435 East Mill Street, Suite 15, Plymouth, WI 53073
T 877.633.5520 | W www.cornerstoneeg.com

April 13, 2016

Mr. Eric Syftestad
Wisconsin Department of Natural Resources
Waste Management Engineer
3911 Fish Hatchery Road
Fitchburg, WI 53711

Re: Marathon County Landfill – Area B Landfill (License No. 3338)
2015 Annual Solid Waste Report

Dear Mr. Syftestad:

On behalf of the Marathon County Solid Waste Department (Marathon County) Cornerstone Environmental Group, LLC (Cornerstone) is hereby submitting four (4) copies (three paper and one electronic) of the 2015 Annual Solid Waste Report for the Area B Landfill (Area B) of the Marathon County Landfill. This Annual Solid Waste Report is being submitted in accordance with the approved plan of operation for Area B.

If you have any questions or comments regarding this Annual Solid Waste Report do not hesitate to contact Mr. Mike Melan at (630) 633-5841 or Ms. Meleesa Johnson at (715) 466-3101 ext 104.

Sincerely,

Cornerstone Environmental Group, LLC

Benjamin Hintz
Project Scientist

Enclosure: As Noted

cc: Marathon County Landfill (File Copies)
Michael Melan – Cornerstone Environmental Group, LLC

Marathon County Solid Waste Department
Area B Landfill
2015 ANNUAL REPORT

WDNR License No. 3338
FID 737092730

Marathon County Solid Waste Management Department
R18500 Highway 29
Ringle, WI 54471
Phone 715-446-3101
Director: X104
Operations Manager: 715-551-5864
Business Office: X100
Environmental Technician: X101
Scale: X103

Solid Waste & Recycling Information Line: 877-270-3989

www.marathoncountysolidwaste.org

marathoncountysolidwaste

Staff, Consultants & Contractors

Marathon County Solid Waste Department Staff:

- Meleesa Johnson-Director
- David Hagenbucher-Operations Manager
- Diane Borchardt-Scale Operator
- Ron Smith-Environmental Technician
- Julie Groshek-Accounting Specialist
- Chris Wickman-Equipment Maintenance Specialist
- Kevin Steinke-Equipment Operator
- Eric Olson-Eqiupment Operator
- Alex Thomas-Intern
- Carson Pethan-Intern
- Dave Vitt-Intern
- Chris Wood-Seasonal Field Assistant

Engineering Consultants:

- Mike Michels
  Cornerstone Environmental Group, LLC
  8413 Excelsior Drive, Suite 160
  Madison, WI 53717
- Michael Melan
  Cornerstone Environmental Group, LLC
  435 E Mill Street, Suite 15
  Plymouth, WI 53073
- Cyndi Neitzel
  Cornerstone Environmental Group, LLC
  435 E Mill Street, Suite 15
  Plymouth, WI 53073

Contractors:

- CQM, Inc.
  2679 Continental Drive
  Green Bay, WI 54311
- Northern Lakes Service, Inc.
  400 North Lake Avenue
  Crandon, WI 54520
- Northern Pipe Equipment, Inc.
  1722 County Road QQ
  Green Bay, WI 54311
- Recycling Connections Corporation
  P.O. Box 91
  Stevens Point, WI 54481-0091
- Veolia ES-Technical Solutions
  W124 N9311 Boundary Road
  Menomonee Falls, WI 53051

- Terra Engineering & Construction Corp.
  2409 Vondron Road
  Madison, WI 53718
- Landfill Drilling & Piping Specialists, LLC
  1001 Arboretum Drive, Suite 3
  Waunakee, WI 53597

Introduction

This document meets the annual reporting requirements of the Wisconsin Department of Natural Resources (WDNR) March 22, 2002, Plan of Operation Approval and the 2006 plan modification for the expansion of Phase IV.

Background

Marathon County Solid Waste Department (MCSWD) owns, operates and manages the Area B Landfill (Area B), with MCSWD staff directing all facets of the operation. The facility opened in 1993 and has an amended design capacity of 2,508,000 cubic yards. It is located along the north side of Hwy 29, in the town of Ringle, Wisconsin.

Site of Landfill Activities in 2015

As of January 2016, there remains an estimated capacity of 8,502 cubic yards for Area B. During 2015, Area B served as the final disposal site for 89,973 tons of waste. From 1994 to early 2014, MCSWD retained an independent contractor to conduct operations. MCSWD took control of operations with its own staff and equipment in May 2014. Operational duties typically include, but are not limited to, active fill area management, complete site operational oversight, trouble-shooting, scale operations, administrative management, air permit compliance, gas system management, pipe welding, storm water management, construction management and customer service site and area road building/grading/plowing. Leachate hauling remains under contract with an outside firm. As needed, MCSWD hired various contractors to perform specific tasks beyond the capabilities of the site staff.

Waste Disposal Activities

During 2015, as noted above, 89,973 tons of waste was disposed of in Area B. This waste consisted largely of fly ash from the Weston power plant and falls into waste category 2 for utility ash & sludge.

In addition to wastes received, 3,171.95 tons of reacted coal combustion bottom ash, approved for daily cover, was delivered for use as alternative daily cover (ADC) material. No ADC was used on exterior side-slopes or within 100 feet of the limits of waste.

