



Appendix L  
Environmental Monitoring Program

Note: Appendix L tables represent the proposed/current monitoring program. Tables are based on the tables included in the 8/23/2014 Plan of Operation approval, modified to reflect current conditions (e.g., well replacements, abandonments). The final proposed monitoring program will be provided in the Plan of Operation.

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Table 1a

Detection Groundwater Monitoring NR 507 Wells												
Wells	DNR ID#	WUWN	Comment <sup>1</sup>	Wells	DNR ID#	WUWN	Comment <sup>1</sup>	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters		
<b>Non-Subtitle D Wells</b>												
<b>Annual VOCs</b>												
M-6A	7	BX879		WT-202AR	132	FF150		Sample <u>Semiannually</u> June and December	04189	Elevation, Groundwater (feet above mean sea level )		
M-9A	12	BX884	Abandoned	WT-202BR	134	JF020						
M-9B	13	BX885	Abandoned	WT-203A	117	IM422		Sample <u>Annually</u> June	VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)			
M-14A	17	BX889		WT-204A	118	IM423						
M-14B	18	BX890		WT-205A	119	IM424						
M-17B	20	BX892	Abandoned	WT-206AR	125	BX904						
M-23	23	BX895		WT-207AR	141	VM944						
M-25A	25	BX897		M-301A	150	VM942						
M-25BR	130	FF149		M303A	156	VM943	Abandoned					
M-26A	27	BX899		M-17BR	168	VT575						
M-26B	28	BX900		M-28R	170	PX759						
M-29	35	EI271		M-302AR	172	PX760						
P-103B	47	FH850		M-302BR	174	VP500						
WT-108A	53	FH852		M-303AR	176	OX700						
P-108B	123	IM428		M-9AR	072	PX757						
WT-113A	57	FH854		M-9BR	074	PX758						
P-119B	67	FH858										
WT-201AR	124	BX903										
<b>Subtitle D Wells</b>												
<b>Semiannual VOCs</b>												
M-17A	19	BX891	Abandoned							Sample <u>Semiannually</u> June and December	04189	Elevation, Groundwater (feet above mean sea level )
WT-103A	45	FH849										
WT-105AR	126	LO774										
WT-119A	65	FH857										
M-17AR	166	WB260										
										VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)		

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period. Trip Blank (999) and/or Field Blank (997) data must also be submitted electronically.

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Table 1b						
Detection Groundwater Monitoring NR 507 Well						
Wells	DNR ID#	WUWN	Comment	Sampling & Reporting <sup>1</sup> Frequency	Parameter Codes	Parameters
<b>Baseline Monitoring Schedule</b>						
WT-208ARR <sup>2,4</sup>	143	VU611	Sub D Well	Sample <u>Semiannually</u> June and December	04189	Elevation, Groundwater (feet above mean sea level )
M17AR <sup>3,5</sup>	166	WB260			00001	Odor
M17BR <sup>3,5</sup>	168	VT575			00002	Color
M303AR <sup>3,5</sup>	176	OX700			00003	Turbidity
					00010	Temperature, of water taken in field °C
				00094	Field Conductivity @ 25° C(umho/cm)	
				00400	Field pH (standard units)	
				00941	Chloride, filtered (mg/L)	
				22413	Total Hardness, filtered (mg/L)	
				39036	Alkalinity, filtered (mg/L)	
				Sample <u>Semiannually</u> (June 2019, December 2019, June 2020, and December 2020) <sup>2</sup> (December 2020, June 2021, December 2021, and June 2022) <sup>3</sup>	00620	Nitrate Nitrogen(Nitrate + Nitrite as N), total (mg/L)
					00945	Sulfate, total (mg/L)
					00951	Fluoride, total (mg/l)
					01002	Arsenic, total (ug/L)
					01007	Barium total (ug/L)
					01027	Cadmium, total (ug/L)
					01034	Chromium, total (ug/L)
					01042	Copper, total (ug/l)
					01051	Lead, total (ug/l)
					01055	Manganese, total (ug/L)
					01077	Silver, total (ug/l)
					01092	Zinc, total (ug/l)
					01147	Selenium, total (ug/l)
					71900	Mercury, total (ug/l)
				Sample June 2019 and December 2019 <sup>4</sup> December 2020 and June 2021 <sup>5</sup>	VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)	

1. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period.

