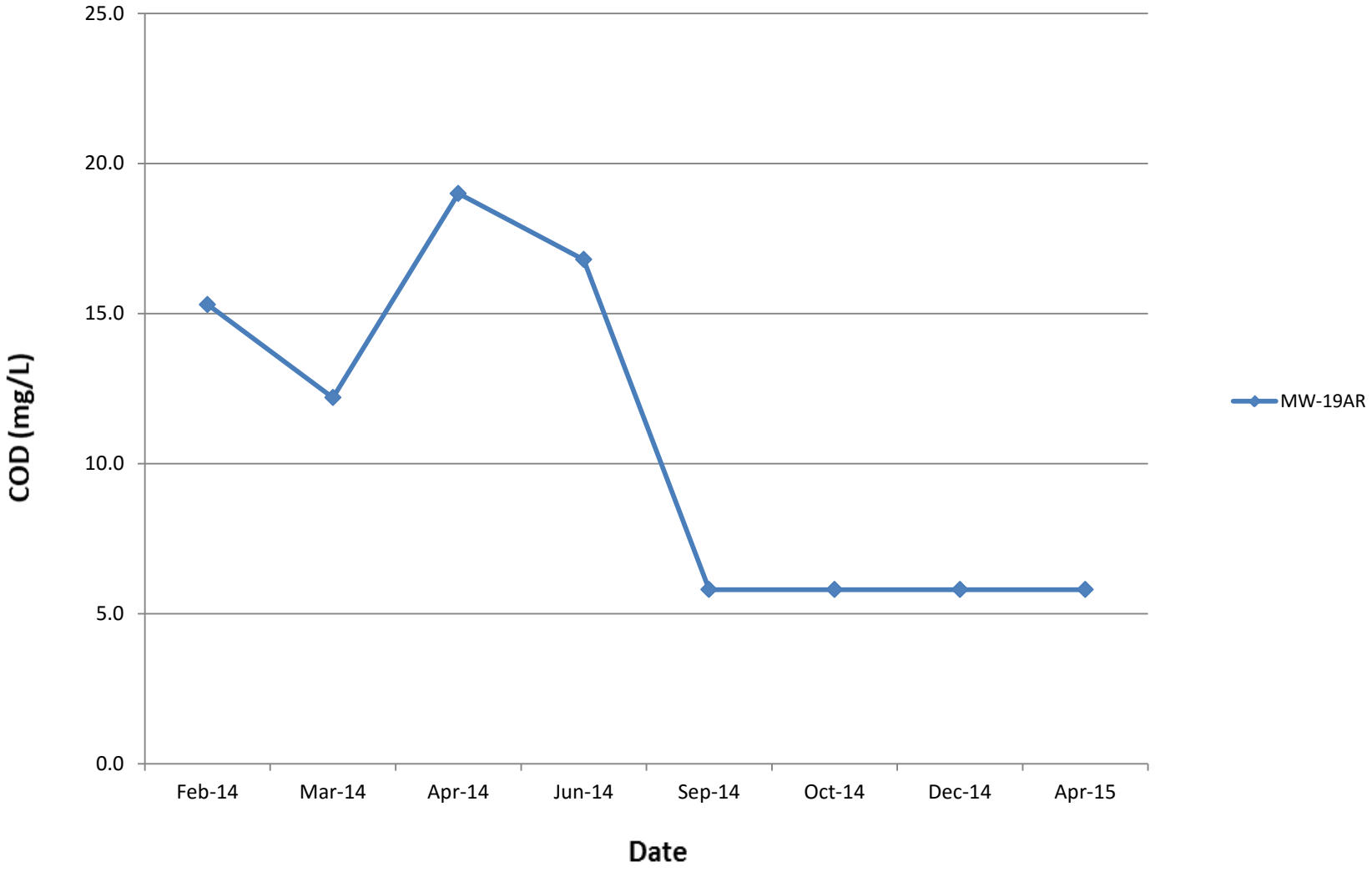


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Conductivity)

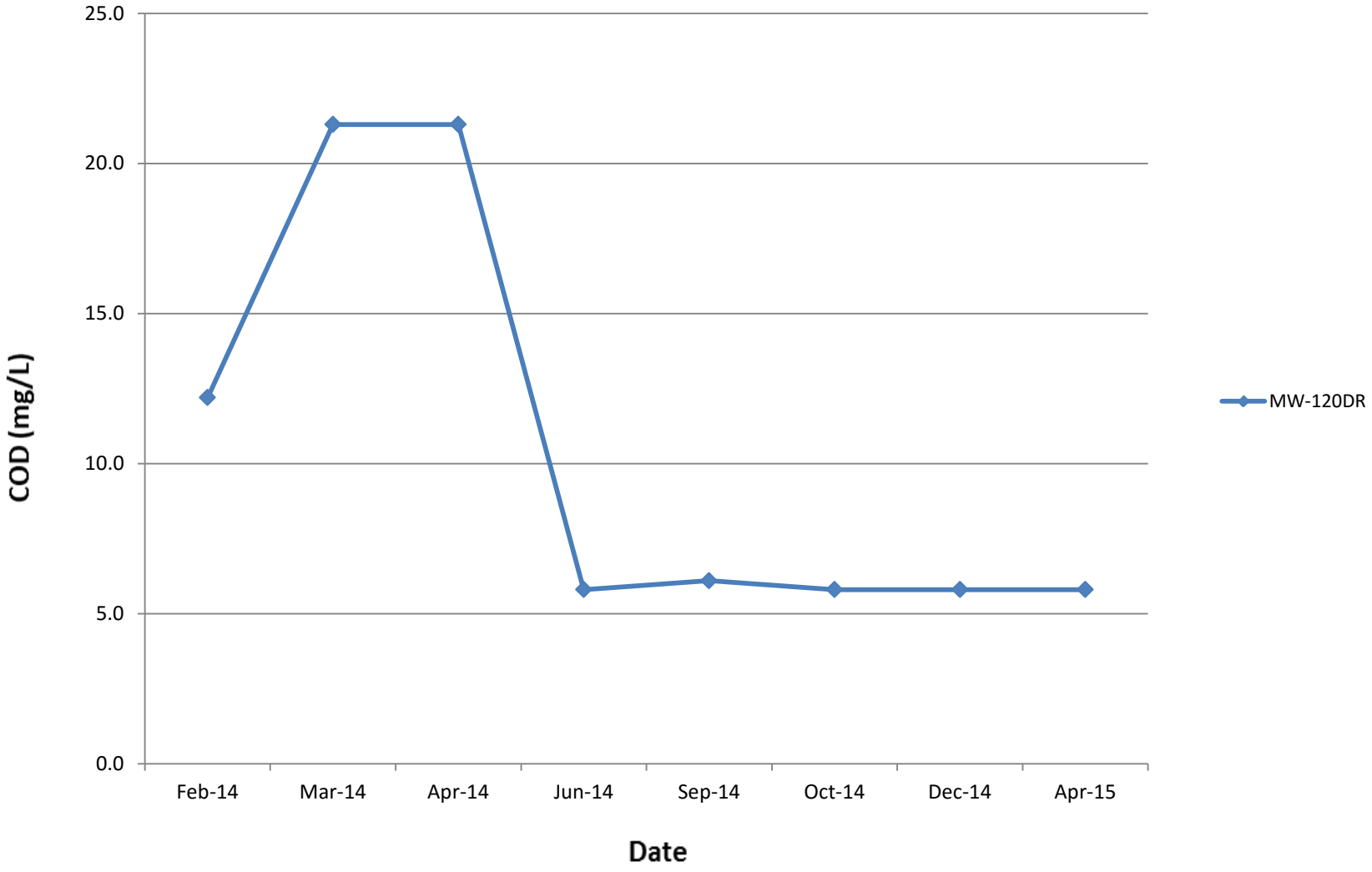


COD

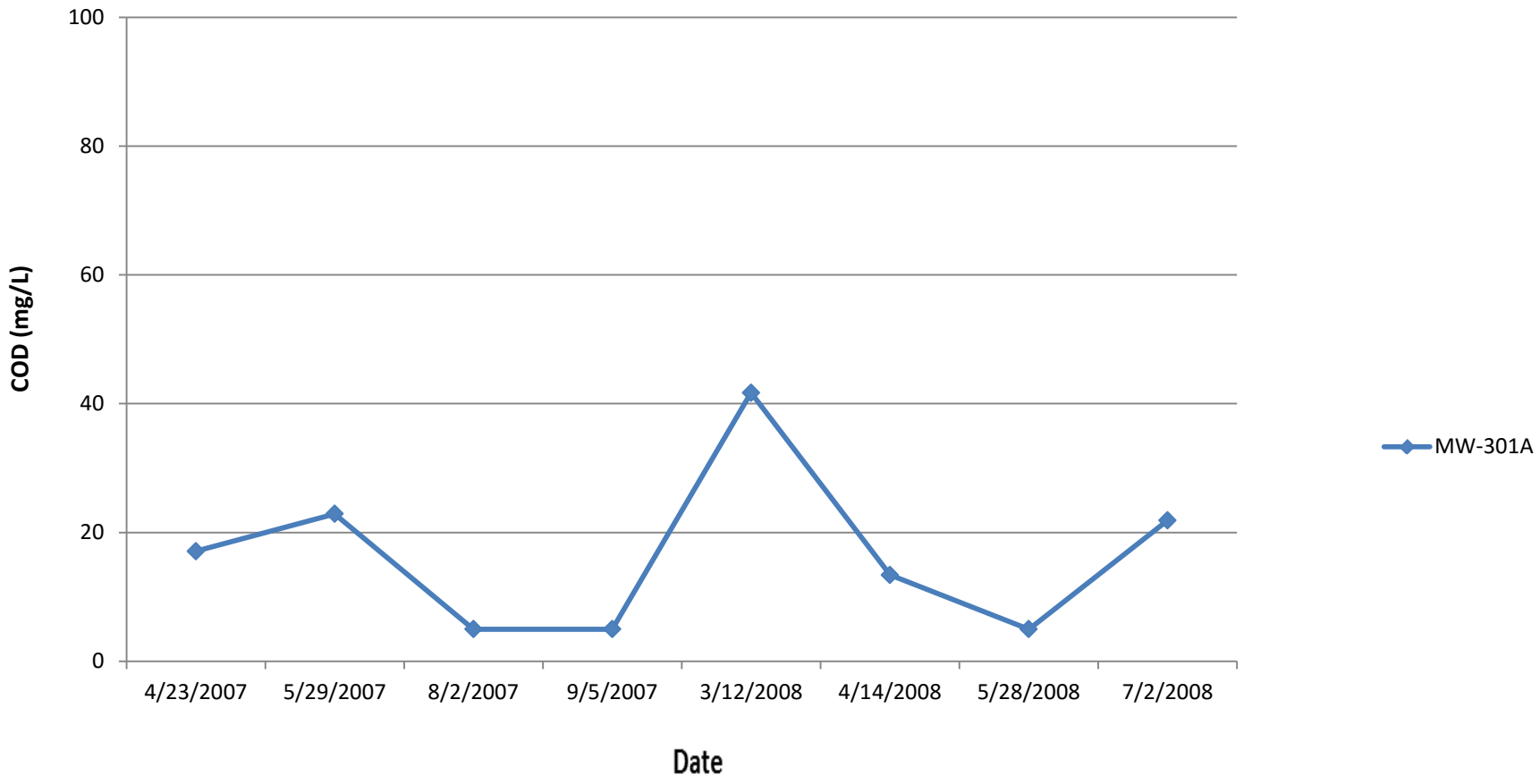
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (COD)



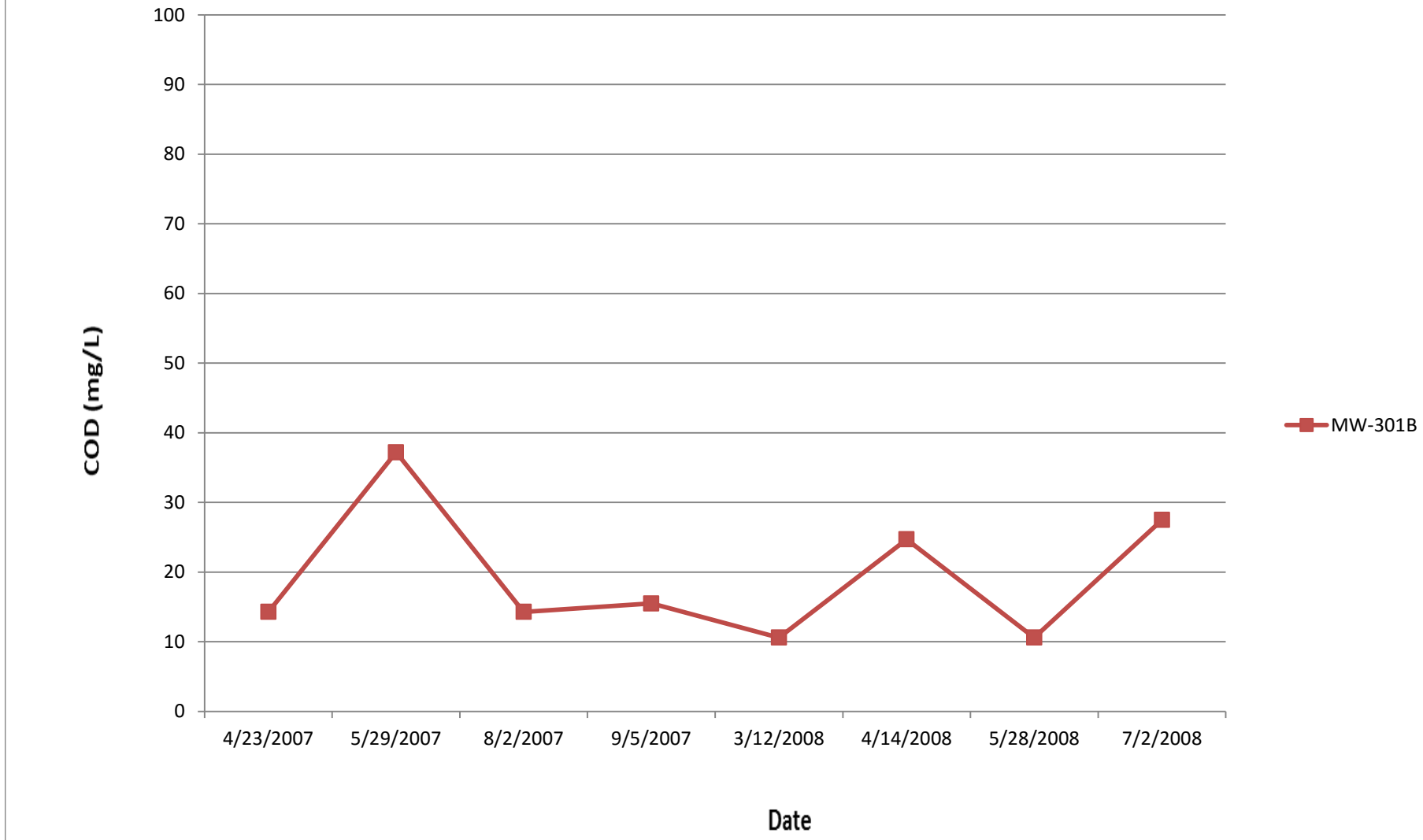
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (COD)



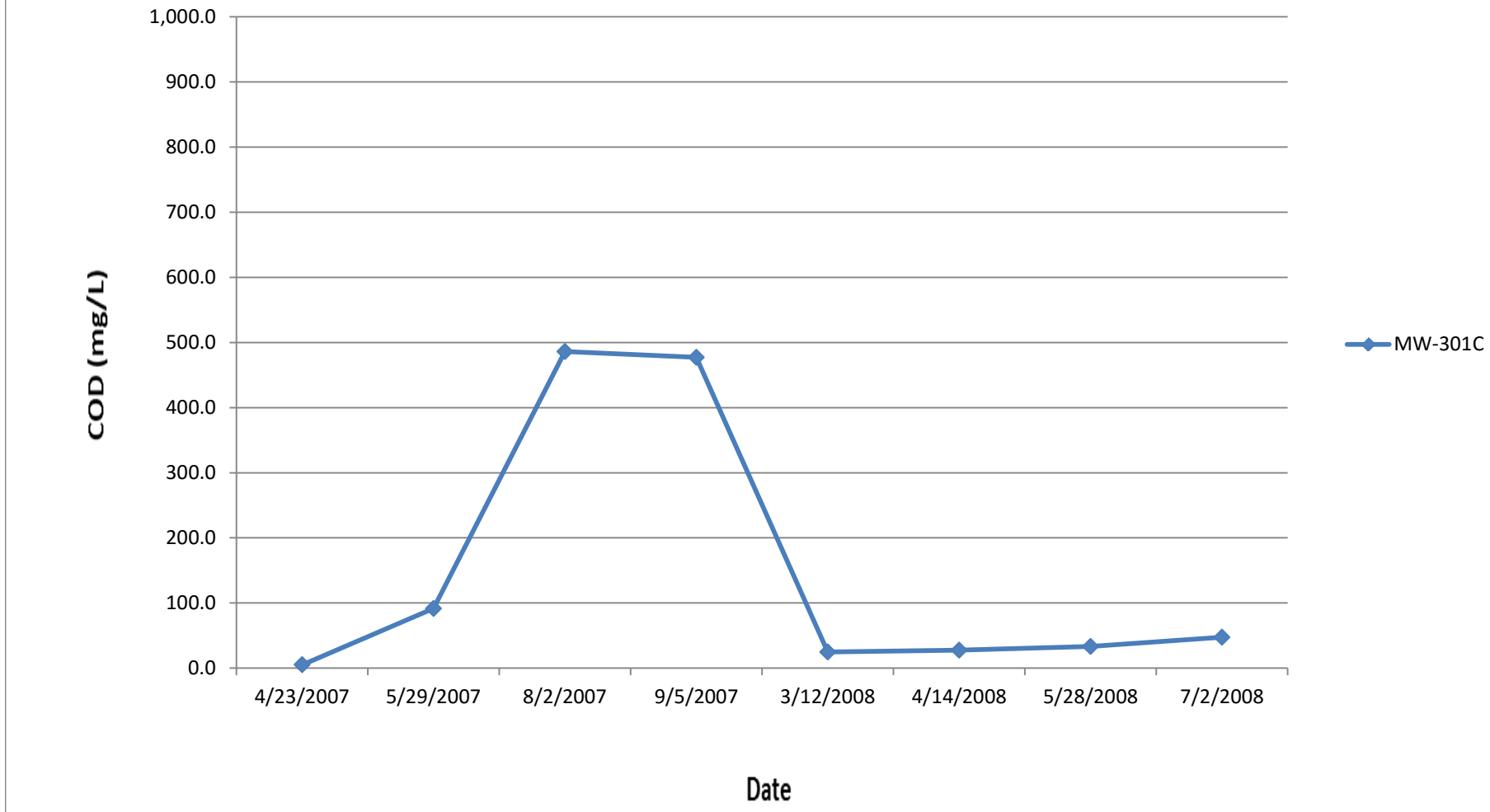
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



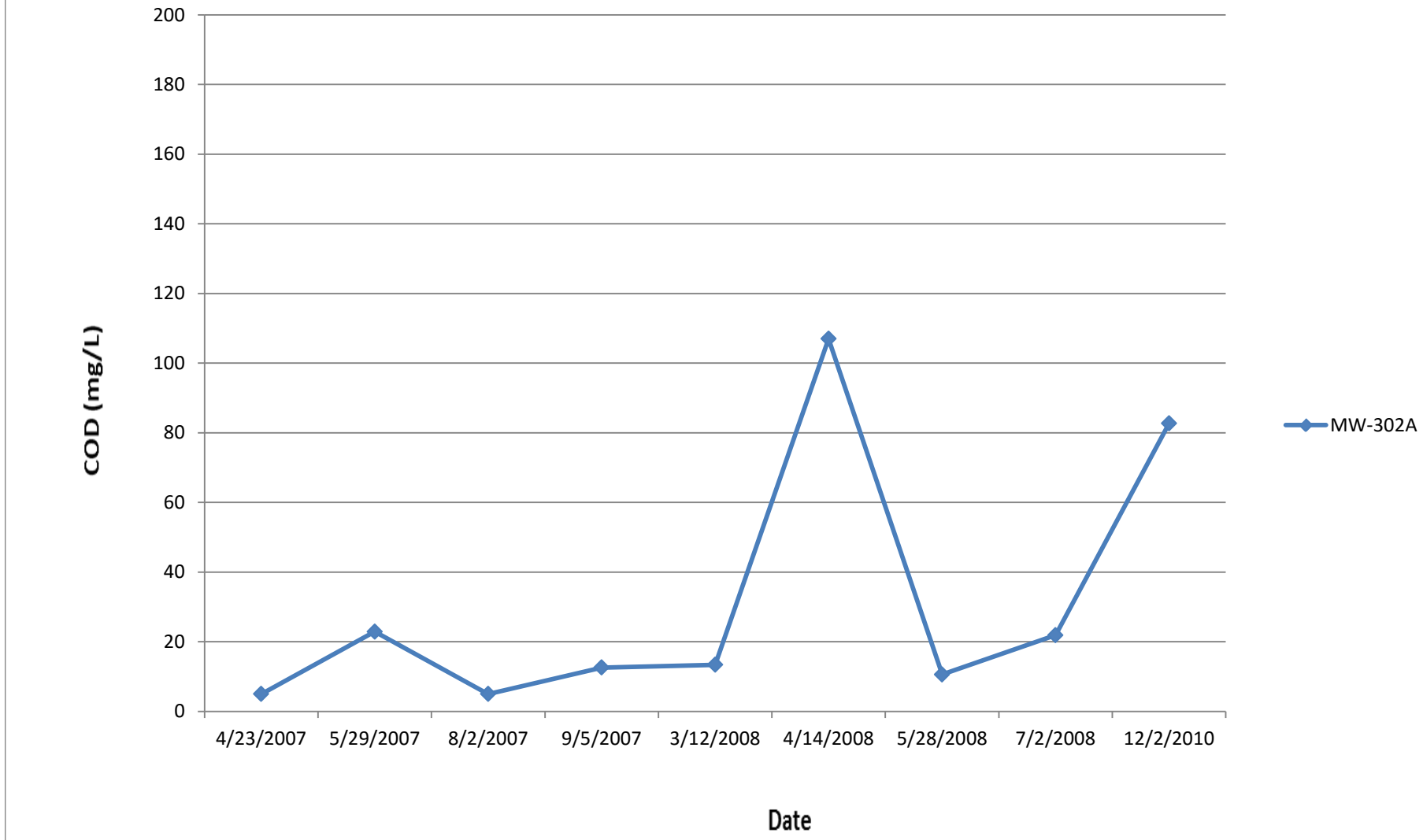
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



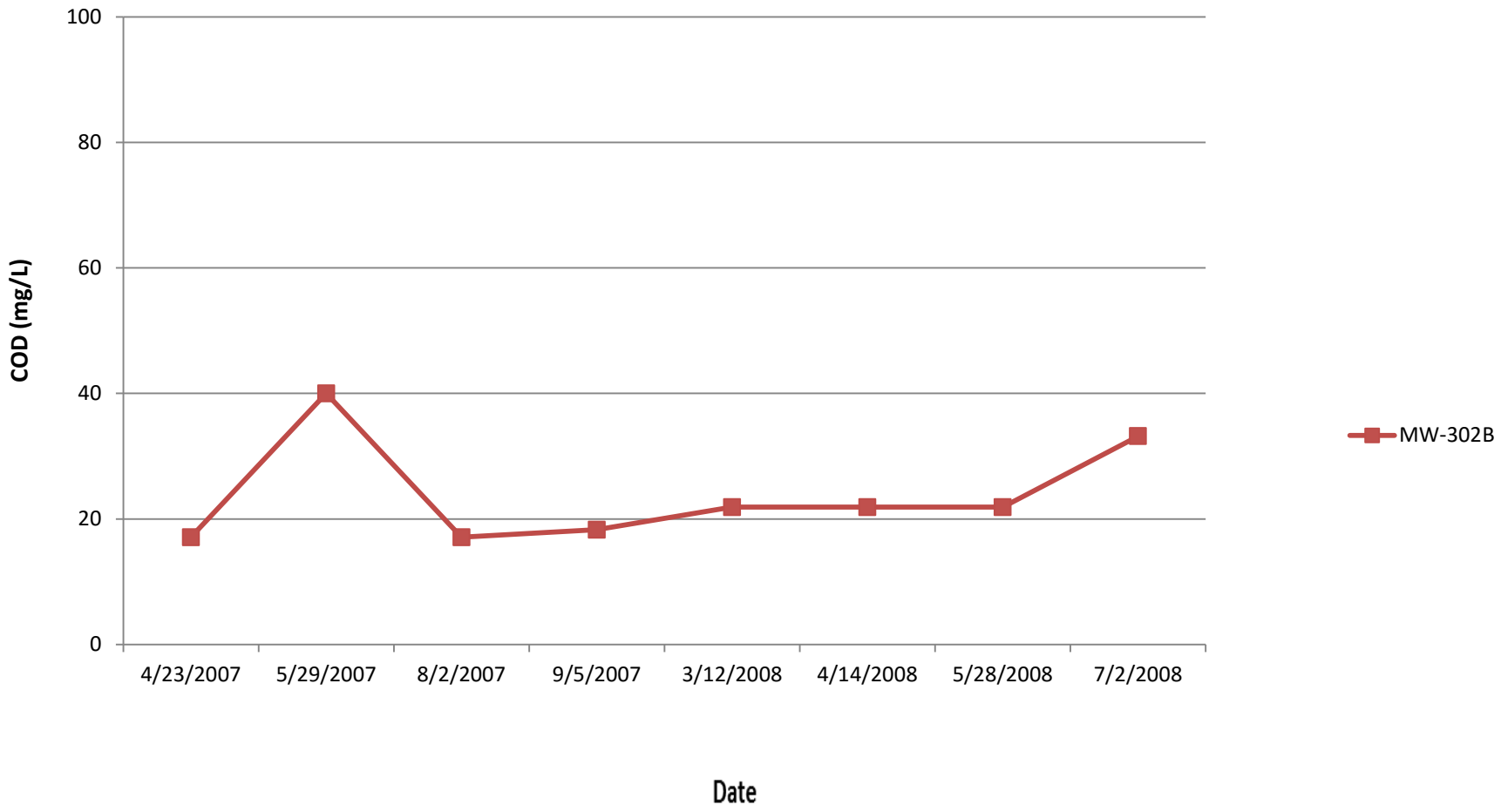
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



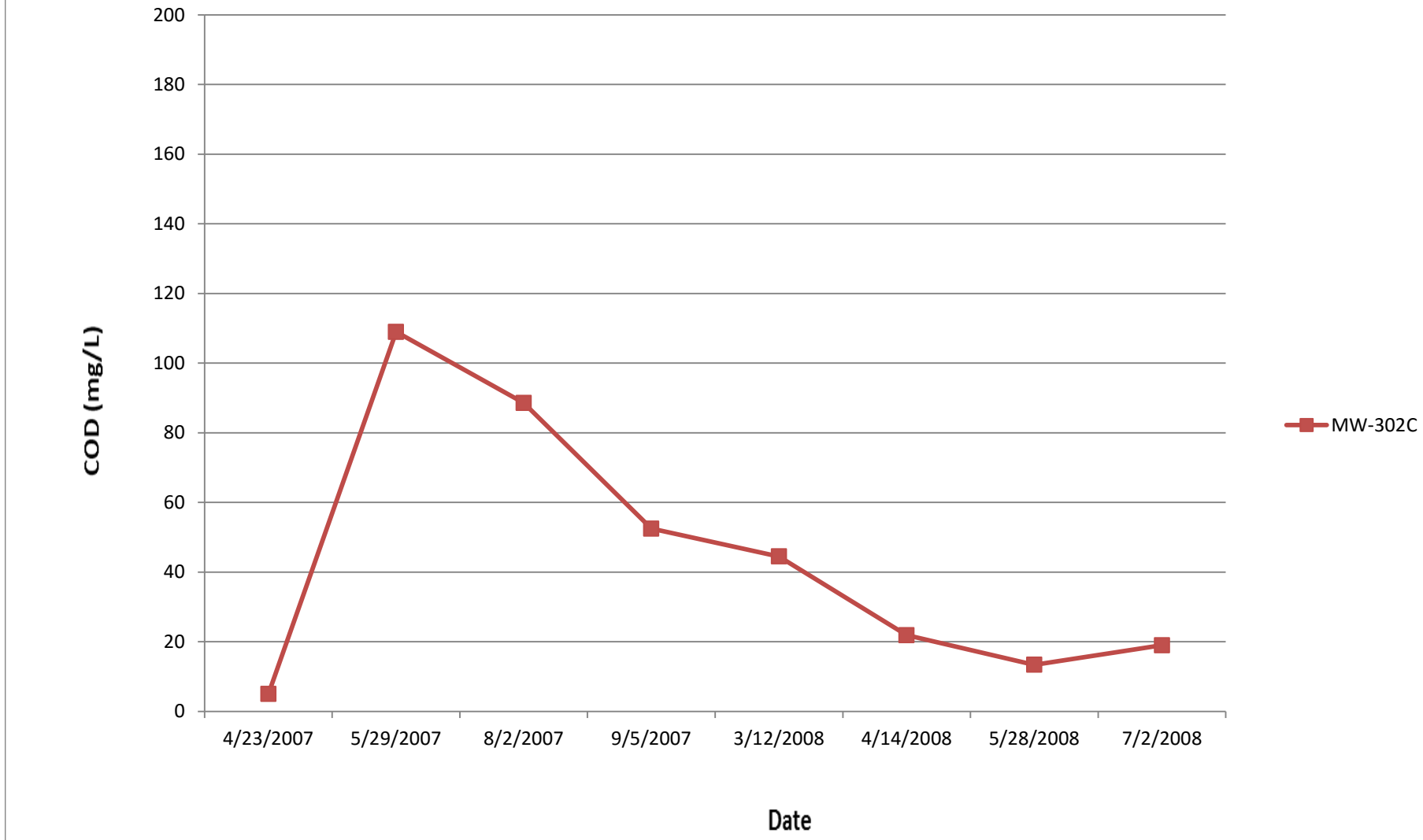
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