There were no issues or problems in handling the wastes delivered. MCSWD staff performed their duties so as to quickly and effectively see to the through-put, compaction, and covering of wastes.

Settlement Hubs

The below tables summarize the Area B settlement hub monitoring for the period of December 29, 2014 to June 22, 2015.

Settlement Hubs 12-29-14				
			Elevation	
Hub	North	East	Ground	Top
North	8000.80	15700.07	1402.26	1404.65
South	7598.11	15500.11	1400.95	1403.83

Settlement Hubs 6-22-15				
			Elevation	
Hub	North	East	Ground	Top
North	8000.80	15700.07	1402.13	1404.65
South	7598.11	15500.11	1400.80	1403.84

Landfill Maintenance

During 2015 the following site maintenance activities were completed:

- The landfill gas collection system for Area B was expanded in August, September, and October of 2015 to include the installation a 12" crossover vacuum header, three new gas collection wells (BGW-118, BGW-119, and BGW-124), and associated vacuum lateral piping. The gas wells were connected to the gas collection and control system on October 7, 2015. Along with the pipe and well installation the vacuum laterals for gas wells BGW-111R, BGW-113R, BGW-

114R, BGW-115R, and BGW-116R were abandoned and replaced. The documentation report for this expansion was delivered to the WDNR on March 14, 2016.

- Storm water grates are cleared routinely and as needed of both windblown litter and sediment. Silt fencing is maintained around storm waste grates and replaced as needed.
- Mowing of the final cover area occurred monthly during dry seasons
- In order to manage dust, in compliance with the site's air permit, calcium chloride was applied to both interior landfill roads and gravel site roads. Application events occurred in the spring, summer, and fall depending on conditions. These applications provided substantial dust control. During the long durations of dry weather, water was also applied to both interior and exterior gravel roads.
- Additional cover maintenance included seeding eight to twelve acres on Area B and repairing leachate seeps

Gas Collection System

Area B is located on the northern end of the entire 532 acre facility and north of the Area A Landfill. An active gas system, consisting of blowers and other equipment, has been extracting landfill gas since the late 1990s.

The gas wells located in Area B consist of vertical and horizontal gas extraction wells, connected via a sub-header system within the footprint of the landfill. Gas, once extracted from the landfill, is sent to the gas recovery building, located south of the Area A Landfill, or diverted to the flare, by way of a large header pipe. Vacuum back to to the wellfield is regulated by the variable frequency drive (VFD) at the blower station that controls the gas collection and control system (GCCS).

Landfill gas emissions from Area B are regulated under and in accordance with Air Pollution Control Operation Permit 737092730-P11 (expired December 30, 2015) and renewed Air Pollution Control Operation Permit 737092730-P20 (issued November 2, 2015 as a renewal for Permit No. 737092730-P11).

Sensing devices at the facility gas plant measure gas flow rates, pressures and vacuums, as well as methane and oxygen concentrations. Data is recorded and stored on a computerized system. This data is used for reporting and operating purposes.

Data indicates that the gas collection system operated ninety-nine point five percent (99.5%) of the year, or 8720 hours of operation. The average aggregated flow rate, for both Area A and Area B, was 667.31 standard cubic feet per minute (scfm), of this Area B contributed an average of approximately 607.31 scfm. Methane and oxygen concentrations of landfill gas averaged, by volume, 50.28% for methane and 0.34% oxygen. Total gas collected for 2015 at the site was 349,137,218.69 standard cubic feet (scf), of this total Area B contributed 317,745,461.36 scf. Of the facility total 335,438,192.99 scf was used for production of electricity and 13,699,025.70 scf was sent to the flare.

Marathon County Landfill 2015 Gas Collection Summary (Includes Area A and Area B)

2015	Average flow (SCFM)	Monthly total flow (SCFM)	To Electrical Production (SCFM)	To Flare (SCFM)	Average Vacuum to Wellfield (Inches SC)
Jan	700.9	31,288,466.74	28,461,003.05	2,827,463.69	26.44
Feb	709.8	28,617,199.44	28,021,147.90	596,051.54	27.50
March	725.0	32,362,397.17	32,163,827.77	198,569.40	27.97
April	699.5	30,216,401.22	29,977,338.88	239,062.34	28.92
May	647.9	28,920,842.88	26,820,199.36	2,100,643.52	28.80
June	621.1	26,829,800.57	26,441,175.67	388,624.90	28.55
July	638.3	28,493,232.64	28,041,088.16	452,144.48	28.34
August	630.6	28,151,543.19	27,926,015.65	225,527.54	28.06
Sept	608.2	26,273,019.00	25,968,724.64	304,294.36	28.53
Oct	686.6	30,648,553.62	28,990,252.13	1,658,301.49	27.26
Nov	677.8	29,280,542.58	26,603,030.92	2,677,511.66	28.61
Dec	628.5	28,055,219.64	26,024,388.86	2,030,830.78	29.77

Below is a chart listing average monthly and annual methane (CH4), oxygen (O2) and hydrogen sulfide (H2S) concentrations.

