LA CROSSE COUNTY
Exceptional services. Extraordinary place.

Department of Solid Waste
County of La Crosse, Wisconsin
3200 Berlin Drive
La Crosse, Wisconsin 54601
Telephone: (608) 785-9572 Fax: (608) 785-6160
www.lacrossecounty.org/solidwaste

Solid Waste Department
A Responsible Resource

March 1, 2023

Dear Wisconsin Department of Natural Resources:

Re: 2022 Annual Report
La Crosse County Landfill Complex and Disposal Facility, La Crosse, Wisconsin
WDNR License Nos. 2637, 3253, 3846, and 4317

The La Crosse County Solid Waste Department is submitting this annual report to the Wisconsin Department of Natural Resources (WDNR) for your review and approval. This report summarizes the following:

- 2022 Beneficially Reused Materials Report (Appendix A)
- 2022 Leachate Volumes, Recirculation Report and Organic Stability Plan Information (Appendix B)
- 2022 Solid Waste Tonnages Report (Appendix C)
- 2022 Reporting Requirements for Biopiles for Contaminated Soil (Appendix D)
- 2022 MSW Landfill Gas Information Report (Appendix E)
- Anticipated Construction Events for 2023 (Appendix F)
- 2022 Special Waste Report (Appendix G)
- 2022 Residential Asphalt Shingle Processing & Beneficial Use (Appendix H)

This information is being provided in general conformance with the following WDNR Plan of Operation Approval Letters for each facility and NR500 of the Wisconsin Administrative Code:

- Condition No. 11 of the February 10, 2006 Plan of Operation Approval from the WDNR;

- Condition No. 2 of the January 15, 2015 Plan Modification for Ash Disposal from the WDNR;

- The Special Waste Management Plan presented as Appendix Z of the Plan of Operation Report for the La Crosse County Landfill North Expansion, dated September 2005, and amended May 2018, and Condition No. 3 of the August 14, 1996 Waste Acceptance Plan Modification Approval from the WDNR; and

- Treatment of Contaminated Soil Approval, dated August 14, 1996.

- Condition No. 10 in the January 24, 2008 Low Hazard Exemption and Condition No. 9 in the February 4, 2008 Approval for Exemption from Solid Waste processing rules pertaining to residential asphalt shingles. Note: Both of these conditions are identical.

- Conditional Approval of the Organic Stability Plan Dated September 10, 2012.

- Conditional Approval of the Research, Development and Demonstration Plan Dated April 15, 2016 (Updated 8/8/2019).

- Conditions of approval from the January 15, 2015 Conditional Plan Modification approval to place RDF fly ash in Phases III, IV and V.

- Conditions of the WDNR's February 27, 2017 concurrence to utilize fly ash as grading overlay for areas of final or intermediate cover.

- Conditional Modification to the Exemption from Solid Waste Processing Rules for Recycling Asphalt Shingles dated January 17, 2013.

Please contact the undersigned if you have any questions regarding this report.

Sincerely,

Jadd Stilwell, Director
La Crosse County Landfill

Enclosures
cc: Lanae Nickelotti, La Crosse County
Brian Kent, SEH

2022 Annual Report
La Crosse County Landfill Complex and Disposal Facility
WDNR License Nos. 2637, 3253, 3846, and 4317

Distribution

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1	Carolyn Cooper Wisconsin Department of Natural Resources FITCHBURG SERVICE CENTER 3911 Fish Hatchery Road Fitchburg, WI 53711-5367
1	Brian Kent SEH 329 Jay Street, Suite 301 La Crosse, WI 54601
1	Lanae Nickelotti La Crosse County 212 6th Street North La Crosse, WI 54601

2022 Annual Report
La Crosse County Landfill Complex and Disposal Facility
WDNR License Nos. 2637, 3253, 3846, and 4317

Prepared by
La Crosse County Solid Waste Department
3200 Berlin Drive
La Crosse, WI 54601

March 2023

Appendices

Appendix A	2022 Beneficially Reused Materials Report
Appendix B	2022 Leachate Volumes, Recirculation Report and Organic Stability Plan Information
Appendix C	2022 Solid Waste Tonnages Report
Appendix D	2022 Reporting Requirements for Biopiles for Contaminated Soil
Appendix E	2022 MSW Landfill Gas Information Report
Appendix F	Anticipated Construction Events for 2023
Appendix G	2022 Special Waste Report
Appendix H	2022 Residential Asphalt Shingle Processing and Beneficial Use

Appendix A

2022 Beneficially Reused Materials Report

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)

Prepared by

La Crosse County Solid Waste Department

La Crosse County, Wisconsin

March 2023

Contents

Attachments

1 Purpose

This report summarizes the quantities of approved beneficially reused materials used in landfill construction and operation at the La Crosse County Municipal Solid Waste Landfill (License No. 3253) during 2022, and includes:

- The types of materials applied and the respective generators;
- The volumes and tonnages used;
- Estimated density of the daily cover materials;
- Coverage ratio;
- Alternate applications such as dikes, berms, or other structures in the landfill;
- The ratio of waste to alternative daily cover (ADC) by volume for 2022;
- Discussion of problems encountered and recommendations.

This report has been prepared to satisfy Condition No. 11 of the February 10, 2006, Plan of Operation Approval from the WDNR.

2 Quantities of Approved Beneficially Reused Materials Used in Landfill Construction and Operation

In addition to those items listed below, a minimal amount of (<100 cubic yards) course ground shingles were used in the landfill roads.

2.1 Types of Materials and Respective Generators

- Street Sweepings. See Attachment A-1.
- Foundry Sand. See Attachment A-1.
- Car Wash Grit. See Attachment A-1.
- Ash. See Attachment A-1.
- Petroleum Impacted Soil. See Attachment A-2.
- Other Approved ADC. See Attachment A-2.

2.2 Volumes and Tonnages Used

♦ Street Sweepings	3,906.82 tons	(2,891.0468 cubic yards)
♦ Foundry Sand	7,779.09 tons	(5,756.5266 cubic yards)
♦ Bottom Ash	2,740.52 tons	(2,027.9848 cubic yards)
♦ Car Wash Grit	531.51 tons	(393.3174 cubic yards)
♦ Other Approved ADC	1,032.09 tons	(763.7466 cubic yards)
♦ Coal/wood Ash	68.01 tons	(50.3274 cubic yards)
Totals:	**16,058.04 tons**	**11,882.95 (cubic yards)**

2.3 Estimated Density of the Daily Cover Materials

- 0.74 cubic yards/ton

2.4 Coverage Ratio for 2022

- Waste (MSW + C&D + Category 4, 5&6)/(Daily cover + Alternative Daily cover) = cover ratio.
- 124,998.99 cubic yards Waste / (DC* + 11,882.95 cubic yards ADC)

= 124,998.99 cubic yards/11,882.95 cubic yards

= **10.52:1 or 9.51%****

*No clean material was used for DC in 2022.
**% Does not include Petroleum Impacted Soil for Bio-pile remediation which was staged in 19A. See Appendix D.

2.5 Alternate Applications of Cover Type Soils

The alternative daily cover materials were used for daily and temporary intermediate cover internal to the landfill, construction of containment berms, dikes to confine working areas, road base for internal access roads, and sub-base for turnaround and unloading areas.

2.6 Ratio of Waste to Alternative Daily Cover by Volume for 2022

The total tonnage of waste disposed in the site in 2022 was 83,332.66 tons. Assuming a waste conversion figure of 1.5 CY/ton, the total volume of waste disposed in 2022 was approximately *124,998.99 CY. The total amount of ADC (by volume) used in 2022 was 11,882.95 CY. Therefore, the waste to ADC ratio was approximately 10.52:1 or 9.51%.

*Category 4 material uses a conversion figure of 0.74 CY/ton; however, no category 4 material was received in 2022.

2.7 Problems Encountered and Recommendations

No significant problems occurred during use of approved beneficially reused materials in landfill construction and operations at the La Crosse County Landfill during 2022.

Attachment A-1
Generators/Haulers of Beneficially Reused Material

Street Sweepings

City of La Crosse	City of Onalaska
Property Cleanings	Town of Shelby
La Crosse County Highway Department	Town of Campbell

Foundry Sand

Alliant Casting	Midwest Metal Products
NRB Metal Products	Torrance Casting Inc.
Katz Metals	

Car Wash Catch Basin Grit

A-1 Advanced Pumping	Holmen Pumping
City of La Crosse	City of Onalaska

Ash

Xcel Energy	Gundersen Health System

Attachment A-2
Contaminated Soil Used Directly as Daily Cover

Kwik Trip	Wisconsin Department of Transportation
Hart Ranch Development Company	JAG Real Estate Investments
Nelson Agri-Center	WRR Environmental Services
United States Army-Fort McCoy	

Appendix B

2022 Leachate Volumes, Recirculation Report and Organic Stability Plan Information

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)
C & D Landfill (License No. 3846), and
Ash Monofill (License No. 4317)

Prepared by
La Crosse County Solid Waste Department
La Crosse County, Wisconsin

March 2023

Contents

Attachments

Attachment B-1	2022 Leachate Totals by Station
Attachment B-2	2022 Leachate Line Jetting Reports
	2022 Leachate Televising Reports - Video File-WDNR & Onsite File Only

1 Purpose

This report summarizes the volumes of leachate removed or added for recirculation and the volumes sent to treatment by the La Crosse County Landfill during 2022. This report has been prepared to satisfy Condition No. 11 of the February 10th, 2006 Plan of Operation Approval from the WDNR which requires the following:

- Volumes of leachate removed or added for recirculation: listed by month and the liner phase where recirculation was performed
- Volumes of leachate sent to treatment (by month).

Additionally, based on a March 30th, 2009 telephone conversation between Mr. Marty Herrick previously of the WDNR and Foth, leachate jetting and televising information is included herein.

Information in Section 5 addresses approval of the organic stability plan and annual reporting requirements. The Plan start date is April 2012 and the required 5-year evaluation was performed in 2022. The next 5-year evaluation will be performed in 2027.

2 Leachate Volumes

2.1 Volumes of Leachate Removed or Added for Recirculation

The Solid Waste Department accepted approximately 148,081 gallons of leachate, provided by Vernon County, in 2022. Primary area leachate recirculation during 2022 was over Phase VII and a portion of Phase VIII.

2.2 Volumes of Leachate Sent to Treatment

The quantity of leachate produced and sent to treatment in 2022 was 8,684,371 gallons.

3 Leachate Line Jetting and Televising

Leachate lines were jetted in August of 2022 and are reported in Attachment B-2 -showing direction and distances for each access point.

Required televising of the leachate lines was last performed as indicated in the below table and in accordance with NR 506.07(5)(e), required televising of the leachate lines at 5-year intervals, the next televising event will be performed as shown.

Site	Date of Latest Televising of Lines	Due Date of Next Line Televising Event
MSW Site (License No. 3253):	2019	2024
Phase V	2020	2025
Phase VI	2022	2027
Phase VII	2022	2027
Phase VIII	2019	2023
C & D Landfill	Not Applicable	Not Applicable
Ash Monofill (License No. 4317)	2020	2025

4 Summary of Inspections, Jetting and Televising

4.1 Inspections

No new issues were identified in the 2022 manhole inspections.

4.2 Issues

Due to some historical issues with freezing, additional countermeasures were added to the C&D lift station in 2022 including new floats, level transducer and SCADA programming for better controls and monitoring.

No other issues were identified.

4.3 Jetting

In 2020, La Crosse County completed an RFP process and contracted Speedy Clean for leachate line jetting, televising and tank cleaning services until 2024. Additional jetting, maintenance and tank cleaning services were also provided by RCT Sewer & Vac, Bills Pumping and Crane Engineering.

4.4 Televising

When Televising is required, Speedy Clean works with a unit called the Jet-cam. This unit can travel up to 800' in lines as small as 2" and lines up to 12". The water jet will propel the camera down the line providing safer travel in landfill atmospheres. Flash drive of all televising will be provided to WDNR.

4.5 Next Steps for 2023

The C&D Lift Station Manhole will need recoating in the next three years.

5 Organic Stability Plan

As part of the organic stability plan, as stated in Section 2.1, La Crosse County initiated leachate recirculation in 2012. In order to improve efficiency, reduce cost and increase recirculation volumes sufficient enough to help achieve organic stability, the Solid Waste Department added leachate from Vernon County starting in 2016, with approval from the WDNR.

Attachment B-1

La Crosse County Solid Waste Department

2022 Leachate Quantities by Station

Month	Construction & Demolition (#3846 / 420)	MSW Exfiltrate (MH-7) (#3253 / 557)	MSW Phase I,II,III (#3253 / NR)	MSW Phase IV (#3253 / 456)	MSW Phase V (#3253 / 458)	MSW Phase VI (#3253 / 460)	MSW Phase VII (#3253 / 462)	Ash Monofill (#4317 / 460)	MSW Phase VIII (#3253 / 000)	Total	Re-circ
January	2,301	0	130,701	13,263	11,969	77,138	59,453	124,782	89,230	508,837	10,846
February	7,200	0	130,701	10,348	8,911	52,847	41,466	102,337	87,825	441,635	0
March	2,592	8,334	84,845	18,196	10,151	59,829	63,340	109,096	156,735	513,118	0
April	6,048	5,112	132,161	26,589	12,746	85,303	87,319	130,535	239,720	725,533	0
May	7,200	4,749	234,002	29,429	13,448	106,448	155,873	143,164	272,971	967,284	5,364
June	5,760	4,911	291,579	31,190	13,029	132,386	212,851	154,228	215,954	1,061,888	5,364
July	3,456	4,744	301,168	21,615	11,480	135,346	153,278	147,272	151,315	929,674	38,690
August	2,880	5,169	247,024	16,268	10,442	91,600	109,886	118,964	97,711	699,944	38,690
September	2,016	5,829	228,651	16,781	10,139	76,364	94,509	109,393	109,792	653,474	38,690
October	2,592	6,055	304,984	12,501	10,041	65,829	68,997	115,668	79,817	666,484	0
November	2,304	5,139	371,426	12,015	9,637	60,586	65,532	103,540	88,685	718,864	0
December	2,592	6,383	417,868	14,954	9,200	59,152	61,090	103,664	122,733	797,636	10,438
Total	**46,941**	**56,425**	**2,875,110**	**223,149**	**131,193**	**1,002,828**	**1,173,594**	**1,462,643**	**1,712,488**	**8,684,371**	**148,081**

Attachment B-2

2022 Leachate Line Jetting Reports

The below information applies to all line jetting completed in 2022.

