

ENGINEERING DIVISION

APPL. NOS.

DATE

406262

8/14/12

APPLICATION PROCESSING AND CALCULATIONS

PROCESSED BY

CHECKED BY

ABDI MAJIDIFAR

CDT

PERMIT TO OPERATEAPPLICANT'S NAME: LA City, Sanitation Bureau, Terminal Island Treatment PlantMAILING ADDRESS: 445 Ferry St.
San Pedro, CA 90731EQUIPMENT LOCATION 445 Ferry St.
San Pedro, CAEQUIPMENT DESCRIPTION

BOILER, STANDBY, CLEAVER-BROOKS, FIRE TUBE TYPE, FORCED DRAFT, MODEL NO. CEW700-250, WITH AN ALZETA, MODEL CSB-105 A NATIONAL COMBUSTION LOW NOX BURNER, MODEL PROFIRE-NT, 9.95 8.5 MMBTU/HR, DIGESTER GAS AND NATURAL GAS FIRED.

HISTORY

Application 406262 was filed on 9/5/02 as Class I for new construction of a standby boiler to the main boiler under A/N 393799. The PC for the standby boiler was issued on 11/13/2002. For the detailed background, please see PC evaluation.

Note:

- 1) After the PC issuance, the burner for this boiler was replaced with an 8.5 mm btu/hr low NOX burner (see attached applicant's fax copy dated Feb. 6, 2004). Based on the revised data provided by the applicant, the burner description is as follows:
National Combustion (Div. of Cleaver Brooks) Low NOX Burner, Model Profire - NT, 8.5 mmbtu/hr.
- 2) The standby boiler with the replaced low NOX burner was tested on 12/21/2005 to comply with the PC Condition No. 9. Also, per Rule 1146 requirements, the boiler was tested on 8/29/2011 to demonstrate compliance with PC conditions 6 & 7.

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The 2005 tests results:

	Digester Gas Fired				Natural Gas Fired			
	DG Low Load		DG High Load		NG Low Load		NG High Load	
Oxygen, %	5.85		4.63		6.33		4.71	
Flow Rate, dscfm	1018		1685		885		1342	
Compound:	lb/hr	ppm @ 3% O2	lb/hr	ppm @ 3% O2	lb/hr	ppm @ 3% O2	lb/hr	ppm @ 3% O2
CO	0.09	24	0.149	22	0.078	25	0.119	22
NOX	0.124	19.9	0.203	18.2	0.041	7.9	0.076	8.6
ROG	0.076	35	-	-	0.010	5.3	-	-

The 2011 tests results:

	Digester Gas Fired		Natural Gas Fired	
	Oxygen, %	4.42		5.00
Concentrations ppm @ 3% O2:				
CO	0.74		1.50	
NOX	20.73		8.22	

Note:

The above tests results for the standby boiler indicate that the concentrations for NOX & CO @ 3% O2 dry for both digester gas & natural gas are in compliance with the limits stated in the PC Conditions 6 & 7.

PROCESS DESCRIPTION

The above boiler which has a dual fuel fired burner (with digester gas as the primary fuel) is used as a standby unit for heating the digesters. For the detailed process description, please see the PC evaluation. The maximum operating schedule is 24 hrs/day, 7 days/wk, and 52 wks/yr.

EMISSIONS

The emissions based on the revised burner's btu rating of 8.5 mmbtu/hr and the PC evaluation are as follows:

Fuel usage (dig. gas) = 8.5 mmbtu/hr/625 btu/cf
 = 13,600 ft³/hr

Emissions (digester gas):

Compound:	Calculated		2005 Source Tests Results	
	R1 = R2		R1 = R2	
	lb/hr	lb/day	lb/hr	lb/day
CO	0.32	7.7	0.149 (22 ppmv @ 3% O ₂ , dry)	3.6
NOX	0.32	7.7	0.203 (18.2 ppmv @ 3% O ₂ , dry)	4.9
PM10	0.06	1.46		
ROG	0.04	1.1	0.076	1.8
SOX	0.23	5.5		

Note:

- 1) The 2005 source tests results (digester gas) for CO, NOX, and ROG for the standby boiler are lower than the calculated emissions.
- 2) The digester gas 30-day average daily emissions for this standby boiler will be reported as zero in the NSR since the emissions have already been reported in the NSR under the main boiler application 393799 (see the NSR copy for the PC evaluation for the standby boiler).

Screening Risk Analysis

There are no emissions increases regarding conversion of PC to PO. Please see PC evaluation for Cancer Risk Analysis.

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RULES COMPLIANCE

The replacement of the burner will not have an effect on the emissions from this boiler.

As indicated in the PC evaluation for this boiler, compliance with all the applicable rules is expected.

REG XXX

Compliance with Reg. XXX, Title V permit is expected. Replacement of the burner is considered a minor revision and will be subject to EPA's 45-Day Review Period. Upon the EPA 45-Day Review Period, approved permit for this boiler will be removed from Section H and will be included in Section D of the Title V Facility Permit.

RECOMMENDATION

Issuance of Permit to Operate for the above boiler subject to the permit conditions stated in the Sample Permit is recommended.