DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N620773869

FACILITY: SMITHS CREEK LANDFILL		**SRN / ID:** N6207
LOCATION: 6779 SMITHS CREEK ROAD, SMITHS CREEK		**DISTRICT:** Warren
CITY: SMITHS CREEK		**COUNTY:** SAINT CLAIR
CONTACT: Matthew B. Williams , Landfill Manager		**ACTIVITY DATE:** 07/09/2024
STAFF: Iranna Konanahalli	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FY2024 ROP CMS scheduled inspection of Smiths Creek Landfill (Section 1 SCL) ("Landfill" or "Smiths Creek" or "SCL") located at 6779 Smiths Creek Road, Smiths Creek (Kimball), Michigan 48074-3506.		
RESOLVED COMPLAINTS:		

Smiths Creek Landfill (SCL) (N6207)
6779 Smiths Creek Road
Smiths Creek (Kimball), Michigan 48074-3506

NAICS: North American Industry Classification System (NAICS) **562212 –** Solid Waste Landfill

DTE Vantage BWR (Blue Water Renewables): BWR operates two Caterpillar SI RICE engines to recover energy form Landfill Gas (LFG).

1. **Engine1 Model & Serial No.:** Caterpillar **G3520C,** 2,233 BHP Serial No. **GZJ00491** BHP at 100% load with a generator 1.6 megawatt (MW). (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6 megawatt gross electrical output)

2. **Engine2 Model & Serial No.: Caterpillar G3520C,** 2,233 BHP **Serial No. GZJ00493** BHP at 100% load with a generator 1.6 megawatt (MW). (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6 megawatt gross electrical output)

SRN P0262 (BWR) has been subsumed into N6207 (SCL) for ROP purposes. The SRNs (P0262 & N6207) will have separate ROPs soon upon implementation of MiEnviro. However, SCL & BWR will continue to be a single station source for PSD, LAER, ROP, etc. purposes.

Contacts:

1. **Mathew (Matt) Williams** (Phone: 810-989-6979; Fax: 810-367-3062; Cell: 248-459-3309; E-mail: mWilliams@StClairCounty.org), Landfill Resource Recovery Manager, Responsible Official

2. **Travis C. Heslop** (Phone: 810-989-6918; Fax: 810-367-3062; Cell: 810-845-1303; E-mail: tHeslop@StClairCounty.org)

3. **Erin Berish** (Phone: 248-560-0725-Direct; Fax: 248-486-5050; Cell: 248-787-4069; E-mail: eBerish@ctiCompanies.com), CTI Senior Project Manager, assisted me. CTI and Associates, Inc., [28001 Cabot Dr., Ste. 250, Novi, MI 48377 (800-CTI-TODAY)] is a consulting company for Smiths Creek Landfill.

4. **Laura Niemann** (Phone: 616-891-2592-Direct; Fax: NA; Cell: 248-787-4069; E-mail: LNiemann@eilLLC.com), Sr. Project Engineer. CTI has contracted out landfill compliance, reporting to Environmental Information Logistics, LLC

5. **Terri Zick**, Director, Compliance Services, CTI and Associates, Inc.

6. **Karry A. Hepting** (Phone: 810-989-6900), C.P.A., Administrator/Controller, St. Claire County

ROP: MI-ROP-N6207-2018 effective June 07, 2018, Expired on June 07, 2023. SCL has an application shield to continue to operate as SCL submitted an administratively complete ROP renewal application in a timely manner. i.e., SCL can legally operate under the existing ROP until a renewal is issued. MI-ROP-N6207-20XX (renewal ROP) was under public participation process and 30-day public comment period that ended on November 01, 2023. However, EGLE-AQD has decided to repeat 30-day public comment after incorporating Administrative Consent Order (ACO). MI-ROP-N6207-20XX will be renumbered according to system generated number of MiEnviro.

Landfill regulations:

1. 1996: Issued New Source Performance Standard (NSPS) and Emission Guidelines (EG) Final Rule NSPS for new or modified landfills (40 CFR Part 60, Subpart WWW) and EG for existing landfills (40 CFR Part 62, Subpart Cc). SCL need not comply with NSPS 3W, after issuance of renewed ROP that incorporates 40 CFR Part 62, Subpart OOO emissions guidelines (EG OOO).

2. 1999: Issued Federal Plan: Requirements for existing landfills (40 CFR Part 62, Subpart GGG)

3. 2003: Issued National Emission Standard for Hazardous Air Pollutants (NESHAP) Final Rule (40 CFR Part 63, Subpart AAAA)

4. 2016: Issued New Source Performance Standard (NSPS) and Emission Guidelines (EG) Final Rule NSPS for new or modified landfills (40 CFR Part 60, Subpart XXX)

and EG for existing landfills (40 CFR Part 62, Subpart Cf): Deadline Litigation. SCL was never subject to NSPS 3X.

5. 2020: Completed NESHAP risk and technology review (RTR) Final Rule

6. 2021: Issued Final Federal Plan: Requirements for existing landfills - Implements EG and Compliance Times (40 CFR Part 62, Subpart OOO) and applies to landfills in states and Indian country where state/tribal plans are not in effect

EGLE-AQD never promulgated Part 60 Emission Guidelines (EG) under State Plan for existing landfills: Cc or Cf. EGLE-AQD is implementing Emission Guidelines (EG) (40 CFR Part 62, Subpart OOO) knows as Federal Plan (FP) OOO via MI ROP Program.

AQD has no delegation for Federal Plan (FP) that Implements Emission Guidelines (EG) and Compliance Times (40 CFR Part 62, Subpart OOO). AQD will be able to implement the Federal Plan OOO via current ROP program. Before proposal of Federal Plan OOO on August 22, 2019, the EPA had received 8 state plan submittals to implement the 2016 MSW Landfills EG. Like most states, Michigan neither has its own approved plan nor a delegation of FP OOO.

SCL is subject to Federal Plan (FP) OOO (40 CFR Part 62, Subpart OOO) as it accepted waste after November 8, 1987, and commenced construction on or before July 17, 2014 (May 2014). If SCL complies with Federal Plan OOO, it need not comply with NSPS 3W.

Federal Plan OOO existing MSW landfills: existing MSW landfills are those that accepted waste after November 8, 1987, and commenced construction on or before July 17, 2014. Hence, SCL is an existing landfill.

SSM: Startup, Shutdown, and Malfunction (SSM) Exemption has been removed per FP OOO. The rules will now apply at all times, including during SSM events.

Subject to 40 CFR, Part 61, Asbestos: 40 CFR Part 61 Subpart M, National Emission Standard for Asbestos. Smiths accepts asbestos waste and deposits it in a designated and GPS identified space so that it will not be excavated. AQD always verified zero opacity in the active asbestos disposal area. All bags / containers appeared properly closed / sealed in a leak-tight manner such that there were no visible emissions (VE) emanating from them while being dropped into the specified landfill cell.