2. After December 2020, an evaluation per NR 507.18(2)(b) will be conducted.

3. After June 2022, an evaluation per NR 507.18(2)(b) will be conducted.

4. If there are VOC detections, then two additional background rounds will be sampled in June 2020 and December 2020. If there are no VOC detections, then routine VOC sampling will be conducted annually in June.

5. If there are VOC detections, then two additional background rounds will be sampled in December 2021 and June 2022. If there are no

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**Table 1c**

**Groundwater Monitoring NR 507 Wells and Gradient Control Monitoring**

Wells	DNR ID#	WUWN	Comment <sup>1</sup> .	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters
<b>Groundwater Elevation Only Monitoring</b>						
Vertical Wells						
M-5A	5	BX877		Sample <u>Annually</u> June	04189	Elevation, Groundwater (feet above mean sea level)
M-5B	6	BX878				
M-6B	8	BX880				
M-6C	9	BX881				
M-22	22	BX894				
WT-101A	40	FH847				
P-101B	42	FH848				
M-305A	162	VM948	To be abandoned			
M-305B	164	VM949	To be abandoned			
Gradient Control/Underdrain Water Level Monitoring						
GCM-1	350			Sample <u>Semiannually</u> June and December	04189	Elevation, Groundwater (feet above mean sea level)

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period.

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Table 1d Private Water Supply Wells with NR 812 Variances									
Well	DNR ID#	WUWN	OWNER	Comment <sup>1</sup>	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters		
Community Well Repla Alar	80 99	YL985 LO890	Various	Replacement	Sample <u>Quarterly</u> March, June, September, and December	00001 Odor 00002 Color 00003 Turbidity 00010 Temperature, of Water taken in field °C 00094 Field Conductivity @ 25° C(umho/cm) 00400 Field pH (standard units) 00410 Alkalinity, total (mg/L) 00900 Hardness, total (mg/L) 00940 Chloride, total (mg/L) 74010 Iron, total (mg/L)			
S. Gundlach Suter	129 105	YZ391 BX913		Replacement		Sample <u>Annually</u> June	00620 Nitrate Nitrogen(Nitrate + Nitrite as N), total (mg/L) 00929 Sodium, total (mg/l) 00945 Sulfate, total (mg/L) 00951 Fluoride, total (mg/l) 01002 Arsenic, total (ug/L) 01007 Barium total (ug/L) 01027 Cadmium, total (ug/L) 01034 Chromium, total (ug/L) 01042 Copper, total (ug/l) 01051 Lead, total (ug/l) 01055 Manganese, total (ug/L) 01077 Silver, total (ug/l) 01092 Zinc, total (ug/l) 01147 Selenium, total (ug/l) 71900 Mercury, total (ug/l)		
R. Gundlach Acker	106 82	BX914 YL980		Replacement					
Country Corner	108	YA371		Replacement					
Hope Church Leonhardt	84 127	YL983 RR567		Replacement Replacement					
Niebuhr	51	NG618							
								VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)	
Gas Plant Well	129	YZ391					Sample <u>Annually</u> June	00010 Temperature, of Water taken in field °C 00094 Field Conductivity @ 25° C(umho/cm) 00400 Field pH (standard units) 00410 Alkalinity, total (mg/L) 00900 Hardness, total (mg/L) 00940 Chloride, total (mg/L) 74010 Iron, total (mg/L) 00620 Nitrate Nitrogen(Nitrate + Nitrite as N), total (mg/L) 00929 Sodium, total (mg/l) 00945 Sulfate, total (mg/L) 00951 Fluoride, total (mg/l) 01002 Arsenic, total (ug/L) 01007 Barium total (ug/L) 01027 Cadmium, total (ug/L) 01034 Chromium, total (ug/L) 01042 Copper, total (ug/l) 01051 Lead, total (ug/l) 01055 Manganese, total (ug/L) 01077 Silver, total (ug/l) 01092 Zinc, total (ug/l) 01147 Selenium, total (ug/l) 71900 Mercury, total (ug/l)	
								VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)	

1. Monitoring points that are abandoned are no longer monitored.  
2. To be reported as per code within 10 days of landfill owner's or operator's receipt of results.  
Trip Blank (999) and/or Field Blank (997) data must also be submitted electronically.

