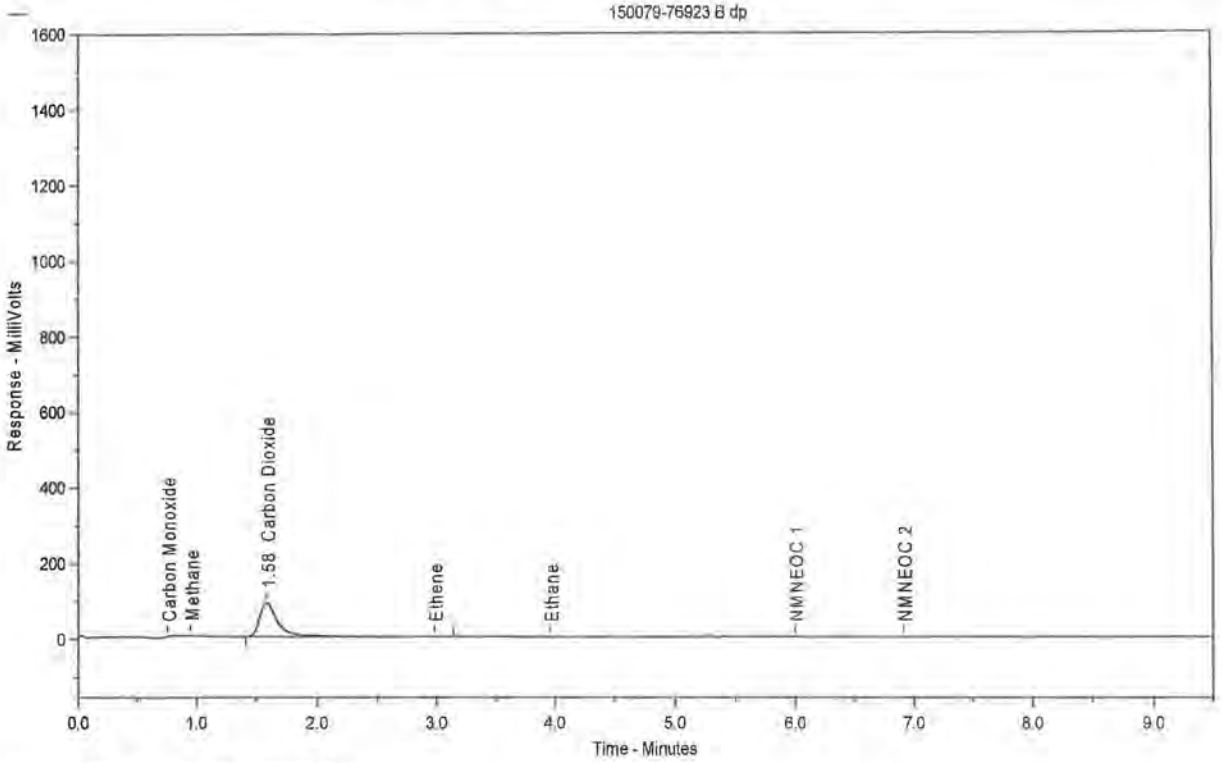
DOCKETED

Docket Number:	12-AFC-02C
Project Title:	Huntington Beach Energy Project - Compliance
TN #:	211432
Document Title:	South Coast Air Quality Management District Correspondance 05-06-16 Part 6
Description:	N/A
Filer:	Patty Paul
Organization:	CH2M HILL
Submitter Role:	Applicant Consultant
Submission Date:	5/10/2016 12:51:33 PM
Docketed Date:	5/10/2016



Sample Name = **150079-76923 B dp**

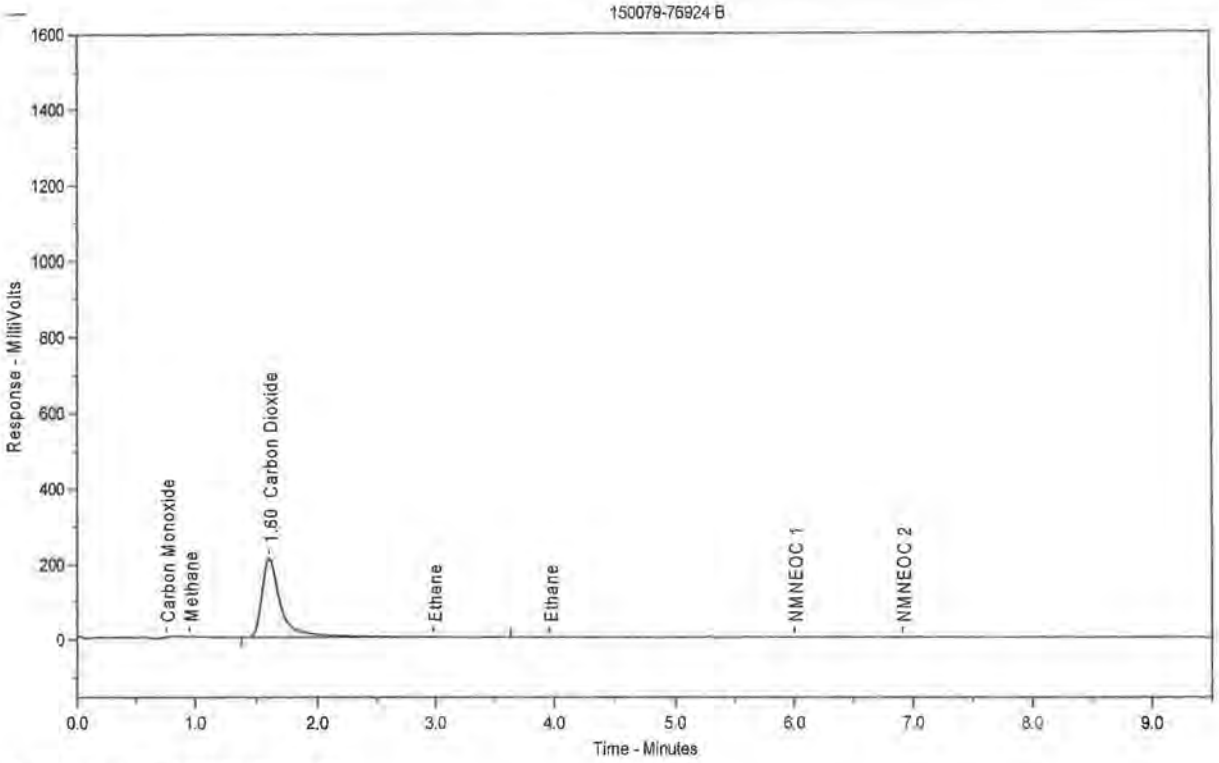
Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2015\020415.0023.RAW** Date Taken (end) = 2/4/2015 10:41:57 AM
Method File Name = C:\Cpmethods\Inst #04\2014\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.58	Carbon Dioxide	48.707	100.000	945125	100.000	BB	0.14

Total Area = 945124.6 Total Height = 88343.13 Total Amount = 48.70653

2/4/15



Sample Name = **150079-76924 B**

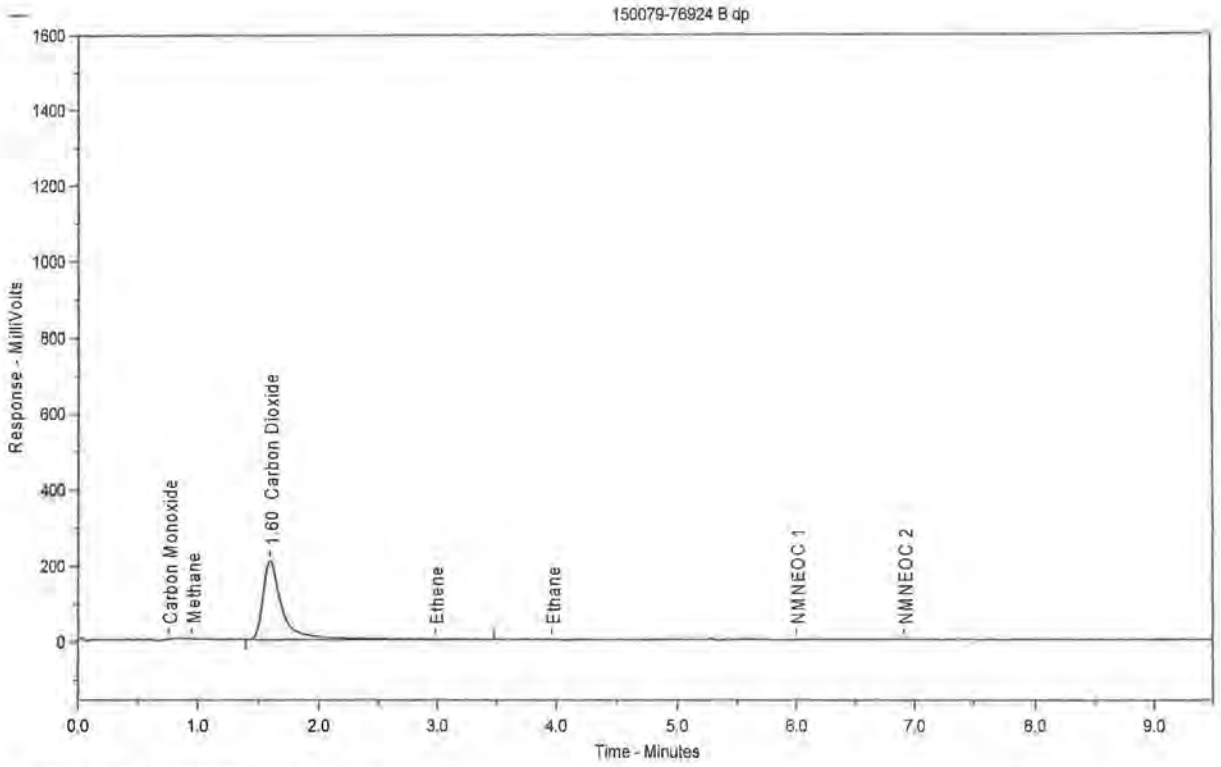
Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2015\020415.0024.RAW** Date Taken (end) = 2/4/2015 10:55:40 AM
Method File Name = C:\Cpmethods\Inst #04\2014\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.60	Carbon Dioxide	119.806	100.000	2324769	100.000	BB	0.14

Total Area = 2324769 Total Height = 208232.7 Total Amount = 119.8058

2/4/15



Sample Name = **150079-76924 B dp**

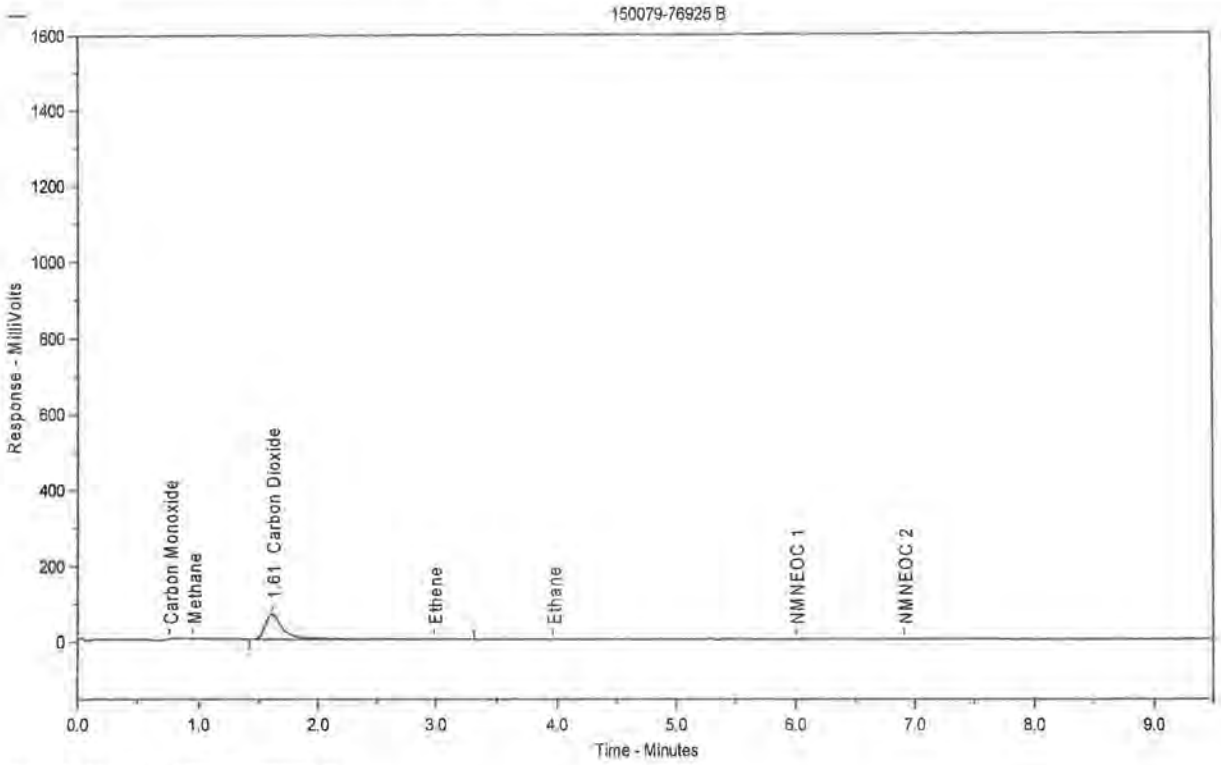
Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2015\020415.0025.RAW** Date Taken (end) = 2/4/2015 11:08:41 AM
Method File Name = C:\Cpmethods\Inst #04\2014\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.60	Carbon Dioxide	118.455	100.000	2298559	100.000	BB	0.15

Total Area = 2298559 Total Height = 206265.2 Total Amount = 118.4551

2/4/15



Sample Name = **150079-76925 B**

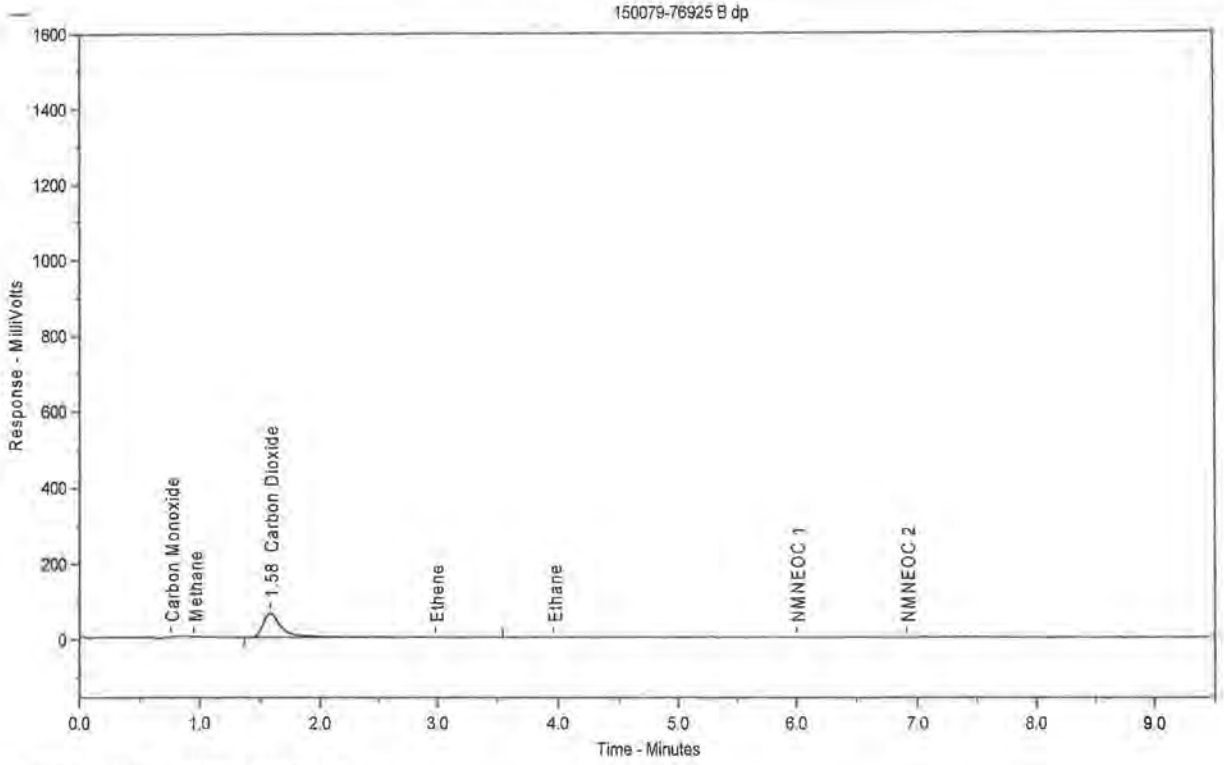
Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2015\020415.0026.RAW** Date Taken (end) = 2/4/2015 11:22:51 AM
Method File Name = C:\Cpmethods\Inst #04\2014\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.61	Carbon Dioxide	36.983	100.000	717627	100.000	BB	0.14

Total Area = 717627.4 Total Height = 65141.72 Total Amount = 36.98258

2/4/15



Sample Name = **150079-76925 B dp**

Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2015\020415.0027.raw**
Method File Name = C:\Cpmethods\Inst #04\2014\Method25.1,3.met
Calibration File Name = C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL

Date Taken (end) = 2/4/2015 11:35:39 AM
Dilution Factor = 1

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.58	Carbon Dioxide	35.850	100.000	695651	100.000	BB	0.15

Total Area = 695651.1 Total Height = 62922.72 Total Amount = 35.85004

2/4/15

Calibration Summary

File Name: C:\Cpmethods\Inst #04\2014\042114-25.1,3.CAL
Version: 26

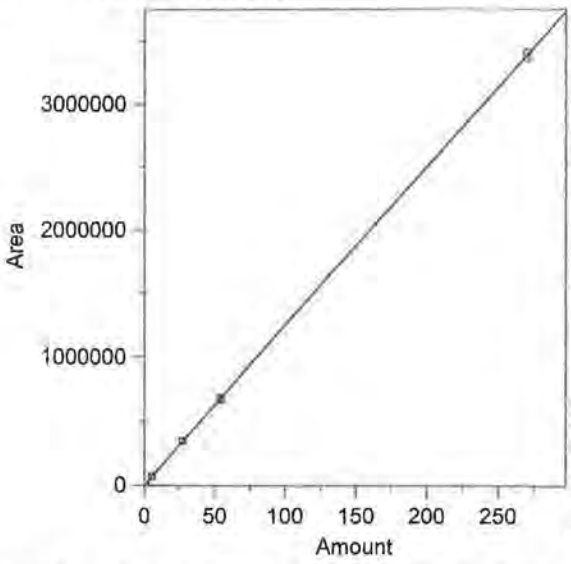
Creator: TT
Description: Methane, Ethane, Non-Methane and Non-Ethane with catalysts

External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 500
Reference peak area reject threshold: 500
Amount units:
No default component

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.

1 Carbon Monoxide



Expected retention time:	0.76 minutes
Search window:	0.1 minutes
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

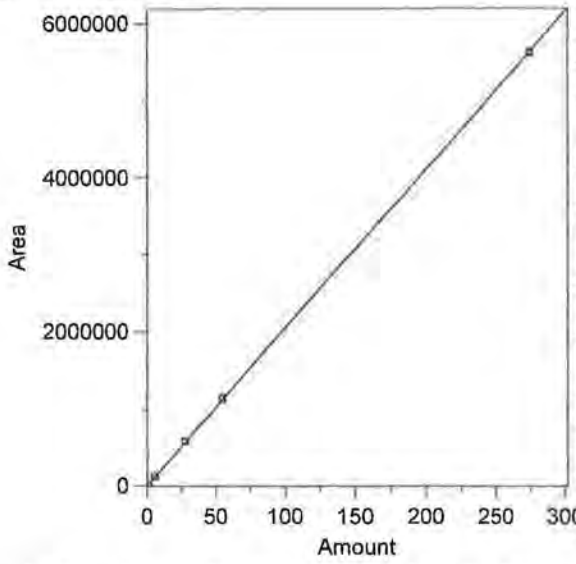
Y = 12516.3 X + 0

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9999236
Average error:	2.149%
Average CF:	12712.62
RSD:	3.019%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.08	13505	12504.63	-0.093	Manual	4/21/2014 2:36:11 PM
2	1.08	13420	12425.93	-0.722	Manual	4/21/2014 2:36:17 PM
3	5.41	70644	13058.04	4.328	Manual	4/21/2014 2:36:25 PM
4	5.41	73622	13608.5	8.726	Manual	4/21/2014 2:36:33 PM
5	27.05	348513	12884.03	2.938	Manual	4/21/2014 2:36:43 PM
6	27.05	343323	12692.16	1.405	Manual	4/21/2014 2:36:51 PM
7	54.1	680866	12585.32	0.551	Manual	4/21/2014 2:36:59 PM
8	54.1	667411	12336.62	-1.436	Manual	4/21/2014 2:37:08 PM
9	270.5	3407234	12596.06	0.637	Manual	4/21/2014 2:37:18 PM
10	270.5	3363633	12434.87	-0.651	Manual	4/21/2014 2:35:50 PM

2 Methane



Expected retention time: 0.95 minutes
Search window: 0.2 minutes
No retention time reference component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

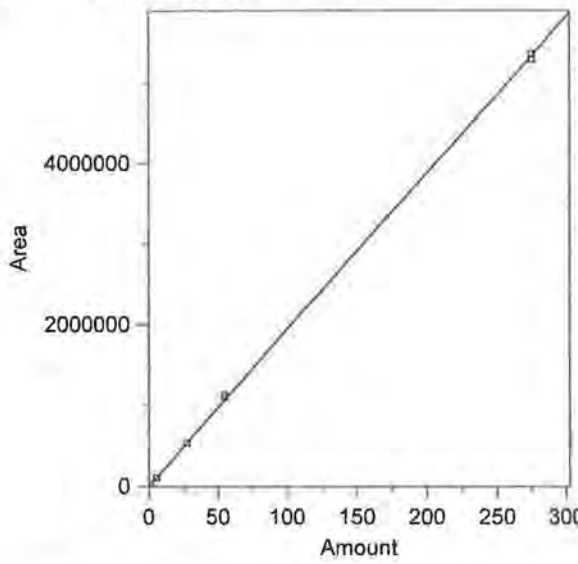
Single peak quantification by area

Y = 20509.94 X + 0

Linear fit with equal weighting, forced to origin
Coefficient of determination: 0.9999314
Average error: 4.548%
Average CF: 21431.01
RSD: 3.533%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.1	24071	21882.73	6.693	Manual	4/21/2014 2:39:17 PM
2	1.1	24184	21985.45	7.194	Manual	4/21/2014 2:39:26 PM
3	5.49	122707	22351	8.976	Manual	4/21/2014 2:39:33 PM
4	5.49	123466	22489.25	9.651	Manual	4/21/2014 2:39:41 PM
5	27.45	593985	21638.8	5.504	Manual	4/21/2014 2:39:54 PM
6	27.45	584820	21304.92	3.876	Manual	4/21/2014 2:40:03 PM
7	54.9	1158936	21109.95	2.925	Manual	4/21/2014 2:40:10 PM
8	54.9	1129601	20575.61	0.320	Manual	4/21/2014 2:40:18 PM
9	274.5	5632904	20520.6	0.052	Manual	4/21/2014 2:40:29 PM
10	274.5	5614029	20451.84	-0.283	Manual	4/21/2014 2:40:35 PM

3 Carbon Dioxide



Expected retention time:	1.63 minutes
Search window:	0.35 minutes
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

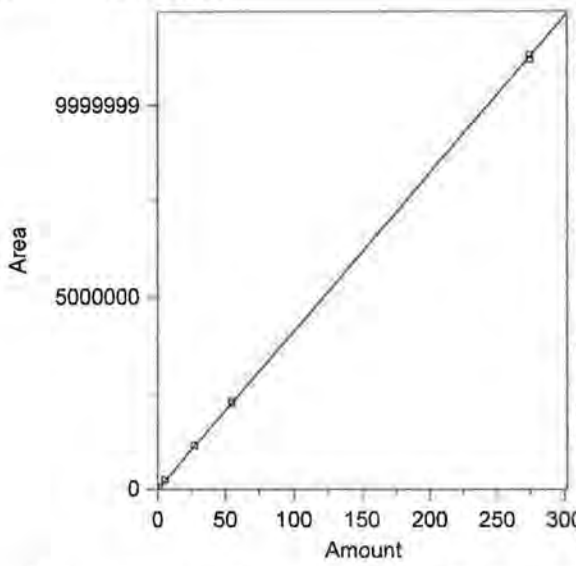
$Y = 19404.47 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9997834
Average error:	3.207%
Average CF:	19991.05
RSD:	3.651%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.1	23657	21506.36	10.832	Manual	4/21/2014 2:42:16 PM
2	1.1	22841	20764.54	7.009	Manual	4/21/2014 2:42:23 PM
3	5.5	108696	19762.91	1.847	Manual	4/21/2014 2:42:32 PM
4	5.5	107453	19536.91	0.683	Manual	4/21/2014 2:42:39 PM
5	27.5	536327	19502.8	0.507	Manual	4/21/2014 2:42:50 PM
6	27.5	535673	19479.02	0.384	Manual	4/21/2014 2:42:59 PM
7	55	1130393	20552.6	5.917	Manual	4/21/2014 2:43:15 PM
8	55	1103904	20070.98	3.435	Manual	4/21/2014 2:43:24 PM
9	275	5364801	19508.37	0.535	Manual	4/21/2014 2:43:35 PM
10	275	5287154	19226.01	-0.920	Manual	4/21/2014 2:43:50 PM

6 NMNEOC 1



Expected retention time: 6 minutes
Search window: 1.5 minutes
No retention time reference component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

Y = 41078.91 X + 0

Linear fit with equal weighting, forced to origin
Coefficient of determination: 0.9999371
Average error: 3.178%
Average CF: 42321.95
RSD: 3.043%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.1	48658	44234.54	7.682	Manual	4/21/2014 2:29:56 PM
2	1.1	46893	42630	3.776	Manual	4/21/2014 2:30:24 PM
3	5.49	236290	43040.07	4.774	Manual	4/21/2014 2:30:37 PM
4	5.49	244611	44555.74	8.464	Manual	4/21/2014 2:30:54 PM
5	27.43	1146420	41794.39	1.742	Manual	4/21/2014 2:31:13 PM
6	27.43	1146583	41800.33	1.756	Manual	4/21/2014 2:31:27 PM
7	54.85	2306579	42052.49	2.370	Manual	4/21/2014 2:31:40 PM
8	54.85	2249223	41006.8	-0.176	Manual	4/21/2014 2:31:54 PM
9	274.25	1.131739E+07	41266.69	0.457	Manual	4/21/2014 2:32:11 PM
10	274.25	1.119994E+07	40838.43	-0.585	Manual	4/21/2014 2:32:26 PM

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250

environmental consultants
laboratory services

January 8, 2015 LTR/008/15

Rudy Nunez
SCEC
1631 E. Saint Andrew Place
Santa Ana, CA 92705

re: OCSD Plant 2

Dear Rudy:

Please find enclosed the laboratory analysis report, quality assurance summary, and the original chain of custody form for two Tedlar bag samples received December 19, 2014.

The Tedlar bag samples were analyzed for total reduced sulfur compounds, hydrocarbon speciation, and permanent gases as requested on the chain of custody forms. BTU reports were prepared from these results.

Sincerely,

AtmAA, Inc.

Michael L. Porter
Laboratory Director

Encl.
MLP/krm

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LABORATORY ANALYSIS REPORT

Hydrogen Sulfide and Reduced Sulfur Compounds
Analysis in Tedlar Bag Samples by Method SCAQMD 307.91

Report Date: January 7, 2015
Client: SCEC
Project Location: OCSD / Plant 2
Project No.: 2061.1060
Date Received: December 19, 2014
Date Analyzed: December 19, 2014

ANALYSIS DESCRIPTION

Hydrogen sulfide was analyzed by gas chromatography with a Hall electrolytic conductivity detector operated in the oxidative sulfur mode. All other components were measured by GC/ Mass Spec.

AtmAA Lab No.:	13534-10	13534-11
Sample I.D.:	P2E4	P2E2
Components	*(Concentration in ppmv)*	
Hydrogen sulfide	12.0	10.6
Carbonyl sulfide	<0.2	<0.2
Methyl mercaptan	<0.2	<0.2
Ethyl mercaptan	<0.2	<0.2
Dimethyl sulfide	<0.2	<0.2
Carbon disulfide	<0.2	<0.2
isopropyl mercaptan	<0.2	<0.2
n-propyl mercaptan	0.21	<0.2
Dimethyl disulfide	<0.2	<0.2
TRS	12.2	10.6

TRS - total reduced sulfur

Michael L. Porter
Laboratory Director

QUALITY ASSURANCE SUMMARY
(Repeat Analyses)

Project Location: OCSD / Plant 2
Date Received: December 19, 2014
Date Analyzed: December 19, 2014

Components	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in ppmv)			
Hydrogen sulfide	P2E4	11.9	12.1	12.0	0.83
	P2E2	10.8	10.5	10.6	1.4
Carbonyl sulfide	P2E4	<0.2	<0.2	—	—
Methyl mercaptan	P2E4	<0.2	<0.2	—	—
Ethyl mercaptan	P2E4	<0.2	<0.2	—	—
Dimethyl sulfide	P2E4	<0.2	<0.2	—	—
Carbon disulfide	P2E4	<0.2	<0.2	—	—
iso-propyl mercaptan	P2E4	<0.2	<0.2	—	—
n-propyl mercaptan	P2E4	0.21	0.21	0.21	0.0
Dimethyl disulfide	P2E4	<0.2	<0.2	—	—

Two Tedlar bag samples, laboratory numbers 13534-(10 & 11), were analyzed for total reduced sulfur compounds. Agreement between repeat analyses is a measure of precision and is shown above in the column "% Difference from Mean". The average % difference from mean for 3 repeat measurements from two Tedlar bag samples is 0.74%.

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environmental consultants
laboratory services

LABORATORY ANALYSIS REPORT

Speciated Hydrocarbons Analysis in Tedlar Bag Samples

Report Date: January 7, 2015
Client: SCEC
Site: OCSD
Project Location: Plant 2
Project No.: 2061.1060

Date Received: December 19, 2014
Date Analyzed: December 19, 2014

ANALYSIS DESCRIPTION

Hydrocarbon Speciation analysis was performed by flame ionization detection/gas chromatography (FID/GC), modified EPA-18.

AtmAA Lab No.:	13534-10	(repeat)	13534-11
Sample ID:	P2E4	P2E4	P2E2
	(Concentration in ppmv, component)		
Methane	621000	619000	615000
non-methane hydrocarbons analysis by carbon number grouping			
C2	1.66	2.08	2.20
C3	2.02	2.08	2.12
C4	0.19	0.26	0.29
C5	0.88	1.03	0.91
C6	0.57	0.71	0.74
C7	0.59	0.75	0.81
C8	1.41	1.66	1.60
C9	4.13	4.39	4.51
C10	20.56	20.44	20.44
C11	17.94	21.19	19.89
C12	4.95	4.81	5.08
C13	3.87	3.94	4.71
TNMHC	583.2	625.3	625.4

TNMHC - total non-methane hydrocarbons as ppmvC.

Michael L. Porter
Laboratory Director

Calculated values for Specific Volume, BTU and F (factor)

Report Date: January 7, 2015
Client: SCEC
Site: OCSD
Project: 2061.1060
Date Received: December 19, 2014
Date Analyzed: December 19, 2014
AtmAA Lab No.: 13534-10 P2E4

Specific volume, BTU, and F factor are calculated using labortatory analysis results for methane, carbon dioxide, nitrogen, oxygen, TGNMO, and sulfur compounds in equations that include assumed values for the specific volume of gases (CH4, CO2, N2, O2, Ar, and (CH2)n). The specific volume of gases were taken from the Scott Speciality Gases catalogue, 2001, and represents "as is" ideal gas at 60° F and 1 atm. The F factor is calculated according to the equation in ASTM D-3588.B89

Component	Mole %	Wt %	C,H,O,N,S, Wt.%	
Methane	62.03	38.62	Carbon	45.29
Carbon dioxide	34.89	59.74	Hydrogen	9.66
Nitrogen	1.15	1.25	Oxygen	43.79
Oxygen	0.27	0.34	Nitrogen	1.25
Argon	0.012	0.019	Argon	0.02
$(CH_2)_n$	0.060	0.033	Sulfur	0.00

Specific Volume	14.367			
BTU/ft^3	627	HHV	565	LHV
BTU/ lb.	9008	HHV	8111	LHV
F (factor)	9379	HHV	10416	LHV
Specific Gravity	0.888			
Wobbe Index	599			

"as is" ideal gas at 60° F, 1 atm, where CH4-1010H, 909.4L TGNMO-804H, 756L BTU/cu.ft.