Subject to NESAHAP / MACT Subpart AAAA (4A): 40 CFR, Part 63, Subpart AAAA—National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, Page 2227 Federal Register / Vol. 68, No. 11 / Thursday, January 16, 2003 / Rules and Regulations / Final rule. The final rule is applicable to both major and area sources and contains the same requirements as the Emission Guidelines and New Source Performance Standards (EG/NSPS). The final rule adds startup, shutdown, and malfunction (SSM) requirements, adds operating condition deviations for out-of-bounds monitoring parameters, requires timely control of bioreactor landfills, and changes the reporting frequency for one type of report. The final rule applies to area source landfills if they have a

design capacity equal to or greater than 2.5 million Mg and 2.5 million cubic meters, and they have estimated uncontrolled emissions of 50 Mg/year NMOC or more or are operated as a bioreactor. The final rule does not apply to area source landfills (including bioreactors) with a design capacity less than 2.5 million Mg or 2.5 million cubic meters. A Michigan landfill is deemed to be MACT major source if it has an associated landfill-gas-to-energy plant (s) (SI RICE engines) due to formaldehyde emissions (> 10 tpy) from the lean-burn SI RICE engines. Also, the final rule requires compliance reporting every 6 months while the EG/NSPS requires annual reporting. Landfills that do not themselves emit major source levels of HAP but that are collocated (e.g. landfill-gas-electric-power lean-burn SI RICE engines) with major sources of HAP are also covered by the final rule.

SCL is subject to the revised provisions of 40 CFR 63, Subpart AAAA (Landfill NESHAP) as of September 27, 2021. As noted in the Federal Plan, once the facility began complying with the provisions of the Landfill NESHAP, it is required to continue complying with those requirements in lieu of most requirements contained in the Federal Plan.

National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills Residual Risk and Technology Review (RTR), Page 17244, Federal Register / Vol. 85, No. 59 / Thursday, March 26, 2020 / Rules and Regulations, Final rule. This final rule is effective on March 26, 2020. The Rule finalizes the residual risk and technology review (RTR) conducted for the Municipal Solid Waste (MSW) Landfills source category.

Emergency generator is subject to (73 FR 3591, January 18, 2008, 76 FR 37972 June 28, 2011, 78 FR 6697 January 30, 2013): NSPS 4J, 40 CFR, Part 60, Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (natural gas fired Spark Ignition). The provisions of NSPS 4J are applicable to owners and operators and manufacturers. Owners or operators of Emergency SI RICE are subject to this NSPS 4J if engine is manufactured after January 1, 2009, emergency engines greater than 19 kW (25 HP) engine power. Generac: Installed on 3/22/15 (replacing old generator). Manufacture date is 09/12/2014. 22 kW - Natural Gas - 28 HP. Kohler: Installed June 2013. Manufacture date is 02/25/2013. 14 kW - Natural Gas - 18 HP. Hence, Kohler (14 Kw / 18 HP < 19 kW / 25 HP) unit is not subject to NSPS 4J emission limits.

Subject to: Major Source NESHAP / RICE MACT 4Z, 40 CFR Parts 60 and 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines (ICE), Page 6674 Federal Register / Vol. 78, No. 20 / Wednesday, January 30, 2013 / Rules and Regulations / Final Rule. This final rule is effective on April 1, 2013.

NOT Subject to NSPS 3X: 40 CFR Part 60, Subpart XXX—Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification after July 17, 2014, Page 59332 Federal Register / Vol. 81, No. 167 / Monday, August 29, 2016 / Rules and Regulations / Final rule. Smiths Creek was last modified April 8, 2004 (after May 30, 1991 [NSPS 3W], but before July 17, 2014 [NSPS 3W]). Because Cell 4 was built before July 17, 2014 (May 2014), the SCL is not subject to NSPS 3X.

Violation Notices (VNs)

AQD issued four (4) Violation Notices (4 VNs) dated October 25, 2023, November 7, 2023, December 19, 2023, and July 19, 2024, as follows:

1. **October 25, 2023:** AQD issued Rule 336.1901 (nuisance odor) Violation Notice based upon complaint investigations of October 10 & 18, 2023, when AQD staff verified landfill gas (including hydrogen sulfide H_2S, organic sulfur bearing compounds R-SH) odors (distinct and definite). On October 10 and 18, 2023, EGLE-AQD staff detected intense landfill gas sulfur (specifically, hydrogen sulfide) odor continuously at various locations, downwind of SCL of sufficient intensity and duration to be considered a violation of Rule 901. The Rule 901 violation is further corroborated by elevated methane (CH_4) and hydrogen sulfide (H_2S) surface concentrations. Methane (CH_4) readings of 500 ppmv or more above background at any location is considered an exceedance per 40 CFR 63.1958 or 40 CFR 63.1960. Please refer to the SEM inspection letter dated October 31, 2023 (SEM letter)

2. **November 07, 2023:** AQD issued 40 CFR 63, Subpart AAAA, NESHAP / MACT 4A & 40 CFR, Part 62, Subpart OOO Violation Notice for failure to collect landfill gas (LFG) at a sufficient extraction rate, for failure to design and operate the active LFG collection system to minimize off-site migration of LFG.

3. **December 19, 2023:** AQD issued Rule 336.1901 (nuisance odor), 40 CFR 63, Subpart AAAA, NESHAP / MACT 4A & 40 CFR, Part 62, Subpart OOO Violation Notice for failure to design and operate the gas collection control (GCCS) system as the methane concentration was detected above 500 parts per million by volume (ppmv) above background at the surface of the landfill, applied vacuum to the GCCS is inadequate, for failure perform properly surface emission monitoring (SEM) surveys covering all areas where the GCCS is present, for failure to design GCCS to handle the maximum expected gas flow rate from the entire area of the landfill, for failure to operate the GCCS such that all collected gases are vented to a control system, for failure to ensure the gas mover equipment was sized to handle the maximum gas generation flow rate expected as the landfill gas was not conveyed through the collection header pipe, for failure to revise the design plan prior to expanding the GCCS in a way not consistent with the design plan submitted. The VN is further clarifying violation cited on 11/7.

4. **July 19, 2024:** AQD issued Rule 336.1910 (Rule 910: An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the rules and existing law) Violation Notice for failure to operate properly FerroSorp®, Hydrogen Sulfide Removal Dry Scrubber ($Fe(OH)_3$)

On **July 09, 2024**, I, Iranna Konanahalli, accompanied by Dr. Jill Cellini, conducted a level-2 **FY2024 ROP CMS scheduled inspection** of Smiths Creek Landfill (Section 1 SCL) (“Landfill” or “Smiths Creek” or “SCL”) located at 6779 Smiths Creek Road, Smiths Creek (Kimball), Michigan 48074-3506. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural

Resources; Environmental Protection Act, 1994 PA 451; and Michigan Department of Environment Great Lakes and Energy, Air Quality Division (EGLE-AQD) administrative rules; and MI-ROP-N6207-2018. The ROP renewal application is pending. The ROP will be issued upon completion of repeat 30-day public comment period and 45-day US EPA review. The ROP will be renumbered according to MiEnviro.