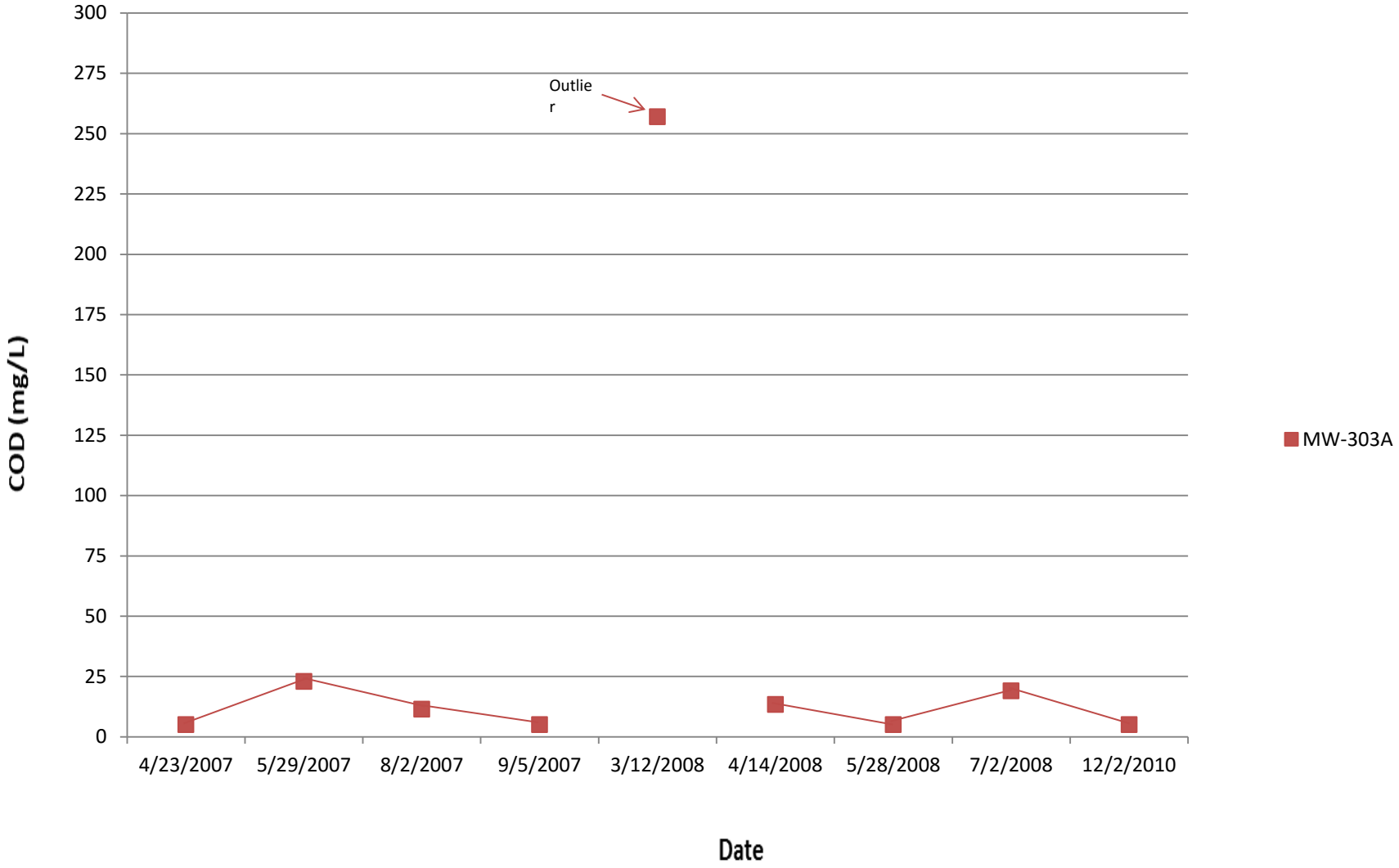
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



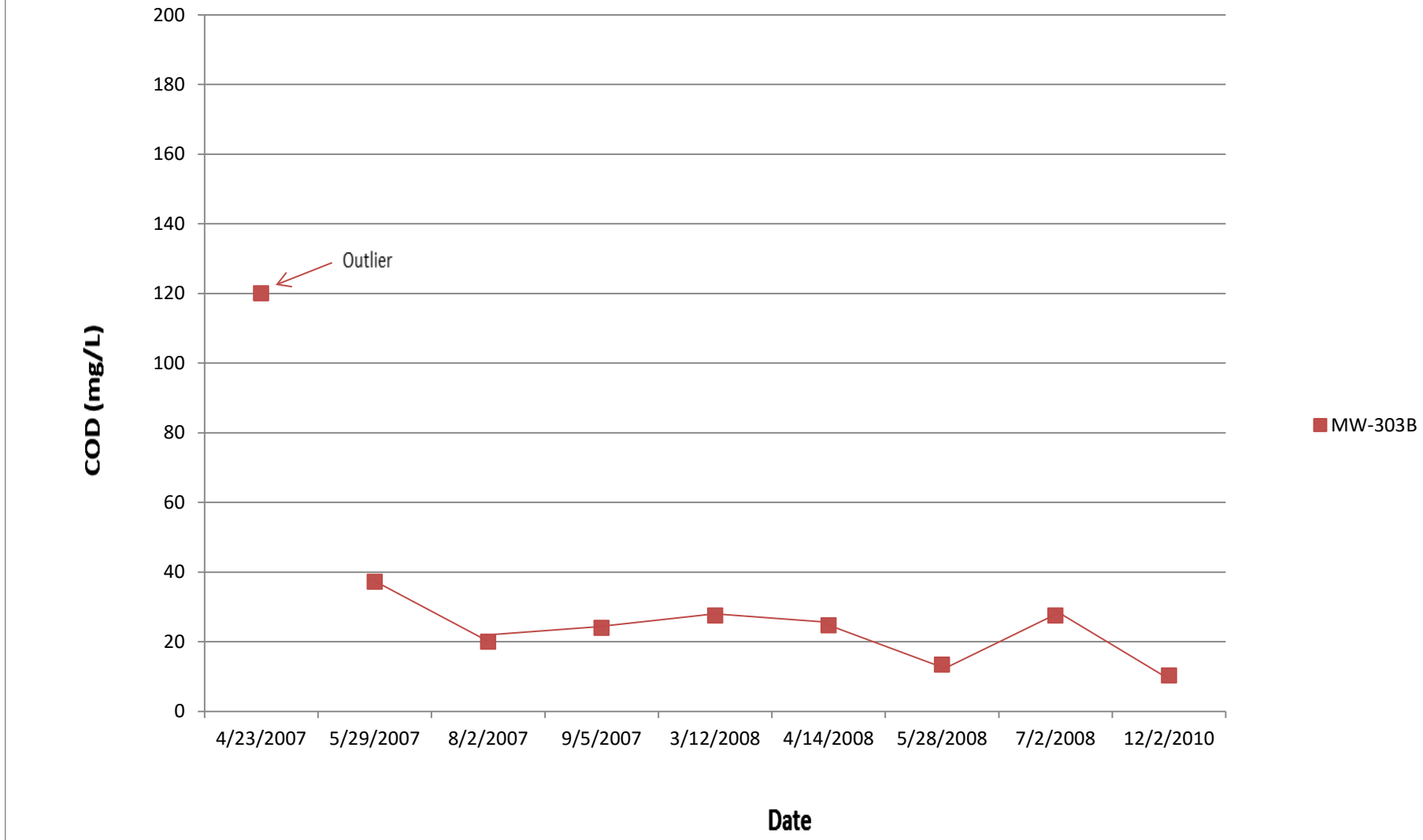
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



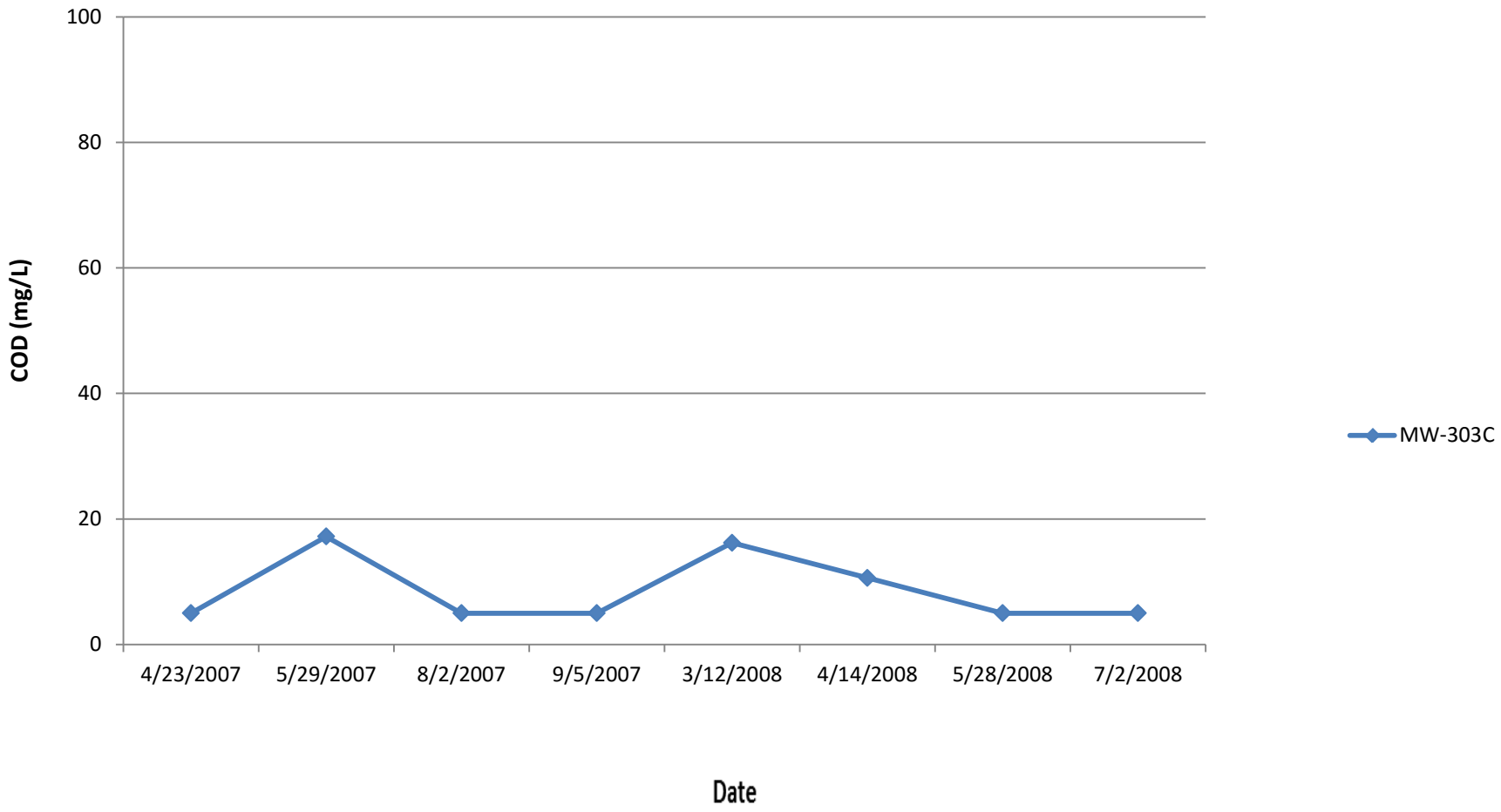
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



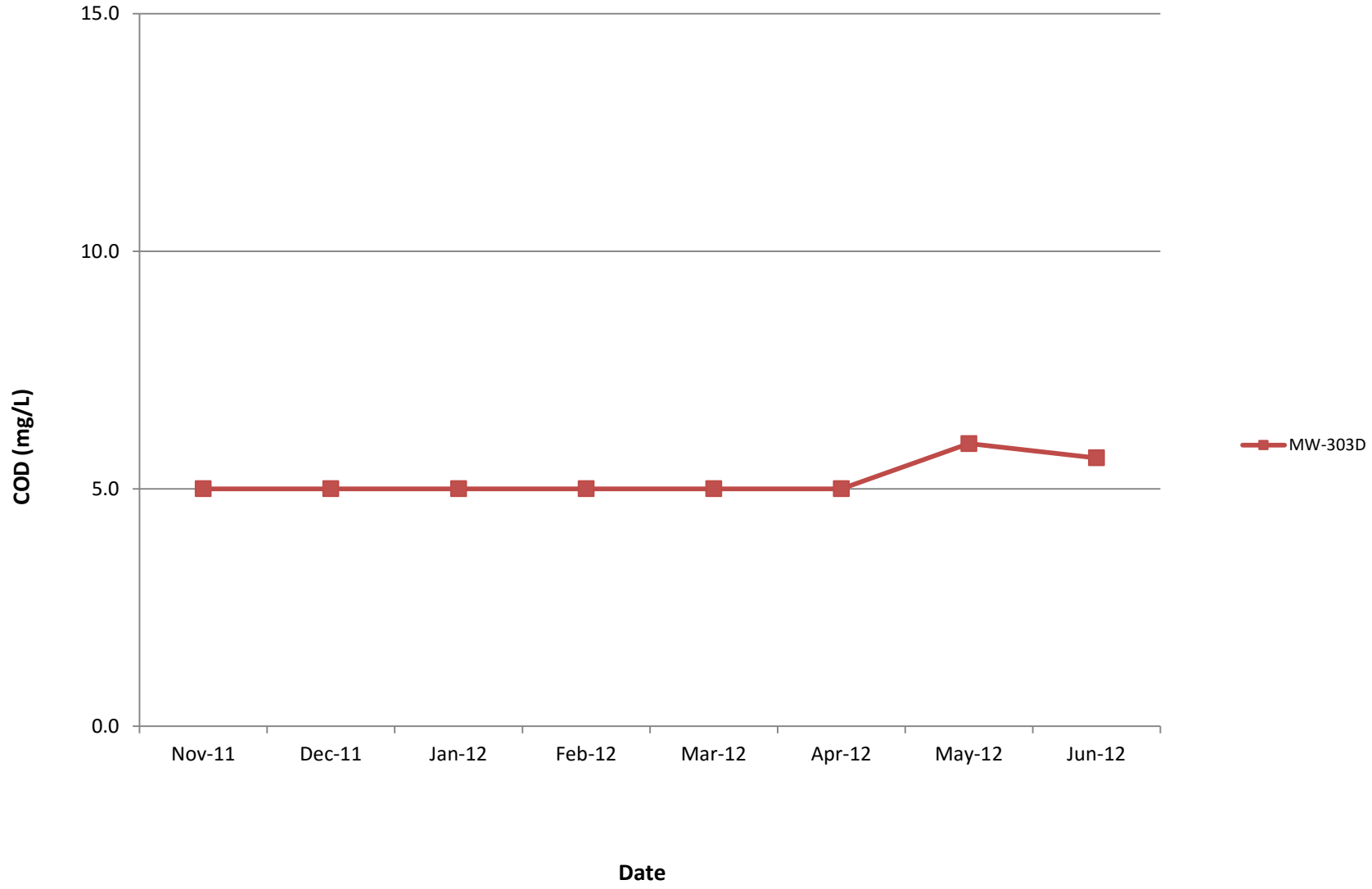
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



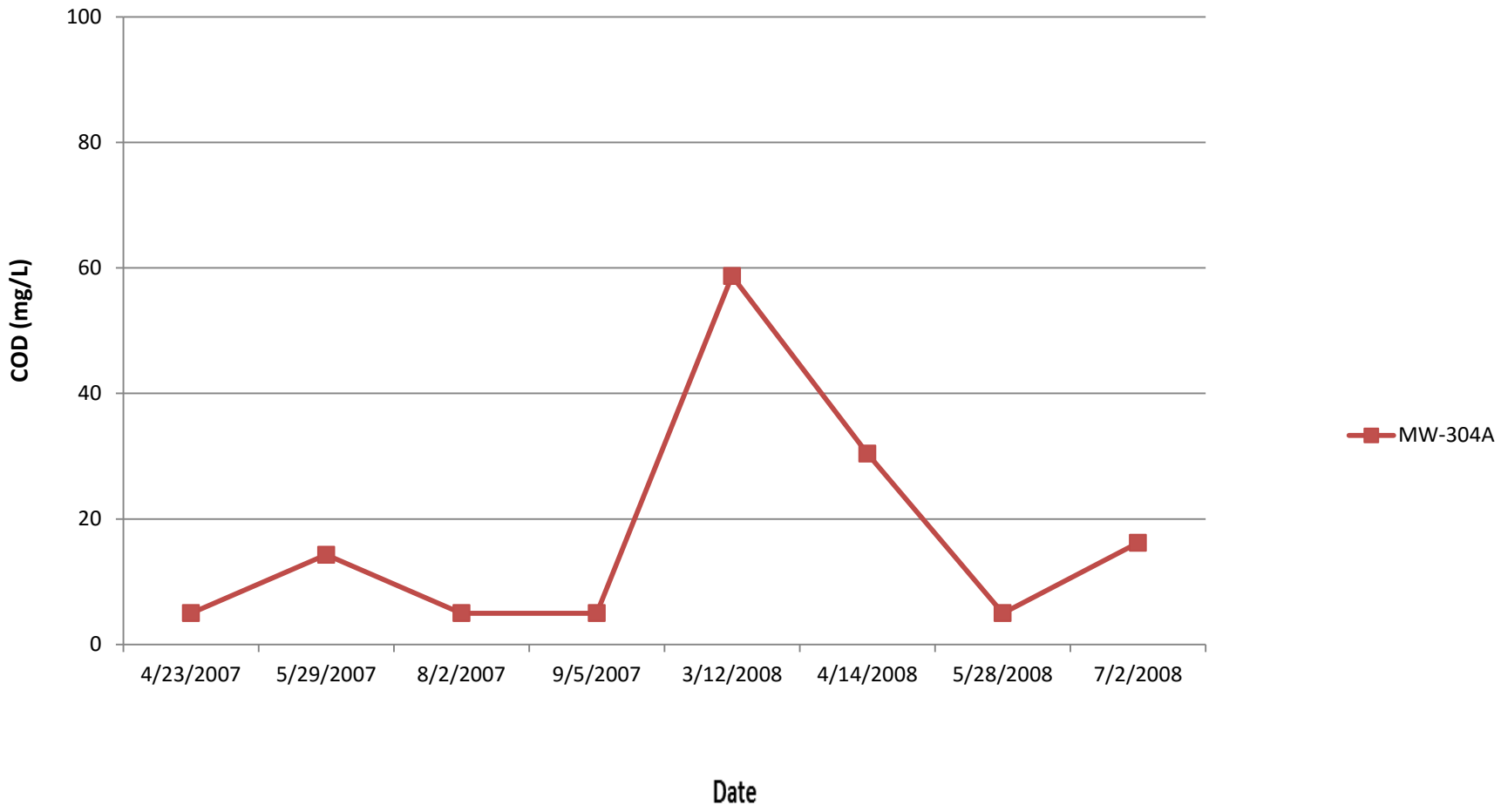
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



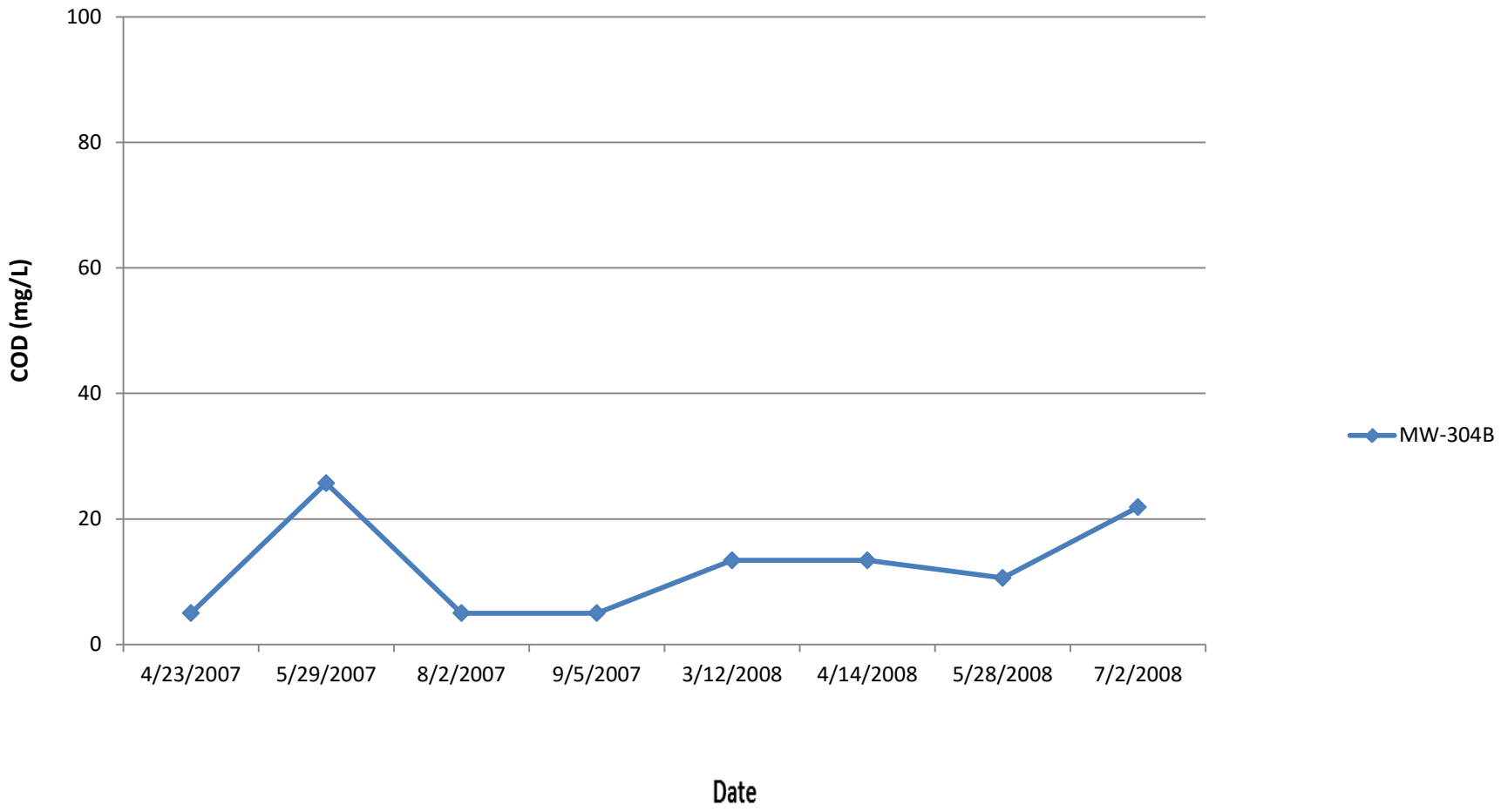
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (COD)



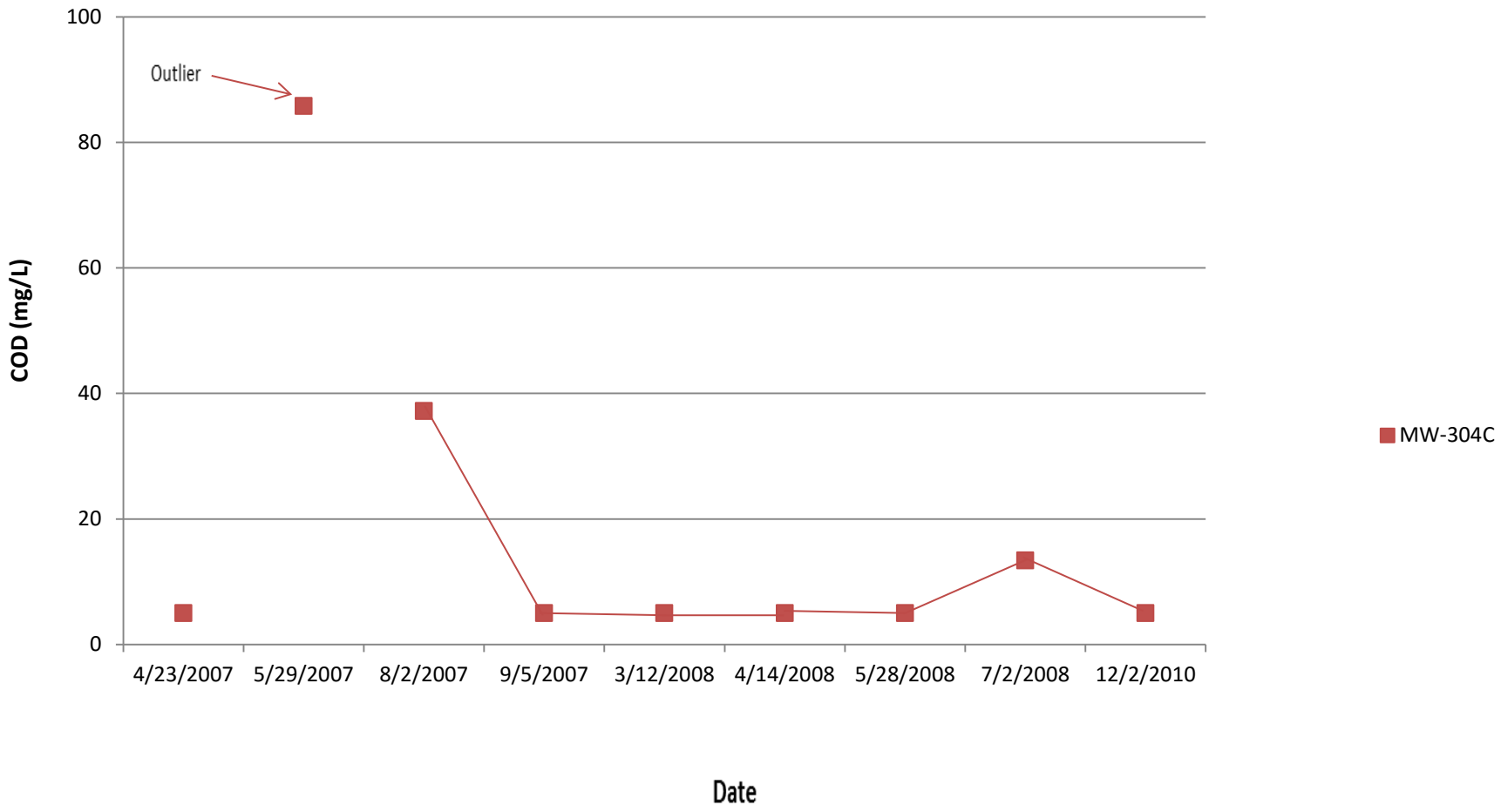
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



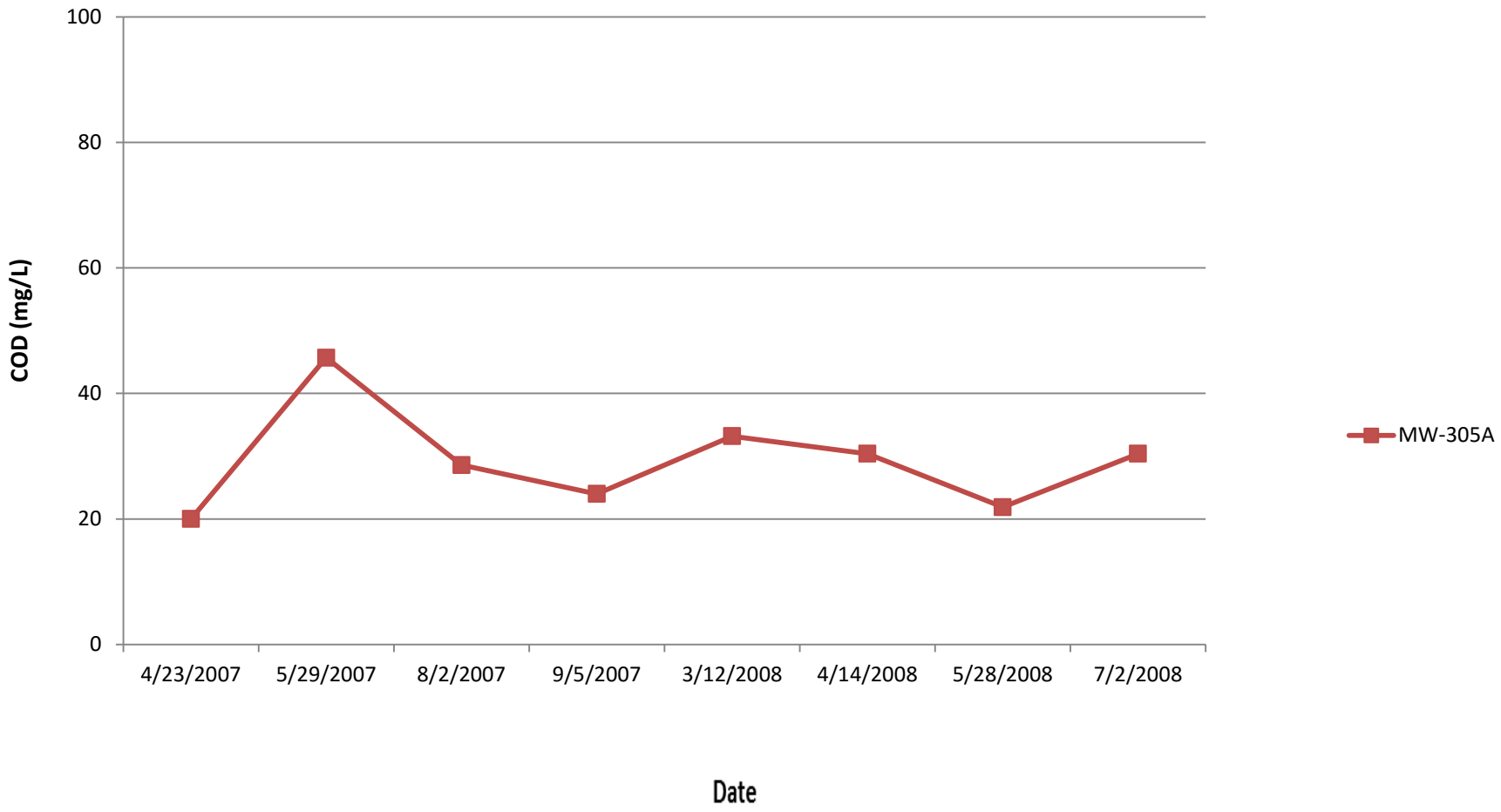
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



