SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES	PAGE 1
STATIONARY SOURCE COMPLIANCE DIVISION	APPL NO 437754/55	DATE 6/21/11
PERMIT APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY	CHECKED BY

Application

Toyon Landfill Gas Conversion, LLC
Foster Plaza 10, 5th Floor
680 Anderson Drive
Pittsburgh, PA 15220

Equipment location:
Toyon Canyon Landfill
5050 Mount Hollywood Drive
Los Angeles, Ca.

Equipment Description

A/N 437754 (Previous F72412)

RESOURCE RECOVERY SYSTEM NO. 5 CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE, SUPERIOR, SPARK IGNITION, FOUR-STROKE, TURBOCHARGED, INTERCOOLED, V-16 TYPE, MODEL NO. 16SGTA, 2650 H.P., LANDFILL GAS WITH NATURAL GAS AUGMENTATION AND ASSOCIATED PUMPS AND COMPRESSORS, DRIVING A 1972 KW GENERATOR.

2. AERIAL COOLER AND FAN, 15 H.P. TOTAL.

3. STORAGE TANK, ABOVEGROUND, LUBE OIL, 5000 GAL. (COMMON TO RESOURCE RECOVERY SYSTEM NO.4).

4. STATIC GAS MIXER, KENICS, MODEL NO. BKM52, 8'-0" DIA. X 3'-0" L (COMMON TO RESOURCE RECOVERY SYSTEM NO.4).

5. iFLEX ENGINE MANAGEMENT CONTROL AND SAFETY SHUTDOWN SYSTEM.

6. WOODWARD ATLAS GENERATOR CONTROL PACKAGE.

7. ALTRONIC CPU-95 VERA SPARK IGNITION SYSTEM.

A/N 437755 (Previous F72413)

RESOURCE RECOVERY SYSTEM NO. 4 CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE, SUPERIOR, SPARK IGNITION, FOUR-STROKE, TURBOCHARGED, INTERCOOLED, V-16 TYPE, MODEL NO. 16SGTA, 2650 H.P., LANDFILL GAS WITH NATURAL GAS AUGMENTATION AND ASSOCIATED PUMPS AND COMPRESSORS, DRIVING A 1972 KW GENERATOR.

2. AERIAL COOLER AND FAN, 15 H.P. TOTAL.

3. STORAGE TANK, ABOVEGROUND, LUBE OIL, 5000 GAL. (COMMON TO RESOURCE RECOVERY SYSTEM NO.5).

4. STATIC GAS MIXER, KENICS, MODEL NO. BKM52, 8'-0" DIA. X 3'-0" L (COMMON TO RESOURCE RECOVERY SYSTEM NO.5).

5. iFLEX ENGINE MANAGEMENT CONTROL AND SAFETY SHUTDOWN SYSTEM.

6. WOODWARD ATLAS GENERATOR CONTROL PACKAGE

7. ALTRONIC CPU-95 VERA SPARK IGNITION SYSTEM.

History

Toyon Landfill is a landfill owned and operated by the City of Los Angeles (Facility ID # 95566). The landfill was open from 1957 to 1985. The City completed closure work in 2008. In a landfill, deposited waste material decomposes and generates a gaseous byproduct called landfill gas which contains approximately 50% methane and 50% CO2. The generation of the gas increases as more waste is buried and then peaks at the time the landfill closes. Without the continuing waste deposits, the gas generation rate then declines during a 30-40 year period. Because landfill gas is potentially explosive, odorous, and contains air contaminants, regulations are in place requiring collection and control of the gas. At Toyon, the City of LA operates a flare capable of controlling all the collected gas, but normally the collected gas is directed to two internal combustion engines driving electrical generators which are on-site but owned and operated by a separate facility. This entity pays the City of LA for the landfill gas and sells the electricity. The engines are spark-ignited, lean burn with pre-combustion chambers, and with NOx and O2 CEMS.

