Tables

Table 1-1. NR 140 Exemption Requests
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

NR 140 Category	Exceedance For Which Exemption Previously Granted/ Requested	Parameter	Point Name	Exemption Granted for Eastern Expansion?	Exemption Requested for Vertical Expansion?	Comments
Public Health (other than Nitrate)	PAL	Manganese	M-301A	Y	Y	No new results
			M-302B	Y	Y	No new results, well replaced by M-302BR
		Tetrahydrofuran	M-9B	Y	N	Well has been replaced by M-9BR; no recent THF detections
	ES	Antimony	WT-119A	Y	Y	No new results
		Cadmium	WT-108A	Y	Y	No new results
		Manganese	M-302A	Y	Y	No new results, well replaced by M-302AR
Public Welfare and Nitrate	PAL	Chloride	M-17B	Y	Y	Well has been replaced by M-17BR
			WT-105AR	Y	N	Exemption rescinded in 8/13/2014 POO approval due to decrease in concentrations
		Nitrate+Nitrite Nitrogen	M-302A	Y	Y	Well has been replaced by M-302AR
			M-302B	Y	Y	Well has been replaced by M-302BR
	ES	Chloride	M-14A	Y	Y	Chloride levels have decreased but still frequently exceed PAL
			M-14B	Y	Y	Chloride levels have decreased but still exceed PAL
			M-28R	N	Y	New well, replaced M-28
			M-302BR	N	Y	New well, replaced M-302B; exceeded ES in 2014 and 2016, PAL in Dec 2020
			WT-113A	N	Y	Previously monitored for water level only
			WT-201AR	Y	Y	Chloride levels still exceed PAL
			WT-202A	Y	N	Well replaced by WT-202AR in 2008; exemption requested for WT-202AR
			WT-202AR	N	Y	Replacement well; two results above PAL (6/2016 and 6/2019)
			WT-204A	Y	Y	Chloride levels still exceed PAL and/or ES
			WT-207AR	Y	Y	Chloride levels still exceed PAL and/or ES
		Iron	M-5B	Y	Y	No new results
			WT-202A	Y	Y	No new results
			WT-202B	Y	Y	No new results
		Manganese	M-301A	Y	Y	No new results
			M-302A	Y	Y	No new results, well replaced by M-302AR
			M-302B	Y	Y	No new results, well replaced by M-302BR
			M-303A	Y	Y	No new results, well replaced by M-302BR

PAL - Preventive Action Limit
ES - Enforcement Standard

Prepared by: SCC, 3/7/2021

I:\25220091.00\Deliverables\FR\Tables\[1-1 7-1 7-2 Groundwater Quality.xlsx]1-1 NR 140

Table 4-1. Property Ownership Within 1,200 Feet of Landfill Limits
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

PARCEL NUMBER	PARCEL OWNER
1	DANE COUNTY PUBLIC WORKS RODEFELD LANDFILL
2	DANE COUNTY PUBLIC WORKS RODEFELD LANDFILL
3	MCALLEN PROPERTIES 120 LLC
4	SUTER'S SOUTHEAST STORAGE LLC
5	STEVEN R SUTER
6	SUTER REV TR, MARGARET M
7	ELAINE GUNDLACH SURVIVOR'S TR & S&E GUNDLACH FAM TR
8	DANE COUNTY
9	DANE COUNTY
10	DANE COUNTY
11	DANE COUNTY
12	DANE COUNTY
13	HOPE LUTHERAN CHURCH
14	HOPE COTTAGE GROVE
15	HOPE COTTAGE GROVE
16	HOPE LUTHERAN CHURCH OF COTTAGE GROVE
17	DANE COUNTY
18	DANE COUNTY
19	HOPE COTTAGE GROVE
20	HOPE COTTAGE GROVE CEMETARY ASSOCIATION
21	DOROTHY M RODEFELD
22	KYLE J MATHEWS
23	KYLE J MATHEWS
24	DANE COUNTY
25	DANE COUNTY
26	JERRY M MOORE
27	SAFEGUARD STORAGE OF WISCONSIN LLC
28	MICHAEL R NIEBUHR
29	DANE COUNTY
30	DANE COUNTY
31	DANE COUNTY
32	COPART OF CONNECTICUT INC
33	C&L INVESTMENT PARTNERSHIP
34	CITY OF MADISON STREETS YAHARA WOOD PROCESS SITE
35	CITY OF MADISON PARKS YAHARA HILLS GOLF COURSE
36	CITY OF MADISON PARKS YAHARA HILLS GOLF COURSE
37	CITY OF MADISON PARKS YAHARA HILLS GOLF COURSE
38	WI DOT
39	STATE OF WI DEPT OF TRANS

Note: Property ownership was determined using the Dane County, Wisconsin, Open Data GIS Web Page.

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Table 5-1. Groundwater and Surface Water Elevations
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