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Table 2a Leachate Characteristic Monitoring					
Monitoring Pt.	DNR ID#	Comment <sup>1</sup> :	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters
Lift Station #1 (next to MH-101)	402		Sample/Record Total Volumes <u>Monthly</u> Report Semiannually in June and December <sup>3</sup> .	00032	Leachate Volume Pumped (1000s of gallons)
			Sample <u>Quarterly</u> March, June, September, and December	00001 00002 00003 00010 00094 00400 00150 00310 00340 00410 00610 00665 00900	Odor Color Turbidity Field Temperature Field Conductivity @ 25oC (umho/cm) Field pH, (standard units) Suspended Solids, total (mg/l) BOD (5 day @ 20°C (mg/L) COD, unfiltered (mg/L) Alkalinity, total as CaCO3 (mg/L) Nitrogen, Ammonia, total (mg/L as N) Phosphorus, total (mg/l, P) Hardness, total (mg/L as CaCO3)
			Sample <u>Annually</u> June	00625 00630 00929 00940 00945 01027 01051 01055 01092 71900 74010 00951 01002 01007 01012 01034 01037 01042 01059 01067 01077 01087 01097 01147 80082	Nitrogen, Kjeldahl, total (mg/L as N) Nitrate + Nitrite as N, total (mg/l) Sodium, total (mg/L) Chloride, total (mg/L) Sulfate, total (mg/L) Cadmium, total (ug/l) Lead, total (mg/L) Manganese, total (mg/L) Zinc, total (ug/l) Mercury, total (mg/L) Iron, total (mg/L) Fluoride, total (mg/L) Arsenic, total (mg/L) Barium, total (ug/L) Beryllium, total (ug/l) Chromium, total (ug/l) Cobalt, total (ug/l) Copper, total (ug/l) Thallium, total (ug/l) Nickel, total (ug/l) Silver, total (ug/l) Vanadium, total (ug/l) Antimony, total (ug/l) Selenium, total (ug/l) Carbonaceous Biochemical Oxygen Demand
			Sample <u>Semiannually</u> June and December	Semi-volatiles, using EPA Method SW-8270D(NR 507, appendix IV) VOCs (ug/L) Using EPA Solid Waste Method 8260B ( NR 507, appendix III)	

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period. For items indicated as "Report Semiannually", the reporting is due within 60 days after the end of the last monitoring period in the semiannual period. The semiannual periods will run January-June and July-December unless an alternative period is proposed and the Department concurs.

3. Also record daily leachate recirculation volumes in operating record per the Leachate Recirculation Plan.

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Table 2b						
Leachate Headlevel and Volume Monitoring						
Monitoring Pt.	DNR ID#	Comment <sup>1</sup> :	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters	
MLH-1	517		Sample <u>Monthly</u> Report Semiannually	00031    Depth of Leachate from top of liquid level to bottom in feet 99423    Elevation, Leachate Head feet above mean sea level		
MLH-2	518					
MLH-3R	599					
MLH-4	520					
MLH-6N	521					
MLH-6S	522					
MLH-7N	523					
MLH-7S	524					
MLH-8N	600					
MLH-8S	602					
MHL-9N	800					
MHL-9S	802					
MLH-10N	804					
MLH-10S	806					
MLH-11N	808	To be constructed				
MLH-11S	810	To be constructed				
MLH-12N	812	To be constructed				
MLH-12S	814	To be constructed				
LV8	408		Sample <u>Monthly</u> Report Semiannually	00032    Leachate Volume Pumped 99723    Leachate volume recirculated		
LV9	409					
LV10	410	To be constructed				
LV11	411	To be constructed				
LV12	412	To be constructed				