Company: Speedy Clean

Equipment: US Jet Trailer Jet using ½" hose at 4,000 PSI at 18 GPM

Monitored by: Jackie Davis

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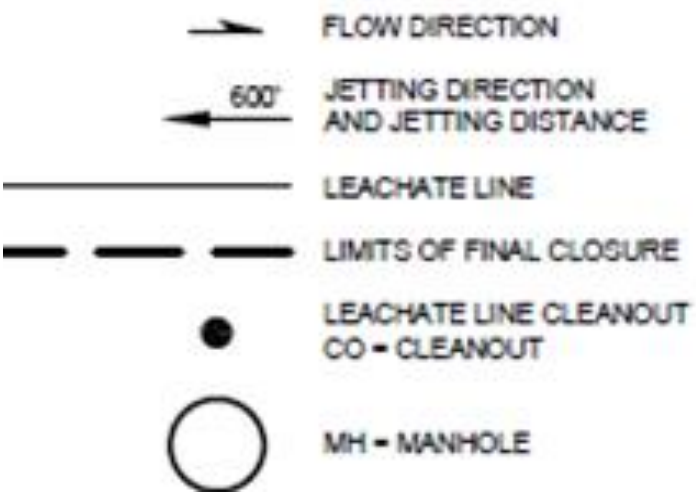
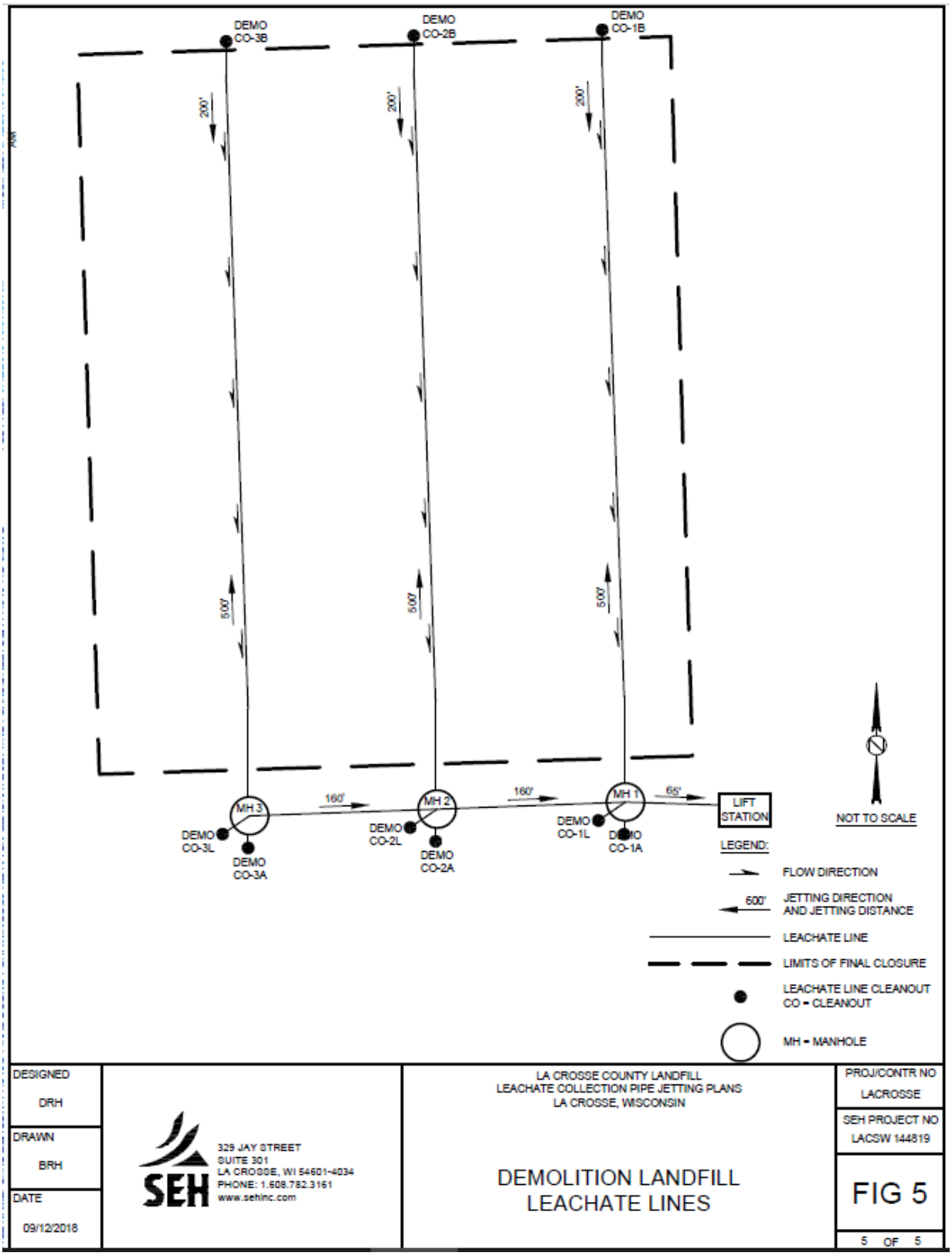


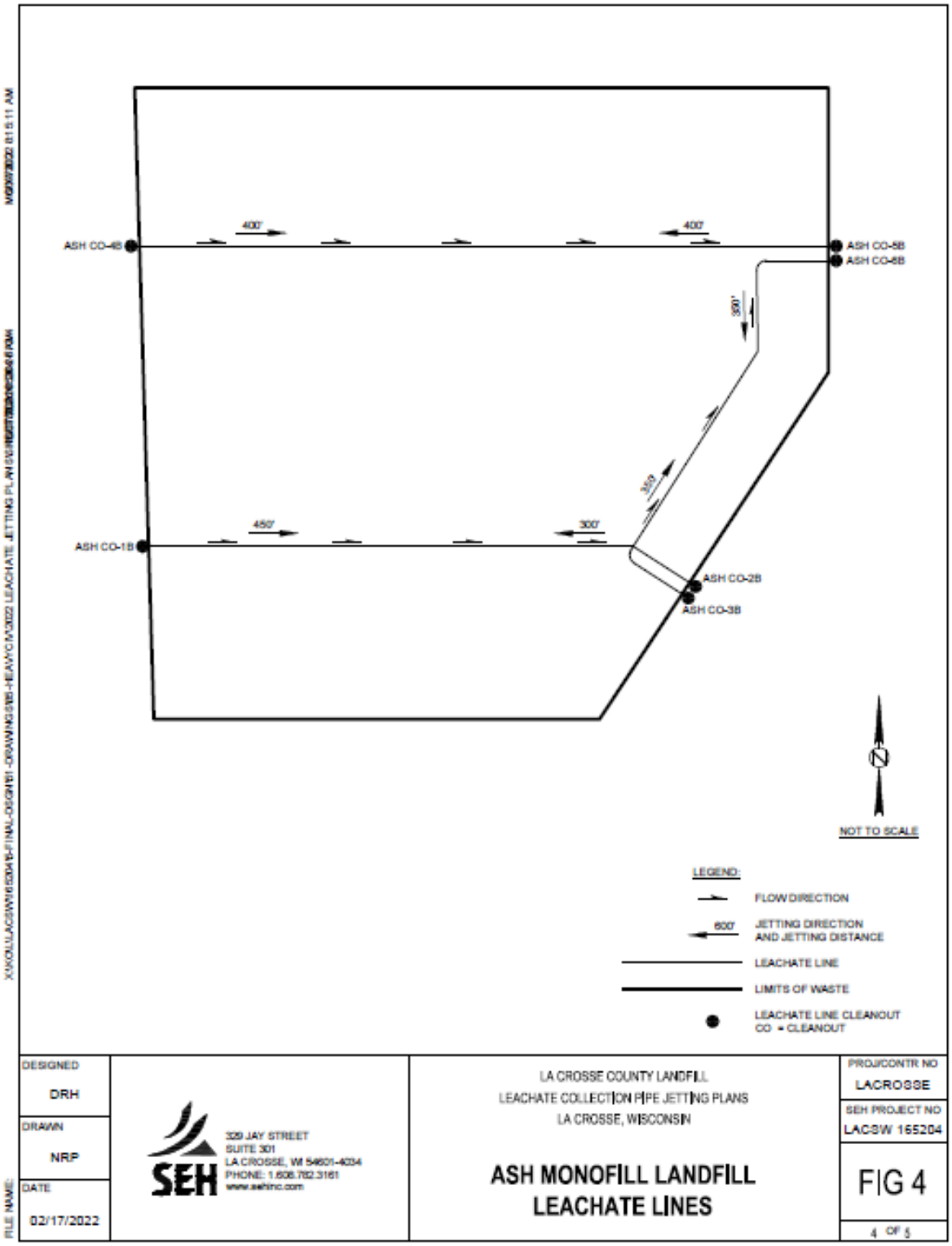
Attachment B-2

2022 Leachate Line Jetting Reports



Attachment B-2

2022 Leachate Line Jetting Reports



Attachment B-2

2022 Leachate Line Jetting Reports

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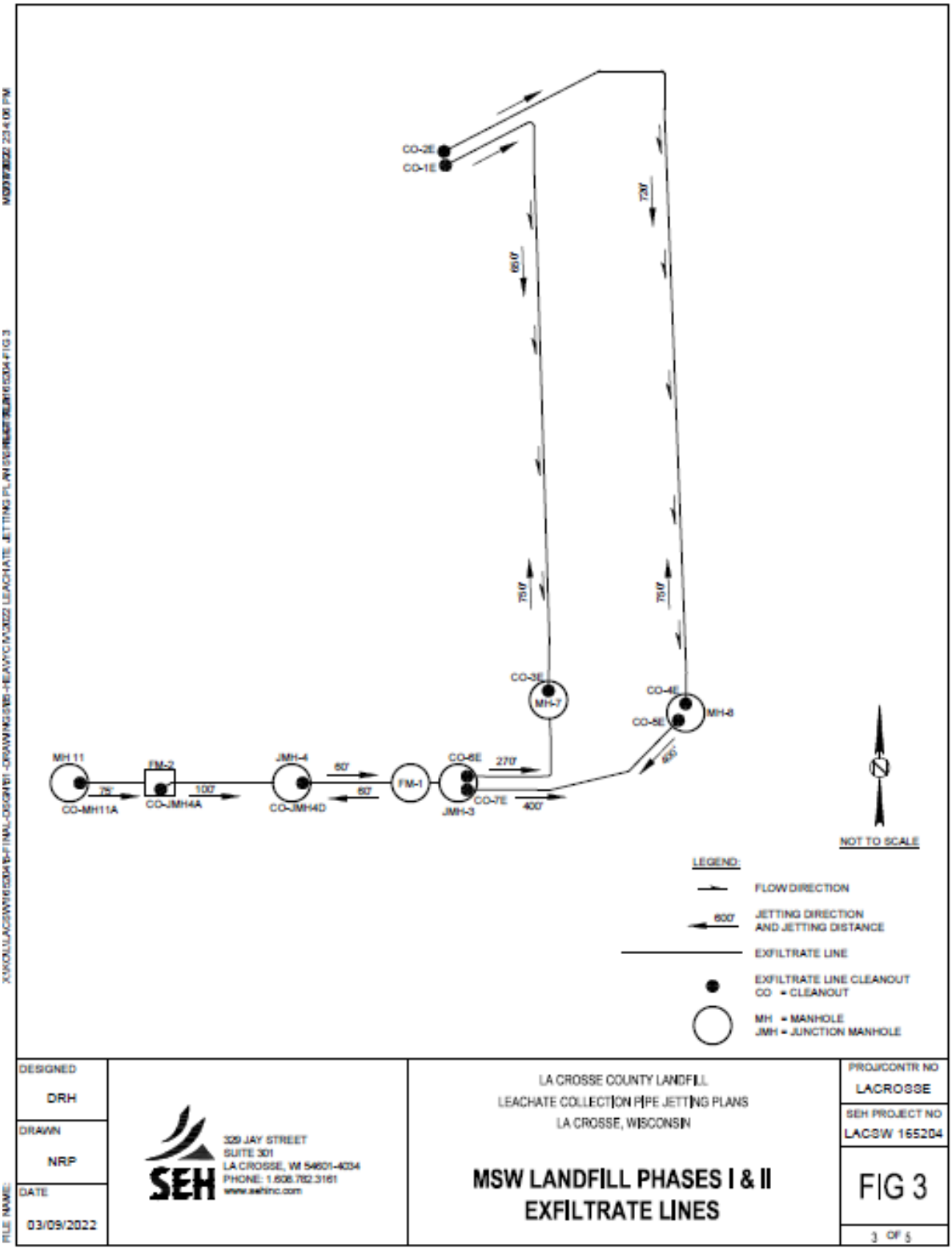
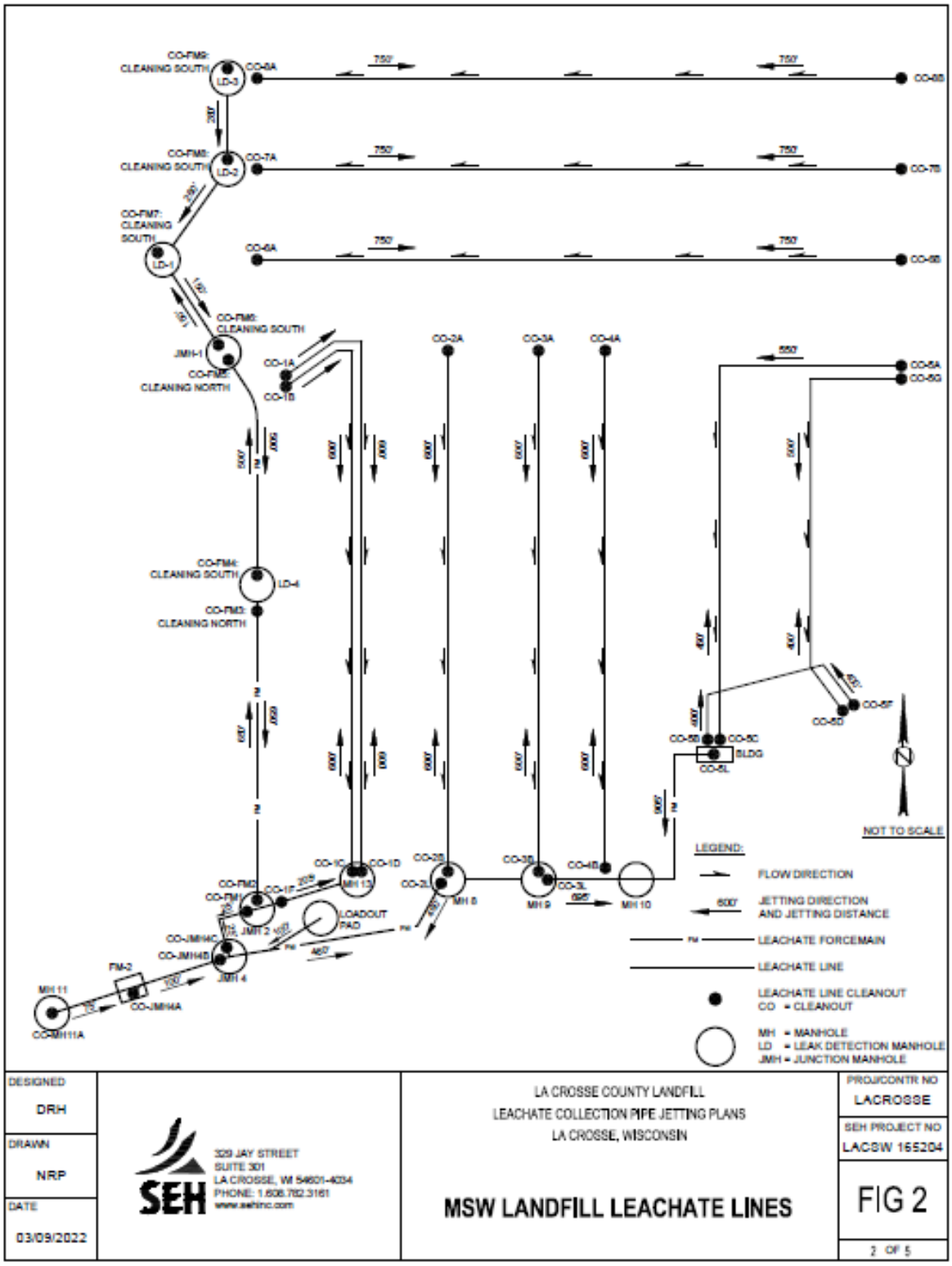