Ground Water Elevation (feet msl)															
Well Number	**M14A**	**M14B**	**M17A**	**M17AR**	**M17B**	**M17BR**	**M22**	**M23**	**M25A**	**M25BR**	**M26A**	**M26B**	**M28**	**M28R**	**M29**
Top of Casing Elevation (feet)	865.95	866.00	882.40	888.59	882.34	888.55	869.47	882.44	870.82	871.80	870.85	870.85	887.91	888.85	906.22
Reporting Period															
6/1/2011	860.64	862.45	869.15		869.11		862.00	866.59	862.00	861.92	860.93	860.95	862.89	--	863.46
12/1/2011	861.37	861.41	865.40	--	865.42	--	NM	864.42	860.67	860.50	859.43	859.44	860.48	--	860.90
6/1/2012	859.30	861.00	866.01	--	866.08	--	861.05	864.49	860.39	860.33	859.27	859.25	860.73	--	861.20
12/1/2012	859.97	860.41	863.43	--	863.45	--	NM	862.66	859.66	859.50	858.40	858.38	859.04	--	859.55
6/1/2013	861.60	862.67	869.26	--	869.22	--	862.60	866.68	861.80	861.73	860.60	860.54	862.52	--	863.12
12/1/2013	860.78	861.31	865.90	--	865.81	--	NM	864.51	860.71	860.58	859.44	859.43	860.54	--	861.11
6/1/2014	860.73	861.19	868.04	--	868.02	--	862.03	865.27	861.07	860.90	859.82	859.95	861.19	--	861.45
12/1/2014	862.11	861.66	865.26	--	865.25	--	861.53	864.04	860.74	860.47	859.34	859.34	--	860.19	860.54
6/1/2015	860.33	860.95	865.73	--	864.73	--	861.30	863.38	860.03	859.84	858.67	858.64	--	859.74	860.02
12/1/2015	862.77	862.60	869.01	--	868.81	--	863.16	864.45	861.09	860.69	859.50	859.49	--	860.02	860.33
6/1/2016	860.36	861.73	868.00	--	867.91	--	861.69	865.47	861.03	860.92	859.81	859.84	--	861.54	862.06
12/1/2016	861.97	862.21	868.81	--	868.70	--	862.18	865.84	861.37	861.29	860.08	860.08	--	861.69	862.23
6/1/2017	862.33	863.50	872.99	--	872.69	--	863.24	868.27	862.60	863.57	861.35	861.38	--	863.60	864.30
12/1/2017	861.32	861.85	867.93	--	867.84	--	861.72	865.64	861.38	861.35	860.21	860.24	--	861.73	862.26
6/1/2018	863.03	864.70	873.29	--	872.71	--	--	867.94	863.12	862.66	861.77	861.67	--	862.44	862.87
12/1/2018	862.08	863.32	871.49	--	871.35	--	--	867.93	862.67	862.66	861.48	861.50	--	863.87	864.58
6/1/2019	862.11	863.32	871.58	--	871.46	--	862.97	868.41	862.79	862.87	861.54	861.60	--	863.93	864.70
12/1/2019	862.68	863.70	872.19	--	872.06	--	--	868.24	862.70	862.65	861.45	861.43	--	863.62	864.24
6/1/2020	862.73	863.46	--	--	--	--	863.08	867.95	862.80	862.78	861.53	861.58	--	863.66	864.33
12/1/2020	861.58	861.94	--	869.75	--	868.20	--	865.16	861.23	861.07	859.95	859.97	--	861.22	861.69

Groundwater Elevation (feet msl)														
Well Number	**M5A**	**M5B**	**M6A**	**M6B**	**M6C**	**M9A**	**M9AR**	**M9B**	**M9BR**	**M301A**	**M302AR**	**M302BR**	**M303A**	**M303AR**
Top of Casing Elevation (feet)	864.29	864.33	864.46	864.46	864.61	876.58	879.56	875.90	879.46	894.77	879.43	879.42	887.45	885.53
Reporting Period														
6/1/2011	858.69	859.30	859.62	859.85	860.04	862.20	--	862.45	--	--	--	--	--	
12/1/2011	NM	NM	NM	NM	NM	860.46	--	860.55	--	--	--	--	--	--
6/1/2012	858.07	858.55	858.87	858.75	858.93	860.35	--	860.58	--	--	--	--	--	--
12/1/2012	NM	NM	NM	NM	NM	859.09	--	859.25	--	--	--	--	--	--
6/1/2013	858.66	859.38	860.02	860.14	860.31	862.07	--	862.29	--	--	--	--	--	--
12/1/2013	NM	NM	NM	NM	NM	860.36	--	860.65	--	--	--	--	--	--
6/1/2014	858.44	859.00	859.22	859.24	859.41	861.14	--	861.13	--	--	--	--	--	--
12/1/2014	858.76	859.08	858.74	858.78	858.96	--	859.90	--	860.29	864.29	859.15	859.06	863.96	--
6/1/2015	857.99	858.45	858.37	858.33	858.52	--	859.36	--	859.68	863.71	859.17	858.74	863.23	--
12/1/2015	858.82	859.40	859.00	859.56	859.73	--	860.39	--	860.39	864.98	859.80	859.64	864.56	--
6/1/2016	859.00	859.08	858.89	858.50	859.18	--	860.44	--	861.04	866.69	860.57	859.86	865.91	--
12/1/2016	858.70	859.29	859.23	859.46	859.63	--	860.72	--	861.29	867.07	860.80	860.11	866.49	--
6/1/2017	858.80	859.84	860.22	860.96	861.13	--	862.22	--	862.85	869.86	863.53	861.96	869.09	--
12/1/2017	858.67	859.24	858.78	859.39	859.57	--	860.83	--	861.43	866.69	860.34	859.98	866.11	--
6/1/2018	859.49	861.03	860.44	861.41	861.63	--	862.60	--	862.22	868.29	865.14	862.34	868.17	--
12/1/2018	--	--	859.48	--	--	--	862.21	--	863.00	869.70	862.41	861.54	868.82	--
6/1/2019	858.85	859.77	859.60	860.59	860.81	--	862.31	--	863.12	870.09	863.05	861.68	869.04	--
12/1/2019	--	--	859.45	--	--	--	862.59	--	863.24	869.54	863.25	861.68	868.82	--
6/1/2020	859.05	859.94	859.41	860.64	860.88	--	862.34	--	863.00	869.78	862.98	861.64	--	--
12/1/2020	--	--	858.83	--	--	--	860.55	--	861.08	865.95	859.96	859.68	--	865.30

Table 5-1. Groundwater and Surface Water Elevations
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