During the inspection, **Travis C. Heslop** and **Mathew Williams** assisted me and Cellini.

Smiths Creek Landfill is located on Smiths Creek Road near the village of Smiths Creek, (Kimble Twp.) St. Clair County, Michigan. The landfill is owned and operated by the County of St. Clair. St. Clair County is currently designated by the U.S. Environmental Protection Agency (USEPA) as an attainment area with respect to the ozone (O_3) (attainment status is being disputed in federal courts) and non-attainment area for sulfur dioxide (SO_2) standard. The United States Environmental Protection Agency (USEPA) redesignated the ozone status southeast Michigan from nonattainment to attainment/maintenance status on May 19, 2023. The landfill is subject to NSPS Subparts WWW (3W) and NESAHAP / MACT Subpart AAAA (4A) for Municipal Solid Waste Landfills. Smiths Creek Landfill is exempt from the New Source Review (NSR) permit system (Rule 336.1201) pursuant to Rule 336.1285(2)(aa). Hence, Smiths Creek does not have any Rule 201 permitted processes or process equipment. It is not necessary to comply with NSPS 3W if SCL complies with 40 CFR, Part 62, Subpart OOO (Federal Plan). AQD will replace NSPS WWW with 40 CFR, Part 62, Subpart OOO upon renewal of ROP.

Smiths Creek Landfill is a Type II Sanitary Landfill, owned and operated by St. Clair County. Blue Water Renewables (BWR is operated by DTE Biomass, SRN: P0262) owns an electric generating facility (two Caterpillar CI RICE engines) located at the landfill that utilizes the landfill gas (2024 **LFG: ≈ 55% methane**) as fuel. Previously, an agreement was made between AQD management, St. Clair County, and Blue Water Renewables, which allowed the two entities to have separate ROPs and SRNs; together these entities comprise one single stationary source as Blue Water Renewables is completely dependent on landfill gas supply from this landfill. ROP issued in 2018 combined two facilities into one (SRN P0262 [BWR Section 2] has been subsumed into N6207 [SCL Section 1 & BWR Section 2]). The facilities will be separated again for ROP & emission report purposes.

The landfill opened in 1967 (dump before that). It has a design capacity of 27.3 million cubic yards (21.02 million Mg) based upon Initial Design Capacity Report dated August 1, 2018, from CTI, pursuant to 40 CFR 60.767(a)(2). Smiths Creek had a design capacity of 19.8 million megagrams when last modified in June 26, 2013. Since the landfill has a design capacity of greater than 2.5 million Mg and has estimated its Non-Methane Organic Compound (NMOC) emissions to be greater than 50 Mg per year, Smiths Creek is subject to the New Source Performance Standards for Municipal Solid Waste Landfills, 40 CFR Part 60 Subpart WWW (NSPS 3W), and the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills, 40 CFR Part 63 Subpart AAAA (NESHAP / MACT 4A). While construction of Cell 4 commenced in May 2014 following RCRA permit issuance, since this was prior to the July 17, 2014 (May 2014) deadline imposed by the NSPS subpart XXX regulations, SCL continued to operate under NSPS subpart WWW (3W). SCL is now subject FP OOO which will be incorporated into ROP.

The original 56-acre landfill was located on the north side of the property. This portion of the 56-acre landfill is closed and does not have synthetic liner and **NO** active gas collection system, but only **solar flare for passive collection system**. This portion is known as

inactive landfill which does not conform to RCRA (Federal Resource Conservation and Recovery Act) requirements. Six (6) solar vent flares are present in inactive old area to burn emissions when landfill gas is released; most the times the six flares are idle with practically continuous sparking (1 spark / 1.5 sec). 7th solar flare is in active landfill area. In all, seven solar flares are present. While inactive area six (6) solar flares rarely burn, active area seventh (7^{th}) flare almost continuously.

In the newer portion of the landfill (active and post 1989), municipal solid waste, construction debris, asbestos-containing wastes, and ash are deposited in one of the cells. Smith's Creek also operates a **bioreactor** (with septic waste) as part of a **Research Development and Design Project (RDDP)**. While original 8-acre RDDP was for Cell #3, second RDDP is for Cells #4, #6, #7 & #8. Cell8 has never operated as a bioreactor yet although septic sludge has been disposed of until recently (about September 2023). Bioreactor uses septic waste from the county upon gravity settling of solids; only liquid is added to the bioreactor. Solids (settled sludge) are landfilled. The sludge contains approximately 80 percent liquid and 20 percent settled solids. Bioreactor septic waste subsurface injection is temporarily on hold due to prevailing odor problems.

Currently, Smiths Creek owns approximately 265 acres (160 acres permitted for solid waste), has 110 (106 per March 11, 2019, NSPS Annual Report, 110 per September 14, 2020, NSPS Semi-Annual Report) landfill gas extraction wells, and is collecting LFG at flow rates of approximately 1,000 scfm. Now increased to nearly 2,000 cfm. Of the 112 total landfill gas extraction wells, twenty-three (23) have been permanently decommissioned in accordance with prior authorization from then MDEQ (GW-01, GW-03, GW-05, GW-09, GW -14, GW-16, GW-17, GW-18, GW-20, GW-21, GW-27, GW-31, GW-32, GW-33, GW-34R, GW-36, GW-37, GW-39, GW-42, GW-44, GW-46, GW-47, GW-49) and are no longer monitored monthly (September 14, 2020, NSPS Semi-Annual Report for Reporting Period January 2020 thru June 2020). Based upon the September 14, 2020 (Jan-Jun 2020) NSPS Semi-Annual Report the same landfill gas extraction wells were decommissioned and, of the 112 total landfill gas extraction wells, twenty-three (23) have been permanently decommissioned per AQD's prior approval. A Startup, Shutdown, and Malfunction (SSM) Plan was prepared in January 2004 for SCL in accordance with 40 CFR Part 63, subparts A and AAAA.

The collected LFG goes to the on-site blower station and can be routed to one of two flares or preferably to the Blue Water Renewable Engine Plant to generate electricity using two Caterpillar SI RICE Engines (1.6 MW each). The two flares are combined together and hence the main flare is also known as 2-in-1 flare.

Also, now LFG is burnt in portable / supplemental flare with H_2S CAPTURE system via iron hydroxide adsorption with chemical reaction (chemisorption). The main 2-in-1-flare (back-up to the engines) and BWR Caterpillar SI RICE engines continue to operate as usual.

A Startup, Shutdown, and Malfunction (SSM) Plan was prepared in January 2004 for SCL in accordance with 40 CFR Part 63, subparts A and AAAA. This SSM Plan is kept at SCL and is used during SSM events. A log of SSM events is kept with the Plan. SSM no longer required per March 26, 2020, MACT 4A amendments.