Attachment B-2

2022 Leachate Line Jetting Reports



DESIGNED: DRH DRAWN: NRP DATE: 03/09/2022	SEH 329 JAY STREET SUITE 301 LA CROSSE, WI 54601-4034 PHONE: 1.608.782.3161 www.sehinc.com	LA CROSSE COUNTY LANDFILL LEACHATE COLLECTION PIPE JETTING PLANS LA CROSSE, WISCONSIN **MSW LANDFILL LEACHATE LINES**	PROJ/CONTR NO: LACROSSE SEH PROJECT NO: LACSW 165204 FIG 2 2 OF 5

Appendix C

2022 Solid Waste Tonnages Report

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (License No. 3253)
Ash Monofill (License No. 4317)

Prepared by
La Crosse County Solid Waste Department
La Crosse County, Wisconsin

March 2023

Contents

Attachments

1 Purpose

This report summarizes the tonnages of solid waste received for disposal at the La Crosse County Landfill during 2022. This report has been prepared to satisfy Condition No. 11 of the February 10, 2006 Plan of Operation Approval from the WDNR. Also attached is Tonnage Information for 2022 (Attachment C-1).

Additionally, based off a January 15, 2015 conditional plan modification, a figure showing areas of ash placement and the quantities of ash placed shall be provided in each annual report required as Condition 11 of the 2006 Conditional Plan of Operation Approval.

Sanitary Landfill – License No. 3253

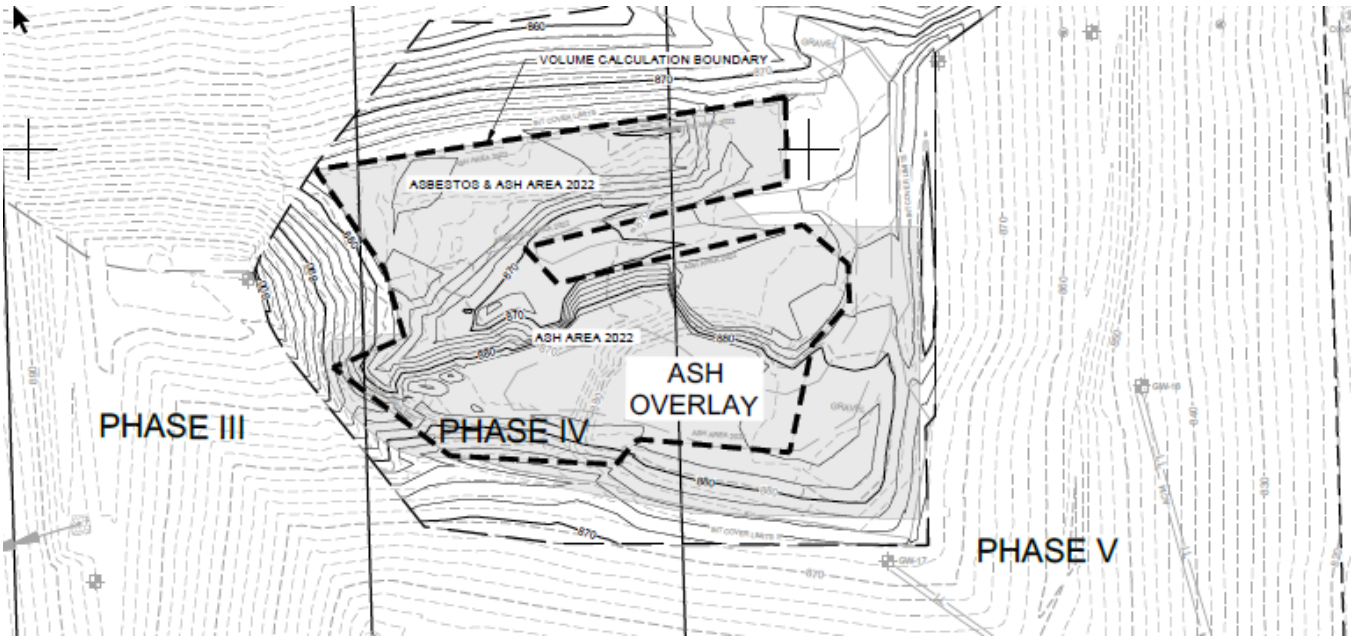
Waste Category	Type of Waste	Tons
1	Municipal Waste	38,105.72
2	Utility Ash/Sludges	68.01
3	Pulp/Papermill Mfg. Waste	0.00
4	Foundry Waste	0.00
5	POTW Sludges	0.00
6	All other SW (Not HW)	1,751.72
19	Fee Exempt waste used for dikes, berms, etc	8,210.94
20	Energy Recovery Incinerator Ash	4,001.38
21	High Volume Industrial used for daily cover, etc	7,779.09
22	Shredder Fluff used for daily cover	0.00
23	Treated Contaminated soil used for daily cover	2,941.55
24	Exempt Unusable Paper Making Materials	0.00
25	Construction & Demolition	24,061.57
28	Solid Waste /Natural Disaster	0.00
27	MSW-Non-Profit	677.43
30	MSW-MRF	15.84
31	MSW-Residue	18,720.38
	Total Waste Tons:	**106,333.63**

Ash Monofill – License No. 4317

Waste Category	Type of Waste	Tons
20	Energy Recovery Incinerator Ash	5,735.70
	Total Waste Tons:	**5,735.70**

2 Placement of Ash in MSW Landfill-License No. 3253

During 2022, 5,735.70 tons of ash was placed in the Ash Monofill. The total quantity of ash placed in the MSW Landfill, License No. 3253, during 2022 was 4001.38 tons. Ash received at the landfill was placed in in the Ash Overlay Area below.



La Crosse County Landfill
2022 Tonnages
All Sites

Attachment C-1

						OTHER WASTE		**MSW LANDFILL**	**ASH MONOFILL**	**COMBINED LANDFILLS**	**RECYCLING & OTHER**	**ALTERNATIVE DAILY COVER (ADC) RATIO**			
CATEGORY *	1	25	27	30	31	19	Varies		20		R	0.74	1.5	0.74	1.5
MONTH	DIRECT LANDFILL	CONST & DEMO	MSW-NON-PROFIT	LANDFILL-MRF	XCEL (LANDFILL)	XCEL BOTTOM ASH	SPECIAL WASTE	SUBTOTAL	XCEL WTE ASH **	TOTAL	TOTAL	TOTAL ADC IN CUBIC YARDS CATs 2,19,21-23	TOTAL ADC RATIO TO MSW	PETRO IMPACT SOIL CUBIC YDS	PETRO IMPACT SOIL DC TO MSW
JANUARY	2,235.80	1,309.83	44.39	0.00	1,199.60	178.88	768.98	5,737.48	685.27	6,422.75	147.21	567.21	7.61%	7.98	0.09%
FEBRUARY	2,419.18	1,358.90	34.06	0.00	938.15	216.49	904.56	5,871.34	815.33	6,686.67	237.86	740.94	10.14%	6.57	0.07%
MARCH	3,092.49	1,957.93	42.28	0.00	1,451.30	272.39	857.88	7,674.27	823.33	8,497.60	513.19	760.29	7.63%	3.40	0.03%
APRIL	2,854.76	1,811.89	58.17	0.00	1,078.21	204.48	3,166.79	9,174.30	807.50	9,981.80	1,148.04	2,403.18	27.03%	241.69	1.76%
MAY	4,167.34	2,834.71	85.34	6.45	1,461.44	349.82	1,175.69	10,080.79	876.49	10,957.28	2,010.09	982.09	7.49%	1.44	0.01%
JUNE	4,711.38	2,554.84	61.62	2.39	2,121.40	155.14	859.84	10,466.61	630.64	11,097.25	2,238.83	645.12	4.48%	1.07	0.01%
JULY	2,859.57	2,240.02	66.33	0.00	1,241.20	270.94	1,004.53	7,682.59	820.07	8,502.66	1,856.79	889.10	9.15%	115.11	1.00%
AUGUST	3,268.63	2,076.86	75.73	0.00	1,797.68	279.65	1,692.57	9,191.12	890.35	10,081.47	2,080.26	1,385.12	12.62%	25.50	0.18%
SEPTEMBER	3,979.49	2,475.60	58.63	7.00	2,671.70	160.98	3,366.45	12,719.85	658.41	13,378.26	1,701.44	2,529.57	18.14%	1772.00	9.29%
OCTOBER	2,958.20	2,602.65	56.59	0.00	1,456.40	228.13	1,621.74	8,923.71	883.27	9,806.98	1,665.06	1,230.07	11.29%	0.00	0.00%
NOVEMBER	2,884.32	1,655.00	52.63	0.00	1,750.70	205.66	1,586.47	8,134.78	855.65	8,990.43	656.32	1,146.83	11.61%	0.00	0.00%
DECEMBER	2,674.56	1,183.34	41.66	0.00	1,552.60	217.96	1,005.29	6,675.41	990.77	7,666.18	230.95	780.16	9.25%	1.98	0.02%
Actual YTD Tonnage	38,105.72	24,061.57	677.43	15.84	18,720.38	2,740.52	18,010.79	**102,332.25**	**9,737.08**	**112,069.33**	**14,486.04**	**14,059.70**	11.25%	**2176.75**	**1.76%**
% MSW Landfill	37.24%	23.51%	0.66%	0.16%	18.29%	2.68%	17.60%	**100%**			**2021 Carry-Over**	**37.58**	0.03%	**37.58**	**0.03%**
% Combined Landfills	34.00%	21.47%	0.60%	0.11%	16.70%	2.45%	16.07%	91.31%	8.69%	**100%**	**ADC RATIO YTD**	**14,059.70**	11.34%	**2214.33**	**1.79%**
											Carry-over Petro Impacted Soil from 2021 in tons:				**50.79**

]

La Crosse County Landfill
2022 Special Waste Tonnages

Attachment C-1

CATEGORY	2	4	5	6	6	6	6	6	19	19	19	21	23	
MONTH	COAL/ WOOD ASH	FOUNDRY WASTE	POTW SLUDGES	ASBESTOS (FRIABLE)	ASBESTOS (NON-FRIABLE)	ASBESTOS TOTAL	SLUDGE	MISC. SPECIAL WASTE	CATCH BASIN-DC	OTHER APPROVED DC	STREET SWEEPINGS-DC	HV IND WASTE-DC	PETROLEUM IMPACTED SOIL-BIO	SPECIAL WASTE TOTAL
JANUARY	6.98	0.00	0.00	61.05	13.68	74.73	57.79	48.84	25.53	0.00	0.00	544.33	10.78	768.98
FEBRUARY	7.13	0.00	0.00	0.10	3.22	3.32	61.57	54.89	38.07	7.84	0.00	722.86	8.88	904.56
MARCH	7.47	0.00	0.00	0.17	5.01	5.18	59.21	38.46	78.77	0.00	251.42	412.77	4.60	857.88
APRIL	10.18	0.00	0.00	2.17	10.64	12.81	62.66	48.26	29.45	0.00	1,972.76	704.06	326.61	3,166.79
MAY	2.72	0.00	0.00	13.45	35.11	48.56	28.05	121.75	121.86	37.71	56.60	756.49	1.95	1,175.69
JUNE	3.69	0.00	0.00	15.69	11.91	27.60	45.87	69.72	14.28	37.27	92.70	567.27	1.44	859.84
JULY	8.36	0.00	0.00	1.70	12.74	14.44	38.31	21.23	47.89	0.00	194.92	523.83	155.55	1,004.53
AUGUST	2.24	0.00	0.00	9.21	6.13	15.34	47.89	37.20	5.30	0.00	895.44	654.70	34.46	1,692.57
SEPTEMBER	4.26	0.00	0.00	1.04	2.78	3.82	58.18	47.09	15.71	0.00	95.18	747.61	2,394.60	3,366.45
OCTOBER	1.50	0.00	0.00	4.80	10.91	15.71	64.63	107.27	0.00	657.56	165.71	609.36	0.00	1,621.74
NOVEMBER	8.35	0.00	0.00	4.80	9.58	14.38	50.06	177.92	135.31	275.86	40.55	884.04	0.00	1,586.47
DECEMBER	5.13	0.00	0.00	1.13	0.88	2.01	42.87	124.10	19.34	15.85	141.54	651.77	2.68	1,005.29
Actual YTD Tonnage	68.01	0.00	0.00	115.31	122.59	237.90	617.09	896.73	531.51	1,032.09	3,906.82	7,779.09	2,941.55	**18,010.79**
% Special Waste	0.38%	0.00%	0.00%	0.64%	0.68%		3.43%	4.98%	2.95%	5.73%	21.69%	43.19%	16.33%	**100%**
			% Asbestos	48%	52%	100%								

DC=Daily Cover

Calendar Year 2022 Waste Disposal Tonnage/Capacity Certification Report
Supplemental Data Table A

Attachment C-2

Name of Landfill: La Crosse MSW/Landfill/Ash Monofill
Landfill License Number:3253
Landfill FID Number: 632063630