2015	CH4 %	O2 %
Jan	51.97	0.21
Feb	50.35	0.29
March	49.33	0.5
April	49.28	0.51
May	50.23	0.38
June	51.48	0.25
July	48.35	0.48
August	48.64	0.44
Sept	50.89	0.19
Oct	48.08	0.39
Nov	52.36	0.14
Dec	52.37	0.35
Averages	50.28	0.34

Gas System Outages

As indicated previously, the gas extraction system operated nearly continuously. Any shutdowns, whether for planned maintenance or unplanned events, resulted in proper and lawful notification to the WDNR Air Management staff. The January to June Semi-annual 2015 Report and July to December 2015 Semi-annual Report for Area B include descriptions of GCCS and control device shutdown events, GCCS and control device malfunctions, and continuous monitoring device malfunctions.

Surface Emission Monitoring

Surface emission monitoring (SEM) of Area B was conducted on March 20, 2015, June 17, 2015, September 18, 2015, and December 4, 2015. One (1) exceedance was detected during the first quarter SEM, zero (0) exceedances were detected during the second, third, or fourth quarter SEMs. MCSWD corrected the first quarter exceedance by placing additional cover over the area and re-monitored the area within 10 and 30 days of the initial exceedance. Both the 10 day and 30 day re-

monitoring events indicate that surface emissions were below the required 500 parts per million (ppm) above background.

For all SEM events, a photoionization detector (PID) is used, with MCSWD's environmental technician walking a serpentine pattern across the surface of the landfill.

Soil Gas Monitoring

During 2015 the soil gas probes were monitored quarterly for relative pressure, methane (CH4), oxygen (02), and soil gas pressure. In 2015, these monitoring results indicated no gas migration.

First Quarter Probe Data (February 20, 2015):

Gas Probe [Depth in feet]	Location	Methane (%CH4 by Vol.)	Oxygen (%O2 by Vol.)	Pressure (inch W.C.)	Notes:
WDNR Parameter #		85547	85550	46389	WDNR ID No.
Area B Probes	Lic. 3338				
G-5 [26']	S Area B	0.0	19.9	0.0	700
G-6 [30']	W Area B	0.0	19.9	0.0	704
G-7 [20']	N Area B	0.0	21.3	0.0	709
G-8 [15']	E Area B	0.0	20.4	0.0	720

Second Quarter Probe Data (May 29, 2015):

Gas Probe [Depth in feet]	Location	Methane (%CH4 by Vol.)	Oxygen (%O2 by Vol.)	Pressure (inch W.C.)	Notes:
WDNR Parameter #		85547	85550	46389	WDNR ID No.
Area B Probes	Lic. 3338				
G-5 [26']	S Area B	0.0	18.3	0.0	700
G-6 [30']	W Area B	0.0	15.8	0.0	704
G-7 [20']	N Area B	0.0	17.0	0.0	709
G-8 [15']	E Area B	0.0	16.5	0.0	720

Third Quarter Probe Data (August 26, 2015):

Gas Probe [Depth in feet]	Location	Methane (%CH4 by Vol.)	Oxygen (%O2 by Vol.)	Pressure (inch W.C.)	Notes:
WDNR Parameter #		85547	85550	46389	WDNR ID No.
Area B Probes	Lic. 3338				
G-5 [26']	S Area B	0.0	20.9	-0.03	700
G-6 [30']	W Area B	0.0	20.6	-0.01	704
G-7 [20']	N Area B	0.0	20.5	-0.01	709
G-8 [15']	E Area B	0.0	20.5	0.01	720

Fourth Quarter Probe Data (November 3, 2015):

Gas Probe [Depth in feet]	Location	Methane (%CH4 by Vol.)	Oxygen (%O2 by Vol.)	Pressure (inch W.C.)	Notes:
WDNR Parameter #		85547	85550	46389	WDNR ID No.
Area B Probes	Lic. 3338				
G-5 [26']	S Area B	0.0	21.0	0.0	700
G-6 [30']	W Area B	0.0	21.0	0.0	704
G-7 [20']	N Area B	0.0	20.9	0.0	709
G-8 [15']	E Area B	0.0	21.0	0.0	720

Gas Condensate Sampling Data

In accordance with the 2002 monitoring plan, gas condensate was smpled and analyzed in April and October 2015. The componenets tested are noted in the tables below and included volatile organic compounds (VOC's).

2015 Gas Condensate Sampling Results		
	April	October
Field cond @ 25°C	7320 umho/cm	7460 umho/cm
Total Suspended Solids	1400 mg/L	430 mg/L
COD	170 mg/L	150 mg/L
pH	7.84	7.99

2015 Gas Condensate VOC Sampling		
	April	October
Acetone	2700 ug/L	1900 ug/L
Methyl Ethyl Ketone	1600 ug/L	810 ug/L
Tetrahydrofuran	1200 ug/L	830 ug/L
Toluene	59 ug/L	84 ug/L
Naphthalene	100 ug/L	ND

Gas Condensate Volumes

Gas condensate volumes were monitored and tabulated on a monthly basis. The 2015 gas condensate volumes are noted below:

2015 Area B Condensate Volume Pumped (gallons)				
	CKO-1	CKO-2	GC-Manhole	GC-1
Jan	20328	3528	1680	336
Feb	17640	3276	3360	588
Mar	19320	4536	5124	336
Apr	19236	3108	4200	336
May	21924	7476	3276	420
Jun	3612	43008	2520	336
Jul	10836	5376	2352	672
Aug	9156	4704	2016	0
Sep	8484	2688	1848	336
Oct	11340	7056	2352	0
Nov	11508	15876	2436	0
Dec	14364	12516	3108	0
	167748	**113148**	**34272**	**3360**
			Total Gallons	**318528**

Gas Sampling Data

On August 24, 2015 MCSWD's environmental technician filled a summa canister to collect a sample of landfill gas from Area B. The canister was shipped via express mail services to Air Technology Labs, Inc. in City of Industry, California for analyses of volatile organic compounds. The test method used was United States Environmental Protection Agency (EPA) test method TO-15, Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed by Gas Chromatography/ Mass Spectrometry (GC/MS).