Component	Specific volume reference values *	
Methane	23.35	(ft^3/lb)
Carbon dioxide	8.59	
Nitrogen	13.54	
Oxygen	11.87	
Argon	9.52	
(CH2)n	10.428	

* reference, Scott Specialty Gases Catalogue, 2001 adjusted to 60°F

Calculated values for Specific Volume, BTU and F (factor)

Report Date: January 7, 2015
Client: SCEC
Site: OCSD
Project: Plant 2
Date Received: December 19, 2014
Date Analyzed: December 19, 2014
AtmAA Lab No.: 13534-11 P2E2

Specific volume, BTU, and F factor are calculated using labortatory analysis results for methane, carbon dioxide, nitrogen, oxygen, TGNMO, and sulfur compounds in equations that include assumed values for the specific volume of gases (CH4, CO2, N2, O2, Ar, and (CH2)n). The specific volume of gases were taken from the Scott Speciality Gases catalogue, 2001, and represents "as is" ideal gas at 60° F and 1 atm. The F factor is calculated according to the equation in ASTM D-3588.B89

Component	Mole %	Wt %	C,H,O,N,S, Wt.%	
Methane	61.54	38.55	Carbon	45.28
Carbon dioxide	34.77	59.90	Hydrogen	9.64
Nitrogen	1.08	1.18	Oxygen	43.88
Oxygen	0.25	0.31	Nitrogen	1.18
Argon	0.011	0.017	Argon	0.02
$(CH_2)_n$	0.063	0.034	Sulfur	0.00

Specific Volume	14.353			
BTU/ft^3	622	HHV	560	LHV
BTU/ lb.	8928	HHV	8039	LHV
F (factor)	9449	HHV	10494	LHV

"as is" ideal gas at 60° F, 1 atm, where CH4-1010H, 909.4L TGNMO-804H, 756L BTU/cu.ft.

Component	Specific volume reference values *	
Methane	23.35	(ft^3/lb)
Carbon dioxide	8.59	
Nitrogen	13.54	
Oxygen	11.87	
Argon	9.52	
(CH2)n	10.428	

* reference, Scott Specialty Gases Catalogue, 2001 adjusted to 60°F

SCEC

Appendix F

Calibration Data and Calibration Gas Certificates

SEMI-ANNUAL METER BOX CALIBRATION DATA AT STANDARD TEMPERATURE OF 60 DEG F

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename:
File Modified From: APEX 522 Series Meter box Calibration
Revised 4/7/2004

Model #: CAE
ID #: CB1
Date: 6/25/2014
Bar. Pressure: 29.85 (in Hg)
Performed By: ALW

Theoretical Critical Vacuum = 14.09

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
		Volume	Volume	Volume	Initial Temps		Final Temps		Orifice	K' Orifice	Actual	Ambient Temperature		
dH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.30	18.00	423.89	429.39	5.51	78.00	78.00	81.00	80.00	40	0.230	24.00	80.00	80.00	80.00
0.30	18.00	429.39	434.91	5.51	81.00	80.00	82.00	81.00	40	0.230	24.00	80.00	80.00	80.00
0.30	18.00	434.91	440.43	5.53	82.00	81.00	82.00	81.00	40	0.230	24.00	80.00	80.00	80.00
0.63	13.00	440.43	446.37	5.94	82.00	81.00	83.00	82.00	48	0.342	23.00	82.00	82.00	82.00
0.63	13.00	446.37	452.30	5.93	83.00	82.00	84.00	82.00	48	0.342	23.00	82.00	82.00	82.00
0.63	13.00	452.30	458.25	5.95	84.00	82.00	84.00	83.00	48	0.342	23.00	82.00	82.00	82.00
1.80	8.00	458.25	464.56	6.32	84.00	83.00	86.00	83.00	63	0.591	20.00	82.00	82.00	82.00
1.80	8.00	464.56	470.90	6.34	86.00	83.00	87.00	84.00	63	0.591	20.00	82.00	82.00	82.00
1.80	8.00	470.90	477.24	6.35	87.00	84.00	88.00	84.00	63	0.591	20.00	82.00	82.00	82.00
3.20	6.00	477.24	483.50	6.26	88.00	84.00	89.00	85.00	73	0.778	17.50	83.00	83.00	83.00
3.20	6.00	483.50	489.77	6.26	89.00	85.00	91.00	85.00	73	0.778	17.50	83.00	83.00	83.00
3.20	6.00	489.77	496.03	6.26	91.00	85.00	92.00	86.00	73	0.778	17.50	83.00	83.00	83.00

DRY GAS METER		ORIFICE			DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.155?
5.378	152.3	5.318	150.6	5.535	0.989	1.863	Pass			
5.369	152.0	5.318	150.6	5.535	0.991	1.858	Pass			
5.378	152.3	5.318	150.6	5.535	0.989	1.856	Pass			
				Average	0.989	1.859		Pass	Pass	Pass
5.777	163.6	5.701	161.4	5.956	0.987	1.768	Pass			
5.760	163.1	5.701	161.4	5.956	0.990	1.766	Pass			
5.773	163.5	5.701	161.4	5.956	0.987	1.764	Pass			
				Average	0.988	1.766		Pass	Pass	Pass
6.140	173.9	6.062	171.7	6.333	0.987	1.687	Pass			
6.150	174.2	6.062	171.7	6.333	0.986	1.685	Pass			
6.149	174.1	6.062	171.7	6.333	0.986	1.683	Pass			
				Average	0.986	1.685		Pass	Pass	Pass
6.075	172.2	5.980	169.3	6.259	0.984	1.729	Pass			
6.073	172.0	5.980	169.3	6.259	0.985	1.727	Pass			
6.060	171.6	5.980	169.3	6.259	0.987	1.725	Pass			
				Average	0.985	1.727		Pass	Pass	Pass

Average Yd: 0.987 **dH@: 1.759**

Q @ dH = 1: 0.565

SIGNED: _____ Date: 6/25/14

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in Hg)*(min)).

SEMI-ANNUAL METER BOX CALIBRATION DATA AT STANDARD TEMPERATURE OF 68 DEG F

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename CB1
File Modified From: APEX 522 Series Meter box Calibration
Revised 4/7/2004

Model # [illegible]
ID # CB1
Date June 25, 2014
Bar. Pressure 29.85 (in. Hg)
Performed By: AJW

Theoretical Critical Vacuum = 14.09

		DRY GAS METER READINGS							CRITICAL ORIFICE READINGS					
		Volume	Volume	Volume	Initial Temps		Final Temps		Orifice	K' Orifice	Actual	Ambient Temperature		
dH (in H2O)	Time (min)	Initial (cu ft)	Final (cu ft)	Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Serial# (number)	Coefficient (see above)	Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.30	18.00	423.888	429.394	5.506	79.0	78.0	81.0	80.0	10	0.238	24.0	80.0	80.0	80.0
0.30	18.00	429.394	434.906	5.512	81.0	80.0	82.0	81.0	10	0.239	24.0	80.0	80.0	80.0
0.30	18.00	434.906	440.433	5.527	82.0	81.0	82.0	81.0	10	0.239	24.0	80.0	80.0	80.0
0.63	13.00	440.433	446.370	5.937	82.0	81.0	83.0	82.0	48	0.342	23.0	82.0	82.0	82.0
0.63	13.00	446.370	452.298	5.928	83.0	82.0	84.0	82.0	48	0.342	23.0	82.0	82.0	82.0
0.63	13.00	452.298	458.245	5.947	84.0	82.0	84.0	83.0	48	0.342	23.0	82.0	82.0	82.0
1.50	8.00	458.245	464.560	6.315	84.0	83.0	86.0	83.0	63	0.591	20.0	82.0	82.0	82.0
1.50	8.00	464.560	470.897	6.337	86.0	83.0	87.0	84.0	63	0.591	20.0	82.0	82.0	82.0
1.50	8.00	470.897	477.242	6.345	87.0	84.0	88.0	84.0	63	0.591	20.0	82.0	82.0	82.0
3.20	6.00	477.242	483.502	6.260	88.0	84.0	89.0	85.0	73	0.777	17.5	83.0	83.0	83.0
3.20	6.00	483.502	489.767	6.265	89.0	85.0	91.0	85.0	73	0.778	17.5	83.0	83.0	83.0
3.20	6.00	489.767	496.030	6.263	91.0	85.0	92.0	86.0	73	0.778	17.5	83.0	83.0	83.0

DRY GAS METER		ORIFICE				DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)		Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.155?
5.378	152.3	5.318	150.6	5.454		0.989	1.889	Pass			
5.369	152.0	5.318	150.6	5.454		0.991	1.884	Pass			
5.378	152.3	5.318	150.6	5.454		0.989	1.882	Pass			
					Average	0.989	1.885		Pass	Pass	Pass
5.777	163.6	5.701	161.4	5.868		0.987	1.793	Pass			
5.760	163.1	5.701	161.4	5.868		0.990	1.791	Pass			
5.773	163.5	5.701	161.4	5.868		0.987	1.789	Pass			
					Average	0.988	1.791		Pass	Pass	Pass
6.140	173.9	6.062	171.7	6.240		0.987	1.711	Pass			
6.150	174.2	6.062	171.7	6.240		0.986	1.709	Pass			
6.149	174.1	6.062	171.7	6.240		0.986	1.707	Pass			
					Average	0.986	1.709		Pass	Pass	Pass
6.079	172.2	5.980	169.3	6.166		0.984	1.753	Pass			
6.073	172.0	5.980	169.3	6.166		0.985	1.752	Pass			
6.060	171.6	5.980	169.3	6.166		0.987	1.750	Pass			
					Average	0.985	1.752		Pass	Pass	Pass

Average Yd:	0.987	dH@:	1.784
		Q @ dH = 1:	0.561

SIGNED [signature] Date 6/25/14

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units. (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB1 DGM in
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	30	0.45
32	29	0.53
32	30	0.49

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	210	0.30
212	210	0.30
212	210	0.30

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	363	0.24
365	363	0.24
365	363	0.24

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB1 DGM out
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY;	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	30	0.41
32	30	0.41
32	30	0.41

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	210	0.30
212	210	0.30
212	210	0.30

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	363	0.24
365	363	0.24
365	363	0.24

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB1 imp out
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	31	0.20
32	31	0.20
32	31	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	211	0.15
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	364	0.12
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SEMI-ANNUAL METER BOX CALIBRATION DATA AT STANDARD TEMPERATURE OF 60 DEG F

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units: English K' Factor
Filename:
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/7/2004

Model # CAE
ID # CB3
Date: July 2, 2014
Bar. Pressure: 29.80 (in. Hg)
Performed By: AW

Theoretical Critical Vacuum = 14.07

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps		Final Temps					Ambient Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.32	18.00	541.05	546.55	5.50	77.00	77.00	78.00	78.00	40	0.230	22.00	76.00	76.00	76.00
0.32	18.00	546.55	552.04	5.50	78.00	78.00	79.00	78.00	40	0.230	22.00	76.00	76.00	76.00
0.32	18.00	552.04	557.55	5.51	79.00	78.00	79.00	79.00	40	0.230	22.00	76.00	76.00	76.00
0.66	13.00	557.55	563.49	5.94	79.00	79.00	80.00	79.00	48	0.342	21.00	76.00	76.00	76.00
0.66	13.00	563.49	569.43	5.93	80.00	79.00	81.00	80.00	48	0.342	21.00	76.00	76.00	76.00
0.66	13.00	569.43	575.34	5.92	81.00	80.00	81.00	80.00	48	0.342	21.00	76.00	76.00	76.00
1.85	8.00	575.34	581.64	6.30	81.00	80.00	82.00	81.00	63	0.591	18.00	77.00	77.00	77.00
1.85	8.00	581.64	587.96	6.32	82.00	81.00	84.00	81.00	63	0.591	18.00	77.00	77.00	77.00
1.85	8.00	587.96	594.25	6.30	84.00	81.00	85.00	81.00	63	0.591	18.00	77.00	77.00	77.00
3.30	6.00	594.25	600.50	6.25	85.00	81.00	87.00	82.00	73	0.778	16.00	78.00	78.00	78.00
3.30	6.00	600.50	606.77	6.27	87.00	82.00	88.00	83.00	73	0.778	16.00	78.00	78.00	78.00
3.30	6.00	606.77	613.04	6.26	88.00	83.00	89.00	83.00	73	0.778	16.00	78.00	78.00	78.00

DRY GAS METER		ORIFICE			DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.1567
5.383	152.5	5.329	150.9	5.515	0.990	1.981	Pass			
5.371	152.1	5.329	150.9	5.515	0.992	1.979	Pass			
5.380	152.4	5.329	150.9	5.515	0.990	1.977	Pass			
				Average	0.991	1.979		Pass	Pass	Pass
5.802	164.3	5.723	162.1	5.922	0.986	1.843	Pass			
5.795	163.8	5.723	162.1	5.922	0.989	1.841	Pass			
5.765	163.3	5.723	162.1	5.922	0.993	1.839	Pass			
				Average	0.989	1.841		Pass	Pass	Pass
6.146	174.0	6.080	172.2	6.304	0.989	1.728	Pass			
6.156	174.3	6.080	172.2	6.304	0.988	1.727	Pass			
6.126	173.5	6.080	172.2	6.304	0.993	1.727	Pass			
				Average	0.990	1.727		Pass	Pass	Pass
6.090	172.5	5.997	169.8	6.230	0.985	1.779	Pass			
6.099	172.7	5.997	169.8	6.230	0.983	1.776	Pass			
6.081	172.2	5.997	169.8	6.230	0.986	1.774	Pass			
				Average	0.985	1.776		Pass	Pass	Pass

Average Yd: 0.989 dH@: 1.831

Q @ dH = 1: 0.554

SIGNED: Date: 7/2/14

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units. (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SEMI-ANNUAL METER BOX CALIBRATION DATA AT STANDARD TEMPERATURE OF 68 DEG F

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename: CB3
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/7/2004

Model #: [illegible]
ID #: CB3
Date: June 3, 2014
Bar. Pressure: 29.70 (in. Hg)
Performed By: MW

Theoretical Critical Vacuum = 14.07

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps		Final Temps					Ambient Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.32	18.00	541.045	546.540	5.500	77.0	77.0	78.0	78.0	40	0.230	22.0	76.0	76.0	76.0
0.32	18.00	546.540	552.040	5.495	78.0	78.0	79.0	79.0	40	0.230	22.0	76.0	76.0	76.0
0.32	18.00	552.040	557.550	5.510	79.0	79.0	79.0	79.0	40	0.230	22.0	76.0	76.0	76.0
0.65	13.00	557.550	563.492	5.942	79.0	79.0	80.0	79.0	48	0.342	21.0	76.0	76.0	76.0
0.65	13.00	563.492	569.425	5.933	80.0	79.0	81.0	80.0	48	0.342	21.0	76.0	76.0	76.0
0.65	13.00	569.425	575.343	5.918	81.0	80.0	81.0	80.0	48	0.342	21.0	76.0	76.0	76.0
1.85	8.00	575.343	581.639	6.296	81.0	80.0	82.0	81.0	63	0.591	14.0	77.0	77.0	77.0
1.85	8.00	581.639	587.957	6.318	82.0	81.0	84.0	81.0	63	0.591	14.0	77.0	77.0	77.0
1.85	8.00	587.957	594.253	6.296	84.0	81.0	85.0	81.0	63	0.591	14.0	77.0	77.0	77.0
3.30	6.00	594.253	600.502	6.249	85.0	81.0	87.0	82.0	73	0.778	16.0	78.0	78.0	78.0
3.30	6.00	600.502	606.774	6.272	87.0	82.0	88.0	83.0	73	0.778	16.0	78.0	78.0	78.0
3.30	6.00	606.774	613.036	6.262	88.0	83.0	89.0	83.0	73	0.778	16.0	78.0	78.0	78.0

ORIFICE					DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR				
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	Individual Run 0.95 < Y < 1.05?	Individual Orifice Ymax - Ymin < 0.010?	Orifice Average 0.98 < Y/Yd < 1.02?	Orifice Average dH@ - dH@ av < 0.155?
5.383	152.5	5.329	150.9	5.434	0.990	2.009	Pass			
5.371	152.1	5.329	150.9	5.434	0.992	2.007	Pass			
5.380	152.4	5.329	150.9	5.434	0.990	2.006	Pass			
				Average	0.991	2.007		Pass	Pass	Pass
5.802	164.3	5.723	162.1	5.835	0.986	1.869	Pass			
5.765	163.8	5.723	162.1	5.835	0.989	1.867	Pass			
5.765	163.3	5.723	162.1	5.835	0.993	1.866	Pass			
				Average	0.989	1.867		Pass	Pass	Pass
6.146	174.0	6.080	172.2	6.211	0.989	1.753	Pass			
6.156	174.3	6.080	172.2	6.211	0.988	1.751	Pass			
6.126	173.5	6.080	172.2	6.211	0.993	1.751	Pass			
				Average	0.990	1.752		Pass	Pass	Pass
6.090	172.5	5.997	169.8	6.138	0.985	1.804	Pass			
6.099	172.7	5.997	169.8	6.138	0.983	1.801	Pass			
6.081	172.2	5.997	169.8	6.138	0.986	1.799	Pass			
				Average	0.985	1.802		Pass	Pass	Pass

Average Yd: 0.989 **dH@: 1.857**

Q @ dH = 1: 0.550

SIGNED: [signature]

Date: 7/2/14

IMPORTANT For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.
IMPORTANT The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

EPA at 68 Deg dH

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB3 DGM in
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	31	0.20
32	31	0.20
32	31	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	211	0.15
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	364	0.12
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB3 DGM out
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	31	0.20
32	31	0.20
32	31	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	211	0.15
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	364	0.12
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB3 imp out
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	31	0.20
32	31	0.20
32	31	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	211	0.15
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	364	0.12
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SEMI-ANNUAL METER BOX CALIBRATION DATA AT STANDARD TEMPERATURE OF 60 DEG F

Orifice Method - Triplicate Runs/Four Calibration Points
English Meter Box Units, English K' Factor
Filename:
File Modified From: APEX 522 Series Meter box Calibration
Revised: 4/7/2004

Model #: CAE
ID #: CB13
Date: January 13, 2015
Bar. Pressure: 30.04 (in. Hg)
Performed By: TCM

Theoretical Critical Vacuum = 14.18

DRY GAS METER READINGS									CRITICAL ORIFICE READINGS					
					Initial Temps.		Final Temps.					Ambient Temperature		
dH (in H2O)	Time (min)	Volume Initial (cu ft)	Volume Final (cu ft)	Volume Total (cu ft)	Inlet (deg F)	Outlet (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
0.35	18.00	977.94	983.27	5.33	65.00	65.00	65.00	65.00	40	0.233	24.00	65.00	65.00	65.00
0.35	18.00	983.27	988.60	5.33	65.00	65.00	65.00	65.00	40	0.233	24.00	65.00	65.00	65.00
0.35	18.00	988.60	993.91	5.31	65.00	65.00	66.00	65.00	40	0.233	24.00	65.00	65.00	65.00
0.71	13.00	960.70	966.45	5.75	65.00	64.00	65.00	64.00	48	0.344	23.00	65.00	63.00	64.00
0.71	13.00	966.45	972.20	5.75	65.00	64.00	65.00	65.00	48	0.344	23.00	63.00	63.00	63.00
0.71	13.00	972.20	977.94	5.74	65.00	65.00	65.00	65.00	48	0.344	23.00	63.00	65.00	64.00
1.80	8.00	943.34	949.13	5.79	65.00	63.00	67.00	64.00	63	0.564	21.00	62.00	63.00	62.50
1.80	8.00	949.13	954.91	5.77	67.00	64.00	67.00	64.00	63	0.564	21.00	63.00	63.00	63.00
1.80	8.00	954.91	960.70	5.80	67.00	64.00	67.00	64.00	63	0.564	20.00	63.00	64.00	63.50
3.60	6.00	925.25	931.27	6.02	62.00	62.00	62.00	62.00	73	0.781	18.00	62.00	62.00	62.00
3.60	6.00	931.27	937.31	6.03	62.00	62.00	63.00	62.00	73	0.781	18.00	62.00	62.00	62.00
3.60	6.00	937.31	943.34	6.04	63.00	62.00	67.00	63.00	73	0.781	18.00	62.00	62.00	62.00

DRY GAS METER		ORIFICE			DRY GAS METER CALIBRATION FACTOR	ORIFICE CALIBRATION FACTOR	Individual Run	Individual Orifice	Orifice Average	Orifice Average
VOLUME CORRECTED Vm(std) (cu ft)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (cu ft)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (cu ft)	Y Value (number)	dH@ Value (in H2O)	0.95 < Y < 1.05?	Ymax - Ymin < 0.010?	0.98 < Y/Yd < 1.02?	dH@ - dH@ av < 0.155?
5.382	152.4	5.499	155.7	5.529	1.022	2.100	Pass			
5.389	152.6	5.499	155.7	5.529	1.020	2.100	Pass			
5.357	151.7	5.499	155.7	5.529	1.027	2.100	Pass			
				Average	**1.023**	**2.100**		**Pass**	**Pass**	**Pass**
5.818	164.8	5.869	166.2	5.890	1.009	1.955	Pass			
5.812	164.6	5.874	166.4	5.884	1.011	1.949	Pass			
5.805	164.4	5.869	166.2	5.890	1.011	1.951	Pass			
				Average	**1.010**	**1.952**		**Pass**	**Pass**	**Pass**
5.871	166.3	5.930	167.9	5.934	1.010	1.840	Pass			
5.848	165.6	5.927	167.8	5.937	1.013	1.840	Pass			
5.872	166.3	5.924	167.8	5.940	1.009	1.842	Pass			
				Average	**1.011**	**1.841**		**Pass**	**Pass**	**Pass**
6.168	174.7	6.161	174.5	6.160	0.999	1.923	Pass			
6.177	174.9	6.161	174.5	6.160	0.997	1.923	Pass			
6.164	174.6	6.161	174.5	6.160	1.000	1.921	Pass			
				Average	**0.999**	**1.922**		**Pass**	**Pass**	**Pass**

Average Yd: 1.011 **dH@: 1.954**

Q @ dH = 1: 0.537

SIGNED: _____ Date: _____

IMPORTANT **For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.**
IMPORTANT **The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).**

SCEC
1631 E. Saint Andrew Place
Santa Ana, CA 92705
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB 13 DGM IN
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 12, 2015
CALIBRATED BY:	JED

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	30	0.49
32	30	0.43
32	30	0.43

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	210	0.30
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	363	0.24
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1631 E. Saint Andrew Place
Santa Ana, CA 92705
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB 13 DGM OUT
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 12, 2015
CALIBRATED BY:	JED

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	33	0.16
32	33	0.12
32	33	0.12

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	212	0.00
212	212	0.00
212	212	0.00

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	366	0.12
365	365	0.00
365	365	0.00

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1631 E. Saint Andrew Place
Santa Ana, CA 92705
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	CB 13 IMP OUT
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 13, 2015
CALIBRATED BY:	JED

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	32	0.00
32	31	0.18
32	31	0.14

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	212	0.00
212	211	0.15
212	211	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	365	0.00
365	364	0.12
365	364	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	PT63 TC 64
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	September 5, 2014
CALIBRATED BY:	TCM

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	33	0.18
32	33	0.16
32	33	0.16

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	213	0.15
212	213	0.15
212	213	0.15

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	366	0.12
365	366	0.12
365	366	0.12

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	PT62 TC 61
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 30, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	28	0.81
32	28	0.81
32	29	0.61

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	209	0.45
212	209	0.45
212	210	0.30

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	363	0.24
365	363	0.24
365	363	0.24

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1631 E. Saint Andrew Place
Santa Ana, CA 92705
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	PT31 TC11
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 12, 2015
CALIBRATED BY:	JED

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	33	0.24
32	32	0.04
32	32	0.06

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	212	0.00
212	212	0.00
212	212	0.00

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	365	0.00
365	365	0.00
365	365	0.00

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	Heated Line 5
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	33	0.20
32	33	0.20
32	33	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	208	0.60
212	208	0.60
212	208	0.60

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	361	0.48
365	361	0.48
365	361	0.48

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

SCEC
1582-1 NORTH BATAVIA STREET
ORANGE, CALIFORNIA 92867
(714) 282-8240

TEMPERATURE SENSOR CALIBRATION

TEMPERATURE SENSOR I.D. #:	Stack KO 5
THERMOCOUPLE SOURCE:	PIE Model 520-K
SOURCE SERIAL NUMBER:	S/N 106970
CALIBRATION DATE:	January 31, 2014
CALIBRATED BY:	ALW

ALL TEMPERATURES ARE IN DEGREES FAHRENHEIT

ICE BATH		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
32	33	0.20
32	33	0.20
32	33	0.20

BOILING WATER		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
212	215	0.45
212	215	0.45
212	215	0.45

BOILING OIL		
SIMULATED THERMOMETER TEMPERATURE	FIELD SENSOR TEMPERATURE	ABSOLUTE % DIFFERENCE
365	369	0.48
365	369	0.48
365	369	0.48

MAXIMUM TOLERANCE BETWEEN ANY TWO MEASUREMENTS IS 1.5%
NOTE: TAKE READINGS EVERY 1 MINUTE

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22014

DocNumber: 000068110

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 27452800
Customer P. O. Number: 04948274
Customer Reference Number:

Fill Date: 6/4/2014
Part Number: NI CD6.5O6E-AS
Lot Number: 109415505
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:		6/11/2022	NIST Traceable
Cylinder Number:		CC243285	Analytical Uncertainty:
8.23	%	CARBON DIOXIDE	± 1 %
12.5	%	OXYGEN	± 0.4 %
	Balance	NITROGEN	

Certification Information: *Certification Date:* 6/11/2014 *Term:* 96 Months *Expiration Date:* 6/11/2022

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

O2 responses have been corrected for CO2 interference.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON DIOXIDE

Requested Concentration: 8.5 %
Certified Concentration: 8.23 %
Instrument Used: Horiba VIA-510 S/N 2807014
Analytical Method: NDIR
Last Multipoint Calibration: 5/20/2014

First Analysis Data:						Date: 6/11/2014	
Z:	0	R:	9.96	C:	8.23	Conc:	8.23
R:	9.96	Z:	0	C:	8.23	Conc:	8.23
Z:	0	C:	8.23	R:	9.96	Conc:	8.23
UOM:	%			Mean Test Assay:			8.23 %

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC207040
Ref. Std. Conc: 9.96%
Ref. Std. Traceable to SRM #: vs 1674b
SRM Sample #: 7-F-32
SRM Cylinder #: CAL014645

Second Analysis Data:						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

2. Component: OXYGEN

Requested Concentration: 12.5 %
Certified Concentration: 12.5 %
Instrument Used: OXYMAT 5E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 5/20/2014

First Analysis Data:						Date: 6/11/2014	
Z:	0	R:	20.9	C:	12.46	Conc:	12.466
R:	20.9	Z:	0	C:	12.46	Conc:	12.466
Z:	0	C:	12.46	R:	20.9	Conc:	12.466
UOM:	%			Mean Test Assay:			12.466 %

Reference Standard Type: GMIS
Ref. Std. Cylinder #: SA18070
Ref. Std. Conc: 20.91 %
Ref. Std. Traceable to SRM #: 2659a
SRM Sample #: 71-E-19
SRM Cylinder #: FF22331

Second Analysis Data:						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

Analyzed by: Ying Yu

Certified by: Jack Fu

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22014

DocNumber: 000062744

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 26031858
Customer P. O. Number: 04737688
Customer Reference Number:

Fill Date: 1/10/2014
Part Number: NI NO42ME-AS
Lot Number: 109401006
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:		1/21/2017	NIST Traceable
Cylinder Number:		CC244265	Analytical Uncertainty:
42.6	ppm	NITRIC OXIDE	± 0.7 %
Balance		NITROGEN	

NOx = 42.8 ppm **NOx for Reference Only**

Certifcation Information: *Certification Date:* 1/21/2014 *Term:* 36 Months *Expiration Date:* 1/21/2017

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: NITRIC OXIDE

Requested Concentration: 42 ppm
Certified Concentration: 42.8 ppm
Instrument Used: Thermo Electron 42C S/N 518112467
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 1/21/2014

First Analysis Data:						Date:	1/14/2014
Z:	0	R:	50	C:	42.6	Conc:	42.8
R:	50	Z:	0	C:	42.7	Conc:	42.7
Z:	0	C:	42.7	R:	50	Conc:	42.7
UOM:	ppm			Mean Test Assay:			42.733 ppm

Analyzed by: Diego Mestanza

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC362460
Ref. Std. Conc: 50.0 ppm
Ref. Std. Traceable to SRM # : 1683b
SRM Sample # : 45-U-37
SRM Cylinder # : CAL015617

Second Analysis Data:						Date:	1/21/2014
Z:	0	R:	50	C:	42.6	Conc:	42.6
R:	50	Z:	0	C:	42.5	Conc:	42.5
Z:	0	C:	42.5	R:	50	Conc:	42.5
UOM:	ppm			Mean Test Assay:			42.533 ppm

Certified by: Jack Fu

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22013

DocNumber: 000048234

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 22498493
Customer P. O. Number: 04223942
Customer Reference Number:

Fill Date: 1/16/2013
Part Number: NI CO850E-AS
Lot Number: 109301607
Cylinder Style & Outlet: AS CGA 350
Cylinder Pressure & Volume: 2000 psig 140 cu. ft

Certified Concentration:

Expiration Date:		**1/24/2021**	NIST Traceable
Cylinder Number:		**CC115386**	Analytical Uncertainty:
858	**ppm**	**CARBON MONOXIDE**	± 1 %
	Balance	**NITROGEN**	

Certification Information: *Certification Date:* 1/24/2013 *Term:* 96 Months *Expiration Date:* 1/24/2021

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1

Do Not Use this Standard if Pressure is less than 150 PSIG

The certification expiration date is assigned using the May 2012 revision of the EPA Traceability Protocol document.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON MONOXIDE

Requested Concentration: 850 ppm
Certified Concentration: 858 ppm
Instrument Used: Horiba VIA-510, S/N 577172043
Analytical Method: NDIR
Last Multipoint Calibration: 1/11/2013

First Analysis Data: **Date:** 1/24/2013

Z:	0	R:	1001	C:	858	Conc:	858
R:	1001	Z:	0	C:	859	Conc:	859
Z:	0	C:	858	R:	1001	Conc:	858

UOM: ppm **Mean Test Assay:** 858 ppm

Analyzed by: Rolonda Haywood

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC128587
Ref. Std. Conc: 1001 ppm
Ref. Std. Traceable to SRM # : 1689b
SRM Sample # : 1-28-I
SRM Cylinder # : CLM-009404

Second Analysis Data: **Date:**

Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: ppm **Mean Test Assay:** 0 ppm

Certified by: Shameela Jiffrey

SCOTT-MARRIN, INC.
6531 BOX SPRINGS BLVD. • RIVERSIDE, CA 92507
(951) 653-6780 • FAX (951) 653-2430 • WWW.SCOTTMARRIN.COM

Report Of Analysis
NIST-Traceable Gas Mixtures

SCEC01
TO: SCEC - Air Quality Specialists
Attn: George Munoz
1582-1 North Batavia Street
Orange, CA 92867
(714) 282-8240

REPORT NO: 65507-05
REPORT DATE: September 19, 2014
CUSTOMER PO NO: 4643

CYLINDER NUMBER: **CA01730**

COMPONENT	CONCENTRATION (v/v)	NIST TRACEABLE REFERENCE STANDARD
Nitrogen dioxide	17.10 ± 0.34 ppmv	SRM 2629a
Nitrogen	Balance	

Cylinder Size: 150A (85 std cu ft)
Cylinder Pressure: 1200 psig
Shelf Life: 6 months

ppm = umole/mole **% = mole-%**

The above analyses are traceable to the National Institute of Standards and Technology by intercomparison with the reference standard listed herein. Where indicated, volumetric and gravimetric reference standards are traceable thru use of our analytical balance. NIST Certificate Numbers 822/272801-6 and 822/274081-06.