In June 2000 South Coast Air Quality Management District (AQMD) issued an Initial Title V permit to Ogden Power Pacific, Inc. (Facility ID # 43537) located at 5050 Mt Hollywood Dr., Los Angeles, CA 90027 to operate five resource recovery systems consisting of IC engines and associated equipment at Toyon Landfill. Ogden Power Pacific was acquired by 8309 Tujunga Avenue Corp. without a change of ownership. 8309 Tujunga Avenue Corporation planned to remove the IC engines from operation by the end of December 2004 due to inability to comply with Rule 1110.2 requirements. While the engines were capable of low emissions, the existing configuration did maintain proper air to fuel ratio control, load control, engine speed, and ignition timing.

Instead, they sold the facility to Toyon Landfill Gas Conversion, LLC in November 2004. AQMD received applications for a change of ownership and modifications to the TV permit. The modification was to install additional controls to the two of the five existing landfill gas fired engines to meet the requirements of Rule 1110.2. The other three engines were removed from operation due to the reduced supply of landfill gas. The changes included installation of:

1. iFlex Engine Management Control and Safety Shutdown System to control the air/fuel ratio.
2. Woodward Atlas generator control package to control the speed and load.
3. Altronic CPU-95 Vera spark ignition system to provide exact control of the ignition

timing.

This system allows the operators to monitor, fine-tune, and record engine load, fuel flow rate and fuel manifold pressure, engine air manifold pressure, engine jacket water pressure, engine oil pressure, engine exhaust O2 and average cylinder temperature, and elapsed operating time.

Permits to Construct were granted in January 2005, along with the change of ownership, in a Title V Revision under application #437756. During the time the modifications were being performed, the engines were granted a variance from Rule 1110.2 (Case 5491-1). Final Compliance was acheieved in October 2005.

In 2007, the Viridis Energy acquired Toyon Landfill Gas Conversion, LLC and without a change of ownership of the site. Only the contact information and responsible official changed. A TV Administrative revision application #466439 was filed but subsequently cancelled because in 2011, Virdis sold Toyon to Montauk Energy Holdings, LLC without a change of ownership of the site. Only the contact information and responsible official changed. A TV Administrative revision application #520057 was filed.

AQMD compliance records show no NOVs or NCs issued to this facility during the last several years. The facility has reported compliance with all terms of the permit from 2008 – 2010 on the Annual Compliance Certifications.

Calculations

Premodification and Postmodification emissions from each engine (NSR). Emissions from each modified engine :

ROG, and NOx are based on Manufacturers guarantee to meet Rule 1150.1 (20 ppm) and Rule 1110.2 CO, SOx and PM10 are based on previous emissions. Peak exhaust flow rate is about 6000 dscfm at 8% O2, based on source test.

	ROG, lb/hr	ROG, lb/day	NOx, lb/hr	NOx, lb/day	SOx, lb/hr	SOx, lb/day	CO, lb/hr	CO, lb/day	PM, lb/hr	PM. lb/day
Pre-mod	4	96	9.9	238	0.33	7.92	16.5	396	1.05	25.2
Post—mod	1.18	28	3.41	81.8	0.33	7.92	16.5	396	1.05	25.2
change	-2.82	-68	-6.49	-156.2	0	0	0	0	0	0

Evaluation

Rule 212: Public Notice

There is no emission increase, no school within 1000 feet and no increase in risk. A public notice is not required

Rule 218/218.1 CEMS

The NOx/O2 CEMS are certified (May 2006).

Rule 401: Visible Emissions
No violations are expected.

Rule 402: Nuisance
Nuisance is not expected.

Rule 404: Particulate Matter-Concentration
(a) 1.05 lbs/hr at 6000 dscfm = 0.020 grains/cf. Allowed is 0.025 gr/cf.
(b) Allowed is 0.196 gr/cf.
Complies.