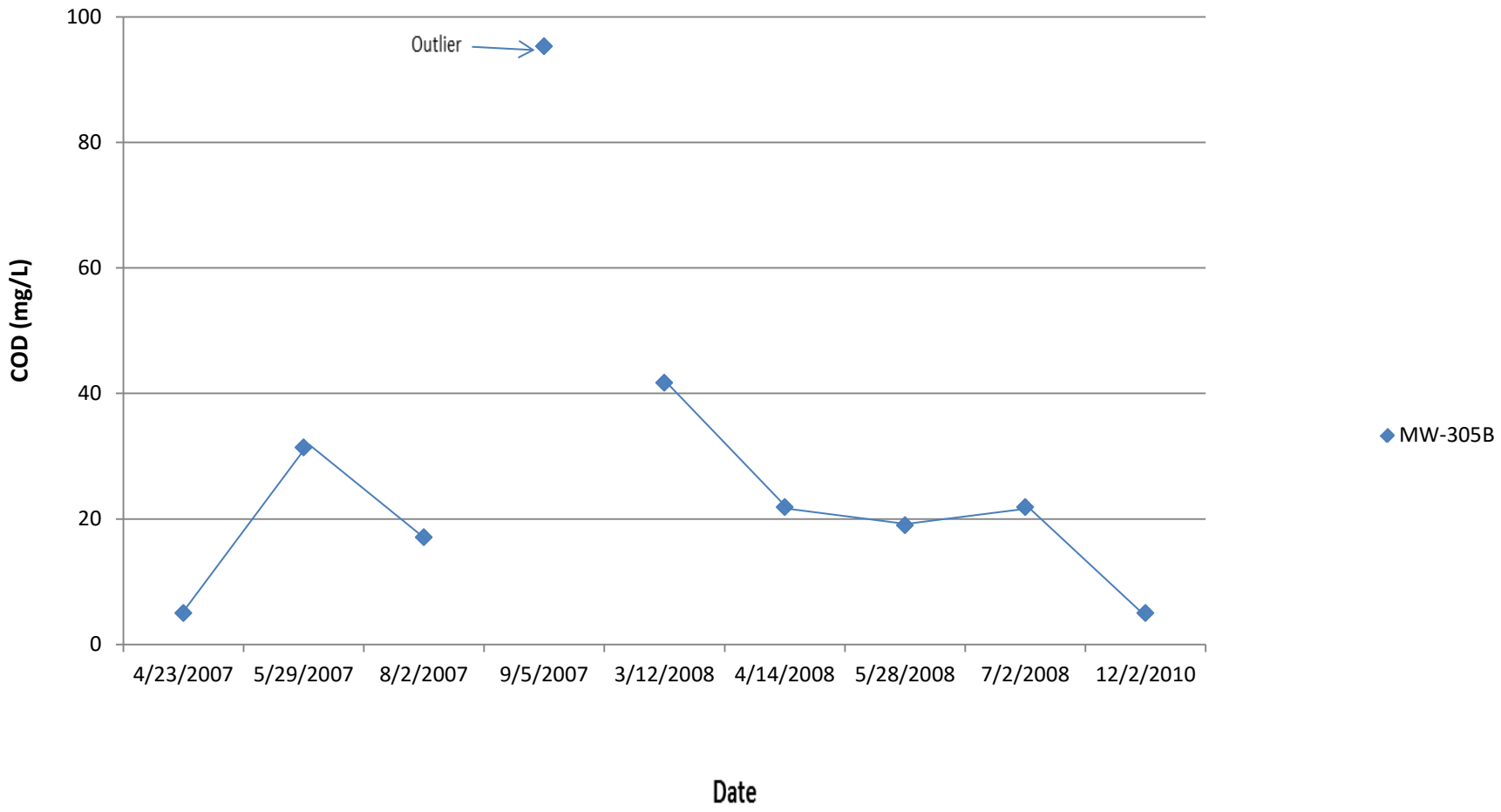
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



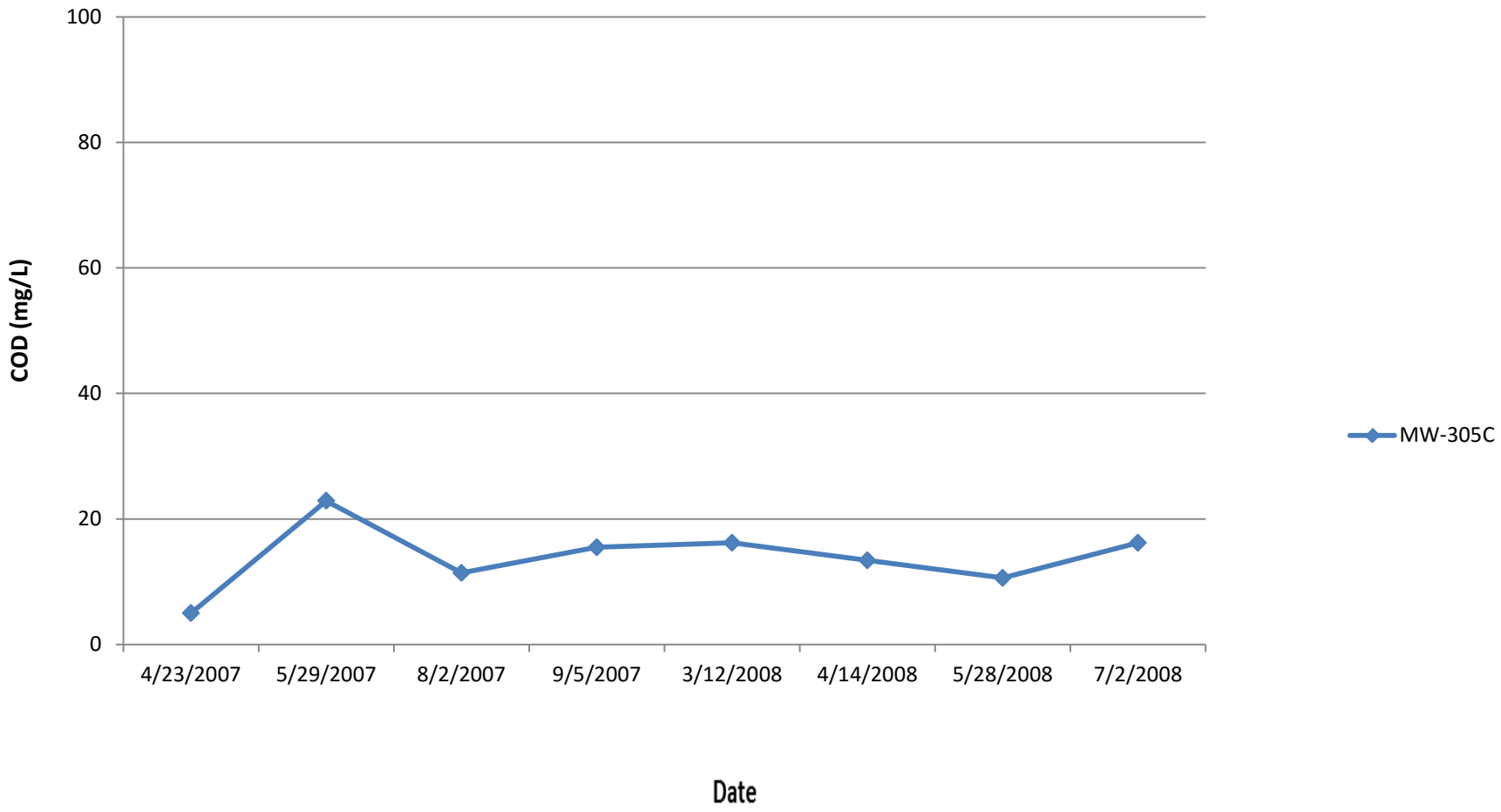
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



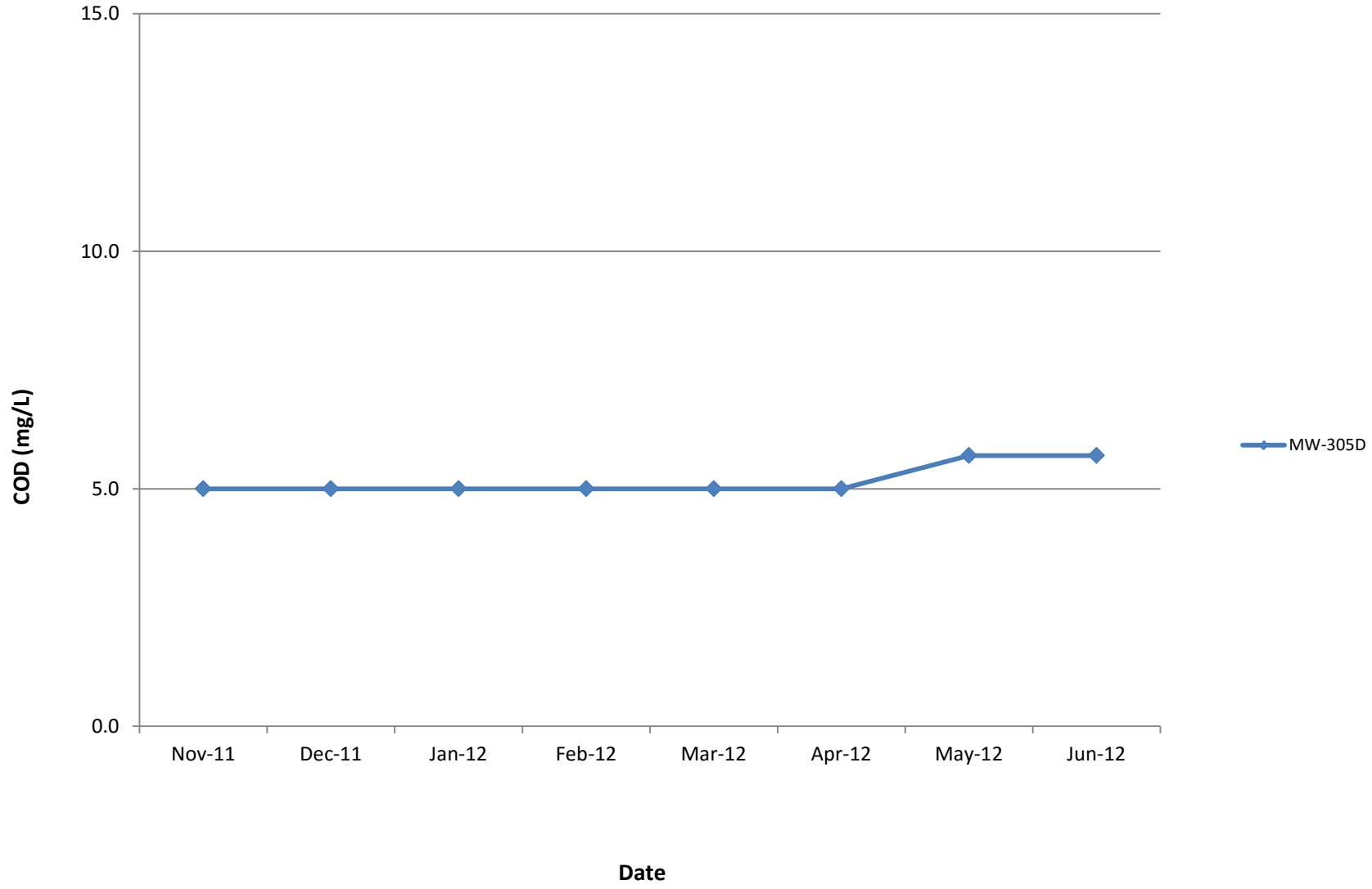
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



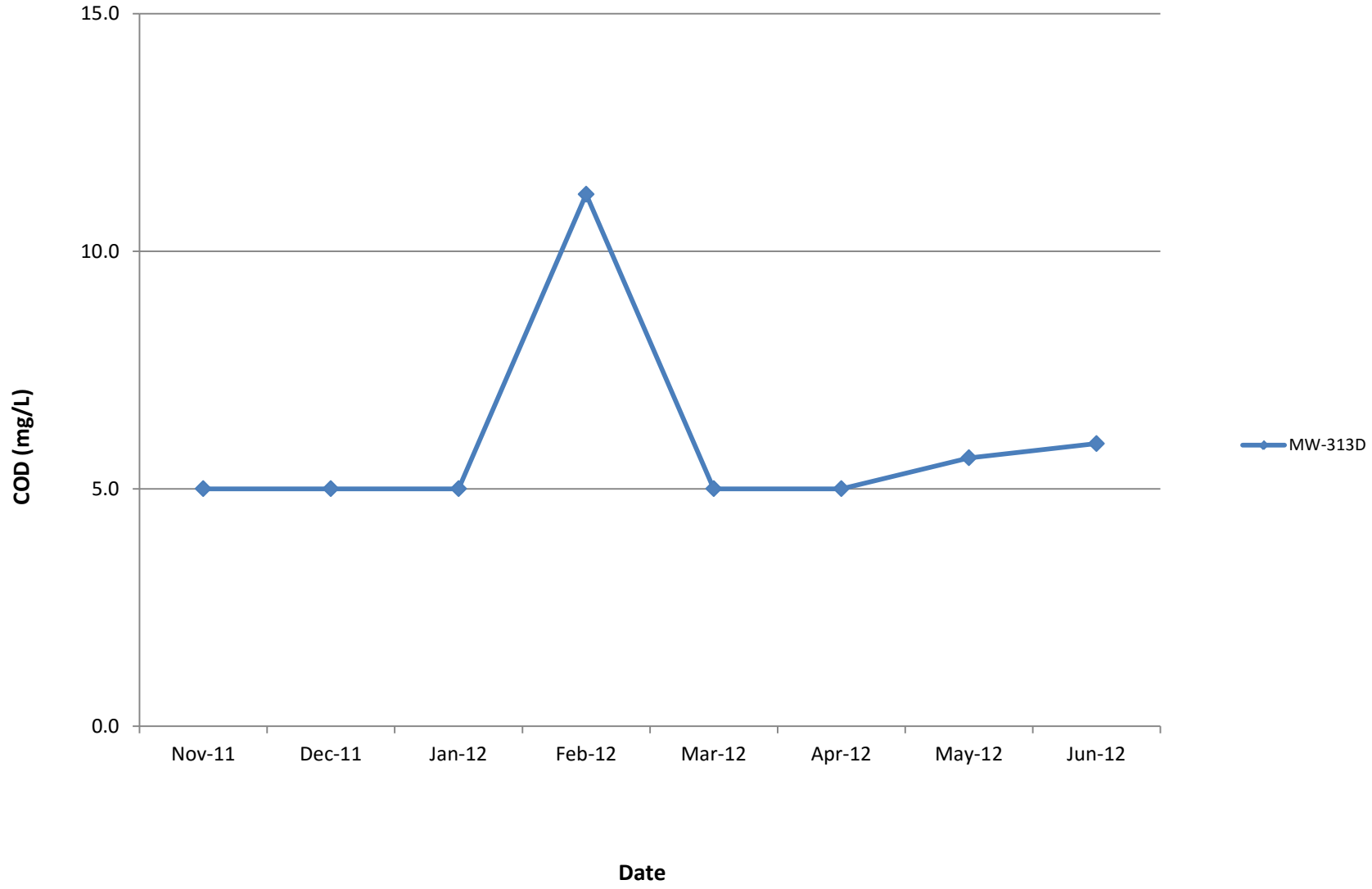
Advanced Disposal Emerald Park Landfill
Time Vs. Concentration Plot (COD)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (COD)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (COD)



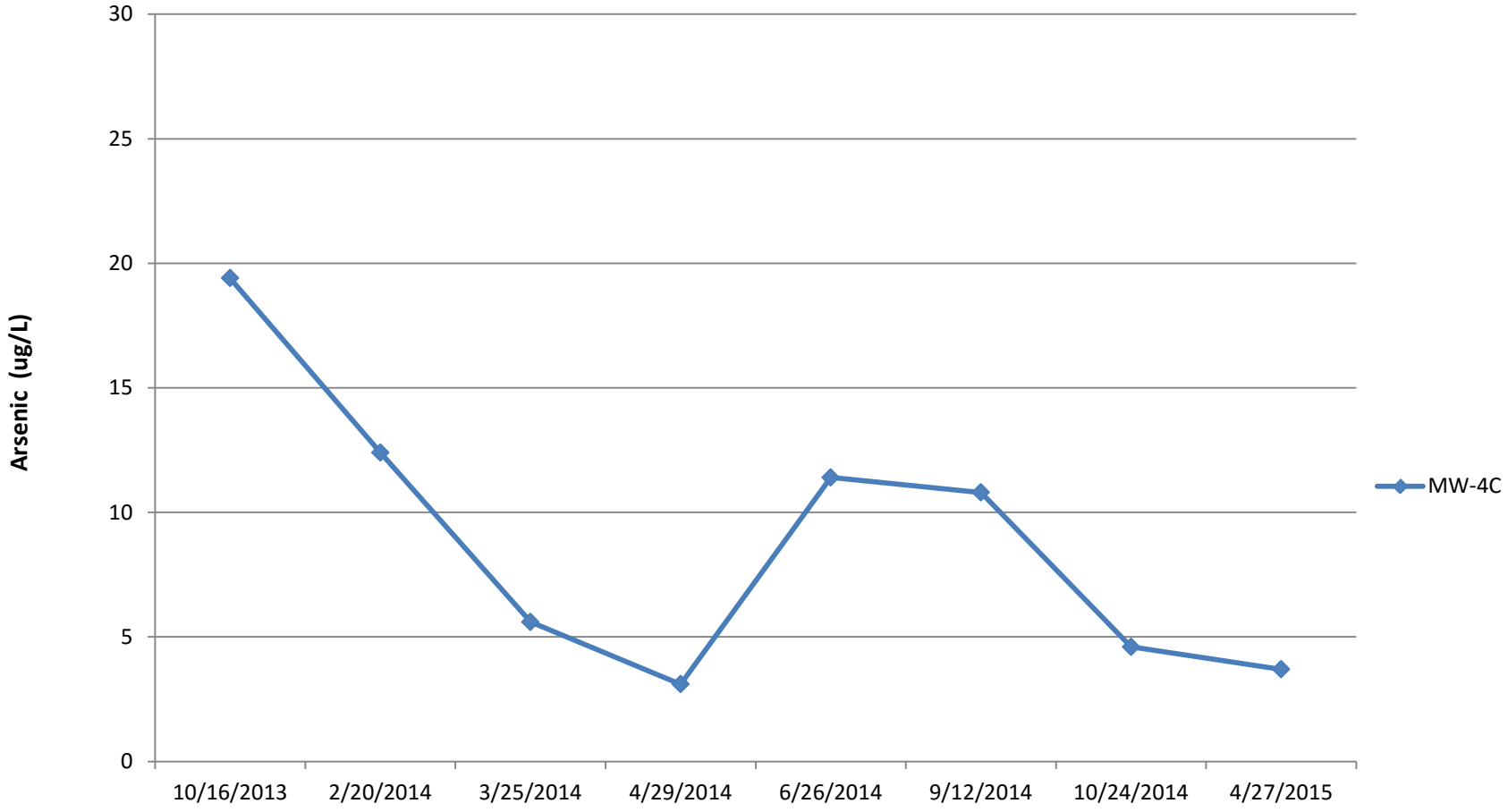
APPENDIX B-2

Time vs. Concentration Graphs for Public Health and Welfare Parameters

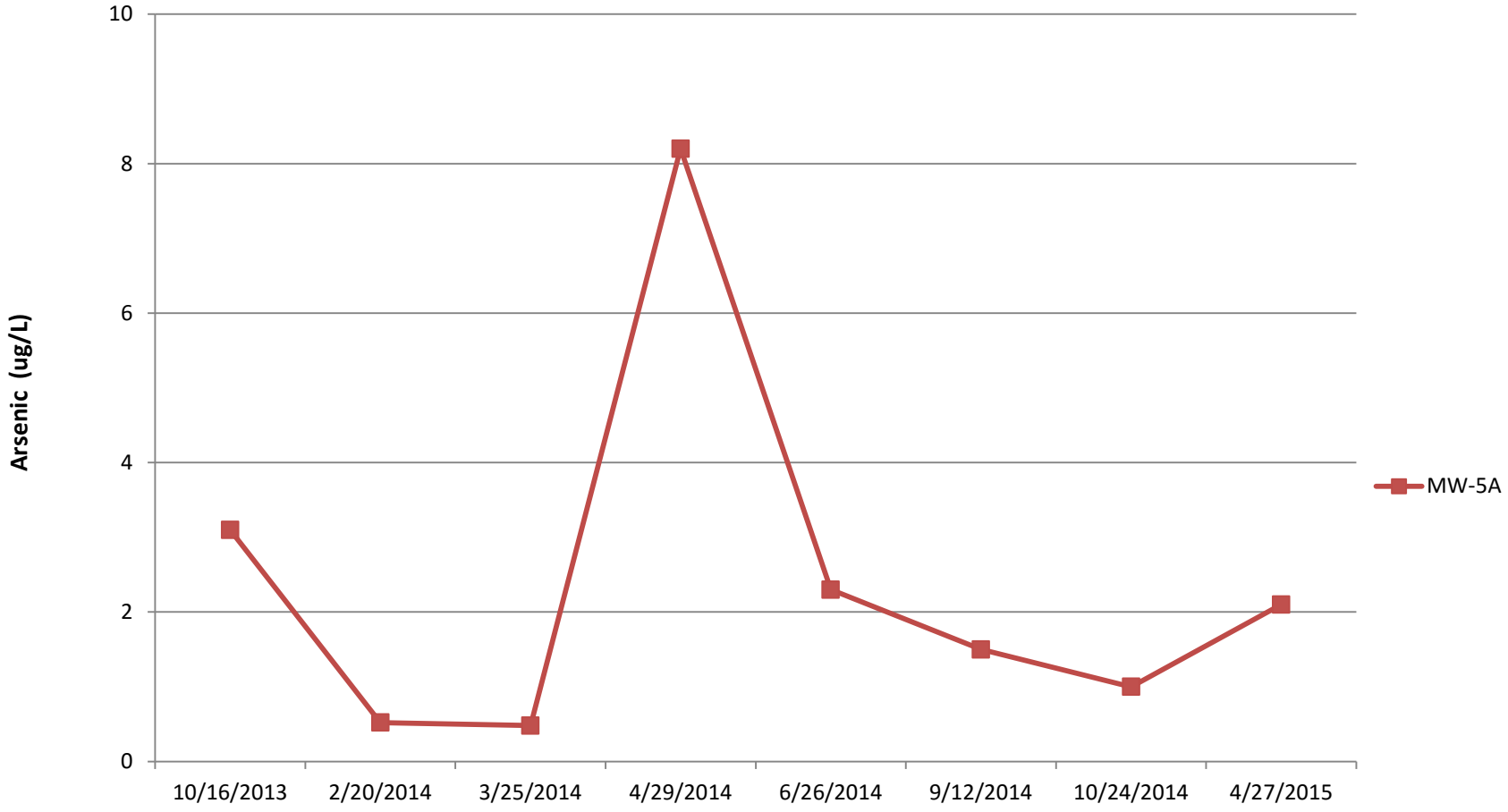
Arsenic
Boron
Fluoride
Manganese
Sulfate

ARSENIC

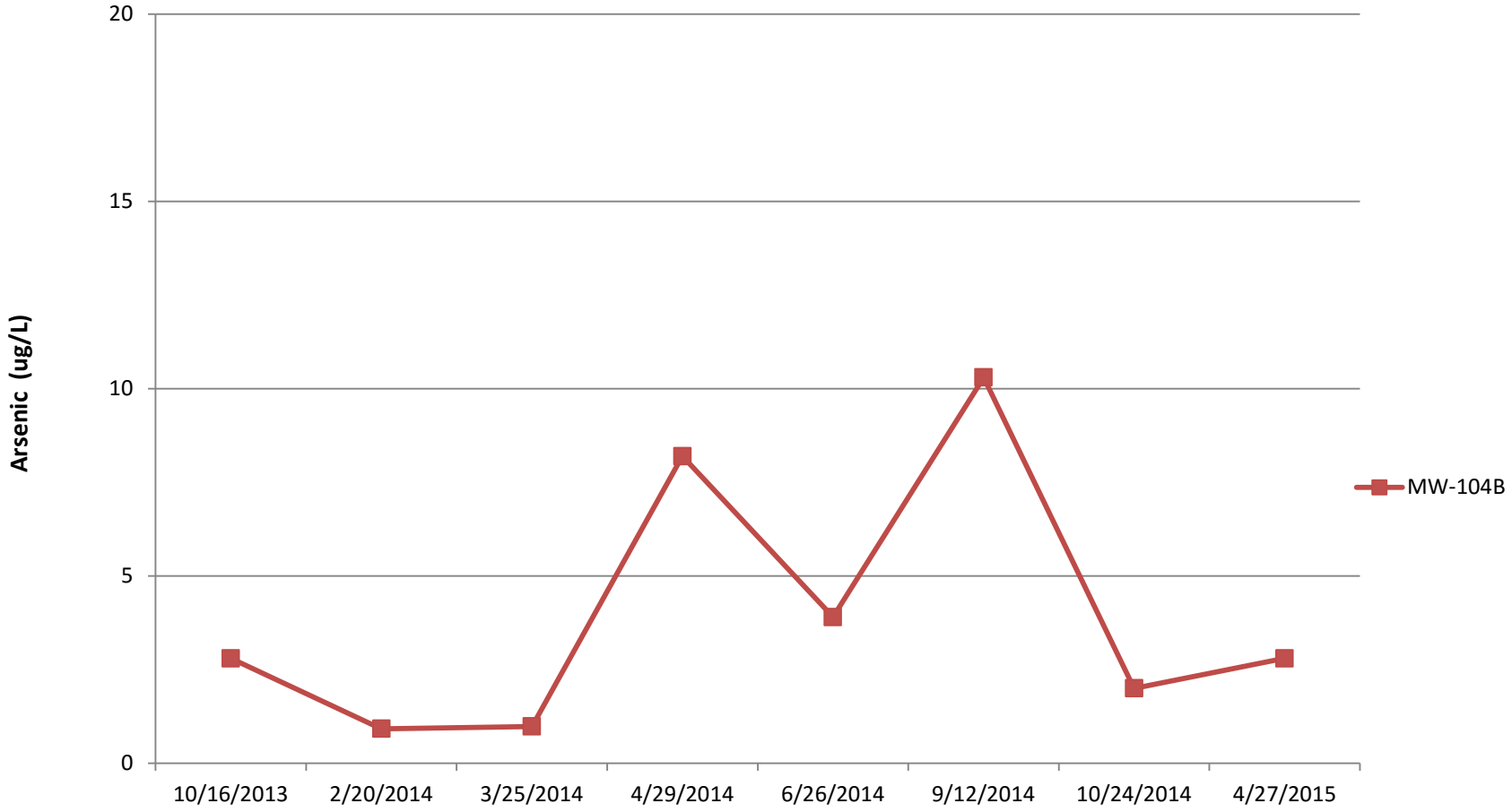
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



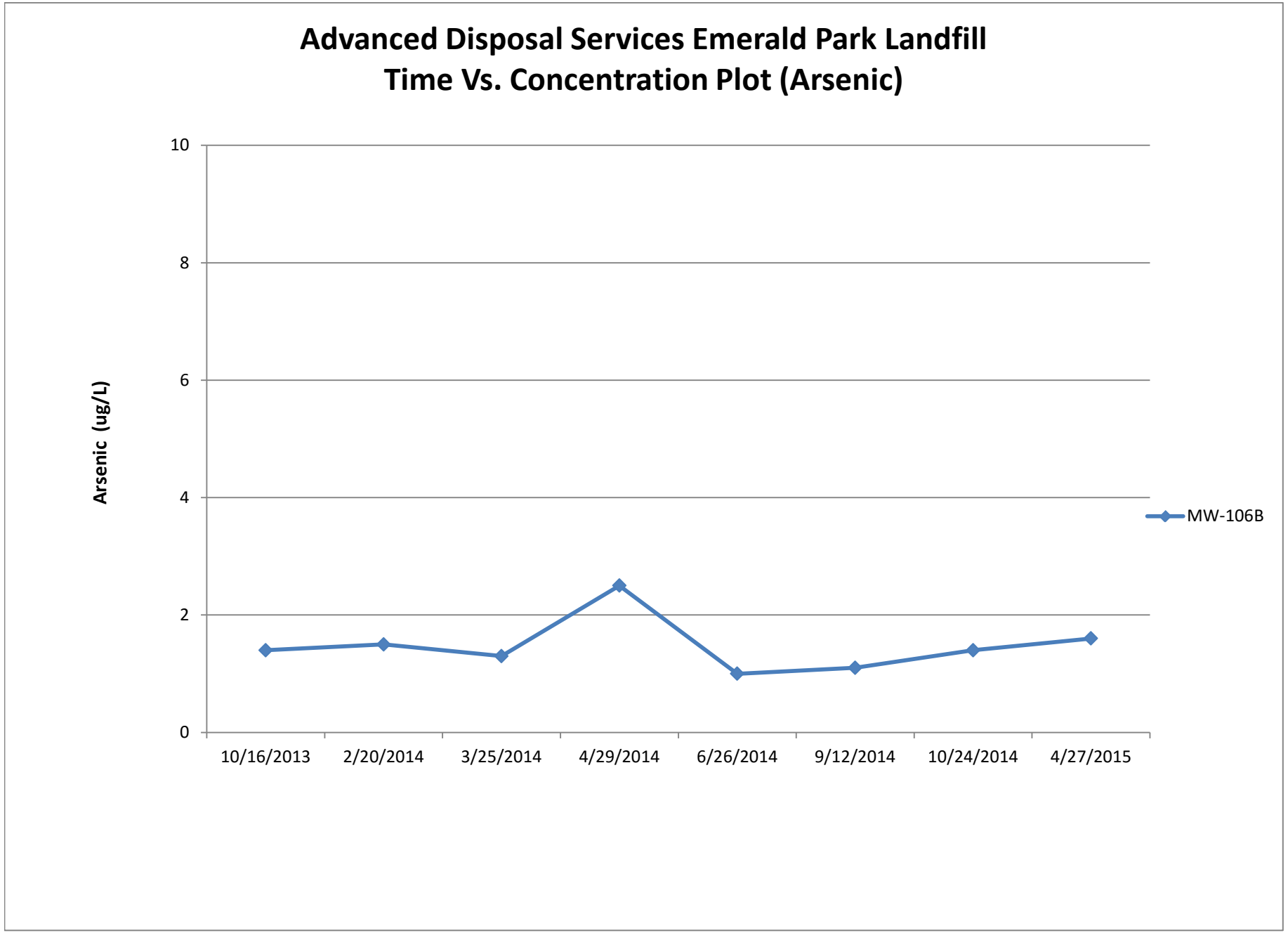
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