Est. Capacity Jan. 2022: 1,584,065.00

Category Number	Waste Type – Category Name	Total 2022 Tonnages	Conv. Factor (See Instructions for Conversion Factors)	Volume-CU Yds
1	Municipal solid waste (MSW)	38,106	1.500	57,158.58
2	Utility ash that meets the definition of high-volume industrial waste in s. 289.01(17), Wis. Stats. Refer to s. 289.645(3), Wis. Stats. for recycling fee exemption. Refer to s. 289.67(1)(cm), Wis. Stats. for environmental repair fee.	68	0.740	50.33
3	Papermill sludge/ash that meets the definition of high-volume industrial waste in s. 289.01(17), Wis. Stats. Refer to s. 289.645(3), Wis. Stats. for recycling fee exemption. Refer to s. 289.67(1)(cm), Wis. Stats. for environmental repair fee.	0		0.00
4	Foundry process waste that meets the definition of high-volume industrial waste in s. 289.01(17), Wis. Stats. Refer to s. 289.645(3), Wis. Stats. for recycling fee exemption. Refer to s. 289.67(1)(cm), Wis. Stats. for environmental repair fee.	0		0.00
5	Publicly owned treatment works (POTW) sludges	0	1.500	0.00
6	All other solid waste (non-hazardous waste) - Non MSW	1,752	1.500	2,627.58
19	Waste approved by the DNR for use as lining, daily cover, dikes, berms, or roads within the landfill. Refer to s. 289.63(6)(a), Wis. Stats. for groundwater and well comp fee exemptions, s. 289.64(4)(a) for siting board fee exemption, s. 289.645(4)(a) for recycling fee exemption, and s. 289.67(1)(f) for environmental repair fee exemption.	8,211	0.740	6,076.10
20	Energy recovery incinerator ash that meets the definition of high-volume industrial waste in s. 289.01(17), Wis. Stats. Refer to s. 289.645(3), Wis. Stats. for recycling fee exemption. Refer to s. 289.67(1)(cm), Wis. Stats. for environmental repair fee	9,737	1.215	11,830.55
21	High volume industrial waste approved by the DNR for use as lining, daily cover, dikes, berms, etc. or roads within the landfill. Refer to s. 289.63(6)(a), Wis. Stats. for groundwater and well comp fee exemptions, s. 289.64(4)(a) for siting board fee exemption, s. 289.645(4)(a) for recycling fee exemption, and s. 289.67(1)(f) for environmental repair fee exemption.	7,779	0.740	5,756.53
22	Shredder fluff approved by the DNR for use as lining, daily cover, dikes, berms, or roads within the landfill. Refer to s. 289.63(6)(a), Wis. Stats. for possible exemption from groundwater and well comp fees, S. 289.64(4), Wis. Stats. for possible exemption from siting board fee, s. 289.645(4)(a) for possible exemption from the recycling fee and 2. 289.67.(1)(f) for possible exemption from environmental repair fee.	0		0.00
23	Treated contaminated soil approved by the DNR for use as lining, daily cover, dikes, berms, or roads within the landfill. Refer to s. 289.63(6)(a), Wis. Stats. for groundwater and well comp fee exemptions, s. 289.64(4)(a) for siting board fee exemption, s. 289.645(4)(a) for recycling fee exemption, and s. 289.67(1)(f) for environmental repair fee exemption.	2,942	0.740	2,176.75
24	Unusable papermaking materials that meet the criteria in s. 289.645(4)(e), Wis. Stats	0		0.00
25	Construction & demolition (C&D) waste - subject to all the same fees as Category 1 waste	24,062	1.500	36,092.36
26	Sediments contaminated with PCBs that meet the criteria in s. 289.645(4)(d) & s. 289.67(1)(cv), Wis. Stats.	0		0.00
27	Waste generated by a nonprofit organization that meets the criteria in s. 289.645(4)(b), Wis. Stats.	677	1.500	1,016.15
28	Solid waste materials generated as a result of a natural disaster that meet the criteria in s. 289.63(6)(b), 289.64(4)(b), 289.645(4)(f) & 289.67(1)(fm), Wis. Stats. (Effective July 1, 2011)	0		0.00
29	Waste removed at the request of the DNR in order to mitigate potential environmental impacts in accordance with s. 289.675, Wis. Stats. (Effective April 25, 2014)	0		0.00
30	Solid waste materials generated by a qualified materials recovery facility (QMRF) as described in s. 289.63(6)(d)1.a, s. 289.64(4)(d)1.a, s. 289.645(4)(h)1.a. and s. 289.67(fj)1.a. in an amount equal to the weight of the residue generated by the QMRF or 10% of the total weight of material accepted by the QMRF, whichever is less. (Effective January 1, 2015)	16	1.500	23.76
31	Solid waste materials generated by a qualified materials recovery facility (QMRF) as described in s. 289.63(6)(d)1.b., s. 289.64(4)(d)1.b, s. 289.645(4)(h)1.b. and s. 289.67(fj)1.b. in an amount equal to the weight of the residue generated by the QMRF or 30% of the total weight of material accepted by the QMRF, whichever is less. (Effective January 1, 2015)	18,720		0.00
	Totals	**112,069.33**		**122,808.67**

Were topographic surveys used to calculate remaining capacity? If so, please provide the survey date.	12/28/2022	(14,462.33)
Est. Remaining Site Life in Years: 10.5	**Est. Capacity Jan. 2023:**	**1,446,794.00**

Topographic True-Up Survey* performed 12/28/22 by Paragon Associates, Inc., under supervision of Short Elliot Hendrickson, Inc. (SEH) with the above adjustment:

*SEH 2022 Landfill Capacity Calculations report dated February 9, 2023 available if necessary.

Building a Better World for All of Us®

February 9, 2023

RE: La Crosse County - Solid Waste Department
2022 Landfill Capacity Calculations
SEH No. LACSW 171063 4.00

Mr. Jadd Stilwell
Solid Waste Director
3200 Berlin Drive
La Crosse, WI 54601

Dear Mr. Stilwell:

We have completed an evaluation of the remaining air space in the Ash Monofill and Phase I through Phase VIII of the municipal solid waste (MSW) landfill as of December 31, 2022. The purpose of this letter is to present this information which will assist with solid waste management planning and reporting by the County.

Following is a summary of the calculated effective density for ash and MSW waste as measured between surveys conducted on December 28, 2021 and December 28, 2022, and the remaining permitted air space as of January 1, 2023:

Waste Type	Density[1]	Remaining Permitted Air Space and Site Life[2]
Ash Monofill	2,153 lb./CY	3,654 CY / 0.4 years ([3])
MSW Landfill	1,669 lb./CY	1,446,794 CY/ 10.5 – 11.4 years ([4])
MSW Landfill – Ash Overlay	1,773 lb./CY	56,967 CY / 5.7 – 6.1 years ([5])

Notes:

[1]= Density is separated by waste type and not collectively for the landfill.

[2]= Remaining permitted site life depends on ongoing annual waste receipt volume and density assumptions- see following for more detail.

[3]= Remaining air space in monofill as of December 31, 2022; however, ash is being placed in select area of MSW Landfill. Remaining life calculation assumes all ash volume usage of 9,993 CY in 2023 would be placed in Ash Monofill.

[4]=Remaining permitted site life depends on ongoing waste receipt and density assumptions, and status of practice of placing Ash in MSW Landfill- see following for more detail.

[5]= Remaining air space in MSW Ash Overlay as of December 31, 2022. Remaining life calculation assumes all ash volume usage of 9,993 CY in 2023 would be placed in MSW Ash Overlay.

The La Crosse County Landfill is contracted to manage ash waste from the Xcel French Island refuse derived fuel (RDF) facility through the year 2030. Due to a projected air space shortage for the Ash Monofill the County obtained approval from the Wisconsin Department of Natural Resources (WDNR) to utilize the ash for a final grading overlay in the MSW Landfill. Beginning September 1, 2015 ash disposal transitioned from the ash monofill landfill to a specific overlay area of the MSW landfill, which includes the northern portions of Phase III, Phase IV, and Phase V. However, ash was placed both in the Ash Monofill and MSW ash overlay area during 2022.

Short Elliott Hendrickson Inc., 3535 Vadnais Center Drive, St. Paul, MN 55110-5196
SEH is 100% employee-owned | **sehinc.com** | 651.490.2000 | 800.325.2055 | 888.908.8166 fax

The “2022 MSW Landfill Ash Overlay Air Space Consumption and Density” subsection below presents the volume of ash placed in the MSW Landfill during 2022 and its density. The “2022 Ash Monofill Air Space Consumption and Density” subsection below presents the volume of ash placed in the Ash Monofil during 2022. The “Ash Monofill Remaining Lifespan” subsection below provides the remaining volume of air space in the Ash Monofill. The remaining volume for ash in the MSW landfill is a function of remaining MSW air space and duration of the term of ash disposal. Based on average fill volumes and remaining life span of the Ash Monofill and MSW Ash Overlay, it is determined that the ash overlay footprint within the MSW landfill will not have sufficient airspace to continue ash placement through 2030. This information is presented in the “MSW Landfill” Section under the “MSW Landfill Ash Overlay Remaining Lifespan” subheading.

The MSW Landfill section below summarizes the volume and effective density of MSW and XCEL RDF Ash waste placed during 2022 within the MSW Landfill. This section includes the ash placed in the ash overlay area. The “Remaining Constructed and Permitted Air Space for MSW and Ash Overlay Waste” subsection summarizes the remaining permitted air space volume for life of the landfill. This calculation includes ash volumes assuming all Xcel RDF ash will continue to be placed in the MSW Landfill. As long as the ash is placed in the MSW Landfill Ash Overlay, the volume required for ash placement will need to be incorporated with the remaining volume for MSW waste. The remaining life for the MSW Landfill, assuming ash placement in the MSW Ash Overlay, is presented in this section.

ASH WASTE

2022 MSW Landfill Ash Overlay Air Space Consumption and Density

Topographic survey of the ash disposal area in the MSW landfill was completed by Paragon Associates, Inc. (Paragon) on December 28, 2022 to calculate the volume of ash placed in the MSW Landfill Ash Overlay. Topographic data obtained from the 2022 survey in the ash overlay area is provided in Figure 4. Using Civil 3D software, and subtracting intermediate cover added in 2022, the volume of ash and asbestos fill placed in the MSW Landfill between December 28, 2021 and December 27, 2022 was calculated as 4,608 CY. Volume calculations for the ash placed in the MSW Landfill during the survey period are shown on Figure 4.

To determine the amount of ash placed from January 1, 2022 through December 31, 2022, three adjustments were made:

1. According to the landfill scale records, 98 tons of ash was placed from December 28, 2021 to December 31, 2021. Using last year’s density of 2,072 lb./CY, this weight equates to 95 CY. This volume was subtracted from the volume generated by Civil 3D.
2. Landfill scale records show that 140 tons of ash and asbestos was placed from December 28, 2022 to December 31, 2022. Using a density of 1,824 lb./CY (calculated using 2022 scale records), this weight equates to 153 CY of material. This volume was added to the volume generated by Civil 3D.
3. Survey indicated that 4,608 CY of ash and asbestos was placed in the MSW Ash Overlay between December 28, 2021 and December 27, 2022. In order to derive an ash waste density for 2022, the volume from December 28-31, 2022 of 153 CY was added and the volume received during December 29-31, 2021 of 95 CY which also includes asbestos was removed. The density was calculated by dividing 4,666 CY by 4,137 tons for a density of 1,773 lb/CY.

The amount of air space consumed by ash waste in the MSW ash overlay between January 1, 2022 and December 31, 2022 was 4,666 CY. The tonnage of ash and asbestos placed between January 1, 2022 and December 31, 2022 was 4,137 tons, and ash density was calculated to be 1,773 lb/cy.

2022 Ash Monofill Air Space Consumption and Density

Topographic survey of the Ash Monofill was completed by Paragon Associates, Inc. (Paragon) on December 28, 2022 to calculate the volume of ash placed. Topographic data obtained from the 2022 survey in the Ash Monofill is provided in Figure 1. Using Civil 3D software, and adding intermediate cover removed in 2022, the volume of ash fill placed in the Ash Monofill Landfill between December 28, 2021 and December 27, 2022 was calculated as 5,327 CY. Volume calculations for the ash placed in the Ash Monofill during the survey period are shown on Figure 1.

The amount of air space consumed in the Ash Monofill between January 1, 2022 and December 31, 2022 is 5,327 CY. To determine the amount of ash placed during this time period, the following adjustments were made:

1. Landfill scale records show that no ash was placed from December 28, 2022 to December 31, 2022, so no adjustments were made.
2. Landfill scale records show that no ash was placed from December 28, 2021 to December 31, 2021, so no adjustments were needed.
3. Landfill scale records show that 5,736 tons of ash was received at the Ash Monofill between January 1, 2022 through December 27, 2022. The total tonnage placed in the Ash Monofill in 2022 was 5,736 tons. The density was calculated by dividing 5,736 tons by 5,327 CY for a density of 2,153 lb/CY.

The amount of air space consumed by ash waste in the Ash Monofill between January 1, 2022 and December 31, 2022 is 5,327 CY. The tonnage of ash placed between January 1, 2022 and December 31, 2022 is 5,736 tons, and ash density was calculated to be 2,153 lb/cy.

Ash Monofill Remaining Lifespan

The total ash filling volume between January 1, 2022 and December 31, 2022 was calculated as 9,993 CY. This volume includes both ash tonnages placed in the Ash Monofill of 5,327 CY and the MSW Ash Overlay of 4,666 CY. This cumulative ash filling rate is used to determine remaining lifespans for both the Ash Monofill and the Ash Overlay below and in following sections.

A survey of the ash monofill was completed in 2022 because ash was placed in the Ash Monofill during 2022. Figures 1 and 2 include the topography from the December 28, 2022 survey performed by Paragon which was used to calculate the amount of ash placed between December 28, 2021 and December 27, 2022 in the ash monofill. Figure 2 shows the existing grades and the approved top of waste grades based on the Plan of Operations drawings. Figure 2 also identifies the area which currently has 12 inches of intermediate cover. The remaining airspace, calculated using Civil 3D software, as of December 28, 2022 is 3,654 CY. This volume assumes that approximately 8,118 CY of intermediate cover will be removed with waste filling to create waste air space, see volume calculation on Figure 2. In order to determine the remaining life as of December 31, 2022 the intermediate cover volume was added to the net 4,464 CY of cut for a remaining fill volume of 3,654 CY.

If all ash waste were placed in the ash monofill, with the combined annual filling rate of 9,993 CY (5,237 CY from the ash monofill and 4,666 CY from the MSW ash overlay) based on the 2022 ash densities, the remaining site life is approximately 0.4 years. If the prior active five years filling rates based on historic filling rates of 9,499 CY, 6,520 CY, 7,759 CY, 11,729 CY, and 10,415 CY are averaged with this year's rate; the remaining site life remains at 0.4 years.