ANALYST: D. C. M— **APPROVED:** _____

D.C.Marrin J. T. Marrin

STANDARD CALIBRATION GASES IN ALUMINUM CYLINDERS

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22013

DocNumber: 000056705

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 24351940
Customer P. O. Number: 04496154
Customer Reference Number:

Fill Date: 7/24/2013
Part Number: NI CD17O7ZE-AS
Lot Number: 109320514
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:		**7/29/2021**	NIST Traceable
Cylinder Number:		**CC219841**	Analytical Uncertainty:
16.5	**%**	**CARBON DIOXIDE**	± 1 %
20.9	**%**	**OXYGEN**	± 1 %
	Balance	**NITROGEN**	

Certifcation Information: *Certification Date:* 7/29/2013 *Term:* 96 Months *Expiration Date:* 7/29/2021

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON DIOXIDE

Requested Concentration: 17 %
Certified Concentration: 16.5 %
Instrument Used: Horiba VIA-510 S/N 2807014
Analytical Method: NDIR
Last Multipoint Calibration: 7/15/2013

First Analysis Data:						Date:	7/29/2013
Z:	0	R:	19.71	C:	16.52	Conc:	16.52
R:	19.71	Z:	0	C:	16.53	Conc:	16.53
Z:	0	C:	16.53	R:	19.71	Conc:	16.53
UOM:	%			Mean Test Assay:			16.527 %

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC74650
Ref. Std. Conc: 19.71 %
Ref. Std. Traceable to SRM # : vs. 1674b
SRM Sample # : 7-F-32
SRM Cylinder # : CAL014645

Second Analysis Data:						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

2. Component: OXYGEN

Requested Concentration: 21 %
Certified Concentration: 20.9 %
Instrument Used: OXYMAT 5E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 7/15/2013

First Analysis Data:						Date:	7/29/2013
Z:	0	R:	20	C:	20.96	Conc:	20.95
R:	20	Z:	0	C:	20.96	Conc:	20.95
Z:	0	C:	20.96	R:	20	Conc:	20.95
UOM:	%			Mean Test Assay:			20.95 %

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC92589
Ref. Std. Conc: 19.99%
Ref. Std. Traceable to SRM # : 2659a
SRM Sample # : 71-37-B
SRM Cylinder # : CLM-006734

Second Analysis Data:						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

Analyzed by: Ying Yu

Certified by: Henry Kwong

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22013

DocNumber: 000052111

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 23211280
Customer P. O. Number: 04331929
Customer Reference Number:

Fill Date: 3/20/2013
Part Number: NI NO85ME-AS
Lot Number: 109307905
Cylinder Style & Outlet: AS CGA 660
Cylinder Pressure & Volume: 2000 psig 140 cu ft

Certified Concentration:

Expiration Date:	**4/8/2021**		NIST Traceable
Cylinder Number:	**CC139489**		Analytical Uncertainty:
86.9	**ppm**	**NITRIC OXIDE**	± 1 %
	Balance	**NITROGEN**	

NOx = 87.0 ppm **NOx for Reference Only**

Certifcation Information: *Certification Date:* 4/8/2013 *Term:* 96 Months *Expiration Date:* 4/8/2021

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1. The certification expiration date was assigned using the May 2012 revision of the EPA Traceability Protocol document.Do Not Use this Standard if Pressure is less than 150 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: NITRIC OXIDE

Requested Concentration: 85 ppm
Certified Concentration: 86.9 ppm
Instrument Used: Thermo Electron 42i S/N 072602432C
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 3/27/2013

First Analysis Data:						Date: 3/25/2013
Z: 0	R: 103.2	C: 86.8	Conc: 86.8			
R: 103.2	Z: 0	C: 86.8	Conc: 86.8			
Z: 0	C: 86.9	R: 103.2	Conc: 86.9			
UOM: ppm		Mean Test Assay: 86.8 ppm				

Analyzed by: Nelson Ma
Nelson Ma

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC145330
Ref. Std. Conc: 103.2 ppm
Ref. Std. Traceable to SRM #: vs. 1684b
SRM Sample #: 44-S-81
SRM Cylinder #: CAL015454

Second Analysis Data:						Date: 4/1/2013
Z: 0	R: 103.2	C: 87	Conc: 87			
R: 103.2	Z: 0	C: 87	Conc: 87			
Z: 0	C: 87	R: 103.2	Conc: 87			
UOM: ppm		Mean Test Assay: 87 ppm				

Certified by:
Rolonda Kaywood

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVP ID: F22014

DocNumber: 000071252

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

SCEC AIR QUALITY
1582 N BATAVIA 1
ORANGE CA 928673

Praxair Order Number: 28362620
Customer P. O. Number: 081514
Customer Reference Number:

Fill Date: 9/2/2014
Part Number: NI CO1800E-AS
Lot Number: 109424403
Cylinder Style & Outlet: AS CGA 350
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:		**9/8/2022**	NIST Traceable
Cylinder Number:		**CC207275**	Analytical Uncertainty:
1780	**ppm**	**CARBON MONOXIDE**	± 0.7 %
	Balance	**NITROGEN**	

Certifcation Information: *Certification Date:* 9/8/2014 *Term:* 96 Months *Expiration Date:* 9/8/2022

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON MONOXIDE

Requested Concentration: 1800 ppm
Certified Concentration: 1780 ppm
Instrument Used: Horiba VIA-510, S/N 577172043
Analytical Method: NDIR
Last Multipoint Calibration: 8/20/2014

First Analysis Data:							Date: 9/8/2014
Z:	0	R:	979	C:	1780	Conc:	1781.8
R:	978	Z:	0	C:	1780	Conc:	1781.8
Z:	0	C:	1779	R:	977	Conc:	1780.8
UOM:	ppm			Mean Test Assay:			1781.5 ppm

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CLM-009404
Ref. Std. Conc: 979 ppm
Ref. Std. Traceable to SRM # : 1681b
SRM Sample # : 1-L-38
SRM Cylinder # : FF20632

Second Analysis Data:							Date:
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	ppm			Mean Test Assay:			0 ppm

Analyzed by: Ying Yu

Certified by: Jack Fu

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22013

DocNumber: 000055288

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 24009839
Customer P. O. Number: 04448150
Customer Reference Number:

Fill Date: 6/17/2013
Part Number: NI CD8.5O6E-AS
Lot Number: 109316808
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:		6/24/2021	NIST Traceable
Cylinder Number:		CC95426	Analytical Uncertainty:
8.42	%	CARBON DIOXIDE	± 1 %
12.5	%	OXYGEN	± 1.1 %
	Balance	NITROGEN	

Certifcation Information: *Certification Date:* 6/24/2013 *Term:* 96 Months *Expiration Date:* 6/24/2021

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON DIOXIDE

Requested Concentration: 8.5 %
Certified Concentration: 8.42 %
Instrument Used: Horiba VIA-510 S/N 2807014
Analytical Method: NDIR
Last Multipoint Calibration: 5/30/2013

First Analysis Data:						Date:	6/21/2013
Z: 0	R: 10.07	C: 8.42	Conc:	8.42			
R: 10.07	Z: 0	C: 8.41	Conc:	8.41			
Z: 0	C: 8.43	R: 10.07	Conc:	8.43			
UOM: %		Mean Test Assay:		8.42 %			

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC7663
Ref. Std. Conc: 10.07%
Ref. Std. Traceable to SRM # : 1675b
SRM Sample # 6-F-51
SRM Cylinder # CAL014538

Second Analysis Data:						Date:	
Z: 0	R: 0	C: 0	Conc:	0			
R: 0	Z: 0	C: 0	Conc:	0			
Z: 0	C: 0	R: 0	Conc:	0			
UOM: %		Mean Test Assay:		0 %			

2. Component: OXYGEN

Requested Concentration: 12.5 %
Certified Concentration: 12.5 %
Instrument Used: OXYMAT 5E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 5/30/2013

First Analysis Data:						Date:	6/24/2013
Z: 0	R: 15.08	C: 12.52	Conc:	12.528			
R: 15.08	Z: 0	C: 12.5	Conc:	12.508			
Z: 0	C: 12.52	R: 15.08	Conc:	12.528			
UOM: %		Mean Test Assay:		12.522 %			

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC92651
Ref. Std. Conc: 15.09 %
Ref. Std. Traceable to SRM # : 2659a
SRM Sample # 71-37-B
SRM Cylinder # CLM-006734

Second Analysis Data:						Date:	
Z: 0	R: 0	C: 0	Conc:	0			
R: 0	Z: 0	C: 0	Conc:	0			
Z: 0	C: 0	R: 0	Conc:	0			
UOM: %		Mean Test Assay:		0 %			

Analyzed by: Ying Yu

Certified by: Henry Koung

PRAXAIR

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Tel: (323) 585-2154 Fax:(714) 542-6689
PGVPID: F22013

DocNumber: 000056703

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

PRAXAIR WHSE SANTA ANA CA
1545 E EDINGER AVE
SANTA ANA CA 927050

Praxair Order Number: 24357319
Customer P. O. Number: 04497194
Customer Reference Number:

Fill Date: 7/23/2013
Part Number: NI CD17O7ZE-AS
Lot Number: 109320401
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:	7/29/2021	NIST Traceable
Cylinder Number:	CC174445	Analytical Uncertainty:
16.6 %	CARBON DIOXIDE	± 1 %
20.9 %	OXYGEN	± 1 %
Balance	NITROGEN	

Certification Information: *Certification Date:* 7/29/2013 *Term:* 96 Months *Expiration Date:* 7/29/2021

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Do Not Use this Standard if Pressure is less than 100 PSIG.

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON DIOXIDE

Requested Concentration: 17 %
Certified Concentration: 16.8 %
Instrument Used: Horiba VIA-510 S/N 2807014
Analytical Method: NDIR
Last Multipoint Calibration: 7/15/2013

First Analysis Data:					Date: 7/29/2013
Z: 0	R: 19.71	C: 16.55	Conc:	16.55	
R: 19.71	Z: 0	C: 16.55	Conc:	16.55	
Z: 0	C: 16.56	R: 19.71	Conc:	16.56	
UOM: %		Mean Test Assay:		16.553 %	

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC74850
Ref. Std. Conc: 19.71 %
Ref. Std. Traceable to SRM # : vs. 1674b
SRM Sample # : 7-F-32
SRM Cylinder # : CAL014645

Second Analysis Data:					Date:
Z: 0	R: 0	C: 0	Conc:	0	
R: 0	Z: 0	C: 0	Conc:	0	
Z: 0	C: 0	R: 0	Conc:	0	
UOM: %		Mean Test Assay:		0 %	

2. Component: OXYGEN

Requested Concentration: 21 %
Certified Concentration: 20.9 %
Instrument Used: OXYMAT 5E
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 7/15/2013

First Analysis Data:					Date: 7/29/2013
Z: 0	R: 20	C: 20.94	Conc:	20.93	
R: 20	Z: 0	C: 20.95	Conc:	20.95	
Z: 0	C: 20.96	R: 20	Conc:	20.95	
UOM: %		Mean Test Assay:		20.943 %	

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC92589
Ref. Std. Conc: 19.99%
Ref. Std. Traceable to SRM # : 2659a
SRM Sample # : 71-37-B
SRM Cylinder # : CLM-006734

Second Analysis Data:					Date:
Z: 0	R: 0	C: 0	Conc:	0	
R: 0	Z: 0	C: 0	Conc:	0	
Z: 0	C: 0	R: 0	Conc:	0	
UOM: %		Mean Test Assay:		0 %	

Analyzed by: Ying Yu

Certified by: Henry Koung

SCEC

Appendix G

Chain of Custody Information

Chain of Custody Record
Analytical Services Request

SCEC
1582-1 N. Batavia St. Orange, CA 92867
(714) 282-8240 phone, (714) 282-8247 fax

350889

Client/Project Name: OCSD		Client Project No.: 2061.1060			ANALYSES REQUESTED						Laboratory Name: Associated Labs
Project Location: Plant 2					SCAQMD METHOD 5.1 ORGANIC AND INORGANIC PARTICULATE MATTER						Lab Contact:
Contact: Rudy Nunez		Sampler (Signature)									Lab Phone No.: (714) 771 - 6900
Sample #	Description	SAMPLE Date	Time	Type							Turnaround Time: NORMAL
	P2E2	12/18/2014		WATER	X						Remarks: CONDENSABLE INORGANIC AND ORGANIC ANALYSIS ON ALL SAMPLES
	P2E2	12/18/2014		FILTER	X						
	P2E4	12/18/2014		WATER	X						
	P2E4	12/18/2014		FILTER	X						
	BLANK	12/182014		WATER	X						

Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	SCEC	12/22/14	1530		ASL	12/22/14	16:26
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:

G-2

Chain of Custody Record
Analytical Services Request

SCEC
1582-1 N. Batavia St. Orange, CA 92867
(714) 282-8240 phone, (714) 282-8247 fax

Client/Project Name: OCSD		Client Project No.: 2061.1060			ANALYSES REQUESTED						Laboratory Name: AtmAA Inc
Project Location: Plant 2											Lab Contact: Mike Porter
Contact: Rudy Nunez		Sampler (Signature)									Lab Phone No.: (818) 223 - 3277
		SAMPLE									Turnaround Time: NORMAL
Sample #	Description	Date	Time	Type	SCAQMD Mod. 307.91 (Sulfur, H2S & TRS)	SCAQMD Method 10.1 Fixed Gases (O2, CO2, N2)	ASTM D3588 (C1-C6+, BTU, CHONS)	ASTM D-1955 & D-1945 (TGNMO & Methane)	SCAQMD Rule 1150.1 Compounds	EPA TO-15	Remarks:
	P2E4	12/18/2014	1330	Tedlar Bag	X		X				13534-10
	P2E2	12/18/2014	1700	Tedlar Bag	X		X				-11

Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	SCEC	12/19	8:00		ACS	12/19	9:00
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
					ATMAA	12-19-14	12:30

AAC# 150079

Chain of Custody Record
Analytical Services Request

SCEC
1582-1 N. Batavia St. Orange, CA 92867
(714) 282-8240 phone, (714) 282-8247 fax

Client/Project Name: **OCSD Plant 2**		Client Project No.: **2061.1060**			ANALYSES REQUESTED						Laboratory Name: **AAC**
Project Location: **Engines 2 and 4**					SCAQMD 25.3 (O2/CO2/N2)	SCAQMD 25.1 (O2/CO2/N2)					Lab Contact: **Marcus Hueppe**
Contact: **Rudy Nunez**		Sampler (Signature)									Lab Phone No.: **(805) 650 - 1642**
Sample #	Description	SAMPLE Date	Time	Type							Turnaround Time **N.T.A.T.**
											Remarks:
76922	P2E2 Run -1A	1/28/2014	1200-1300	Tank 474		x					Please Include Data Package
	P2E2 Run -1A	1/28/2014	1200-1300	Trap 164		x					
76923	P2E2 Run -1B	1/28/2014	1200-1300	Tank 469		x					
	P2E2 Run -1B	1/28/2014	1200-1300	Trap 160		x					
76924	P2E4 Run -1A	1/28/2014	1445-1545	Tank 249		x					
	P2E4 Run -1A	1/28/2014	1445-1545	Trap 117		x					
76925	P2E4 Run -1B	1/28/2014	1445-1545	Tank 267		x					
	P2E4 Run -1B	1/28/2014	1445-1545	Trap 124		x					

Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	SCEC	1/29/15	0700				
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	Orange Courier	1/29/15	9:15				
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
					AAC	01/29/15	1315

- Orange Courier

Chain of Custody Record
Analytical Services Request

SCEC
1582-1 N. Batavia St. Orange, CA 92867
(714) 282-8240 phone, (714) 282-8247 fax

Client/Project Name: OCSD		Client Project No.: 2061.1060			ANALYSES REQUESTED						Laboratory Name: AtmAA Inc
Project Location: Plant 2					SCAQMD Mod. 307.91 (Sulfur, H2S & TRS)	SCAQMD Method 10.1 Fixed Gases (O2, CO2, N2)	ASTM D3588 (C1-C6+, BTU, CHONS)	ASTM D-1955 & D-1945 (TGNMO & Methane)	SCAQMD Rule 1150.1 Compounds	EPA TO-15	Lab Contact: Mike Porter
Contact: Rudy Nunez		Sampler (Signature)									Lab Phone No.: (818) 223 - 3277
		SAMPLE									Turnaround Time: NORMAL
Sample #	Description	Date	Time	Type							Remarks:
	P2	1/28/2015	1645	Tedlar Bag			X				10295 -11

Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	SCEC	1/29/15	715		AtmAA	1/29/15	17:02
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:
	Orange Courier	1/29/15	9:15				
Relinquished by (Signature):	Company:	Date	Time	Received by (Signature):	Company:	Date:	Time:

G-5

SCEC

Appendix H

Process Operating Data and Fuel Usage

SUMMARY OF EPA METHOD 19 SOURCE TEST DATA AND CALCULATIONS
OCSD PLANT 2
ENGINE #2

PARAMETER	UNITS	NORM LOAD	HIGH LOAD	LOW LOAD
DATE		12/18/2014	12/18/2014	12/18/2014
FUEL FLOW - @ 60 DEG F	SCFM	700.31	835.55	636.06
CALORIFIC VALUE - @ 60 DEG F	BTU/CF	622.0	622.0	622.0
F FACTOR (Fd) - @ 60 DEG F	DSCF/MMBTU	9,449	9,449	9,449
EXHAUST O2 CONCENTRATION	%VD	11.82	12.08	11.62
HEAT INPUT - DIGESTER GAS	MMBTU/MIN	0.43559282	0.5197121	0.39562932
EXHAUST VOLUME FLOW RATE @ 60 DEG F	**DSCFM**	**9,478**	**11,642**	**8,418**

PROCESS DATA
OCSD PLANT 2
ENGINE #2- NORMAL
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 16:30	85.35	13.62	697.61
12/18/14 16:36	86.12	13.79	706.47
12/18/14 16:42	88.87	13.81	708.71
12/18/14 16:48	88.28	13.79	707.86
12/18/14 16:54	86.67	14.00	712.39
12/18/14 17:00	85.57	13.51	699.03
12/18/14 17:06	84.64	13.62	698.42
12/18/14 17:12	84.56	13.49	693.58
12/18/14 17:18	84.88	13.42	693.68
12/18/14 17:24	86.57	13.42	694.40
12/18/14 17:30	85.63	13.44	691.22
AVERAGE	**86.10**	**13.63**	**700.31**

PROCESS DATA
OCSD PLANT 2
ENGINE #2- HIGH
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 18:30	106.56	17.53	835.72
12/18/14 18:36	104.64	17.62	835.38
AVERAGE	**105.60**	**17.58**	**835.55**

PROCESS DATA
OCSD PLANT 2
ENGINE #2- LOW
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 17:54	76.63	11.72	635.02
12/18/14 18:00	74.67	11.74	637.35
12/18/14 18:06	75.57	11.72	635.80
AVERAGE	**75.62**	**11.73**	**636.06**

SUMMARY OF EPA METHOD 19 SOURCE TEST DATA AND CALCULATIONS
OCSD PLANT 2
ENGINE #4

PARAMETER	UNITS	NORM LOAD	HIGH LOAD	LOW LOAD
DATE		12/18/2014	12/18/2014	12/18/2014
FUEL FLOW - @ 60 DEG F	SCFM	709.37	778.80	630.87
CALORIFIC VALUE - @ 60 DEG F	BTU/CF	627.0	627.0	627.0
F FACTOR (Fd) - @ 60 DEG F	DSCF/MMBTU	9,379	9,379	9,379
EXHAUST O2 CONCENTRATION	%VD	12.33	12.42	12.03
HEAT INPUT - DIGESTER GAS	MMBTU/MIN	0.44477499	0.4883076	0.39555549
EXHAUST VOLUME FLOW RATE @ 60 DEG F	**DSCFM**	**10,178**	**11,289**	**8,744**

PROCESS DATA
OCSD PLANT 2
ENGINE #4- NORMAL
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 13:06	86.81	17.09	713.41
12/18/14 13:12	81.20	16.95	704.21
12/18/14 13:18	84.57	16.88	702.62
12/18/14 13:24	86.15	16.93	709.45
12/18/14 13:30	87.64	17.27	708.37
12/18/14 13:36	83.98	17.30	705.26
12/18/14 13:42	84.99	17.20	715.47
12/18/14 13:48	82.44	17.32	716.05
12/18/14 13:54	84.60	17.18	711.85
12/18/14 14:00	83.81	17.13	707.05
AVERAGE	**84.62**	**17.13**	**709.37**

PROCESS DATA
OCSD PLANT 2
ENGINE #4- HIGH
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 15:30	86.78	17.32	725.66
12/18/14 15:36	92.62	18.41	765.61
12/18/14 15:42	101.90	21.02	845.12
AVERAGE	**93.77**	**18.92**	**778.80**

PROCESS DATA
OCSD PLANT 2
ENGINE #4- LOW
12/18/14

Date/Time	Title1-ICE % Load	Title2-Natural Gas Flow (dscfm)	Title3-Digester Gas Flow (dscfm)
12/18/14 15:00	71.01	15.07	630.69
12/18/14 15:06	74.82	14.81	629.64
12/18/14 15:12	76.63	14.81	632.28
AVERAGE	**74.15**	**14.90**	**630.87**

SUMMARY OF EPA METHOD 19 SOURCE TEST DATA AND CALCULATIONS
OCSD PLANT 2
ENGINE #2

PARAMETER	UNITS	NORM LOAD
DATE		1/28/2015
FUEL FLOW - @ 60 DEG F	SCFM	682.66
CALORIFIC VALUE - @ 60 DEG F	BTU/CF	614.0
F FACTOR (Fd) - @ 60 DEG F	DSCF/MMBTU	9,161
EXHAUST O2 CONCENTRATION	%VD	12.29
HEAT INPUT - DIGESTER GAS	MMBTU/MIN	0.419151398
EXHAUST VOLUME FLOW RATE @ 60 DEG F	**DSCFM**	**9,324**

PROCESS DATA
OCSD PLANT 2
ENGINE #2- NORMAL
1/28/15

Date/Time	Title1-O2 (%)	Title2-Digester Gas Flow (dscfm)	Title3-Natural Gas Flow (dscfm)	Title4-ICE % Load
1/28/15 12:00 PM	11.54	707.21	13.73	85.29
1/28/15 1:00 PM	11.41	658.11	12.36	78.77
AVERAGE	**11.47**	**682.66**	**13.04**	**82.03**

SUMMARY OF EPA METHOD 19 SOURCE TEST DATA AND CALCULATIONS
OCSD PLANT 2
ENGINE #4

PARAMETER	UNITS	NORM LOAD
DATE		1/28/2015
FUEL FLOW - @ 60 DEG F	SCFM	659.91
CALORIFIC VALUE - @ 60 DEG F	BTU/CF	614.0
F FACTOR (Fd) - @ 60 DEG F	DSCF/MMBTU	9,161
EXHAUST O2 CONCENTRATION	%VD	12.12
HEAT INPUT - DIGESTER GAS	MMBTU/MIN	0.40518474
EXHAUST VOLUME FLOW RATE @ 60 DEG F	**DSCFM**	**8,835**

PROCESS DATA
OCSD PLANT 2
ENGINE #4 - NORMAL
1/28/15

Date/Time	Title1-O2 (%)	Title2-Digester Gas Flow	Title3-Natural Gas Flow	Title4-ICE % Load
1/28/15 2:00 PM	11.795	685.819	16.882	78.265
1/28/15 3:00 PM	11.819	687.947	16.961	80.134
1/28/15 4:00 PM	11.285	605.969	14.627	69.429
AVERAGE	**11.63**	**659.91**	**16.16**	**75.94**

SCEC

Appendix I

Certifications

CERTIFICATE OF NO CONFLICT OF INTEREST

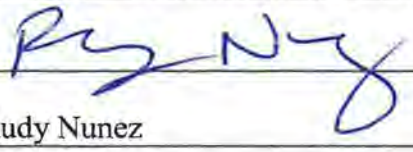
SCEC
1631 East Saint Andrew Place
Santa Ana, CA 92705

I certify that I am responsible for the testing operations of SCEC and am authorized to sign this certificate on the company's behalf.

SCEC may conduct tests as an independent tester as certified by South Coast Air Quality Management District (SCAQMD) and California Air Resource Board (CARB). SCEC is fully compliant with SCAQMD Rule 304. I further certify that SCEC has no conflict of interests and is not related or owned in any way to the company being tested.

Facility To Be Tested: OCSD P2 ICE 2 and ICE 4

Facility ID No.: 29110 (A/N 540709 and A/N 540711)

Signature: 

Name (printed/typed): Rudy Nunez

Title: District Manager

Date: February 25, 2015

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

June 6, 2014

Mr. Rudy Nunez
SCEC
1582-1 North Batavia Street
Orange, California 92867

Dear Mr. Nunez:

I am pleased to inform you that the Air Resources Board (ARB) has renewed, by means of enclosed Executive Order I-14-021, SCEC's approval to perform ARB Test Methods 1, 2, 3, 4, 5, 6, 8, 17, 20, 100 (CO, CO_2, NO_X, O_2, SO_2, THC), and Visible Emissions Evaluation. This approval is valid through June 30, 2015, during which time additional audits of SCEC's testing ability may be performed. I have also enclosed two certificates of approval.

If you have questions or need further assistance, please contact Kathryn Gugeler at (916) 322-0221 or via email at kgugeler@arb.ca.gov or Angus MacPherson at (916) 445-4686 or via email at amacpher@arb.ca.gov.

Sincerely,

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

Enclosures (3)

cc: Angus MacPherson, Manager
Monitoring and Laboratory Division

Kathryn Gugeler
Monitoring and Laboratory Division

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER I-14-021

Independent Contractor Approval Pursuant to
California Code of Regulations, Title 17, Section 91207

SCEC

WHEREAS, the Air Resources Board (ARB), pursuant to California Health and Safety Code Section 41512, has established the procedures contained in California Code of Regulations, Title 17, Section 91200 and following, to allow the use of independent testers for compliance tests required by ARB;

WHEREAS, it has been determined that SCEC meets the requirements of ARB for performing ARB Test Methods 1, 2, 3, 4, 5, 6, 8, 17, 20, 100 (CO, CO_2, NO_X, O_2, SO_2, THC), and Visible Emissions Evaluation (VEE) pursuant to Cal. Code Regs., Title 17, Section 91200 and following, when the following conditions are met:

1. SCEC permanently marks or engraves an identification number on the body of each of its pitot tubes in accordance with Section 2.1 of ARB Test Method 2;

2. SCEC calibrates its differential pressure gauges after each test series in accordance with Section 2.2 of ARB Test Method 2, and establishes and maintains a log of the calibrations;

3. SCEC calibrates its pitot tubes in accordance with Section 4 of ARB Test Method 2 and establishes and maintains a log of the calibrations;

4. SCEC acquires and uses brushes for its probes and nozzles in accordance with Section 2.2.1 of ARB Test Method 5;

5. SCEC acquires and uses 250 ml beakers in accordance with Section 2.3.5 of ARB Test Method 5;

6. SCEC uses indicating anhydrous Calcium Sulfate as a desiccant in accordance with Section 3.3.2 of ARB Test Method 5;

7. SCEC permanently and uniquely identifies its isokinetic nozzles in accordance with Section 5.1 of ARB Test Method 5;

8. SCEC calibrates its metering system in accordance with Section 5.3 of ARB Test Method 5, and establishes and maintains a log of the calibrations;

9. SCEC uses a filter holder and filter support in accordance with Section 2.1.5 of ARB Test Method 5, Section 2.1.5 of ARB Test Method 8, or Section 2.1.2 of ARB Test Method 17, as appropriate;

10. SCEC uses caps on all probes, nozzles, lines, and/or impingers in accordance with Section 4.2 of ARB Test Method 5 or 17, as appropriate;

11. SCEC calibrates and repairs its nozzles used in isokinetic testing in accordance with Section 5.1 of ARB Test Method 5 or 17, as appropriate, and establishes and maintains a log of the calibrations which shall include notes on the repairs on each nozzle;

12. SCEC participates in U.S. Environmental Protection Agency Stationary Source Compliance Audit Program for ARB Test Methods 6 and 8;

13. SCEC back flushes the filter in the probe in accordance with Section 2.1.2 of ARB Test Method 100 as necessary;

14. SCEC includes the following information on all strip charts and/or emissions data sheets: pollutant of interest, source, analyzer range, date and time, zero offsets, and the name(s) of the person(s) operating the instruments;

15. SCEC recalibrates its gas dilution system once per calendar year as required by United States Environmental Protection Agency Test Method 205, Section 2.1.1;

16. The person performing VEE passed ARB Compliance Training Course #100: Fundamentals of Enforcement (FOE)/Visible Emissions Evaluation (Smoke School) and is currently certified to conduct VEE. Any recertification for VEE, following the initial passage of ARB's FOE, must be from a certifying body recognized by ARB at the time VEE is performed; and

WHEREAS, ARB Executive Officer, pursuant to California Health and Safety Code, Section 39516, issued Executive Order G-02-008, delegating to the Chief of ARB Monitoring and Laboratory Division (MLD) the authority to approve independent testers in accordance with Cal. Code Regs., Title 17, Section 91200 and following.

NOW, THEREFORE, I, Michael T. Benjamin, Chief of MLD, order that SCEC is granted approval from the date of execution of this order until June 30, 2015, to perform the test methods identified above, subject to compliance with Cal. Code Regs., Title 17, Section 91200 and following.

BE IT FURTHER ORDERED that during the approved period the Executive Officer or his authorized representative may field audit one or more tests performed pursuant to this order for each test method identified above.

Executed at Sacramento, California, this 4th day of June 2014.

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

SCEC

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2015, for those test methods listed below:

ARB Source Test Methods:
1, 2, 3, 4, 5, 6, 8, 17, 20
100 (CO, CO_2, NO_x, O_2, SO_2, THC)

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

SCEC

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2015, for the test method listed below:

Visible Emissions Evaluation

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

SCEC

Appendix J

SCAQMD Permits

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. G27395
A/N 540709

Equipment Description:

RESOURCE RECOVERY SYSTEM NO. 2 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
[RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions And Requirements:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOx: 45.4 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26)
ROG: 315 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26).
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. G27397
A/N 540711

Equipment Description:

RESOURCE RECOVERY SYSTEM NO. 4 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
[RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).

E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions And Requirements:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOx: 45.4 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26)
ROG: 315 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26)
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: ○ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ○ Not In RECLAIM or Title V ○ In RECLAIM ◉ In Title V ○ In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:

- ○ Title V Application or Amendment (Refer to Title V Matrix)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ○ Administrative Change
- ◉ Alteration/Modification (50)
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application

If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

G2966
MN 480912

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
03/26/2014	10/18/2016	10/18/2016

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Installation of CatOx/SCR system on Internal Combustion Engine (CG4-HB), 4177 HP, Nat Gas/Digester Gas Fired

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ◉ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? ◉ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ◉ Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ◉ No ○ Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James D. Ruth

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ○ No ◉ Yes

20. Print Name: James D. Ruth

21. Date: 12-5-12

22. Do you claim confidentiality of data? (If Yes, see instructions.) ◉ No ○ Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	546367	1000053307	$ 15138.13		1/8/13 mc

DATE	APP / REJ	DATE	APP / REJ	CLASS	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
3/13/13 GR				I II III		2B Identical	A		

CM 10673

5/6

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546367
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

5. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
   [RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip. Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

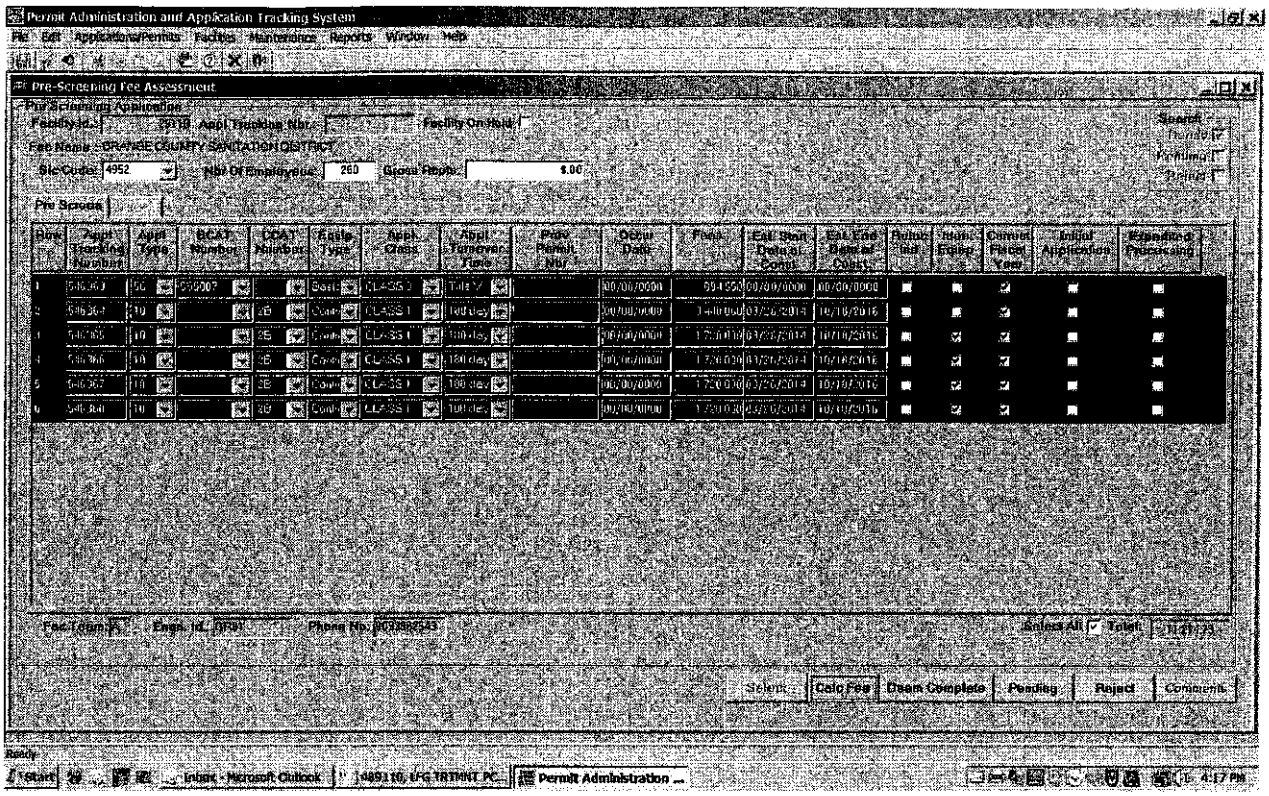
The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).