Groundwater Elevation (feet msl)											
Top of Casing Elevation (feet)	867.46	866.69	880.11	881.59	867.50	866.82	869.79	879.80	867.13	881.54	869.60
Reporting Period											
6/1/2011	860.36	860.38	862.12	862.66	859.83	860.67	860.61	861.21	860.22	862.93	861.85
12/1/2011	NM	859.22	860.59	861.21	NM	859.33	860.24	859.83	NM	861.32	860.94
6/1/2012	859.04	858.74	860.08	861.32	858.14	858.49	859.40	860.25	858.21	861.56	860.22
12/1/2012	NM	858.36	859.09	859.91	NM	858.41	858.89	859.12	NM	860.03	859.47
6/1/2013	861.27	860.74	862.16	862.92	861.12	861.09	860.69	862.70	861.77	863.33	861.82
12/1/2013	NM	859.01	859.76	860.87	NM	859.12	859.69	859.82	NM	860.99	860.56
6/1/2014	860.83	861.22	861.84	862.28	860.60	861.52	860.26	NM	861.23	862.69	860.99
12/1/2014	860.00	859.33	860.56	861.00	859.90	859.51	859.73	NM	860.09	861.09	860.37
6/1/2015	859.96	859.36	860.86	861.05	859.39	859.50	859.55	861.14	859.55	861.29	859.93
12/1/2015	861.60	860.67	862.30	861.64	862.10	862.03	861.04	863.48	863.02	861.97	861.13
6/1/2016	860.28	859.94	861.22	862.01	859.94	860.17	860.09	861.38	860.16	862.26	860.85
12/1/2016	860.80	860.34	861.52	862.11	860.93	860.95	860.37	861.76	861.29	862.35	861.28
6/1/2017	862.19	861.80	863.33	863.64	861.98	862.22	861.46	864.55	862.88	864.07	862.45
12/1/2017	860.11	859.66	860.62	861.59	860.08	859.93	860.16	860.54	860.21	861.63	861.20
6/1/2018	863.73	863.34	864.41	863.89	865.25	864.16	863.48	865.99	864.35	864.56	862.93
12/1/2018	--	860.88	862.13	863.19	--	861.56	861.09	862.77	861.80	863.37	862.49
6/1/2019	861.65	861.39	862.64	863.73	861.35	861.76	861.24	863.49	861.91	864.22	862.65
12/1/2019	--	861.66	863.16	863.71	--	862.42	861.48	864.50	862.81	864.04	862.88
6/1/2020	862.04	861.76	863.33	863.70	861.73	862.31	861.47	865.05	862.57	864.11	862.66
12/1/2020	--	859.92	861.49	861.59	--	860.20	860.22	862.83	860.63	861.67	861.18

Groundwater Elevation (feet msl)											Surface Water Elevation (feet msl)
Well Number	**WT202AR**	**WT202BR**	**WT203A**	**WT204A**	**WT205A**	**WT206AR**	**WT207AR**	**WT208AR**	**WT208ARR**	**GCM1**	**SG-Park**
Top of Casing Elevation (feet)	866.50	866.50	870.91	873.51	872.82	878.60	866.23	880.15	875.75	890.49	856.65
Reporting Period											
6/1/2011	861.04	861.16	861.71	861.55	858.03	862.76	--	--		--	--
12/1/2011	859.87	860.00	859.69	859.92	857.10	861.02	--	--	--	--	--
6/1/2012	859.51	859.70	859.65	859.38	856.68	861.35	--	--	--	--	--
12/1/2012	858.89	858.99	858.50	858.68	855.64	859.73	860.45	861.01	--	--	--
6/1/2013	860.80	861.00	862.88	862.51	858.70	863.15	862.76	864.06	--	--	--
12/1/2013	859.86	859.98	859.26	859.39	856.21	860.54	861.23	862.15	--	--	--
6/1/2014	860.21	859.07	861.92	861.46	858.21	862.18	861.52	863.31	--	--	--
12/1/2014	859.83	859.86	859.58	859.94	856.90	860.87	861.68	862.10	--	--	--
6/1/2015	859.42	859.53	860.08	859.98	857.07	861.14	861.11	861.90	--	Dry	--
12/1/2015	860.79	860.77	861.05	860.73	859.08	861.49	862.56	864.36	--	--	856.69
6/1/2016	860.08	880.33	861.07	861.07	857.53	862.14	861.70	863.01	--	NM	Dry
12/1/2016	860.46	860.45	861.43	861.23	857.92	862.13	862.10	863.35	--	Dry	856.80
6/1/2017	861.56	861.84	863.60	864.71	860.25	863.93	863.19	865.50	--	Dry	857.23
12/1/2017	860.10	860.55	859.92	860.18	857.03	861.44	861.69	862.99	--	Dry	856.55
6/1/2018	862.43	862.66	853.81	867.06	864.01	864.40	863.78	864.12	--	Dry	861.75
12/1/2018	861.25	861.70	862.38	862.11	858.42	863.16	862.89	--	865.23	Dry	--
6/1/2019	861.41	861.92	862.99	863.43	859.14	864.04	862.96	--	865.61	Dry	856.55
12/1/2019	861.70	862.17	863.14	863.52	859.26	863.82	863.23	--	865.66	Dry	856.65
6/1/2020	861.61	861.97	863.36	864.36	859.69	863.99	863.04	--	865.58	890.49	856.65
12/1/2020	860.23	860.61	860.22	860.33	857.62	861.46	861.46	--	863.20	Dry	856.45

Notes:
1. --: Not measured. Inactive or non-required well.
2. NM: Not measured. Required well.
3. Top of casing for M17A changed from 882.15 to 882.40 feet effective May 15, 2015.
4. Top of casing for M17B changed from 882.39 to 882.34 feet effective May 15, 2015.
5. SG-Park reference elevation is at the 3.4 foot mark on the staff gauge.