Sanitary Landfill Daily Cover (LDC: minimum 6-inch earthen material) or approved Sanitary Landfill Alternate Daily Cover (ADC) is very important for controlling odor, birds and animals and general nuisance (solid waste being blown off by wind). **Headliner waste** (scrap from

manufacturer of automobile interior materials) is approved as ADC by EGLE-MMD. ADC must not be hazardous waste. ADC must be retained by Taylor # 200 screen and, due to fugitive dust emissions and groundwater contamination potential, must not contain contaminants over certain concentrations: e. g., Lead < 3,333 ppm, Arsenic < 5.8 ppm, Cadmium < 3.7 ppm, Chromium < 18 ppm, Tetrachloroethylene < 1.2 ppm, Benzene < 102 ppm, etc. Smiths Creek has an approval from EGLE-MMD for automotive industry headliner material as ADC.

Upon landfilling, MSW initially undergoes **aerobic microbial activity**, which produces predominately nitrogen gas and carbon dioxide. As oxygen levels decline, **anaerobic activity** starts and gas composition changes to a mixture of methane (≈ 50%) and carbon dioxide. Landfill gas (LFG) typically contains a small percentage of non-methane organic compounds (NMOC). The NMOC fraction consists of various organic hazardous air pollutants (HAP), greenhouse gases, and volatile organic compounds (VOC).

New Source Performance Standards (NSPS), Standards of Performance for Municipal Solid Waste Landfills, Emission Guidelines (EG), codified as 40 CFR 60 Subpart WWW, are applicable to MSW landfills, which have a construction, reconstruction or modification date after May 30, 1991. Subpart WWW requires subject facilities with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, to submit an initial design capacity report and a NMOC emission rate report within 90 days after the effective date of the Federal Plan, which was approved January 7, 2000. Furthermore, subject facilities are required to submit a design plan and install an LFG collection and control system (if NMOC emissions are greater than or equal to 50 megagrams per year) that meet the provisions of 60.752 through 60.759 (Subpart WWW). A gas collection and control system are required to be installed 30 months after the NMOC emissions rate report is submitted to the regulatory agency which shows that the MSW Landfill produces 50 Megagrams or greater per year NMOC. Smiths Creek Landfill submitted information indicating that the NMOC emissions are greater than 50 megagrams per year. The facility did conduct Tier 2 testing verifying their NMOC emissions in accordance with the regulation. Therefore, SCL was required to install the gas collection and control system by October 2002. However, the regulation does allow for delayed installation of the gas collection and control system depending on the NMOC results of the test (Tier 3 testing). Smiths Creek had a design capacity of 7.01 million megagrams (greater than 2.5 million megagrams) when modified on April 8, 2004 (after May 30, 1991). Consequently, Smiths Creek has been subject to the standards of 40 CFR 60 Subpart WWW (NSPS 3W) and the provisions of R336.1210 (ROP).

NSPS WWW is replaced by **42 CFR 62, OOO Federal Plan**. SCL (Commenced Construction, Reconstruction, or Modification before July 17, 2014) submitted to US EPA, as CEDRI was not operational. 2,343,975 gallons of liquid per year (June 2021 to May 2022) over surface area of 41.1 acres with 312,635 Mg per year waste disposed of in that area.

Smiths Creek operates a **septage bioreactor** at the site which is temporarily discontinued until odor problem is solved. The bioreactor was added in 2008 according to RDDP (Research, Development, and Demonstration permit issued through Resource Conservation and Recovery Act (RCRA), subtitle D, part 258) and additional cells were added as 2013 RDDP. As of April 2018, septage has been introduced into Cells 2B, 3, 4, 6, and 7. Cell #8 has not received septage yet but in Cell8 septic sludge is disposed of. Obviously, the septic sludge is not currently disposed of. The bioreactor has increased

methane gas production within the cells and hauled-in septic waste (suspended solids are removed by screening for large materials and gravity settling for small particles) accelerates the degradation of the waste. The addition of the bioreactor subjects the facility to the bioreactor regulations within the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, Subpart AAAA. The operation of the bioreactor must also comply with 63.1960 through 63.1985 of 40 CFR 63, Subpart AAAA since the facility was required to install a gas collection and control system per 60.752(b)(2) of NSPS Subpart WWW. 63.1955(d) requires a subjected source to extend the gas collection and control system into the new cell of the bioreactor prior to the addition of liquid waste. Thus, the schedule in 60.752(b)(2)(ii)(A)(2) does not apply to bioreactors (the 2/5 year rule). Smiths Creek submitted several different models to estimate the expectant gas generation rate after the addition of the bioreactor. Based on these models, Smiths Creek did not believe a higher capacity flare will have to be installed to accommodate the increased gas production at the site. However, due to higher than expected LFG, SCL installed the supplemental flare of capacity 1,000 cfm to burn off excess LFG.

The landfill consists of nine (9) Emission Units (EU) and three (3) Flexible Groups (FG) as follows:

MI-ROP-N6207-2018, Emission Units (EU)

The emission units (EUs) will be substantially modified upon renewal of ROP as the regulations have changed significantly.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-LANDFILL-SCL1	This emission unit represents the Municipal Solid Waste (MSW) Landfill.	12/31/1989	NA
EU-ALGCS-SCL1	This emission unit represents the active landfill gas collection system at the landfill. Gas moving equipment draws landfill gas from the wells and delivers it to an open flare. An open flare which combusts landfill gas at active landfill when not burned in SI RICE engines for electric power generation.	10/31/2002	FG-LGCS-SCL1
EU-OPENFLARE-SCL1	The flare is a combustor without enclosure or shroud.	10/31/2002	FG-CONTROLS-SCL1
In addition to this original 2-in-1 main flare, an additional portable / supplemental flare (1,000 CFM) has been installed near Cell8 for odor control purposes. Besides, the new flare is equipped with solid (iron hydroxide) **chemisorption** unit to remove highly odorous hydrogen sulfide (H_2S). The main 2-in-1 flare, in spite of debottlenecking to increase at the fan vacuum of 59 inches of water from 54 inches of water, by itself main was not able to give sufficient vacuum near Cell8. Often vacuum available near Cell 8 was barely 10 inches of water. Therefore, the portable / supplemental flare was installed and has been operating. The supplemental flare is able to provide up to 30 inches of water vacuum.			
EU-VENTFLARE-SCL1	Consists of six self-igniting (solar powered) flares which combust gas vented from the passive landfill gas collection portion of the landfill. The flares are not enclosed or shrouded. The initial performance testing of the solar flares was performed on March 18, 2003; and, therefore, is not required by this table.	10/31/2002	FG-CONTROLS-SCL1