MSW Landfill Ash Overlay Remaining Lifespan

The current filling approach is to separate Ash and MSW disposal areas. When considering remaining life for combined waste flows of MSW and ash, it is important to consider that there is only approximately 0.4 years of life remaining in the Ash Monofill based on an average of previous years fill rates. However, in order to maintain the ash disposal location within the MSW landfill, a certain volume needs to be set aside for ash filling through 2030. If this year's ash fill volume of 9,993 CY is used, then a total of 69,951 CY of ash volume capacity is needed through 2030. If the remaining volume in the Ash Monofill of 3,654 CY is subtracted, a volume of 65,297 CY of additional air space for ash would be needed through 2030 within the MSW Landfill.

Figure 5 shows the existing grades and the proposed top of waste grades for ash fill within the designated ash overlay area within the MSW Landfill. This area has been receiving ash since September 1, 2015 and has been approved for ash fill to the proposed top of waste grades as presented on Figure 5. The remaining air space in this area, calculated using Civil 3D software, as of December 28, 2022 is 57,120 CY. In order to determine the remaining life as of December 31, 2022 the ash fill volume from December 28-31, 2022 was subtracted from 57,120 CY for a remaining fill volume of 56,967 CY. If all ash waste were placed in the proposed overlay footprint, with an annual filling rate of 9,993 CY, the remaining site life is approximately 5.7 years. If the prior active five years filling rates of 9,499 CY, 6,520, 7,759 CY, 11,729 CY, and 10,415 CY are averaged with this year's rate; approximately 6.1 years of site life remain.

If the life remaining in the Ash Monofill of 0.4 years are added to the life remaining in the MSW Ash Overlay location of 6.1 years, approximately 6.5 years of life are currently dedicated to ash disposal at the La Crosse Facility. Eight years of site life are required to fulfill the Xcel contract through 2030, meaning there is insufficient remaining ash capacity to fulfill the contract.

Ash can also be placed as a grading layer in outboard slopes throughout the facility during final closure construction, however this only provides a disposal volume of approximately 800 CY per acre of final closure. Longer term disposal options for Xcel RDF ash should be considered at this time. Longer term storage options should also consider the possibility that storage may be required past 2030. Expansion of the current ash overlay to the north or creation of a different location will need to consider the current permit stipulation not allowing placement of MSW above the ash and resulting locational constraints of ash placement on outboard slopes. A phasing plan should be prepared to maximize disposal volumes in the existing overlay and to provide ongoing ash disposal in the MSW Landfill. Figure 4 and Figure 5 presents the current maximum Ash Overlay extents.

MSW LANDFILL

2022 Air Space Consumption and Density for MSW Waste

A topographic survey of the MSW Landfill was completed by Paragon Associates, Inc. on December 28, 2022 to document the existing grades. For purposes of this letter, references to MSW include construction and demolition waste, landfilled special waste and RDF Ash (Cat. 1, 19, 25, 27, 30 and special wastes). Note this does not include asbestos tonnage, since it is placed with ash in the MSW Ash Overlay. Topographic data obtained from this survey is provided in Figures 3 through 6. Figure 3 presents filling in Phase VI through Phase VIII between the period from December 28, 2021 and December 27, 2022. After correction for 3,956 CY of new intermediate cover placed and 6,440 CY of stripped intermediate cover in Phase VI through Phase VIII Module 2 over the area shown on Figure 3 during the 2022 survey period, the amount of MSW placed in Phase VI through Phase VIII during the 2022 survey period is 122,834 CY.

The total volume placed in the MSW landfill, which does not include the Ash Overlay location, between December 28, 2021 and December 27, 2022 in Phases VI through VIII was calculated as 122,834 CY. To

determine the amount of fill placed from January 1, 2022 through December 31, 2022, three adjustments were made:

1. According to the landfill scale records, 1,000 tons of MSW was placed from December 28, 2021 to December 31, 2021. Using an average with last year's density; 1,733 lb./CY, this weight equates to 1,154 CY. This volume was subtracted from the volume generated by Civil 3D.
2. Landfill scale records show that 897 tons of MSW was placed from December 28, 2022 to December 31, 2022. Using a density of 1,664 lb./CY (calculated using 2022 scale records), after accounting for rounding differences this weight equates to 1,079 CY of material. This volume was added to the volume generated by Civil 3D.
3. Landfill scale records show that 101,198 tons was received between January 1, 2022 through December 27, 2022. In order to derive a waste density for 2022, the tonnage from December 28-31, 2022 of 897 tons is added to 101,198 tons and the tonnage from December 28-31, 2022 of 1,000 tons subtracted from 101,198 tons to get 102,095 tons divided by 122,759 CY for a density of 1,663 lb./CY.

The amount of air space consumed in the MSW landfill by MSW waste between January 1, 2022 and December 31, 2022 is 122,759 CY. Given scale records showing 102,095 tons of MSW placed from January 1, 2022 to December 31, 2022, a MSW compaction density of 1,663 lbs./CY is achieved. As this density does not include air space consumed by ash, it will not be used in remaining life and other density calculations.

Remaining Constructed and Permitted air space for MSW and Ash Overlay Waste

The amount of air space consumed in the MSW landfill by MSW and ash wastes between January 1, 2022 and December 31, 2022 is 127,425 CY (122,759 CY + 4,666 CY). Densities for previous years are presented in the table below. With scale records showing 106,334 tons of ash and MSW waste placed in 2022, the density is approximately 1,669 lb./CY.

Year	MSW Landfill Volume Used (CY)	Density (lb./CY)
2017	141,635	1,581
2018	148,819	1,429
2019	145,949	1,643
2020	140,096	1,657
2021	125,609	1,742
2022	127,425	1,669
Average	138,256	1,620

Constructed air space is that portion of the fill volume that is within the existing constructed footprint. At this time, the constructed air space is the same as that currently permitted. Figure 6 shows the existing grades and the top of waste grades based on the maximum fill grades and areas which do not have intermediate cover.

Remaining capacities within the remaining constructed air space are also presented for fill phase planning purposes. Figure 5 shows 57,120 CY of remaining air space designated for ash filling in Phases I through V, as of December 28, 2022.

The remaining MSW Landfill permitted and constructed air space, calculated using Civil 3D software, as of December 28, 2022 is 1,399,850 CY. This assumes that areas outside current waste filling locations as shown on Figure 6 have 18 inches of intermediate cover, equating to 48,176 CY which was added to the remaining volume since it will be removed prior to placing waste. After subtracting the volume of fill added between December 29, 2022 through December 31, 2022, 1,232 CY (1,079 CY MSW + 153 CY ash), the remaining constructed and permitted air space in the constructed MSW Landfill as of December 31, 2022 is 1,446,794 CY. Using the average fill volumes of the prior five years and current year; the remaining permitted site life for Phases I through VIII is 10.5 years. At this year's MSW and ash filling rate of 127,425 CY/yr. the remaining constructed air space provides approximately 11.4 years of remaining life from December 31, 2022 contingent on accessibility for waste placement.

If you have any questions about the information presented herein, please contact me at 651.490.2163 or dheaps@sehinc.com or Brian Kent at 608.498.4844 or bkent@sehinc.com.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

Darryl R. Heaps, PE, CHMM
Senior Project Manager

nrp
Attachment
c: Lanae Nickelotti, La Crosse County Finance Director
Brian Kent, SEH

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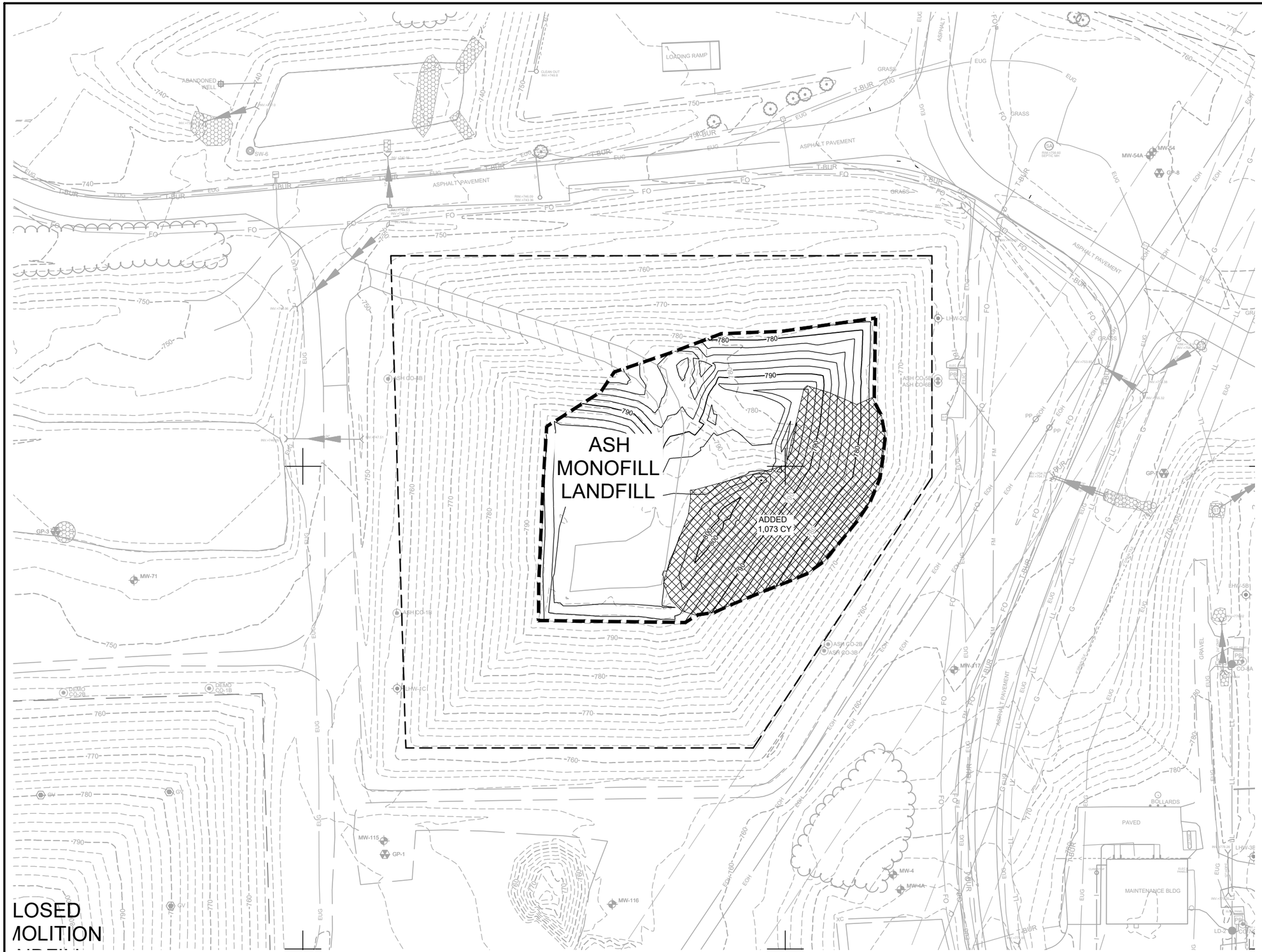

LEGEND

- 810 — DECEMBER 2021 EXISTING GRADE
- 810 — DECEMBER 2022 EXISTING GRADE
- BOUNDARY USED FOR VOLUME CALCULATION
- LANDFILL WASTE LIMITS
- APPROXIMATE AREA OF 2022 12-INCH INTERMEDIATE COVER ADDED
- APPROXIMATE AREA OF 2022 12-INCH INTERMEDIATE COVER REMOVAL

ACTIVE AREA

INTERMEDIATE COVER CALCULATION:

VOLUME ADDED = 1,073 CY
NET VOLUME = 1,073 CY (INT. COVER ADDED)

VOLUME ANALYSIS:
DESCRIPTION: 2021 - 2022 ASH MONO FILL VOLUME
BASE: EXISTING GRADE - DEC 2021
COMPARISON: EXISTING GRADE

CUT: 157 CY
FILL: 6,557 CY
NET: 6,400 CY

FILL VOLUME = 6,400 CY - 1,073 CY = **5,327 CY**

N

50 0 50 100
scale 25 feet

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SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
2	REPORTING	02/09/2023
1	ISSUED FOR REVIEW	02/06/2023

PLANS PREPARED BY:
329 JAY STREET
SUITE 301
LA CROSSE, WI 54601-4034
PHONE: 1.608.782.3161

PLANS PREPARED FOR:
LA CROSSE SOLID WASTE DEPT
3200 BERLIN DRIVE
LA CROSSE, WI 54601

LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT
DECEMBER 2021 - DECEMBER 2022 ASH MONOFILL WASTE VOLUME

FIG 1 of 6

LEGEND

- 810 — DECEMBER 2022 EXISTING GRADE
- 810 — PROPOSED TOP OF ASH WASTE
- BOUNDARY USED FOR VOLUME CALCULATION
- LANDFILL WASTE LIMITS
- APPROXIMATE AREA OF 2022 12-INCH INTERMEDIATE COVER TO BE REPLACED WITH ASH BEFORE FINAL CLOSURE

REMAINING OPERATIONAL CAPACITY:

INTERMEDIATE COVER VOLUME = 8,118 CY

VOLUME ANALYSIS:
DESCRIPTION: REMAINING ASH MONO FILL CAPACITY
BASE: EXISTING GRADE - DEC 2022
COMPARISON: PROPOSED TOP OF ASH WASTE
CUT: 11,486 CY
FILL: 7,022 CY
NET: 4,464 CY <CUT>