2015 Landfill Gas Sampling Results for VOCs

EPA Method TO15			
Date/Time Samples			8/24/2015 8:10am
Date/Time Analyzed			8/27/2015 9:31pm
Analyte	CAS Number	Result (ug/L)	Reporting Limit (ug/L)
Dichlorodifluoromethane (12)	75-71-8	2.6	0.14
Chloromethane	74-87-3	0.18	0.12
1,2-Cl-1,1,2,2-F ethane (114)	76-14-2	0.41	0.20
Vinyl Chloride	75-01-4	1.7	0.072
Bromomethane	74-83-9	0.18	0.11
Chloroethane	75-00-3	0.39	0.074
Trichlorofluoromethane (11)	75-69-4	0.56	0.16
1,1-Dichloroethene	75-35-4	ND	0.11
Carbon Disulfide	75-15-0	2.1	0.44
1,1,2-Cl 1,2,2-F ethane (113)	76-13-1	ND	0.22
Acetone	67-64-1	5.6	0.33
Methylene Chloride	75-09-2	0.10	0.098
t-1,2-Dichloroethene	156-60-5	0.17	0.11
1,1-Dichloroethane	75-34-3	0.22	0.11
Vinyl Acetate	108-05-4	ND	0.49
c-1,2-Dichloroethene	156-59-2	1.7	0.11
2-Butanone	78-93-3	6.5	0.083
t-Butyl Methyl Ether (MTBE)	1634-04-4	0.19	0.10
Chloroform	67-66-3	ND	0.14
1,1,1-Trichloroethane	71-55-6	ND	0.15
Carbon Tetrachloride	56-23-5	ND	0.18
Benzene	71-43-2	3.1	0.090
1,2-Dichloroethane	107-06-2	0.52	0.11
Trichloroethene	79-01-6	0.42	0.15
1,2-Dichloropropane	78-87-5	ND	0.13
Bromodichloromethane	75-27-4	ND	0.19
c-1,3-Dichloropropene	10061-01-5	ND	0.13
4-Methyl-2-Pentanone	108-10-1	3.1	0.12
Toluene	108-88-3	26	0.11
t-1,3-Dichloropropene	10061-02-6	ND	0.13
1,1,2-Trichloroethane	79-00-5	ND	0.15
Tetrachloroethene	127-18-4	0.77	0.19
2-Hexanone	591-78-6	ND	0.12
Dibromochloromethane	124-48-1	ND	0.24
1,2-Dibromoethane	106-93-4	ND	0.22
Chlorobenzene	108-90-7	0.39	0.13
Ethylbenzene	100-41-4	9.5	0.12
p,&m-Xylene	M/P-XYLENE	13	0.12
o-Xylene	95-47-6	3.5	0.12
Styrene	100-42-5	0.36	0.12
Bromoform	75-25-2	ND	0.29
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.39

Benzyl Chloride	100-44-7	ND	0.15
EPA Method TO15			
Date/Time Samples			8/24/2015 8:10am
Date/Time Analyzed			8/27/2015 9:31pm
Analyte	CAS Number	Result (ug/L)	Reporting Limit (ug/L)
4-Ethyl Toluene	622-96-8	0.54	0.14
1,3,5-Trimethylbenzene	108-67-8	ND	0.28
1,2,4-Trimethylbenzene	95-63-6	ND	0.28
1,3-Dichlorobenzene	541-73-1	ND	0.17
1,4-Dichlorobenzene	106-46-7	ND	0.17
1,2-Dichlorobenzene	95-50-1	ND	0.17
1,2,4-Trichlorobenzene	120-82-1	ND	0.42
Hexachlorobutadiene	87-68-3	ND	0.30

Map of Gas System as of the end of 2015 (East Portion*):