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-BIOREACTOR-SCL1	Represents the portion of the landfill that is expected to be operated as a bioreactor.	08/03/2006	NA
SCL has not been accepting septic waste temporarily, since September 22, 2023, until hydrogen sulfide odor issues have been resolved. AQD has received well-over one hundred (>>200) odor complaints.			
EU-ASBESTOS-SCL1	Any active or inactive asbestos disposal site.	NA	NA
AQD received a Notification of Excavation/Disturbance Asbestos Containing Waste dated June 21, 2024, pursuant to pursuant National Emission Standards for Hazardous Air Pollutants (NESHAP) for Asbestos being 40 CFR 61 Subpart M (Part 61 Asbestos NESHAP M). As the waste excavated during the drilling process was likely to be wet and, hence, potential for visible emissions (VE) or airborne exposure would be minimal and additional measures would be taken to keep the potentially asbestos-containing material copiously wet and enclosed by tarps. Such material would be disposed of in active portions of the landfill designated for asbestos.			
EU-GENERAC-28HP-NG (Generac)	NSPS 4J Emergency Generator. Installed on March 22, 2015 (replacing old generator). Manufacture date is September 12, 2014. 22KW - Natural Gas - 28 HP. Gen Model: 0065510. Serial #: 9169036. Engine Mfg.: OHVI Engines. Engine Model: OJ9333.	03/22/2015	FG-EMERGENS-SCL1
EU-KOHLER-18HP-NG (Kohler)	NSPS 4J Emergency Generator. Installed June 2016. Manufacture date is February 25, 2013. 14KW - Natural Gas - 18 HP. Gen Model: 14RESAL. Serial #: SGM324GJP.	06/2013	FG-EMERGENS-SCL1
EU-**P**LGCS-SCL1	This emission unit represents the **passive** landfill gas collection system at the landfill. This passive system consists of a series of perforated pipes buried in the waste, which delivers landfill gas to one of the six self-igniting (solar power) vent flares where it is combusted.	10/31/2002	FG-LGCS-SCL1

MI-ROP-N6207-2018, Flexible Groups (FG)

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-LGCS-SCL1	The landfill gas collection systems (active and passive) operated at the landfill.	EU-**A**LGCS-SCL1 (Active) EU-**P**LGCS-SCL1 (Passive)
FG-CONTROLS-SCL1	The control equipment operated at the landfill (both active and passive). One (1) open flare (Active Landfill) and six (6) self-igniting solar flares (Passive Landfill)	EU-OPENFLARE-SCL1 EU-VENTFLARE-SCL1
FG-EMERGENS-SCL1	Emergency engines subject to 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. New/Reconstructed emergency engines greater than 0 HP but less than 500 130 ordered on or after June 12, 2006, and manufactured after January 1, 2009	EU-GENERAC-28HP-NG (Generac) EU-KOHLER-18HP-NG (Kohler)

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs

The emergency generators (2) have been replaced by new generators:

1. Generac: Installed on 3/22/15 (replacing old generator). Manufacture date is 09/12/2014. 22KW - Natural Gas - 28 HP. Gen Model: 0065510. Serial #: 9169036. Engine Mfg.: OHVI Engines. Engine Model: OJ9333.

2. Kohler: Installed June 2013. Manufacture date is 02/25/2013. 14KW - Natural Gas - 18 HP. Gen Model: 14RESAL. Serial #: SGM324GJP.

These two small (28 HP & 18 HP) natural-gas-fired SI RICE engines are used for emergency power and are maintained properly including oil change. The engines hardly operate and are insignificant source of emissions.

NSPS 3W: EULANDFILL, EUALGCS, EUOPENFLARE, and EUVENTFLARE at the stationary source are subject to the New Source Performance Standards for Municipal Solid Waste Landfills promulgated in 40 CFR, Part 60, Subparts A and WWW. AQD will replace NSPS 3W with Federal Plan OOO upon renewal of current ROP.

NESHAP / MACT 4A: EULANDFILL, EUALGCS, EUOPENFLARE, EUVENTFLARE, and EUBIOREACTOR at the stationary source are subject to the Maximum Achievable Control Technology Standards for Municipal Solid Waste Landfills promulgated in 40 CFR, Part 63, Subparts A and AAAA.

RICE MACT 4Z: EUEMERGENCYGEN1 and EUEMERGENCYGEN2 are subject to the Maximum Achievable Control Technology Standards for Municipal Solid Waste Landfills promulgated in 40 CFR, Part 63, Subparts A and ZZZZ.

MI-ROP-N6207-2018, FG-LGCS-SCL1 Landfill Gas Collection System

EU-LANDFILL-SCL1: This emission unit represents the Municipal Solid Waste (MSW) Landfill.

EU-ALGCS-SCL1: This emission unit represents the **active** landfill gas collection system at the landfill. Gas moving equipment draws landfill gas from the wells and delivers it to an open flare.

EU-**A**LGCS-SCL1: active and EU-**P**LGCS-SCL1: passive; One (1) open flare serving the active portion of the landfill and six (6) self-igniting solar flares serving the closed portion of the landfill. The solar flares were approved by the United States Environmental Protection Agency. One more flare added in 2022 and SolarFlare7 began operation on September 21, 2022.

Besides one 2-in-1 main flare (near BWR), SCL installed, about May 2024, one 1,000-CFM portable flare near Cell8 to control excessive landfill gas generation especially in and around Cell8. The portable flare is equipped with a dry scrubber to remove highly odorous hydrogen sulfide (H_2S) prior to combustion in the portable flare. SCL started operating the portable flare as soon as its installation to abate odor problems. A Rule 336.1201 permit is pending to be issued.

Smiths Creek ROP has two emission units covering the landfill and gas collection system, EU-LANDFILL-SCL1 and EU-ALGCS-SCL1. Landfill gas generated by active portion of landfill is extracted using a vacuum system and moved using a blower.

Surface emissions should not exceed 500 ppm methane (above background level) (MI-ROP -N6207-2018, EU-LANDFILL-SCL1, I.1). The above ground (5-10 cm) concentrations were monitored by the monitoring instruments that are carried during walk-through the area. However, exceedances have occurred during the fourth quarter of 2017: four locations were identified with measured methane concentrations exceeding 500 ppm above background (See Attachment 1 to 2017Q4 report). 2017Q4 surface monitoring was conducted in October 2017, using Foxboro Thermo TVA 100B flame ionization detector. The instrument was calibrated at 500 ppm methane.

Based upon July 14, 2020, Quarterly Report (2020Q2), surface monitoring report, Thermo Scientific TVA 2020 was used to perform surface emission monitoring. The report noted on 06/08/2020 2,834 ppm CH4 (2020Q2-1) and 868 ppm CH4(2020Q2-2). 10-day and 30-day rechecks were performed on June 17 and July 07, 2020, indicating substantially lower (<< 200 ppm) concentration (ROP limit: 500 ppm methane). Background methane was << 1 ppm.