546364 —5 A/Ns→ 546368 Add on Catox/SCR Ident. Equip.

Ccat 2B
Sch C = $3440.66 1st
$1720.03 each ident. Eq.

3/13/2013

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

22212 Brookhurst Street, Huntington Beach, CA 92646 (◉ Fixed Location ○ Various Locations)

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or Equal — Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 — Total Volume: 37.33 cu. ft. — Total Weight: 1600 lbs.

Reducing Agent

◉ Urea ○ Anhydrous Ammonia ○ Aqueous Ammonia ____ % — Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

See Section 2.2.3 in Supplemental Information.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia

* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 — NOx: ____ gm/bhp-hr — Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equal — Type: 200 cpsi oxidation catalyst or Equal

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.3 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 — Total Volume: 18.67 cu. ft. — Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer: _____ Catalyst Active Material: _____

Model Number: _____ Type: _____

Size of Each Layer or Module: L: _____ ft. _____ in. W: _____ ft. _____ in. H: _____ ft. _____ in.

No. of Layers or Modules: _____ Total Volume: _____ cu. ft. Total Weight: _____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: _____ per hour

Manufacturer's Guarantee

NH_3: _____ ppm $\%O_2$: _____

Catalyst Life

_____ years (expected)

Cost

Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 850 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/5/12

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

CG4-HB
G29966

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (•) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(•) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(•) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 59.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 47 feet

Stack Inside Diameter: 29.90 inches **Stack Flow:** 26,816 acfm **Stack Temperature:** 400 °F

Rain Cap Present: ( ) Yes (•) No **Stack Orientation:** (•) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Distribution Center H **Building #/Name:** Standby Power Facility

Building Height: 33 feet (above ground level) **Building Height:** 46 feet (above ground level)

Building Width: 84 feet **Building Width:** 72 feet

Building Length: 126 feet **Building Length:** 102 feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 1,116 feet **Distance to nearest business:** 1,444 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (•) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082 Preparer's Email: tahn@ocsd.com
	Regulatory Specialist	

Contact Person: Terry Ahn	Contact's Phone#: (714) 593-7082	Date Signed: 12/5/12
Contact's Email: tahn@ocsd.com	Contact's Fax#: (714) 593-7785	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. **Facility Name** (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 029110

3. **Owner's Business Name** (If different from Business Name of Operator):

Section B - Equipment Location Address

4. **Equipment Location Is:** (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section D - Application Type

6. **The Facility Is:** ( ) Not In RECLAIM or Title V ( ) In RECLAIM (●) In Title V ( ) In RECLAIM & Title V Programs

7. **Reason for Submitting Application** (Select only ONE):

7a. New Equipment or Process Application:
- ( ) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:
- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ( ) Administrative Change
- (●) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number: R-D94235

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
09/23/2013	04/21/2014	04/21/2014

9. **Description of Equipment or Reason for Compliance Plan** (list applicable rule):
Boiler #1, Cleaver Brooks, 10.21 MMBtu/hr, Digester and Natural Gas Fired, Serial No. L-092869

10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each equipment / process): 1

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment?** (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. **What type of business is being conducted at this equipment location?** Municipal Wastewater Treatment

14. **What is your business primary NAICS Code?** (North American Industrial Classification System): 221320

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** ( ) No (●) Yes

16. **Are there any schools (K-12) within 1000 feet of the facility property line?** (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. **Signature of Responsible Official:** James D. Ruth

18. **Title of Responsible Official:** General Manager

19. **I wish to review the permit prior to issuance.** (This may cause a delay in the application process.) ( ) No (●) Yes

20. **Print Name:** James D. Ruth

21. **Date:** 10-10-12

22. **Do you claim confidentiality of data?** (If Yes, see instructions.) (●) No ( ) Yes

23. **Check List:** ☒ Authorized Signature/Date ☒ Form 400-CEQA ☐ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPL #	DATE	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	529289		100005 1847	9,243.73		10-18-12 DK

DATE	APP TYP	APP FIL	CLASS	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
10/23/12					03103	A		

3 of 4

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 1 WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 7	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL. NOs. 545004 rev 545005 rev	DATE 8/20/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CDT

PERMIT TO CONSTRUCT EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION: (A/N 545004, 545005)

BOILER, NO. 1, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

BOILER, NO. 2, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092868, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

Conditions: (A/N 545004, 545005)

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
   [RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)

OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
CARBON MONOXIDE (EXHAUST) (EACH FUEL)
OXYGEN (EACH FUEL)
DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
SCAQMD – ATTN. GAURANG RAWAL
ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOX: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/1/2015)

NOX: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOX: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 GR/SCF, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

BACKGROUND:

On 11/27/12, Orange County Sanitation District (OCSD) submitted the following applications;

A/N 545002 Title V Revision
A/N 545003 Change of permit conditions (and equipment description revision) to current PC 518276 for odor control system (Biofilters) to treat exhaust from the DAFTs.
A/N 545004 Alteration/modification to existing boiler (R-D94235, A/N 291030) to comply with Rule 1146 NOx emission limit.
A/N 545005 Alteration/modification to existing boiler (R-D94232, A/N 291031) to comply with Rule 1146 NOx emission limit. (This is identical equipment to 545004).

Based on 2012 Yr. reported emissions for formaldehyde, the facility is considered a major source for Hazardous Air Pollutants (HAP).

PROCESS DESCRIPTION:

The existing identical boilers are designed to operate on a digester gas (primary fuel) and natural gas (as secondary or standby fuel) to generate steam used in the anaerobic digestion process. These boilers are to be modified with new burners to meet Rule 1146 compliance emission limit for NOx. The new burner is rated at 10,250,800 Btu/hr as compared to existing burner rated at 10.46 MMBTU/hr (2% reduction in heat input rating). The boilers are also being rehabilitated with new ancillary feed water pipes, makeup water pipes, steam pipes, feedwater tank, feedwater pump and motor, and new natural gas and digester gas trains.

EMISSIONS:

Rated Heat input = 10,205,800 Btu/hr
Digester gas, HHV = approx 600 Btu/ft^3
Digester gas, scfm = 10,205,800 Btu/hr /600 Btu/ft^3 x 1hr/60 min = 283.5 scfm
Natural gas, scfm = 10,205,800 Btu/hr /1050 Btu/ft^3 x 1hr/60 min = 162 scfm

Exhaust flow rate (DG) = 3317 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3317 x (460+60=520)/ (460+350=810) = 2129 dscfm at 3% O2
Exhaust flow rate (NG) = 3070 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3070 x (460+60=520)/ (460+350=810) = 1971 dscfm at 3% O2

Check:
Exhaust Flow Rate (NG) = 8710 dscfm/mmbtu, 3% O2, 162 scfm = 1737.8 dscfm at 3% O2

The larger flows will be used to be conservative.

NOx (DG) = (2129 dscfm) (**15** E-06) (1/379) (46) (60) = **0.23 lbs NOx/hr** = 5.52 lbs NOx /day
CO (DG) = (2129 dscfm) (**400** E-06) (1/379) (28) (60) = **3.77 lbs CO/hr** = 90.6 lbs CO/day

NOx (NG) = (1971 dscfm) (**9** E-06) (1/379) (46) (60) = 0.13 lbs NOx/hr = 3.12 lbs NOx /day
CO (NG) = (1971 dscfm) (**400** E-06) (1/379) (28) (60) = 3.49 lbs CO/hr = 83.76 lbs CO/day

Pollutant	EF* Lbs/mmcf	Max. Emissions lbs/hr ($R_1 = R_2$)	lbs/day
CO		3.77+	90.6
NOx		0.23+	5.52
PM= PM_{10}	7.5	0.1276	3.06
ROG	6	0.11	2.6
		(R1= 5.5at 98% DRE)	
SOx	3.5	0.06	1.4

*EF from AQMD Emissions Fees Report/400-E-9
+ Calculated, using DG fuel and burner guarantee/Rule 1146

Maximum Emissions:

Post Modification

Pollutant	Lbs/hr	Lbs/day
CO	3.77	90.6
NOx	0.23	5.52 (3.1 WITH NATURAL GAS)
PM10	0.13	3.1
ROG	0.11	2.6
SOx	0.06	1.4

Pre-Modification

Pollutant	Lbs/hr	Lbs/day
CO	7	168
NOx	0.86	20.6
PM10	0.13	3.1
ROG	0.13	3.1
SOx	0.32	7.7

RULES EVALUATION:

Rule 212: This is not a significant project and there is no school within 1000' of the emission source. Proposed modification is the replacement of existing burner (10.46 MMBTU/hr to a reduced rating (10.205 MMBTU/hr), resulting in net emissions reduction and reduced cancer risk. No public notice is required. Compliance is expected.

Rule 401, 402, 404, 407, and 409: Compliance is expected based on other permitted boilers fired with DG and natural gas.

Rule 431.1: Digester gas is expected to have < 40 ppmv total sulfur as H2S. Facility has an approved alternative monitoring plan. Compliance is expected.

Rule 1146: Boiler emission controls will be designed for NOx at 15ppmv and 9 ppmv, 3% O2, using DG and NG, respectively. Proposed new burner is a low-NOx burner. Boiler retains FGR and O2 trim. Condition is imposed for such limit for the respective fuel, at 3% O2. Rule CO limit =400 ppmv. Rule 1146 (c)(1) (D), Table 1146-1 (Amended Sept. 5, 2008) requires compliance with 15 ppmv NOx, at 3% O2, by January 2015. Also, Group III units (NG) must meet 9 ppmv by same date. Compliance can be determined upon receipt of the S /T results.

REG. XIII: A modification to a permit unit (source) is covered by this regulation, however, Since the new burners will result in no emission increase, there are no BACT, Modeling, or Offset requirements.

Rule 1401: Exempt per R1401 (g) (1) (B), for modification with reduced emissions, hence, reduced cancer risk, HIA and HIC indices.

REG. XXX: Title V Permits

Compliance with Reg. XXX is expected. A/N 545002 for Title V revision is submitted. For this minor revision no public notice is required but subject to 45-day EPA review. Approved boiler permit will be included under Title V revision.

40CFR Part 60 (Regulation IX of SCAQMD Rules)

- **Subpart D** of 40 CFR Part 60 - New Source Performance Standards for Fossil Fuel Fired Steam Generators constructed after August 17, 1971
- **Subpart Da** of 40 CFR Part 60 - New Source Performance Standards for Electric Utility Steam Generating Units constructed after September 18, 1978
- **Subpart Db** of 40 CFR Part 60 - New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units constructed after June 19, 1984
- **Subpart Dc** of 40 CFR Part 60 - New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units constructed after June 9, 1989

These boilers were constructed after June 9, 1989 (actually in 1994), and therefore subject to Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

§ 60.40c - Applicable for this boiler (heat input >10 mmbtu/hr and <= 100 mmbtuh).
§ **60.42c - 60.47c** – Emission limits, testing, monitoring for Sox and PM are not applicable to this equipment which only burn digester gas and natural gas.
§ 60.48c – Initial notification only.

Since the initial notification requirement is a prior requirement, no specific Dc permit conditions will be imposed.

National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR part 63 subpart DDDDD for Industrial, Commercial, and Institutional and Process Heaters
The facility is a Major Source for hazardous air pollutants (HAPs) based on toxic pollutants' emissions reported for the year 2012, as Formaldehyde emission was 25, 480 lbs/yr (12.74 TPY > 10 TPY, definition for HAP major source). OCSD confirmed reported formaldehyde emissions, email of 7/17/13.

The boiler is subject to subpart DDDDD compliance requirements, initial notification only:

- Boiler can be classified as an Industrial boiler used for processing or used in an industry to provide steam, hot water, and/or electricity.
- It is designed to burn gas 1 fuels; means a gaseous fuel that is not natural gas or refinery gas and does not exceed a maximum concentration of 40 micrograms/cubic meters of mercury.
- It meets the large gaseous fuel subcategory.
- **Per § 63.7500 (e)**, boilers and process heaters in the units designed to burn gas 1 fuels subcategory **are not subject to** the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart.
- **Per § 63.7506 (b)(1),** Existing large gaseous fuel unit are subject only to initial notification (i.e., not subject to emission limits, work practice standards, performance testing, monitoring, SSMP, plans, recordkeeping, or reporting).

Since the initial notification requirement is a prior requirement, no specific DDDDD permit conditions will be imposed

CONCLUSION/RECOMMENDATION:
The above boiler is expected to comply with all applicable AQMD's Rules and Regulations. A Permit to Construct is recommended subject to conditions, and upon 45-day EPA review for the Title V Facility Permit revision.

Charles Tupac

From: Charles Tupac
Sent: Tuesday, August 27, 2013 11:38 AM
To: 'Ahn, Terry'
Subject: RE: OCSD- HB, Boilers' burner modifn

thanks

-----Original Message-----
From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, August 27, 2013 11:35 AM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: OCSD- HB, Boilers' burner modifn

I'm sorry Charlie. I didn't realize you were waiting for my reply. We agree with you that our boilers are existing with no new requirements other than the initial notification which we have submitted already.

Terry

-----Original Message-----
From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, August 27, 2013 10:49 AM
To: Ahn, Terry
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Terry,
Any thoughts?
Charlie

-----Original Message-----
From: Charles Tupac
Sent: Thursday, August 22, 2013 4:07 PM
To: 'Ahn, Terry'
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Terry,

Thanks for your forwarding of the message. I began reviewing the proposed permits today and found several important potential changes.

Please also check at your earliest convenience that (1) since the definition of reconstruction was not met these boilers are existing (did not commence reconstruction after 1/1/2003), (2) existing gaseous fuel boilers are subject only to initial notification and not the emission limits, work practice standards, performance testing, monitoring, SSMP, site-specific monitoring plans, recordkeeping and reporting requirements).

As such, and considering that the modification does not cause an increase, the proposed revision is not significant and is instead minor.

Charlie

-----Original Message-----
From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Thursday, August 22, 2013 3:57 PM
To: Charles Tupac
Subject: FW: OCSD- HB, Boilers' burner modifn

Hi Charlie,

I'm forwarding the e-mail I sent to Gaurang on 7/17 regarding the project cost for the Plant 2 boiler modification to determine if it's considered a reconstruction as defined in the new Boiler MACT rule. Is this what you're looking for?

Terry

From: Ahn, Terry
Sent: Wednesday, July 17, 2013 9:10 AM
To: 'Gaurang Rawal'
Cc: Kogan, Vladimir
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Gaurang,

It turns out that the emission factor we used for the formaldehyde emissions in our 2012 emissions report was correct so the report stands as is. As we mentioned however, once the catalyst systems are installed on our Co-gen engines to meet Rule 1110.2 requirements, both plants will become area sources.

The following provides the construction cost proposals we received from our engineering contractors:

(2) New Cleaver Brooks Firetube Boilers = $725,650 (equipment - no tax) + $250,000 (total construction costs) = $975,650

(2) New Cleaver Brooks Burners to retrofit the existing boilers = $255,000 (equipment - no tax) + $220,500 (total construction costs) = $475,500

So, the burners are 48% of the cost of full boiler replacement ($475,500/$975,650 = 48%)

It's our understanding that the digester gas boilers fall under the Gas 1 category and any applicable requirements are not effective until Feb 1, 2016 which by then we'll be out of the major source category. We have already

submitted the initial notification to EPA by the due date 4/1/2013. Please let me know what your thoughts are and if you'd like a copy of the actual proposals.

Thanks,

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Wednesday, July 10, 2013 10:38 AM
To: Ahn, Terry; Kogan, Vladimir
Subject: FW: OCSD- HB, Boilers' burner modifn

When you send me revised mission report please include all TACs as reported regularly. I will also need to determine that any single HAP is < 10 TPY or cumulative HAPs< 25 TPY to determine the facility is not a major source of HAPs. Thanks.

From: Gaurang Rawal
Sent: Tuesday, July 09, 2013 5:18 PM
To: 'Ahn, Terry'
Subject: FW: OCSD- HB, Boilers' burner modifn

Terry,

Need your help...

I just became aware that the HB facility is a major source for HAPs (2012-Formaldehyde emission 12.75 TPY which is > 10 TPY) triggering 40 CFR part 63 subpart DDDDD compliance requirements for the boiler permit applications. Need to define whether the boiler is new/existing or/reconstructed per the definition below;(need info for item 1 below);

Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:
(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and
(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Proposed modification or reconstruction of equipment may require new or additional NESHAP requirements, thereby, making it a Title V Significant Permit revision which will trigger public notice!

When you get a chance pl call me to further discuss this. Thanks.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, July 09, 2013 7:22 AM
To: Gaurang Rawal
Subject: RE: OCSD- HB, Boilers' burner modifn

Thanks Gaurang for your prompt reply. Please let me know if you have any questions on any of our comments.

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, July 09, 2013 7:08 AM
To: Ahn, Terry
Cc: Kogan, Vladimir; Charles Tupac
Subject: RE: OCSD- HB, Boilers' burner modifn

Terry,

I plan to complete boiler permits by end of next week and submit foe review. Then will be sent for EPA's 45-day review.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Monday, July 08, 2013 9:33 AM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Gaurang,

As I mentioned last time we spoke on the phone, the construction bid for the boiler modification project will be advertised this month. You were going to find out if the PTCs for the boilers can be processed separately from the P2-89 biofilter permit modification. Both projects are covered under Title V permit revision application number 545002.

I'm meeting with our Engineers for the boiler project on Wednesday and need give them an update on permitting. I'm going to instruct them to include the draft permit in the construction bid assuming the final permit will not force a change order, but we need the final permit before we start the construction. So please do not delay.

Thanks,

Terry
From: Ahn, Terry
Sent: Wednesday, June 19, 2013 10:14 AM
To: 'Gaurang Rawal'
Cc: Kogan, Vladimir
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Gaurang,

Thank you for the opportunity to review the draft permit. Please see our comments in the attachment. We're available to discuss any of our comments.

Thanks,

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From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Wednesday, May 22, 2013 3:31 PM
To: Ahn, Terry
Subject: RE: OCSD- HB, Boilers' burner modifn

Terry,

Attached is the initial Draft PC for your info.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Wednesday, May 22, 2013 2:32 PM
To: Gaurang Rawal
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Gaurang,

It's my understanding that the burner manufacturer sent you the information that you requested. Our Project Engineer is in the process of preparing the construction bid which will be advertised in middle of July. I don't think it's feasible to get the final permit by middle of July since this application is also tied to the biofilter permit modification and needs EPA review. Would it be possible to get the draft permit for the boilers ASAP for OCSD review?

Thanks,

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From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, April 09, 2013 10:49 AM
To: Ahn, Terry
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Terry,

Re: A/N s 545004 & 545005, ID 29110
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Proposed burner is ACT, model SLE-05-250, rated at 10,205,800 BTU.
Primary fuel -Digester Gas , Secondary/standby fuel - Natural Gas

Would like to know exhaust flow rate (scfm), temperature and %O2 in exhaust, when burner is operated using DG fuel and Natural gas.
Thanks,

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AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov<mailto:grawal@aqmd.gov>

p.s.: I have contacted burner Mfgr. and waiting for info. Perhaps, you can expedite.

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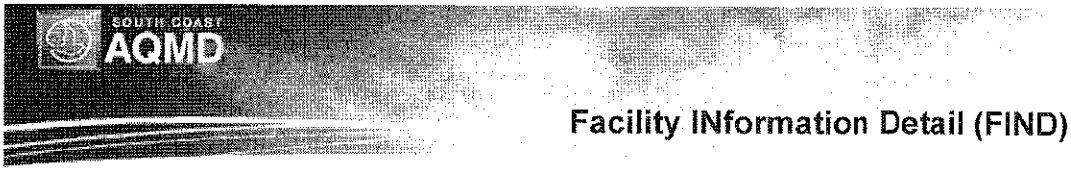

Emissions

Facility ID 29110

Company Name ORANGE COUNTY SANITATION DISTRICT

Address 22212 BROOKHURST ST

HUNTINGTON BEACH, CA 92646

Select AER Year: 2012

Criteria Pollutants (Tons per Year):

Pollutant ID	Pollutant Description	Annual Emissions
CO	Carbon Monoxide	166.730
NOX	Nitrogen Oxides	34.015
ROG	Reactive Organic Gases	31.087
SOX	Sulfur Oxides	15.595
TSP	Total Suspended Particulates	3.424

Toxic Pollutants (Pounds per Year):

Pollutant ID	Pollutant Description	Annual Emissions
106990	1,3-Butadiene	9.762
91576	2-Methyl naphthalene [PAH, POM]	1.013
83329	ACENAPHTHENE	0.038
208968	ACENAPHTHYLENE	0.168
7664417	Ammonia	12499.687
7440382	Arsenic	0.019
191242	B[GHI] PERYLENE	0.012
71432	Benzene	42.046
205992	Benzo[b]fluoranthene	0.005
192972	Benzo[e]pyrene [PAH, POM]	0.012
7440439	Cadmium	0.017
56235	Carbon tetrachloride	8.426
18540299	Chromium (VI)	0.000
218019	Chrysene	0.021
106934	Ethylene dibromide	1.351
107062	Ethylene dichloride	0.727
206440	FLUORANTHENE	0.033
86737	FLUORENE	0.172
50000	Formaldehyde	25479.841
7439921	Lead (inorganic)	0.068
75092	Methylene chloride	50.805
91203	Naphthalene	3.396
7440020	Nickel	0.036
1151	PAHs, total, with components not reported	1.742
85018	PHENANTHRENE	0.317
129000	PYRENE	0.041
127184	Perchloroethylene	191.881
79016	Trichloroethylene	7.323
75014	Vinyl chloride	13.607

→ 12.74 TPY

Note - Data for 2007 represents the six-month transitional period, July through December 2007, when the rules requiring annual emissions reporting changed from a fiscal year to a calendar year basis.

Gaurang Rawal

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Sent: Wednesday, June 19, 2013 10:14 AM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: OCSD- HB, Boilers' burner modifn
Attachments: OCSD-HB Draft PC_OCSD Comments.docx

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Subject: RE: OCSD- HB, Boilers' burner modifn

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It's my understanding that the burner manufacturer sent you the information that you requested. Our Project Engineer is in the process of preparing the construction bid which will be advertised in middle of July. I don't think it's feasible to get the final permit by middle of July since this application is also tied to the biofilter permit modification and needs EPA review. Would it be possible to get the draft permit for the boilers ASAP for OCSD review?

Thanks,

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, April 09, 2013 10:49 AM
To: Ahn, Terry
Subject: OCSD- HB, Boilers' burner modifn

Terry,

Re: A/N s 545004 & 545005, ID 29110

Modifications to burners for the Clever Brooks (Existing POs R-D94235 & R-D94232, Section D, Title V)

Proposed burner is ACT, model SLE-05-250, rated at 10,205,800 BTU.
Primary fuel –Digester Gas , Secondary/standby fuel – Natural Gas

Would like to know exhaust flow rate (scfm), temperature and %O2 in exhaust, when burner is operated using DG fuel and Natural gas.
Thanks,

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

p.s.: I have contacted burner Mfgr. and waiting for info. Perhaps, you can expedite.

5/22/13

PERMIT TO CONSTRUCT EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

EQUIPMENT ADDRESS: ~~10844 ELLIS AVENUE~~22212 BROOKHURST (PLANT NO. ~~42~~)
~~FOUNTAIN VALLEY~~HUNTINGTON BEACH, CA ~~92708~~92646

FACILITY ID NO.: ~~017301~~029110

EQUIPMENT DESCRIPTION: (A/N 545004, 545005)

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869 (SERIAL NO. L-092868), 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED (SECONDARY OR STANDBY FUEL) WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

EXHAUST STACK, 19.75" DIAM. X 18'H., ABOVE GROUND, ~~941 ACFM~~, WITH A RAIN CAP.

Conditions: (A/N 545004, 545005)

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. [RULE 204]

4. THIS EQUIPMENT SHALL BE PRIMARILY FIRED WITH DIGESTER GAS. NATURAL GAS MAY BE USED AS A STANDBY FUEL IN THE EVENT DIGESTER GAS IS NOT AVAILABLE. [RULE 204, 1146]

5. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT. [RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL GAS BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING. [RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

7. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE. [RULE 1146]

Comment [TA1]: This description and Condition No. 4 are not necessary and should be deleted. The new burner is designed to meet 9 ppm on natural gas. Rule 1146 limits the use of natural gas because it allows up to 15 ppm even when the boiler burns natural gas.

Comment [TA2]: See Comment [TA1] above.

Comment [TA3]: Did you mean BTU/HR?

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Comment [TA4]: This condition is confusing and seems excessive. Do you want total BTU at the end of each hour whether or not the boiler is in operation? Do you want continuous reading of Btu/hr at any given time? How would the SCAQMD Inspector enforce this condition? Our existing boilers permits do not contain this kind of condition. More reasonable and practical condition would be based on monthly fuel usage and total number of boiler operation.

8. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(A) (1)-BACT]

9. EMISSIONS FOR OXIDES OF NITROGEN (NOx) AND CARBON MONOXIDE (CO) SHALL NOT EXCEED THE FOLLOWING LIMITS AND SHALL BE MEASURED BY VOLUME, ON A DRY BASIS, AT 3% O2.

FUEL USED	NOx AS NO2	CO
DIGESTER GAS	15 PPMV*	≤100 PPMV
NATURAL GAS	9 PPMV	≤50 PPMV

* ON AND AFTER JANUARY 1, 2015.
[RULE 1146, RULE 1303 (a) (1) – BACT/LAER]

10. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL SOURCE TEST ~~AND SUBSEQUENT SOURCE TESTS ONCE EVERY THREE YEARS THEREAFTER~~, UNDER THE FOLLOWING CONDITIONS:

A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

D. THE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT ~~MAXIMUM, MINIMUM AND AVERAGE~~ NORMAL LOAD FOR EACH FUEL (DIGESTER GAS AND
NATURAL GAS) TO BE BURNED. THE SAMPLING TIME ~~AT EACH LOAD~~ SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

FUEL FLOW RATE (EACH FUEL)
FLUE GAS FLOW RATE (EACH FUEL)
METHANE (INLET DIGESTER GAS)
TOTAL NON-METHANE ORGANICS (EXHAUST) & INLET DIGESTER GAS
SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
TOTAL PARTICULATES (EXHAUST)
OXIDES OF NITROGEN (EXHAUST)
CARBON MONOXIDE (EXHAUST)
OXYGEN
DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

Comment [TA5]: Rule 1146 (d) (5) requires compliance determination with NOx concentrat. ONLY every three years. To require an extensive tests listed in this condition every three years is way above and beyond the rule requirement. I propose a separate permit condition for testing NOx only in the as-found operating conditions every three years.

Comment [TA6]: Per Rule 1146 (d)(2), compliance determination is made in the as-found operating condition only. We may be agreeable to conduct the tests at three different loads for the initial start-up test but any subsequent triennial tests will be done at "as-found operating conditions (normal load) only.

Comment [TA7]: What are the basis and purpose for requiring methane test for inlet digester gas?

Comment [TA8]: For each fuel?

Comment [TA9]: What are the basis and purpose for requiring the total VOC test for inlet digester gas?

11. THE SOURCE TEST PROTOCOL AND REPORT PER CONDITION NO. 10 SHALL BE SUBMITTED TO,

SCAQMD – ATTN. GAURANG RAWAL
REFINERY AND WASTE MANAGEMENT PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

12. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER HOUR
CO	22.6 (10.5 WITH NATURAL GAS)
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	6.2
ROG	2.6
SOx	1.4

[RULE 404, RULE 1146, RULE 1303(a) (1), 1303 (b) (1), 1303(b) (2) - BACT, MODELING AND OFFSET]

Periodic Monitoring:

13. THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE CO AND NOx EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 10.1 (METHOD 7.1 FOR NOx); OR (b) CONDUCTING A TEST AT LEAST ANNUALLY USING A PORTABLE ANALYZER AND AQMD-APPROVED TEST METHOD. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WIT H ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 3004 (a) (4)]

Emissions And Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
CO: ≤100 PPMV, @ 3% O2, DRY BASIS, DIGESTER GAS, RULE 1303-BACT AND ≤50 PPMV, @ 3% O2, DRY BASIS, NATURAL GAS, RULE 1303-BACT
NOX: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS FUEL, AND RULE 1146
NOX: 9 PPMV, @ 3% O2, DRY BASIS, WITH NATURAL GAS-RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 GR/SCF, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53

Gaurang Rawal

From: Gaurang Rawal
Sent: Wednesday, May 22, 2013 3:31 PM
To: 'Ahn, Terry'
Subject: RE: OCSD- HB, Boilers' burner modifn
Attachments: OCSD-HB, Draft PC.docx

Terry,

Attached is the initial Draft PC for your info.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Wednesday, May 22, 2013 2:32 PM
To: Gaurang Rawal
Subject: RE: OCSD- HB, Boilers' burner modifn

Hi Gaurang,

It's my understanding that the burner manufacturer sent you the information that you requested. Our Project Engineer is in the process of preparing the construction bid which will be advertised in middle of July. I don't think it's feasible to get the final permit by middle of July since this application is also tied to the biofilter permit modification and needs EPA review. Would it be possible to get the draft permit for the boilers ASAP for OCSD review?

Thanks,

Terry

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To: Ahn, Terry
Subject: OCSD- HB, Boilers' burner modifn

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Proposed burner is ACT, model SLE-05-250, rated at 10,205,800 BTU.
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Thanks,

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543

grawal@aqmd.gov

p.s.: I have contacted burner Mfgr. and waiting for info. Perhaps, you can expedite.

5/22/13

PERMIT TO CONSTRUCT EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

EQUIPMENT ADDRESS: 10844 ELLIS AVENUE (PLANT NO. 1)
FOUNTAIN VALLEY, CA 92708

FACILITY ID NO.: **017301**

EQUIPMENT DESCRIPTION: (A/N 545004, 545005)

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869 (SERIAL NO. L-092868), 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED (SECONDARY OR STANDBY FUEL) WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

EXHAUST STACK, 19.75" DIAM. X 18'H., ABOVE GROUND, ~~941 ACFM~~, WITH A RAIN CAP.

Conditions: (A/N 545004, 545005)

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

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5. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT. [RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

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8. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(A) (1)-BACT]

9. EMISSIONS FOR OXIDES OF NITROGEN (NOx) AND CARBON MONOXIDE (CO) SHALL NOT EXCEED THE FOLLOWING LIMITS AND SHALL BE MEASURED BY VOLUME, ON A DRY BASIS, AT 3% O2.

FUEL USED	NOx AS NO2	CO
DIGESTER GAS	15 PPMV*	≤100 PPMV
NATURAL GAS	9 PPMV	≤50 PPMV

* ON AND AFTER JANUARY 1, 2015.
[RULE 1146, RULE 1303 (a) (1) – BACT/LAER]

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FLUE GAS FLOW RATE (EACH FUEL)
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SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
TOTAL PARTICULATES (EXHAUST)
OXIDES OF NITROGEN (EXHAUST)
CARBON MONOXIDE (EXHAUST)
OXYGEN
DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

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SCAQMD – ATTN. GAURANG RAWAL
REFINERY AND WASTE MANAGEMENT PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

12. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER HOUR
CO	22.6 (10.5 WITH NATURAL GAS)
NOx	5.52 (3.1 WITH NATURAL GAS)
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ROG	2.6
SOx	1.4

[RULE 404, RULE 1146, RULE 1303(a) (1), 1303 (b) (1), 1303(b) (2) - BACT, MODELING AND OFFSET]

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[RULE 3004 (a) (4)]

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CO: ≤100 PPMV, @ 3% O2, DRY BASIS, DIGESTER GAS, RULE 1303-BACT
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NOX: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS FUEL, AND RULE 1146
NOX: 9 PPMV, @ 3% O2, DRY BASIS, WITH NATURAL GAS-RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 GR/SCF, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53

Gaurang Rawal

From: Class Data Help
Sent: Friday, April 26, 2013 10:57 AM
To: Gaurang Rawal
Subject: re: [377-190D7C85-0104] NSR offsets

Your CLASS Data Help ticket has been received and has been assigned a ticket number of [377-190D7C85-0104]. Please keep this ticket number for your records and include it in the subject (including brackets) of all future emails regarding this issue.

A support staff member will respond to your ticket as soon as possible.
Thank you,

IM CLASS Data Help
View this Ticket Online

From: grawal@aqmd.gov
Sent: Friday, April 26, 2013 10:57 AM
To: IM CLASS Data Help
Subject: NSR offsets

Modification results in emission reduction for CO. Prev emission = 77 lbs/day, modifn emis = 23 lbs/day. Net reduction, still error-Warning asking for ERC for approval. Identical A/N 545004 had no such error. This is a PR facility- EPS.