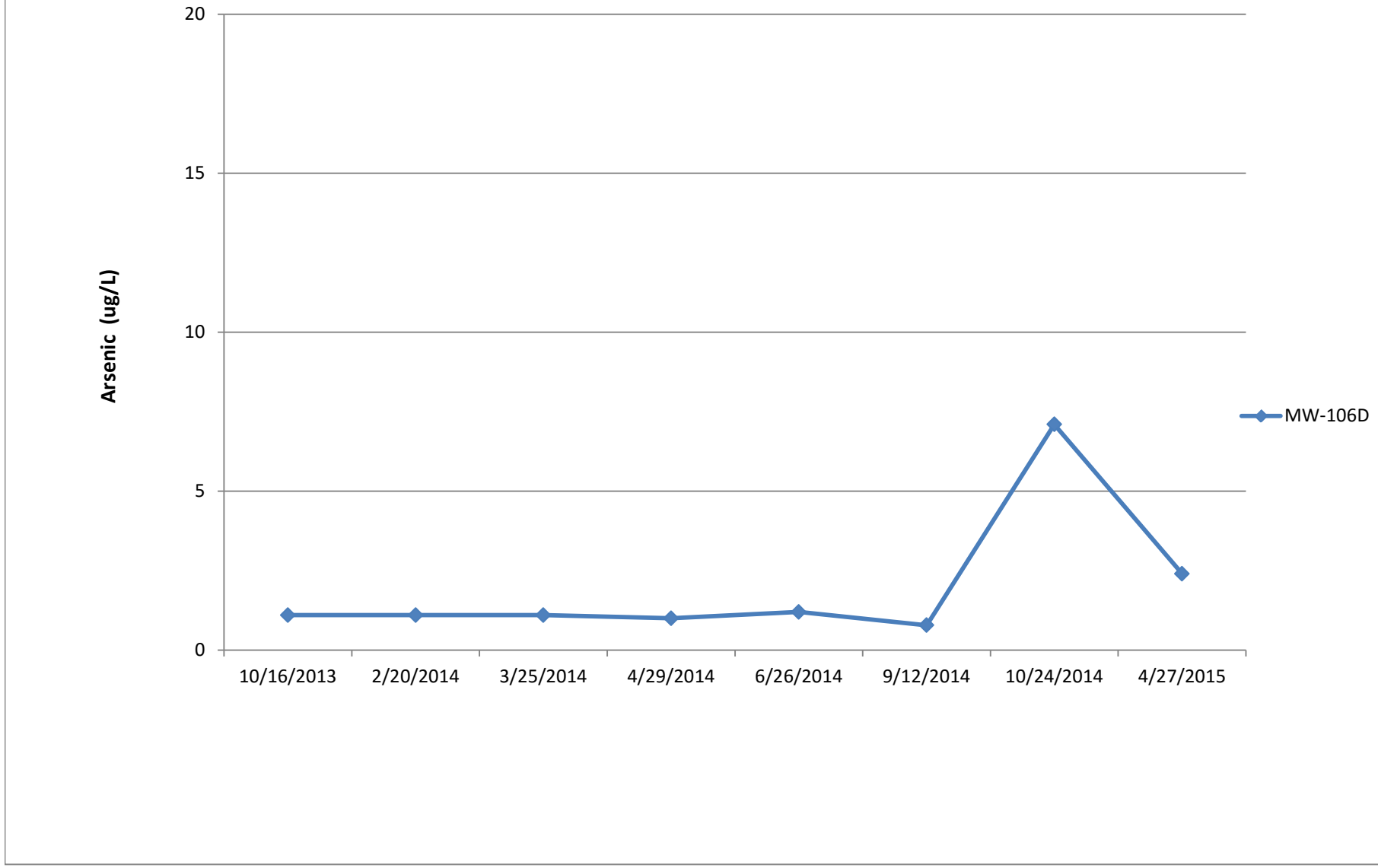
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



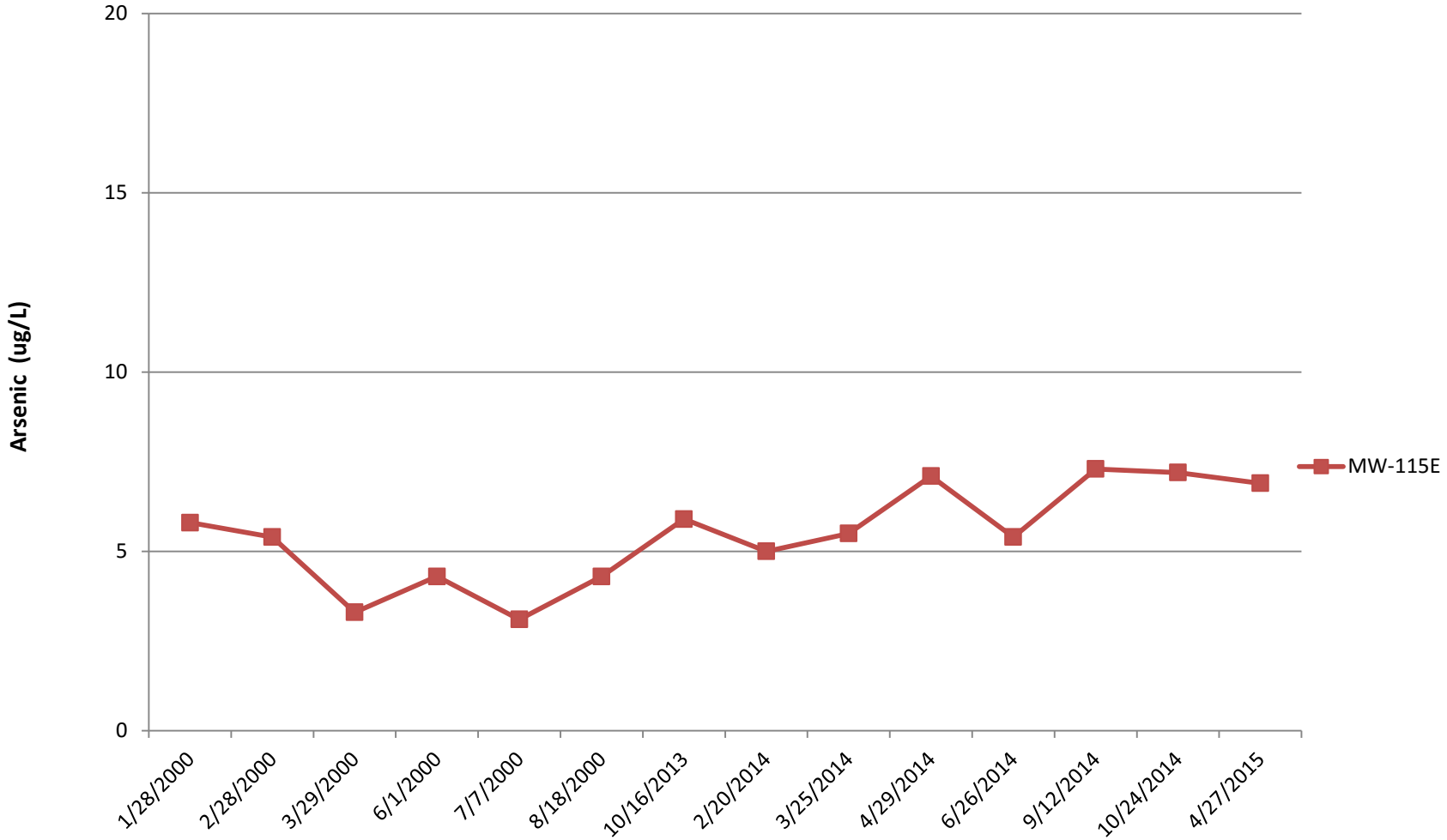
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



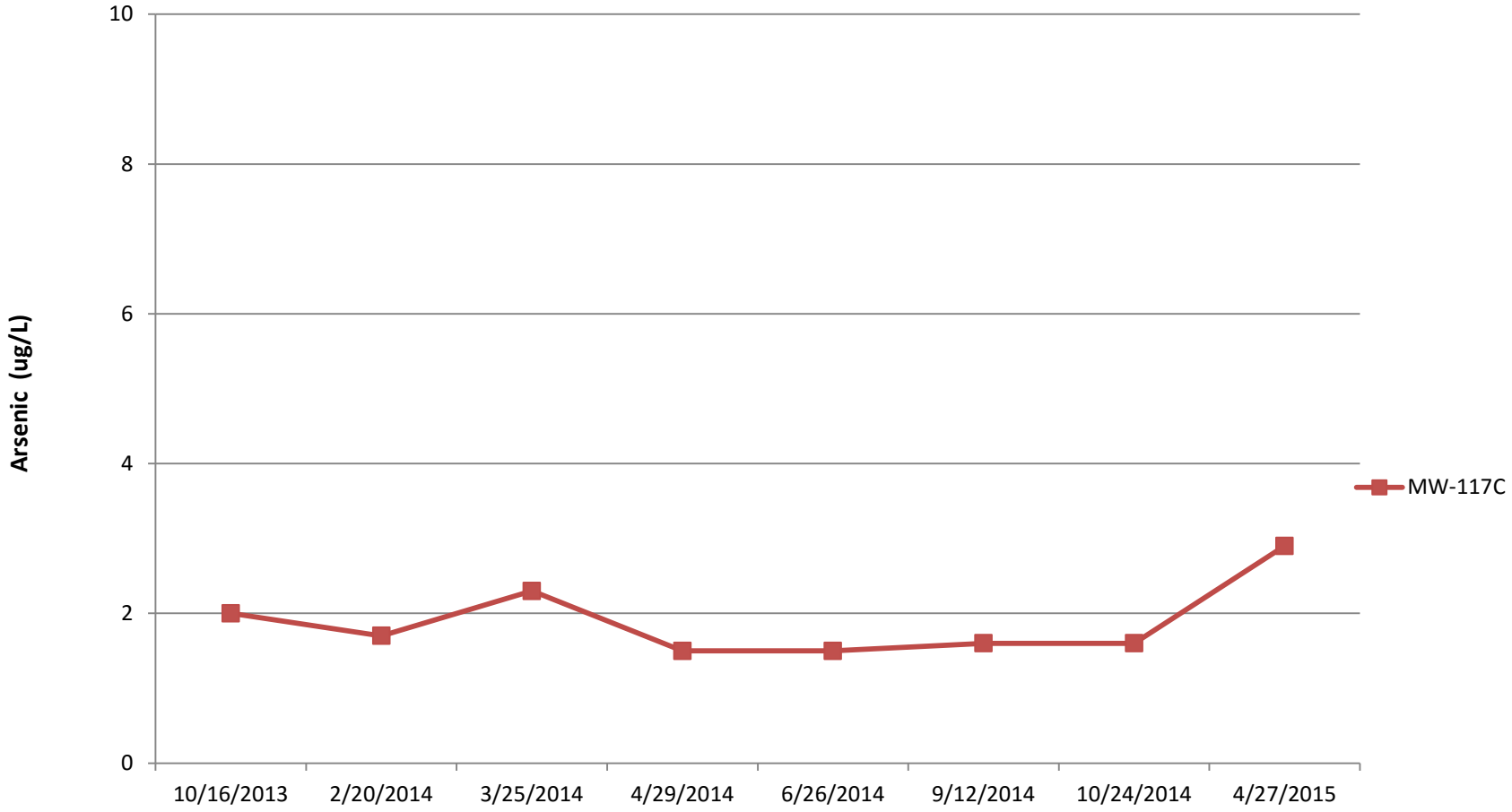
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



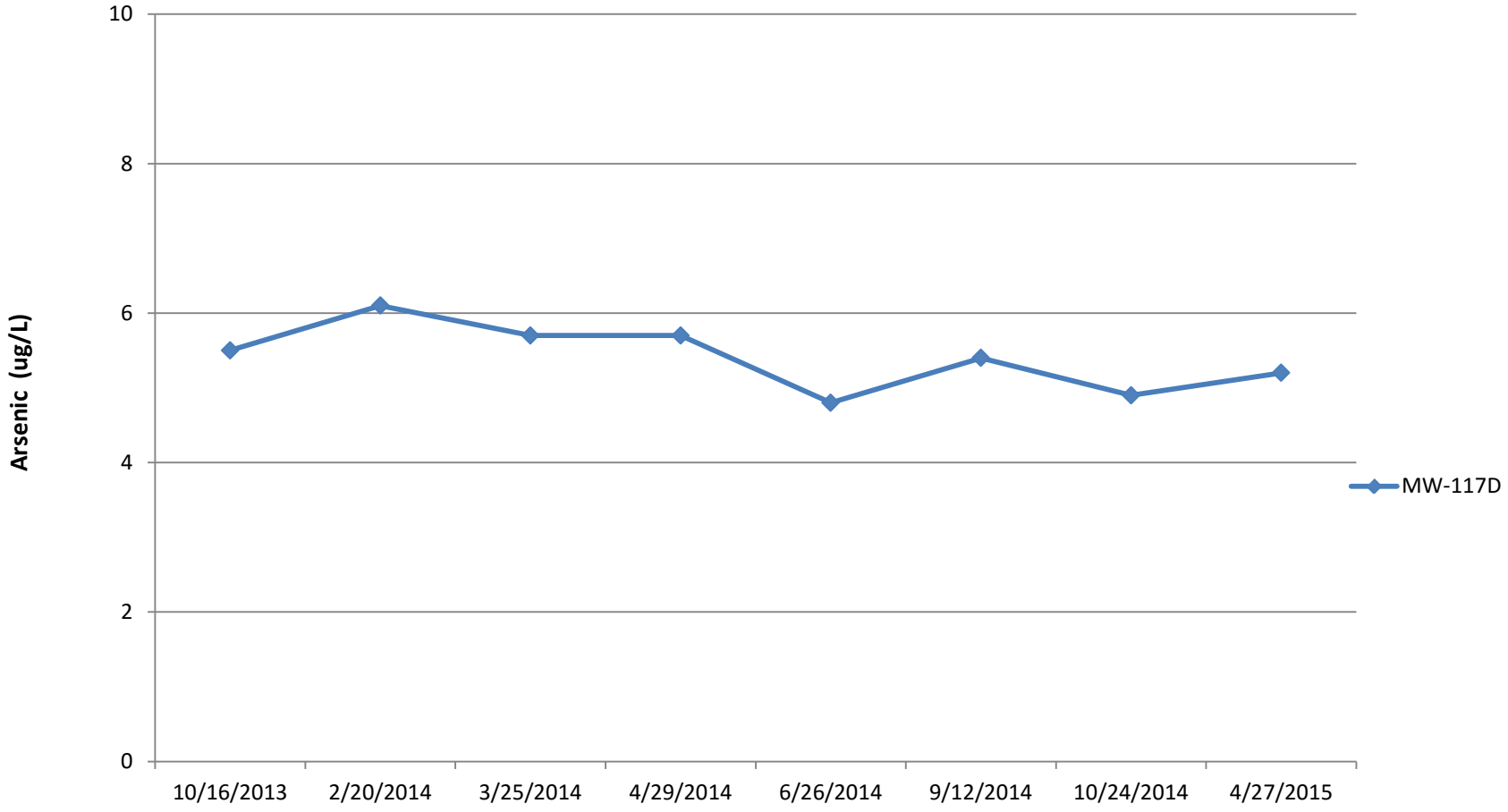
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



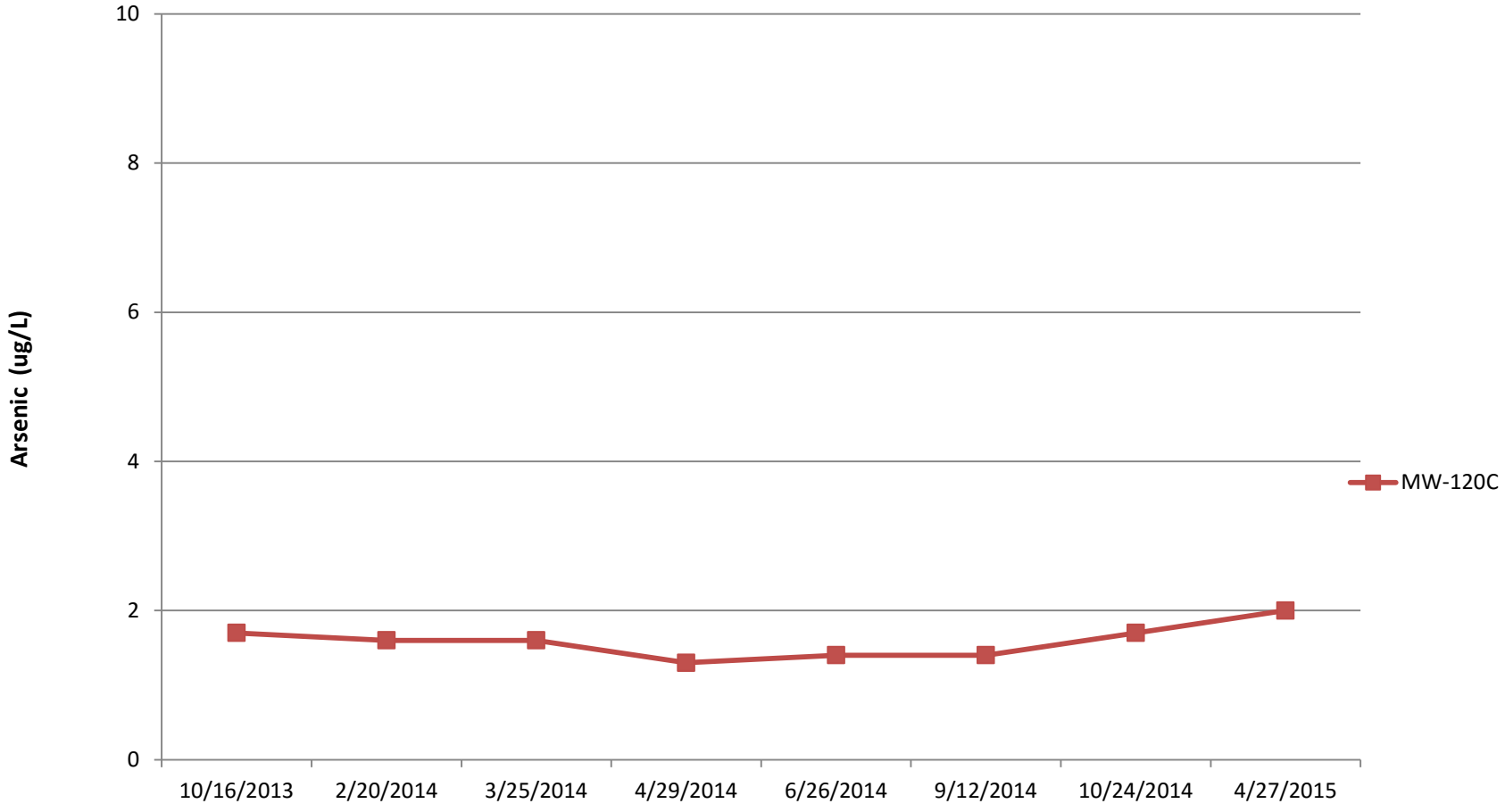
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



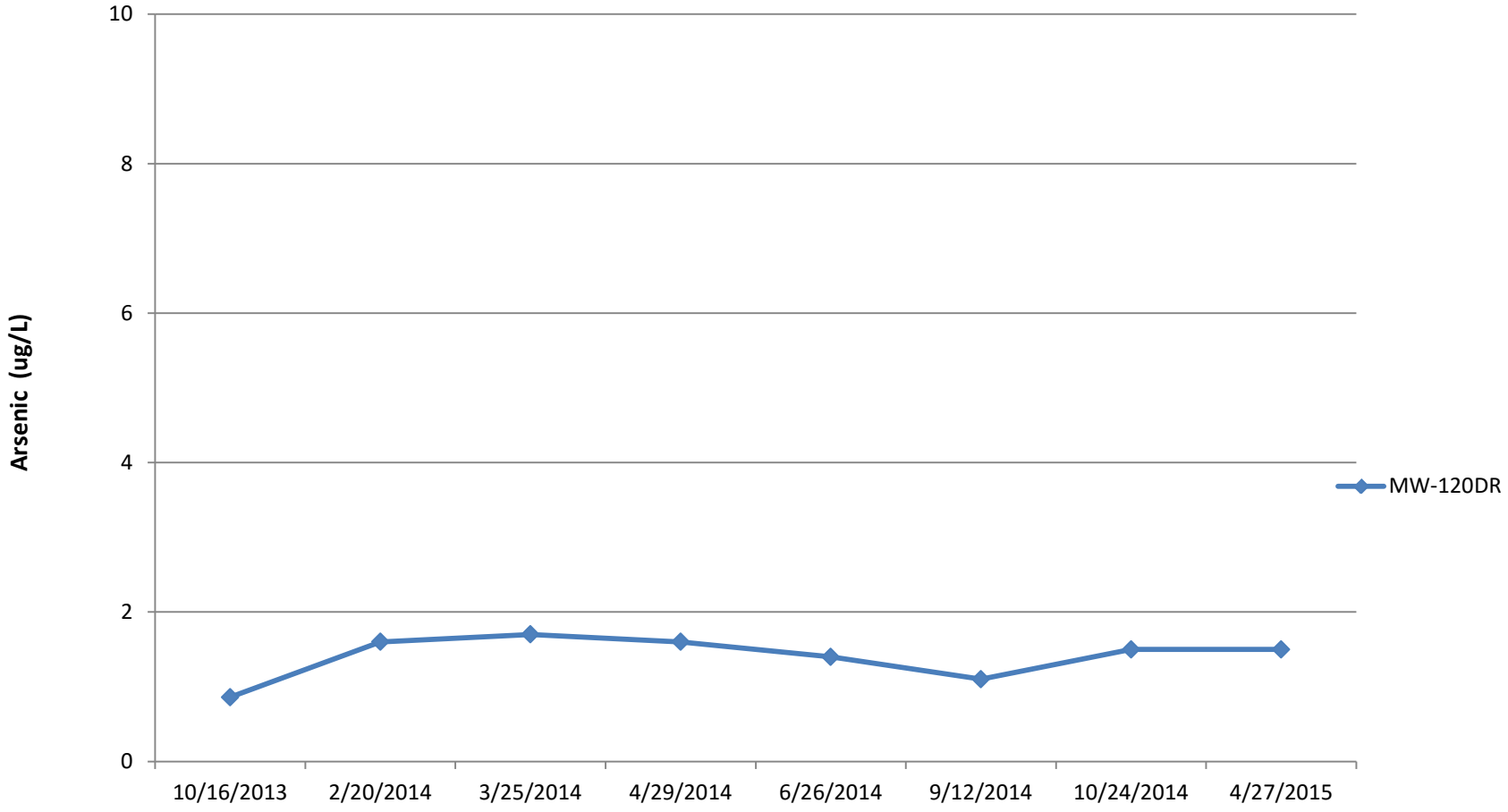
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



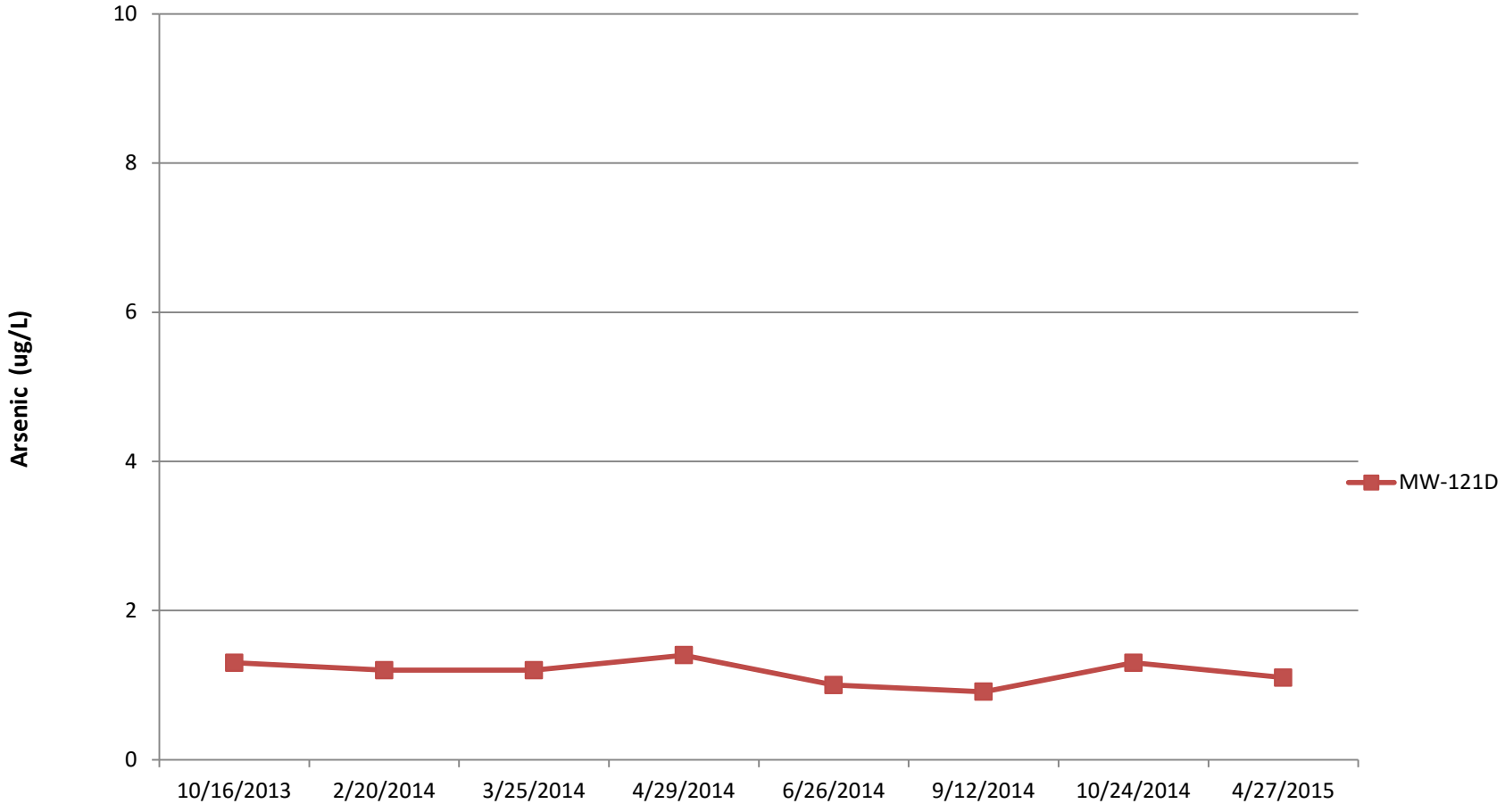
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



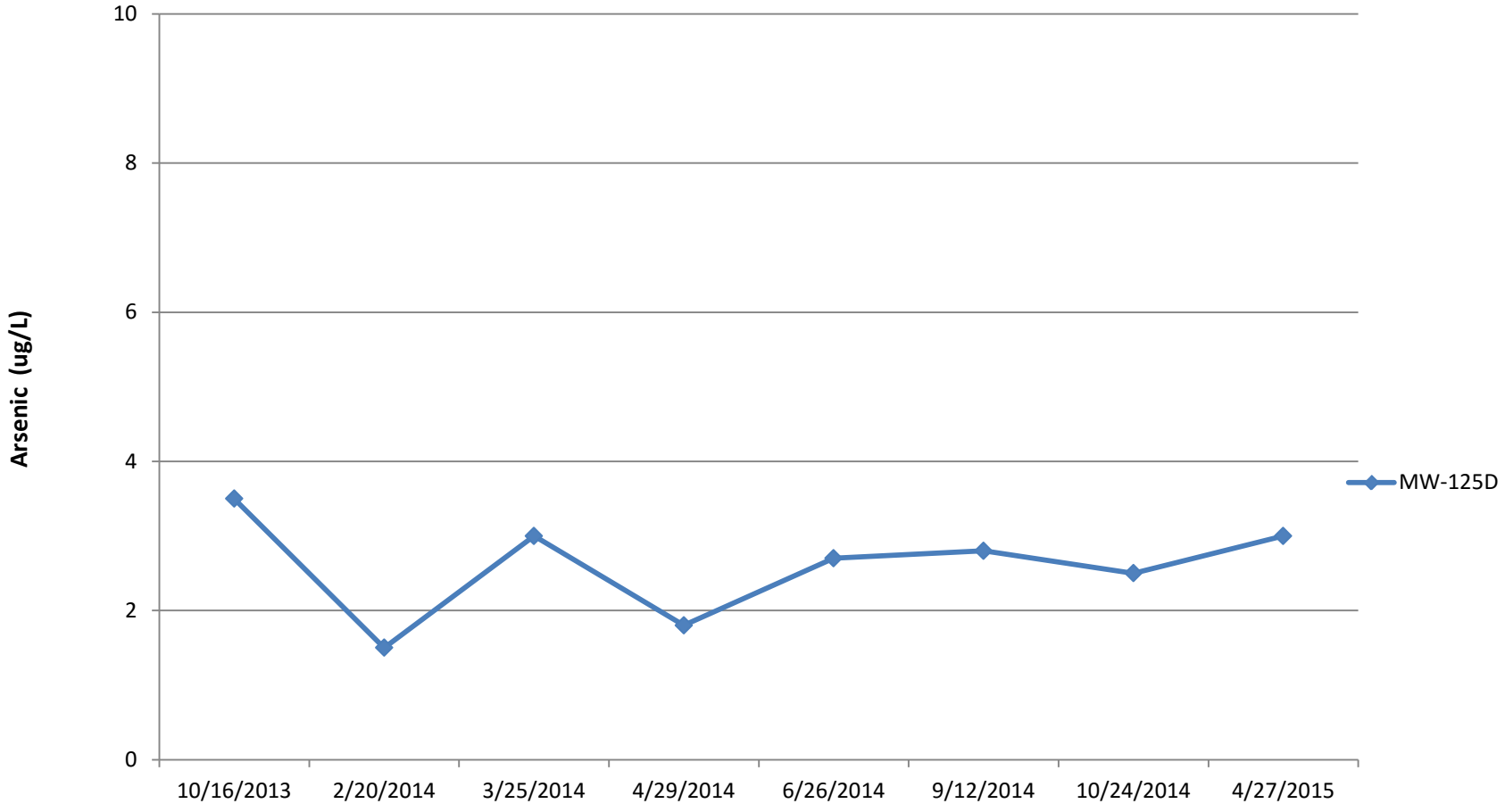
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



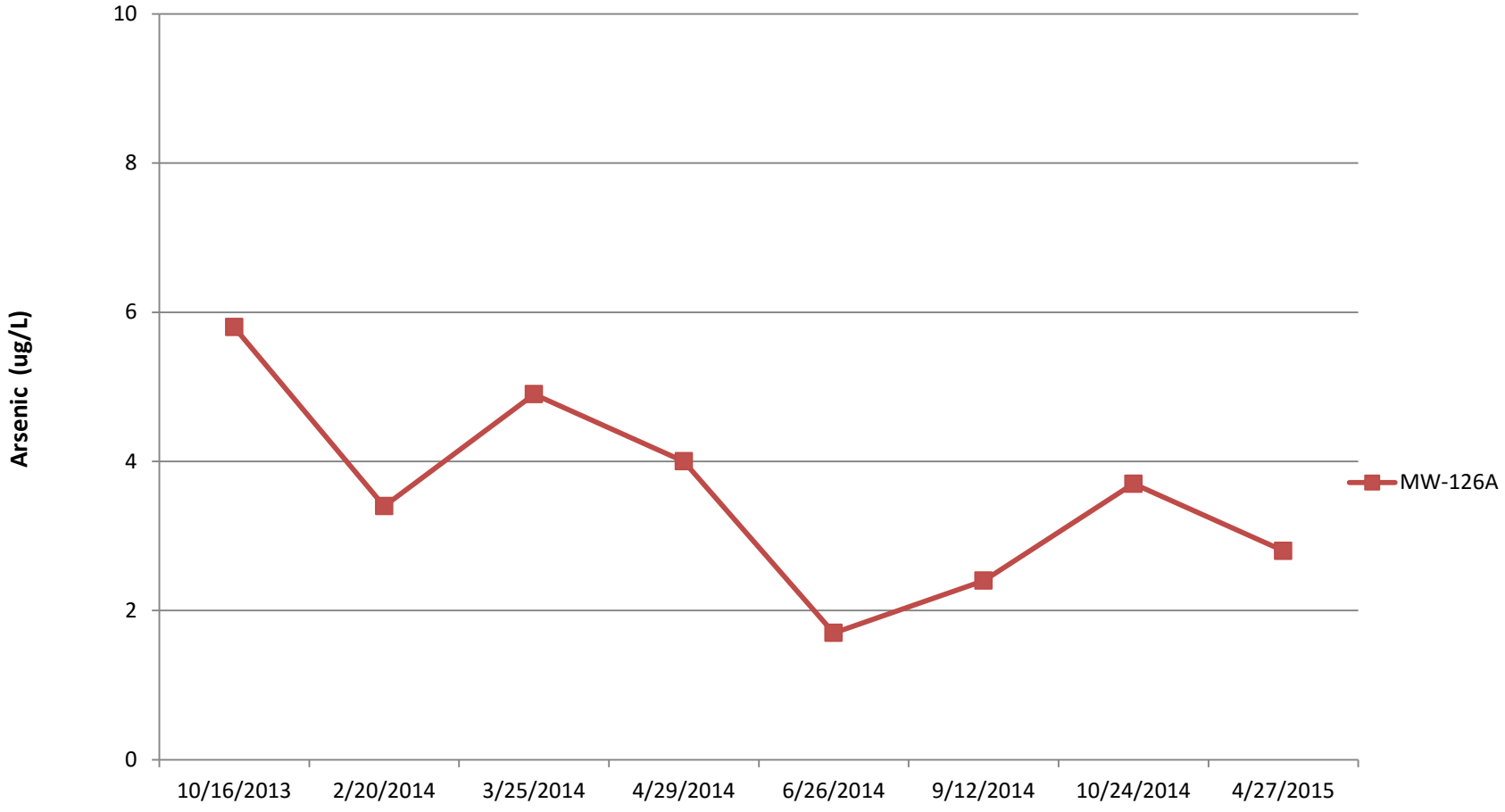
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



