Rule 431.1 Compliance Plan

Applicant's Name: Los Angeles County Sanitation District – Puente Hills

Mailing Address: 13130 Crossroads Parkway South, City of Industry, CA

Equipment Location: Same as above

Facility ID NO.: **025070 (A/N 519253)**

Background/Process Description:

This application was filed for Rule 431.1 compliance plan by Los Angeles County Sanitation Districts on 2-24-2011. Puente Hills landfill has two Gas to energy facilities and the two landfill gas headers feeding these facilities have different H2S content.

- Facility no. 1 (Puente Hills Energy Recovery facility, PERG) has two boilers, one gas turbine and 26 permitted flares. Landfill gas flowmeter FT-100 (McCrometer, V-cone type), is for PERG. H2S is being monitored by Advanced Pollution Instrumentation (API) Model 152-N/ SN. 318.

- Facility No. 2 (also called western Blower station, WBS) has three Landfill gas fired ICE's. Landfill gas flowmeter FT- 2401 (FCI, MT 86 – 2 Single point sensing elements) is for WBS. H2S is being monitored by Thermo Electron Corporation Model 43i – AMSCB / SN. 0617117195.

Reason behind filling of this application:

Sulfur content in the landfill gas combustion devices is subject to rule 431.1 requirements which limit the sulfur content to 150 PPMV. As per the applicant H2S content of Landfill gas entering WBS only sometimes goes above 150 PPMV and the combustion devices (3 ICE's) are not able to comply with rule 431.1 sulfur limits for landfill gas. So the applicant has proposed averaging the H2S content in the two headers which results in the average content to be below 150 PPMV. As per the applicant, they will be reconfiguring their SCADA (supervisory control and data acquisition systems, basically instrumentation and control systems with digital display) system display in PERG control room (they have one control room for both WBS and PERG) to see the average H2S concentration for both streams. Based on the sulfur concentration readings in landfill gas PHLF, they are confident of meeting the 150 PPMV limit for average of both gas streams. Both of these sulfur analyzers will be displaying the H2S PPMV continuously. Both of the flow meters will be displaying the flow numbers continuously as well. Applicant will be reconfiguring the SCADA system to show all the five (instantaneous flow average sulfur, two sulfur PPMV readings, and two flow readings) numbers.

Overflow Line:

Under normal operating conditions, WBS (western Blower Station) is not able to consume all the landfill gas entering from the WBS header, so the rest of the gas is sent back to PERG via an overflow line. As per the flow diagram sent by the applicant, this overflow line joins the PERG header and the WBS header downstream of flow meter and analyzer present in both headers. While writing the plan requirements, it was made sure that the applicant is measuring H2S and Methane upstream of overflow line for both of the headers.

Certification of PERG flow meter and Sulfur Analyzer:

Flow meter at PERG is being checked annually by internal electrical technicians who match the electrical signal output from the flow meter to the actual flow assuming linearity relationship. This flow meter is not taken out for service and checked for mechanical and structural integrity of internal components. As per the applicant this meter does not have a direct bypass around it and cannot be taken offline easily. Applicant has also supplied manufacturer installation and operation brochure (Mc Crometer, V-cone Type Meter) which states that if the flow meter is installed properly, it should not need any frequent maintenance although the flow meter can be calibrated while the meter is in line. Manufacturer has attached a trouble shooting table in the flow meter brochure. Applicant had provided PERG flow meter calibration sheet when the meter was calibrated on 03-03-2011.

Sulfur analyzer at PERG does have a certification from SCAQMD although no certification could be located by source test team. No formal certification letter or QA/QC plan was found. Applicant has sent us their own QA/QC plan which is being followed by the applicant. It includes daily calibration, and various preventive maintenance activities listed in the QA/QC documents.

Applicant shall be asked to keep records of the maintenance activities listed in the QA/QC document including calibration records for five years.

Certification of WBS flow meter and Sulfur Analyzer:

Flow meter at WBS is being annually calibrated by the manufacturer. Applicant has entered in to contract with the manufacturer for annual calibration of WBS flow meter. Please see the attached calibration sheet (calibrated on 04-11-2011) provided by the applicant. Flow meter does not have any SCAQMD certification as SCAQMD does not issue certifications for flow meters as per the source test group engineers at SCAQMD.

Sulfur analyzer for WBS certified by SCAQMD source test engineering group. Please see attached certification letter issued by Tom Lee on 03-24-2011. In the certification letter, applicant was asked to update the QA/QC plan with SCAQMD. Applicant has also completed a certification test (RATA testing) of the sulfur analyzer by URS in Dec 2006, after submitting the certification protocol (attached in application folder) to SCAQMD. Please see the RATA test results in the final report attached in the application folder. This analyzer also gets automatically calibrated daily with 180 PPMV gas.

Data Storage in SCADA System:

As per the definition of continuous monitoring, applicant will be required to store the data points at least every 15 minutes. Instantaneous average will be displayed in SCADA system and the end of every day a daily average value shall also be calculated. As per Title V requirements applicant will be required to store the data for 5 years.

Breakdown Provisions:

Applicant has requested to include a breakdown provision of any one of the sulfur analyzer as part of this 431.1 plan. Please see the plan language for breakdown provisions.