Updated: AJR, 2/9/2021
Checked: JR 2/9/2021

Table 5-2. Groundwater Vertical Hydraulic Gradients
Dane County Landfill Site No. 2, Madison, Wisconsin / SCS Engineers Project #25220091.00

Well Nest	Measurement Date	Well	Groundwater Elevation (h) (ft amsl)	Reference Point (L) (ft amsl)	Dh (ft)	DL (ft)	Vertical Gradient (i) (Dh/DL)	Vertical Flow Direction
M5A	6/1/2020	water table	859.05	859.05	-0.89	31.22	-0.029	Up
M5B		piezometer	859.94	827.83				
M6A	6/1/2020	water table	859.41	859.41	-1.23	29.32	-0.042	Up
M6B		piezometer	860.64	830.09				
M6B	6/1/2020	piezometer	860.64	830.09	-0.24	19.81	-0.012	Up
M6C		piezometer	860.88	810.28				
M9AR	6/1/2020	water table	862.34	862.34	-0.66	39.48	-0.017	Up
M9BR		piezometer	863.00	822.86				
	12/1/2020	water table	860.55	860.55	-0.53	37.69	-0.014	Up
		piezometer	861.08	822.86				
M14A	6/1/2020	water table	862.73	862.73	-0.73	36.65	-0.020	Up
M14B		piezometer	863.46	826.08				
	12/1/2020	water table	861.58	861.58	-0.36	35.5	-0.010	Up
		piezometer	861.94	826.08				
M17AR	12/1/2020	water table	869.75	869.75	1.55	30.15	0.051	Down
M17BR		piezometer	868.20	839.60				
M25A	6/1/2020	water table	862.80	862.80	0.02	41.5	0.0005	Down
M25BR		piezometer	862.78	821.30				
	12/1/2020	water table	861.23	861.23	0.16	39.93	0.004	Down
		piezometer	861.07	821.30				
M26A	6/1/2020	water table	861.53	861.53	-0.05	40.18	-0.001	Up
M26B		piezometer	861.58	821.35				
	12/1/2020	water table	859.95	859.95	-0.02	38.6	-0.001	Up
		piezometer	859.97	821.35				
WT101A	6/1/2020	water table	861.73	861.73	-0.31	33.93	-0.009	Up
P101B		piezometer	862.04	827.80				
WT103A	6/1/2020	water table	862.31	862.31	0.55	34.91	0.016	Down
P103B		piezometer	861.76	827.40				
	12/1/2020	water table	860.20	860.20	0.28	32.80	0.009	Down
		piezometer	859.92	827.40				
WT108A	6/1/2020	water table	865.05	865.05	1.72	27.17	0.063	Down
P108B		piezometer	863.33	837.88				
	12/1/2020	water table	862.83	862.83	1.34	24.95	0.054	Down
		piezometer	861.49	837.88				

Table 5-2. Groundwater Vertical Hydraulic Gradients
Dane County Landfill Site No. 2, Madison, Wisconsin / SCS Engineers Project #25220091.00

Well Nest	Measurement Date	Well	Groundwater Elevation (h) (ft amsl)	Reference Point (L) (ft amsl)	Dh (ft)	DL (ft)	Vertical Gradient (i) (Dh/DL)	Vertical Flow Direction
WT119A	6/1/2020	water table	864.11	864.11	0.41	30.81	0.013	Down
P119B		piezometer	863.70	833.30				
	12/1/2020	water table	861.67	861.67	0.08	28.37	0.003	Down
		piezometer	861.59	833.30				
WT202AR	6/1/2020	water table	861.61	861.61	-0.36	30.61	-0.012	Up
WT202BR		piezometer	861.97	831.00				
	12/1/2020	water table	860.23	860.23	-0.38	29.23	-0.013	Up
		piezometer	860.61	831.00				
M302AR	6/1/2020	water table	862.98	862.98	1.34	43.58	0.031	Down
M302BR		piezometer	861.64	819.40				
	12/1/2020	water table	859.96	859.96	0.28	40.56	0.007	Down
		piezometer	859.68	819.40				

Abbreviations

ft = feet amsl = above mean sea level

Notes

1. Groundwater elevations (h) were recorded by SCS Engineers. Measurements were taken from the top of casing and are referenced to the mean sea level datum.
2. For water table monitoring wells, reference point (L) is the water table elevation. For piezometers, reference point (L) is the elevation of the midpoint of the well screen.
3. Dh is the difference between the water table elevation and potentiometric surface elevation.
4. DL is the difference between the water table elevation and the elevation of the midpoint of the piezometer screen.
5. A negative vertical hydraulic gradient indicates upward flow.

Created by: JR Date: 2/16/2021
Revised by: JR Date: 2/16/2021
Checked by: EO Date: 2/16/2021

I:\25220091.00\Deliverables\FR\Tables\[5-2_Groundwater Vertical Hydraulic Gradients.xlsx]Calculations

Table 6-1. Waste Tonnages and Composition
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

			Industrial and Special Wastes										Alternate Daily Cover (ADC)				
	Category 1 Municipal Solid Waste		Category 6 All Other Solid Waste (Non-hazardous)		Category 25 Construction and Demolition Waste		Category 28 Waste Generated by Natural Disaster		Category 30 MRF Residuals[1] (10% cap)		Category 31 MRF Residuals[2] (30% cap)		Category 19 Fee Exempt Waste Used for ADC		Category 23 Treated Contaminated Soil for ADC		Total
Year	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)
2017	170,141	72.3%	909	0.4%	7,595	3.2%	-	0.0%	5904.0	2.5%	17,787	7.6%	32,853	13.97%	0	0.0%	235,189
2018	177,816	73.9%	906	0.4%	11,065	4.6%	2,129	0.9%	5904.0	2.5%	17,787	7.4%	25,155	10.45%	0	0.0%	240,762
2019	179,688	75.1%	770	0.3%	10,143	4.2%		0.0%	6086.0	2.5%	15,242	6.4%	27,034	11.30%	348	0.1%	239,311
Average	175,882	73.8%	862	0.4%	9,601	4.0%	1,065	0.3%	5,965	2.5%	16,939	7.1%	28,347	11.90%	116	0.0%	238,421

Notes:
1. This includes qualifying residues from qualified self-certified Material Recovery Facilities (MRFs).
2. This includes qualifying residues from qualified licensed construction & demolition processing Material Recovery Facilities (MRFs).