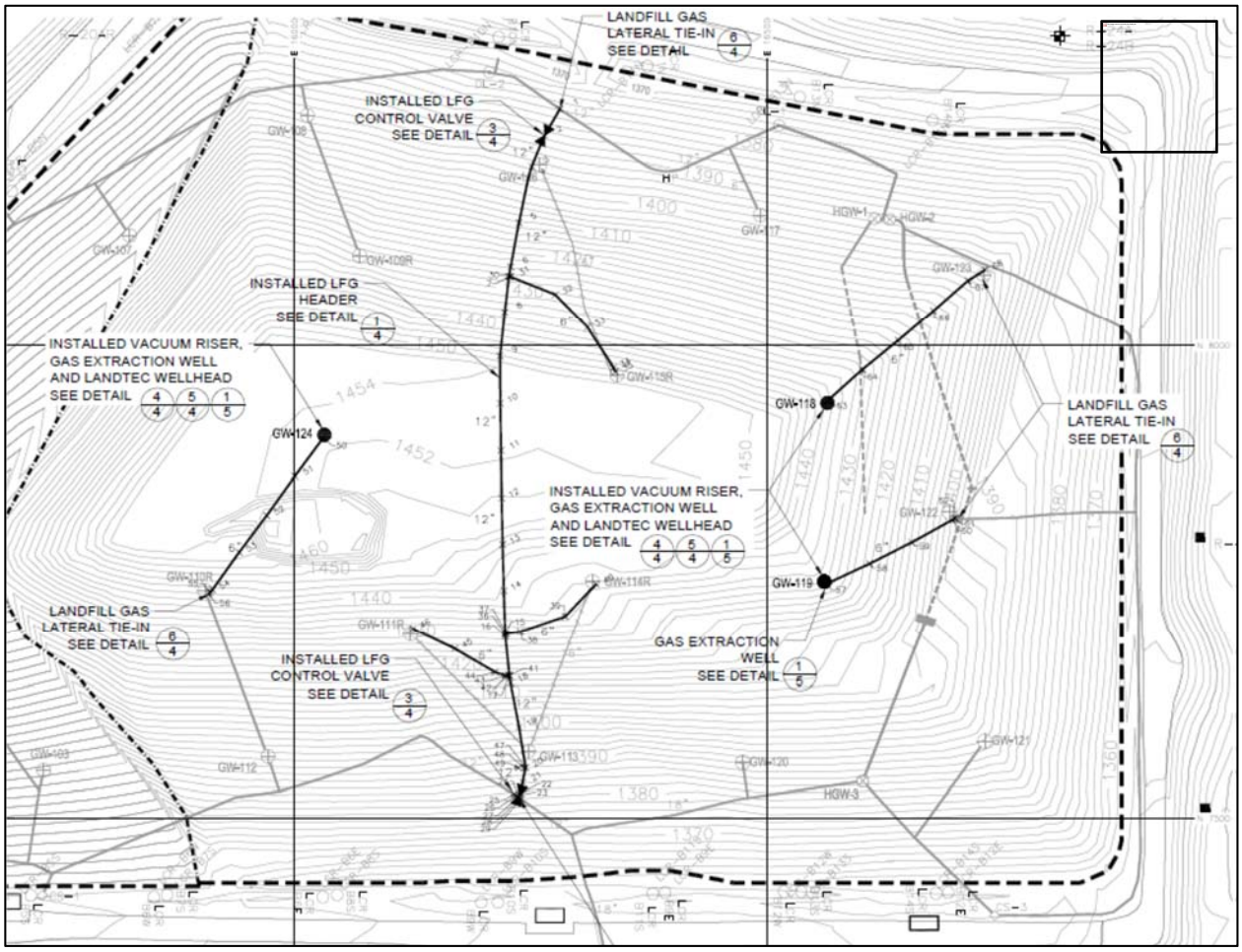


**Image from 2015 Wellfield Expansion documentation drawings, see the Area B – 2015 Wellfield Expansion Construction Documentation Report for more information.*

<u>Map of Gas System as of the end of 2015 (West Portion)</u>**:

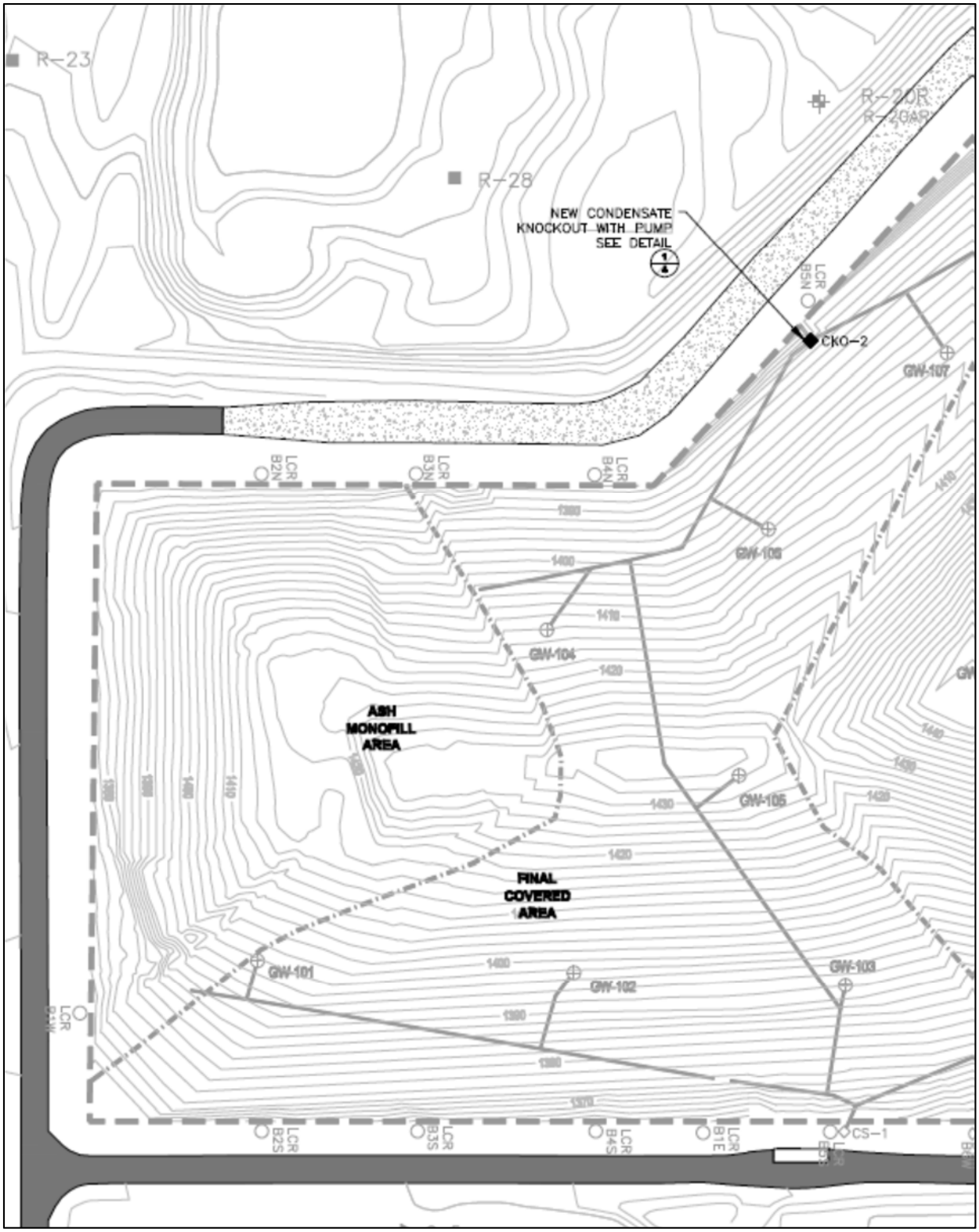


***Image from 2011 wellfield construction documentation drawings*

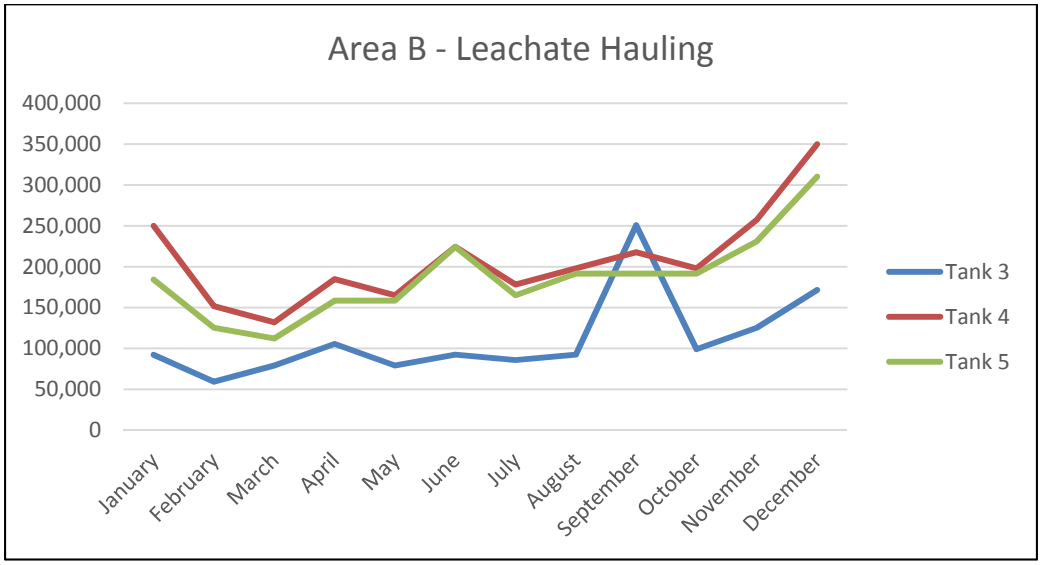
Leachate System Information

Leachate is collected throughout the Area B leachate piping System. Leachate gathers in a side slope riser, where a pump delivers the liquid into storage tanks. There are three (3) such gathering, delivery, and storage devices. Pumping from the side slope risers stops when a sensor system inside the storage tank indicates the liquid has reached a certain level. When full, the contract hauler pumps stored leachate into a 6,600 gallon tanker truck and delivers the material to the waste water treatment facility.

Leachate collected is transported to either Domtar, Inc. in Rothschild, Wisconsin, Wausau Wastewater Treatment Facility, and/or the Stevens Point Wastewater Treatment Facility. Leachate is pumped into the waste water treatment facility and treated to ensure all effluent meet Wisconsin Pollutant Discharge Elimination System (WPDES) standards prior to discharge into the Wisconsin River.