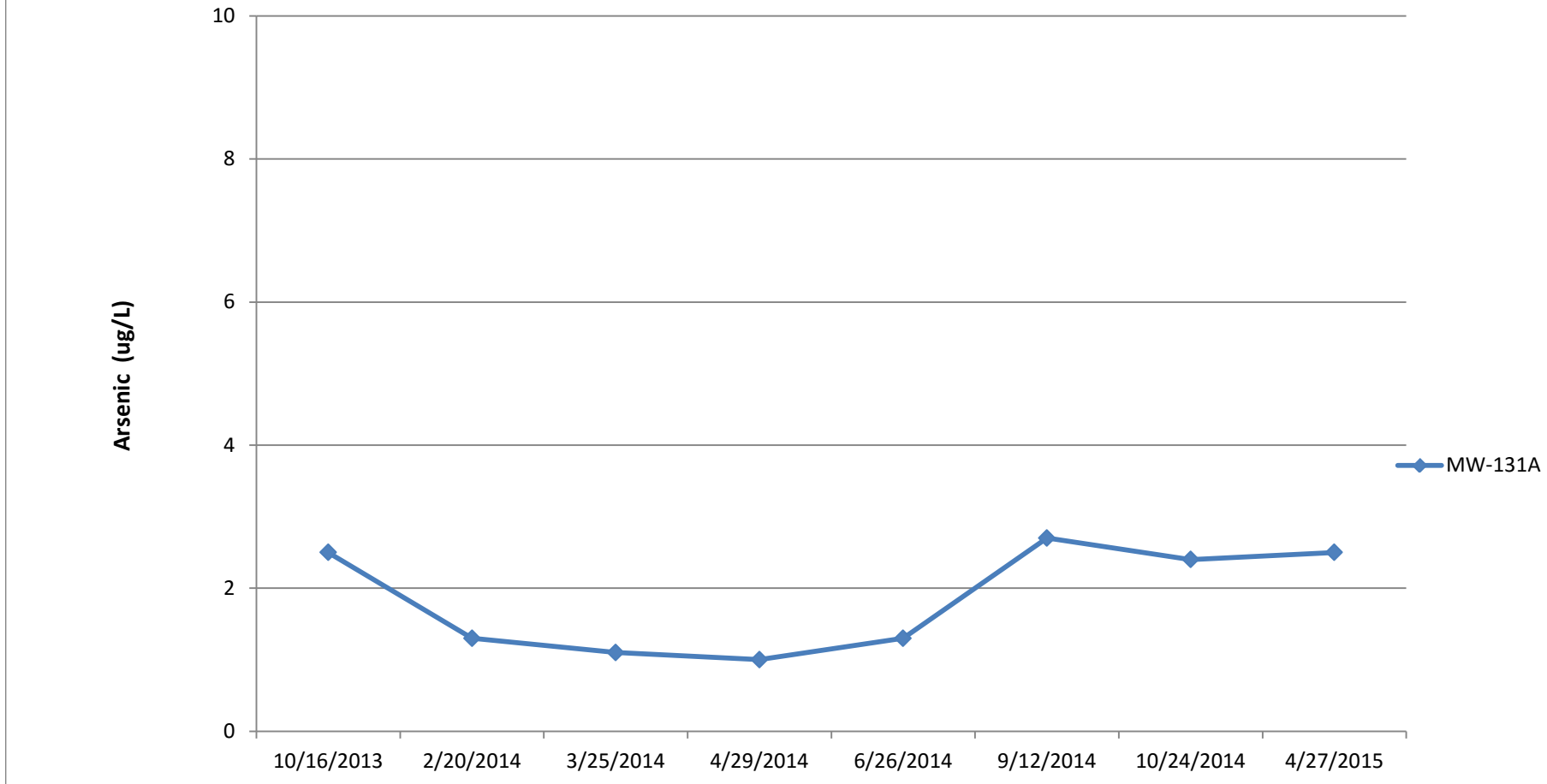
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



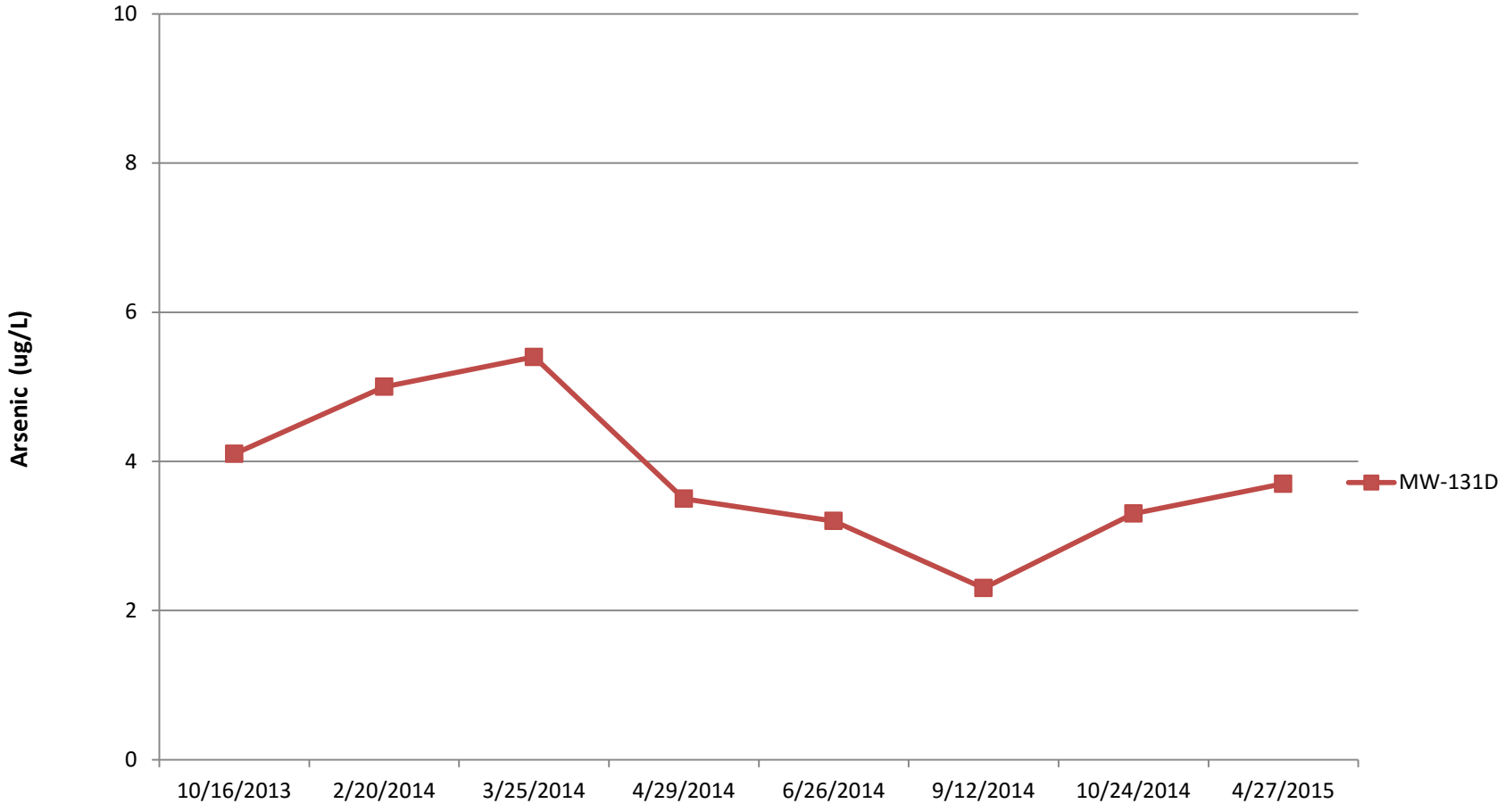
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



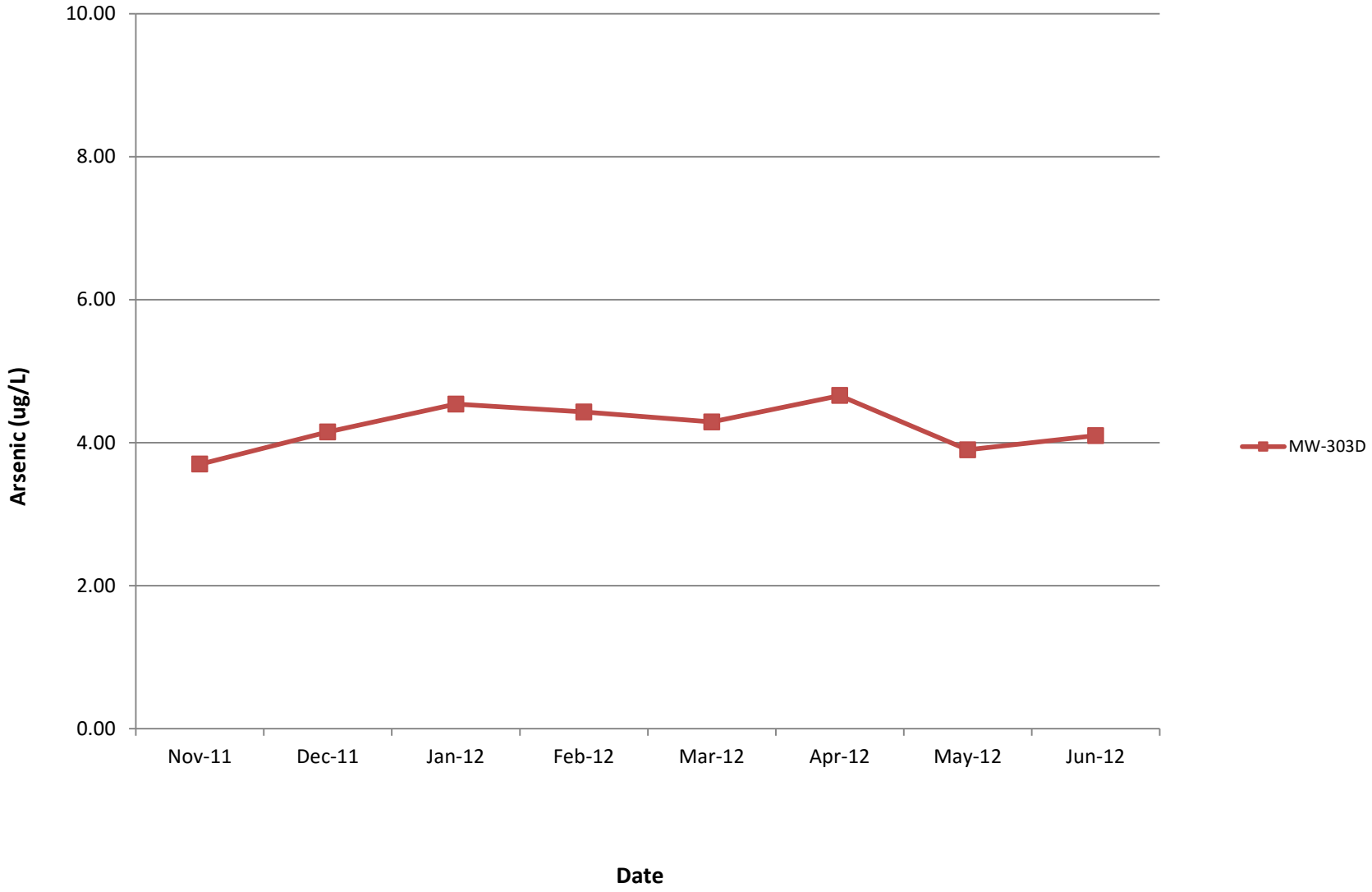
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



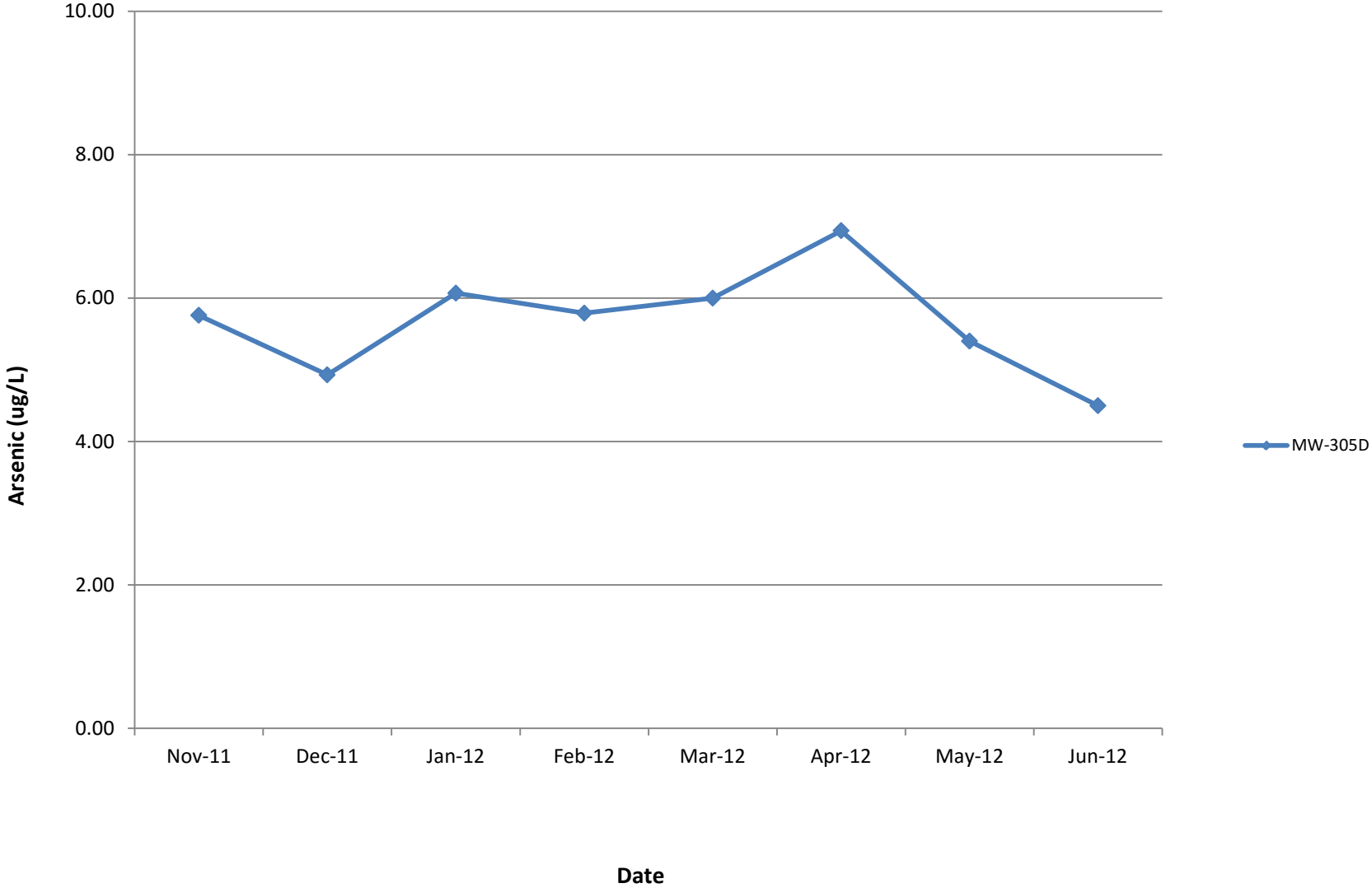
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



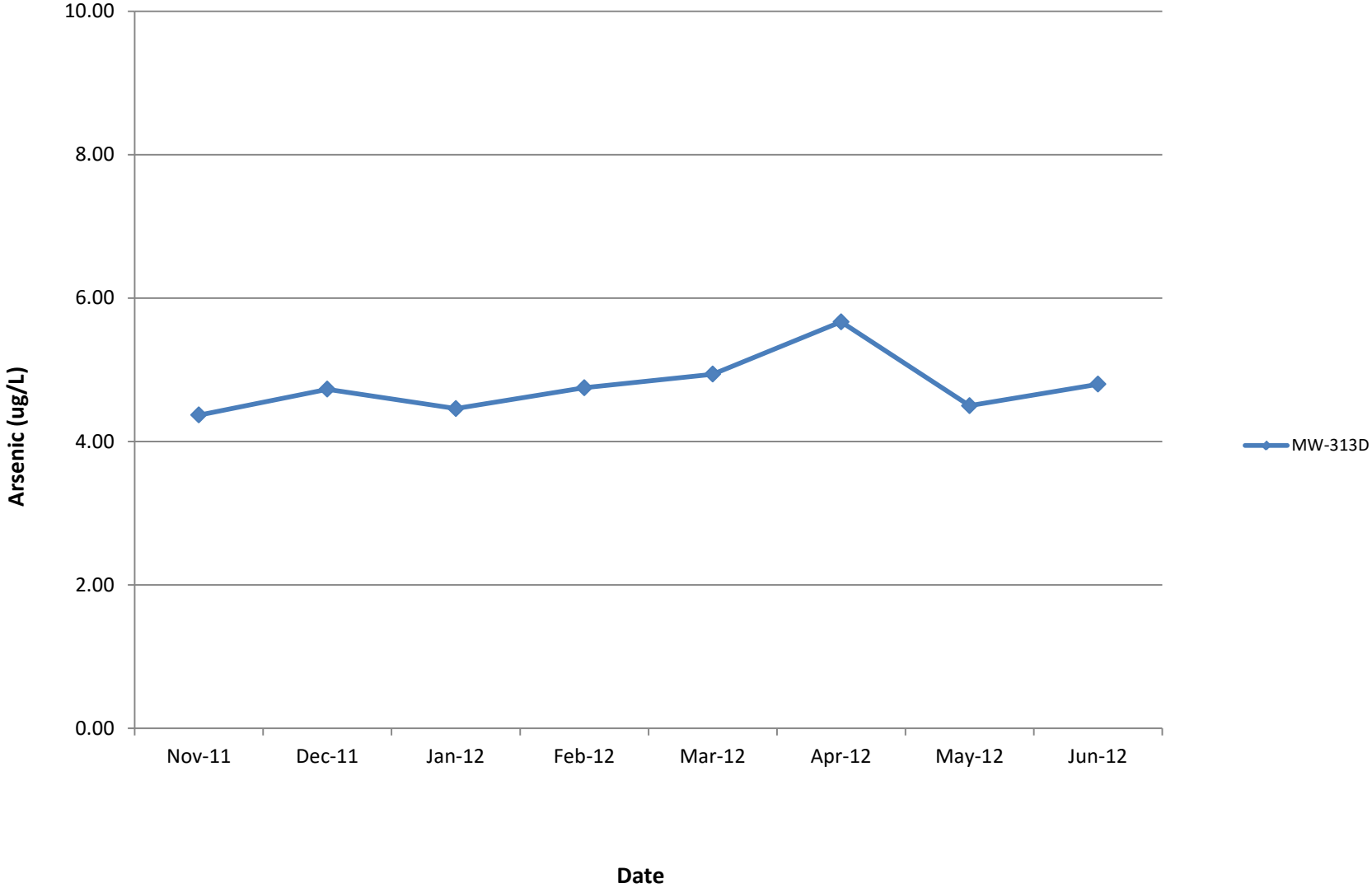
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)

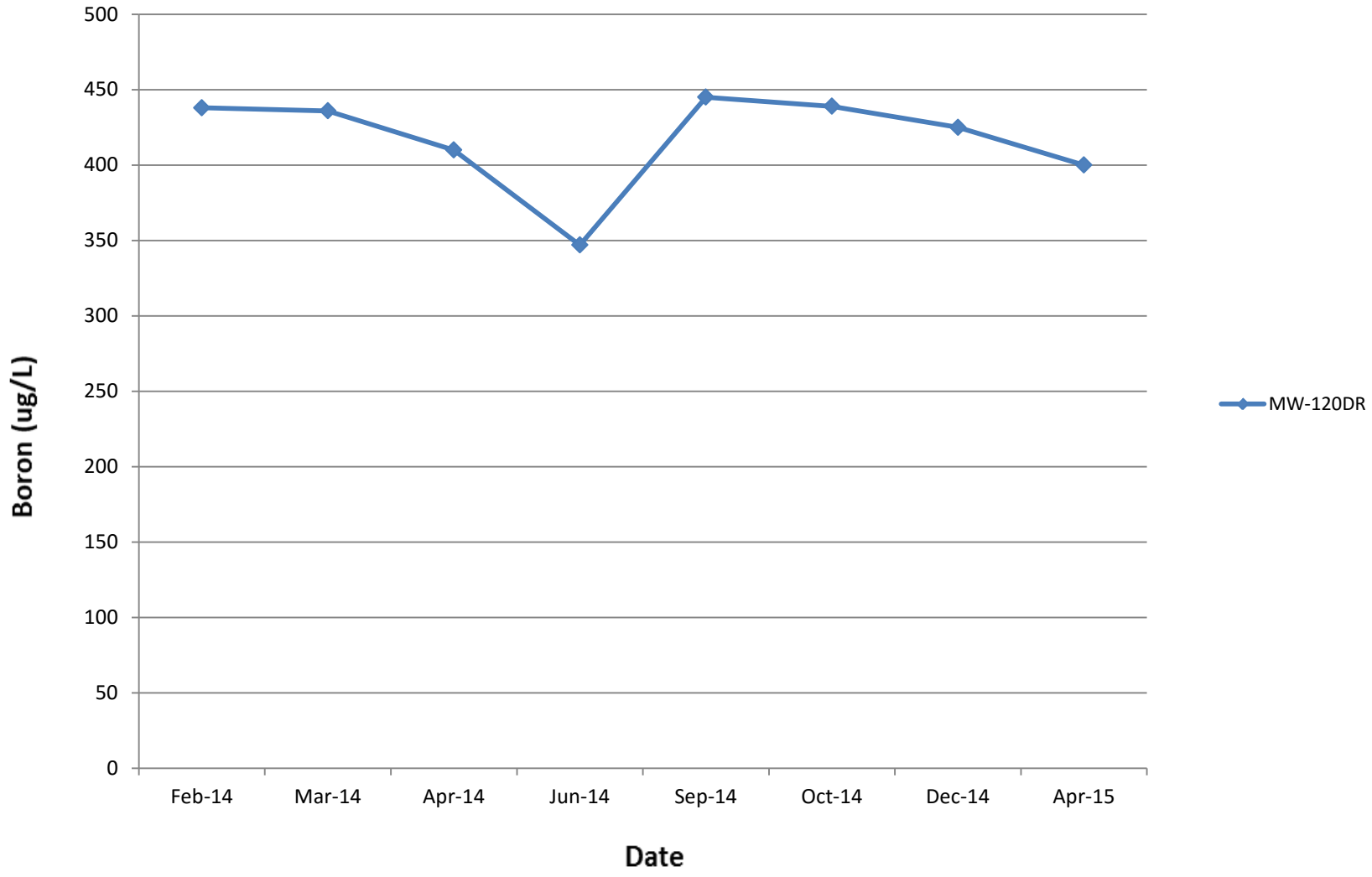


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Arsenic)

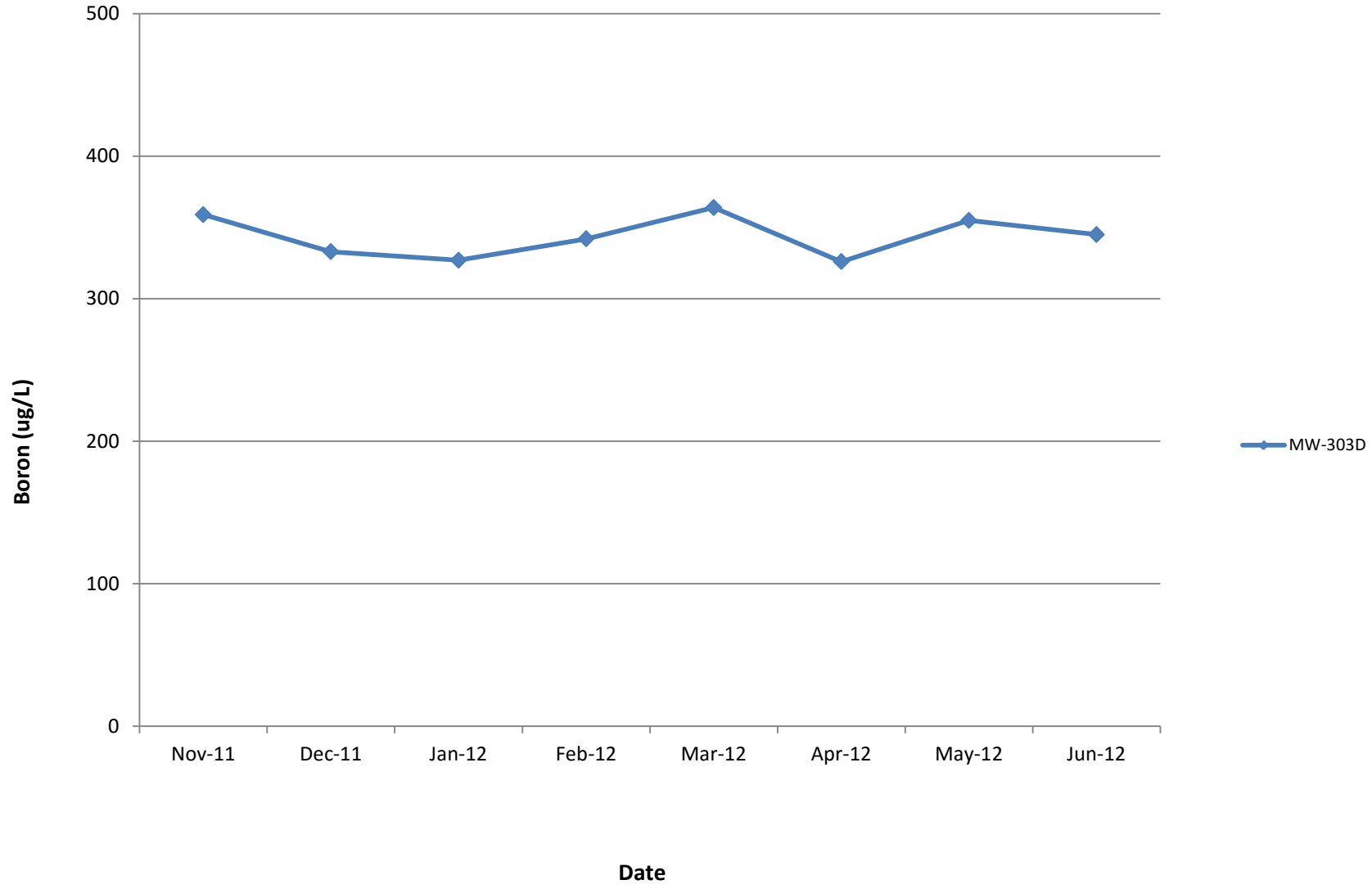


BORON

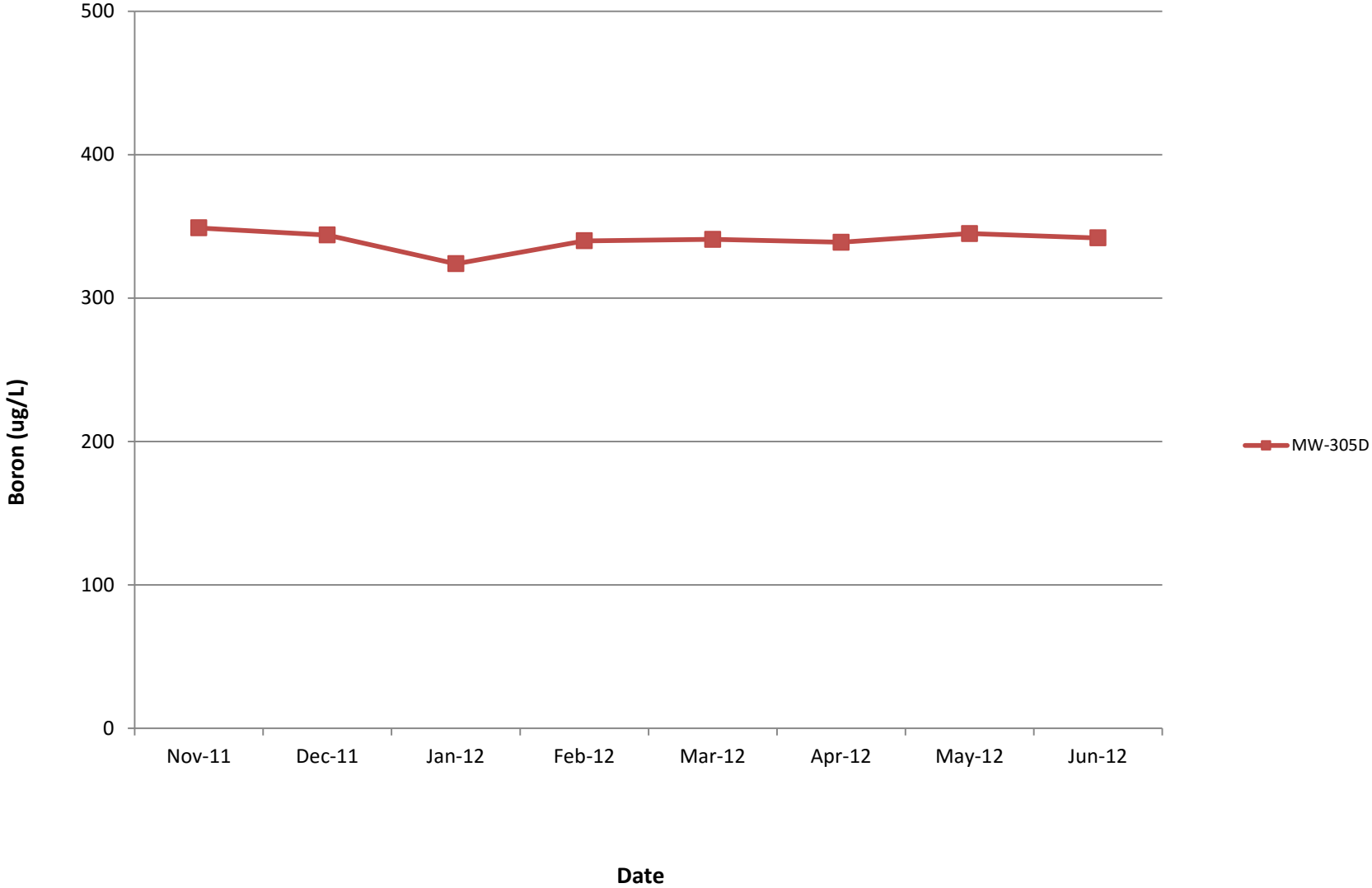
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Boron)