Gaurang Rawal

From: Daniel Jaimes [daniel.jaimes@americancombustiontech.com]
Sent: Friday, April 19, 2013 2:15 PM
To: Gaurang Rawal
Subject: Re: FW: ACT SLE Burner Data

Gaurang,

Please see the information below; I hope it is of help. Thank you.

Digester Gas:

Exhaust Flow Rate: 3317 cfm
Exhaust Temperature: 350 F
% O2 Emissions (Dry): 3%

Natural Gas:

Exhaust Flow Rate: 3070 cfm
Exhaust Temperature: 350 F
% O2 Emissions (Dry): 3%

Regards,

Daniel Jaimes
Applications Engineer
714.794.6240 office
714.794.6238 fax
daniel.jaimes@americancombustiontech.com
www.americancombustiontech.com

On Tue, Apr 16, 2013 at 4:05 PM, Gaurang Rawal <grawal@aqmd.gov> wrote:

> Any feedback? Hanks.

From: Daniel Jaimes [mailto:daniel.jaimes@americancombustiontech.com]
Sent: Tuesday, April 09, 2013 12:56 PM
To: Gaurang Rawal
Subject: Re: FW: ACT SLE Burner Data

Gaurang,

I am in the process of obtaining the data you requested and am waiting to hear back from a final source for the information. I hope to provide the data for you soon. Thank you.

Regards,

Daniel Jaimes

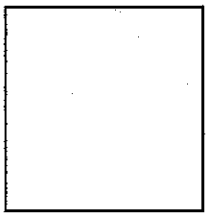
Applications Engineer

714.794.6240 office

714.794.6238 fax

daniel.jaimes@americancombustiontech.com

www.americancombustiontech.com



On Tue, Apr 9, 2013 at 10:30 AM, Gaurang Rawal <grawal@aqmd.gov> wrote:

Hi Daniel,

Just a follow up to see any feedback on our request below. Thanks for your time and assistance.

Gaurang Rawal

From: Gaurang Rawal
Sent: Thursday, April 04, 2013 11:05 AM
To: 'Daniel Jaimes'

Subject: RE: ACT SLE Burner Data

Thank you, Daniel.

AQMD has received applications (from a Sewage Treatment Plant) to permit two burners (identical) that will comply with Rule 1146 NOx emissions and current BACT limit for CO emissions.

(existing boiler is a Fire tube type).

Proposed burner is ACT, model SLE-05-250, rated at 10,205,800 BTU.

Primary fuel –Digester Gas , Secondary/standby fuel – Natural Gas

Would like to know exhaust flow rate (scfm), temperature and %O2 in exhaust, when burner is operated using DG fuel and Natural gas.

Any source tests emissions data available will be useful.

Thank you for your assistance.

Gaurang Rawal

SCAQMD

AQ Engineer

909) 396-2543

From: Daniel Jaimes [mailto:daniel.jaimes@americancombustiontech.com]

Sent: Thursday, April 04, 2013 10:54 AM
To: Gaurang Rawal
Subject: ACT SLE Burner Data

Mr. Rawal,

I spoke to you on the phone earlier concerning source data for an SLE burner. I would like to provide more information and direct your questions to the correct department, and so I am emailing to ask whether this is in relation to a burner that we have provided for a specific project, or a general request. Thank you for your time.

--

Regards,

Daniel Jaimes

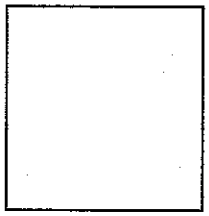
Applications Engineer

714.794.6240 office

714.794.6238 fax

daniel.jaimes@americancombustiontech.com

www.americancombustiontech.com



Gaurang Rawal

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Subject: RE: ACT SLE Burner Data

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AQ Engineer
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Applications Engineer
714.794.6240 office
714.794.6238 fax
daniel.jaimes@americancombustiontech.com
www.americancombustiontech.com

Gaurang Rawal

From: Shalini George
Sent: Thursday, April 04, 2013 10:57 AM
To: Gaurang Rawal
Subject: Re: I. D. # 29110 - Orange County Sanitation District - Digester Gas Boiler

Form B1-1 are the toxics associated with digester boiler

Below FORM TAC IS FORM B1 and first row has the digester gas Boiler.....

These are submitted emission factors. Not necessarily approved by AER Section....

BOILER TOXIC AIR POLLUTANTS

South Coast
AQMD

Annual Emission Report

Reporting Year: 2012

Print Date: 4/4/2013

Facility ID: 29110
Facility Name: ORANGE COUNTY SANITATION DISTRICT
Facility Type:

B1 - Permitted Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

Device Description	Application Number	Equipment Code& Description	Fuel Code Description	Annual Usage	Organic Gases		Nitrogen Oxides		Sulfur Oxides		Carbon Monoxide		Particulate Matter	
					Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions
Boilers	1030, 291031	1b. Boiler 10-100 MMBTU/HR	6. Digester Gas (mmscf).	204.06	6.0000	1,224.36	48.6900	9,934.66	3.5000	714.21	149.0400	30,413.10	15.6000	3,183.34
Flares	429663	6. Flare (Non-Refinery)	6. Digester Gas (mmscf).	88.63	3.6700	325.27	19.0300	1,686.63	2.4100	213.60	72.8400	6,455.81	0.9900	87.74
Boilers	1030, 291031	1b. Boiler 10-100 MMBTU/HR	1. Natural Gas (mmscf).	8.80	5.5000	48.40	100.0000	880.00	0.6000	5.28	84.0000	739.20	7.6000	66.88
Total Emissions in Pounds:						1,598.03		12,501.29		933.09		37,608.11		3,337.96
Total Emissions in Tons:						0.80		6.25		0.47		18.80		1.67

South Coast
AQMD

Annual Emission Report

Reporting Year: **2012**

Facility ID: **29110**

Print Date: **4/4/2013**

Facility Name: **ORANGE COUNTY SANITATION DISTRICT**

Facility Type:

TAC - Toxic Air Contaminants & Ozone Depleters by Reference Numbers

Form ID - Line No.	Device Description	TAC Code	CAS #	Annual Throughput	Emission Factor	Overall Control Efficiency (Fraction)	Gross Emission
B1-1	Boilers	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	204.06	0.0004	0.000000	0.081624
B1-1	Boilers	12-Formaldehyde	50000	204.06	0.0123	0.000000	2.509938
B1-1	Boilers	02-Benzene	71432	204.06	0.0058	0.000000	1.183548
B1-1	Boilers	32-Ammonia	7664417	204.06	3.2	0.000000	652.992000
B1-1	Boilers	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	204.06	0.00001	0.000000	0.0020406
B1-2	Flares	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	88.63	0.014	0.000000	1.240820
B1-2	Flares	12-Formaldehyde	50000	88.63	1.169	0.000000	103.608470

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT plant 2

Facility Equipment and Requirements
(Section D)

This section consists of a table listing all permitted equipment at the facility, facility wide requirements, copies of all individual Permits to Construct and Permits to Operate issued to various equipment at the facility, and Rule 219-exempt equipment subject to source-specific requirements. Each permit and Rule 219-exempt equipment will list operating conditions including periodic monitoring requirements, and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	Permit to Construct Granted On	Equipment Description	Page Number
428642	9/22/2004	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	3
428804	9/22/2004	ODOR CONTROL UNIT	6
453240	10/19/2006	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	10
453244	10/19/2006	ODOR CONTROL UNIT	15
457410	10/24/2006	ACTIVATED CARBON ADSORBER, DRUM VENT SINGLE SOURCE	18
519422	6/07/2012	ODOR CONTROL SYSTEM, GRANULAR ACTIVATED CARBON	20
518276	6/07/2012	ODOR CONTROL UNIT, BIOFILTER	22

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
10-03-2008 Rev. 1

Equipment or Process: Boiler

	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOx[1)]**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Natural Gas or Propane Fired, < 20 MM Btu/HR		≤ 12 ppmv dry corrected to 3% O_2[2)] (10-20-2000)	Natural Gas (10-20-2000)	≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% O_2 (04-10-98)	Natural Gas (04-10-98)	
Natural Gas or Propane Fired, ≥ 20 MM Btu/HR		With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% O_2 With Add-On Controls: ≤ 7 ppmv dry corrected to 3% O_2 (10-20-2000)	Natural Gas (10-20-2000)	Same as above. (04-10-98)	Natural Gas (04-10-98)	With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2 ≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000)
Oil Fired[3)]		Compliance with AQMD Rule 1146 or 1146.1 (10-20-2000)	Sulfur Content ≤ 0.05% by Weight (10-20-2000) or .0015% by weight if purchased after May 31, 2004 (10-03-2008)	Same as above (10-20-2000)		
Landfill or Digester Gas Fired, < 75 MMBTU/Hr		≤ 30 ppmvd at 3% O_2 dry. (04-10-98)		≤ 100 ppmvd at 3% O_2 dry. (04-10-98)	≤ 0.1 gr/scf at 12% CO_2 (Rule 409) (04-10-98)	

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

N S R D A T A S U M M A R Y S H E E T

Prev. records to correct NSR entries —

Application No:	291030
Application Type:	Alteration/Modification
Application Status:	
Previous Apps,Dev,Permit #:	223416, 0 - x, D94235

Company Name:	ORANGE COUNTY SANITATION DISTRICT
Company ID:	29110
Address:	22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM:	NO
RECLAIM Zone:	01
Air Basin:	SC
Zone:	18
Title V:	YES

Device ID:	0 - x
Estimated Completion Date:	11-30-1994
Heat Input Capacity:	0 Million BTU/hr
Priority Reserve:	NONE - No Priority Access Requested
Recommended Disposition:	31 - PERMIT TO OPERATE GRANTED
PR Expiration:	
School Within 1000 Feet:	NO
Operating Weeks Per Year:	52
Operating Days Per Week:	7
Monday Operating Hours:	00:00 to 24:00
Tuesday Operating Hours:	00:00 to 24:00
Wednesday Operating Hours:	00:00 to 24:00
Thursday Operating Hours:	00:00 to 24:00
Friday Operating Hours:	00:00 to 24:00
Saturday Operating Hours:	00:00 to 24:00
Sunday Operating Hours:	00:00 to 24:00

Emittant:	CO
BACT:	
Cost Effectiveness:	
Source Type:	
Emis Increase:	77
Modeling:	
Public Notice:	
CONTROLLED EMISSION	
Max Hourly:	0.175 lbs/hr
Max Daily:	4 lbs/day
UNCONTROLLED EMISSION	
Max Hourly:	0.175 lbs/hr
Max Daily:	4 lbs/day
CURRENT EMISSION	
BACT 30 days Avg:	77 lbs/day
Annual Emission:	1533 lbs/yr
District Exemption:	None

Emittant:	NOX
BACT:	
Cost Effectiveness:	
Source Type:	
Emis Increase:	21
Modeling:	
Public Notice:	
CONTROLLED EMISSION	
Max Hourly:	0.317 lbs/hr
Max Daily:	8 lbs/day
UNCONTROLLED EMISSION	
Max Hourly:	0.317 lbs/hr
Max Daily:	8 lbs/day
CURRENT EMISSION	
BACT 30 days Avg:	21 lbs/day
Annual Emission:	2774 lbs/yr
District Exemption:	None

Emittant:	PM10
BACT:	
Cost Effectiveness:	
Source Type:	
Emis Increase:	3
Modeling:	
Public Notice:	
CONTROLLED EMISSION	
Max Hourly:	0.11 lbs/hr
Max Daily:	3 lbs/day
UNCONTROLLED EMISSION	
Max Hourly:	0.11 lbs/hr
Max Daily:	3 lbs/day
CURRENT EMISSION	
BACT 30 days Avg:	3 lbs/day
Annual Emission:	963 lbs/yr
District Exemption:	None

N S R D A T A S U M M A R Y S H E E T

Application No:	291030
Application Type:	Alteration/Modification
Application Status:	
Previous Apps,Dev,Permit #:	223416, 0 - x, D94235

Company Name:	ORANGE COUNTY SANITATION DISTRICT
Company ID:	29110
Address:	22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM:	NO
RECLAIM Zone:	01
Air Basin:	SC
Zone:	18
Title V:	YES

Device ID:	0 - x
Estimated Completion Date:	11-30-1994
Heat Input Capacity:	0 Million BTU/hr
Priority Reserve:	NONE - No Priority Access Requested
Recommended Disposition:	31 - PERMIT TO OPERATE GRANTED
PR Expiration:	
School Within 1000 Feet:	NO
Operating Weeks Per Year:	52
Operating Days Per Week:	7
Monday Operating Hours:	00:00 to 24:00
Tuesday Operating Hours:	00:00 to 24:00
Wednesday Operating Hours:	00:00 to 24:00
Thursday Operating Hours:	00:00 to 24:00
Friday Operating Hours:	00:00 to 24:00
Saturday Operating Hours:	00:00 to 24:00
Sunday Operating Hours:	00:00 to 24:00

Emittant: CO
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 77
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0.175 lbs/hr
Max Daily: 4 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.175 lbs/hr
Max Daily: 4 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 77 lbs/day
Annual Emission: 1533 lbs/yr
District Exemption: None

Emittant: NOX
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 21
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0.317 lbs/hr
Max Daily: 8 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.317 lbs/hr
Max Daily: 8 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 21 lbs/day
Annual Emission: 2774 lbs/yr
District Exemption: None

Emittant: PM10
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 3
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0.11 lbs/hr
Max Daily: 3 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.11 lbs/hr
Max Daily: 3 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 3 lbs/day
Annual Emission: 963 lbs/yr
District Exemption: None

Emittant: ROG
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 4
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0.13 lbs/hr
Max Daily: 4 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.13 lbs/hr
Max Daily: 4 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 4 lbs/day
Annual Emission: 1138 lbs/yr
District Exemption: None

Emittant: SOX
ACT:
Cost Effectiveness:
Source Type:
Emis Increase: 8
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0.32 lbs/hr
Max Daily: 8 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.32 lbs/hr
Max Daily: 8 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 8 lbs/day
Annual Emission: 2803 lbs/yr
District Exemption: None

SUPERVISOR'S APPROVAL: _____ SUPERVISOR'S REVIEW DATE: _____

Processed By: gaurangr 7/18/2013 11:25:35 AM

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110
FACILITY NAME : OR. CO., SANITATION DIST
FACILITY ADDRESS: 22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646-8457

PROCESSING DECISION FOR APPLICATION: EX
PERMIT TYPE : PO **TRANSACTION CODE:** PC2PO
DEEMED COMPLETE : 4/28/1994 **PREV. APP/PERMIT NO.:** /

ENGINEER NAME : DEANNA P. NICHOLS **FACILITY ZONE:** 18

EMISSION DATA: CO

Positive Balance	:	2,255	lbs/day
Max Daily (Uncontrolled)	:	77	lbs/day
Max Daily (Controlled)	:	77	lbs/day
30 Day Average (Controlled)	:	77	lbs/day
Annual (Controlled)	:	28,032.000000	lbs/year

OFFSET DATA: CO

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-77	EX	
POSBALRM	-2,255	OA	

EMISSION DATA: NOX

Positive Balance	:	655	lbs/day
Max Daily (Uncontrolled)	:	21	lbs/day
Max Daily (Controlled)	:	21	lbs/day
30 Day Average (Controlled)	:	21	lbs/day
Annual (Controlled)	:	7,533.600000	lbs/year

SUPERVISOR'S APPROVAL: _____ **SUPERVISOR'S REVIEW DATE:** 4/28/94

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: NOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-21	EX	
POSBALRM	-655	OA	

EMISSION DATA: PM10

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	3	lbs/day
Max Daily (Controlled)	:	3	lbs/day
30 Day Average (Controlled)	:	3	lbs/day
Annual (Controlled)	:	963.600000	lbs/year

OFFSET DATA: PM10

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-3	EX	

EMISSION DATA: ROG

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,138.800000	lbs/year

SUPERVISOR'S APPROVAL: _____ **SUPERVISOR'S REVIEW DATE:** _____

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: ROG

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

EMISSION DATA: SOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,803.200000	lbs/year

OFFSET DATA: SOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

SUPERVISOR'S APPROVAL: _____ **SUPERVISOR'S REVIEW DATE:** _____

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110
FACILITY NAME : OR. CO., SANITATION DIST
FACILITY ADDRESS: 22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646-8457

PROCESSING DECISION FOR APPLICATION: EX
PERMIT TYPE : PO **TRANSACTION CODE:** PC2PO
DEEMED COMPLETE : 3/11/1994 **PREV. APP/PERMIT NO.:** 223415/223415

ENGINEER NAME : VICTOR REYES **FACILITY ZONE:** 18

EMISSION DATA: CO

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,533.000000	lbs/year

OFFSET DATA: CO

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

EMISSION DATA: NOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,774.000000	lbs/year

SUPERVISOR'S APPROVAL: /Mueller **SUPERVISOR'S REVIEW DATE:** 10/23/95

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: NOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

EMISSION DATA: PM10

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	3	lbs/day
Max Daily (Controlled)	:	3	lbs/day
30 Day Average (Controlled)	:	3	lbs/day
Annual (Controlled)	:	963.600000	lbs/year

OFFSET DATA: PM10

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-3	EX	

EMISSION DATA: ROG

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,138.800000	lbs/year

SUPERVISOR'S APPROVAL: M Mueller **SUPERVISOR'S REVIEW DATE:** 10/23/95

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: ROG

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

EMISSION DATA: SOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,803.200000	lbs/year

OFFSET DATA: SOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

SUPERVISOR'S APPROVAL: Mueller **SUPERVISOR'S REVIEW DATE:** 10/23/95

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF STATIONARY SOURCE COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

PAGES	PAGE
5	1
APPL. NO.	DATE
291030,1	09/12/1995
PROCESSED BY	CHECKED BY
V. REYES	

OWNER/OPERATOR:

COUNTY SANITATION DISTRICTS
OF ORANGE COUNTY
POST OFFICE BOX 8127
FOUNTAIN VALLEY, CA. 92728-8127

CONTACT: MR. DENNIS MAY

EQUIPMENT LOCATION:

22212 BROOKHURST STREET
HUNTINGTON BEACH, CA. 92646

PERMIT UNIT WORDING:

PERMIT TO OPERATE A/N 291030

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092869, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

PERMIT TO OPERATE A/N 291031

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092868, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

CONDITIONS:

1. AND 2. ARE STANDARD.

3. THE MAXIMUM DIGESTER GAS FUEL USAGE OF THIS BOILER SHALL NOT EXCEED 456,480 CUBIC FEET PER DAY AND 127,100,000 CUBIC FEET PER YEAR. THE MAXIMUM HEAT INPUT TO THE BOILER SHALL NOT EXCEED 251,064,000 BTU PER DAY AND 69,900,000,000 BTU PER YEAR.

4. THIS BOILER SHALL BURN DIGESTER GAS AND NATURAL GAS ONLY.

5. THE H2S CONTENT OF DIGESTER GAS FIRED IN THIS EQUIPMENT SHALL NOT EXCEED 100 PPMV.

6. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

7. THE COUNTY SANITATION DISTRICTS OF ORANGE COUNTY (CSDOC) SHALL INSTALL AND PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

8. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT AND THE TOTAL HOURS PER DAY OF STEAMING OF THE PLANT SLUDGE LINES SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER UPON REQUEST.

9. THE OPERATOR SHALL DEMONSTRATE COMPLIANCE WITH THE RULE 1146 NOX LIMIT OF 30 PPM AND THE CO LIMIT OF 400 PPM BURNING BOTH NATURAL AND DIGESTER GAS.

10. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.

HISTORY:

The County Sanitation Districts of Orange County filed this application for a permit to construct functionally identical replacement boilers for the existing boilers under A/Ns 223415 & 223416.The existing boilers meet Rule 1146 NOx/CO requirements of 30/400 ppm. The compliance was proven with a source test conducted on Feb. 6 and 7, 1990, if the boilers are burning digester gas. The new boilers are being added so that natural gas may be burned in the boilers also.

The most recent source test conducted on one of these boilers was in July 17, 1995. Emission rates for Nox and CO were based from this test results.

The boilers are used about 8 hrs/day per week at full load for steaming sludge lines, and 16 to 24 hrs/day for heating digesters.

EVALUATION:

NSR

The proposed equipment's emissions should not be greater than the boilers they are replacing. This equipment is exempt from providing offsets and modeling because the equipment is identical replacement equipment.

AEIS average emissions. The emissions for the criteria pollutants will be calculated for the AEIS account.

Emission rates from Source Test:

NOx = 0.317 lb/hr
= 7.6 lbs/day

CO = 0.175 lb/hr
=4.2 lbs/day

PM, SOx and ROG emission rates are the same as calculated in the P/C evaluation, namely:

PM = 0.11 lb/hr
= 2.64 lbs/day

Sox = 0.32 lb/hr
=7.68 lbs/day

ROG = 0.13 lb/hr
= 3.12 lbs/hr

AEIS Emissions:	R1 lbs/hr	R2 lbs/hr
NOx	0.317	0.317
CO	0.175	0.175
SOx	0.32	0.32
ROG	0.13	0.13
PM	0.11	0.11

CONCLUSION:

Rules: 401: No visible emissions are expected with proper operational procedures.

402: Nuisance is not expected.

1146: Equipment is expected to comply.

Reg 13: This alteration is exempt from the offsets and modeling requirements of Reg 13 because there was no increase in emissions. This equipment complies with BACT.

This equipment will comply with all applicable Rules and Regulations of the District. It is recommended that a Permit to Operate be issued with the attached conditions.

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110
FACILITY NAME : OR. CO., SANITATION DIST
FACILITY ADDRESS: 22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646-8457

PROCESSING DECISION FOR APPLICATION: EX
PERMIT TYPE : PC **TRANSACTION CODE:** INSTALL
DEEMED COMPLETE : 4/28/1994 **PREV. APP/PERMIT NO.:** /

ENGINEER NAME : DEANNA P. NICHOLS **FACILITY ZONE:** 18

EMISSION DATA: CO

Positive Balance	:	2,255	lbs/day
Max Daily (Uncontrolled)	:	77	lbs/day
Max Daily (Controlled)	:	77	lbs/day
30 Day Average (Controlled)	:	77	lbs/day
Annual (Controlled)	:	28,032.000000	lbs/year

OFFSET DATA: CO

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-77	EX	
POSBALRM	-2,255	OA	

EMISSION DATA: NOX

Positive Balance	:	655	lbs/day
Max Daily (Uncontrolled)	:	21	lbs/day
Max Daily (Controlled)	:	21	lbs/day
30 Day Average (Controlled)	:	21	lbs/day
Annual (Controlled)	:	7,533.600000	lbs/year

SUPERVISOR'S APPROVAL: _____ **SUPERVISOR'S REVIEW DATE:** 5-12-94

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: NOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-21	EX	
POSBALRM	-655	OA	

EMISSION DATA: PM10

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	3	lbs/day
Max Daily (Controlled)	:	3	lbs/day
30 Day Average (Controlled)	:	3	lbs/day
Annual (Controlled)	:	963.600000	lbs/year

OFFSET DATA: PM10

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-3	EX	

EMISSION DATA: ROG

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,138.800000	lbs/year

SUPERVISOR'S APPROVAL: MT **SUPERVISOR'S REVIEW DATE:** 5-12-94

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: ROG

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

EMISSION DATA: SOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,803.200000	lbs/year

OFFSET DATA: SOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

SUPERVISOR'S APPROVAL: AMT **SUPERVISOR'S REVIEW DATE:** 5-12-94

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF STATIONARY SOURCE COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

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PROCESSED BY	CHECKED BY
D.P. NICHOLS	

OWNER/OPERATOR:

Prev A/N 223416 Amended →

COUNTY SANITATION DISTRICTS
OF ORANGE COUNTY
POST OFFICE BOX 8127
FOUNTAIN VALLEY, CA. 92728-8127

CONTACT: MR. DENNIS MAY

New Boilers

EQUIPMENT LOCATION:

22212 BROOKHURST STREET
HUNTINGTON BEACH, CA. 92646

PERMIT UNIT WORDING:

PERMIT TO CONSTRUCT A/N 291030

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092869, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

PERMIT TO CONSTRUCT A/N 291031

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092868, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

CONDITIONS:

1. AND 2. ARE STANDARD.

3. THE MAXIMUM DIGESTER GAS FUEL USAGE OF THIS BOILER SHALL NOT EXCEED 456,480 CUBIC FEET PER DAY AND 127,100,000 CUBIC FEET PER YEAR. THE MAXIMUM HEAT INPUT TO THE BOILER SHALL NOT EXCEED 251,064,000 BTU PER DAY AND 69,900,000,000 BTU PER YEAR.

4. THIS BOILER SHALL BURN BOTH DIGESTER AND NATURAL GAS.

5. THE H2S CONTENT OF DIGESTER GAS FIRED IN THIS EQUIPMENT SHALL NOT EXCEED 100 PPMV.

6. THE COUNTY SANITATION DISTRICTS OF ORANGE COUNTY (CSDOC) SHALL INSTALL AND PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

7. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT AND THE TOTAL HOURS PER DAY OF STEAMING OF THE PLANT SLUDGE LINES SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER UPON REQUEST.

8. THE OPERATOR SHALL DEMONSTRATE COMPLIANCE WITH THE RULE 1146 NOX LIMIT OF 30 PPM AND THE CO LIMIT OF 400 PPM BURNING BOTH NATURAL AND DIGESTER GAS.

9. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT A SOURCE TEST UNDER THE FOLLOWING CONDITIONS:

    A. THE TEST SHALL BE CONDUCTED AND THE WRITTEN REPORT SUBMITTED TO THE AQMD WITHIN 60 DAYS AFTER ACHIEVING THE MAXIMUM PRODUCTION RATE AT WHICH THE EQUIPMENT WILL BE OPERATED, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP.

    B. THE TEST SHALL DETERMINE THE EMISSIONS TO ATMOSPHERE OF THE FOLLOWING POLLUTANTS:

        OXIDES OF NITROGEN AND CARBON MONOXIDE

        THE TESTS SHALL BE CONDUCTED WHILE FIRING AT MAXIMUM, MINIMUM, AND AVERAGE FIRING RATES FOR EACH FUEL TO BE BURNED.

    C. A TEST PROTOCOL SHALL BE SUBMITTED TO THE SCAQMD NOT LATER THAN 30 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE SCAQMD BEFORE THE TEST COMMENCES.

    D. THE DISTRICT ENGINEER IDENTIFIED ON THE PERMIT TO CONSTRUCT SHALL BE NOTIFIED OF THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST, OR WITHIN A TIME PERIOD AGREED UPON BY THE DISTRICT ENGINEER.

HISTORY:

The County Sanitation Districts of Orange County filed this application for a permit to construct functionally identical replacement boilers for the existing boilers. The existing boilers meet Rule 1146 NOx/CO requirements of 30/400 ppm. The compliance was proven with a source test conducted on Feb. 6 and 7, 1990, if the boilers are burning digester gas. The new boilers are being added so that natural gas may be burned in the boilers also.

The boilers are used about 8 hrs/day per week at full load for steaming sludge lines, and 16 to 24 hrs/day for heating digesters.

EVALUATION:

NSR

The proposed equipment's emissions should not be greater than the boilers they are replacing. This equipment is exempt from providing offsets and modeling because the equipment is identical replacement equipment.

AEIS average emissions. The emissions for the criteria pollutants will be calculated for the AEIS account.

NOx Emissions:

$$\frac{30 \text{ ppm}}{10^{-6}} \times \frac{3950 \text{ dscf}}{\text{min}} \times \frac{46 \text{ lbs}}{379 \text{ scf}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{0.86 \text{ lbs}}{\text{hr}}$$

$$= \frac{20.7 \text{ lbs}}{\text{day}}$$

CO emissions:

The manufacturer guarantees 3.2 lbs/hr, while the rule allows

$$\frac{400 \text{ ppm}}{10^{-6}} \times \frac{3950 \text{ dscf}}{\text{min}} \times \frac{28 \text{ lbs}}{379 \text{ scf}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{7.00 \text{ lbs}}{\text{hr}}$$

Because the emissions do not have to be offset, then the actual value of 3.2 lbs/hr, 76.8 lbs/day will be entered into AEIS

SOX emissions:

The permit restricts H2S content to 100 ppm.

$$\frac{100 \text{ ppm}}{10^{-6}} \times \frac{19{,}020 \text{ cu ft}}{\text{hr}} \times \frac{64 \text{ lbs}}{379 \text{ cu ft}} = \frac{0.32 \text{ lbs}}{\text{hr}}$$

PM emissions:

The manufacturer guarantees 0.11 lbs/hr, while the rule allows ?

Because the emissions do not have to be offset, then the actual value of 0.11 lbs/hr, 2.64 lbs/day will be entered into AEIS

ROG emissions:

The manufacturer guarantees 0.13 lbs/hr, while the rule allows ?

Because the emissions do not have to be offset, then the actual value of 0.13 lbs/hr, 3.12 lbs/day will be entered into AEIS

AEIS Emissions:	R1 lbs/hr	R2 lbs/hr
NOx	0.86	0.86
CO	3.2	3.2
SOx	0.32	0.32
ROG	0.13	0.13
PM	0.11	0.11

CONCLUSION:

Rules: 401: No visible emissions are expected with proper operational procedures.

402: Nuisance is not expected.

1146: Equipment is expected to comply.

Reg 13: This alteration is exempt from the offsets and modeling requirements of Reg 13 because there was no increase in emissions. This equipment complies with BACT.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF STATIONARY SOURCE COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

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D.P. NICHOLS	

This equipment will comply with all applicable Rules and Regulations of the District. It is recommended that a Permit to Operate be issued with the attached conditions.

N S R D A T A S U M M A R Y S H E E T

Application No:	223416
Application Type:	Permit to Operate
Application Status:	
Previous Apps,Dev,Permit #:	NONE

Company Name:	ORANGE COUNTY SANITATION DISTRICT
Company ID:	29110
Address:	22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM:	NO
RECLAIM Zone:	01
Air Basin:	SC
Zone:	18
Title V:	YES

Device ID:	0 - x
Estimated Completion Date:	
Heat Input Capacity:	0 Million BTU/hr
Priority Reserve:	NONE - No Priority Access Requested
Recommended Disposition:	NONE
PR Expiration:	
School Within 1000 Feet:	NO
Operating Weeks Per Year:	52
Operating Days Per Week:	7
Monday Operating Hours:	00:00 to 24:00
Tuesday Operating Hours:	00:00 to 24:00
Wednesday Operating Hours:	00:00 to 24:00
Thursday Operating Hours:	00:00 to 24:00
Friday Operating Hours:	00:00 to 24:00
Saturday Operating Hours:	00:00 to 24:00
Sunday Operating Hours:	00:00 to 24:00

Emittant: CO
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 0
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 0 lbs/yr
District Exemption: None

Emittant: NOX
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 0
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 0 lbs/yr
District Exemption: None

Emittant: PM10
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 0
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 0 lbs/yr
District Exemption: None

Emittant: ROG
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 0
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 0 lbs/yr
District Exemption: None

Emittant: SOX
BACT:
Cost Effectiveness:
Source Type:
Emis Increase: 0
Modeling:
Public Notice:
CONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0 lbs/hr
Max Daily: 0 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 0 lbs/yr
District Exemption: None

SUPERVISOR'S APPROVAL: _____ SUPERVISOR'S REVIEW DATE: _____

Processed By: gaurangr 7/18/2013 11:11:19 AM

SCAQMD
ENGINEERING DIVISION
NEW SOURCE REVIEW REGULATION XIII DATA SHEET

1 ☐ P/C 2 ☒ P/O 3 ☐ C/O

COMPANY ID# 29110
APPLICATION # 223416

COMPANY NAME County Sanitation Districts of Orange County DATE 3/16/94
EQUIPMENT LOCATION 22212 Brookhurst St., Huntington Beach

APPLICABLE NEW SOURCE RULE: (equip. installed or Class I applc'n rec'd...)
1 ☐ None (before 10-8-76)
2 ☐ Rule 213 (before 7-1-79 and on or after 10-8-76)
3 ☐ Original Reg XIII (before 1-1-83 and on or after 7-1-79)
4 ☐ 1st Revision Reg XIII (before 7-12-85 and on or after 1-1-83)
5 ☒ 2nd Revision Reg XIII (on or after 7-12-85)

SPECIAL CASES:
1 ☐ Banking Ref Applc'n #_____
2 ☐ Reg 13 Exempt
3 ☐ Mitigations 4 ☐ Tradeoffs
5 ☐ Toxic Materials
6 ☐ Banking Cert./Reg. Used
7 ☐ Rule 219 Exemptions
8 ☐ Alter.-Prev. App. #_____

EMISSION INCREASE OR DECREASE FROM THIS PERMIT UNIT CREDITED TO THIS LOCATION (Indicate "+" or "-"): [] 1.1 factor used for Max

CONTAMINANT	RHC	NO_x	SO_x	CO	Part	Lead	UnRHC
Max #/day	0	0	0	0	0	0	0
Actual w/internal BACT #/day							
Actual w/o BACT #/day							

REGULATION XIII EXEMPT EMISSIONS (Indicate "+" or "-")
Exempt by Rule 1304 (____) (____) or Rule 213(f) (____) (____)

CONTAMINANT	RHC	NO_x	SO_x	CO	Part	Lead	UnRHC
Max #/day							
Actual #/day							

MITIGATIONS ACHIEVED CONCURRENT WITH THIS APPLC'N (Indicate "+" or "-")

APPLIC'N NUMBER	RHC #/day	NOx #/day	SO_x #/day	CO #/day	Part #/day	Lead #/day	UnRHC #/day

Engineer DP Nichols Date 3/16/94 Reviewing Engineer [signature] Date 4-6-94

Revised 9/85

SCAQMD

NSR REG. XIII DATA SHEET
cont'd

TRADEOFFS: Emissions previously credited to: CO. ID #_____

COMPANY NAME _____ APPLC'N #_____

EQUIPMENT LOCATION _____

CONTAMINANT	RHC	NO_x	SO_x	CO	PART	LEAD	
#/DAY							

TOXIC MATERIALS: Emission increase or decrease from this permit unit credited to this location (specify contaminant code number)

CONTAMINANT					
Max #/day					
Actual w/internal BACT #/day					
Actual w/o BACT #/day					

BANKING USED: []Registration

CONTAMINANT	RHC	NO_x	SO_x	CO	PART	LEAD	_____
#/day used							

[] Certificate

Cert Number	RHC #/day	NO_x #/day	SO_x #/day	CO #/day	Part #/day	Lead #/day	_____ #/day

RULE 219 EXEMPT EQUIPMENT: Enter emissions from equipment exempt from permit by Rule 219 (Indicate "+" or "-")

Identifying number_____ Equipment category #_____

Exempt by Rule 219 (___)(___)(___) Date installed_____

CONTAMINANT	RHC	NO_x	SO_x	CO	Part	Lead	
Max #/day							
Act #/day							

---Toxic materials from this exempt equipment:

CONTAMINANT						

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF STATIONARY SOURCE COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

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D.P. NICHOLS	

OWNER/OPERATOR:

COUNTY SANITATION DISTRICTS
OF ORANGE COUNTY
POST OFFICE BOX 8127
FOUNTAIN VALLEY, CA. 92728-8127

CONTACT: MR. DENNIS MAY

EQUIPMENT LOCATION:

22212 BROOKHURST STREET
HUNTINGTON BEACH, CA. 92646

PERMIT UNIT WORDING:

PERMIT TO CONSTRUCT A/N 223415

BOILER NO. 2, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-59969, 10,461,000 BTU/HR DIGESTER GAS FIRED WITH NATURAL GAS PILOT.