REMAINING OPERATIONAL CAPACITY = -4,464 CY + 8,118 CY
= **3,654 CY**

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SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
2	REPORTING	02/09/2023
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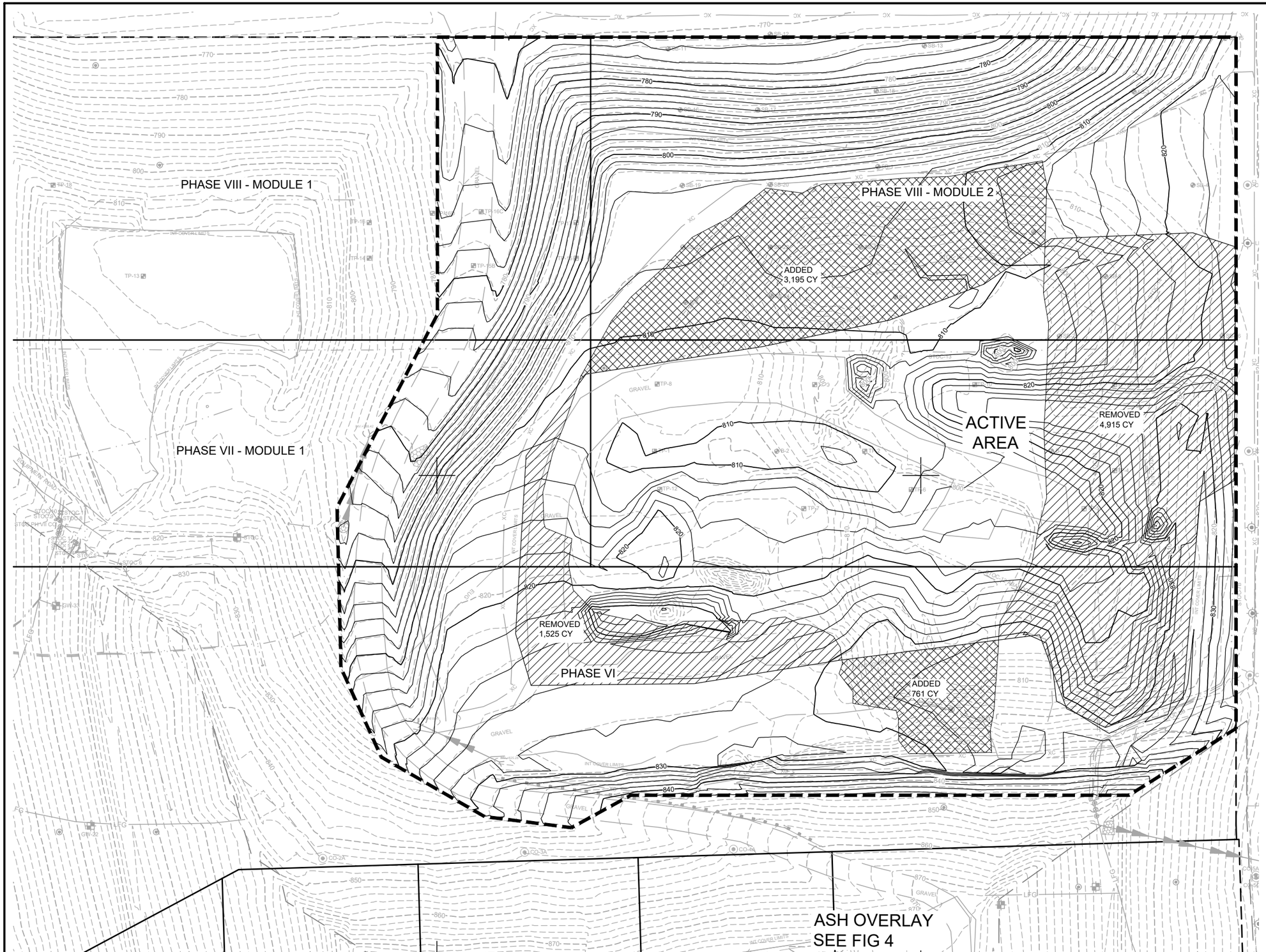
3200 BERLIN DRIVE
LA CROSSE, WI 54601

LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT

DECEMBER 2022 - TOP OF PROPOSED ASH MONOFILL WASTE



LEGEND

- 810 — DECEMBER 2021 EXISTING GRADE
- 810 — DECEMBER 2022 EXISTING GRADE
- BOUNDARY USED FOR VOLUME CALCULATION
- LANDFILL WASTE LIMITS
- APPROXIMATE AREA OF 2022 18-INCH INTERMEDIATE COVER ADDED (TO BE REMOVED FROM NET FILL VOLUME)
- APPROXIMATE AREA OF 2022 18-INCH INTERMEDIATE COVER REMOVED (TO BE ADDED TO NET FILL VOLUME)

ACTIVE AREA:

INTERMEDIATE COVER CALCULATION:

VOLUME REMOVED = 4,915 CY + 1,525 CY = 6,440 CY
VOLUME ADDED = 3,195 CY + 761 CY = 3,956 CY
NET VOLUME = 6,440 CY - 3,956 CY = 2,484 CY (REMOVED)

VOLUME ANALYSIS:
DESCRIPTION: 2021 - 2022 WASTE FILL VOLUME
BASE: EXISTING GRADE - DEC 2021
COMPARISON: EXISTING GRADE

CUT: 11,342 CY
FILL: 131,692 CY
NET: 120,350 CY

NET FILL VOLUME = 120,350 CY + 2,484 CY = **122,834 CY**

N

50 0 50 100
scale 25 feet

Save: 2/9/2023 2:43 PM rpeterson Plot: 2/9/2023 2:54 PM X:\KO\IL\LACSW\171063\5-final-dsgn\51-drawings\85-HeavyCiv\2022 ANNUAL REPORT\SHEETS\LA171063FIG3.dwg

SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
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2	REPORTING	02/09/2023
1	ISSUED FOR REVIEW	02/06/2023

Rev.#	Revision Issue Description	Date
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PLANS PREPARED BY:
329 JAY STREET
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PHONE: 1.608.782.3161

PLANS PREPARED FOR:
LA CROSSE SOLID WASTE DEPT
3200 BERLIN DRIVE
LA CROSSE, WI 54601

LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT
DECEMBER 2021 - DECEMBER 2022 WASTE FILL
MSW VOLUME - 1

ACTIVE AREA
SEE FIG 3

PHASE VI

PHASE I

PHASE II

PHASE III

PHASE IV

PHASE V

ASH OVERLAY

VOLUME CALCULATION BOUNDARY

ASBESTOS & ASH AREA 2022

ASH AREA 2022

LEGEND

- 810 — DECEMBER 2021 EXISTING GRADE
- 810 — DECEMBER 2022 EXISTING GRADE
- LANDFILL WASTE LIMITS
- ASH OVERLAY LIMITS
- BOUNDARY USED FOR VOLUME CALCULATION
- ASH WASTE LIMITS (2022)
- ASBESTOS WASTE LIMITS (2022)
- CURRENT MAX. ASH PLACEMENT EXTENT (2018-2022)
- APPROXIMATE AREA OF 2021 18-INCH INTERMEDIATE COVER PLACEMENT
- APPROXIMATE AREA OF 2021 18-INCH INTERMEDIATE COVER REMOVAL

ASH OVERLAY:

INTERMEDIATE COVER CALCULATION:

NO CHANGE IN ASH OVERLAY INTERMEDIATE COVER AREA DURING 2022.

VOLUME ANALYSIS:
DESCRIPTION: 2021 - 2022 ASH FILL VOLUME
BASE: EXISTING GRADE - DEC 2021
COMPARISON: EXISTING GRADE

CUT: 616 CY
FILL: 5,224 CY
NET: 4,608 CY

NET ASH OVERLAY FILL VOLUME = **4,608 CY**

NOTES:
1. ASH MIXED W/ ASBESTOS IN ASBESTOS AREA (2022).

N

50 0 50 100
scale 25 feet

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SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
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2	REPORTING	02/09/2023
1	ISSUED FOR REVIEW	02/06/2023

Rev.#	Revision Issue Description	Date
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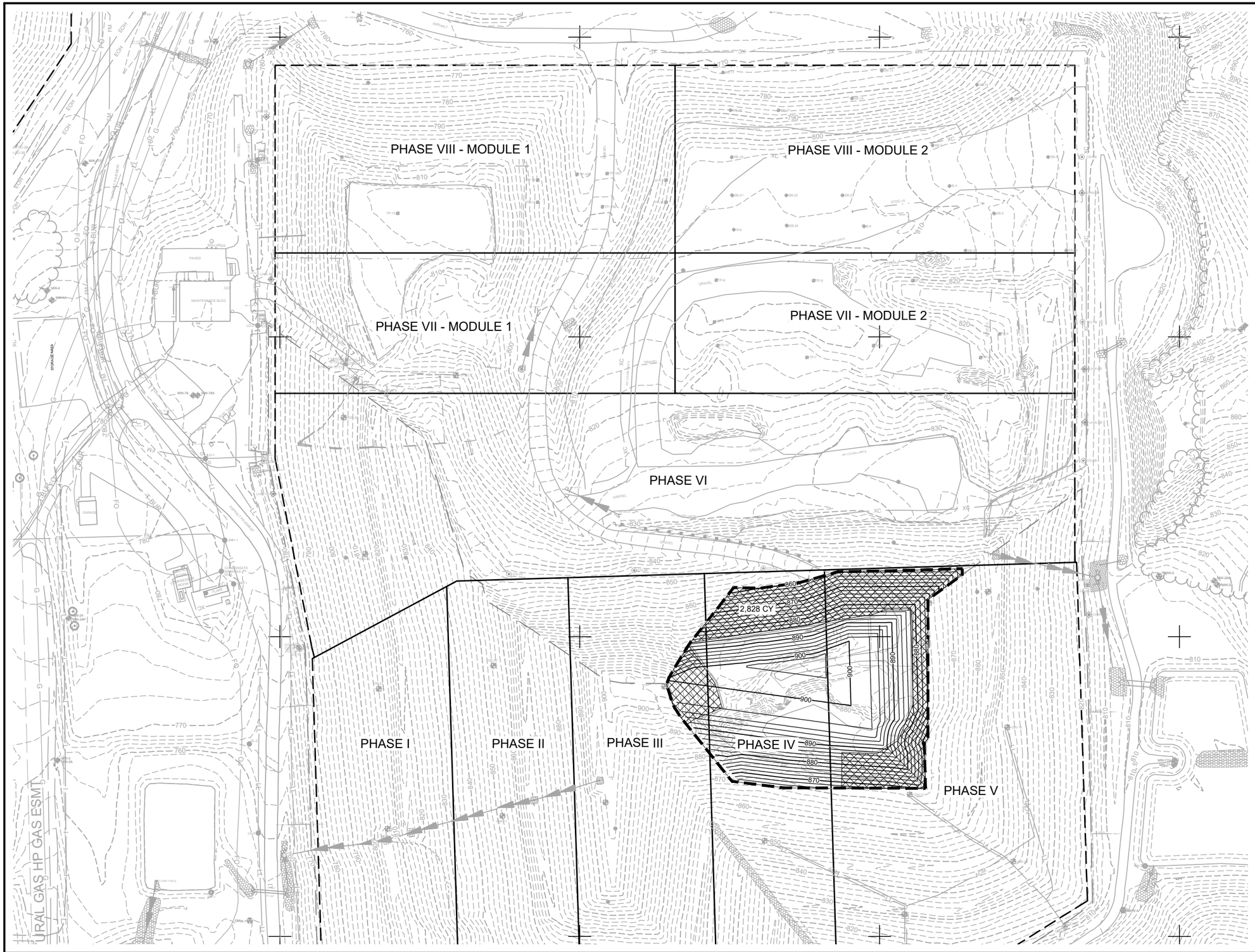
LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT
DECEMBER 2021 - DECEMBER 2022 WASTE FILL
MSW VOLUME - 2



LEGEND

- 810 — DECEMBER 2022 EXISTING GRADE
- 810 — PROPOSED TOP OF ASH WASTE
- BOUNDARY USED FOR VOLUME CALCULATION
- LANDFILL WASTE LIMITS
- APPROXIMATE AREA OF 18-INCH INTERMEDIATE COVER PLACEMENT

REMAINING OPERATIONAL CAPACITY:

INTERMEDIATE COVER:

NET VOLUME = 2,828 CY (TO ADD TO REMAINING VOLUME)

VOLUME ANALYSIS:
DESCRIPTION: ASH OVERLAY REMAINING OPERATIONAL CAPACITY
BASE: EXISTING GRADE (2022)
COMPARISON: MAX TOP OF ASH WASTE

CUT: 1,650 CY
FILL: 55,942 CY
NET: 54,292 CY

ASH OVERLAY REMAINING OPERATIONAL CAPACITY
= 54,292 CY + 2,828 CY = **57,120 CY**

N

80 0 80 160
scale 40 feet

SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
2	REPORTING	02/09/2023
1	ISSUED FOR REVIEW	02/06/2023

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3200 BERLIN DRIVE
LA CROSSE, WI 54601

LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT
DECEMBER 2022 - TOP OF PROPOSED ASH OVERLAY

FIG 5 of 6

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PHASE VIII - MODULE 1

PHASE VIII - MODULE 2

PHASE VII - MODULE 1

PHASE VII - MODULE 2

PHASE VI

PHASE I

PHASE II

PHASE III

PHASE IV

PHASE V

48,176 CY
(18-INCH INT. COVER TO REMOVE AND REPLACE WITH WASTE)

URAL GAS HP GAS ESMT

LEGEND

- DECEMBER 2022 EXISTING GRADE
- PROPOSED TOP OF WASTE
- BOUNDARY USED FOR VOLUME CALCULATION
- LANDFILL WASTE LIMITS
- APPROXIMATE AREA OF 18-INCH INTERMEDIATE COVER PLACEMENT

REMAINING OPERATIONAL CAPACITY:

INTERMEDIATE COVER:

NET VOLUME = 48,176 CY (TO ADD TO REMAINING VOLUME)

VOLUME ANALYSIS:
DESCRIPTION: MSW REMAINING OPERATIONAL CAPACITY
BASE: EXISTING GRADE (2022)
COMPARISON: FINAL WASTE GRADES
CUT: 34,883 CY
FILL: 1,434,733 CY
NET: 1,399,850 CY

MSW REMAINING OPERATIONAL CAPACITY
= 1,399,850 CY + 48,176 CY = **1,448,026 CY**

NOTES:
1. VOLUME INCLUDES ASH OVERLAY.

N

80 0 80 160
scale 40 feet

SEH Project	LACSW 171063
Drawn By	NRP
Designed By	TTR
Checked By	DRH

Rev.#	Revision Issue Description	Date
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2	REPORTING	02/09/2023
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Rev.#	Revision Issue Description	Date
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LA CROSSE COUNTY LANDFILL
2022 ANNUAL REPORT
DECEMBER 2022 - TOP OF PROPOSED WASTE

FIG 6 of 6

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Appendix D

2022 Reporting Requirements for Biopiles for Contaminated Soil

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)

Prepared by

La Crosse County Solid Waste Department

La Crosse County, Wisconsin

March 2023

Contents

Attachments

None

1 Purpose

This report summarizes the annual bioremediation activities conducted at the La Crosse County Landfill during 2022. Condition No. 10 of the August 14, 1996, Plan of Operation for the Solid Waste Processing Facility Approval, Treatment of Contaminated Soil, outlines the requirements for annual reporting of bioremediation activities that are required to be included in the annual report.