Updated By: LEC, 2/8/2021
Checked By: BLP 2/9/2021

I:\25220091.00\Deliverables\FR\Tables\[6-1 Waste Tonnage and Characterization.xlsx]Sheet1

Table 7-1. Monitoring Well NR 140 Standard Exceedances, Public Health and Welfare Parameters, 2018-2020
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

NR 140 Category	Type	Parameter	Point Name	Sample Date	Result	Flag	Exceedance	Exemption Requested?	Exemption Comments
Public Health	Inorganic	Cadmium, dissolved (ug/l as Cd)	M017AR	12/10/2020	0.63	J	PAL	N	New well, PAL exceedance not confirmed
			M303AR	12/10/2020	0.8	J	PAL	N	New well, PAL exceedance not confirmed
			WT208ARR	12/31/2019	0.55	J	PAL	N	Estimated results below LOQ, PAL exceedance not confirmed
				12/9/2020	0.66	J	PAL		
		Lead, dissolved (ug/l as Pb)	WT208ARR	12/31/2019	3.9	J	PAL	N	Estimated results below LOQ, PAL exceedance not confirmed
	Organic	Benzene (ug/l)	M303A (Aban)	6/20/2018	0.53		PAL	N	PAL exceedance not confirmed
		Chloroform (ug/l)	M302AR	6/18/2019	0.85	J	PAL	N	Estimated result below LOQ, PAL exceedance not confirmed
			M302BR	6/18/2019	0.78	J	PAL	N	Estimated result below LOQ, PAL exceedance not confirmed
		Dichloromethane (ug/l)	M303A (Aban)	6/20/2018	4	J	PAL	N	Estimated result below LOQ, not confirmed, likely laboratory contaminant
			P103B	6/20/2018	3	J	PAL	N	Estimated result below LOQ, not confirmed, likely laboratory contaminant
			WT201AR	6/14/2019	2.2	J	PAL	N	Estimated result below LOQ, not confirmed, likely laboratory contaminant
			WT208ARR	12/31/2019	5.2		ES	N	PAL exceedance not confirmed, likely laboratory contaminant
Public Welfare	Inorganic	Chloride, dissolved (mg/l as Cl)	M014A	6/19/2018	143		PAL	Y	Exemption granted in 2/4/2014 Feasibility Determination
				12/12/2018	137		PAL		
				6/15/2019	197		PAL		
				6/3/2020	140		PAL		
			M014B	6/19/2018	147		PAL	Y	Exemption granted in 2/4/2014 Feasibility Determination
				6/15/2019	129		PAL		
				12/9/2019	145		PAL		
				6/3/2020	156		PAL		
				12/9/2020	133		PAL		
			M017AR	12/10/2020	343		ES	N	New well, PAL exceedance not yet confirmed
			M017BR	12/10/2020	980		ES	N	Replacement well, PAL exceedance not yet confirmed, exemption previously approved for M-17B
			M023	12/9/2020	213		PAL	N	New exceedance, not yet confirmed, upgradient well
			M028R	6/20/2018	228		PAL	Y	Replacement well installed in 2018, adjacent to Hwy AB
				12/13/2018	268		ES		
				6/18/2019	312		ES		
				12/10/2019	168		PAL		
				6/4/2020	227		PAL		
					229		PAL		
				12/10/2020	306		ES		
			M029	6/4/2020	144		PAL	N	New exceedance, not yet confirmed, sidegradient well adjacent to Hwy AB
			M302BR	12/10/2020	141		PAL	N	New exceedance, not yet confirmed
			WT113A	6/19/2018	699		ES	Y	East of landfill, not downgradient
				12/12/2018	278		ES		
				6/15/2019	177		PAL		
				12/9/2019	199		PAL		
				6/3/2020	242		PAL		
				12/9/2020	201		PAL		
			WT201AR	12/13/2018	126		PAL	Y	Exemption granted in 2/4/2014 Feasibility Determination
					129		PAL		
				12/9/2019	135		PAL		
				6/4/2020	135		PAL		
				12/9/2020	180		PAL		
			WT202AR	6/14/2019	173		PAL	N	Replacement well, exemption granted for WT202A in 2/4/2014 Feasibility Determination, PAL also exceeded 6/8/2016
					178		PAL		

Table 7-1. Monitoring Well NR 140 Standard Exceedances, Public Health and Welfare Parameters, 2018-2020
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

NR 140 Category	Type	Parameter	Point Name	Sample Date	Result	Flag	Exceedance	Exemption Requested?	Exemption Comments
Public Welfare	Inorganic	Chloride, dissolved (mg/l as Cl)	WT207AR	6/19/2018	253		ES	Y	Exemption granted in 2/4/2014 Feasibility Determination
				12/12/2018	245		PAL		
				6/15/2019	229		PAL		
				12/9/2019	260		ES		
				6/3/2020	249		PAL		
				12/9/2020	277		ES		
		Manganese, dissolved (ug/l as Mn)	M017BR	12/10/2020	57		ES	N	New well, PAL exceedance not yet confirmed

Note: Includes results exceeding public health and public welfare groundwater standards established under Ch. NR 140, Wis. Admin. Code.

J - Estimated concentration below the laboratory's Limit of Quantitation
PAL - Preventive Action Limit
ES - Enforcement Standard
mg/l - milligrams per liter
ug/l - micrograms per liter

Prepared by: SCC, 3/7/2021

I:\25220091.00\Deliverables\FR\Tables\[1-1 7-1 7-2 Groundwater Quality.xlsx]7-1 PH and W PAL

Table 7-2. Monitoring Well NR 140 Standard Exceedances, Indicator Parameters, 2018-2020
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