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Table 3a					Landfill Gas Extraction			
Gas Extraction Well - DNR ID #					Sampling & Reporting <sup>2</sup>	Parameter Codes	Parameters	
Monitoring Pt	ID#	Comment <sup>1</sup>	Monitoring Pt	ID#	Comment <sup>1</sup>			
GW-1	531		GW-101	820	to be constructed	Sample <u>Monthly</u> Report Semiannually	46385	Well Head Pressure (inches of water column)
<del>GW-2R</del>	<del>574</del>		GW-102	822	to be constructed		99098	Gas Flow Rate (scfm)
<del>GW-3</del>	<del>555</del>		GW-103	824	to be constructed	46388	Gas Temperature (° F)	
GW-4R	593		GW-104	826	to be constructed	46387	Valve Opening (% open)	
GW-5R	594		GW-105	828	to be constructed	85547	Percent Methane, by volume	
GW-6	536	Abandoned	GW-106	830	to be constructed	85550	Percent Oxygen, by volume	
GW-7R	595		GW-107	832	to be constructed	46382	Header Pressure (inches of water column)	
GW-8R	596		GW-108	834	to be constructed	00056	Volume of liquid pumped from well (gallons/month)	
GW-9A	562		GW-109	836	to be constructed			
GW-10R	597		GW-110	838	to be constructed			
GW-11R	610		GW-111	840	to be constructed			
GW-12R	620		GW-112	842	to be constructed			
GW-13R	622		GW-113	844	to be constructed			
GW-14R2	634	Abandoned	GW-114	846	to be constructed			
GW-15A	566		GW-115	848	to be constructed			
GW-16R	598		GW-116	850	to be constructed			
GW-17R	612		GW-117	852	to be constructed	Sample <u>Semiannually</u> June and December	00023	Elevation, Leachate Head feet above mean sea level
GW-18	548		GW-118	854	to be constructed		00031	Depth of Leachate from top of liquid level to bottom in feet
GW-19R	624		GW-119	856	to be constructed			
GW-20R	626		GW-120	858	to be constructed			
GW-21R	628		GW-121	860				
GW-22R	614		GW-122	862				
GW-23	553	Abandoned	GW-123	864				
GW-24	554		GW-124	866				
GW-25A	572	Abandoned	GW-125	868				
GW-26A	573	Abandoned	GW-126	870				
GW-27	557		GW-127	872				
GW-28R	574		GW-128	874				
GW-29R	575	Abandoned	GW-129	876				
GW-30R	576	Abandoned	GW-130	878				
GW-31	561		GW-131	880				
GW-32	577		GW-132	883				
GW-33R	630	Abandoned	GW-133	886				
GW-34R	632	Abandoned	GW-134	889				
GW-35	580		GW-135	892				
GW-36	581		GW-136	895				
GW-37	582		GW-138	902				
GW-38	583	Abandoned	GW-139	904				
GW-39	584		GW-140	906				
GW-40	585		GW-141	908				
GW-41	586	Abandoned	GW-14R3	736				
GW-42	587		GW-25R	740				
GW-43	588		GW-29R1	744				
GW-44	589		GW-30R1	746				
GW-45	590		GW-33R1	748				
GW-46	591		GW-34R1	750				
GW-47	592	Abandoned	GW-38R	752				
GW-48	604		GW-41R	756				
GW-49	606		GW-47R	754				
GW-50	608		GW-6R	734				
GW-51EXP	616		GW-26R	742				
GW-52EXP	618		GW-23R	738				
<b>Gas Blower</b>								
West Gas Plant Blower			530	Offline		Sample <u>Monthly</u> Report Semiannually	46382	Header Pressure (inches of water column)
East Gas Plant Blower Gas Plant			698	Offline			98927	Gas Extracted, Total Monthly Volume (1000 cu. Ft. /month)
							99098	Gas Flow Rate (scfm)
							46388	Gas Temperature (° F)
							85547	Percent Methane, by volume
							85550	Percent Oxygen, by volume
						Sample <u>Annually</u> June	VOCs using USEPA Method TO-15 or TO-14A	

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period. For items indicated as "Report Semiannually", the reporting is due within 60 days after the end of the last monitoring period in the semiannual period. The semiannual periods will run January-June and July-December unless an alternative period is proposed and the Department concurs.