Petroleum contaminated soils that were received in 2022 were separated in an area located in the Southeastern portion of Phase VII in the MSW landfill. This area of Phase VII was designated and prepared for bioremediation in the Spring of 2022 using berms and drainage sumps to control contact water. The acceptance of those materials and their bioremediation will be contained within this report. For the remainder of the report this material will be referred to as Biopile 19A.

The sections below address the analysis of data, a record of operation, tabulation of gas concentration data, etc.

2 Report Requirements for Annual Bioremediation Activities

Condition No. 10 of the August 14, 1996, Plan of Operation for the Solid Waste Processing Facility Approval, Treatment of Contaminated Soil, requires reporting of the following information. Additionally, Condition No. 11d of the February 10, 2006, Plan of Operation Approval for the North Expansion, requires reporting requirements for biopiles; however, these requirements are redundant with the 1996 approval requirements and therefore will be fully addressed under the 1996 approval.

2.1 Analysis of Data

This sub-condition requires analyses of data from pretreatment and post-treatment samples of each soil pile, assessment of the reduction of concentration of contaminants in the soil, and length of time used in the processing of each pile.

Pretreatment information is detailed in Section 2.2.

Biopile 19A

Pretreatment	Post Treatment
GRO 0 - 4230	N/A
DRO 0-15,600 PPM	N/A

Total time in active and passive processing = 6-21 months (14-month average)

2.2 Description of Source and Tonnage of Soils

This sub-condition requires a description of the source and tonnage of soils contributed to each pile, nature of contamination and causative activity for the contamination in soil from each source, and concentrations of petroleum contaminants and contaminants other than petroleum contaminants. All soils accepted for bioremediation were the result of clean-up of contaminated soils.

Table 2.2
Contaminated Soil Inventory Biopile

Material Below is Biopile 19A

Year	Generator	Tons	DRO	GRO
2021	John Bissen	0.3	Local spill assumed >2,000	
2021	Ku-le Region Forestry, INC	0.35	Local spill assumed >2,000	
2021	Hartland Chemical and Lubricants	8.21	2190	
2021	U.S. Army Corps of Engineers	0.33	Local spill assumed >2,000	
2021	DairyLand Power Cooperative	4.89	Local spill assumed >2,000	
2021	Joe Bragger	3.16	Local spill assumed >2,000	
2021	Kwik Trip #623	0.4	Local spill assumed >2,000	
2021	J.F. Brennan Marine Company	0.73	Local spill assumed >2,000	
2021	St. Joseph Construction Company	13.08	Local spill assumed >2,000	
2021	Milestone Materials	11.66	Local spill assumed >2,000	
2021	Zellmer Excavating	7.09	Local spill assumed >2,000	
2021	Kwik Trip	0.59	Local spill assumed >2,000	
Sub-total 2021		**50.79**		
2022	Hartland Chemical and Lubricants	10.78	Local spill assumed >2,000	
2022	Kraus Oil	286.68	0	2900
2022	Kwik Trip #350	39.93	15600	344
2022	Kwik Trip #771	23.08	5180	0
2022	Fleet Transportation	2.68	3800	0
2022	City of Elroy	2394.60	0	4320
2022	Kwik Trip #775	8.88	Local spill assumed >2,000	
2022	Braun Intertec	4.60	Local spill assumed >2,000	
2022	Kwik Trip DC Center	1.95	Local spill assumed >2,000	
2022	Dairyland Power Cooperative	0.46	Local spill assumed >2,000	
2022	Kwik Trip #996	0.98	Local spill assumed >2,000	
2022	Michaels Power Inc	0.73	Local spill assumed >2,000	
2022	Rethwisch Transport	166.20	Local spill assumed >2,000	
Sub-total 2022		2941.55		
Total		**2992.34**		

2.3 Record of Operation

This sub-condition requires a record of operation of each soil pile, including total tonnage treated, total time of active operation, and any noticeable effects of temperature and seasonal conditions on the time period used for processing.

Total tons accepted and year soil was received by La Crosse County Solid Waste Department can be viewed in Section 2.2.

Biopile 19A was started in Spring 2021 and continues to accept soils.

2.4 Description of the Disposition of Soil Used in the Processing Operation

This sub-condition requires a description of the disposition of the soil used in the processing operation, whether by disposal or reuse, including any soil sent to an alternative disposal or treatment facility and disposition of any material rejected from the processing operation or subjected to additional treatment.

Accepted soil currently being processed, and initial treatment started. No materials were rejected.

2.5 Tabulation of Gas Concentration and Ambient Air Data

This sub-condition requires a tabulation of gas concentration data, tabulation of ambient air data, summary of the amount of time soil air was handled by recycle mode and by direct discharge to the atmosphere, and tabulation of any data from testing air discharged to the carbon canisters and atmosphere.

System was operated in recycle mode in 2022.

2.6 Carbon Canister Data

This sub-condition requires information on service life and disposal of spent carbon from the carbon canisters

Carbon canisters are not fully utilized.

2.7 Tabulation of Soil Pile Grids

This sub-condition requires tabulation of soil pile grids selected randomly for post treatment sampling and tabulation of post treatment soil testing data.

No soil was released for use as ADC/DC in 2022.

2.8 Summary of Problems Encountered/Deviations from the Approved Plan

This sub-condition requires a summary of any problems encountered with the soil processing equipment or operation, proposed, or implemented solutions to the problems, and any deviations from the approved plan.

No problems were encountered or were any deviations from the plan required.

2.9 Source and Tonnage of Oil Dry Materials

This sub-condition requires a description of the source and tonnage of oil dry materials accepted for treatment and a description of the petroleum products which the oil dry materials were applied to.

A small amount of oil dry material was accepted into Biopile 19A; less than 1 ton.

2.10 Summary of Operational Changes

This sub-condition requires a summary of any changes to the mechanical equipment, operating controls, or methods of operation due to operator experience and technical advance and any plan modifications necessary to incorporate long-term or permanent changes to the plan of operation or approval conditions.

None required in 2022.

3 5-Year Reporting Requirements

Condition No. 11 of the aforementioned 1996 approval requires that every fifth annual report shall assess the bioremediation process in comparison to recent technical literature regarding aerobic degradation of petroleum hydrocarbons, list the relevant technical references, summarize experience and data from operation of this facility, and propose any changes necessary to incorporate changes into the plan of operation. This information will be presented in the next 5-year reporting period, which is 2022 and information is provided below.

Bioremediation continues to be recognized as a viable means to decontaminate soils contaminated with petroleum hydrocarbons in order to reuse those soils (ex. as cover for refuse). This achieves two valuable goals: removing a harmful environmental contaminant away from water supplies and possible human contact, and providing financially appealing alternatives to other cover materials. The volume of soils has decreased over the years as major cleanups have been performed. However, scientific studies regarding bioremediation continue to expand on established techniques leading to continually more effect treatment processes.

Studies show that a pH of 8 provides the best environment for bacteria to consume hydrocarbons. Additionally, for bacterial growth and biodegradation, the nitrogen supply $NaNO_3$, the phosphate sources K_2HPO_4 and KH_2PO_4, with an incubation temperature of 35°C produce the best results. Nutrients provide a critical factor is the degradation of contamination so often these are added to complement the amount of nutrients and organic matter already available in the soil. Stimulating bacterial growth results in efficient biodegradation within a relatively brief timeframe. Indicating that environmental conditions and factors are among the most important influences on the effectiveness of the biodegradation process and the removal of pollutants from soil contamination.

References

1. Maher, A. Jaber, Adnan, B. Al-Hawash. FACTORS AFFECTING BIOREMEDIATION OF PETROLEUM HYDROCARBONS BY BACTERIAL ISOLATES IN CONTAMINATED SOILS. Biology Department, Qurna College of Education, University of Basrah 2023.

2. Jeremiah A. Adedeji, Emmanuel Kweinor Tetteh, Mark Opoku Amankwa , Dennis Asante-Sackey, Samuel Ofori-Frimpong, Edward Kwaku Armah, Sudesh Rathilal, Amir H. Mohammadi and Maggie Chetty. Microbial Bioremediation and Biodegradation of Petroleum Products. Applied Sciences 2022.

Appendix E

2022 MSW Landfill Gas Information Report

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)

Prepared by

La Crosse County Solid Waste Department

La Crosse County, Wisconsin

March 2023

Contents

Attachments

1 Purpose

This report summarizes the volumes of landfill gas extracted from the MSW landfill (License No. 3253), as recorded at the blower or compressor. These volumes are converted from recorded flow rates on a monthly basis, and volumes of landfill gas beneficially used. This report has been prepared to satisfy Condition No. 11 of the February 10, 2006 Plan of Operation Approval from the WDNR.

1.1 Landfill Gas Volume

The landfill gas extraction systems extracted gas volumes for 2022 averaged 9,134,597 cf/month, and a total annual landfill gas volume of 109,231,044 cf (See Attachment E-1). Of this volume 2,210,665 cf was sent to the flare and 107,020,379 cf was used to power the gas-to-energy (G2E) and thermal recovery project with Gundersen Health System.

1.2 Landfill Gas Re-use

La Crosse County Solid Waste, in partnership with Gundersen Health System, continues operation of the joint G2E and thermal recovery project which began in January of 2012. Attachment E-1 shows total landfill gas used per month and the G2E system percent runtime.

1.3 Monitoring of Additional Gas Wells

La Crosse County Solid Waste continues to monitor and control the landfill gas field to maximize gas collection while maintaining environmental requirements. The gas field consists of 24 vertical wells, 4 connections to the leachate clean out system, 17 temporary horizontal gas collection systems and 1 temporary vertical well as identified in attachments E-2 and E-3.

Attachment E-1

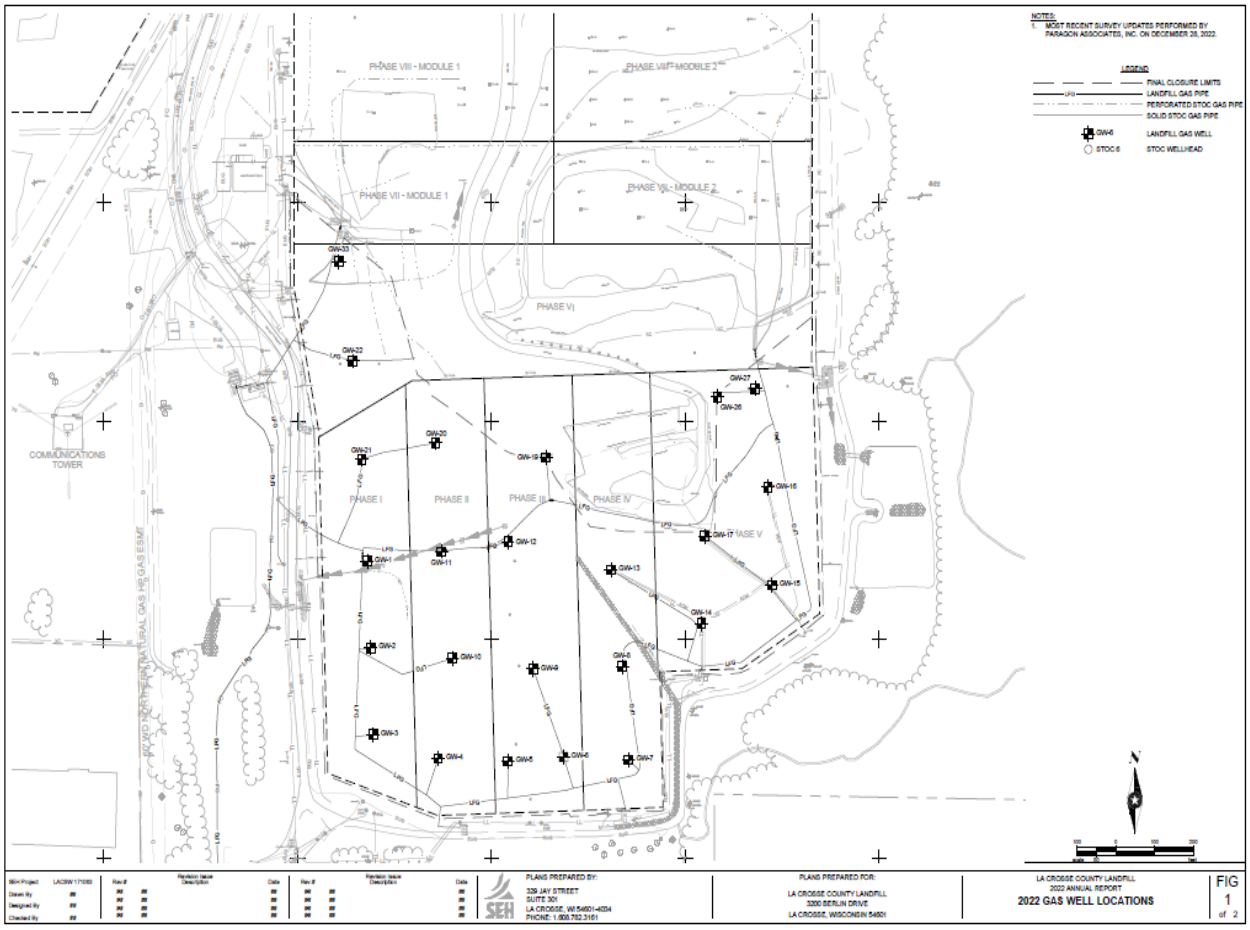
2022 Monthly Landfill Gas Flow Summary

Date	LFG Collected	SCF to Flare	SCF to Pipeline	*G2e System % Run Time
January Total	10,175,158	1,100	10,174,058	99.89%
February Total	9,131,446	1,061	9,130,385	99.68%
March Total	10,280,296	34	10,280,262	99.73%
April Total	9,819,616	35,665	9,783,951	95.37%
May Total	8,819,550	283,956	8,535,594	84.38%
June Total	9,462,579	241,916	9,220,663	95.66%
July Total	8,385,763	404,074	7,981,689	77.74%
August Total	5,353,892	1,118,517	4,235,375	41.05%
September Total	8,186,390	100,412	8,085,978	79.27%
October Total	10,400,311	9,984	10,390,327	92.51%
November Total	10,465,567	1,240	10,464,327	95.71%
December Total	8,750,476	12,706	8,737,770	80.11%
2022 Totals	109,231,044	2,210,665	107,020,379	