Point Name	Sample Date	Duplicate?	Alkalinity, Total Filtered (mg/l as $CaCO_3$)		Hardness, Total Filtered (mg/l as $CaCO_3$)		Specific Conductance, Field (umhos/cm @ 25 degrees C)	
			PAL	Result	PAL	Result	PAL	Result
M017A **ABAND**	6/20/2018		390	391				
	12/13/2018		390	399				
	6/18/2019		390	429	350	392	950	1008
	12/10/2019		390	395	350	399		
M023	12/12/2018						760	816
	6/15/2019				420	423		
	6/3/2020		390	396			760	855
	12/9/2020		390	413	420	564	760	1322
M025BR	12/13/2018		460	520	550	589		
M026A	6/20/2018		460	506				
	12/13/2018		460	537				
	6/14/2019		460	536	610	676	1100	1205
	12/10/2019		460	478				
	6/4/2020		460	584	610	682	1100	1159
	12/10/2020		460	534	610	648		
M026B	6/20/2018		430	432				
	12/10/2020				510	510		
M029	6/21/2018		390	402				
	12/13/2018		390	402				
	6/18/2019		390	396	440	445	750	818
		Dup	390	396			750	825
	12/10/2019		390	427	440	444	750	818
		Dup	390	429	440	457	750	818
	6/4/2020		390	404	440	475	750	873
	12/10/2020				440	518	750	901
		Dup			440	507	750	901
P103B	12/12/2018				560	598	1000	1026
	6/14/2019				560	630	1000	1078
	12/9/2019				560	580	1000	1067
	6/4/2020				560	599	1000	1053
	12/9/2020				560	589	1000	1090

Table 7-2. Monitoring Well NR 140 Standard Exceedances, Indicator Parameters, 2018-2020
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

Point Name	Sample Date	Duplicate?	Alkalinity, Total Filtered (mg/l as $CaCO_3$)		Hardness, Total Filtered (mg/l as $CaCO_3$)		Specific Conductance, Field (umhos/cm @ 25 degrees C)	
			PAL	Result	PAL	Result	PAL	Result
P108B	6/19/2018						840	1134
	12/12/2018						840	1150
	6/14/2019						840	1171
	12/9/2019						840	1057
	6/3/2020		430	474			840	1102
	12/9/2020		430	517			840	1205
P119B	6/19/2018		430	452				
	12/12/2018		430	448	470	490	860	862
	6/13/2019						860	887
	6/15/2019		430	441	470	506		
	12/9/2019		430	454	470	498	860	872
		Dup	430	449	470	493	860	872
	6/3/2020		430	454	470	489	860	861
	12/9/2020		430	456	470	533		
WT103A	6/20/2018		580	602				
	12/12/2018		580	581				
WT108A	6/19/2018				480	491	820	1021
	12/12/2018		470	547	480	610	820	1279
	6/14/2019		470	490	480	584	820	1145
	12/9/2019		470	487	480	531	820	1126
	6/3/2020						820	933
	12/9/2020						820	920
WT202AR	6/14/2019						1300	1444
		Dup					1300	1444
WT203A	12/12/2018		490	496			920	927
WT204A	6/19/2018		440	492	630	827	830	1291
	12/12/2018		440	483	630	656	830	1132
	6/13/2019						830	1482
	6/15/2019				630	759		
	12/9/2019		440	526			830	1264
	6/3/2020						830	907
	12/9/2020		440	618	630	889	830	1837

Table 7-2. Monitoring Well NR 140 Standard Exceedances, Indicator Parameters, 2018-2020
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

Point Name	Sample Date	Duplicate?	Alkalinity, Total Filtered (mg/l as $CaCO_3$)		Hardness, Total Filtered (mg/l as $CaCO_3$)		Specific Conductance, Field (umhos/cm @ 25 degrees C)	
			PAL	Result	PAL	Result	PAL	Result
WT205A	12/12/2018		440	444	440	510	780	1010
	6/13/2019						780	1004
	6/15/2019				440	505		
	12/9/2019		440	461	440	525	780	1046
	6/3/2020		440	453	440	506	780	990
	12/9/2020		440	480	440	573	780	994

mg/l - milligrams per liter
ug/l - micrograms per liter
umhos/cm - micromhos per centimeter

Prepared by: SCC, 3/7/2021

I:\25220091.00\Deliverables\FR\Tables\[1-1 7-1 7-2 Groundwater Quality.xlsx]7-2 Ind PAL

Table 14-1. Service Area Overlap Determination
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

County	2020 Population	Facility				
		Dane County Landfill Site No. 2	Waste Management Deer Track Park Landfill	GFL Glacier Ridge Landfill	GFL Mallard Ridge Landfill	Janesville City Landfill
Columbia	57,134		X	X		
Crawford	16,679		X			
Dane	543,408	X	X	X	X	X
Dodge	90,005		X	X		
Fond du Lac	104,370			X		
Grant	52,572		X			
Green	36,967		X			X
Green Lake	19,178			X		
Iowa	23,915		X			
Jefferson	84,692		X	X	X	X
Kenosha	170,514					
Lafayette	17,007		X			
Manitowoc	81,349					
Milwaukee (5%)	47,205			X		
Outagamie	187,661					
Ozaukee	90,630			X		
Racine	195,766					
Richland	18,034		X			
Rock	160,120		X		X	X
Sauk	63,343		X			
Sheboygan	116,924					
Vernon	30,496		X			
Walworth	104,086		X		X	X
Washington	138,268			X		
Waukesha	406,785		X	X		
Waupaca	52,155					
Winnebago	169,861			X		
Population of Counties Shared in Dane County Landfill Site No. 2 Service Area		543,408	543,408	543,408	543,408	543,408
Total Population of All Counties Served		543,408	1,705,243	1,751,536	892,306	929,273
Population Weighted Overlap (%)		100%	31.9%	31.0%	60.9%	58.5%

Notes:
1. Wisconsin county populations based January 1, 2020, Final Population of Wisconsin Counties, Demographic Services Center, Wisconsin Department of Administration website.
2. Service areas based on information from site personnel and feasibility reports.