PERMIT TO CONSTRUCT A/N 223416

BOILER NO. 1, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-26853, 10,461,000 BTU/HR DIGESTER GAS FIRED WITH NATURAL GAS PILOT.

CONDITIONS:

1. AND 2. ARE STANDARD.

3. THE MAXIMUM DIGESTER GAS FUEL USAGE OF THIS BOILER SHALL NOT EXCEED 456,480 CUBIC FEET PER DAY AND 127,100,000 CUBIC FEET PER YEAR. THE MAXIMUM HEAT INPUT TO THE BOILER SHALL NOT EXCEED 251,064,000 BTU PER DAY AND 69,900,000,000 BTU PER YEAR.

4. THIS BOILER SHALL BURN DIGESTER GAS ONLY, WITH A NATURAL GAS PILOT.

5. THE H2S CONTENT OF DIGESTER GAS FIRED IN THIS EQUIPMENT SHALL NOT EXCEED 100 PPMV.

6. THE COUNTY SANITATION DISTRICTS OF ORANGE COUNTY (CSDOC) SHALL INSTALL AND PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

7. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT AND THE TOTAL HOURS PER DAY OF STEAMING OF THE PLANT SLUDGE LINES SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER UPON REQUEST.

HISTORY:

The County Sanitation Districts of Orange County filed this application for a permit to construct an alteration to the existing boiler to meet Rule 1146 NOx/CO requirements of 40/400 ppm. The compliance was proven with a source test conducted on Feb. 6 and 7, 1990, if the boilers are burning digester gas. The results of this test were submitted to the District and are mentioned in the P/C evaluation. The applicant also faxed a copy of the summary sheet which shows the boilers do comply with the provisions of the rule.

The boilers had previous permits to operate (PO no. S03480 and S03479 which were issued in August 1979. They were originally permitted to use both digester and natural gas. This application is for a change of condition to limit the fuel use to digester gas only (which test show compliance for).

The boilers are used about 8 hrs/day per week at full load for steaming sludge lines, and 16 to 24 hrs/day for heating digesters.

EVALUATION:

NSR

The proposed change of condition reduced the NOx emissions and did not cause an increase in the pollutants. The boilers burning natural gas only comply with the provisions of Rule 1146 for NOx and CO. Zeros will be entered into the NSR account.

AEIS average emissions. The emissions for NOx and CO will be recalculated for the AEIS account. The applicant did not retest the other criteria pollutants, and there are no emission factors for digester gas fired boiler, therefore the emissions from the original P/O evaluation calculated for AIES will be entered in the AEIS form.

NOx Emissions:

$$\frac{0.43 \text{ lbs}}{10^{-6} \text{ BTU}} \times \frac{10.461 \times 10^{-6} \text{ BTU}}{\text{hr}} = \frac{0.45 \text{ lbs}}{\text{hr}}$$

CO emissions:

$$\frac{110 \text{ ppm}}{10^{-6}} \times \frac{2162 \text{ dscf}}{\text{min}} \times \frac{28 \text{ lbs}}{379 \text{ scf}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{1.05 \text{ lbs}}{\text{hr}}$$

SOX emissions:

The permit restricts H2S content to 100 ppm.

$$\frac{100 \text{ ppm}}{10^{-6}} \times \frac{19,020 \text{ cu ft}}{\text{hr}} \times \frac{64 \text{ lbs}}{379 \text{ cu ft}} = \frac{0.32 \text{ lbs}}{\text{hr}}$$

The remaining criteria pollutant emissions rates will be taken from the evaluation for the original P/O's. This is the most recent information available for the combustion of digester gas in these boilers

ROG 0.080 lbs/hr
PM 0.023 lbs/hr

AEIS Emissions:	R1 lbs/hr	R2 lbs/hr
NOx	1.19	0.45
CO	0.14	1.05
SOx	0.32	0.32
ROG	0.08	0.08
PM	0.023	0.023

CONCLUSION:

Rules: 401: No visible emissions are expected with proper operational procedures.

402: Nuisance is not expected.

1146: Equipment is expected to comply.

Reg 13: This alteration is exempt from Reg 13 because there was no increase in emissions.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF STATIONARY SOURCE COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

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D.P. NICHOLS	

This equipment will comply with all applicable Rules and Regulations of the District. It is recommended that a Permit to Operate be issued with the attached conditions.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765

Permit No.
D94235
A/N 291030

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301) is not received by the expiration date, contact the District.

Legal Owner or Operator:

ID 029110

OR. CO., SANITATION DIST
P.O. BOX 8127
FOUNTAIN VALLEY, CA 92728-8127

Equipment Location: 22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646-8457

Equipment Description:

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869, 10.46 MMBTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED WITH LO-NOx BURNERS AND FLUE GAS RECIRCULATION (FGR) SYSTEM.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND/OR NATURAL GAS ONLY.

4. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

5. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.

6. EMISSIONS OF NOx SHALL NOT EXCEED 30 PPM REFERENCED AT 3% O2 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.

7. EMISSIONS OF CO SHALL NOT EXCEED 400 PPM REFERENCED AT 3% O2 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.

8. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.

FILE COPY

PERMIT TO OPERATE

CONTINUATION OF PERMIT TO OPERATE

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M. Bailey/vr
11/06/1995

FILE COPY

APPLICATION FOR PERMIT TO CONSTRUCT AND PERMIT TO OPERATE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
P.O. BOX 4944
Diamond Bar, California 91765-0944

FORM 400A

NC/NOV NUMBER _____
INSPECTOR _____ SECTOR _____
ISSUE DATE _____

COMPANY INFORMATION

LEGAL NAME OF APPLICANT
COUNTY SANITATION DISTRICTS OF ORANGE COUNTY

☐ IRS OR ☐ S.S. NUMBER: 9 5 6 0 0 3 9 4 0

PERMIT TO BE ISSUED TO: (SEE INSTRUCTIONS)
SAME AS ABOVE

BUSINESS MAILING ADDRESS
POST OFFICE BOX 8127, Fountain Valley, CA 92728-8127

TYPE OF ORGANIZATION
☐ CORPORATION ☐ LIMITED PARTNERSHIP ☒ GOVERNMENT ENTITY
☐ INDIVIDUAL ☐ GENERAL PARTNERSHIP ☐ OTHER _____

ARE YOU A SMALL BUSINESS? (SEE INSTRUCTIONS) ☐ YES ☒ NO
AVERAGE ANNUAL GROSS RECEIPTS:
NUMBER OF EMPLOYEES: 620
IS YOUR BUSINESS 51 PERCENT OR MORE WOMAN/MINORITY OWNED? (OPTIONAL) ☐ YES ☒ NO

ARE ALL FACILITIES UNDER SAME OWNERSHIP IN CALIFORNIA IN COMPLIANCE WITH FEDERAL, STATE AND LOCAL AIR POLLUTION CONTROL RULES? ☐ YES ☐ NO

ARE YOU THE OWNER OF THE EQUIPMENT UNDER THIS APPLICATION? ☒ YES ☐ NO ☐ IRS OR ☐ S.S. NUMBER OF THE OWNER

IF NO, ENTER LEGAL NAME OF OWNER

FACILITY INFORMATION

EQUIPMENT ADDRESS/LOCATION
22212 Brookhurst Street
NUMBER / STREET

Huntington Beach — CA 92646
CITY OR COMMUNITY — ZIP CODE

FACILITY NAME
Wastewater Treatment Plant2

FACILITY ID NUMBER (SEE INSTRUCTIONS): 0 2 9 1 1 0

CONTACT PERSON AND TITLE
Dennis May, Principal Engineering Associate

CONTACT TELEPHONE NUMBER
714 962-2411

NUMBER OF EMPLOYEES AT THIS FACILITY:
175

TYPE OF BUSINESS AT THIS FACILITY
Sewage Treatment

BUSINESS TYPE CODE (SEE INSTRUCTIONS): 4 9 5 2

IS THERE A SCHOOL WITHIN 1,000 FEET OF YOUR PROPERTY?
YES ☐ NO ☒

EQUIPMENT INFORMATION

EQUIPMENT DESCRIPTION (SEE INSTRUCTIONS)
Firetube Steam Boiler, 250HP Dual Fuel Fired, Natural & Digester Gas

APPLICATION FOR: (SEE INSTRUCTIONS)
☐ NEW CONSTRUCTION ☒ MODIFICATION ☐ CHANGE OF LOCATION
☐ EXISTING EQUIPMENT OPERATING WITHOUT PERMIT ☐ CHANGE OF PERMITTEE ☐ CHANGE OF PERMIT CONDITION
☐ EXISTING EQUIPMENT WITH EXPIRED PERMIT

ARE YOU SUBMITTING MULTIPLE APPLICATIONS FOR EQUIPMENT IDENTICAL TO THAT DESCRIBED ABOVE?
☒ YES ☐ NO

HAVE YOU BEEN ISSUED A NOTICE TO COMPLY (NC) OR A NOTICE OF VIOLATION (NOV) FOR THIS EQUIPMENT? ☐ YES ☐ NO
NC NUMBER: NOV NUMBER : NOTICE ISSUE DATE:

NUMBER OF EMPLOYEES NEEDED TO OPERATE THIS EQUIPMENT: One

IF THE EQUIPMENT HAS A PREVIOUS WRITTEN PERMIT, STATE NAME OF PERMITTEE: COUNTY SANITATION DISTRICTS OF ORANGE COUNTY
PREVIOUS PERMIT NUMBER: (Old Boiler) 223416

FOR NEW CONSTRUCTION OR MODIFICATION, ENTER ESTIMATED COST OF:
BASIC EQUIPMENT $ 83,893.00
AIR POLLUTION CONTROL EQUIPMENT $ 6,500.00

FOR NEW CONSTRUCTION OR MODIFICATION, ENTER ESTIMATED START DATE: May 1994
ESTIMATED COMPLETION DATE: November 1994

FOR CHANGE OF PERMITTEE, LOCATION OR CONDITION, ENTER DATE OF OCCURRENCE: --
FOR EXISTING EQUIPMENT IN OPERATION WITHOUT PRIOR PERMIT, ENTER INITIAL OPERATION DATE: --

FOR THIS PROJECT, HAS A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENT BEEN REQUIRED BY ANOTHER GOVERNMENTAL AGENCY? ☐ YES ☒ NO
IF YES, ENTER NAME: AND SUBMIT A COPY IF APPROVED

DO YOU CLAIM CONFIDENTIALITY OF DATA ? (SEE INSTRUCTIONS) ☐ YES ☒ NO

I HEREBY CERTIFY, UNDER PENALTY OF PERJURY, THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION ARE TRUE AND CORRECT

SIGNATURE Dennis May FOR TOM DAWES
OFFICIAL TITLE OF SIGNER Director of Engineering

TYPE OR PRINT NAME OF SIGNER
Thomas M. Dawes Identical
TELEPHONE NUMBER 714 962-2411
DATE 3/8/94

SCAQMD USE ONLY

APPLICATION NUMBER	TYPE	EQUIPMENT CATEGORY NUMBER	ASSIGNMENT	CLASS	ENF.
291030	(B) C D	031240	UNIT L ENGINEER	I II IV	SECT.

ENGR.	ENGR.	FEE SCHEDULE $	VALIDATION	CHECK OR MONEY ORDER NUMBER	AMOUNT
(A) R DATE 3/11/94 INITIAL FAS	A R DATE INITIAL	(2) 1075.25	3-14-94	79115	5376.25

DISTRIBUTION WHITE - ENGINEERING CANARY - [illegible]

SCAQMD COMPUTER ASSISTED PERMIT PROCESSING (CAPPS)

AEIS DATA SHEET

Company Name : OR. CO., SANITATION DIST
Equipment Address : 22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646

Facility ID : 029110

APPLICATION NUMBER : 291030
ESTIMATED COMPLETION DATE : 11/30/1994
EQUIPMENT TYPE : BASIC
EQUIPMENT DESCRIPTION : BOILER (5-20 MMBTU/HR) OTHER FUEL

EQUIPMENT B-CAT : 011703
EQUIPMENT C-CAT : 87

EMITTANTS	EMISSIONS R1 (LB/HR)	EMISSIONS R2 (LB/HR)
CO	180	180
NOX	320	320
PM	110	110
ROG	130	130
SOX	320	320

APPLICABLE RULES

401 402
1146 1303

WEEKS/YEAR: 52	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Daily Start Times:	:	:	:	:	:	:	:
Daily Stop Times:	24:00	24:00	24:00	24:00	24:00	24:00	24:00

User's Initials: VR Date: 11/07/1995 Supervisor's Name: _____ Review Date: __/__/____

FORM CAPPS-200A

SCAQMD COMPUTER ASSISTED PERMIT PROCESSING (CAPPS)

AEIS DATA SHEET

Company Name : OR. CO., SANITATION DIST
Facility ID : 029110
Equipment Address : 22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646

APPLICATION NUMBER : 291030
ESTIMATED COMPLETION DATE : 11/30/1994
EQUIPMENT TYPE : BASIC
EQUIPMENT DESCRIPTION : BOILER (5-20 MMBTU/HR) COMB GAS-~~DISTILL~~

EQUIPMENT B-CAT : ~~011203~~ 011703
EQUIPMENT C-CAT : 87

EMITTANTS	EMISSIONS R1 (LB/HR)	R2 (LB/HR)
CO	180	180
NOX	320	320
PM	110	110
ROG	130	130
SOX	320	320

APPLICABLE RULES

401 402
1146 1303

WEEKS/YEAR: 52	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Daily Start Times:	:	:	:	:	:	:	:
Daily Stop Times:	24:00	24:00	24:00	24:00	24:00	24:00	24:00

User's Initials: VR Date: 9/12/1995 Supervisor's Name: [signature] Review Date: 10/23/95

FORM CAPPS-200A

SCAQMD COMPUTER ASSISTED PERMIT PROCESSING (CAPPS)

FEE DATA - SUMMARY SHEET

Application No : **291030** IRS/SS No: **000-00-0000**
Previous Permit No: **D81911** Previous Application No: **223415**

Company Name : **OR. CO., SANITATION DIST** Facility ID: **029110**
Equipment Street: **22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646**
Equipment Desc. : **BOILER (5-20 MMBTU/HR) OTHER FUEL**

Equipment Type : **BASIC** Fee Charged by: **B-CAT**
B-CAT NO. : **011703** C-CAT NO. : **87** Schedule: **C**
Facility Zone : **18** Deemed Compl. Date: **3/11/1994** PUBLIC NOTICE: **NO**

APPLICATION FILING FEE (PRIOR TO 7/1/90 & PLANS FEE) ..... $ **0.00**
EVALUATION FEE PRE-PAID (POST 7/1/90) ..... $ **4,301.00**

Evaluation Type: **PERMIT TO OPERATE (PO)** Small Business?: **NO**
Disposition : **APPROVE PO** P/O NO P/C Penalty?: **NO**
Reference App. No: Identical Permit Unit?: **NO**

1. PERMIT PROC. FEE* (APPL FILED PRIOR TO 7/1/90) TABLE I FEE* $ LESS FILING FEE PAID $	$	0.00
2. EIR (TABLE II FEE)	$	0.00
3. AIR QUALITY ANALYSIS (TABLE II FEE)	$	0.00
4. HEALTH RISK ASSESSMENT (TABLE II FEE)	$	0.00
5. SIGNIFICANT PROJECT REVIEW (TABLE II FEE)	$	0.00
6. SOURCE TEST REVIEW: (TABLE II/RULE 306(g) FEE) $400 + [NO HRS @ $75/HR] (MAX. $1525)	$	0.00
7. CEMS REVIEW: (TABLE II FEE) $1800 + [NO HRS @ $75/HR] (MAX. $1525)	$	0.00
8. TIME AND MATERIALS (FOR PLAN APPLICATIONS ONLY) 0.00 HRS @ $ 75.00/HR	$	0.00
9. PERMIT PROCESSING FEE ADJUSTMENT** ADDITIONAL FEE TABLE I FEE* $ **1,856.00** LESS EVAL. FEE PAID $ 4,301.00	$	-2,445.00
10. **OTHER FEES** (INCLUDING CANCELLATION)**	$	2,445.00
TOTAL:	$	0.00

COMMENTS: REFUND HANDLED AT P/C STAGE

Recommended By: **VR** DATE: **11/06/1995** REVIEWING ENG: JWT DATE: 11.6.95

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT, AND P/O NO P/C PENALTY
** ADJUSTED FOR INCORRECT FEE SUBMITTAL, SMALL BUSINESS, IDENTICAL EQUIPMENT, AND P/O NO P/C PENALTY

SCAQMD COMPUTER ASSISTED PERMIT PROCESSING (CAPPS)

FEE DATA - SUMMARY SHEET

Application No : **291030** IRS/SS No: **000-00-0000**
Previous Permit No: Previous Application No:

Company Name : **OR. CO., SANITATION DIST** Facility ID: **029110**
Equipment Street: **22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646**
Equipment Desc. : **BOILER (5-20 MMBTU/HR) COMB GAS-DISTILL**

Equipment Type : **BASIC** Fee Charged by: **B-CAT**
B-CAT NO. : **011203** C-CAT NO. : **00** Schedule: **C**
Facility Zone : **18** Deemed Compl. Date: **4/28/1994** PUBLIC NOTICE: **NO**

APPLICATION FILING FEE (PRIOR TO 7/1/90 & PLANS FEE) ..... $ **0.00**
EVALUATION FEE PRE-PAID (POST 7/1/90) ..... $ **4,301.00**

Evaluation Type: **PERMIT TO CONSTRUCT (PC)** Small Business?: **NO**
Disposition : **APPROVE PC** P/O NO P/C Penalty?: **NO**
Reference App. No: Identical Permit Unit?: **NO**

1. PERMIT PROC. FEE* (APPL FILED PRIOR TO 7/1/90) TABLE I FEE* $ LESS FILING FEE PAID $	$	0.00
2. EIR (TABLE II FEE)	$	0.00
3. AIR QUALITY ANALYSIS (TABLE II FEE)	$	0.00
4. HEALTH RISK ASSESSMENT (TABLE II FEE)	$	0.00
5. SIGNIFICANT PROJECT REVIEW (TABLE II FEE)	$	0.00
6. SOURCE TEST REVIEW: (TABLE II/RULE 306(g) FEE) $400 + [NO HRS @ $75/HR] (MAX. $1525)	$	0.00
7. CEMS REVIEW: (TABLE II FEE) $1800 + [NO HRS @ $75/HR] (MAX. $1525)	$	0.00
8. TIME AND MATERIALS (FOR PLAN APPLICATIONS ONLY) 0.00 HRS @ $ 75.00/HR	$	0.00
9. PERMIT PROCESSING FEE ADJUSTMENT** ADDITIONAL FEE TABLE I FEE* $ **1,856.00** LESS EVAL. FEE PAID $ 4,301.00	$	-2,445.00
10. OTHER FEES** (INCLUDING CANCELLATION)	$	0.00
TOTAL:	$	-2,445.00

COMMENTS:

Recommended By: **DPN** DATE: **5/11/1994** REVIEWING ENG: _____ DATE: 5-12-94

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT, AND P/O NO P/C PENALTY
** ADJUSTED FOR INCORRECT FEE SUBMITTAL, SMALL BUSINESS, IDENTICAL EQUIPMENT, AND P/O NO P/C PENALTY

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110
FACILITY NAME : OR. CO., SANITATION DIST
FACILITY ADDRESS: 22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646-8457

PROCESSING DECISION FOR APPLICATION: EX
PERMIT TYPE : PO **TRANSACTION CODE:** PC2PO
DEEMED COMPLETE : 3/11/1994 **PREV. APP/PERMIT NO.:** 223415/223415

ENGINEER NAME : VICTOR REYES **FACILITY ZONE:** 18

EMISSION DATA: CO

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,533.000000	lbs/year

OFFSET DATA: CO

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

EMISSION DATA: NOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,774.000000	lbs/year

SUPERVISOR'S APPROVAL: /Mller **SUPERVISOR'S REVIEW DATE:** 10/23/95

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: NOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

EMISSION DATA: PM10

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	3	lbs/day
Max Daily (Controlled)	:	3	lbs/day
30 Day Average (Controlled)	:	3	lbs/day
Annual (Controlled)	:	963.600000	lbs/year

OFFSET DATA: PM10

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-3	EX	

EMISSION DATA: ROG

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	4	lbs/day
Max Daily (Controlled)	:	4	lbs/day
30 Day Average (Controlled)	:	4	lbs/day
Annual (Controlled)	:	1,138.800000	lbs/year

SUPERVISOR'S APPROVAL: M Mueller **SUPERVISOR'S REVIEW DATE:** 10/23/15

South Coast Air Quality Management District

New Source Review Regulation XIII Data Sheet

APPLICATION NO. : 291030 **FACILITY I.D. NO.:** 029110

OFFSET DATA: ROG

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-4	EX	

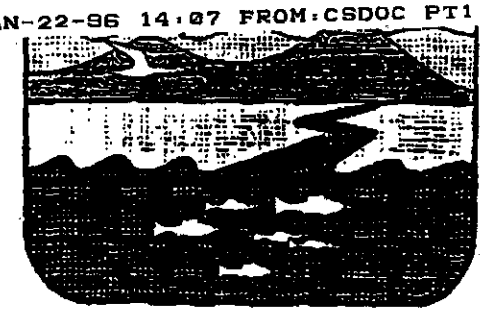
EMISSION DATA: SOX

Positive Balance	:	0	lbs/day
Max Daily (Uncontrolled)	:	8	lbs/day
Max Daily (Controlled)	:	8	lbs/day
30 Day Average (Controlled)	:	8	lbs/day
Annual (Controlled)	:	2,803.200000	lbs/year

OFFSET DATA: SOX

Transaction Code	Amount	Offset Sources	Certificate Number
EXMTREPL	-8	EX	

SUPERVISOR'S APPROVAL: Mullen **SUPERVISOR'S REVIEW DATE:** 10/23/95



ORANGE COUNTY, CALIFORNIA

FAX TRANSMITTAL FORM

DATE: 1/22/96

APPROXIMATE TIME: _____

TO: Victor Reyes ORG: SCAQMD FAX NO.:( ) _____

TO: _____ ORG: _____ FAX NO.:( ) _____

TO: _____ ORG: _____ FAX NO.:( ) _____

TO: _____ ORG: _____ FAX NO.:( ) _____

Total number of pages being transmitted (including this transmittal form): 3

SUBJECT: Comments on Boiler permits.

PRIORITY: ☐ Urgent ☐ Per Your Request ☐ FYI ☐ Per Our Conversation
☐ Other _____

Reply Needed: ☐ Yes ☐ No

Original will be forwarded via: ☐ U.S. Mail ☐ Air Express ☐ Messenger
☐ Original will not be forwarded

SPECIAL NOTES: _____

FROM: TERRY AHN Ext: _____

Transmitting Operator: _____ Ext: _____

NOTE: If you encounter any difficulty in receiving the total number of pages indicated above, PLEASE CALL BACK AS SOON AS POSSIBLE AT (714) 962-2411 AND ASK FOR THE TRANSMITTING OPERATOR.

CSDOC DEPARTMENT FAX NUMBERS FOR REPLY:

- ☐ Administration . . . . . (714) 962-0356
- ☐ Personnel . . . . . (714) 962-0427
- ☐ Finance . . . . . (714) 962-3954
- ☐ Purchasing . . . . . (714) 965-0728
- ☐ Oper. & Mntce . . . . . (714) 962-8379
- ☐ Technical Services . . . . . (714) 962-6957
  (Conservation, Recycle & Resource Control)
- ☐ Control Center - Plant 1 . . . . . (714) 965-6777
- ☐ Operations Center - Plant 2 . . . . . (714) 968-2330
- ☐ Engineering . . . . . (714) 962-5018
- ☐ Constr. Mgmt - Plant 1 . . . . . (714) 964-4775
- ☐ Constr. Mgmt - Plant 2 . . . . . (714) 965-2156
- ☐ Laboratory . . . . . (714) 962-2591
  (Air Quality/Compliance/Laboratory)

P.O. Box 8127
Fountain Valley, CA 92728-8127
Telephone: (714) 962-2411

Permit No. A/N 291031

Page 1

PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner or Operator: ID 029110

ORANGE CO., SANITATION DIST
P.O. BOX 8127
FOUNTAIN VALLEY, CA 92728-8127

Equipment Location: 22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646-8437

Equipment Description:

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092868, 10.46 MMBTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED WITH LO-NOx BURNERS AND FLUE GAS RECIRCULATION (FGR) SYSTEM.

Conditions: THE FOLLOWING COMMENTS APPLY TO A/N 291030 ALSO.

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THE MAXIMUM AMOUNT OF DIGESTER GAS FUEL USAGE OF THIS BOILER SHALL NOT EXCEED 456,480 CUBIC FEET PER DAY AND 127,100,000 CUBIC FEET PER YEAR. THE MAXIMUM HEAT INPUT TO THIS BOILER SHALL NOT EXCEED 251,064,000 BTU PER DAY AND 69,900,000,000 BTU PER YEAR.

SEE COMMENT ON NEXT PAGE

4. THIS BOILER SHALL BE FIRED ON NATURAL GAS AND/OR DIGESTER GAS ONLY.

5. THE HYDROGEN SULFIDE CONTENT OF DIGESTER GAS FIRED IN THIS EQUIPMENT SHALL NOT EXCEED 100 PPMV. THIS CONDITION IS NOT NECESSARY SINCE CSDOC HAS TO COMPLY WITH RULE 431.1 REQUIREMENTS.

DELETE

6. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

7. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT ~~AND THE TOTAL HOURS PER DAY OF STEAMING OF THE PLANT SLUDGE LINES~~ SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND BE MADE AVILABLE TO AQMD PERSONNEL UPON REQUEST.

THIS REQUIRES EXTRA PAPER WORK BURDEN ON OUR OPERATORS AND WE DO NOT SEE ANY BENEFITS OR PURPOSE IN REQUIRING US TO RECORD THE TOTAL HOURS OF STEAMING. CSDOC SHOULD NOT BE ~~SAMPLE~~ REQUIRED TO DISCLOSE AS TO HOW MANY HOURS WE STEAM THE PLANT SLUDGE LINES TO SCAQMD.

Approved 11-6-95

Permit No.

A/N 291031
Page 2

PERMIT TO OPERATE

CONTINUATION OF PERMIT TO OPERATE

8. EMISSIONS OF NOx SHALL NOT EXCEED 30 PPM REFERENCED AT 3% O2 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.

9. EMISSIONS OF CO SHALL NOT EXCEED 400 PPM REFERENCED AT 3% O2 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.

10. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Dorris M. Bailey/vr

COMMENT ON CONDITION #3: SINCE THE BOILER CANNOT BE USED AT A CAPACITY EXCEEDING ITS RATED HEAT INPUT, THIS CONDITION IS UNNECESSARY. ALSO, FYI. THE 127,100,000 FT³/YR DG USAGE & 69,900,000,000 BTU/YR NUMBERS CORRESPONDS TO ONLY 278 DAY/YR OPERATION.

SAMPLE

OWNER/OPERATOR:

COUNTY SANITATION DISTRICTS
OF ORANGE COUNTY
POST OFFICE BOX 8127
FOUNTAIN VALLEY, CA. 92728-8127

CONTACT: MR. DENNIS MAY

EQUIPMENT LOCATION:

22212 BROOKHURST STREET
HUNTINGTON BEACH, CA. 92646

PERMIT UNIT WORDING:

PERMIT TO OPERATE A/N 291030

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092869, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

PERMIT TO OPERATE A/N 291031

BOILER, CLEAVER BROOKS, FIRE-TUBE TYPE, MODEL CB700-250, SERIAL NUMBER L-092868, 10,460,000 BTU/HR DIGESTER AND NATURAL GAS FIRED LO NOX BURNERS WITH FLUE GAS RECIRCULATION.

CONDITIONS:

1. AND 2. ARE STANDARD.

3. THE MAXIMUM DIGESTER GAS FUEL USAGE OF THIS BOILER SHALL NOT EXCEED 456,480 CUBIC FEET PER DAY AND 127,100,000 CUBIC FEET PER YEAR. THE MAXIMUM HEAT INPUT TO THE BOILER SHALL NOT EXCEED 251,064,000 BTU PER DAY AND 69,900,000,000 BTU PER YEAR.

4. THIS BOILER SHALL BURN DIGESTER GAS AND NATURAL GAS ONLY.

5. THE H2S CONTENT OF DIGESTER GAS FIRED IN THIS EQUIPMENT SHALL NOT EXCEED 100 PPMV.

6. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

7. THE COUNTY SANITATION DISTRICTS OF ORANGE COUNTY (CSDOC) SHALL INSTALL AND PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.

8. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT AND THE TOTAL HOURS PER DAY OF STEAMING OF THE PLANT SLUDGE LINES SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER UPON REQUEST.

9. THE OPERATOR SHALL DEMONSTRATE COMPLIANCE WITH THE RULE 1146 NOX LIMIT OF 30 PPM AND THE CO LIMIT OF 400 PPM BURNING BOTH NATURAL AND DIGESTER GAS.

10. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.

HISTORY:

The County Sanitation Districts of Orange County filed this application for a permit to construct functionally identical replacement boilers for the existing boilers under A/Ns 223415 & 223416.The existing boilers meet Rule 1146 NOx/CO requirements of 30/400 ppm. The compliance was proven with a source test conducted on Feb. 6 and 7, 1990, if the boilers are burning digester gas. The new boilers are being added so that natural gas may be burned in the boilers also.

The most recent source test conducted on one of these boilers was in July 17, 1995. Emission rates for Nox and CO were based from this test results.

The boilers are used about 8 hrs/day per week at full load for steaming sludge lines, and 16 to 24 hrs/day for heating digesters.

EVALUATION:

NSR

The proposed equipment's emissions should not be greater than the boilers they are replacing. This equipment is exempt from providing offsets and modeling because the equipment is identical replacement equipment.

AEIS average emissions. The emissions for the criteria pollutants will be calculated for the AEIS account.

Emission rates from Source Test:

NOx = 0.317 lb/hr
= 7.6 lbs/day

CO = 0.175 lb/hr
=4.2 lbs/day

PM, SOx and ROG emission rates are the same as calculated in the P/C evaluation, namely:

PM = 0.11 lb/hr
= 2.64 lbs/day

Sox = 0.32 lb/hr
=7.68 lbs/day

ROG = 0.13 lb/hr
= 3.12 lbs/hr

AEIS Emissions:	R1 lbs/hr	R2 lbs/hr
NOx	0.317	0.317
CO	0.175	0.175
SOx	0.32	0.32
ROG	0.13	0.13
PM	0.11	0.11

CONCLUSION:

Rules: 401: No visible emissions are expected with proper operational procedures.

