

N6207
 Scheduled
 FY 2017 Insp
 ROP CMS

DEPARTMENT OF ENVIRONMENTAL QUALITY
 AIR QUALITY DIVISION
 ACTIVITY REPORT: Scheduled Inspection

N620741296

FACILITY: SMITHS CREEK LANDFILL		SRN / ID: N6207
LOCATION: 6779 SMITHS CREEK ROAD, SMITHS CREEK		DISTRICT: Southeast Michigan
CITY: SMITHS CREEK		COUNTY: SAINT CLAIR
CONTACT: Matt Williams, Landfill Manager		ACTIVITY DATE: 07/20/2017
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY2017 ROP CMS scheduled inspection of Smiths Creek Landfill		
RESOLVED COMPLAINTS:		

N6207 - SAR - 2017 07 20.

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

ROP: MI-ROP-N6207-2012 expiring June 5, 2017

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 m3, 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 m3. 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.

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.

non-attainment area with respect to the PM 2.5 standard. The landfill is subject to NSPS Subpart 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. The mandatory Greenhouse Gas Reporting Rule under 40 CFR 98 is not an ROP applicable requirement and is not included in the ROP.

Smiths Creek Landfill is a Type II Sanitary Landfill, owned and operated by St. Clair County. Blue Water Renewables (operated by DTE Biomass, SRN: P0262) owns an electric generating facility located at the landfill that utilizes the landfill gas (LFG: \approx 58% 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 to be issued in 2018 will combine two facilities into one.

The landfill opened in 1967. It has a design capacity of 12.6 million cubic yards (9.7 million Mg). 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).

The original 56-acre landfill was located on the north side of the property. This portion of the landfill is closed and does not have synthetic liner, or an active gas collection system. This portion is known as inactive landfill. Solar vent flares are present to burn emissions when landfill gas is released; most the times the flares are idle with continuous sparking (1 spark / 1.5 sec).

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 as part of a Research Development and Design Project. Bioreactor uses septic waste from the county upon gravity settling of solids; only liquid is added to the bioreactor.

Currently, Smiths Creek owns approximately 265 acres (160 acres permitted for solid waste), has 97 (March 02, 2017, NSPS Annual Report) landfill gas extraction wells, and is collecting LFG at flow rates of approximately 1000 scfm. The collected LFG goes to the on-site blower building and can be routed to one of two flares or preferably to the Blue Water Renewable Engine Plant to generate electricity using two Caterpillar Engines (1.6 MW each).

Smiths Creek Landfill is a Type II Sanitary Landfill, which accepts municipal solid waste (MSW) and inert wastes such as construction and demolition debris, foundry sand, ash and low level contaminated soils. The facility also accepts asbestos waste (Part 61 Asbestos NESHAP).

Sanitary Landfill Daily Cover (LDC: minimum 6-inch earthen material) or approved Sanitary Landfill Alternate Daily Cover (ADC) is very important for odor control, birds and animals control and general nuisance (solid waste being blown off by wind). ADC must not be hazardous waste. ADC must be retained by Taylor # 200 screen and, due to fugitive dust

Smiths Creek does not believe a higher capacity flare will have to be installed to accommodate the increased gas production at the site.

The landfill consists of six (6) Emission Units (EU) and three (3) Flexible Groups (FG) as follows:

Emission Units (EU)

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EULANDFILL	The general Municipal Solid Waste (MSW) landfill.	12/31/89	NA
EUALGCS	The active landfill gas collection system at the landfill which uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.	10/31/02	FGLGCS
EUOPENFLARE	An open flare without enclosure or shroud.	10/31/02	FGCONTROLS
EUVENTFLARE	Self-igniting (solar powered) flares without enclosure or shroud.	10/31/02	FGCONTROLS
EUASBESTOS	Any active or inactive asbestos disposal site.	NA	NA
EUBIOREACTOR	The bioreactor portion of the active landfill.	08/03/06	NA
EUEMERGEN1	Generac 30 horsepower, 2.4 L, 15 KW liquid petroleum-fired emergency generator.	April 2004	FGEMERGENS
EUEMERGEN2	Generac 60 horsepower, 2.4 L, 35 KW liquid petroleum-fired emergency generator.	July 2007	FGEMERGENS
<p>The emergency generators (2) have been replaced by new generators:</p> <ol style="list-style-type: none"> 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. 			

Flexible Groups (FG)

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFGCS	Landfill gas collection system(s)	EUALGCS, EUPLGCS

Weekly flare inspections are performed. Monthly operations inspections including cover integrity (MI-ROP-N6207-2012, EU-LANDFILL, VI.1: monthly cover integrity inspection) are performed.

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

Open Flares with shroud (EU-OPENFLARE)

The landfill is currently producing nearly 1000 scfm of LFG (800-920 scf). Each of the RICE engines operated by Blue Water Renewables has the capacity of combusting 500 scfm of LFG.

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.

Smiths Creek does have two flares (open flares with shrouds): a 10" diameter flare with a 2000 scfm capacity, a 3" diameter flare with a 30-200 scfm capacity. When in operation the flow 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/temp data chart at the flares.

During the inspection, flares were working properly. Flare sparks when needed to light pilot lamp. When PLC detects gas flow, spark is initiated and pilot lamp is lighted. As stated before, there are two sources: one with shroud and one open flare (3 inches diameter and 10 inches diameter)

LFG flow rates to Flare 2 (60-100 scfm), Flare 1 (0 scfm) and engines (850-920 scf) are recorded. Engines LFG flow pressure (2.4 psi) is recorded. Landfill vacuum, flare temperature (1000-1300 °F), methane content (\approx 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).

Vent Flares (EU-VENTFLARE) – Inactive Landfill

In addition to the two open flares (located on the same stack), 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.

Most of these flares run intermittently, or not at all; at the time of my inspection I did not observe any of the solar flares operating. The weekly solar flare inspections are maintained

Smiths Creek inspects asbestos bags for integrity. On July 20, 2017, I observed asbestos dumping. All dumping occurs by scheduling. Clay is used to cover asbestos. In CY 2016, 70,723 cubic yards of special waste (asbestos) was accepted.

Generators (FG-EMERGENS)

Two emergency generators are present:

3. 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.
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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).

Conclusion

Smiths Creek is in compliance with ROP. Two small (< 30 HP & 25 kW) SI RICE engines fired with NG are present for emergency power.

NAME

[Signature]

DATE

8/29/2017

SUPERVISOR

[Signature]