Rule 431.1: Sulfur Content of Gaseous Fuels
Landfill gas is expected to meet the 150 ppm sulfur limit. Actual levels are about 30 ppm.

Rule 1110.2: Emissions from Gaseous and Liquid Fueled Engines

The engines are fired on landfill gas collected from Toyon landfill , and augmented with natural gas to maintain a stable combustion. Based on CY 2007 data the monthly average percentage of landfill gas meets or exceeds 90% of the total heat input, and as such, are categorized as biogas engines.

Month	Landfill gas, scf	Natural gas, scf	Total fuel, scf	BTU, lfg, at 450 / scf, x 10^8	BTU, NG, at 1012 / scf x 10^8	Total heat input x 10^8	Fraction of LFG heat input
Jan	45130000	1241765	46371765	203.09	12.57	215.65	0.9
Feb	41260000	1483333	42743333	185.67	15.01	200.68	0.9
Mar	42648000	1277843	43925843	191.92	12.93	204.85	0.9
April	51632000	99421	51731421	232.34	1.01	233.35	1.0
May	46520000	428039	46948039	209.34	4.33	213.67	1.0
June	50830000	15686	50845686	228.74	0.16	228.89	1.0
July	49984000	1415000	51339000	224.93	14.32	239.25	0.9
Aug	48595000	1715000	50310000	218.68	17.36	236.03	0.9
Sep	44755000	0	44755000	201.40	0.00	201.40	1.0
Oct	47440000	2870000	50310000	213.48	29.04	242.52	0.9
Nov	39603000	1738000	41341000	178.21	17.59	195.80	0.9
Dec	33498000	39000	33537000	150.74	0.39	151.14	1.0

-Engines are expected to meet the compliance limits as follows for Biogas engines;
VOC 40 ppm (as carbon) @ 15% O2, NOx 36 ppm @ 15% O2, CO 2000 ppm @ 15% O2.
-NOx and O2 CEMS are installed to continuously monitor for compliance, and are certified.
CO CEMS are not required for lean burn engines.
-Since 2008, the following additional requirements have been in place:

- an Inspection & Monitoring Plan was filed under application # 486798. Daily monitoring of load, fuel rate, set points, and operating time are required. The rule requires implementation of the proposed plan without prior approval of the plan.

- Portable Combustion Gas Analyzer CO emission checks every 2000 hours or quarter, whichever is later, for lean burn engines.
- Source Testing is required every 8760 hours of operation, or every two years, whichever comes first. The engines were tested in 2008 and 2010. Emissions were in compliance.
- Quarterly reports are due that list breakdown, fault, malfunction, alarm, engine or operating system control parameter out of range, or emission check that finds an exceedance. Records show facility has met all reporting requirements.

Rule 1150.1: Control of Gaseous Emissions from Municipal Solid Waste Landfills

Equipment is expected to meet NMOC outlet concentration of 20 ppm (dry, as hexane@ 3% O2). This limit is the same as the R1110.2 VOC limit, after correction. Source Testing shows emissions were in compliance.

40CFR63 Subpart ZZZZ: (RICE)

Owners and operators of existing stationary RICE located at area sources of HAP that are subject to management practices do not have to conduct any performance testing. Existing landfill gas non-emergency stationary SI RICE located at area sources of HAP are subject to the following management practices:

• Change oil and filter every 1,440 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program and none of the condemning limits are exceeded;

• Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and

• Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

Reg. XIII: New Source Review

There is no emission increase for ROG and NOx. Engines will be conditioned to previous emission limits as entered in the NSR account for SOx, CO and PM10. Therefore, there is no emission increase and BACT, Modeling and CEQA are not required

Reg. XXX: Title V

The proposed revision is categorized as "administrative" for conversion of PC to PO and removing conditions related to construction. EPA review not required. A public notice is not required.

Conclusions and Recommendations

Equipment is in compliance with the Rules and Regulations of the AQMD. Recommend issuing permits to operate.