Based upon September 13, 2021 (Jan-Jun 2021 NSPS Semi-Annual and Federal Plan 40 CFR, Part 62, Subpart OOO Annual Report), SCL consists of 100 landfill gas extraction wells/lines connected by header piping to two open flares (a 3” and 10” line), six separate passive solar flares located in the certified closed area. Pressures were monitored and positive pressure were detected at SCLGW-04, SCLGW-50, CLGW-51, SCLGW64N (request submitted on 3/25/2021 and AQD approved decommissioning on 5/3/21), SCLGW-79, SCLGW-80. Promptly, adjustments to correct positive pressure measured at the wellhead were made.

1Q2022 (Feb 10 &15, 2022) monitoring: No exceedance (<500 ppm methane at the surface of landfill)

2Q2022 (May 24 & 25, 2022) monitoring: One exceedance (>500 ppm methane at the surface of landfill)

3Q2023 (August 1 and 2, 2023) monitoring: One (1) location exceeded the 500-ppm methane regulatory standard.

4Q2023 (October 19 and 20, 2023) monitoring: No location exceeded the 500-ppm methane regulatory standard.

4Q2023 (October 18, 2023) EGLE-AQD monitoring: 40 exceedances of the 500-ppm methane above background standard were detected by AQD. EIL accompanied EGLE-AQD during this methane scan and took concurrent readings at each of the exceedance locations. But, however, EIL confirmed exceedances (> 500-ppm methane) at mere 4 of these locations. It may be noted that EIL (no cone) and AQD (cone) followed slightly different monitoring methods.

1Q2024 (February 6, and February 7, 2024) monitoring: Subsequently, a 10-day rescan was conducted on February 16, 2024, a second 10-day rescan was conducted on February 22, 2024, and a one month rescan was conducted on March 8, 2024.

Andrew Medaugh of Environmental Information Logistics, LLC performed (CY 2024) Surface Emissions Monitoring (SEM) using a portable infrared detector (IR) to determine surface methane levels.

During the 1Q 2024 penetrations monitoring event, there were two (2) exceedances above the 500 ppm above background limit for a total of two (2) exceedances above background limit during the 1st quarter event.

2/7/2024: at location P1, 831 ppm. 10-day recheck on 2/16/2024 and 1-month recheck at P1, < 4 ppm.

2/7/2024: at location P2, 1,115 ppm. 10-day recheck on 2/16/2024 1448.7 ppm and second 10-day recheck on 2/22/2024 1496 ppm 1-month recheck at P2, < 4 ppm.

2Q2024 (June 4, 5 & 6, 2024) monitoring: During the 2Q2024 SEM event, there were zero (0) exceedances above the 500 ppm above background limit.

Landfill cover integrity checks are conducted on a monthly basis. However, based upon AQD monitoring, odor complaints, the above violation notices Smiths Creek did not operate LFG Collection System properly (MI-ROP-N6207-2018, EU- EU-ALGCS-SCL1, III.1, 2, 3, 4). EIL reports that landfill cover was in good condition during CY 2023.

Automatic shutdown of LGCS occurs if any equipment (e.g., blower) malfunctions (MI-ROP-N6207-2018, EU- EU-ALGCS-SCL1, III.1). Based upon the violations notices (VNs) off-site migration of subsurface gas has occurred (MI-ROP-N6207-2018, EU- EU-ALGCS-SCL1, III.1). All collected gas is vented to control systems: predominantly DTE Caterpillar engines or two 2-in-1 flares when DTE engines are not available (MI-ROP-N6207-2018, EU- EU-ALGCS-SCL1, III.2). Asbestos coordinates are marked. Asbestos areas do not have wells but wells are installed along the perimeter. AQD never detected visible emissions (VE = 0% OPACITY) during asbestos disposal activities.

As 2-in1 main flare is not sufficient to collect all landfill gas emitted, SCL has installed and has been operating supplemental flare with sulfur scrubber since May 2024.

Weekly flare inspections are performed. Monthly operations inspections including cover integrity (MI-ROP-N6207-2018, EU-LANDFILL-SCL1, VI.1: monthly cover integrity inspection) are performed.

1. In CY 2016, 214,581 MSW, 31,761; DEMO, 5,157 Septage, all tons per year, were accepted. In all, 284,269 tons per year waste to the landfill. 1,273,069 gallons per year liquid septage was added to the bioreactor.

2. In CY 2017, 266,884 MSW, 33,200 DEMO, 66,770 Special Waste and 5,117 Septage, all in tons per year, were accepted. In all, 371,971 tons per year waste to the landfill. 1,261,710 gallons per year liquid septage was added to the bioreactor.

3. In CY 2018, 5,341 tons of special waste (asbestos), 5,030 tons of Septage 37,936 tons of Special Waste, 46,051 tons of Demo Waste and 240,551 tons of MSW were accepted.

4. In CY 2019, 241 tons of special waste (asbestos), 7,796 tons of Septage, 36,244 tons of Demo Waste and 221,877 tons of MSW were accepted.

5. CY 2020: 65,391 tons of special waste (asbestos), 8,976 tons of Septage, 35,031 tons of Demo Waste and 228,311 tons of MSW were accepted.

6. CY 2021: 46,564 tons of special waste (asbestos), 7,862 tons of Septage 26,855 tons of Special Waste, 35,667 tons of Demo Waste and 265,272 tons of MSW were accepted.

7. Jun 2021- May 2022 (41.1 acres liquid addition area): 2,343,975 gallons per year liquids added, 4,880,692 Total Waste Disposed with 312,635 Mg per year in this period.

8. June 2023 to May 2024 (41.1 acres liquid addition area): 775,931 gallons per year liquids added, 5,409,707 Mg Total Waste Disposed.

Open Flares with shroud (MI-ROP-N6207-2018, EU-OPENFLARE-SCL1)

The flare is a combustor without enclosure or shroud. The initial performance testing for the open flare has already been performed (March 18, 2003, Derenzo and Associates, Inc. [Project No. 0301056, April 04, 2003]) and therefore, the test is not required.

The landfill was previously producing nearly 1000 scfm of LFG (800-920 scf). Each SI RICE (NSPS 4J) engine, operated by Blue Water Renewables, has the capacity of combusting 500 scfm of LFG. Since 3Q2023, SCL is producing more than 1,000 CFM LFG and hence to control odors SCL installed new 1,000-CFM portable flare near Cell8.

SCL is continuously working on increasing available vacuum at wells by debottlenecking the system especially using the portable flare.

Therefore, unless either of the RICE engines are malfunctioning or shut down for scheduled maintenance, all of the LFG produced by the landfill is combusted by the engines[ZJ(1)]. Flare may be used when there is excess LFG production or when RICE capacity is reduced. Near Cell8, sufficient vacuum was not available to draw LFG to the main flare or to the engines; SCL is using the portable flare to control the LFG near Cell8.