402: Nuisance is not expected.

1146: Equipment is expected to comply.

Reg 13: This alteration is exempt from the offsets and modeling requirements of Reg 13 because there was no increase in emissions. This equipment complies with BACT.

This equipment will comply with all applicable Rules and Regulations of the District. It is recommended that a Permit to Operate be issued with the attached conditions.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 28, 2012

TERRY AHN
ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

Facility ID: 29110
Located at: 22212 BROOKHURST ST, HUNTINGTON BEACH

Thank you for filing your application(s) with the South Coast Air Quality Management District (AQMD).

The application number(s) assigned by AQMD to your application package(s) is/are on Page 2 of this letter. Please refer to information on Page 2 when contacting AQMD for assistance. The information you submitted with your application(s) or in your latest submittal is complete to the extent that allows us to begin processing of your however some clarifying data may still be needed. The acceptance of your application(s) does not imply that permit(s) has/have been approved.
The engineer assigned to your application(s) will contact you if additional information is required.

If you have any questions or need additional information about your application(s), please contact the engineer listed below:

Engineer: GAURANG RAWAL **Telephone:** (909) 396-2543

For general information about AQMD's permit process, please call (909) 396-2468.

cc: Application file(s)

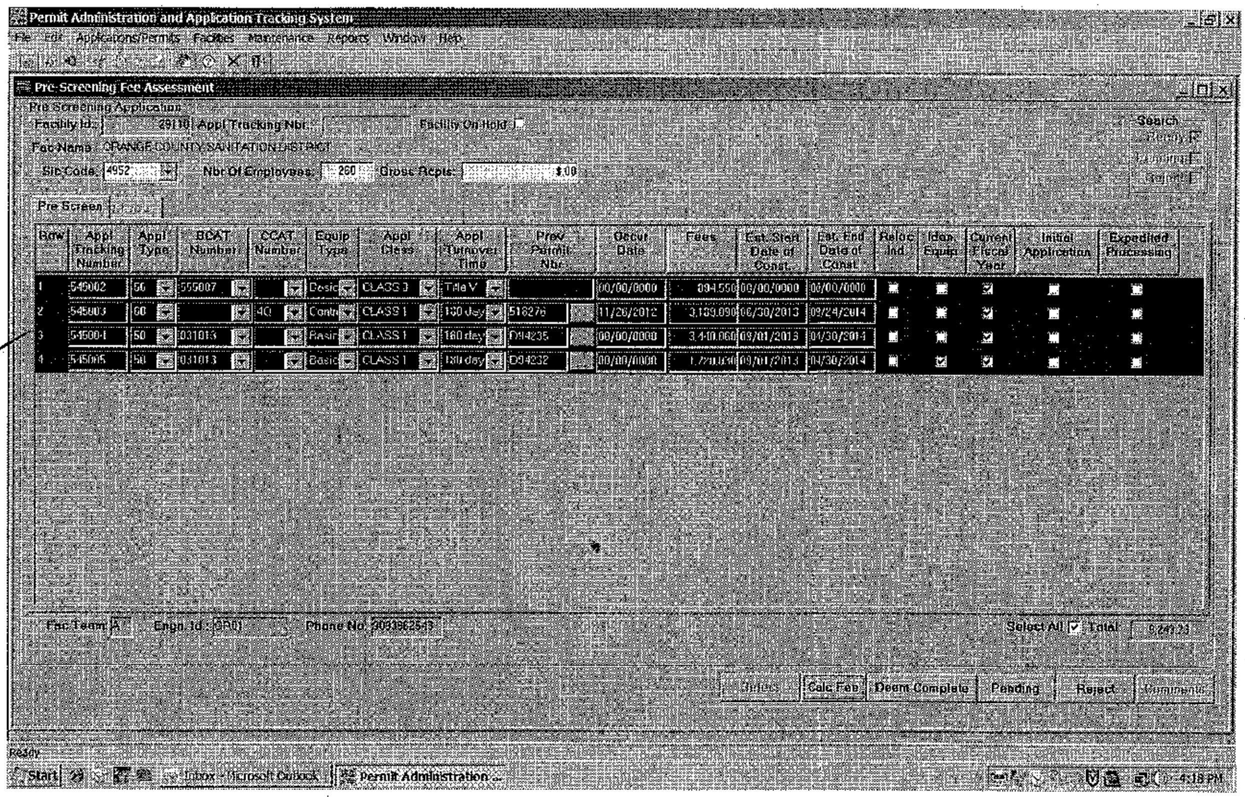
AQMD PERMIT APPLICATION INFORMATION

(Please refer to this information when contacting AQMD for Assistance)

December 28, 2012

Facility ID: 29110

Application Number (s)	Equipment Description	
545002	Title V Permit Revision	
545003	ODOR CONTROL UNIT – Biofilter	
545004	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG
545005	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG - identical



Permit Administration and Application Tracking System
File Edit Applications/Permits Facilities Maintenance Reports Window Help
Pre-Screening Fee Assessment
Pre Screening Application
Facility Id: 29110 Appl Tracking Nbr: Facility On Hold
Fac Name: ORANGE COUNTY SANITATION DISTRICT
Sic Code: 4952 Nbr Of Employees: 260 Gross Rcpts: $.00
Search
Pre Screen
Row | Appl Tracking Number | Appl Type | BCAT Number | CCAT Number | Equip Type | Appl Class | Appl Turnover Time | Prev Permit Nbr | Occur Date | Fees | Est. Start Date of Const. | Est. End Date of Const. | Reloc Ind. | Iden. Equip | Current Fiscal Year | Initial Application | Expedited Processing
1 545002 50 555007 Basic CLASS 3 Title V 00/00/0000 00/00/0000 00/00/0000
2 545003 60 40 Contr CLASS 1 180 day 518276 11/26/2012 3,189.890 06/30/2013 09/24/2014
3 545004 50 031013 Basic CLASS 1 180 day D94235 00/00/0000 3,440.060 09/01/2013 04/30/2014
4 545005 50 031013 Basic CLASS 1 180 day D94232 00/00/0000 09/01/2013 04/30/2014
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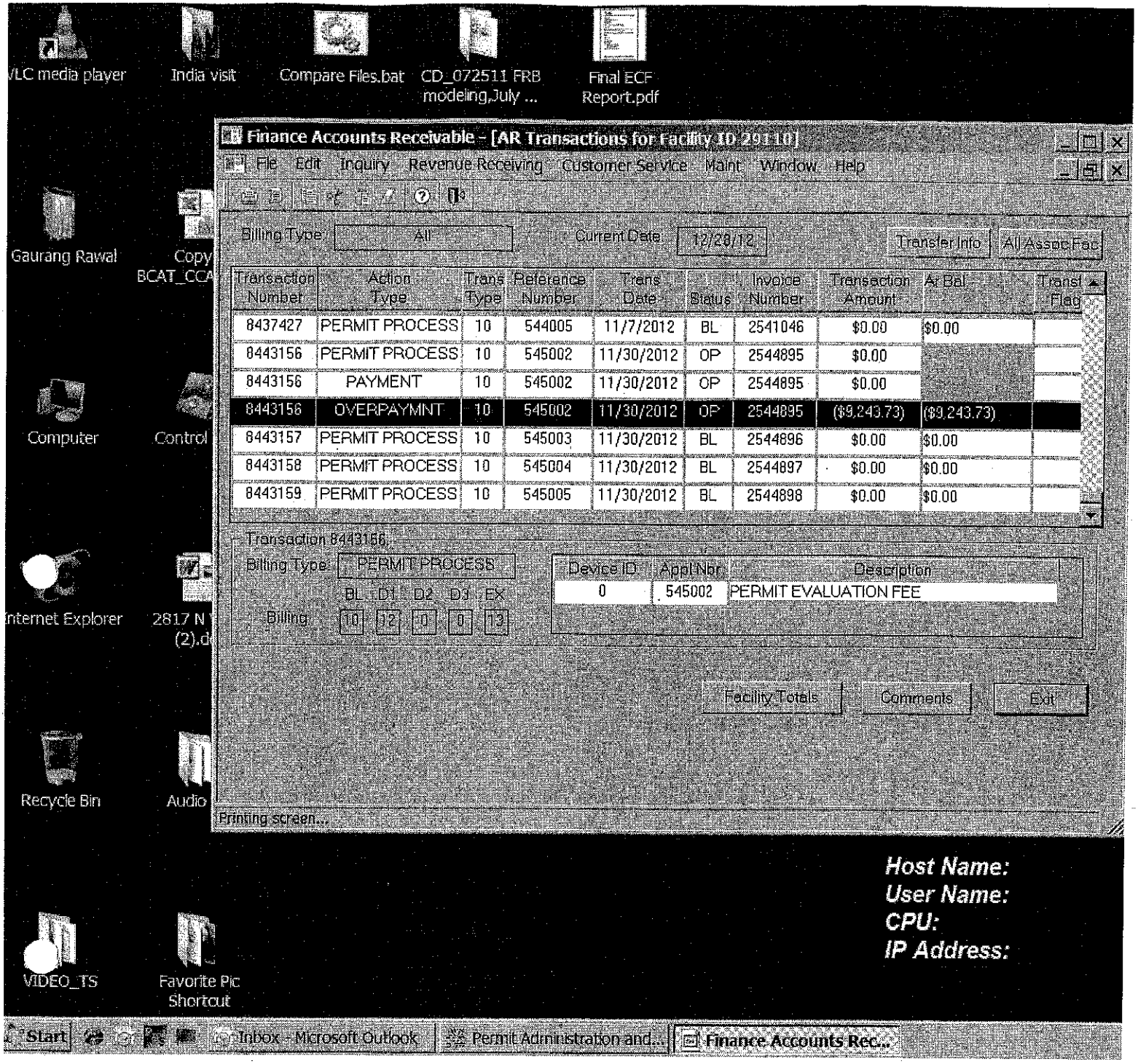
12/28/2012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Billing Type: All
Current Date: 12/28/12
Transfer Info
All Assoc Fac
Transaction Number | Action Type | Trans Type | Reference Number | Trans Date | Status | Invoice Number | Transaction Amount | Ar Bal | Transf Flag
8437427 | PERMIT PROCESS | 10 | 544005 | 11/7/2012 | BL | 2541046 | $0.00 | $0.00
8443156 | PERMIT PROCESS | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | PAYMENT | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | OVERPAYMNT | 10 | 545002 | 11/30/2012 | OP | 2544895 | ($9,243.73) | ($9,243.73)
8443157 | PERMIT PROCESS | 10 | 545003 | 11/30/2012 | BL | 2544896 | $0.00 | $0.00
8443158 | PERMIT PROCESS | 10 | 545004 | 11/30/2012 | BL | 2544897 | $0.00 | $0.00
8443159 | PERMIT PROCESS | 10 | 545005 | 11/30/2012 | BL | 2544898 | $0.00 | $0.00
Transaction 8443156
Billing Type: PERMIT PROCESS
BL D1 D2 D3 EX
Billing 10 12 0 0 13
Device ID | Appl Nbr | Description
0 | 545002 | PERMIT EVALUATION FEE
Facility Totals
Comments
Exit
Printing screen...
Host Name:
User Name:
CPU:
IP Address:
Start
Inbox - Microsoft Outlook
Permit Administration and...
Finance Accounts Rec...

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Sch. C
Rule 3403

Permit No. R-D94235
A/N 291030

Equipment Description:

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869, 10.46 MMBTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED WITH LO-NOx BURNERS AND FLUE GAS RECIRCULATION (FGR) SYSTEM.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY.
[RULE 204]

4. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303(b) (1), (b) (2)-MODELING AND OFFSETS]

5. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

6. EMISSIONS OF NOx SHALL NOT EXCEED 40 PPM REFERENCED AT 3% 02 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.
[RULE 1146]

7. EMISSIONS OF CO SHALL NOT EXCEED 400 PPM REFERENCED AT 3% 02 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.
[RULE 1146]

8. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(A) (1)-BACT]

THIS PERMIT TO OPERATE R-D94235 SUPERSEDES PERMIT TO OPERATE D94235 ISSUED 11/06/1995.

TV format
@ Rule Tagging -

Command & Control

Cond 6 limit 30 ppmv → 40 ppmv.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions And Requirements:

9. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, RULE 1146
NOx	30 PPMV, RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53

10. THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE CO AND NOx EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 10.1 (METHOD 7.1 FOR NOx); OR (b) CONDUCTING A TEST AT LEAST ANNUALLY USING A PORTABLE ANALYZER AND AQMD-APPROVED TEST METHOD.. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 3004 (a) (4)]

Serving:
Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

Orange County Sanitation District
10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

October 8, 2012

Permit Services
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

SUBJECT: Application for Title V Permit Revision for Orange County Sanitation District Plant No. 2 (Facility ID No. 029110): Modification of Permit-to-Construct Odor Control System for Dissolved Air Floatation Thickening Process (A/N 518276) and Modification of Permits-to-Operate Boilers (Permit Nos. R-D94232 and R-D94235)

Enclosed with this letter is an application for Title V permit revision for Orange County Sanitation District's Wastewater Treatment Plant No. 2. The Title V permit revision is requested for the following:

1. Modification Permit-to-Construct Odor Control System A/N 518276 which allows the construction of a new odor control system for the existing Dissolved Air Floatation Thickening Facility. The construction of the new odor control system is currently underway.

   The main purpose of the permit modification is to change Condition No. 11, which imposes an extremely stringent exhaust H_2S limit, prior to the completion of the construction. We are also requesting changes to the Equipment Description and other Conditions in order to streamline the permit and ensure operational flexibility. The proposed changes are provided in the attached Supplemental Information for Odor Control System.

2. Modification of Permits-to-Operate Nos. R-D94232 and R-D94235 which allow operation of two gas-fired steam boilers. These boilers will be retrofitted with new burners in order to comply with Rule 1146 NOx emission limits. Additional information is provided in the attached Supplemental Information for Boilers.

Enclosed with this letter are:

- (1) SCAQMD Form 500-A1: Title V Application Submittal
- (1) SCAQMD Form 500-A2: Title V Application Certification
- (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
- Modification of Existing Permit-to-Construct Odor Control System A/N 518276
  - (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Page 2 Only)
  - Supplemental Information for Odor Control System
- Modification of Permits-to-Operate Nos. R-D94232 and R-D94235
  - (2) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA with Notice of Exemption
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Pages 2 and 4 Only)
  - (1) SCAQMD Form 400-E-9a External Combustion: Boiler/Heater
  - (1) SCAQMD Form 400-PS Plot Plan And Stack Information
  - Supplemental Information for Boilers

- A check in the amount of $9,243.73 ($894.55 for Title V Permit Revision; $3,189.09 for Odor Control System; and $5,160.09 for Boilers) for application processing fee

If you have any questions or require further information, please contact Terry Ahn at (714) 593-7082 or tahn@ocsd.com.

James Colston
Environmental Compliance Manager

TA:JC:jb
H:\dept\eng\790\Groups\Compliance\Staff\ahn\Permitting Projects\P2-89_P2-106\P2-89_P2-106_ApplCvr.doc

Enclosure(s)

cc: V. Kogan (w/o enclosures)
Gaurang Rawal (SCAQMD)

Notice of Exemption

To: ☐ Office of Planning and Research
P0 Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 958 12-3044

☒ County Clerk
County of Orange
12 Civic Center Plaza , P.O. Box 238
Santa Ana, CA 92701-0238

From: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Recorded in Official Records, Orange County
Tom Daly, County Recorder
NO FEE
201185000440 3:06 pm 04/14/11
281 OR03 Z01
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

Project Title: Chemical Scrubber Conversions and Piping System Improvements, Project No. P2-106

Project Location — 22212 Brookhurst Street Huntington Beach CA 92646

Project Location — City: Huntington Beach **Project Location — County:** Orange

Description of Project:

This project will convert existing chemical scrubbers to biotrickling filters (BTF) by replacing the internal equipment within the scrubber towers; install multiple booster pumps in the dewatering building plant water supply line(s); and replace 2 boilers and rehabilitate the boiler feed water system. There is no new capacity being added to the systems and minimal excavation.

Name of Public Agency Approving Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Name of Person or Agency Carrying Out Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

POSTED
APR 14 2011
TOM DALY, CLERK-RECORDER
By _____ DEPUTY

Exempt Status: (check one)

☐ Ministerial (Sec. 21080(b)(1); 15268);
☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
☒ Categorical Exemption. State type and section number: 15301(b) Class 1
☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:

This project will convert only replace existing equipment internal to the scrubber towers; install pumps to increase water pressure but not capacity; and replace 2 boilers and rehabilitate the boiler feed water system with similar sized units. These are utility systems owned and operated by a utility operator with no new capacity being added to the systems with minimal excavation.

Lead Agency
Contact Person: Jim Burror Area Code/Telephone/Extension: (714) 593-7335

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: _____ Date: 4/13/11 Title: Engineering Supervisor

FILED

☒ Signed by Lead Agency

Date received for filing at OPR: APR 14 2011

☒ Signed by Applicant

TOM DALY, CLERK-RECORDER
By _____ DEPUTY

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2011 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 413633

STATE CLEARING HOUSE # *(If applicable)* N/A

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: Orange County Sanitation District — DATE: 4-14-11

COUNTY/STATE AGENCY OF FILING: County of Orange — DOCUMENT NUMBER: 201185000440

PROJECT TITLE: Chemical Scrubber Conversions & Piping System Improv No. P2-106

PROJECT APPLICANT NAME: Orange County Sanitation District — PHONE NUMBER: 714.593.7335

PROJECT APPLICANT ADDRESS: 10844 Ellis Ave — CITY: Fountain Valley — STATE: Ca — ZIP CODE: 92708

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,839.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,044.00	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	~~$965.50~~	~~$~~
☐ County Administrative Fee	$50.00	$ 0
☒ Project that is exempt from fees		
☒ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other _____		$ 0

PAYMENT METHOD:

☐ Cash ☐ Credit ☐ Check ☐ Other _____ TOTAL RECEIVED $ 0

SIGNATURE: X Priscilla Gonzalez — TITLE: Deputy

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDEN ROD - COUNTY CLERK FG 753.5a (Rev. 11/10)

Orange County
Clerk/Recorder's Office
Tom Daly

630N Broadway Bldg. 12 Suite
101
Santa Ana, CA, 92701

County

Finalization: 20110000201126
4/14/11 3:06 PM
281 0803

Item	Title	Count
1	ZO1	1
EIR Administrative Fee		Amount
Document ID		
DOC# 201185000440		50.00
Time Recorded 3:05 PM		

Total 0.00

Payment Type Amount

[illegible] 50.00
[illegible] 0.00
[illegible] Due 0.00

THANK YOU

PLEASE RETAIN THIS RECEIPT
FOR YOUR RECORDS
www.ocrecorder.com

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Project Description:

Replace burners on existing digester gas and natural gas fired boilers in order to meet January 1, 2015 NOx emission limits as set forth in SCAQMD Rule 1146.

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	◉	○	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
7.	○	◉	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If "**Yes**" is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	○	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	○	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	○	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	○	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	**Part II - Air Quality (cont.)**
5.	○	○	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	○	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	○	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	○	**a. the need for more than 350 new employees?**
	○	○	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	○	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	○	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	○	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	○	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

****REMINDER:** *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.***

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm: James D. Ruth		2. Title of Responsible Official of Firm: General Manager
3. Print Name of Responsible Official of Firm: James D. Ruth		4. Date Signed: 10-10-12
5. Phone # of Responsible Official of Firm: (714) 593-7110	6. Fax # of Responsible Official of Firm: (714) 968-4389	7. Email of Responsible Official of Firm: jruth@ocsd.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Regulatory Specialist
10. Print Name of Preparer: Terry Ahn		11. Date Signed: 10/8/12
12. Phone # of Preparer: (714) 593-7082	13. Fax # of Preparer: (714) 962-2591	14. Email of Preparer: tahn@ocsd.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

11/9/2012

ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

RE: Application Tracking Number(s) 544003

Facility ID: 29110

Thank you for filing your permit application(s) with the South Coast Air Quality Management District. Your application(s) and processing fee payment (if any) are being returned because of delinquent fees pursuant to Rule 301 - Permit Fees (c)(1)(A), (c)(2)(C), (c)(3), (o)(5), (o)(6), (o)(7), or (p)(2). Rule 301 - Permit Fees requires that all delinquent fees associated with a facility be paid before any application can be accepted.

The South Coast Air Quality Management cannot accept your application(s) until you:

1) Call our **Customer Service Section** to determine the nature of the fees that must be paid prior to accepting your application(s). The toll free number is (866) 888-8838. Outside California, call (909) 396-2900. Please reference Facility ID Number 29110. Then,

2) Return the application(s), the permit processing fee for the application(s), and [a] **separate payment for all outstanding fees to:**

South Coast AQMD
P.O. Box 4944
Diamond Bar, CA 91765

In addition, please submit the requested information listed below:

Other Reasons:

Application and check returned due to unpaid fees. Please return application, check and a separate check for the unpaid fees so that your permit can be processed. If you have any questions about the fees due, please call Billing Services at 909-396-2900. Thank you.

Following these instructions is the fastest, most efficient way to get your application(s) accepted by South Coast AQMD.

South Coast Air Quality Management District

Form 400-E-9a
External Combustion: Boiler/Heater

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst St, Huntington Beach, CA 92646 ◉ Fixed Location ○ Various Locations

Section B - Equipment Description

Boiler/Heater
Manufacturer: Cleaver Brooks Model: CB700-250 Serial No.: L-092869
Max. Heat Input Rating (Higher Heating Value - HHV): 10,205,800 BTU per hour
Boiler Type: ○ Water-Tube ◉ Fire-Tube

Burner
Manufacturer: American Combustion Tech. or Equal Model: SLE-05-250 or Equal
Number of burners: 1 Rating of each burner (HHV): 10,205,800
Type: ◉ Low NOx (please attach manufacturer's specifications) ○ Other:

Blower
HP: 7.5

Fuel Type
Primary Fuel: ○ Natural Gas ○ LPG ○ Refinery Gas* ◉ Digester Gas* ○ Landfill Gas* ○ Other*: ○ Fuel Oil (Specify Grade):
If Digester or Landfill Gas, List Higher Heating Value: 600
Secondary or Stand-by Fuel: ◉ Natural Gas ○ LPG ○ Refinery Gas* ○ Digester Gas* ○ Landfill Gas* ○ Other*: ○ Fuel Oil (Specify Grade):
If Digester or Landfill Gas, List Higher Heating Value:
* If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content.

Type Of Controls (Check All That Apply)
☒ Low NOx Burner ☒ Flue Gas Recirculation ☒ Oxygen Trim ☐ CO Catalyst[1]
☐ Selective Catalytic Reduction (SCR)[1] ☐ Thermal DeNOx (Selective Non-Catalytic Reduction, SNCR)[1]
☐ Other (specify):
[1] A separate permit is required, please see Form 400-E-GI for instructions.

Fuel Usage
Average Load % OR Average Firing Rate (HHV): 7.60 MMBTU/hr

Section C - Process Description

Operating Parameters
Turn Down Ratio: 4.000 Percent Excess Air: 30.00 %

Operating Schedule
Normal: 24 hours/day 7 days/week 52 weeks/yr
Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info
Signature: [signature] Date: 10/8/12
Title: Regulatory Specialist Company Name: OCSD
Name: Terry Ahn
Phone #: (714) 593-7082 Fax #: (714) 962-2591
Email: tahn@ocsd.com

Contact Info
Name: Terry Ahn
Title: Regulatory Specialist Company Name: OCSD
Phone #: (714) 593-7082 Fax #: (714) 962-2591
Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-E-9a
Emission Calculations

Given

Rating:	10,205,800	BTU/hour
HHV:	600	BTU/ft^3
Operating Schedule:		
	24	hours/day
	7	days/week
	30	days/month
	52	weeks/year
	364	days/year
Fuel Usage:		
	17,009.67	ft^3/hour
	408,232.01	ft^3/day
	12,246,960.24	ft^3/month

Calculations

	EF	EF	HOURLY	DAILY	30 DAY AVE.	30 DAY NSR	ANNUAL
	lbs/mmcf	lb/mmbtu	lbs/hr	lbs/day	lbs/day	lbs/day	lbs/yr
ROG	5.5	0.0092	0.0936	2.2453	2.2685	2	817.2805
NOx	30	0.0145	0.1482	3.5565	3.5933	4	1,294.5723
SOx	40	0.0667	0.6804	16.3293	16.4980	16	5,943.8579
CO	100	0.0737	0.7517	18.0398	18.2262	18	6,566.4770
PM_{10}	7.5	0.0125	0.1276	3.0617	3.0934	3	1,114.4734

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst St, Huntington Beach, CA 92646

(●) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 18.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 14 feet

Stack Inside Diameter: 19.75 inches **Stack Flow:** 941 acfm **Stack Temperature:** 350 °F

Rain Cap Present: (●) Yes ( ) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Dewatering Building **Building #/Name:** _____

Building Height: 27 feet (above ground level) **Building Height:** _____ feet (above ground level)

Building Width: 105 feet **Building Width:** _____ feet

Building Length: 188 feet **Building Length:** _____ feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 950 feet **Distance to nearest business:** 950 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082
	Regulatory Specialist	Preparer's Email: tahn@ocsd.com

Contact Person: Terry Ahn	Contact's Phone#: (714) 593-7082	Date Signed: 10/8/12
Contact's Email: tahn@ocsd.com	Contact's Fax#: (714) 962-2591	

THIS IS A PUBLIC DOCUMENT:

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

Supplemental Information for Boilers

Retrofit of Existing Low NOx Boilers with New Burners at Plant No. 2 (OCSD Job No. P2-106)

Project Overview
OCSD's Capital Improvement Project Job No. P2-106 involves replacing the burners on two existing boilers to meet SCAQMD Rule 1146 NOx emission limits.

Process Description and Design Criteria
The existing boilers are designed to operate on either digester gas or natural gas with digester gas being the primary fuel. The pilot will be designed for operating on natural gas only.

The boiler emission controls will be designed for NOx concentration of 9 ppmv and 15 ppmv for natural gas and digester gas, respectively. Based on historical data at OCSD Plant No. 1, the digester gas heat value averages approximately 600 BTU/ft^3.

The following table and the attached Drawing M1001 provide specific details of the mechanical design of the new burner.

Design Criteria	Value
Boiler Horsepower (Nominal)	250 HP
Minimum Boiler Output	8,400,000 Btu/hr
Rated Burner Fuel Input	10,205,800 Btu/hr
Design Pressure Rating	150 psig
Boiler Water Flow	55 gpm
Stack Emissions – Digester Gas: NOx (Max.)	15 ppm
Stack Emissions – Natural Gas: NOx (Max.)	9 ppm
Overall Dimensions (not to exceed)	228 L by 88 W inches
Vent Stack - Diameter	19.75 inches
Vent Stack – Height (above grade)	18 feet

Operating Schedule
The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year

Project Location
The existing boilers are located in the Boiler Building as shown on the attached Drawings G0001 and G1001.

Project Schedule
The Project P2-106 construction is scheduled to begin in September 2013 and completion of construction is presently scheduled for April 2014.

$\frac{10{,}205{,}800 \text{ Btu/hr}}{600 \text{ Btu/scf}} = 17{,}010 \frac{\text{ft}^3}{\text{hr}}$ DG

Design Drawings

The following drawings are provided:

Description	Drawing Number
Cover Sheet, Vicinity Map, & Location Map	G0001
Plant No. 2 Site Plan	G1001
Boiler Building Demolition Plan	D1001
Boiler Building Mechanical Plan	M1001
Boiler Building Enlarged Plan	M1002

Emissions Estimation

Estimated Emissions of Criteria Pollutants

The estimated criteria pollutant emissions from the new boiler are presented in Table 1 below. These emissions represent the maximum operating schedule of 24 hrs/day and 365 days per year. The emission factors used to calculate the emissions were obtained from the SCAQMD's Emission Fees Report Program. For NOx emissions, see SCAQMD Form 400-E-9a.

Table 1. Summary of Criteria Pollutant Emissions from the Boiler (for Digester Gas)

	EF[1]	Maximum Uncontrolled Emissions	
Compound	(lbs/mmcf)	(lbs/yr)	(lbs/hr)
ROG	6.6	983.43	0.11
SOx	3.5	521.52	0.06
CO	18	2682.08	0.31
PM	15.6	2324.47	0.27

[1]EF = Emission Factors from SCAQMD's Emissions Fees Report.

Estimated Emissions of Toxic Air Contaminants (TAC)

The estimated TAC emissions from the boilers are presented in Table 2, These emissions represent the maximum operating schedule of 24 hrs/day and 365 days per year. The emission factors used to calculate the emissions were obtained from the SCAQMD's MATES-III Report. The Application Screening Indices for Cancer/Chronic and Acute pollutants were both less than 1; therefore, no further health risk analysis was conducted.

Table 2. Summary of TAC Emissions from the Boiler (for Digester Gas)

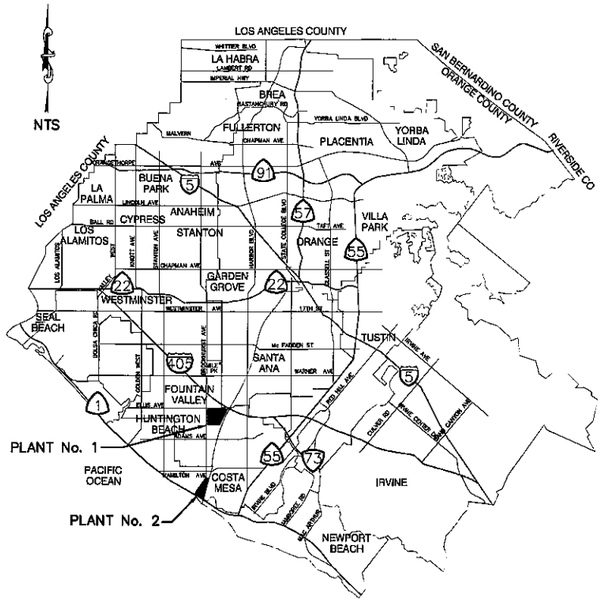
	EF[1]	Maximum Uncontrolled Emissions		Pollutant Screening Levels 100 Meter		Pollutant Screening Index	
Compound	**(lbs/mmcf)**	**(lbs/yr)**	**(lbs/hr)**	**(lbs/yr)**	**(lbs/hr)**	**$PSI_{cancer/chronic}$**	**PSI_{acute}**
Acetaldehyde	0.0031	0.46	5.27E-05	89.2	n/a	5.18E-03	0.00E+00
Benzene	0.0058	0.86	9.87E-05	8.92	3.96	9.69E-02	2.49E-05
Ethyl Benzene	0.0069	1.03	1.17E-04	517,000	n/a	1.99E-06	0.00E+00
Formaldehyde	0.123	18.33	2.09E-03	42.5	0.252	4.31E-01	8.30E-03
Stryene	0.04	5.96	6.80E-04	233,000	56.2	2.56E-05	1.21E-05
Toulene	0.0265	3.95	4.51E-04	77,500	99.1	5.09E-05	4.55E-06
Xylenes	0.0195	2.91	3.32E-04	181,000	58.9	1.61E-05	5.63E-06
				Application Screening Index		**5.33E-01**	**8.35E-03**

[1]EF = Emission Factors from SCAQMD's MATES III Study.