Total volume of leachate collected/transported/treated in 2015 is as follows:

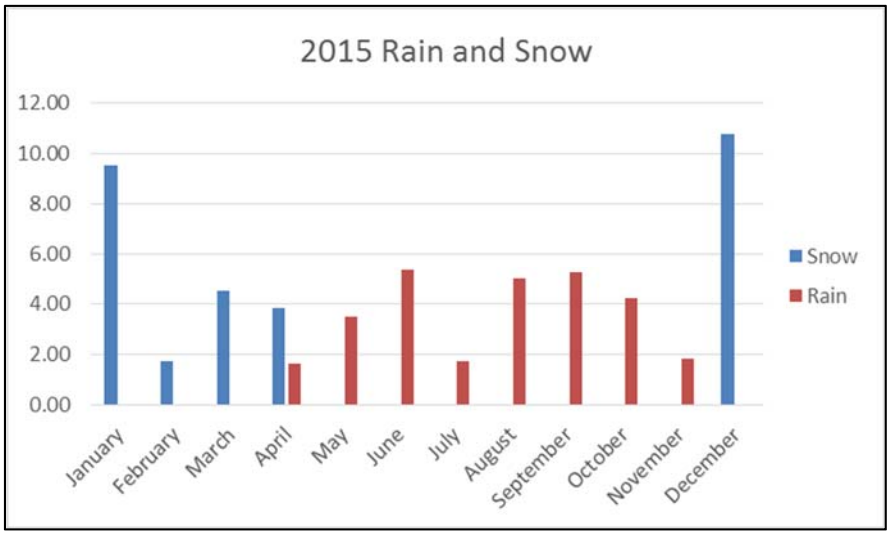
2015	Tank 3	Tank 4	Tank 5
January	92,200	250,000	184,300
February	59,400	151,800	125,400
March	79,200	132,000	112,200
April	105,600	184,800	158,400
May	79,200	165,000	158,400
June	92,400	224,400	224,400
July	85,800	178,200	165,000
August	92,400	198,000	191,400
September	250,800	217,800	191,400
October	99,000	198,000	191,400
November	125,400	257,400	231,000
December	171,600	349,800	310,200
Total	1,333,000	2,507,200	2,243,500

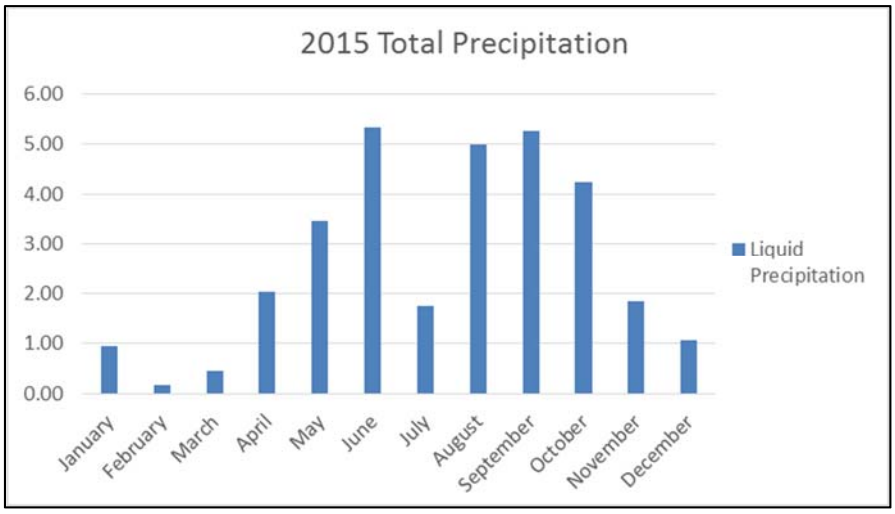


Precipitation:

2015 Precipitation Totals			
Month	Snow (inches)	Rain (inches)	Liquid Precipitation* (inches)
January	9.55		0.96
February	1.75		0.18
March	4.50		0.45
April	3.84	1.65	2.03
May		3.48	3.48
June		5.33	5.33
July		1.75	1.75
August		5.00	5.00
September		5.25	5.25
October		4.25	4.25
November		1.85	1.85
December	10.75		1.08
Total	30.39	28.55	31.59

**Snow converted to liquid precipitation by dividing by 10*





Leachate Line Jetting

On July 6 and 7, 2015 Northern Pipe Equipment, Inc. of Green Bay, Wisconsin, water jetted the leachate lines of Area B. Jetting was accomplished by accessing each pipe at one end and jetting the full length of pipe. The jetting required the use of 5,000 gallons of water.

MARATHON COUNTY LANDFIL

LEACHATE PIPE CLEANOUT RECORDS

DATE: July 6, 2015 & July 7,2015

CONTRACTOR NAME: Northern Pipe Equipment, Inc.

CONTRACTOR PHONE: 920.468.7074

EQUIPMENT USED: #36 Vac-Con w/ 1,200 ft. 3/4" hose

AREA B

CLEANOUT ACCESS POINT	PIPE SIZE	PIPE LENGTH (FT)	FT. JETTED EAST / SOUTH	FT. JETTED WEST / NORTH	COMMENTS	
1	12"	660	660	-	Jetted from B1E all the way ; No Problems	7.07.15
2	12"	500	500	-	Jetted from B2S all the way ; No Problems	7.07.15
3	12"	505	505	-	Jetted from B3S all the way ; No Problems	7.07.15
4	12"	510	510	-	Jetted from B4S all the way ; No Problems	7.07.15
5	12"	660	660	-	Jetted from B5S all the way ; No Problems	7.07.15
6	12"	280	280	-	Jetted from B6W all the way ; No Problems	7.07.15
7	12"	850	850	-	Jetted from B7S all the way ; No Problems	7.07.15
8	12"	875	875	-	Jetted from B8S all the way ; No Problems	7.07.15
9	12"	305	305	-	Jetted from B9E all the way ; No Problems	7.07.15
10	12"	840	840	-	Jetted from B10S all the way ; No Problems	7.07.15
11	12"	795	795	-	Jetted from B11S all the way ; No Problems	7.07.15
12	12"	270	270	-	Jetted from B12S all the way ; No Problems	7.06.15
13	12"	750	750	-	Jetted from B13S all the way ; No Problems	7.07.15
14	12"	725	725	-	Jetted from B14S all the way ; No Problems	7.06.15