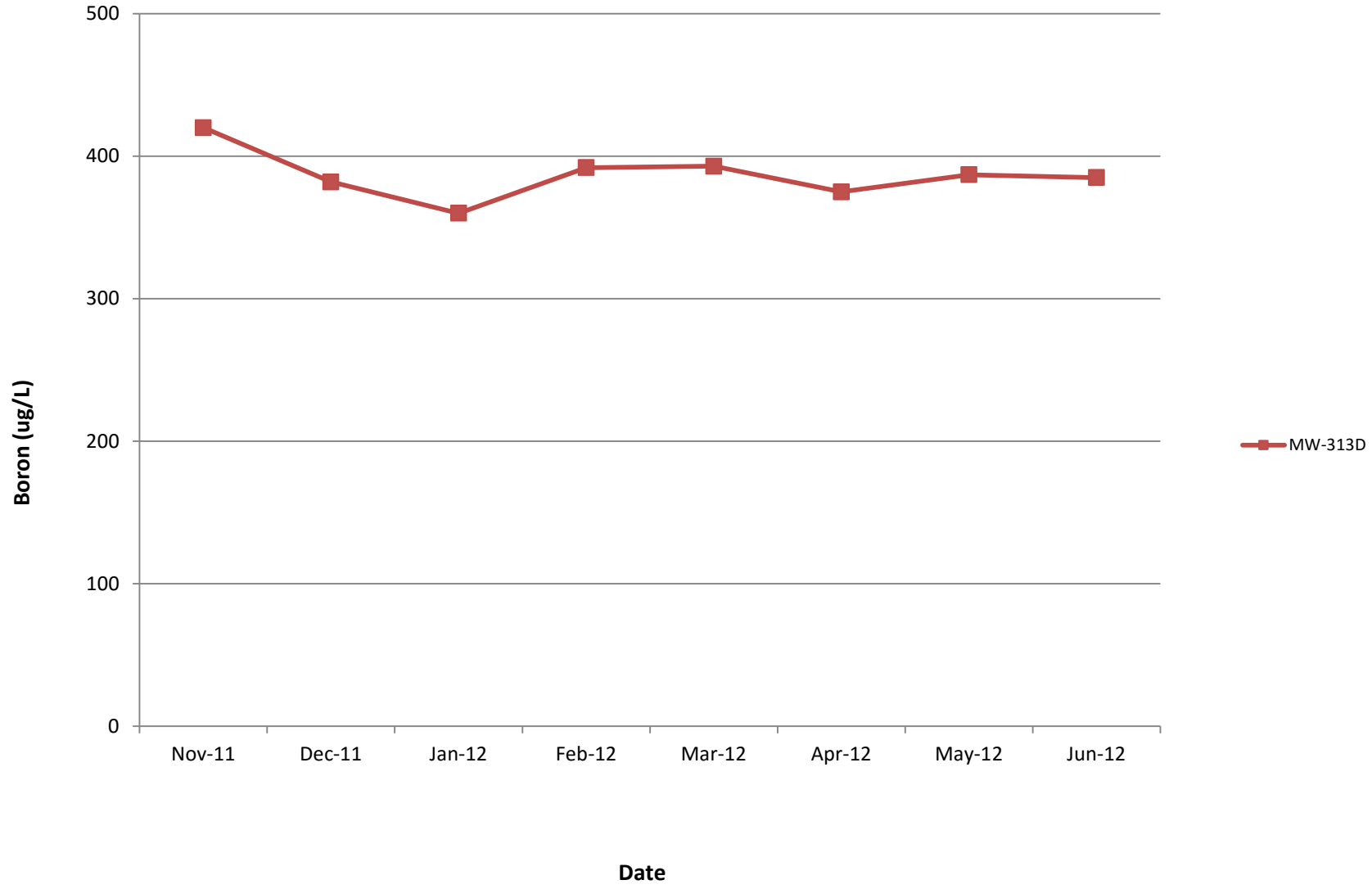
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Boron)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Boron)

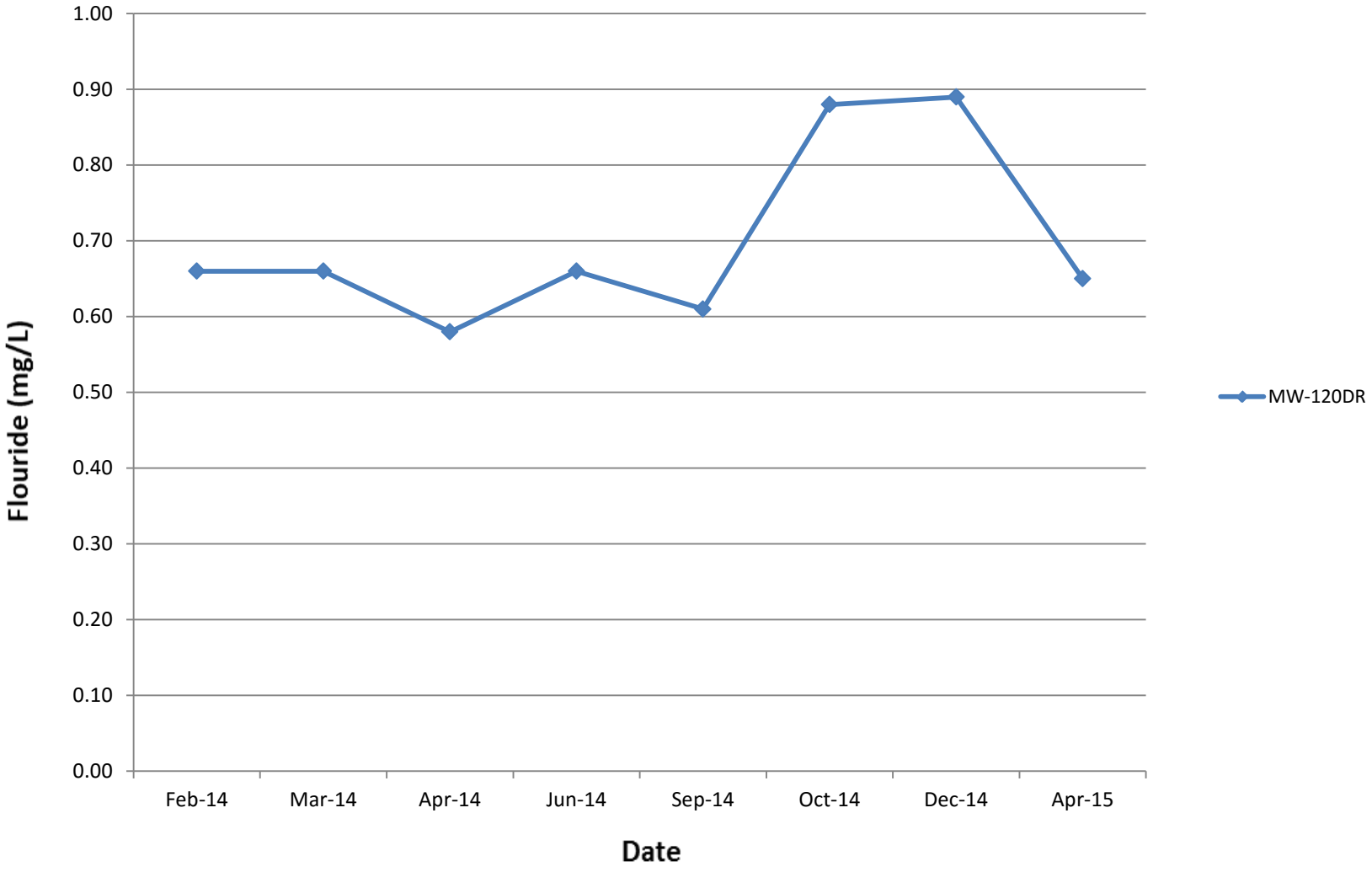


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Boron)

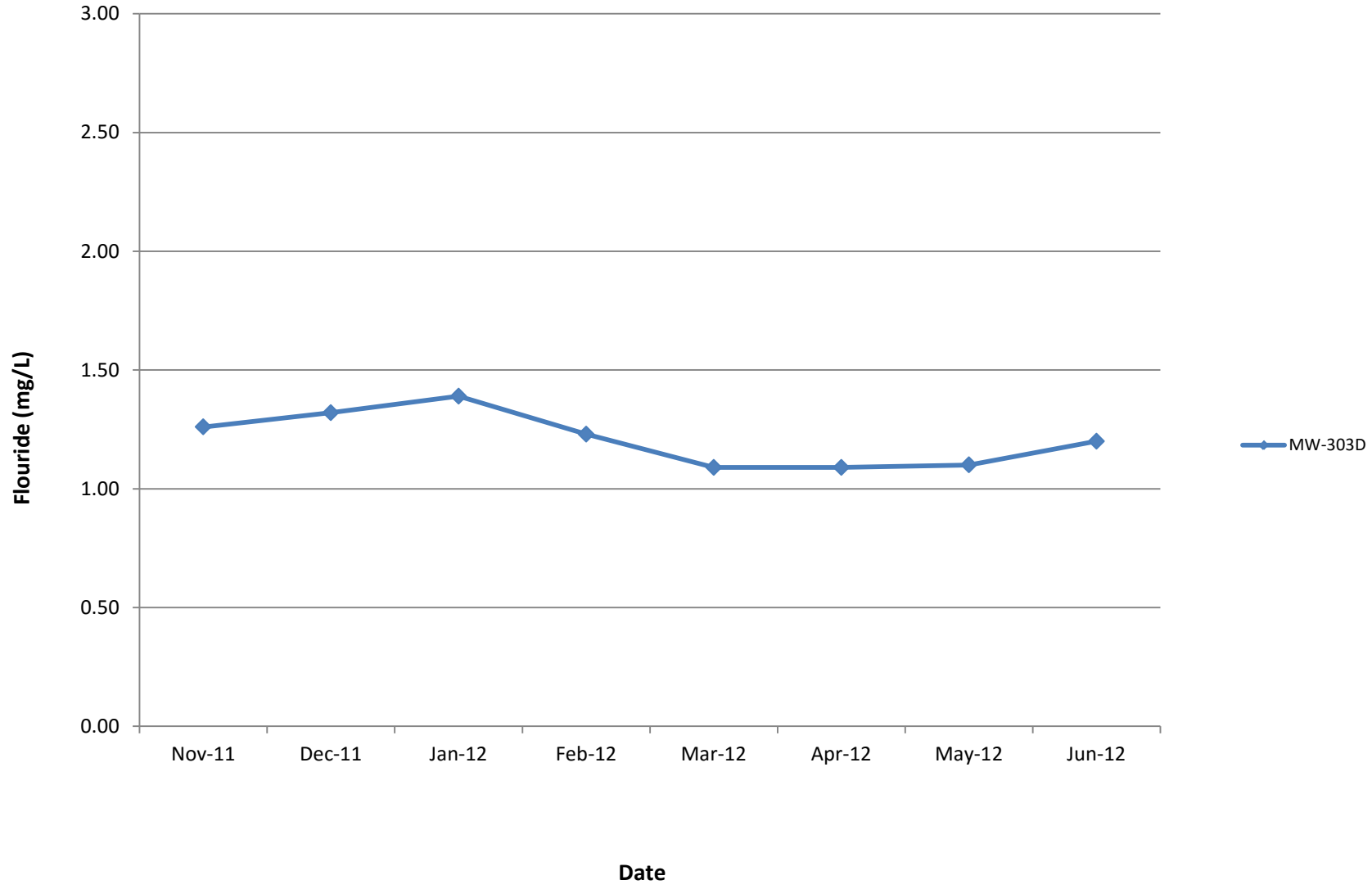


FLUORIDE

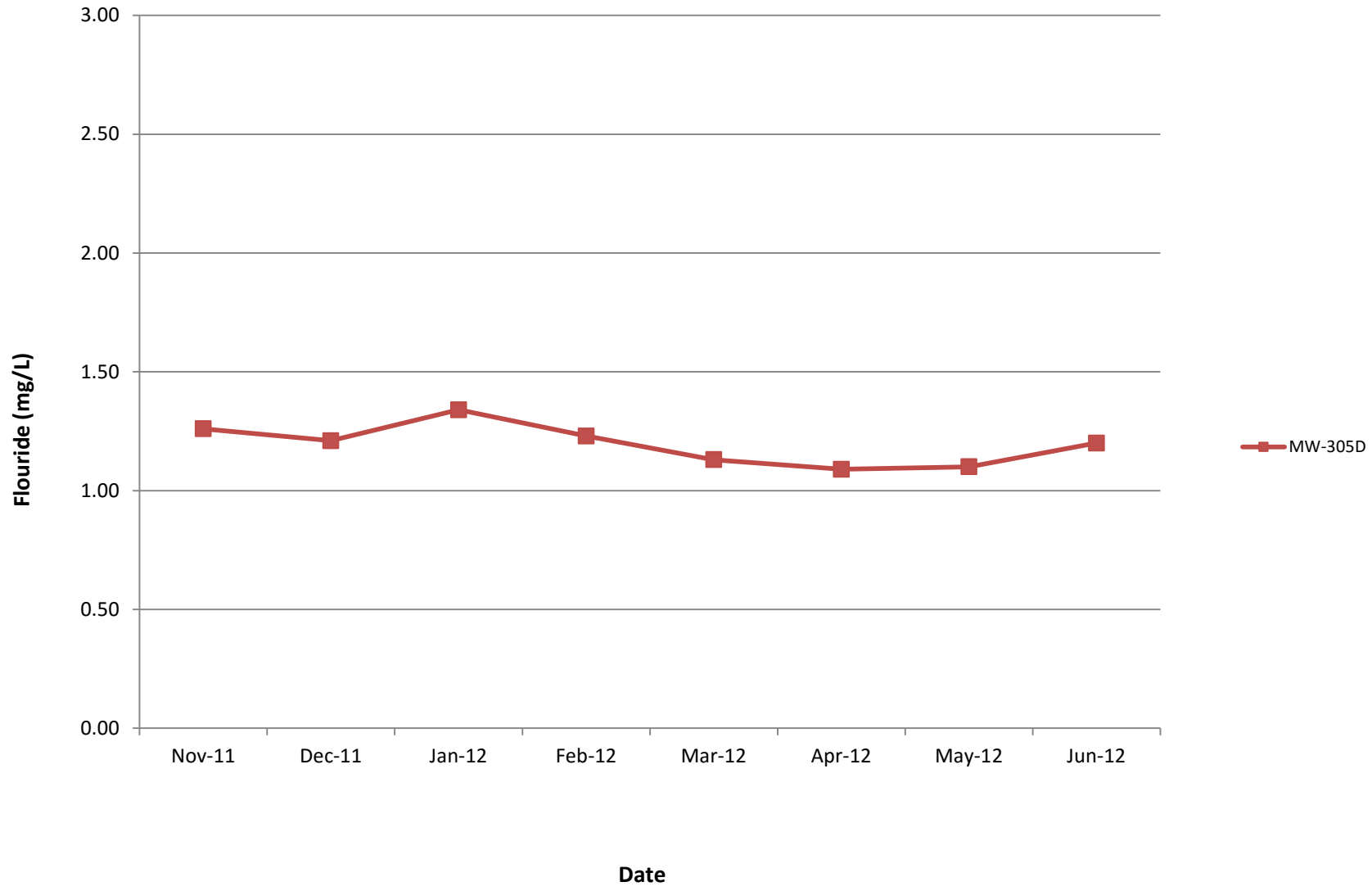
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Flouride)



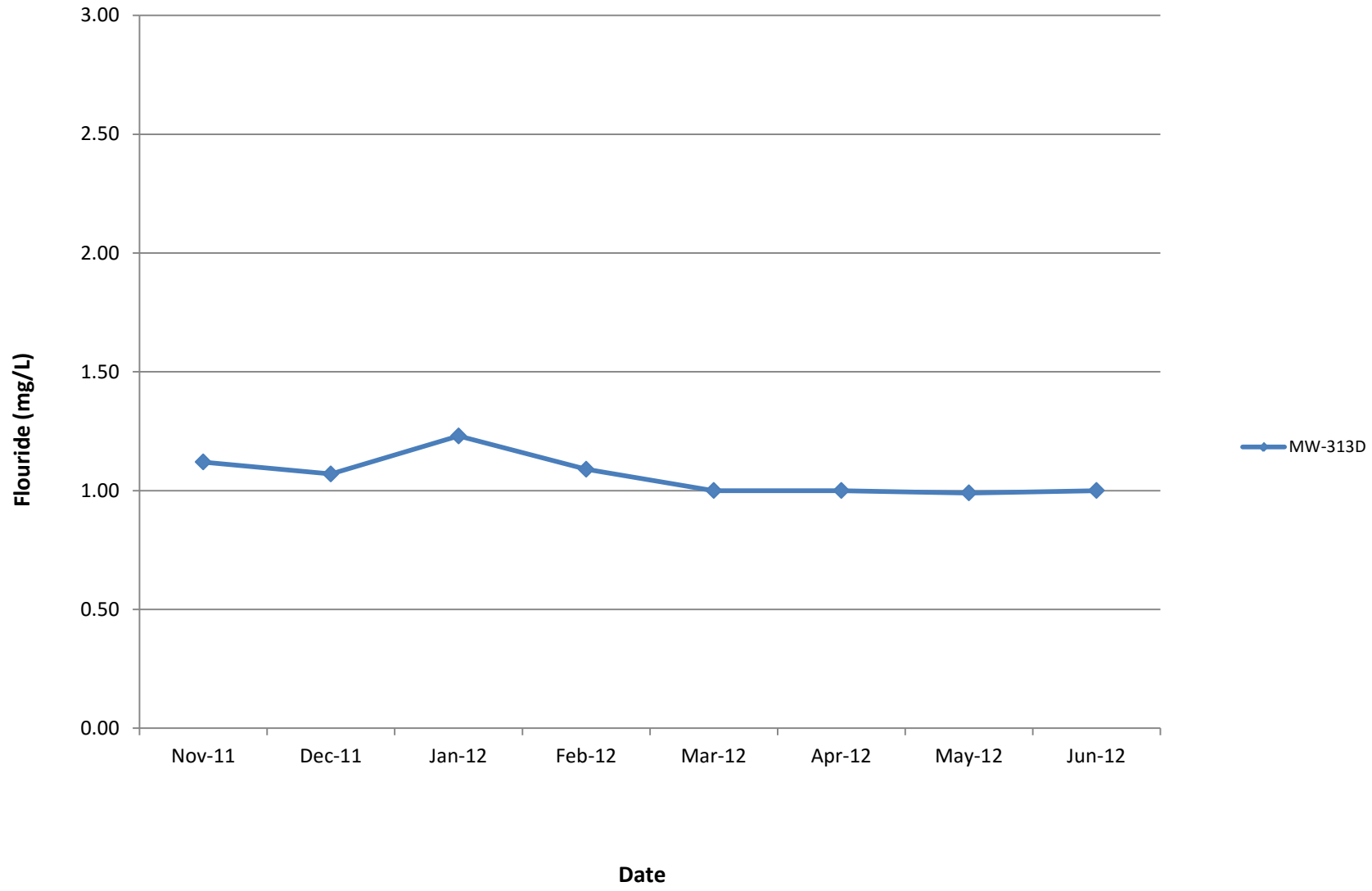
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Flouride)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Flouride)

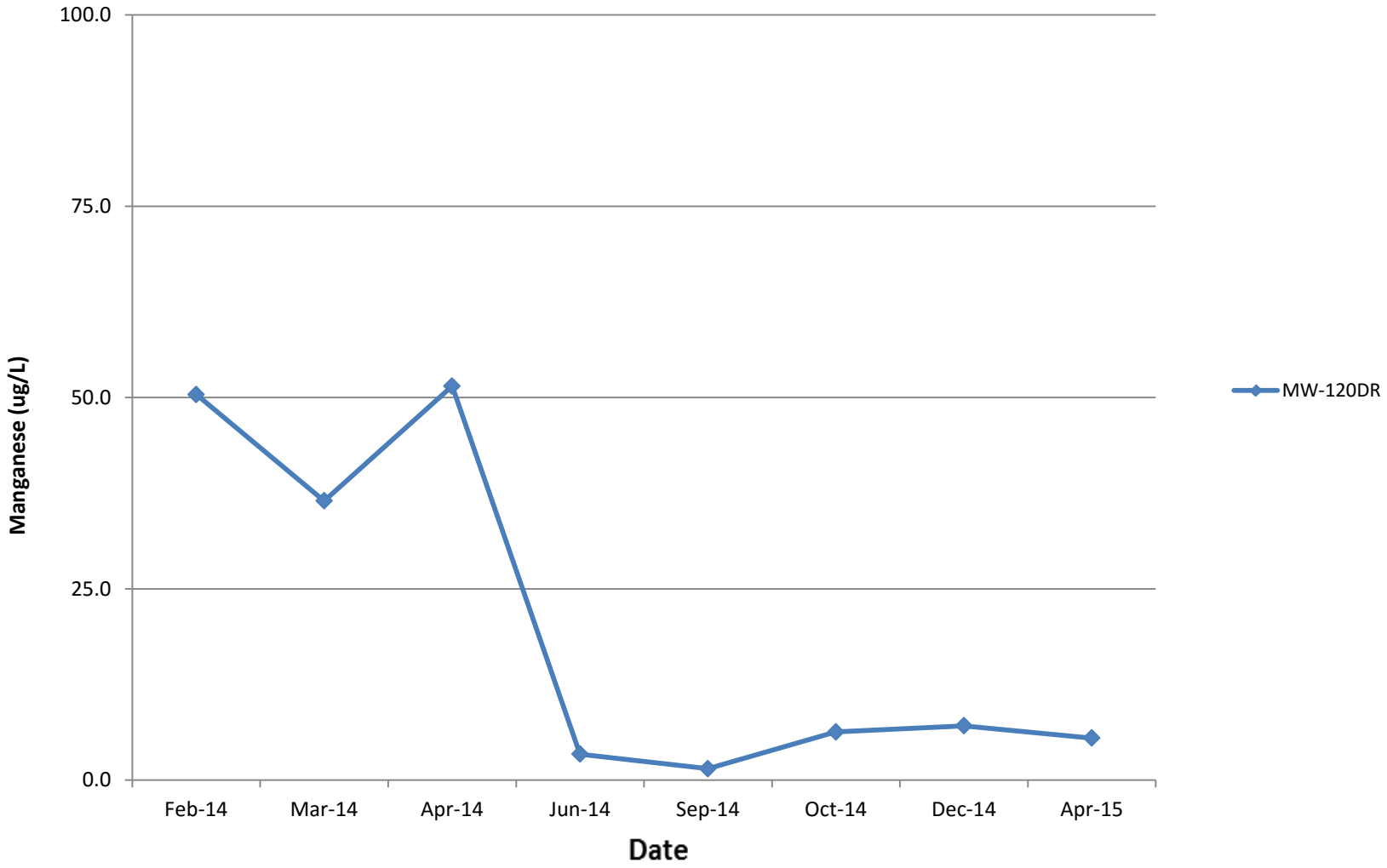


Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Flouride)



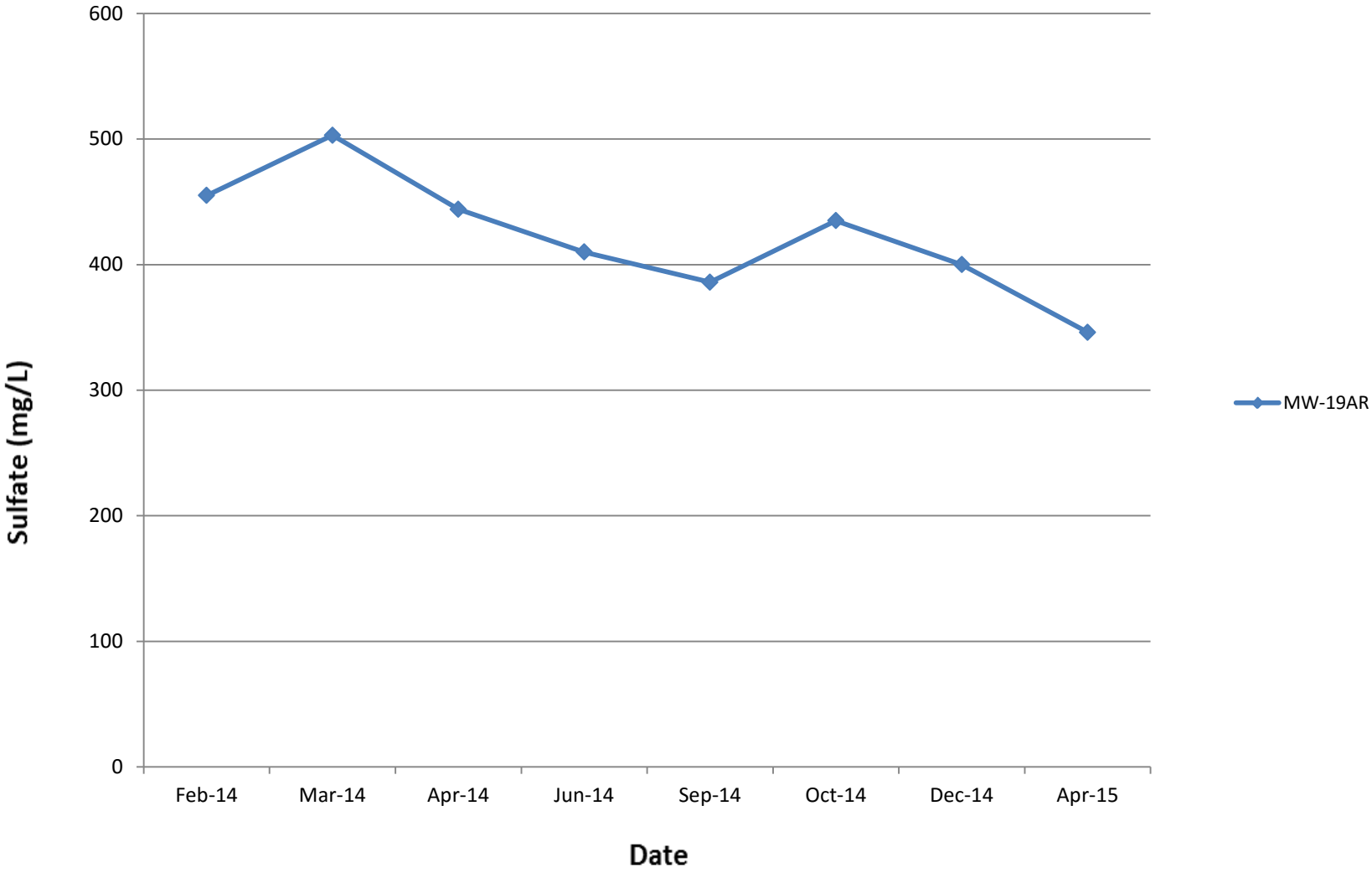
MANGANESE

Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Manganese)