Smiths Creek does have two flares (2-in-1 open flares with one common shroud and one common burner system): a 10-inch diameter flare with a 2000 scfm capacity, a 3-inch diameter flare with a 30-200 scfm capacity. Both 10-inch and 3-inch gas pipes use the same flare, sparking system, pilot flame. When in operation, the landfill gas flow rates and

temperature are recorded every 15 minutes as required by the ROP. Blue Water Renewables keeps electronic copies of the data for the flares; Smiths Creek still maintains the flow[ZJ(2)] /temp data chart at the flares.

During the inspection, flares were working properly. 10-inch flare was working as RICE Engines (2) capacity was reduced due to engine problems. Now both engines have been swapped for overhauled engines. No opacity was detectable (0% OPACITY) indicating complete combustion of LFG.

Flare sparks when needed to light pilot lamp. When PLC detects gas flow, spark is initiated, and pilot lamp is lighted. Thermocouple is present to measure temperature of the flare.

LFG flow rates to Flare 10-inch (332 scf LFG) and engines (481 scf LFG) are recorded. Engines LFG flow pressure (2.4 psi) is recorded. Landfill vacuum, flare temperature (1000-1300 ºF), methane content (≈ 59%) are also recorded.

On March 18, 2003, Derenzo and Associates, Inc. (Project No. 0301056, April 04, 2003) conducted stack sampling of open flares (MI-ROP-N6207-2012, EU-LANDFILL, IV.2: 98% NMOC destruction or 20 ppm by volume, dry basis as hexane at 3% oxygen). There were no visible emissions (VE) during 120-minute observation period (§60.18(c)). Average net heating value of LFG controlled by air assisted flare (Active Landfill) was determined to be 404 BTU per SCF (15.1 MJ per SCM), which satisfies net heating value criteria of 300 BTU per SCF (11.2 MJ per SCM) as specified in §60.18(c)(3).

Supplemental (portable) flare with hydrogen sulfide adsorption (chemisorption) control

INTERRA GLOBAL portable flare has been installed and operating (VAV675M-CRSS-36-8ST. Serial No. 23015301). The flare replacement occurred on March 21, 2024. The scrubber media was filled with granular adsorbent material (small pebble stone size). The Interra flare (1,000 cfm) is equipped with a self-igniter.

The flare is designed for flow rate of up to 1,300 scfm. However, SCL, in the permit application, has requested a federally enforceable limitation of 1,000 cfm. Typically, the flare operates at the flow rates of 750 - 900 cfm.

The estimated (typical) gas composition of the landfill gas delivered to the flare is 45 to 55% methane, 35 to 45% carbon dioxide, and less than 20% combined nitrogen, oxygen, and all other trace gases.

As Smith’s Creek Landfill is subject to 40 CFR 63, Subpart AAAA (NESHAP / MACT 4A), the portable open flare which began operation on April 8, 2024, is subject to initial performance test requirements within 180 days of startup according to NSPS 40 CFR, § 60.8 Performance tests. The test was scheduled for August 21, 2024.

FerroSorp® dry scrubber

FerroSorp®, H2S Removal Media granular material (bulk density = 36 pound per cubic feetis used to pack the dry scrubber. The gas flow is horizontal. FerroSorp® material easily removes Hydrogen Sulfide (H2S) from a gas stream in landfill gas applications.

The dry scrubber causes some pressure dop reducing available vacuum at the wells[ZJ(3)] . The adsorption media material is designed to cause low differential pressure drops (ΔP)

across the media. The LFG gas is flowing in horizontal direction. A vacuum truck can be used to easily remove the spent material.

The removal of H_2S from a gas stream, utilizing a pelletized gas purification compound based on iron hydroxide (FeO(OH)) with highly porous surface, can be described through the following chemical reactions:

1. **Adsorption:** $2\ Fe(OH)_3 + 3\ H_2S \rightarrow Fe_2S_3 + 6\ H_2O$ (adsorption with chemical reaction or chemisorption)
2. **Regeneration:** $Fe_2S_3 + 1½\ O_2 + 3\ H_2O \rightarrow 2\ Fe(OH)_3 + 3\ S$

The adsorption (chemisorption or specifically FerroSorption) is based on palletized iron hydroxide (FeO(OH)). Moisture content of LFG can affect the chemisorption.

Currently Dreger Tube H2S readings are taken at the inlet and outlet of the scrubber by CTI of Farmington Hills. On May 01, 2024 (2:50 pm) inlet LFG temperature = 118 °F and outlet combustion products temperature = 1,230°F.

As indicated above in the chemical equation, copious quantities of water (3 moles of water per mole of ferric hydroxide) are generated. Initially, SCL was overwhelmed because storage tank was of insufficient capacity requiring frequent emptying of the tank. Quickly, SCL realized need for continuous drainage of water to the landfill area [ZJ[4] and implemented piping system for continuous drainage of water.

Iron(III) Hydroxide ($Fe(OH)_3$, CAS No.1309-33-7), MW = 106.87

Vent Flares (MI-ROP-N6207-2018, EU-VENTFLARE) – Inactive Landfill

In addition to the two open flares (3-inch & 10-inch diameter vents using same sparking system and pilot burner, located on the same stack, enclosed by a shroud) for **active** landfill, Smiths Creek has six self-igniting solar flares on the **closed (inactive)** section of the landfill. Due to the age of the waste, no active gas collection system was required to be installed in this area. In lieu of an active gas collection system, Smiths Creek installed the solar powered flares; approved by the EPA on July 16, 2002. These flares serve as conduits to release gas pressure and are equipped with a spark plug which ignites the LFG in the combustion zone of the flare. A thermocouple and data logger monitors the operation of each flare.

EU-VENTFLARE-SCL1: Consists of **seven** (7the flare installed a couple of years ago in an active area of the landfill unlike rest 6 flares which are in inactive area) self-igniting flares which combust gas vented from the passive landfill gas collection portion of the landfill. The flares are not enclosed or shrouded. The initial performance testing of the 6 solar flares was performed on March 18, 2003, and, therefore, is not required. Due to lack of gas generation, most flares are idle most of the times. When gas flow is detected by PLC, a flare lights up by a spark. The 7^{th} flare has been added in 2022. The solar vent flare began operation on September 21, 2022, and since it is a new control device for an inactive portion of SCL, an initial performance test is required within 180 days of flare startup. Stack test was scheduled for Wednesday, November 16, 2022.

Flares were replaced by like-for-like (same manufacturer and model) flares recently (CY2020)

Most of these flares run intermittently, or not at all times; at the time of my inspection, I did not observe any of the solar flares operating except one solar flare for a brief period. 0% opacity at the flare during this brief period of operation with heat wave shadow observed on the ground nearby. The weekly solar flare inspections are maintained on-site and were made available to me at the time of my inspection; the logs appear to be properly completed on a weekly basis. The weekly inspections and data recorders are needed to show compliance with permit conditions.