By: KRG 2/17/21, 5/5/21
Checked: LEC, 2/26/2021, BLP 5/11/21

I:\25220091.00\Deliverables\FR\Tables\Needs Analysis\[Table 14-1 through 14-8_210427.xlsx]Table 14-1

Table 14-2. Solid Waste Data for Service Area
Feasibility Report
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

SITE NAME	WASTE RECEIVED 2019 (in-place cy/yr) [7]	TOTAL WASTE RECEIVED 2019 (ton/yr) [1]	JANUARY 2020 SITE CAPACITY (in-place cy) [1]	JANUARY 2022 ESTIMATED SITE CAPACITY (in-place cy) [2][6]	PERCENT WASTE FROM SERVICE AREA [3]	2019 ESTIMATED WASTE FROM SERVICE AREA (ton/yr) [4]	2022 AVAILABLE CAPACITY FOR SERVICE AREA (cy) [5][6]
Dane County Landfill Site No. 2	319,081	239,311	2,457,921	2,810,058	100.0%	319,081	2,810,058
WMWI Deer Track Park RDF	329,379	247,034	3,540,483	2,881,726	31.9%	104,963	918,316
GFL Glacier Ridge Landfill	887,836	665,877	4,388,437	2,612,765	31.0%	275,448	810,601
GFL Mallard Ridge RDF	350,760	263,070	1,659,734	958,214	60.9%	213,610	583,546
Janesville City Landfill	281,968	211,476	5,195,237	4,631,301	58.5%	164,886	2,708,231
Total	2,169,024	1,626,768	17,241,812	13,894,064		1,077,988	7,830,753

Notes:
1) Waste data obtained from the "Wisconsin Solid Waste Tonnage/Capacity Report," WDNR, dated December 7, 2020.
2) January 2022 Site Capacity was estimated for each site using 2019 waste acceptance rates for volume of waste received in 2020 and 2021.
3) Percent waste from service area estimate is based on county population data for each landfill's estimated service area per method obtained from WDNR "Landfill Needs and Site Life: A Guide for Applicants, DNR Staff and the Public," dated October 2004.
4) Estimated Waste From Service Area disposed at each landfill is based on (waste received ton/yr) x (% waste from service area).
5) 2022 Available Capacity for Service Area is based on (January 2022 estimated capacity in-place cy) x (% waste from service area).
6) Expansion volume of 990,300 cubic yards for the proposed Eastern Vertical Expansion is included in the estimated capacity for the Dane County Landfill Site No. 2.
7) Waste Received in 2019 estimated based on a waste density of 1,500 lbs/cy.

Updated by: LEC, 1/28/21; KRG 5/5/21
Checked/Revised by: KRG, 2/25/21, BLP 5/11/21

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Table 14-3. Solid Waste Disposal Rates for Service Area
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

COUNTY	DANE COUNTY PROJECTED 2022 POPULATION [1]	SOLID WASTE DISPOSAL RATE [2] (lbs/capita/day)	PROJECTED 2022 WASTE DISPOSED [3] (ton/yr)	PROJECTED 2022 WASTE VOLUME [4] (In-place cy/yr)	PROJECTED 2022 WASTE/DAILY COVER VOLUME [5] (In-place cy/yr)
Dane	555,209	7.26	735,482	980,643	1,103,223

Notes:
1) Projected 2022 population data were based on information obtained from the Wisconsin Department of Administration, Demographic Services Center.
2) MSW and industrial waste disposal rate per capita at MSW Landfills, refer to Table 14-4 for data in Wisconsin.
3) Projected 2022 Waste Disposed = Solid Waste Disposal Rate x Projected 2022 Population.
4) Waste Volume is estimated utilizing an average waste density of 1,500 lb/cy for the landfills in the service area.
5) Landfill capacity consumed accounting for intermediate and daily cover (ratio of 1 part daily cover to 7 parts waste).

Updated by: LEC, 1/28/21
Checked/Revised by: KRG 2/10/21, BLP 3/2/2021

I:\25220091.00\Deliverables\FR\Tables\Needs Analysis\[Table 14-1 through 14-8_210302.xlsx]Table 14-3

Table 14-4. Solid Waste Disposal Rates at Wisconsin MSW Landfills
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

YEAR	MUNICIPAL SOLID WASTE[1][3] (ton)	INDUSTRIAL / COMMERCIAL WASTE[1][4][5] (ton)	WISCONSIN POPULATION [2]	DISPOSAL RATE MSW[3] (lb/cap/day)	DISPOSAL RATE INDUSTRIAL/ COMMERCIAL[4] (lb/cap/day)	TOTAL DISPOSAL RATE[5] (lb/cap/day)	% MSW	% INDUSTRIAL/ COMMERCIAL
2017	4,222,091	3,332,117	5,783,278	4.00	3.16	7.16	55.9	44.1
2018	4,286,143	3,494,461	5,816,231	4.04	3.29	7.33	55.1	44.9
2019	4,421,479	3,351,050	5,843,443	4.15	3.14	7.29	56.9	43.1
			AVERAGE	4.06	3.20	7.26	56.0	44.0

Notes:
1) Waste tonnages obtained from the Wisconsin Tonnage/Capacity Reports for 2017, 2018, and 2019.
2) Population data are based on information from the Wisconsin Department of Administration, Demographic Services Center.
3) Only Category 1 wastes from the WDNR Tonnage/Capacity Reports are included in this column.
4) Wastes from Categories 2-6 and 19-31 for the MSW landfills in the WDNR Tonnage/Capacity Reports are included in this column.
5) Total disposal rate is for municipal solid waste landfills only and does not include industrial waste landfills or recyclables.

Updated by: LEC, 2/4/21
Checked/Revised by: KRG 2/10/21

I:\25220091.00\Deliverables\FR\Tables\Needs Analysis\[Table 14-1 through 14-8_210302.xlsx]Table 14-4

Table 14-5. Estimated Service Area Disposal Rate and Remaining Capacity
WITHOUT the Expansion
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

YEAR	AVAILABLE WASTE DISPOSAL CAPACITY AT BEGINNING OF YEAR (cy)[1]	ESTIMATED WASTE DISPOSAL RATE FROM SERVICE AREA (cy/yr)[2]	REMAINING YEARS OF DISPOSAL CAPACITY
2022	6,840,453	1,103,223	6
2023	5,737,230	1,115,137	5
2024	4,622,092	1,127,181	4
2025	3,494,912	1,139,354	3
2026	2,355,558	1,151,659	2
2027	1,203,899	1,164,096	1
2028	39,803	1,176,668	0
2029	---	1,189,376	0
2030	---	1,202,221	0
2031	---	1,215,205	0
2032	---	1,228,328	0
2033	---	1,241,594	0
2034	---	1,255,003	0
2035	---	1,268,557	0
2036	---	1,282,257	0

Notes:
1) Based on projected available capacity in the year 2022 from Table 14-2, without the proposed Dane County Landfill Site No. 2 Eastern Vertical Expansion volume.
2) Waste disposal volume of the service area (the waste disposed of at the landfill facilities within the service area, see Table 14-2) annually increased by population projections (1.08%).