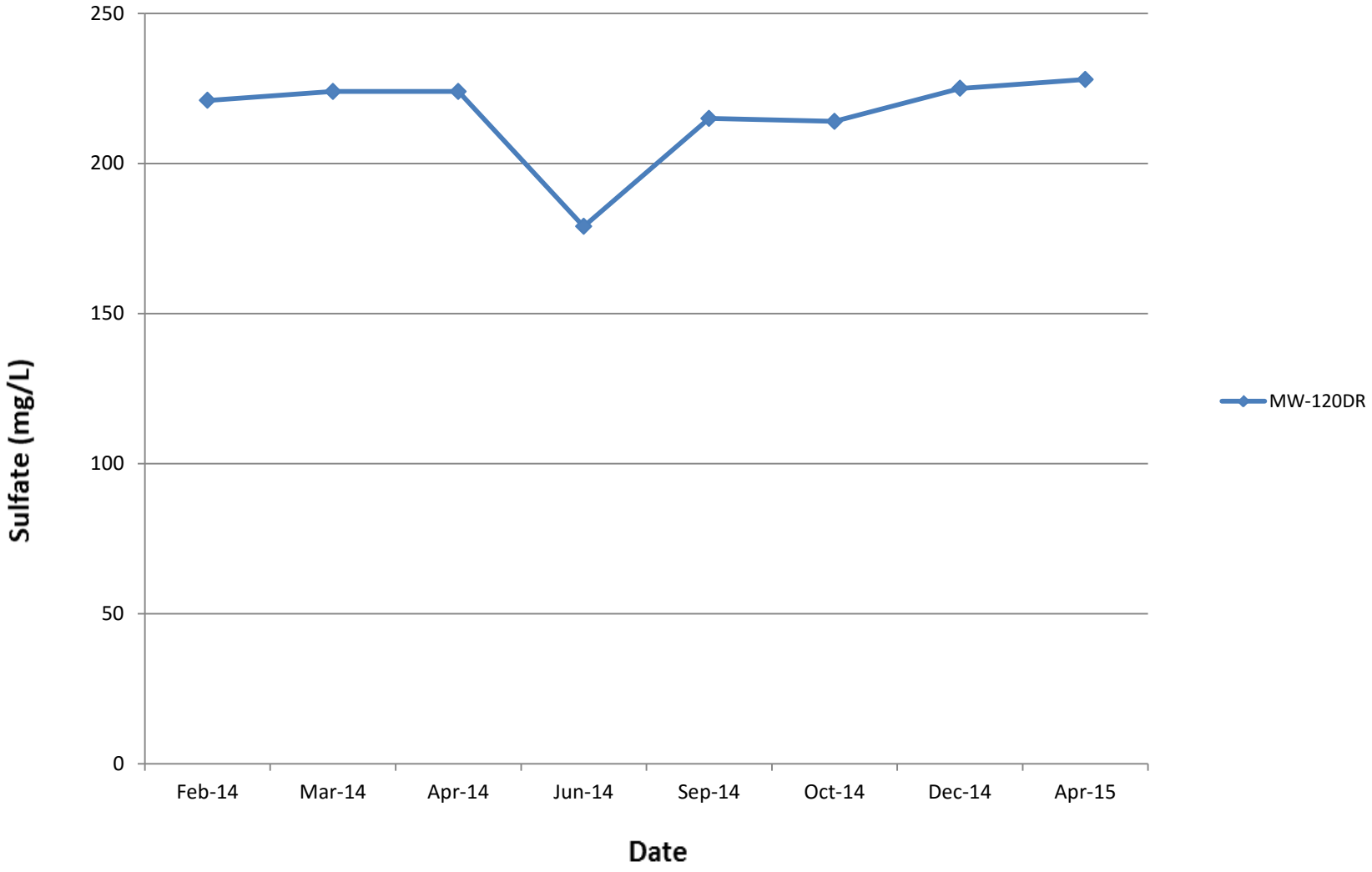


SULFATE

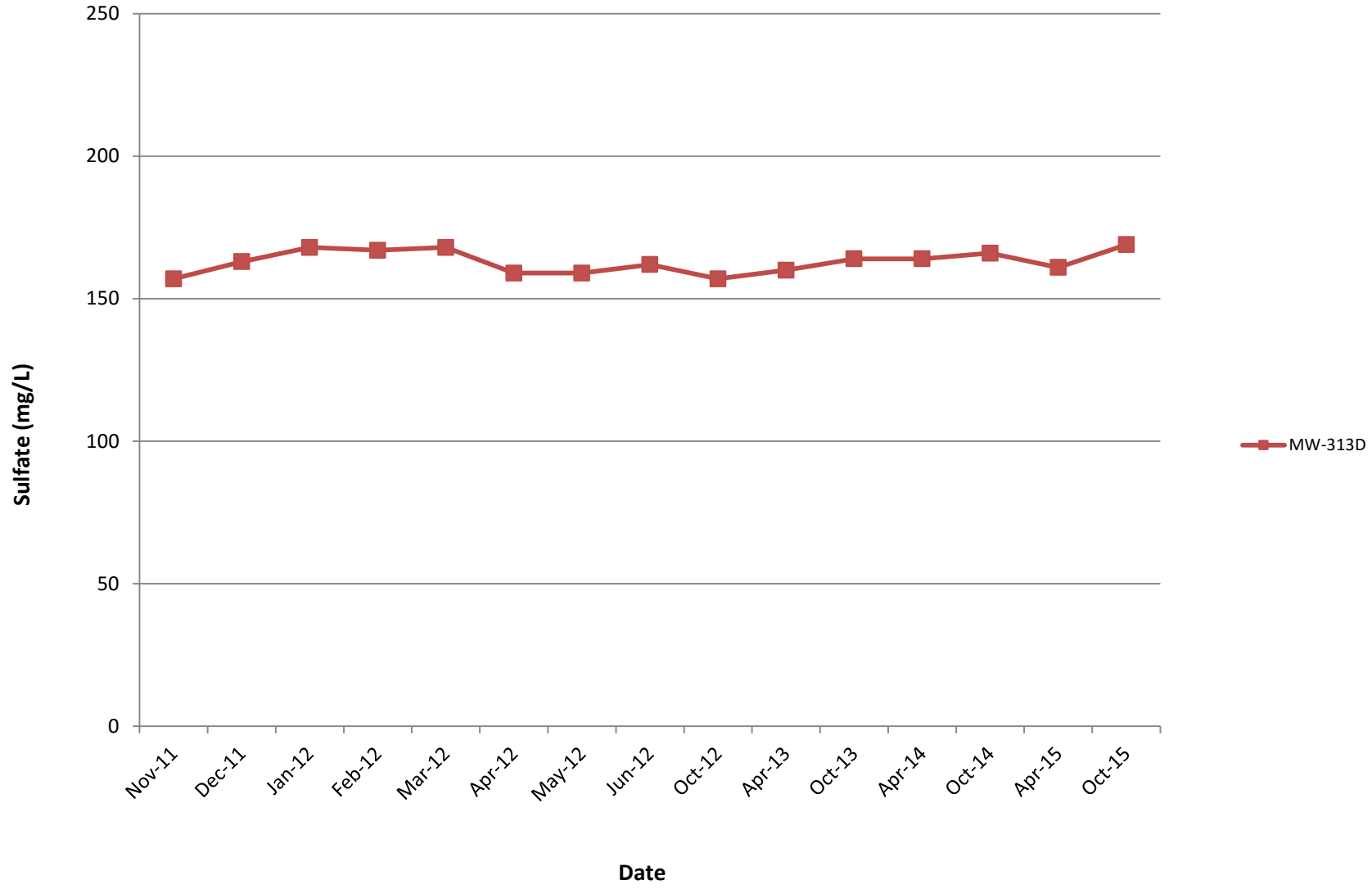
Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sulfate)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sulfate)



Advanced Disposal Services Emerald Park Landfill
Time Vs. Concentration Plot (Sulfate)



APPENDIX C

Summary of Groundwater Monitoring Data for Parameters Used in Calculations

Environmental Sampling Corporation

Advanced Disposal Services Emerald Park Landfill
Arsenic

DATE	MW-4C (028)	MW-5A (030)	MW-104B (118)	MW-106B (122)	MW-106D (126)	MW-115E (149)	MW-117C (152)	MW-117D (154)	MW-120C (158)	MW-121D (166)	MW-125D (172)	MW-126A (174)	MW-131A (178)	MW-131D (182)
1/28/2000	--	--	--	--	--	5.8	--	--	--	--	--	--	--	--
2/28/2000	--	--	--	--	--	5.4	--	--	--	--	--	--	--	--
3/29/2000	--	--	--	--	--	3.3	--	--	--	--	--	--	--	--
6/1/2000	--	--	--	--	--	4.3	--	--	--	--	--	--	--	--
7/7/2000	--	--	--	--	--	3.1	--	--	--	--	--	--	--	--
8/18/2000	--	--	--	--	--	4.3	--	--	--	--	--	--	--	--
10/16/2013	19.4	3.1	2.8	1.4	1.1	5.9	2.0	5.5	1.7	1.3	3.5	5.8	2.5	4.1
2/20/2014	12.4	0.52	0.92	1.5	1.1	5.0	1.7	6.1	1.6	1.2	1.5	3.4	1.3	5.0
3/25/2014	5.6	0.48	0.98	1.3	1.1	5.5	2.3	5.7	1.6	1.2	3.0	4.9	1.1	5.4
4/29/2014	3.1	8.2	8.2	2.5	1.0	7.1	1.5	5.7	1.3	1.4	1.8	4.0	1.0	3.5
6/26/2014	11.4	2.3	3.9	1.0	1.2	5.4	1.5	4.8	1.4	1.0	2.7	1.7	1.3	3.2
9/12/2014	10.8	1.5	10.3	1.1	0.78	7.3	1.6	5.4	1.4	0.91	2.8	2.4	2.7	2.3
10/24/2014	4.6	1.0	2	1.4	7.1	7.2	1.6	4.9	1.7	1.3	2.5	3.7	2.4	3.3
4/27/2015	3.7	2.1	2.8	1.6	2.4	6.9	2.9	5.2	2.0	1.1	3.0	2.8	2.5	3.7

Calculated Background + 2 Standard Deviations

Sum	71.0	19.2	31.9	11.8	15.8	76.5	15.1	43.3	12.7	9.4	20.8	28.7	14.8	30.5
Count	8	8	8	8	8	14	8	8	8	8	8	8	8	8
Mean	8.88	2.40	3.99	1.48	1.97	5.46	1.89	5.41	1.59	1.18	2.60	3.59	1.85	3.81
Standard Dev	5.64	2.51	3.44	0.46	2.13	1.38	0.49	0.44	0.22	0.16	0.66	1.33	0.73	1.00
2*Standard Dev + Mean	20.15	7.43	10.87	2.39	6.23	8.22	2.88	6.28	2.03	1.51	3.92	6.25	3.32	5.82
Proposed ACL	**21**	**7.5**	**11**	**2.4**	**6.3**	**8.3**	**2.9**	**6.3**	**2.1**	**1.6**	**4.0**	**6.3**	**3.4**	**5.9**

Notes:
Groundwater samples analyzed for arsenic are field filtered.
ug/L = micrograms per liter
(201) = WDNR well number
WDNR NR140 Public Health Standards: arsenic

1.0	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC).
10.0	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC).

Environmental Sampling Corporation

Advanced Disposal Services Emerald Park Landfill
Chemical Oxygen Demand (mg/L)

DATE	MW-301A (184)	MW-301B (186)	MW-301C (188)	MW-302A (190)	MW-302B (192)	MW-302C (194)	MW-303A (196)	MW-303B (198)	MW-303C (200)	MW-304A (202)	MW-304B (204)	MW-304C 206)	MW-305A (208)	MW-305B (210)	MW-305C (2012)
3/21/2007	Groundwater Elevation Round Only														
4/23/2007	17.1	14.3	*5.0*	*5.0*	17.1	*5.0*	*5.0*	120	*5.0*	*5.0*	*5.0*	*5.0*	20	*5.0*	*5.0*
5/29/2007	22.9	37.2	91.5	22.9	40	109	22.9	37.2	17.2	14.3	25.7	85.8	45.7	31.4	22.9
7/2/2007	Groundwater Elevation Round Only														
8/2/2007	*5.0*	14.3	486	*5.0*	17.1	88.6	11.4	20.0	*5.0*	*5.0*	*5.0*	37.2	28.6	17.1	11.4
9/5/2007	*5.0*	15.5	477	12.6	18.3	52.5	*5.0*	24	*5.0*	*5.0*	*5.0*	*5.0*	24	95.3	15.5
3/12/2008	41.7	10.6	24.7	13.4	21.9	44.5	257	27.5	16.2	58.7	13.4	*5.0*	33.2	41.7	16.2
4/14/2008	13.4	24.7	27.5	107	21.9	21.9	13.4	24.7	10.6	30.4	13.4	*5.0*	30.4	21.9	13.4
5/28/2008	*5.0*	10.6	33.2	10.6	21.9	13.4	*5.0*	13.4	*5.0*	*5.0*	10.6	*5.0*	21.9	19	10.6
7/2/2008	21.9	27.5	47.4	21.9	33.2	19	19	27.5	*5.0*	16.2	21.9	13.4	30.4	21.9	16.2
12/2/2010	NA	NA	NA	82.7	NA	NA	*5.0*	10.30	NA	NA	NA	*5.0*	NA	*5.0*	NA

Calculated Background + 3 Standard Deviations

Sum	132	155	1,192	281	191	354	87	185	69	140	100	81	234	163	111
Count	8	8	8	9	8	8	8	8	8	8	8	8	8	8	8
Mean	16.50	19.34	149.04	31.23	23.93	44.24	10.84	23.08	8.63	17.45	12.50	10.08	29.28	20.38	13.90
Standard Dev	12.60	9.51	206.72	37.10	8.29	37.53	7.12	8.52	5.35	18.90	7.90	11.35	8.07	12.34	5.22
3*Standard Dev + Mean	54.31	47.86	769.21	142.54	48.81	156.81	32.21	48.64	24.68	74.15	36.19	44.12	53.50	57.40	29.56
Calculated PAL	**55**	**48**	**770**	**150**	**49**	**160**	**33**	**49**	**25**	**75**	**37**	**45**	**54**	**58**	**30**

Calculated Background + Table 3 Increments

Mean	16.50	19.34	149.04	31.23	23.93	44.24	10.84	23.08	8.63	17.45	12.50	10.08	29.28	20.38	13.90
NR140 Table 3 Increment	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean + NR140	41.50	44.34	174.04	56.23	48.93	69.24	35.84	48.08	33.63	42.45	37.50	35.08	54.28	45.38	38.90
Calculated PAL	**42**	**45**	**180**	**57**	**49**	**70**	**36**	**49**	**34**	**43**	**38**	**36**	**55**	**46**	**39**

Proposed PAL

Proposed PAL	**55**	**48**	**770**	**150**	**49**	**160**	**36**	**49**	**34**	**75**	**38**	**45**	**55**	**58**	**39**

Notes:
Groundwater samples analyzed for COD are field filtered.
mg/L = milligrams per liter
(201) = WDNR well number
NA = Not applicable (No sample collected)
5.0 = Nondetect 1/2 value used
100.0 = outlier

Environmental Sampling Corporation

Advanced Disposal Services Emerald Park Landfill
Total Hardness

DATE	MW-301A (184)	MW-301B (186)	MW-301C (188)	MW-302A (190)	MW-302B (192)	MW-302C (194)	MW-303A (196)	MW-303B (198)	MW-303C (200)	MW-304A (202)	MW-304B (204)	MW-304C 206)	MW-305A (208)	MW-305B (210)	MW-305C (2012)
3/21/2007	Groundwater Elevation Round Only														
4/23/2007	1,400	129	29.4	72.6	122	439	849	2,090	54	545	160	57.4	1,420	164	87.8
5/29/2007	1,360	117	243	416	125	80	876	170	52.2	524	164	347	1,300	175	93.2
7/2/2007	Groundwater Elevation Round Only														
8/2/2007	1,410	119	370	465	128	336	871	154	50	503	167	227	1,360	184	97
9/5/2007	1,350	105	2,960	452	145	361	902	148	55.4	538	159	62.4	1,380	283	90.5
3/12/2008	1,470	478	71.8	350	124	244	863	146	50.8	546	162	57.1	1,310	311	84.9
4/14/2008	1,460	124	29.4	369	117	66.2	912	145	50.6	548	170	56.1	1,310	203	86.9
5/28/2008	1,430	119	35.5	365	121	63.5	890	155	51.7	532	166	55	1,370	242	84.9
7/2/2008	1,460	136	84	447	124	64	1,000	173	54	579	181	64.1	1,370	205	90
12/2/2010	NA	125	NA	399	NA	NA	NA	155	NA	NA	NA	NA	NA	NA	NA
1/27/2011	NA	NA	28.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2011	NA	NA	NA	383	109	59.7	775	149	149	563	191	62.1	1,380	752	138
4/18/2012	NA	NA	NA	320	127	66.9	896	152	138	542	184	58.5	1,360	246	123
10/18/2012	NA	NA	NA	422	122	65.8	809	154	47.9	493	191	56.3	1,220	211	119
4/12/2013	NA	NA	NA	196	129	516	837	172	50.3	582	200	78.0	1,420	225	183
10/16/2013	NA	NA	NA	617	139	62.1	937	183	44.9	592	209	65.5	1,810	209	131
4/23/2014	NA	NA	NA	354	126	65.0	779	156	44.2	480	173	53.6	1,250	230	122
10/24/2014	NA	NA	NA	451	116	67.6	791	167	47.9	496	180	58.0	1,130	222	121
4/24/2015	NA	NA	NA	407	127	57.5	726	146	45.9	467	166	54.7	1,260	190	116
10/23/2015	NA	NA	NA	491	114	62.9	773	149	45.6	459	170	54.4	1,240	191	121

Calculated Background + 3 Standard Deviations

Sum	11,340	974	891	6,904	2,115	2,677	14,486	2,674	746	8,989	2,993	955	21,080	3,491	1,706
Count	8	8	8	17	17	17	17	17	15	17	17	16	16	16	16
Mean	1417.50	121.75	111.40	406.12	124.41	157.45	852.12	157.29	49.73	528.76	176.06	59.71	1317.50	218.19	106.64
Standard Dev	45.90	9.18	126.83	87.45	8.60	159.56	70.20	11.38	3.53	40.18	14.72	6.29	80.37	38.64	18.67
3*Standard Dev + Mean	1555.21	149.28	491.89	668.48	150.20	636.14	1062.71	191.43	60.32	649.30	220.22	78.58	1558.62	334.12	162.67
Calculated PAL	**1,600**	**150**	**500**	**670**	**160**	**640**	**1,100**	**200**	**61**	**650**	**230**	**79**	**1,600**	**340**	**170**

Calculated Background + Table 3 Increments

Mean	1417.50	121.75	111.40	406.12	124.41	157.45	852.12	157.29	49.73	528.76	176.06	59.71	1317.50	218.19	106.64
NR140 Table 3 Increment	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ean + NR140	1517.50	221.75	211.40	506.12	224.41	257.45	952.12	257.29	149.73	628.76	276.06	159.71	1417.50	318.19	206.64
Calculated PAL	**1,600**	**230**	**220**	**510**	**230**	**260**	**960**	**260**	**150**	**630**	**280**	**160**	**1,500**	**320**	**210**

Proposed PAL

Proposed PAL	**1,600**	**230**	**500**	**670**	**230**	**640**	**1,100**	**260**	**150**	**650**	**280**	**160**	**1,600**	**340**	**210**

Notes:
Groundwater samples analyzed for Total Hardness are field filtered.
mg/L = milligrams per liter
(201) = WDNR well number
NA = Not applicable (No sample collected)
5.0 = Nondetect 1/2 value used
100.0 = outlier

Environmental Sampling Corporation

Advanced Disposal Services Emerald Park Landfill
Sodium

DATE	MW-301A (184)	MW-301B (186)	MW-301C (188)	MW-302A (190)	MW-302B (192)	MW-302C (194)	MW-303A (196)	MW-303B (198)	MW-303C (200)	MW-304A (202)	MW-304B (204)	MW-304C 206)	MW-305A (208)	MW-305B (210)	MW-305C (2012)
3/21/2007	Groundwater Elevation Round Only														
4/23/2007	62	120	60.2	55.9	110	7.59	60.2	112	56.9	35.1	130	62.7	161	112	85.1
5/29/2007	63.9	145	63.1	8.75	105	56.1	62.2	118	57.3	30	134	63.2	164	125	84.7
7/2/2007	Groundwater Elevation Round Only														
8/2/2007	61.8	124	62.6	20.9	106	65.4	66.5	117	56.0	33.6	140	60.6	134	125	86.2
9/5/2007	55.2	107	56.4	18.1	99.1	55.4	59	95.3	51.3	32.3	119	60.4	165	121	79
3/12/2008	55.6	134	61	19.3	110	56.7	65.4	123	55.4	19.7	137	59.2	155	138	87.3
4/14/2008	68.8	120	60.3	16.9	106	55.7	67.6	116	56.6	18.5	145	61.2	154	145	89.3
5/28/2008	69.1	119	60.7	25.6	112	56.2	67.2	122	58	18.9	130	58	131	124	86.4
7/2/2008	67.6	130	64.1	23.7	113	57.6	72	122	57.7	21.3	146	59.6	144	136	88.4
12/2/2010	NA	NA	NA	48.0	NA	55.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2011	NA	NA	NA	41.7	106	54.4	76.7	124	88.2	30.3	NA	59.5	101	115	93.5
4/18/2012	NA	NA	NA	20.1	102	51.9	62.3	111	64.8	28.8	123	61.0	115	117	83.3
10/18/2012	NA	NA	NA	36.8	108	57.3	70.9	120	60.5	36.0	134	62.2	127	133	91.2
4/12/2013	NA	NA	NA	17.6	113	58.0	150	124	65.3	29.0	139	63.5	178	138	54.4
10/16/2013	NA	NA	NA	31.1	121	55.8	155	132	56.1	35.0	146	67.6	236	126	87.9
4/23/2014	NA	NA	NA	21.1	103	52.6	118	109	54.5	26.6	121	56.0	213	121	89.0
10/24/2014	NA	NA	NA	27.4	113	62.0	177	122	61.0	29.8	139	63.1	186	127	92.5
4/24/2015	NA	NA	NA	18.0	104	67.0	155	114	52.9	19.7	124	56.6	140	132	93.7
10/23/2015	NA	NA	NA	30.9	106	59.5	148	118	56.8	30.8	132	61.7	138	123	97.9

Calculated Background + 3 Standard Deviations

Sum	504	999	488	426	1,837	977	1,633	1,999	921	475	2,139	1,036	2,642	2,158	1,415
Count	8	8	8	17	17	17	17	17	16	17	16	17	17	17	16
Mean	63.00	124.88	61.05	25.06	108.06	57.49	96.06	117.61	57.57	27.96	133.69	60.95	155.41	126.94	88.46
Standard Dev	5.49	11.44	2.36	9.99	5.30	4.03	42.99	8.08	3.78	6.09	8.77	2.80	34.08	8.95	4.61
3*Standard Dev + Mean	79.47	159.21	68.13	55.02	123.96	69.59	225.04	141.85	68.91	46.23	159.99	69.34	257.65	153.80	102.30
Calculated PAL	**80**	**160**	**69**	**56**	**130**	**70**	**230**	**150**	**69**	**47**	**160**	**70**	**260**	**160**	**110**

Calculated Background + Table 3 Increments

Mean	63.00	124.88	61.05	25.06	108.06	57.49	96.06	117.61	57.57	27.96	133.69	60.95	155.41	126.94	88.46
NR140 Table 3 Increment	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
lean + NR140	73.00	134.88	71.05	35.06	118.06	67.49	106.06	127.61	67.57	37.96	143.69	70.95	165.41	136.94	98.46
Calculated PAL	**73**	**140**	**72**	**36**	**120**	**68**	**110**	**130**	**68**	**38**	**150**	**71**	**170**	**140**	**99**

Proposed PAL

Proposed PAL	**80**	**160**	**72**	**56**	**130**	**70**	**230**	**150**	**69**	**47**	**160**	**71**	**260**	**160**	**110**

Notes:
Groundwater samples analyzed for Sodium are field filtered.
mg/L = milligrams per liter
(201) = WDNR well number
NA = Not applicable (No sample collected)
5.0 = Nondetect 1/2 value used
100.0 = outlier

Environmental Sampling Corporation
ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-19AR (91)	DETECTION MONITORING PARAMETERS (PAL/ES)												
	Alkalinity	**NH_3**	**B**	**Cd**	**Chloride**	**COD**	**F**	**Hardness**	**Pb**	**NO_3+NO_2 N**	**Se**	**Na**	**SO_4**
	NS	(0.97 / 9.7)	(200 / 1000)	(0.5 / 5)	(125/250)	NS	(0.8 / 4)	NS	(1.5 / 15)	(2 / 10)	(10 / 50)	NS	(125/250)
DATE/units	mg/L	mg/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L
Feb-14	527	<0.25	36.4	*<0.057*	7.7	15.3J	0.37J	919	0.14J	0.17J	1.7	18.2	**455**
Mar-14	489	<0.25	34.9	*<0.057*	7.7	12.2J	0.33J	951	0.10J	0.29	1.7	17.6	**503**
Apr-14	522	<0.25	34.1	0.13J	8.4	19.0J	0.37J	985	0.22J	0.91	1.9	26.1	**444**
Jun-14	471	<0.25	32.6	0.094J	8.3	16.8J	0.46	1,500	0.093J	0.30	1.7	19.4	**410**
Sep-14	464	<0.25	38.8	<0.089	9.1	*5.8*	0.49	898	<0.040	0.46	1.6	23.2	**386**
Oct-14	490	<0.25	41.0	<0.089	7.2	*5.8*	0.29J	925	<0.040	0.25	1.4	19.6	**435**
Dec-14	515	<0.25	37.2	<0.089	8.0	*5.8*	0.35J	882	<0.040	0.31	1.8	22.3	**400**
Apr-15	560	<0.25	35.9	<0.089	42.5J	*5.8*	0.32J	857	<0.040	0.40	1.8	32.0	**346**
Mean	505	--	--	--	--	10.8	--	989.6	--	--	--	22.3	422
NR140 Min.Incr.	100	--	--	--	--	25	--	100	--	--	--	10	--
Std Dev	32.11	--	--	--	--	5.7	--	210.0	--	--	--	4.8	47.8
3X Std Dev	96.3	--	--	--	--	17.0	--	630.0	--	--	--	14.5	--
Mean+3XSD	601	--	--	--	--	27.8	--	1,620	--	--	--	36.8	--
Mean+Min.Incr.	605	--	--	--	--	35.8	--	1,090	--	--	--	32.3	--
PAL	**610**	**--**	**--**	**--**	**--**	**36**	**--**	**1,700**	**--**	**--**	**--**	**37**	**--**
2X Std Dev	--	--	--	--	--	--	--	--	--	--	--	--	95.6
Mean+2XSD	--	--	--	--	--	--	--	--	--	--	--	--	518.0
ACL	**--**	**NA**	**NA**	**NA**	**NA**	**--**	**NA**	**--**	**NA**	**NA**	**NA**	**--**	**520**

Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J	= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.	

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)

MW-19AR total depth (feet):	22.00	ft.
MW-19AR bottom of well elevation (ft. MSL):	768.89	ft.MSL
MW-19AR top of well elevation (ft. MSL):	790.89	ft.MSL

Environmental Sampling Corporation
ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-19AR (91)	FIELD PARAMETERS (No Standards)					BASELINE PARAMETERS (PAL/ES)							
	pH	Conductivity	Temp.	Depth to Water	Groundwater Elevation	As	Ba	Cr	Cu	Mn #	Ag	Zn	Hg
	NS	NS	NS			(1 / 10)	(400 / 2,000)	(10 / 100)	(130 / 1,300)	(25 / 50)	(10 / 50)	(2,500 / 5,000)	(0.2 / 2)
DATE/units	s.u.	umhos @ 25C	deg. C	feet	(ft. MSL)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Feb-14	7.60	1,280	4.5	11.30	779.59	0.55J	46.4	0.43J	2.1	6.5	<0.025	22.4	<0.10
Mar-14	6.88	1,134	3.7	8.15	782.74	0.45J	42.8	0.25J	1.5	2.8	<0.025	36.2	<0.10
Apr-14	7.25	1,444	10.2	6.50	784.39	0.70J	42.7	<0.39	1.4	1.3	0.049J	7.1J	<0.10
Jun-14	7.37	1,408	11.2	5.10	785.79	0.89J	40.2	<0.39	0.83J	3.6	0.030J	18.2	<0.10
Sep-14	7.64	1,037	11.4	8.70	782.19	0.30J	51.3	<0.39	0.72J	**49.3**	<0.016	25.5	<0.10
Oct-14	7.12	1,207	12.8	8.80	782.09	0.89J	44.8	<0.39	1.4	0.36J	<0.016	6.5J	<0.10
Dec-14	7.55	1,185	9.0	10.50	780.39	0.62J	45.2	<0.39	1.9	5.0	<0.016	18.6	<0.10
Apr-15	7.63	1,351	9.5	5.23	785.66	0.65J	43.1	<0.39	1.5	3.2	<0.016	24.0	<0.10
Mean	--	1,256	--	--	--	--	--	--	--	--	--	--	--
NR140 Min.Incr.	--	200	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	140.6	--	--	--	--	--	--	--	--	--	--	--
3X Std Dev	--	422	--	--	--	--	--	--	--	--	--	--	--
Mean+3XSD	--	1,677	--	--	--	--	--	--	--	--	--	--	--
Mean+Min.Incr.	--	1,456	--	--	--	--	--	--	--	--	--	--	--
PAL	**--**	**1,700**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
2X Std Dev	--	--	--	--	--	--	--	--	--	--	--	--	--
Mean+2XSD	--	--	--	--	--	--	--	--	--	--	--	--	--
ACL	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J	= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.	

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)
MW-19AR total depth (feet): 22.00 ft.
MW-19AR bottom of well elevation (ft. MSL): 768.89 ft.MSL
MW-19AR top of well elevation (ft. MSL): 790.89 ft.MSL

Environmental Sampling Corporation
ADS - EMERALD PARK LANDFILL
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MW-19AR (91)	VOCs (PAL/ES)
	Acetone (1,800 / 9,000)
DATE/units	ug/L
Feb-14	5.6J
Mar-14	--
Apr-14	8.5J
Jun-14	--
Sep-14	--
Oct-14	3.7J
Dec-14	--
Apr-15	--
--	--
--	--
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Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J	= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.	