2022 Average Gas-to-Energy Runtime **86.76**%

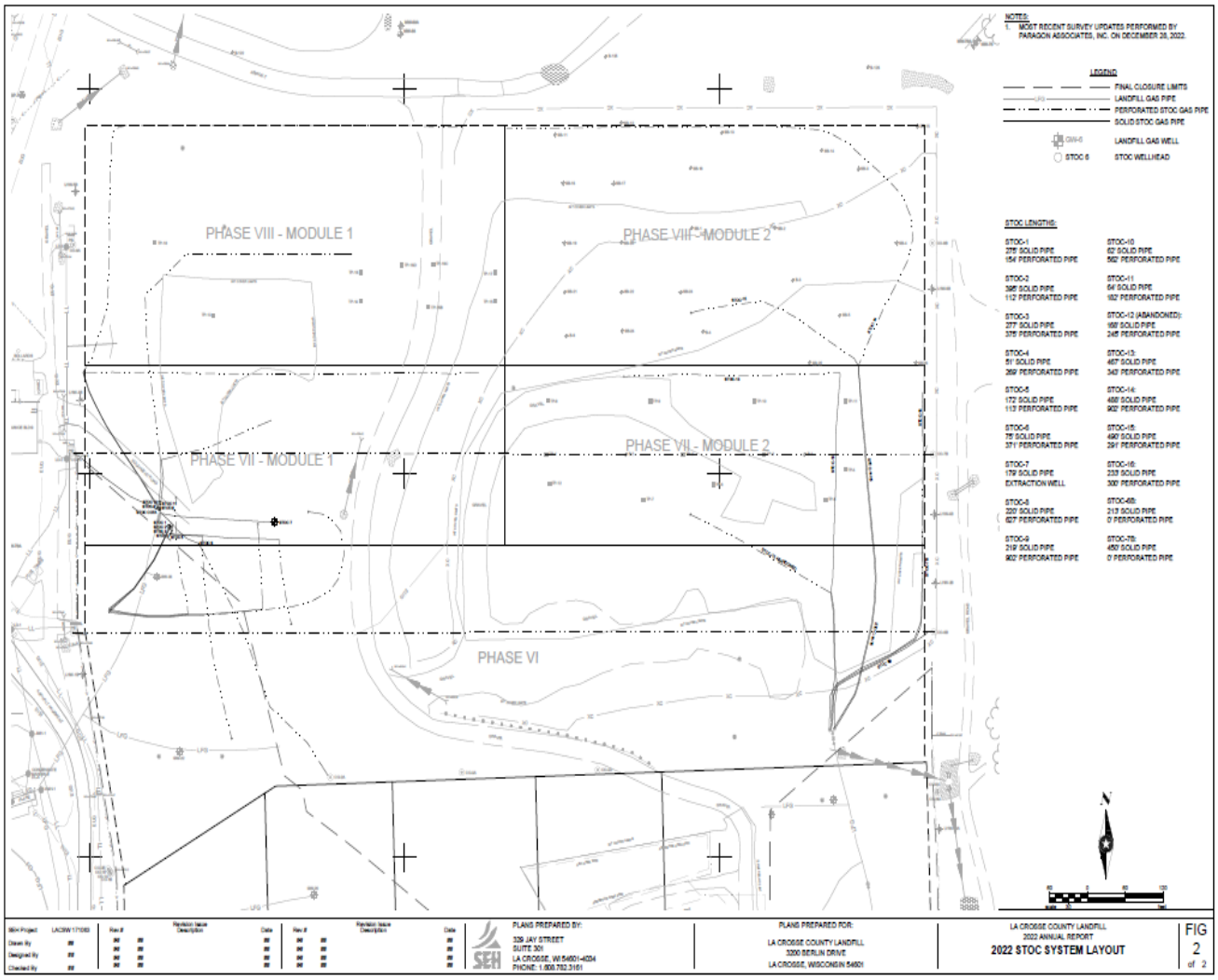
Attachment E-2

Drawing of Gas Wells 1-11, 13-17, 20-22 &33



Attachment E-3

STOC's (Horizontal Wells)



Appendix F

Anticipated Construction Events for 2023

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)
Old Landfill (License No. 2637)

Prepared by
La Crosse County Solid Waste Department
La Crosse County, Wisconsin

March 2023

Contents

Attachments

Purpose

This report summarizes the anticipated liner and final cover construction events for the La Crosse County Complex during 2023. This report has been prepared to satisfy Condition No. 11(f) of the February 10, 2006 Plan of Operation Approval from the WDNR.

There are no anticipated liner or final cover construction events scheduled for 2023. Minor construction projects, program modifications and approval processes that are anticipated at the landfill complex in 2023 are as follows:

Construction Projects:

- Site Access Road Construction
    - Preliminary Sed Basin Water Diversion
- Additional placement of intermediate cover to facilitate the fill phasing plan
- Solar Project for the Gas-to-Energy System
    - Review of Microgrid options for Gas 2 Energy Project
- Redesign and Construction of new HHM Flammable storage building
- Pole Shed Construction
- C&D Site lift station refurbishment
- Preliminary Design for Ash Monofil closure (Closure in 2024)

Program modifications:

- Promotion of Organic Recycling Program (Bins)
- Review of Landfill SCADA program and overhaul

Approvals

- Plan of Operation Submittal and Review
    - Surface Water Management Plan (SWMP) targeted in 2023
    - Air Permit Revisions targeted in 2023
- Solid Waste Management Plan Re-write (review)
- Master Land Use Plan Re-write (review)

Appendix G

2022 Special Waste Report

La Crosse County Landfill Complex and Disposal Facility

MSW Landfill (Active – License No. 3253)

Prepared by

La Crosse County Solid Waste Department

La Crosse County, Wisconsin

March 2023

Contents

1 Purpose

This report has been prepared to address the Special Waste Management Plan (Appendix Z of the Plan of Operation Report for the La Crosse County Landfill North Expansion, dated September 2005, updated 5/3/2018) containing information that is required to be included in the annual report regarding special waste reporting. Although the Special Waste Management Plan was not addressed by a specific approval condition, it was submitted as Appendix Z of the September 2005 Plan of Operation Report for the La Crosse County Landfill North Expansion, which was approved by the WDNR's February 10, 2006 Plan of Operation Approval. Therefore, the information as presented in Appendix Z is approved, including the annual reporting requirements described in Section 7 of Appendix Z.

The special waste reporting information to be included in the annual report follows:

- Total volume and tonnage by waste category and name for each type of special waste accepted for disposal accepted during 2022.

- Computation of the quantities by volume and weight of waste disposal and proportion of special waste to total quantities of waste landfilled.

- List of wastes failing to meet the acceptance criteria, but which were accepted for disposal (include reason(s) for acceptance).

- List of wastes rejected and the reasons for each rejection.

- Deviations from the approved acceptance criteria and disposal methods and reasons for deviation.

- Problems encountered when implementing this Special Waste Management Plan and their resolutions.

1.1 Total Volume and Tonnage of Special Waste

Category Number	Waste Type	Tonnage	Volume (cubic yards)
2	Coal/Wood Ash	68	50
4	Foundry Waste	0	0
5	Wastewater Sludge	0	0
6	Asbestos (Friable/Non-Friable)	238	357
6	Sludge	617	926
6	Miscellaneous Special Waste	897	1345
19	Car Wash Grit	532	393
19	Other Approved ADC	1032	764
19	Street Sweepings	3907	2891
19	Bottom Ash	2741	2028
21	Foundry Sand - DC	7779	5757
23	Petroleum Impacted Soils (biopile)	2942	2177
	Totals:	**20,751***	**16,687***

As discussed with Waste Management Engineer, Colin Maus, in October 2022, information on disposal of materials related to a coal spill is being included as part of this annual report.

A derailment of a Canadian Pacific owned transport train resulted in 10 train cars derailing, one of which tipped resulting in a spill. In order to support cleanup efforts, La Crosse County landfill accepted 24.86 tons of this material in August of 2022. The material placed at 470100 E and 156500 N at Site II Phase VII Mod B. Copies of records are available upon request.

1.2 Proportions of Special Wastes to Total Municipal Waste

This section provides computations of the quantities by volume and weight of waste disposal and proportion of special waste to total quantities of waste landfilled:

- By volume:
  - Special Waste (cy) / Total Waste (cy) =

16,687/136,882 CY = 12%

- By weight:
  - Special Waste (tons) / Total Waste (tons) =

20,751/99,391 tons = 21%

Note: 4,001 tons of Category 20 ash was placed in Landfill 3253. 5,736 tons was placed into the ash monofil 4317. Neither is included in the above totals.

1.3 Waste Failing to Meet Acceptance Criteria Disposed of at Site

None delivered to the landfill.

1.4 Rejected Wastes

One waste disposal application was rejected in 2022. A sludge waste from Elroy was rejected due to the free liquids and high Zinc levels

1.5 Deviations from Acceptance Criteria

None

1.6 Problems Encountered Implementing Special Waste Management Plan

No problems were encountered when implementing the plan.

1.7 Training

The following internal employee training was conducted as required by NR 524.07 1(f). Reviews of the special waste and general landfill operational procedures constitute internal training in accordance with this requirement.

1. Worked with SEH Consulting to develop waste approval requirements and increase knowledge.
2. Worked with staff to develop an understanding of impacts to operational activities based on special waste characterizations.
3. Worked with site contractor to improve special waste identification and reporting.

Appendix H

2022 Residential Asphalt Shingle Processing and Beneficial Use

La Crosse County Landfill Complex and Disposal Facility

Prepared by

La Crosse County Solid Waste Department

La Crosse County, Wisconsin

March 2023

Contents

Attachments

1 Purpose

This report has been prepared to address annual reporting requirements associated with the processing and beneficial use of residential asphalt shingles. Reporting and record keeping requirements were identified as Item No. 10 in the WDNR January 24, 2008 Low Hazard Exemption for the storage processing and beneficial use of waste residential asphalt shingles. An identical condition was included as Condition No. 9 in the WDNR February 4th, 2008 WDNR Approval for Exemption for Solid Waste Processing for Recycling of Asphalt Shingles. These reporting requirements required the submittal of the following information to the WDNR by April 1st of each year:

- Reference this grant of exemption.
- Summarize total tonnages of recycled asphalt shingles used as an additive in hot mix asphalt plant operations under this approval, and separately tabulate tonnages of shingles from roofing tear-off jobs.
- Describe the asbestos testing program including specific sampling and testing methods.
- Summarize test results of ground recycled asphalt shingles.
- Discuss the positive aspects of the program along with any difficulties encountered or complaints received during all aspects of collection, storage, processing and reuse of the materials and measures taken to modify the program to address difficulties or complaints.

1.1 Item a – Reference this Grant of Exemption

See above text. Additionally, WDNR Plan Mod Approval for RAS on 8/13/2019.

1.2 Item b – Summary of Tonnages of Recycled Asphalt Shingles and Shingles Received

A total of 7,786.66 of recycled asphalt shingles were received in 2022.

1.3 Item c - Tabulate the Location and Amount of Shingles Used by Individual Paving Project

Processed shingles also include asphalt shingles accepted and processed in 2022. During 2022, a total of 6,376.81 tons were processed and prepared to be sent out for incorporation into hot mix asphalt or aggregate. Mathy Construction received 9,466.79 tons of processed shingles, produced at the La Crosse County Landfill, from St. Joseph construction. The material was incorporated into aggregate material at two separate locations and is shown on attachment H-1. Including 7,502.59 tons of processed shingles left over from 2021 which were all sent out in 2022, approximately 4,412.61 tons of processed shingles from 2022 still remain on the site and will be utilized in 2023.

1.4 Item d - Describe the Asbestos Testing Program

In 2022, 7,786.66 of residential asphalt shingles were accepted and stockpiled in the shingle processing area. Samples were collected monthly by operations staff at the La Crosse County landfill. Samples taken were based off of tonnage subtotals, at the rate of one sample per one hundred tons. Periodically, samples were prepared and shipped by the landfill scale attendant to Micro Analytical Incorporated for asbestos testing. The bulk asbestos analytical report and testing was prepared utilizing PLM and dispersion stain technique.

1.5 Item e - Summarized Test Results of Ground Recycled Asphalt Shingles

Attached in Appendix H-2 are the results of asbestos testing from Micro Analytical Inc. of the 83 samples submitted, none were detected as containing asbestos. Additional information is provided on test reports regarding shingle fibrous components, texture, color and non-fibrous components.

1.6 Item f - Discuss the Positive Aspects of the Program

In 2019 La Crosse County received approval to incorporate processed RAS into aggregate materials. Processed shingles will be used as an unbonded base course material for driveways, roads, parking lots and general fill applications when mixed with native aggregates or recycled concrete and/or bituminous if the mixture contains less than 15% by weight of RAS. The purpose of the RAS is to provide a fines replacement in the aggregate base course. This application will provide an additional technical and economically feasible option for RAS material.

The two most significant beneficial aspects of the residential asphalt shingle recycling program have been to minimize materials placed in the landfill and to provide a product that has been incorporated into hot mix or substituted for gravel road sub-base. Since the shingles weigh approximately one ton per yard after processing, approximately 7,786 cubic yards of air space use will be avoided. The use of the ground shingles as a substitute for road base has minimized fuel consumption associated with the transport of materials from quarries and resulted in a product that produces less dust, less tracking of mud on roads and saved the County significant costs. Some additional benefits of the recycling program have been increased public acceptance of waste diversion concepts and the reduced cost to customers. Shingles suitable for recycling are charged at a rate of $40/ton in 2022.

In January of 2013, the La Crosse County Solid Waste Department requested and was granted approval by the WDNR West Central Region, for the storage of preprocessed and post processed shingles of up to 15,000 tons, with a maximum windrow height of 20 feet.

ATTACHMENT H-1

La Crosse County Solid Waste

Milestone Materials Swanson Pit
Milestone Materials Isle La Plume

ATTACHMENT H-2

La Crosse County Solid Waste
Report of Shingles 2022

Shingle Site Samples Sent 2022

DATE	# OF LOADS	TONS	TOTAL SAMPLES REQUIRED	TOTAL SAMPLES SENT	TOTAL SAMPLES NON-ASBESTOS	TOTAL SAMPLES W/ASBESTOS	Date Shipped and Quantity
January	8	21.79	0	0	0	0	0
February	25	67.62	0	0	0	0	0
March	63	159.64	3	3	3	0	4/8/2022 / Quantity 3
April	183	573.48	6	6	0	0	05/03/2022 Quanity 6
May	293	958.76	10	10	0	0	6/10/2022 / Quantity 10
June	364	1245.65	13	13	0	0	07/05/2022 Quantity 13
July	328	1111.31	12	13	0	0	08/05/2022 / Quantity 13
August	316	1086.98	11	11	0	0	09/19/2022/ Quantity 11
September	309	1044.98	11	11	0	0	10/12/2022/ Quantity 11
October	328	1131.02	12	12	0	0	11/04/2022 Quantity of 12
November	102	324.32	4	4	4	0	12/06/2022 Quantity of 4
December	25	61.11	0	0	0	0	0
TOTALS	**2344**	**7786.66**	**82**	**83**	**7**	0	

**Analytical analysis reports are on file at the La Crosse County Solid Waste Department and available for review upon request.