Solar power charges 6-V batteries that produce sparks: 1 spark per 1.5 seconds. A separate 3.5-V batteries are present for data loggers, which are changed / replaced once per quarter. Weekly check is performed on all batteries and sparking systems. Data (e.g. temperature) is logged once every five minutes. Once a month, data is transferred to USB jump drive. CTI / EIL handles the data. The data is transferred to a MS Spreadsheet for analysis. Emissions are calculated for MAERSN based upon run-time.

NESHAP Initial Performance Test Report: VE emissions tests was performed on one (1) Solar Vent Flare No. 7 on November 16 & November 17, 2022, by Environmental Information Logistics (EIL), LLC of Caledonia, MI 49316.

Based upon EIL test report of January 2023 the average net heating value of the gas being combusted at the solar flare was 556.3 BTU/SCF (HHV basis), or 17.23 MJ/scm. The requirement for net heating value is that the landfill gas quality for a non-assisted flare be greater than 200 BTU/SCF. During the test, there were no visible emissions (VE or opacity)

Bioreactor (MI-ROP-N6207-2018, EU-BIOREACTOR-SCL1)

EU-BIOREACTOR-SCL1: Represents the portion of the landfill that is expected to be operated as a bioreactor.

The bioreactor is being operated as a Research Development and Design Project (27 million tons capacity RDDP). Beginning about 2008, leachate and septage (mostly septage, < 10% leachate) are being added to the waste to accelerate the degradation process and to increase the production of LFG. Initially the bioreactor was divided into two cells: Cell 3B for leachate recirculation and Cell 3A for septage addition. Two large bladder tanks are located near cell #3 and the liquid material is mostly gravity fed (some material is pumped) into a pump system located within the cells. Settled solids is landfilled as a sludge.

The 2-bladder particulate settling tanks (60,000 gallons capacity each) were replaced in recent year (2022). Cell No 3 is hardly producing gas. No septage into Cell No. 8 yet but septage sludge was disposed of. As stated elsewhere, SCL stopped accepting septage waste due to hydrogen sulfide odor problem.

About 2013, Smith's Creek was permitted by MDEQ-WMRPD / EGLE-MMD to expand the bioreactor into co-mingled waste in cells #4, #6 and #7.

Based on the well data and moisture content provided, the Bioreactor appears to be meeting the conditions established in the ROP. No septage accepted since 2023.

At septage recirculating station, one rock trap is present. Grinder is present as well to prevent clogging. A flow meter is present. The liquid is screened to remove large solid chunks. From two separate tanks (3,000-gallon each but joined together), two pumps pump liquid from the station to two PVC tanks. MDEQ approved removal of bio-filter for odor control. At the landfill, solids are separated by gravity settling in first PVC tank. Upon completion of gravity settling time, clarified liquid is decanted to second PVC tank. Decanted liquid from PVC Tank 2 is sent to a manifold. While liquid is injected by gravity to Cells 3 & 4, liquid is injected by using pump to Cells 6 & 7. Smiths Creek is planning to inject septic liquid into Cell No. 8 that requires RCRA permit revision; no septage in Cell No. 8 yet. Small pumping station is present.

All wells for landfill gas collection are horizontal in Bioreactor. Vertical wells may be installed in future. Horizontal wells are less expensive. Bioreactor produces gas for 15-20 years compared to about 50 years for ordinary landfills.

For leachate collection, some pumps are operated by windmills and others are operated pneumatically (compressed air). Due to low wind velocities when needed, one of windmills is replaced by solar pump. One portable solar pump is available for use wherever and whenever needed.

Due to odor problems SCL stopped receiving septic waste since September 22, 2023.

Asbestos (MI-ROP-N6207-2018, EU-ASBESTOS)

EU-ASBESTOS-SCL1: Any active or inactive asbestos disposal site. This landfill accepts asbestos waste.

Smiths Creek accepts asbestos containing waste. These activities are permitted in the ROP under EU-ASBESTOS-SCL1. When asbestos waste is accepted, the coordinates are recorded on the site map; when a well is needed, Smiths Creek avoids the area containing the asbestos waste. At this time, Smiths Creek is in compliance with the conditions listed in EU-ASBESTOS-SCL1.

Smiths Creek inspects asbestos bags for integrity. On July 20, 2017, I observed asbestos dumping. On July 9, 2024, asbestos dumping was not scheduled. All dumping occurs by scheduling. Clay is used to cover asbestos. As stated above, AQD received excavation notification.

1. In CY 2016, 214,581 MSW, 31,761; DEMO, 5,157 Septage, all tons per year, were accepted. In all, 284,269 tons per year waste to the landfill. 1,273,069 gallons per year liquid septage was added to the bioreactor.

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8. June 2023 to May 2024 (41.1 acres liquid addition area): 775,931 gallons per year liquids added, 5,409,707 Mg Total Waste Disposed.

All asbestos is dumped in a dedicated area of a landfill cell. Although site coordinates are followed and GPS coordinates are followed according to NSPS 3X. 6-inch dirt (clay) cover is placed immediately after asbestos dumping. Smiths Creek checks for integrity of asbestos bags.

No drilling occurs at asbestos areas. However, landfill gas collection drills are placed along the perimeter.

Smiths Creek handles promptly any manifest discrepancies and reports the detected discrepancies to US EPA for unresolved issues. No excavation of asbestos cell has occurred.

Generators (MI-ROP-N6207-2018, FG-EMERGENS)

Two emergency generators are present:

1. Generac: Installed on 3/22/15 (replacing old generator). Manufacture date is 09/12/2014. 22KW - Natural Gas - 28 HP. Gen Model: 0065510. Serial #: 9169036. Engine Mfg.: OHVI Engines. Engine Model: OJ9333.

2. Kohler: Installed June 2013. Manufacture date is 02/25/2013. 14KW - Natural Gas - 18 HP. Gen Model: 14RESAL. Serial #: SGM324GJP.

During the previous inspection, I asked Smiths Creek to obtain US EPA emission certificate from the vendor for Generac. The requirements generally are US EPA certificate, change oil and filters (once per year).

US EPA issued, on December 12, 2013, to Generac Power Systems, Inc. Certificate Number EGNXB.9992ST-028 (Effective Date: 12/12/2013 & Expiration Date:12/31/2014; Fuel : Natural Gas (CNG/LNG); Emission Standards : CO (g/kW-hr) : 519 HC + NOx (g/kW-hr) : 13.4 NMHC + NOx (g/kW-hr) : 13.4; Emergency Use Only : Y) per 40 CFR, Part 60.

Maintenance records (oil and filter change, inspections) and hours of operation records are kept.

ASBESTOS
SC also accepts asbestos waste (Part 61 Asbestos NESHAP). EGLE-AQD Asbestos group needs to inspect this facility for asbestos disposal.

Conclusion

Smiths Creek is NOT in compliance with ROP based upon four VNs. Two small (< 30 HP & 25 kW) SI RICE engines fired with NG are present for emergency power.

NAME J Shenanahall. DATE 09-27-2024 SUPERVISOR Joyce K