Rule Evaluation:

Rule 431.1 Applicant has demonstrated compliance with section 431.1 (c) (3) of the rule :

Please see detailed information in the application folder.

(A) *Contain, at a minimum, all data, records, and other information necessary to determine eligibility for alternative emission control, including but not limited to:*

(i) A list of equipment and a description of the equipment where the gaseous fuel is being produced and/or burned;

PERG Facility: Two Boilers, One Gas Turbine, and 26 Flares
WBS Facility: 3 ICE's

(ii) *The amount of fuel produced by and/or to be burned in each piece of equipment listed in clause (c)(3)(A)(i);*

In 2009 the landfill gas usage for these pieces of equipment was as following:
PERG Facility:

Two Boilers	11,073,708 kscf
One Gas Turbine	684,471 kscf
26 Flares	1,068,542 kscf

WBS Facility:

3 ICE's	878,896 kscf

(iii) *The estimated emissions of sulfur dioxide from each piece of equipment; and*

2009 Daily average for inlet H2S to PERG in landfill gas - 105 ppmv
2009 Daily average for inlet H2S to PERG in landfill gas - 119 ppmv
SOx emissions as H2S from PERG

Total Flow = (11073708 + 684471 + 1,068,542) x 1000 scf of flow in one year

H2S emissions = 105 ppmv/ 10^6 x 24403.96 scfm x 60 min/hr x lb-mole/379 ft^3 x 34.08 lbs/lb- mole
=13.82 lbs/hr = 331.79 lbs/day = 120867 lbs/year

SOx emissions as H2S from WBS
Total Flow = (878, 896) x 1000 scf of flow in one year

119 ppmv/ 10^6 x 1672.177 scfm x 60 min/hr x lb-mole/379 ft^3 x 34.08 lbs/lb- mole
= 1.07 lbs/hr = 25.71 lbs/day = 9386.20 lbs/year

(iv) *Historical and projected information on fuel usage;*

Gas flow could up slightly as the landfill is still open but the landfill will be closing in 2013, so the projected flow and BTU's in the gas should be going down.

(B) *Demonstrate that daily total SO_x emissions under the OFCP from all sources within the facility regulated under Rule 431.1 would be less than or equal to SO_x emissions that would have been emitted based on actual total SO_x emissions from each source, or the sulfur content limits of this rule, whichever results in lower SO_x emissions. The total SO_x emissions generated from the subject fuel shall be determined using a continuous emission monitoring system (CEMS) specified in subdivision (d). The total emissions may be determined by monitoring the sulfur dioxide emissions from at least 70 percent of the total fuel gas consumed as obtained from a totalizing meter, and calculating the total emissions using the CEMS data;*

Landfill SOx emissions are staying the same levels and the H2S content in the landfill gas produced when averaged over the entire site is less than 150 PPMV. This plan only allows the applicant to average the H2S concentrations in two different landfill streams produced at the same landfill.

(C) *Demonstrate that the permit units subject to the specified rule emission limitations are in compliance with all applicable District rules or are on an approved schedule of compliance;*

Each of the combustion equipment has its own valid and appropriate permit from SCAQMD, compliance with District rules is expected.

(D) *Demonstrate compliance with the continuous monitoring requirements as specified in subdivision (d) of this rule.*

Applicant has installed CGFMS (continuous fuel gas monitoring system) to measure the sulfur content of the inlet gas streams to both PERG and WBS. There are no other streams which could bring sulfur to these combustion devices, so we can reasonably assume that CFGMS can satisfy the requirements of CEMS (continuous emissions monitoring systems) as SOx emissions in the exhaust streams can be calculated from inlet H2S measurement numbers.
So compliance with 431.1 (d) (A - C) can be expected.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 1	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 486515	DATE 8/11/2011
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY AK07	CHECKED BY

TITLE V PERMIT (REV 02) EVALUATION
(Minor Revision)

APPLICANT'S NAME: LOS ANGELES COUNTY SANITATION DISTRICTS

MAILING ADDRESS: P. O. BOX 4998, WHITTIER, CA 90607

EQUIPMENT ADDRESS: 13130 CROSSROADS PARKWAY, CITY OF INDUSTRY, CA 91746

FACILITY ID NO.: **025070**

Background:

This application 486515 was submitted for Title V permit revision (No. 2) on 08/01/2008. In addition, Los Angeles County Sanitation Districts submitted one (1) application (519253) for OFCP (optional facility compliance plan) to comply with rule 431.1.

Evaluation:

A/N 519253 is for OFCP (optional facility compliance plan) to comply with rule 431.1.

The proposed revision is considered a minor revision since there is no increase in emissions of any pollutant and it meets the rest of the listed requirements for qualification as minor revision. Public notice is not required; however, it is subject to EPA 45-day review and comment period. For further information, please refer to the evaluations included in folder.

Plans and Schedules: Section I

Appl. No.	Equipment	Description
519253	Landfill Gas to Energy facilities	Optional Facility Compliance Plan to comply with Rule 431.1

Rules Evaluation:

Compliance with a Reg. XXX -Title V permits and applicable rules and regulations is expected.

Conclusions & Recommendations:

Issue the revised Title V permit upon completion of 45-day EPA review and commenting period.