Updated by: KRG 2/10/21, KRG 5/5/21
Checked/Revised by: LEC, 2/15/21, BLP 5/11/21

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Table 14-6. Estimated Service Area Disposal Rate and Remaining Capacity
WITH the Expansion
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

YEAR	AVAILABLE WASTE DISPOSAL CAPACITY (cy)[1]	ESTIMATED WASTE DISPOSAL RATE FROM SERVICE AREA (cy/yr)[2]	REMAINING YEARS OF DISPOSAL CAPACITY
2022	7,830,753	1,103,223	7
2023	6,727,530	1,115,137	6
2024	5,612,392	1,127,181	5
2025	4,485,212	1,139,354	4
2026	3,345,858	1,151,659	3
2027	2,194,199	1,164,096	2
2028	1,030,103	1,176,668	1
2029	---	1,189,376	0
2030	---	1,202,221	0
2031	---	1,215,205	0
2032	---	1,228,328	0
2033	---	1,241,594	0
2034	---	1,255,003	0
2035	---	1,268,557	0
2036	---	1,282,257	0

Notes:
1) Based on the projected available capacity in the year 2022 from Table 14-2 including the 990,300 cubic yards for the proposed Eastern Vertical Expansion volume.
2) Waste disposal volume of the service area (the waste disposed of at the landfill facilities within the service area) increased annually based on population projections (1.08%).

Updated by: KRG 2/10/21, KRG 5/5/21
Checked/Revised by: LEC, 2/15/21, BLP 5/11/21

I:\25220091.00\Deliverables\FR\Tables\Needs Analysis\[Table 14-1 through 14-8_210427.xlsx]Table 14-6

Table 14-7. Waste Characterization for Dane County Landfill Site No. 2 by WDNR Waste Category
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

YEAR	CATEGORY 1	CATEGORY 6	CATEGORY 19	CATEGORY 23	CATEGORY 25	CATEGORY 28	Category 30	Category 31	CATEGORIES 2-31 (ton)	CATEORIES 1-31 (ton)
	MUNICIPAL WASTE (ton) [1]	ALL OTHER SW (non hazardous) (ton) [1]	FEE EXEMPT WASTE USED FOR DIKES, BERMS. ETC. (tons) [1]	TREATED CONTAMINATED SOIL ADC (ton)[1]	CONSTRUCTION & DEMOLITION WASTE (C&D) WASTE (ton)[1]	WASTE GENERATED BY NATURAL DISASTER[1]	MRF Residuals – 10% cap (tons)[1]	MRF Residuals – 30% cap (tons)[1]		
2017	170,141	909	32,853	0	7,595	0	5,904	17,787	65,048	235,189
2018	177,816	906	25,155	0	11,065	2,129	5,904	17,787	62,946	240,762
2019	179,688	770	27,034	348	10,143	0	6,086	15,242	59,623	239,311
								AVERAGE WASTE INTAKE:	62,539	238,421
PERCENT ANNUAL INCREASE FROM 2017 TO 2019	2.81%	--	--	--	--	--	--	--	-4.17%	0.88%

Notes:
-- = information not available or not applicable
1) Waste tonnages obtained from the Wisconsin Tonnage/Capacity Reports for 2017, 2018, and 2019.
2) Categories 2-5, 20-22, 24, 26, 27 and 28 not shown since there was no waste reported for those categories at the facility.

Updated by: LEC, 2/8/21
Checked/Revised by: KRG, 2/9/21

I:\25220091.00\Deliverables\FR\Tables\Needs Analysis\[Table 14-1 through 14-8_210302.xlsx]Table 14-7

Table 14-8. Site Life Analysis
Rodefeld Landfill Eastern Vertical Expansion / SCS Engineers Project #25220091.00

YEAR	ANNUAL ESTIMATED WASTE INTAKE (tons) [1]	ANNUAL ESTIMATED WASTE INTAKE (CY)[2]	ANNUAL ESTIMATED DAILY COVER USE (cy) [3]	ESTIMATED CAPACITY AT BEGINNING OF YEAR (cy)
2020	241,417	321,890	40,236	2,457,921
2021	243,542	324,722	40,590	2,095,795
2022	245,685	327,580	40,947	2,720,813
2023	247,847	330,462	41,308	2,352,286
2024	250,028	333,371	41,671	1,980,515
2025	252,228	336,304	42,038	1,605,473
2026	254,448	339,264	42,408	1,227,131
2027	256,687	342,249	42,781	845,460
2028	258,946	345,261	43,158	460,429
2029	261,224	348,299	43,537	72,011
2030	263,523	351,364	43,921	CLOSED
2031	265,842	354,456	44,307	---
2032	268,182	357,576	44,697	---
2033	270,542	360,722	45,090	---
2034	272,922	363,897	45,487	---

Notes:
1) Predicted annual waste intake was calculated by applying an annual increase of 0.88 percent which was the annual increase in waste intake observed at the landfill between 2017 and 2019 (refer to Table 14-7).
2) Volume of waste intake estimated utilizing an average waste density of 1,500 lb/cy.
3) Ratio of 1 part daily cover to 7 parts waste used to determine the amount of airspace consumed by daily cover soils.
4) Landfill capacity included an additional 990,300 cy from the Eastern Vertical Expansion in 2022.

Updated by: KRG, 2/9/21, rev BLP 4/27/21
Checked/Revised by: LEC, 2/15/21 KRG 4/29/21

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