Leachate Level Monitoring

Leachate level monitors were evaluated on a monthly basis by the MCSWD's environmental technician. Data from those monitoring events is as follows:

Area B - 2015		LLM-2	LLM-3	LLM-4	LLM-5	LLM-6	LLM-7	LLM-8
Pipe Length to Elbow (feet)		100	102	95	100	119	115.9	116.8
1/28/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	116.3
	Leachate Head	0	0	0	0	0	0	0.5
2/16/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	116.4
	Leachate Head	0	0	0	0	0	0	0.4
3/12/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	116.6
	Leachate Head	0	0	0	0	0	0	0.2
4/22/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
5/27/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
6/8/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
7/31/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
8/26/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
9/25/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
10/26/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
11/30/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Leachate Head	0	0	0	0	0	0	0
12/2/2015	Depth to Liquid	Dry	Dry	Dry	Dry	Dry	115.8	116.7
	Leachate Head	0	0	0	0	0	0.1	0.1

LLM - Leachate Level Monitor

Notes: If dry at landfill base, reported as "Dry" with 0 feet of head and nothing for leachate elevation

Leachate Sampling

Leachate sampling and analytical analysis was conducted twice in 2015; testing was conducted in April and October. Sampling results for volatile organic compounds show a wide variety of compounds present. Full results are available on the WDNR Groundwater and Environmental Monitoring System (GEMS) database.

Leachate tank sampling conductivity results are as follows;

Tank 3

April	7200 umho/cm
October	9820 umho/cm

Tank 4

April	10000 umho/cm
October	10770 umho/cm

Tank 5

April	9860 umho/cm
October	11560 umho/cm

Analyses show leachate presents as slightly basic to neutral.

Tank 3

April	7.14 ph
October	7.35 ph

Tank 4

April	7.38 ph
October	7.43 ph

Tank 5

April	7.56 ph
October	7.76 ph

Lysimeters

Northern Lakes Services, Inc. monitored lysimetes in April and October 2015 with additional monitoring for VOCs taking place in October. Results of the sampling is provided below:

ID/Date	Conductivity	pH	Gal. Pumped	Alkalinity (as CaCO)	COD	Chloride (as Cl)	Hardness	Nitrite plus Nitrate (mg/L as N)	Sodium (as Na)	Sulfate (as SO4)	Boron
Lysimeter 7											
April	983 umho/cm	7.54	2.5	320 mg/L	17 mg/L	79 mg/L	280 mg/L	2.8 mg/L	79 mg/L	40 mg/L	0.12 mg/L
October	929 umho/cm	7.32	1	320 mg/L	16 mg/L	66 mg/L	260 mg/L	1.9 mg/L	73 mg/L	40 mg/L	0.1 mg/L

Final Cover

There are approximately six acres of final cover constructed at the Area B Landfill. The existing final cover areas remain in excellent condition. As required by the site's plan of operation, and to ensure the investment in final cover is not compromised, the following activities are conducted throughout the year:

- Monthly visual inspections of the final cap surface
- Inspections of storm water management pathways
- Removal of obstructions or repair to storm water pathways
- Mowing pathways for surface emission monitoring work
- General mowing to control for woody herbaceous growth
- Snow plowing of access roads
- Grading and dust management of access roads
- Preventative maintenance of gas system and leachate pumping system

Storm Water Management

There are four storm water management diversion and collection areas associated with Area B. Water is channeled away from the closed and intermediate cover areas of the landfill and away from exterior roads. Water managed within this upper system flows to one of the four sedimentation and retention ponds identified as SR-1 through SR-4. SR-3 is used as a source of water for operational dust control; a tanker truck is filled with water and then applied to the various roadways.

The basins are observed as a general course of site inspections by various staff members. Water height, clarity, and turbidity are noted. There has been no need to conduct maintenance on the basins. Storm water grates are also observed with this routine and cleared of materials that may impede the proper flow of storm water.

Environmental Monitoring

In accordance with the requirements of the Area B plan of operation and WDNR rules, all environmental monitoring was conducted. The data collected was reported electronically to the WDNR.

Soil gas probes were monitored quarterly for relative pressure, methane, (CH_4), oxygen (O_2), and pressure. The results of this monitoring shows that no landfill gasses are migrating beyond the limits of the landfill.

Air monitoring was conducted on a monthly basis. The results of each monthly monitoring regimen were reported to both the waste and air division of the WDNR.

Ground Water Monitoring

Groundwater wells associated with Area B were sampled and analyzed in April and October. There were no exceedances in excess of the Prevention Action Limit (PAL) or Enforcement Standard (ES).