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)

MW-19AR total depth (feet):	22.00	ft.
MW-19AR bottom of well elevation (ft. MSL):	768.89	ft.MSL
MW-19AR top of well elevation (ft. MSL):	790.89	ft.MSL

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Baseline Monitoring Data

MW-120DR (161)	DETECTION MONITORING PARAMETERS (PAL/ES)												
	Alkalinity	**NH_3**	**B**	**Cd**	**Chloride**	**COD**	**F**	**Hardness**	**Pb**	**NO_3+NO_2 N**	**Se**	**Na**	**SO_4**
	NS	(0.97 / 9.7)	(200 / 1000)	(0.5 / 5)	(125/250)	NS	(0.8 / 4)	NS	(1.5 / 15)	(2 / 10)	(10 / 50)	NS	(125/250)
DATE/units	mg/L	mg/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L
Feb-14	114	<0.25	**438**	*<0.057*	8.7	12.2J	0.66	186	0.97J	0.4	0.30J	98.2	**221**
Mar-14	126	<0.25	**436**	*<0.057*	8.3	21.3J	0.66	186	1.4	0.19J	0.39J	90.2	**224**
Apr-14	174	<0.25	**410**	<0.089	17.8	21.3J	0.58	306	1.2	0.42	0.25J	83.3	**224**
Jun-14	191	<0.25	**347**	<0.089	11.2	*5.8*	0.66	370	0.082J	0.18J	<0.21	80.0	**179**
Sep-14	105	<0.25	**445**	<0.089	9.0	*6.1*	0.61	175	<0.040	0.23J	<0.21	96.6	**215**
Oct-14	111	<0.25	**439**	<0.089	8.5	*5.8*	**0.88**	133	0.045J	<0.095	<0.21	91.4	**214**
Dec-14	115	<0.25	**425**	<0.089	9.0	*5.8*	**0.89**	190	<0.040	<0.095	<0.21	96.5	**225**
Apr-15	109	<0.25	**400**	<0.089	8.5	*5.8*	0.65	150	<0.040	<0.095	<0.21	99.4	**228**
Mean	131	--	418	--	--	10.5	0.70	212.0	--	--	--	92.0	216
NR140 Min.Incr.	100	--	--	--	--	25	--	100	--	--	--	10	--
Std Dev	32.90	--	32.4	--	--	7.01	0.12	82.0	--	--	--	7.15	15.8
3X Std Dev	98.7	--	--	--	--	21.03	--	246.1	--	--	--	21.45	--
Mean+3XSD	229	--	--	--	--	31.54	--	458	--	--	--	113.4	--
Mean+Min.Incr.	231	--	--	--	--	35.5	--	312	--	--	--	102.0	--
PAL	**240**	**--**	**--**	**--**	**--**	**36**	**--**	**460**	**--**	**--**	**--**	**120**	**--**
2X Std Dev	--	--	64.9	--	--	--	0.24	--	--	--	--	--	31.6
Mean+2XSD	--	--	482	--	--	--	0.94	--	--	--	--	--	248
ACL	**--**	**NA**	**490**	**NA**	**NA**	**--**	**1.00**	**--**	**NA**	**NA**	**NA**	**--**	**250**

Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance — NR 140 Wisconsin Administrative Code (WAC)
590 = Enforcement Standard (ES) exceedance — NR 140 Wisconsin Administrative Code (WAC)
0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)
MW-120DR total depth (feet): 127.00 ft.
MW-120DR bottom of well elevation (ft. MSL): 668.53 ft.MSL
MW-120DR top of well elevation (ft. MSL): 795.53 ft.MSL

Environmental Sampling Corporation

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MW-120DR (161)	FIELD PARAMETERS (No Standards)					BASELINE PARAMETERS (PAL/ES)							
	pH	**Conductivity**	**Temp.**	**Depth to**	**Groundwater**	**As**	**Ba**	**Cr**	**Cu**	**Mn #**	**Ag**	**Zn**	**Hg**
	NS	NS	NS	**Water**	**Elevation**	(1 / 10)	(400 / 2,000)	(10 / 100)	(130 / 1,300)	(25 / 50)	(10 / 50)	(2,500 / 5,000)	(0.2 / 2)
DATE/units	s.u.	umhos @ 25C	deg. C	feet	(ft. MSL)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Feb-14	8.39	723	8.1	25.20	770.33	**1.60**	26.6	2.3	3.8	**50.4**	<0.025	16.7	<0.10
Mar-14	6.61	306	5.1	39.40	756.13	**1.70**	32.0	4.4	4.3	**36.5**	<0.025	14.5	<0.10
Apr-14	7.73	881	12.2	20.00	775.53	**1.60**	31.0	1.9	4.2	**51.5**	<0.016	13.0	<0.10
Jun-14	7.49	826	11.9	11.60	783.93	**1.40**	21.2	0.49J	3.2	3.4	<0.016	9.0J	<0.10
Sep-14	7.39	635	11.0	12.55	782.98	**1.10**	21.2	<0.39	1.9	1.5	<0.016	12.4	<0.10
Oct-14	7.09	593	12.9	34.60	760.93	**1.50**	15.9	0.47J	1.1	6.3	<0.016	<3.1	<0.10
Dec-14	7.65	810	9.0	28.75	766.78	**1.65**	18.6	<0.39	1.5	7.1	<0.016	<3.1	<0.10
Apr-15	7.98	721	11.2	16.43	779.10	**1.55**	20.1	<0.39	2.8	5.5	<0.016	<3.1	<0.10
Mean	--	687	--	--	--	1.51	--	--	--	20.3	--	--	--
NR140 Min.Incr.	--	200	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	181.8	--	--	--	0.19	--	--	--	21.9	--	--	--
3X Std Dev	--	545	--	--	--	--	--	--	--	--	--	--	--
Mean+3XSD	--	1232	--	--	--	--	--	--	--	--	--	--	--
Mean+Min.Incr.	--	887	--	--	--	--	--	--	--	--	--	--	--
PAL	**--**	**1,300**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
2X Std Dev	--	--	--	--	--	0.38	--	--	--	43.9	--	--	--
Mean+2XSD	--	--	--	--	--	1.89	--	--	--	64.2	--	--	--
ACL	**NA**	**NA**	**NA**	**NA**	**NA**	**1.90**	**NA**	**NA**	**NA**	**65**	**NA**	**NA**	**NA**

Notes:
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umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance — NR 140 Wisconsin Administrative Code (WAC)
590 = Enforcement Standard (ES) exceedance — NR 140 Wisconsin Administrative Code (WAC)
0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)
MW-120DR total depth (feet): 127.00 ft.
MW-120DR bottom of well elevation (ft. MSL): 668.53 ft.MSL
MW-120DR top of well elevation (ft. MSL): 795.53 ft.MSL

Environmental Sampling Corporation

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Baseline Monitoring Data

MW-120DR (161)	VOCs (PAL/ES)	
	Acetone (1,800 / 9,000)	Toluene
DATE/units	ug/L	ug/L
Feb-14	3.7J	--
Mar-14	2.9J	0.53J
Apr-14	3.2J	--
Jun-14	--	--
Sep-14	--	--
Oct-14	3.4J	--
Dec-14	--	--
Apr-15	--	--
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Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance — NR 140 Wisconsin Administrative Code (WAC)
590 = Enforcement Standard (ES) exceedance — NR 140 Wisconsin Administrative Code (WAC)
0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)

MW-120DR total depth (feet): 127.00 ft.
MW-120DR bottom of well elevation (ft. MSL): 668.53 ft.MSL
MW-120DR top of well elevation (ft. MSL): 795.53 ft.MSL

Environmental Sampling Corporation
ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-303D (201)	DETECTION MONITORING PARAMETERS (PAL/ES)												
	Alkalinity	**NH_3**	**B**	**Cd**	**Chloride**	**COD**	**F**	**Hardness**	**Pb**	**NO_3+NO_2 N**	**Se**	**Na**	**SO_4**
	NS	(0.97 / 9.7)	(200 / 1000)	(0.5 / 5)	(125/250)	NS	(0.8 / 4)	NS	(1.5 / 15)	(2 / 10)	(10 / 50)	NS	(125/250)
DATE/unit	mg/L	mg/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L
Nov-11	136	0.206	**359**	<0.20	5.46	*5.0*	**1.26**	102	<0.30	<0.10	<0.60	52.4	60.4
Dec-11	128	0.222	**333**	<0.20	4.95	*5.0*	**1.32**	82.8	<0.30	<0.10	<0.60	51.9	64.8
Jan-12	140	0.205	**327**	<0.20	4.67	*5.0*	**1.39**	82.1	<0.30	<0.10	<0.60	51.1	65.0
Feb-12	123	0.201	**342**	<0.20	4.81	*5.0*	**1.23**	84.2	<0.30	<0.10	<0.60	51.4	66.5
Mar-12	120	0.226	**364**	<0.20	4.72	*5.0*	**1.09**	87.4	<0.30	<0.10	<0.60	53.1	68.1
Apr-12	129	0.227	**326**	<0.20	4.07	*5.0*	**1.09**	84.3	<0.30	<0.10	<0.60	52.6	64.8
May-12	126	<0.25	**355**	<0.13	4.7	*6.0*	**1.1**	80.8	<0.061	<0.12	<0.40	51.8	61.0
Jun-12	118	<0.25	**345**	<0.13	5.2	*5.7*	**1.2**	75.7	0.18J	<0.12	<0.40	50.2	60.2
Oct-12	120	--	--	--	4.5	--	--	76.1	--	--	--	49.0	54.7
Apr-13	129	--	--	--	5.4	--	--	87.7	--	--	--	56.2	60.8
Oct-13	131	--	--	--	5.3	--	--	73.5	--	--	--	48.7	55.5
Apr-14	126	--	--	--	5.6	--	--	77.6	--	--	--	48.8	60.5
Oct-14	133	--	--	--	5.6	--	--	72.3	--	--	--	48.9	60.4
Apr-15	123	--	--	--	5.6	--	--	79.0	--	--	--	48.1	60.5
Oct-15	132	--	--	--	5.5	--	--	77.7	--	--	--	51.8	59.4
Mean	128	--	344	--	--	5.2	1.21	81.5	--	--	--	51.1	--
NR140 Min.Incr.	100	--	--	--	--	25	--	100	--	--	--	10	--
Std Dev	6.23	--	14.6	--	--	0.4	0.11	7.4	--	--	--	2.2	--
3X Std Dev	18.7	--	--	--	--	1.1	--	22.1	--	--	--	6.5	--
Mean+3XSD	146	--	--	--	--	6.3	--	104	--	--	--	57.6	--
Mean+Min.Incr.	228	--	--	--	--	30.2	--	181.5	--	--	--	61.1	--
Proposed PAL	**230**	**--**	**--**	**--**	**--**	**31**	**--**	**190**	**--**	**--**	**--**	**62**	**--**
2X Std Dev	--	--	29.1	--	--	--	0.22	--	--	--	--	--	--
Mean+2XSD	--	--	373	--	--	--	1.43	--	--	--	--	--	--
Proposed ACL	**--**	**NA**	**380**	**NA**	**NA**	**--**	**1.5**	**--**	**NA**	**NA**	**NA**	**--**	**NA**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

s.u. = standard units

ft.MSL = feet above Mean Sea Level

WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc

WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs

-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance NR 140 Wisconsin Administrative Code (WAC)

590 = Enforcement Standard (ES) exceedance NR 140 Wisconsin Administrative Code (WAC)

0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-303D total depth (feet): 141.5 ft.

MW-303D bottom of well elevation (ft. MSL): 638.56 ft.MSL

MW-303D top of well elevation (ft. MSL): 780.06 ft.MSL

Environmental Sampling Corporation
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Baseline Monitoring Data

MW-303D (201)	FIELD PARAMETERS (No Standards)					BASELINE PARAMETERS (PAL/ES)								
	pH	Conductivity	Temp.	Depth to Water	Groundwater Elevation	As	Ba	Cr	Cu	Mn #	Ag	Zn	Hg	TSS
	NS	NS	NS			(1 / 10)	(400 / 2,000)	(10 / 100)	(130 / 1,300)	(25 / 50)	(10 / 50)	(2,500 / 5,000)	(0.2 / 2)	NS
DATE/unit	s.u.	umhos @ 25C	deg. C	feet	(ft. MSL)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Nov-11	7.89	399	11.5	24.60	755.46	**3.70**	33.7	<1.60	<0.60	13.6	<0.20	<2.0	<0.07	48.5
Dec-11	7.45	384	9.8	23.40	756.66	**4.15**	32.7	<1.60	<0.60	3.0J	<0.20	<2.0	<0.07	--
Jan-12	7.58	398	7.6	22.70	757.36	**4.54**	35.3	<1.60	<0.60	3.5	<0.20	<2.0	<0.07	--
Feb-12	7.27	554	8.6	22.35	757.71	**4.43**	34.6	<1.60	<0.60	3.1J	<0.20	<2.0	<0.07	--
Mar-12	7.78	434	13.3	21.90	758.16	**4.29**	--	--	--	--	--	--	--	--
Apr-12	7.28	344	10.5	22.85	757.21	**4.66**	--	--	--	--	--	--	--	--
May-12	7.51	404	12.3	33.25	746.81	**3.9**	--	--	--	--	--	--	--	--
Jun-12	7.62	473	13.8	45.30	734.76	**4.1**	--	--	--	--	--	--	--	--
Oct-12	7.85	215	10.6	36.64	743.42	--	--	--	--	--	--	--	--	--
Apr-13	8.73	375	14.8	22.45	757.61	--	--	--	--	--	--	--	--	--
Oct-13	7.62	350	11.0	27.90	752.16	--	--	--	--	--	--	--	--	--
Apr-14	7.70	502	11.2	22.55	757.51	--	--	--	--	--	--	--	--	--
Oct-14	7.47	321	10.9	23.30	756.76	--	--	--	--	--	--	--	--	--
Apr-15	8.32	380	10.6	22.98	757.08	--	--	--	--	--	--	--	--	--
Oct-15	8.46	366	12.6	29.95	750.11	--	--	--	--	--	--	--	--	--
Mean	--	393	--	--	--	4.22	--	--	--	--	--	--	--	--
NR140 Min.Incr.	--	200	--	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	79.5	--	--	--	0.32	--	--	--	--	--	--	--	--
3X Std Dev	--	239	--	--	--	--	--	--	--	--	--	--	--	--
Mean+3XSD	--	632	--	--	--	--	--	--	--	--	--	--	--	--
Mean+Min.Incr.	--	593	--	--	--	--	--	--	--	--	--	--	--	--
Proposed PAL	**--**	**640**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
2X Std Dev	--	--	--	--	--	0.65	--	--	--	--	--	--	--	--
Mean+2XSD	--	--	--	--	--	4.87	--	--	--	--	--	--	--	--
Proposed ACL	**NA**	**NA**	**NA**	**NA**	**NA**	**4.9**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

s.u. = standard units

ft.MSL = feet above Mean Sea Level

WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc

WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs

-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance NR 140 Wisconsin Administrative Code (WAC)

590 = Enforcement Standard (ES) exceedance NR 140 Wisconsin Administrative Code (WAC)

0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-303D total depth (feet): 141.5 ft.

MW-303D bottom of well elevation (ft. MSL): 638.56 ft.MSL

MW-303D top of well elevation (ft. MSL): 780.06 ft.MSL

Environmental Sampling Corporation
ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-303D (201)	VOCs (PAL/ES) Carbon Disulfide (200 / 1,000)
DATE/unit	ug/L
Nov-11	<1.00
Dec-11	<1.00
Jan-12	83.0
Feb-12	10.4
Mar-12	--
Apr-12	--
May-12	--
Jun-12	--
Oct-12	<0.66
Apr-13	--
Oct-13	<0.71
Apr-14	--
Oct-14	
Apr-15	
Oct-15	--
--	--
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Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

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ft.MSL = feet above Mean Sea Level

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(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-303D total depth (feet): 141.5 ft.

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Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-305D (213)	DETECTION MONITORING PARAMETERS (PAL/ES)												
	Alkalinity	NH_3	B	Cd	Chloride	COD	F	Hardness	Pb	NO_3+NO_2 N	Se	Na	SO_4
	NS	(0.97 / 9.7)	(200 / 1000)	(0.5 / 5)	(125/250)	NS	(0.8 / 4)	NS	(1.5 / 15)	(2 / 10)	(10 / 50)	NS	(125/250)
DATE/unit	mg/L	mg/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L
Nov-11	120	0.175J	**349**	<0.20	5.55	*5.0*	**1.26**	89.3	<0.30	<0.10	<0.60	50.7	69.4
Dec-11	112	0.203	**344**	<0.20	5.46	*5.0*	**1.21**	80.9	<0.30	<0.10	<0.60	51.1	71.6
Jan-12	111	0.168J	**324**	<0.20	4.91	*5.0*	**1.34**	79.6	<0.30	<0.10	<0.60	50.4	70.2
Feb-12	120	0.196J	**340**	<0.20	5.03	*5.0*	**1.23**	83.1	<0.30	<0.10	<0.60	49.9	71.6
Mar-12	114	0.181J	**341**	<0.20	5.04	*5.0*	**1.13**	84.2	<0.30	<0.10	<0.60	51.8	72.7
Apr-12	122	0.205	**339**	0.26	4.79	*5.0*	**1.09**	82.2	<0.30	<0.10	<0.60	49.9	68.9
May-12	116	<0.25	**345**	<0.13	5.1	*5.7*	**1.10**	76.2	0.11J	<0.12	<0.40	48.8	64.0
Jun-12	106	<0.25	**342**	<0.13	5.6	*5.7*	**1.2**	76.0	0.12J	<0.12	<0.40	49.2	63.3
Oct-12	111	--	--	--	5.3	--	--	82.2	--	--	--	52.6	65.8
Apr-13	118	--	--	--	6.2	--	--	87.1	--	--	--	55.0	68.8
Oct-13	114	--	--	--	6.0	--	--	75.2	--	--	--	48.8	65.2
Apr-14	104	--	--	--	5.8	--	--	76.9	--	--	--	46.9	65.5
Oct-14	120	--	--	--	6.0	--	--	72.9	--	--	--	48.1	65.9
Apr-15	112	--	--	--	5.8	--	--	75.4	--	--	--	49.0	64.8
Oct-15	120	--	--	--	6.0	--	--	78.2	--	--	--	50.9	67.0
Mean	115	--	341	--	--	5.2	1.20	80.0	--	--	--	50.2	--
NR140 Min.Incr.	100	--	--	--	--	25	--	100	--	--	--	10	--
Std Dev	5.42	--	7.4	--	--	0.32	0.09	4.7	--	--	--	1.98	--
3X Std Dev	16.3	--	--	--	--	0.97	--	14.2	--	--	--	5.93	--
Mean+3XSD	131	--	--	--	--	6.15	--	94	--	--	--	56.1	--
Mean+Min.Incr.	215	--	--	--	--	30.2	--	180	--	--	--	60.2	--
Proposed PAL	**220**	**--**	**--**	**--**	**--**	**31**	**--**	**180**	**--**	**--**	**--**	**61**	**--**
2X Std Dev	--	--	14.8	--	--	--	0.17	--	--	--	--	--	--
Mean+2XSD	--	--	355	--	--	--	1.37	--	--	--	--	--	--
Proposed ACL	**--**	**NA**	**360**	**NA**	**NA**	**--**	**1.40**	**--**	**NA**	**NA**	**NA**	**--**	**NA**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

s.u. = standard units

ft.MSL = feet above Mean Sea Level

WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc

WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs

-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance NR 140 Wisconsin Administrative Code (WAC)

590 = Enforcement Standard (ES) exceedance NR 140 Wisconsin Administrative Code (WAC)

0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-305D total depth (feet): 146.8 ft.

MW-305D bottom of well elevation (ft. MSL): 634.13 ft.MSL

MW-305D top of well elevation (ft. MSL): 780.93 ft.MSL

Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-305D (213)	FIELD PARAMETERS (No Standards)					BASELINE PARAMETERS (PAL/ES)								
	pH	Conductivity	Temp.	Depth to Water	Groundwater Elevation	As	Ba	Cr	Cu	Mn #	Ag	Zn	Hg	TSS
	NS	NS	NS			(1 / 10)	(400 / 2,000)	(10 / 100)	(130 / 1,300)	(25 / 50)	(10 / 50)	(2,500 / 5,000)	(0.2 / 2)	NS
DATE/unit	s.u.	umhos @ 25C	deg. C	feet	(ft. MSL)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Nov-11	7.91	388	11.5	28.20	752.73	**5.76**	17.6	<1.60	0.60J	3.5	<0.20	<2.0	<0.07	29.0
Dec-11	7.55	379	8.4	26.70	754.23	**4.93**	16.8	<1.60	<0.60	7.1	<0.20	<2.0	<0.07	--
Jan-12	7.70	355	8.1	25.80	755.13	**6.07**	19.1	<1.60	<0.60	4.4	<0.20	<2.0	<0.07	--
Feb-12	7.61	369	8.8	25.50	755.43	**5.79**	17.6	<1.60	<0.60	2.6J	<0.20	<2.0	<0.07	--
Mar-12	7.85	407	13.5	25.05	755.88	**6.00**	--	--	--	--	--	--	--	--
Apr-12	7.37	333	10.2	25.80	755.13	**6.94**	--	--	--	--	--	--	--	--
May-12	7.21	396	14.6	36.45	744.48	**5.40**	--	--	--	--	--	--	--	--
Jun-12	7.52	469	15.4	50.90	730.03	**4.5**	--	--	--	--	--	--	--	--
Oct-12	7.80	294	9.6	42.04	738.89	--	--	--	--	--	--	--	--	--
Apr-13	8.47	355	14.0	25.40	755.53	--	--	--	--	--	--	--	--	--
Oct-13	7.56	363	11.1	31.35	749.58	--	--	--	--	--	--	--	--	--
Apr-14	7.35	389	9.2	25.35	755.58	--	--	--	--	--	--	--	--	--
Oct-14	7.63	309	10.2	26.45	754.48	--	--	--	--	--	--	--	--	--
Apr-15	7.46	388	10.8	25.46	755.47	--	--	--	--	--	--	--	--	--
Oct-15	7.68	374	12.4	32.15	748.78	--	--	--	--	--	--	--	--	--
Mean	--	371	--	--	--	5.67	--	--	--	--	--	--	--	--
NR140 Min.Incr.	--	200	--	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	41.7	--	--	--	0.75	--	--	--	--	--	--	--	--
3X Std Dev	--	125	--	--	--	--	--	--	--	--	--	--	--	--
Mean+3XSD	--	496	--	--	--	--	--	--	--	--	--	--	--	--
Mean+Min.Incr.	--	571	--	--	--	--	--	--	--	--	--	--	--	--
Proposed PAL	**--**	**580**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
2X Std Dev	--	--	--	--	--	1.49	--	--	--	--	--	--	--	--
Mean+2XSD	--	--	--	--	--	7.17	--	--	--	--	--	--	--	--
Proposed ACL	**NA**	**NA**	**NA**	**NA**	**NA**	**7.20**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

s.u. = standard units

ft.MSL = feet above Mean Sea Level

WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc

WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs

-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J	= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.	

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-305D total depth (feet): 146.8 ft.

MW-305D bottom of well elevation (ft. MSL): 634.13 ft.MSL

MW-305D top of well elevation (ft. MSL): 780.93 ft.MSL

Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-305D (213)	VOCs (PAL/ES)	
	Carbon Disulfide (200 / 1,000)	Chloromethane (3 / 30)
DATE/unit	ug/L	ug/L
Nov-11	<1.0	0.47J
Dec-11	1.47J	<0.40
Jan-12	1.32J	<0.40
Feb-12	<1.0	<0.40
Mar-12	--	--
Apr-12	--	--
May-12	--	--
Jun-12	--	--
Oct-12	<0.66	<0.24
Apr-13	--	--
Oct-13	<0.71	<0.39
Apr-14	--	--
Oct-14	--	--
Apr-15	--	--
Oct-15	--	--
--	--	--
--	--	--
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Notes:
Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.
mg/L = milligrams per liter
ug/L = micrograms per liter
ND = not detected
ug/L = micrograms per liter
C = degrees Centigrade
umhos = micromhos
(201) = WDNR well number
J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.
NS = no standard established
s.u. = standard units
ft.MSL = feet above Mean Sea Level
WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs
-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J	= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.	

(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)

MW-305D total depth (feet):	146.8	ft.
MW-305D bottom of well elevation (ft. MSL):	634.13	ft.MSL
MW-305D top of well elevation (ft. MSL):	780.93	ft.MSL

Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-313D (217)	DETECTION MONITORING PARAMETERS (PAL/ES)												
	Alkalinity	NH_3	B	Cd	Chloride	COD	F	Hardness	Pb	NO_3+NO_2 N	Se	Na	SO_4
	NS	(0.97 / 9.7)	(200 / 1000)	(0.5 / 5)	(125/250)	NS	(0.8 / 4)	NS	(1.5 / 15)	(2 / 10)	(10 / 50)	NS	(125/250)
DATE/unit	mg/L	mg/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	ug/L	mg/L	mg/L
Nov-11	108	0.194J	**420**	<0.20	10.4	*5.0*	**1.12**	131	0.32J	<0.10	<0.60	85.9	**157**
Dec-11	105	0.226	**382**	<0.20	10.7	*5.0*	**1.07**	109	<0.30	<0.10	<0.60	84.3	**163**
Jan-12	110	0.188J	**360**	<0.20	10.1	*5.0*	**1.23**	106	<0.30	<0.10	<0.60	86.2	**168**
Feb-12	112	0.164J	**392**	<0.20	10.2	11.2	**1.09**	112	<0.30	<0.10	<0.60	80.6	**167**
Mar-12	109	0.170J	**393**	<0.20	9.98	*5.0*	**1.00**	113	<0.30	<0.10	<0.60	83.8	**168**
Apr-12	101	0.156J	**375**	<0.20	9.15	*5.0*	**1.00**	111	<0.30	<0.10	<0.60	83.7	**159**
May-12	97.6	<0.25	**387**	<0.13	9.9	*5.7*	**0.99**	103	<0.061	<0.12	<0.40	79.3	**159**
Jun-12	116	<0.25	**385**	<0.13	10.4	*6.0*	**1.0**	98.6	<0.061	<0.12	<0.40	76.5	**162**
Oct-12	101	--	--	--	10	--	--	110	--	--	--	84.2	**157**
Apr-13	111	--	--	--	10.1	--	--	115	--	--	--	90.2	**160**
Oct-13	88.9	--	--	--	10.8	--	--	102	--	--	--	78.9	**164**
Apr-14	108	--	--	--	10.5	--	--	102	--	--	--	76.4	**164**
Oct-14	102	--	--	--	10.7	--	--	94.9	--	--	--	76.8	**166**
Apr-15	98.2	--	--	--	10.4	--	--	98.2	--	--	--	79.5	**161**
Oct-15	101	--	--	--	10.5	--	--	101	--	--	--	80.6	**169**
Mean	105	--	387	--	--	6.0	1.06	107	--	--	--	81.8	163
NR140 Min.Incr.	100	--	--	--	--	25	--	100	--	--	--	10	--
Std Dev	6.97	--	17.1	--	--	2.14	0.08	9.0	--	--	--	4.07	4.06
3X Std Dev	20.9	--	--	--	--	6.43	--	26.9	--	--	--	12.20	--
Mean+3XSD	125	--	--	--	--	12.41	--	134	--	--	--	94.0	--
Mean+Min.Incr.	205	--	--	--	--	31.0	--	207	--	--	--	91.8	--
Proposed PAL	**210**	**--**	**--**	**--**	**--**	**31**	**--**	**210**	**--**	**--**	**--**	**95**	**--**
2X Std Dev	--	--	34.2	--	--	--	0.17	--	--	--	--	--	8.12
Mean+2XSD	--	--	421	--	--	--	1.23	--	--	--	--	--	171
Proposed ACL	**--**	**NA**	**430**	**NA**	**NA**	**--**	**1.30**	**--**	**NA**	**NA**	**NA**	**--**	**180**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

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ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

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235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J		

= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-313D total depth (feet): 145.92 ft.

MW-313D bottom of well elevation (ft. MSL): 638.56 ft.MSL

MW-313D top of well elevation (ft. MSL): 784.48 ft.MSL

Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-313D (217)	FIELD PARAMETERS (No Standards)					BASELINE PARAMETERS (PAL/ES)								
	pH	Conductivity	Temp.	Depth to Water	Groundwater Elevation	As	Ba	Cr	Cu	Mn #	Ag	Zn	Hg	TSS
	NS	NS	NS			(1 / 10)	(400 / 2,000)	(10 / 100)	(130 / 1,300)	(25 / 50)	(10 / 50)	(2,500 / 5,000)	(0.2 / 2)	NS
DATE/unit	s.u.	umhos @ 25C	deg. C	feet	(ft. MSL)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Nov-11	7.94	605	11.0	48.38	736.10	**4.37**	27.6	<0.20	<0.60	16.0	<0.20	<2.0	<0.07	148
Dec-11	7.61	604	9.7	47.45	737.03	**4.73**	23.2	<1.60	<0.60	9.9	<0.20	<2.0	<0.07	--
Jan-12	7.63	548	9.1	45.30	739.18	**4.46**	26.2	<1.60	<0.60	14.9	<0.20	<2.0	<0.07	--
Feb-12	7.68	568	8.0	44.90	739.58	**4.75**	24.3	<1.60	<0.60	12.6	<0.20	<2.0	<0.07	--
Mar-12	7.90	600	12.9	43.75	740.73	**4.94**	--	--	--	--	--	--	--	--
Apr-12	7.19	572	11.1	44.10	740.38	**5.67**	--	--	--	--	--	--	--	--
May-12	7.42	595	13.3	45.50	738.98	**4.5**	--	--	--	--	--	--	--	--
Jun-12	7.65	658	16.3	54.15	730.33	**4.8**	--	--	--	--	--	--	--	--
Oct-12	7.56	482	9.9	50.95	733.53	--	--	--	--	--	--	--	--	--
Apr-13	7.90	602	9.9	44.50	739.98	--	--	--	--	--	--	--	--	--
Oct-13	7.96	623	10.6	47.90	736.58	--	--	--	--	--	--	--	--	--
Apr-14	7.35	591	9.6	44.15	740.33	--	--	--	--	--	--	--	--	--
Oct-14	7.68	476	10.8	43.80	740.68	--	--	--	--	--	--	--	--	--
Apr-15	7.70	434	12.1	44.96	739.52	--	--	--	--	--	--	--	--	--
Oct-15	7.40	551	12.2	50.3	734.18	--	--	--	--	--	--	--	--	--
Mean	--	567	--	--	--	4.78	--	--	--	--	--	--	--	--
NR140 Min.Incr.	--	200	--	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	60.8	--	--	--	0.41	--	--	--	--	--	--	--	--
3X Std Dev	--	182	--	--	--	--	--	--	--	--	--	--	--	--
Mean+3XSD	--	750	--	--	--	--	--	--	--	--	--	--	--	--
Mean+Min.Incr.	--	767	--	--	--	--	--	--	--	--	--	--	--	--
Proposed PAL	**--**	**770**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
2X Std Dev	--	--	--	--	--	0.82	--	--	--	--	--	--	--	--
Mean+2XSD	--	--	--	--	--	5.60	--	--	--	--	--	--	--	--
Proposed ACL	**NA**	**NA**	**NA**	**NA**	**NA**	**5.6**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:

Groundwater samples analyzed for alkalinity, chloride, sulfate, and hardness are field filtered.

mg/L = milligrams per liter

ug/L = micrograms per liter

ND = not detected

ug/L = micrograms per liter

C = degrees Centigrade

umhos = micromhos

(201) = WDNR well number

J = Concentration between the limit of Detection and Limit of Quantitation. Result is considered an estimate.

NS = no standard established

s.u. = standard units

ft.MSL = feet above Mean Sea Level

WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc

WDNR NR140 Public Health Standards: fluoride, arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, mercury, VOCs

-Manganese has NR140 standards for both Public Welfare (25 ug/L and 50 ug/L) and Public Health (60 ug/L and 300 ug/L).

235 = Preventive Action Limit (PAL) exceedance NR 140 Wisconsin Administrative Code (WAC)

590 = Enforcement Standard (ES) exceedance NR 140 Wisconsin Administrative Code (WAC)

0.3J = Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.

(0.97/9.7) = PAL/ES

-- = No PAL or ACL calculation needed (NA)

MW-313D total depth (feet): 145.92 ft.

MW-313D bottom of well elevation (ft. MSL): 638.56 ft.MSL

MW-313D top of well elevation (ft. MSL): 784.48 ft.MSL

Environmental Sampling Corporation

ADS - EMERALD PARK LANDFILL
Baseline Monitoring Data

MW-313D '(217)	VOCs (PAL/ES)	
	Acetone (1,800 / 9,000)	**Carbon Disulfide** (200 / 1,000)
DATE/unit	ug/L	ug/L
Nov-11	6.78J	<1.0
Dec-11	<6.50	<1.0
Jan-12	<6.50	3.85
Feb-12	<6.50	6.83
Mar-12	--	--
Apr-12	--	--
May-12	--	--
Jun-12	--	--
Oct-12	<5.0	<0.66
Apr-13	--	--
Oct-13	<2.6	<0.71
Apr-14	--	--
Oct-14	--	--
Apr-15	--	--
Oct-15	--	--
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Notes:
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WDNR NR140 Public Welfare Standards: chloride, manganese, sulfate, and zinc
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235	= Preventive Action Limit (PAL) exceedance	NR 140 Wisconsin Administrative Code (WAC)
590	= Enforcement Standard (ES) exceedance	NR 140 Wisconsin Administrative Code (WAC)
0.3J		

= Concentration in excess of the NR140 PAL, but less than the LOQ. This concentration is not considered an exceedance of NR140 standards.
(0.97/9.7) = PAL/ES
-- = No PAL or ACL calculation needed (NA)

MW-313D total depth (feet):	145.92	ft.
MW-313D bottom of well elevation (ft. MSL):	638.56	ft.MSL
MW-313D top of well elevation (ft. MSL):	784.48	ft.MSL