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**Table 3b**

Landfill Gas Monitoring Probes															
Monitoring Point - DNR ID #			Sampling & Reporting <sup>2,3</sup> Frequency		Parameter Codes	Parameters									
Landfill Gas Monitoring Probes															
Monitoring Pt	ID#	Comment <sup>1</sup>	Monitoring Pt	ID#	Comment <sup>1</sup>										
GP-1S	500		GP-20	703		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 15%;">Sample</td> <td style="text-align: center; width: 15%;">46389</td> <td style="width: 70%;">Soil Gas Pressue (inches)</td> </tr> <tr> <td style="text-align: center;"><u>Quarterly</u></td> <td style="text-align: center;">85547</td> <td>Percent Methane, by volume</td> </tr> <tr> <td style="text-align: center;">March, June, September, and December</td> <td style="text-align: center;">85550</td> <td>Percent Oxygen, by volume</td> </tr> </table>	Sample	46389	Soil Gas Pressue (inches)	<u>Quarterly</u>	85547	Percent Methane, by volume	March, June, September, and December	85550	Percent Oxygen, by volume
Sample	46389	Soil Gas Pressue (inches)													
<u>Quarterly</u>	85547	Percent Methane, by volume													
March, June, September, and December	85550	Percent Oxygen, by volume													
GP-1D	501		GP-24	707											
GP-3S	504		GP-4R	714											
GP-3D	505		GP-5R	707											
GP-4S	506	Abandoned	GP-6R	718											
GP-4D	507	Abandoned	GP-25R	723											
GP-5S	508	Abandoned	GP-26R	724											
GP-5D	509	Abandoned	GP-27R	726											
GP-7	512		GP-24R	722	To be constructed										
GP-8	513														
GP-9	514														
GP-10	515														
GP-11	516														
GP-12	525														
GP-13	526														
GP-14	527														
GP-15	528														
GP-16	529														
Site Conditions															
Site Conditions			Record <u>monthly</u> at same time as blower Report Semiannually		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 15%;">00021</td> <td style="width: 85%;">Ambient Air Temperature (° F)</td> </tr> <tr> <td style="text-align: center;">00025</td> <td>Barometric Pressure (mm of Hg)</td> </tr> <tr> <td style="text-align: center;">46381</td> <td>Trend in Barometric Pressure</td> </tr> <tr> <td style="text-align: center;">00007</td> <td>Ground Conditions 1=frozen, 2=wet, 3=dry</td> </tr> </table>	00021	Ambient Air Temperature (° F)	00025	Barometric Pressure (mm of Hg)	46381	Trend in Barometric Pressure	00007	Ground Conditions 1=frozen, 2=wet, 3=dry		
00021	Ambient Air Temperature (° F)														
00025	Barometric Pressure (mm of Hg)														
46381	Trend in Barometric Pressure														
00007	Ground Conditions 1=frozen, 2=wet, 3=dry														

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period. For items indicated as "Report Semiannually", the reporting is due within 60 days after the end of the last monitoring period in the semiannual period. The semiannual periods will run January-June and July-December unless an alternative period is proposed and the Department concurs.

3. Immediate notification may be necessary under NR 507.22(1)(c) Wis. Adm. Code.

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Table 4					
Lysimeter and Surfacewater Monitoring					
Monitoring Pt.	DNR ID #	Comments <sup>1</sup> .	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters
<b>Lysimeters</b>					
LS-1 LS-2 LS-3 LS-4 LS-6	300 301 302 303 304		Sample <u>Monthly</u> Report Semiannually	74064	Lysimeter discharge volume pumped (gal)
			Sample <u>Annually</u> June	00001 00002 00003 00094 00340 00400 00410 00630 00900 00929 00940 00945 01055 74010	Odor Color Turbidity Field Conductivity @ 25 <sup>o</sup> C(umho/cm) COD, Unfiltered Field pH (standard units) Alkalinity, total as CaCO <sub>3</sub> (mg/L) Nitrate + Nitrite as N, total (mg/l) Hardness, total (mg/L as CaCO <sub>3</sub> ) Sodium, total (mg/L) Chloride (mg/L) Sulfate, total (mg/L) Manganese, total (mg/L) Iron, total (mg/L)
					VOCs (ug/L) Using EPA Solid Waste Methods 8021 or 8260 ( NR 507, appendix III)
<b>Staff Gauges</b>					
SG-Park			Sample <u>Semiannually</u> June and December	99520	Elevation, Surface Water (ft. above mean sea level)
<b>Sedimentation Basins</b>					
SW-1, NE Sed. Basin SW-2, SE Sed. Basin SW-3, West Sed. Basin SW-4, RNG Sed Basin			Inspect <u>Quarterly</u> March, June, September, and December		Visual inspection for: Odor, Turbidity, Floating Solids, Foam, Oil Sheen <sup>3</sup>

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period. For items indicated as "Report Semiannually", the reporting is due within 60 days after the end of the last monitoring period in the semiannual period. The semiannual periods will run January-June and July-December unless an alternative period is proposed and the Department concurs.

3. See Storm Water Pollution Prevention Plan.

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Table 5			
Settlement Monitoring			
Monitoring Point <sup>1</sup>	Sampling & Reporting <sup>2</sup> Frequency	Parameter Codes	Parameters
Two cross sections as proposed, see condition 29. d.	Measure <u>Annually</u> June Until 5 years after closure; then every 5 years  Report in Annual Report	99422	Elevation, Ground Surface feet above mean sea level

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

2. Unless specifically stated, reporting is as per code typically within 60 days after the end of the specified monitoring period.