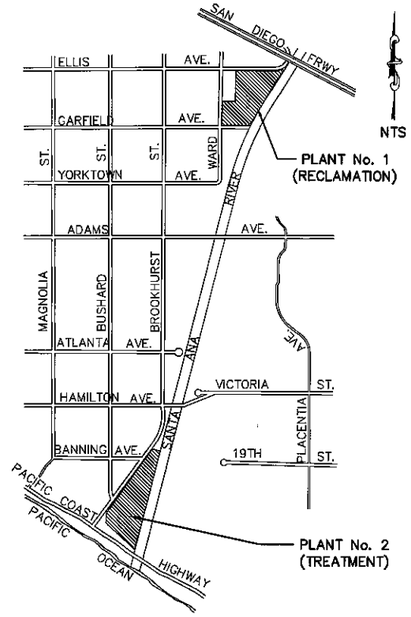
ORANGE COUNTY SANITATION DISTRICT

PROJECT NO. P2-106

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

JUNE 2012

DS3.5, 100%
NOT FOR CONSTRUCTION

ORANGE COUNTY SANITATION DISTRICT
APPROVED

JAMES D. HERBERG – ASSISTANT GENERAL MANAGER
DIRECTOR OF ENGINEERING — DATE:

RECOMMENDED

DEAN M. FISHER – DATE:

PREPARED UNDER THE SUPERVISION OF:

STEVE SCHOCK – PROJECT MANAGER — DATE:

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TOM F., MICHAEL H.
DRAWN BY: DUDEK
CHECKED BY: STEVE D.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"–SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER TOM C. FALK No. 065780 Exp. 6/30/12 CIVIL STATE OF CALIFORNIA

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

ORANGE COUNTY SANITATION DISTRICT

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS

COVER SHEET, VICINITY MAP & LOCATION MAP

PROJECT NO. P2-106
DRAWING NO. G0001
1 OF 26

PROJ # P2-106

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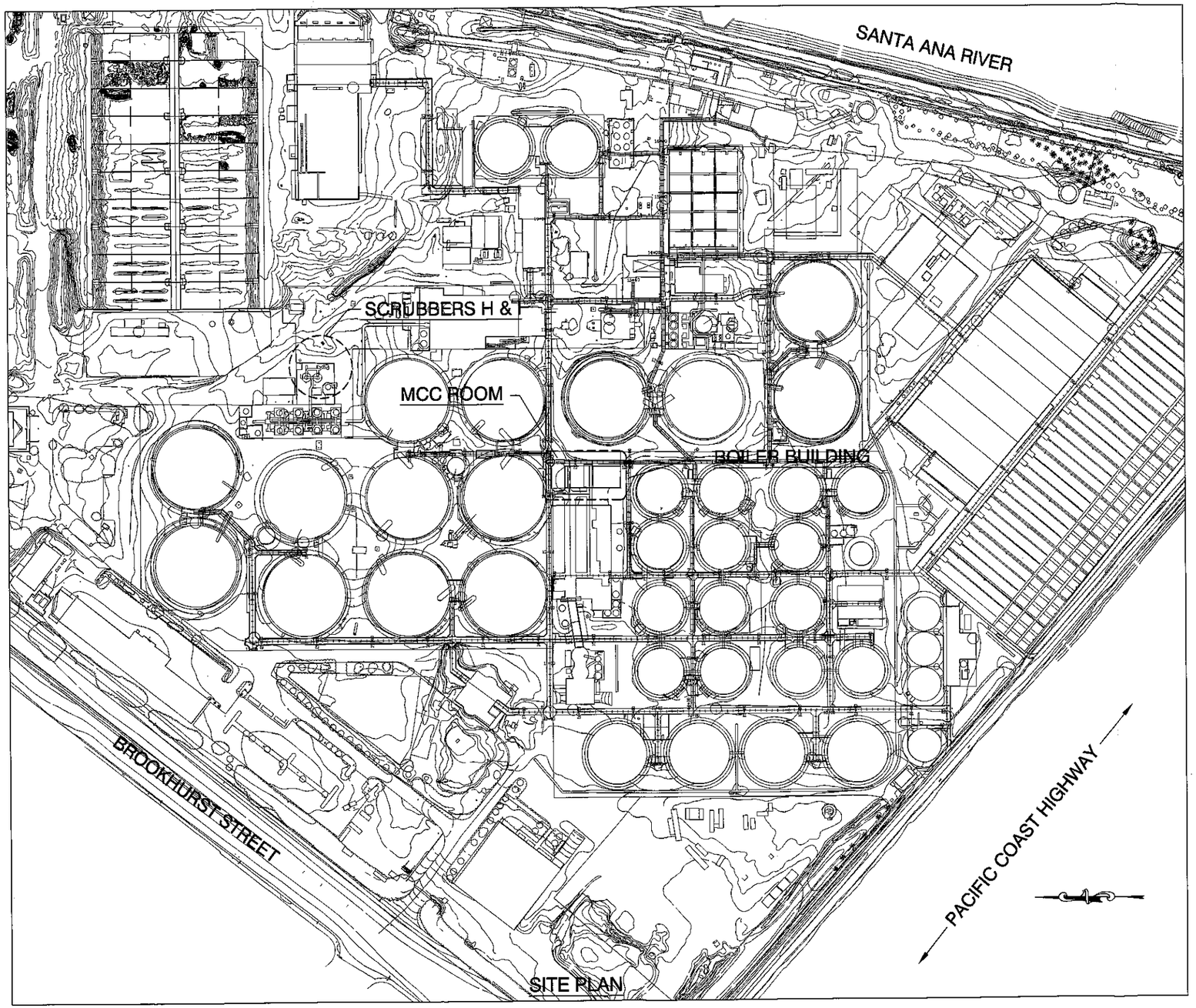

SITE PLAN

NOTES:

1. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR STORAGE OF EQUIPMENT AND MATERIALS OFFSITE. NO PROVISIONS ARE MADE FOR ON-SITE STAGING OR LAYDOWN.
2. CONTRACTOR IS ADVISED OF MULTIPLE ONGOING PROJECTS AT THE PLANT 2 FACILITY. CONTRACTOR SHALL INFORM THE ENGINEER OF CONSTRUCTION SCHEDULES AND ALL WORK SHALL BE CLOSELY COORDINATED WITH OCSD STAFF AND OTHERS PERFORMING WORK AT THE SITE TO AVOID DELAYS AND INTERFERENCE.

100' 50' 0' 100' 200'
1"=100'

DS3.5, 100%
NOT FOR CONSTRUCTION

PHYSICAL ADDRESS:
TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TOM F., MICHAEL H.
DRAWN BY: DUDEK
CHECKED BY: STEVE D.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER TOM C. FALK No. 069780 Exp. 6/30/12 CIVIL STATE OF CALIFORNIA

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

ORANGE COUNTY SANITATION DISTRICT

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS

PLANT NO. 2
SITE PLAN

PROJECT NO. P2-106
DRAWING NO. G1001
4 OF 26

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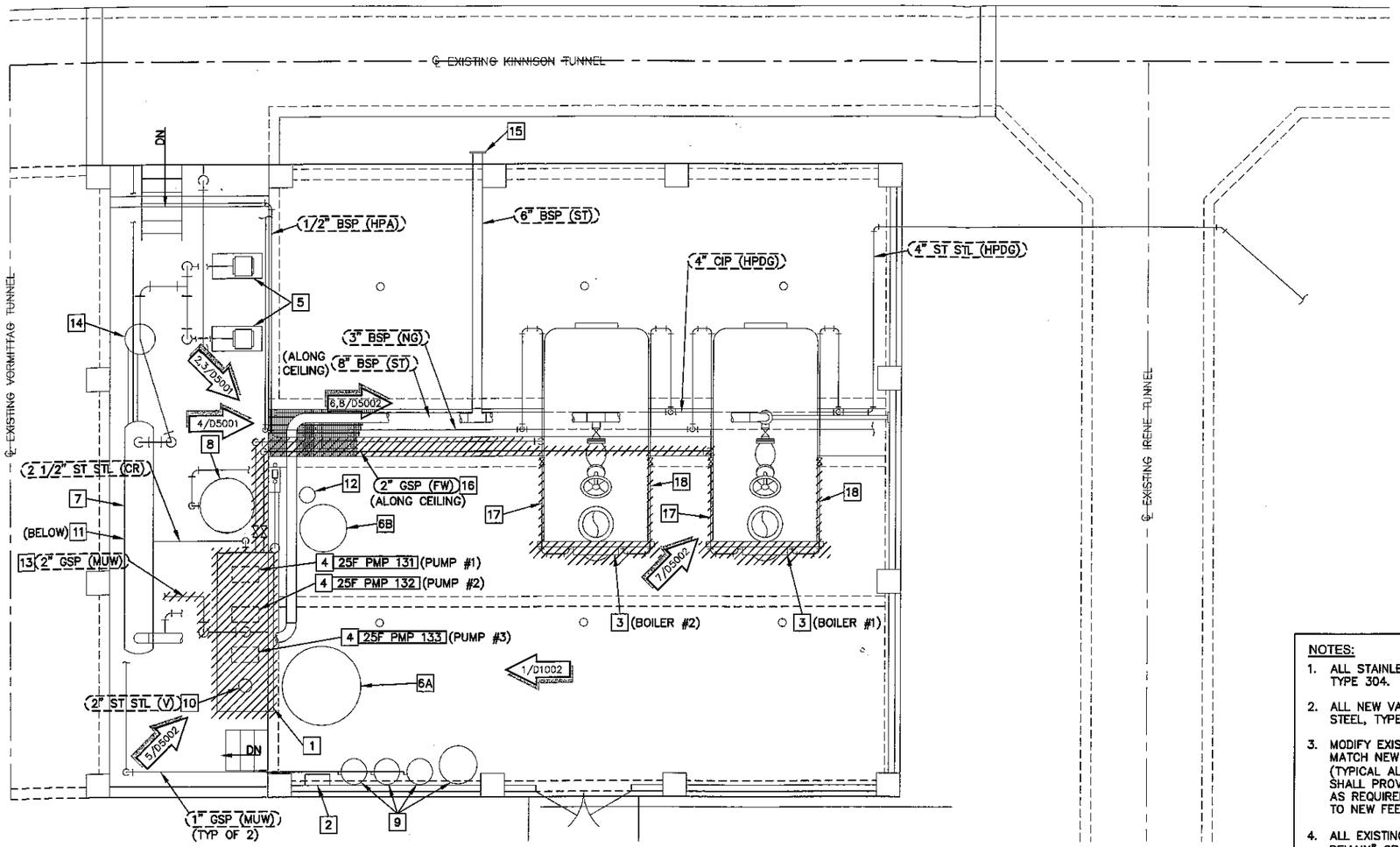

LEGEND

1. FEEDWATER TANK, LEVEL SIGHT GLASS AND CONTROLLER, COLD WATER MAKEUP VALVE, TEMPERATURE GAUGE, TANK SUPPORT AND APPURTENANCES TO BE REMOVED AND DISPOSED OF, OFFSITE BY CONTRACTOR.
2. BOILER FEEDWATER PUMP CONTROL PANEL TO BE REMOVED PER ELECTRICAL DRAWINGS.
3. EXISTING BURNER SYSTEM OF EXISTING FIRETUBE BOILER SHALL BE REMOVED AND DISPOSED TO ALLOW FOR INSTALLATION OF NEW BURNER SYSTEM. EXISTING BOILER DOOR SHALL BE REMOVED, MODIFIED AND REINSTALLED PER REQUIREMENTS OF SECTION 13950 TO ALLOW FOR INSTALLATION OF NEW BURNER SYSTEM. ALL OTHER COMPONENTS NECESSARY TO BE REMOVED TO ALLOW FOR THE INSTALLATION OF THE NEW BURNER SYSTEM SHALL BE REMOVED AND REINSTALLED.
4. FEEDWATER PUMP AND MOTOR TO BE REMOVED AND DISPOSED.
5. HOT WATER CIRCULATION PUMPS TO REMAIN.
6A. CHEMICAL STORAGE TO REMAIN. CONTAINS BOILER WATER TREATMENT CHEMICAL, MANUFACTURED BY GARRATT CALLAHAN, FORMULA 155B. CONTRACTOR TO REFER TO MATERIAL SAFETY DATA SHEET. CONTRACTOR RESPONSIBLE FOR WORKER SAFETY AND CLEANUP.
6B. CHEMICAL STORAGE TO REMAIN. CONTAINS CONDENSATE CORROSION INHIBITOR, MANUFACTURED BY GARRATT CALLAHAN, FORMULA 44. CONTRACTOR TO REFER TO MATERIAL SAFETY DATA SHEET. CONTRACTOR RESPONSIBLE FOR WORKER SAFETY AND CLEANUP.
7. HOT WATER HEADER TO REMAIN; PROTECT IN PLACE.
8. BOILER BLOWDOWN SEPARATOR TO BE RELOCATED, AS NECESSARY; CONNECT NEW PIPING TO EXISTING VERTICAL STACK.
9. WATER SOFTENER TANKS AND CONTAINER TO REMAIN.
10. TANK VENT PIPING TO BE SALVAGED. CONNECT NEW TANK TO EXISTING VENT.
11. CONDENSATE COOLER TO REMAIN.
12. MANUAL CHEMICAL BATCH TANK TO REMAIN.
13. MAKEUP WATER PIPING TO BE REMOVED UP TO METER AT WALL AND REPLACED WITH NEW TYPE 304 ST STL SCH 40 PIPE.
14. EXISTING AIR SEPARATOR TO REMAIN.
15. CONNECTION FOR PORTABLE BOILER.
16. BOILER FEED PIPES TO BE REMOVED AND DISPOSED.
17. NATURAL GAS TRAIN TO BE REMOVED UP TO AND INCLUDING THE MANUAL ISOLATION VALVES (25FPV033 AND 040 FOR BOILER 1 AND 25VPF093 AND 090 FOR BOILER 2) AND REPLACED PER MECHANICAL DRAWINGS.
18. HIGH PRESSURE DIGESTER GAS TRAIN TO BE REMOVED UP TO AND INCLUDING THE MANUAL ISOLATION VALVES (25FPV020 FOR BOILER 1 AND 25FPV070 FOR BOILER 2) AND REPLACED PER MECHANICAL DRAWINGS. CAP 1/2" HIGH PRESSURE AIR PIPING.

NOTES:

1. ALL STAINLESS STEEL PIPING SHALL BE TYPE 304.
2. ALL NEW VALVES SHALL BE STAINLESS STEEL, TYPE 316.
3. MODIFY EXISTING PIPING AS REQUIRED TO MATCH NEW EQUIPMENT FURNISHED (TYPICAL ALL SYSTEMS). CONTRACTOR SHALL PROVIDE MISCELLANEOUS NEW PIPING AS REQUIRED TO CONNECT EXISTING PIPING TO NEW FEEDWATER TANK AND BOILERS.
4. ALL EXISTING EQUIPMENT IDENTIFIED AS "TO REMAIN" OR NOT SPECIFICALLY CALLED OUT SHALL BE PROTECTED IN PLACE. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS TO EXISTING EQUIPMENT AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
5. NOT ALL PIPING AND EQUIPMENT ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING SYSTEMS. ANY EXISTING FACILITIES THAT IMPACT NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

4' 2' 0' 4' 8'
1/4"=1'-0"

DS3.5, 100%
NOT FOR CONSTRUCTION

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TOM F., MICHAEL H.
DRAWN BY: DUDEK
CHECKED BY: STEVE D.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER TOM C. FALK No. 060760 Exp. 6/30/12 CIVIL STATE OF CALIFORNIA

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

ORANGE COUNTY SANITATION DISTRICT

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS

BOILER BUILDING DEMOLITION PLAN

PROJECT NO. P2-106
DRAWING NO. D1001
5 OF 26

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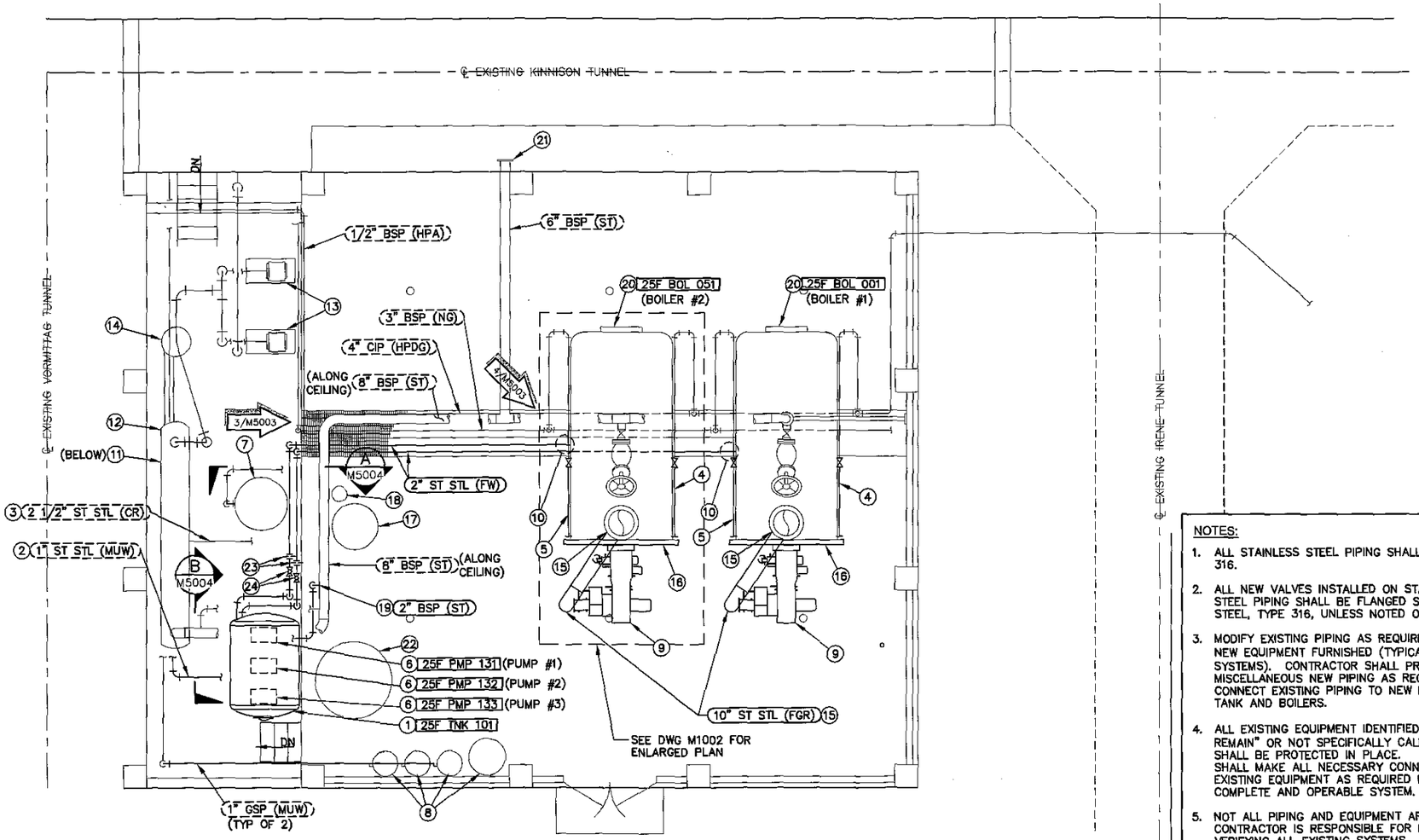

LEGEND

1. PACKAGED BOILER SPRAY DEAERATOR SYSTEM; SEE SPEC SECTION 11820.
2. MAKEUP WATER PIPING TO BE REPLACED UP TO METER AT WALL WITH NEW TYPE 316 STAINLESS STEEL SCH 40 PIPE. CONNECT PIPING TO DEAERATOR SYSTEM.
3. REROUTE AND CONNECT RETURN CONDENSATE PIPING TO DEAERATOR SYSTEM.
4. HIGH PRESSURE DIGESTER GAS TRAIN AND PIPING; CONNECT TO EXISTING GAS PIPING AND NEW BURNER INLETS.
5. NATURAL GAS TRAIN AND PIPING. CONNECT TO EXISTING GAS PIPING AND NEW BURNER INLETS
6. FEEDWATER PUMPS SUPPLIED AS PART OF PACKAGED BOILER SPRAY DEAERATOR SYSTEM; SEE SPEC SECTION 11820.
7. EXISTING BLOW-DOWN SEPARATOR TO REMAIN.
8. EXISTING WATER SOFTENER TANKS AND CONTAINER TO REMAIN.
9. INSTALL BOILER BURNER SYSTEM IN EXISTING BOILER; SEE SPEC SECTION 11850.
10. BOILER FEEDWATER PIPING CONNECTION TO BOILER PER PHOTO 4, DWG M5003.
11. EXISTING CONDENSATE COOLER TO REMAIN.
12. EXISTING HOT WATER CONVERTER TO REMAIN.
13. EXISTING HOT WATER CIRCULATION PUMPS TO REMAIN.
14. EXISTING AIR SEPARATOR TO REMAIN.
15. CONNECT NEW FLUE GAS RETURN PIPING TO EXISTING EXHAUST STACK, 10" BURNER INLET AND 3" BURNER INLET.
16. EXISTING BOILER DOOR SHALL BE REMOVED, MODIFIED AND REINSTALLED PER THE REQUIREMENTS OF SECTION 13950 TO ALLOW INSTALLATION OF THE BURNER SYSTEM.
17. CONDENSATE CORROSION INHIBITOR CHEMICAL STORAGE TANK TO REMAIN; MODIFY PIPING TO CONNECT TO NEW BOILER FEEDWATER PIPES. REUSE ALL VALVES AND PIPING POSSIBLE.
18. MANUAL CHEMICAL BATCH TANK TO REMAIN. MODIFY PIPING TO CONNECT TO NEW BOILER FEEDWATER PIPES. REUSE ALL VALVES AND PIPING POSSIBLE.
19. CONNECT NEW STEAM PIPING AND HIGH PRESSURE DRIP RETURN PIPING TO EXISTING STEAM PIPING AND ROUTE TO NEW DEAERATOR SYSTEM.
20. EXISTING BOILERS SHALL BE REHABILITATED PER REQUIREMENTS OF SECTION 13950.
21. EXISTING STEAM LINE CONNECTION TO MOBILE BOILER PLANT. CONTRACTOR TO FIELD VERIFY PIPE AND LOCATION.
22. BOILER WATER TREATMENT CHEMICAL STORAGE TANK TO REMAIN; MODIFY PIPING TO CONNECT TO NEW BOILER FEEDWATER PIPES. REUSE ALL VALVES AND PIPING POSSIBLE.
23. 3/4" STAINLESS STEEL ORIFICE PLATE, FLANGE MOUNTED.
24. 2" DIAMETER STAINLESS STEEL GLOBE VALVE, FLANGE MOUNTED. CV SHALL NOT EXCEED 46.

NOTES:

1. ALL STAINLESS STEEL PIPING SHALL BE TYPE 316.
2. ALL NEW VALVES INSTALLED ON STAINLESS STEEL PIPING SHALL BE FLANGED STAINLESS STEEL, TYPE 316, UNLESS NOTED OTHERWISE.
3. MODIFY EXISTING PIPING AS REQUIRED TO MATCH NEW EQUIPMENT FURNISHED (TYPICAL ALL SYSTEMS). CONTRACTOR SHALL PROVIDE MISCELLANEOUS NEW PIPING AS REQUIRED TO CONNECT EXISTING PIPING TO NEW FEEDWATER TANK AND BOILERS.
4. ALL EXISTING EQUIPMENT IDENTIFIED AS "TO REMAIN" OR NOT SPECIFICALLY CALLED OUT SHALL BE PROTECTED IN PLACE. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS TO EXISTING EQUIPMENT AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
5. NOT ALL PIPING AND EQUIPMENT ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING SYSTEMS. ANY EXISTING FACILITIES THAT IMPACT NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
6. INSTALL THERMAL EXPANSION JOINTS ON ALL FEEDWATER AND STEAM PIPING PER SECTION 15000.

4' 2' 0' 4' 8'
1/4"=1'-0"

DS3.5, 100%
NOT FOR CONSTRUCTION

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TOM F., MICHAEL H.
DRAWN BY: DUDEK
CHECKED BY: STEVE D.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER TOM C. PALA No. 065780 Exp. 6/30/12 CIVIL STATE OF CALIFORNIA

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

ORANGE COUNTY SANITATION DISTRICT

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS

BOILER BUILDING MECHANICAL PLAN

PROJECT NO. P2-106

DRAWING NO. M1001

11 OF 26

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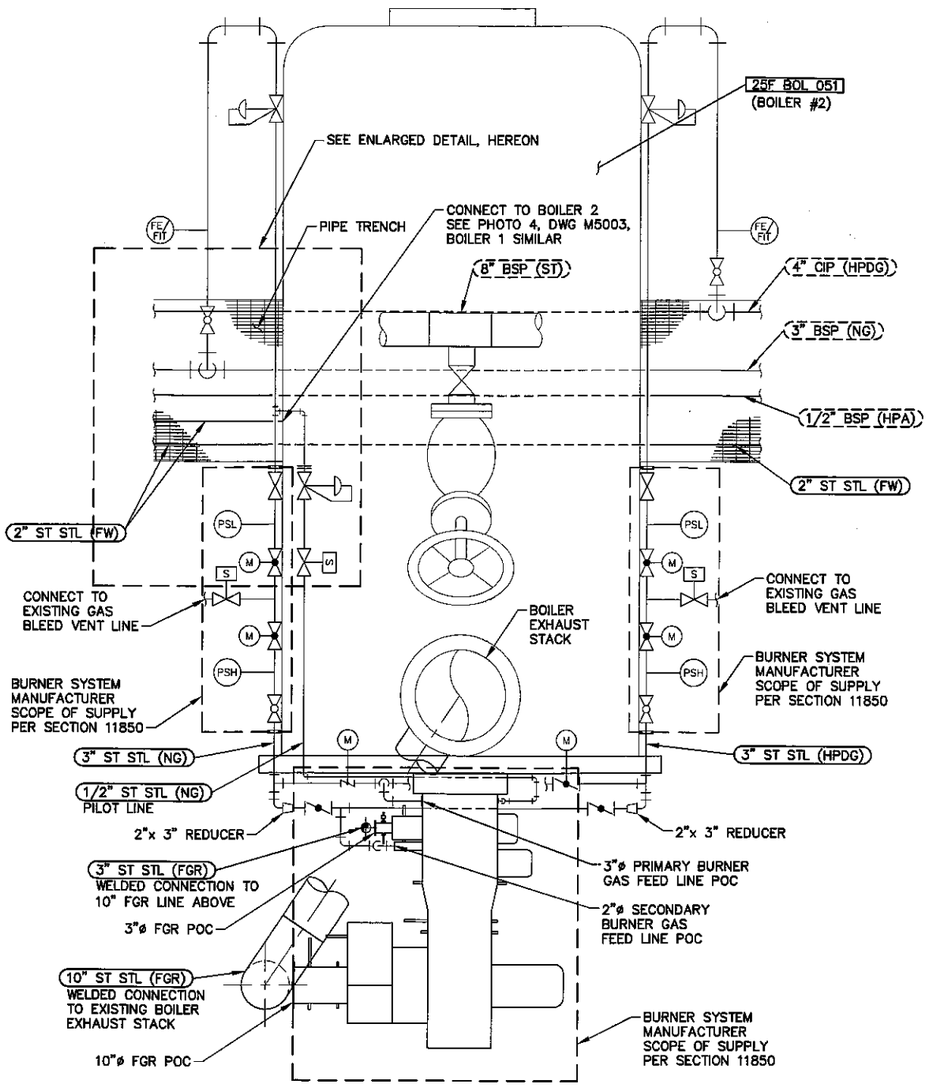

NOTES:

1. ALL STAINLESS STEEL PIPING SHALL BE TYPE 316.
2. ALL NEW VALVES INSTALLED ON STAINLESS STEEL PIPING SHALL BE FLANGED STAINLESS STEEL, TYPE 316, UNLESS OTHERWISE NOTED.
3. NOT USED
4. ALL EXISTING EQUIPMENT IDENTIFIED AS "TO REMAIN" OR NOT SPECIFICALLY CALLED OUT SHALL BE PROTECTED IN PLACE. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS TO EXISTING EQUIPMENT AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
5. NOT ALL PIPING AND EQUIPMENT ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING SYSTEMS. ANY EXISTING FACILITIES THAT IMPACT NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
6. BOILER #2 SHOWN, BOILER #1 SIMILAR
7. INSTALL THERMAL EXPANSION JOINTS ON ALL FEEDWATER AND STEAM PIPING PER SECTION 15000.

DS3.5, 100%
NOT FOR CONSTRUCTION

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TOM F., MICHAEL H.
DRAWN BY: DUDEK
CHECKED BY: STEVE D.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"–SCALE ACCORDINGLY)

REGISTERED PROFESSIONAL ENGINEER TOM C. FALK No. 65780 Exp. 6/30/12 STATE OF CALIFORNIA CIVIL

DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164

ORANGE COUNTY SANITATION DISTRICT

SCRUBBER CONVERSIONS & PIPING SYSTEM IMPROVEMENTS

BOILER BUILDING ENLARGED PLAN

PROJECT NO. P2-106

DRAWING NO. M1002

12 OF 26

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DATE: 6/29/2012 5:19 PM

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext.
(714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM (●) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:
- ( ) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:
- ( ) Title V Application or Amendment (Also submit Form 500-A1)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ( ) Administrative Change
- (●) Alteration/Modification (50)
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:
R-D94232
AN 291031

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 09/23/2013
8b. Estimated End Date of Construction (mm/dd/yyyy): 04/21/2014
8c. Estimated Start Date of Operation (mm/dd/yyyy): 04/21/2014

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Boiler #2, Cleaver Brooks, 10.21 MMBtu/hr, Digester and Natural Gas Fired, Serial No. L-092868

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 1

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System) 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James D. Ruth

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: James D. Ruth James D. Ruth

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☐ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
545005	10000518077	9,243.73		10-18-12 DR

DATE	APP REJ	DATE	APP REJ	CLASS I II	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
12/28/12	GR					031013	AA	AF	11/27/12 SR

(105886) Delinquent Identical T#57 4 of 4

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545005
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 2 WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

      THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
      [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 7	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL. NOs. 545004 rev 545005 rev	DATE 8/20/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CDT

PERMIT TO CONSTRUCT EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION: (A/N 545004, 545005)

BOILER, NO. 1, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

BOILER, NO. 2, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092868, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

Conditions: (A/N 545004, 545005)

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
   [RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)

OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
CARBON MONOXIDE (EXHAUST) (EACH FUEL)
OXYGEN (EACH FUEL)
DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
SCAQMD – ATTN. GAURANG RAWAL
ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOX: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/1/2015)

NOX: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOX: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 GR/SCF, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

BACKGROUND:

On 11/27/12, Orange County Sanitation District (OCSD) submitted the following applications;

A/N 545002 Title V Revision
A/N 545003 Change of permit conditions (and equipment description revision) to current PC 518276 for odor control system (Biofilters) to treat exhaust from the DAFTs.
A/N 545004 Alteration/modification to existing boiler (R-D94235, A/N 291030) to comply with Rule 1146 NOx emission limit.
A/N 545005 Alteration/modification to existing boiler (R-D94232, A/N 291031) to comply with Rule 1146 NOx emission limit. (This is identical equipment to 545004).

Based on 2012 Yr. reported emissions for formaldehyde, the facility is considered a major source for Hazardous Air Pollutants (HAP).

PROCESS DESCRIPTION:

The existing identical boilers are designed to operate on a digester gas (primary fuel) and natural gas (as secondary or standby fuel) to generate steam used in the anaerobic digestion process. These boilers are to be modified with new burners to meet Rule 1146 compliance emission limit for NOx. The new burner is rated at 10,250,800 Btu/hr as compared to existing burner rated at 10.46 MMBTU/hr (2% reduction in heat input rating). The boilers are also being rehabilitated with new ancillary feed water pipes, makeup water pipes, steam pipes, feedwater tank, feedwater pump and motor, and new natural gas and digester gas trains.

EMISSIONS:

Rated Heat input = 10,205,800 Btu/hr
Digester gas, HHV = approx 600 Btu/ft^3
Digester gas, scfm = 10,205,800 Btu/hr /600 Btu/ft^3 x 1hr/60 min = 283.5 scfm
Natural gas, scfm = 10,205,800 Btu/hr /1050 Btu/ft^3 x 1hr/60 min = 162 scfm

Exhaust flow rate (DG) = 3317 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3317 x (460+60=520)/ (460+350=810) = 2129 dscfm at 3% O2
Exhaust flow rate (NG) = 3070 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3070 x (460+60=520)/ (460+350=810) = 1971 dscfm at 3% O2

Check:
Exhaust Flow Rate (NG) = 8710 dscfm/mmbtu, 3% O2, 162 scfm = 1737.8 dscfm at 3% O2

The larger flows will be used to be conservative.

NOx (DG) = (2129 dscfm) (**15** E-06) (1/379) (46) (60) = **0.23 lbs NOx/hr** = 5.52 lbs NOx /day
CO (DG) = (2129 dscfm) (**400** E-06) (1/379) (28) (60) = **3.77 lbs CO/hr** = 90.6 lbs CO/day

NOx (NG) = (1971 dscfm) (**9** E-06) (1/379) (46) (60) = 0.13 lbs NOx/hr = 3.12 lbs NOx /day
CO (NG) = (1971 dscfm) (**400** E-06) (1/379) (28) (60) = 3.49 lbs CO/hr = 83.76 lbs CO/day

Pollutant	EF* Lbs/mmcf	Max. Emissions lbs/hr ($R_1 = R_2$)	lbs/day
CO		3.77+	90.6
NOx		0.23+	5.52
PM= PM_{10}	7.5	0.1276	3.06
ROG	6	0.11	2.6
		(R1= 5.5at 98% DRE)	
SOx	3.5	0.06	1.4

*EF from AQMD Emissions Fees Report/400-E-9
+ Calculated, using DG fuel and burner guarantee/Rule 1146

Maximum Emissions:

Post Modification

Pollutant	Lbs/hr	Lbs/day
CO	3.77	90.6
NOx	0.23	5.52 (3.1 WITH NATURAL GAS)
PM10	0.13	3.1
ROG	0.11	2.6
SOx	0.06	1.4

Pre-Modification

Pollutant	Lbs/hr	Lbs/day
CO	7	168
NOx	0.86	20.6
PM10	0.13	3.1
ROG	0.13	3.1
SOx	0.32	7.7

RULES EVALUATION:

Rule 212: This is not a significant project and there is no school within 1000' of the emission source. Proposed modification is the replacement of existing burner (10.46 MMBTU/hr to a reduced rating (10.205 MMBTU/hr), resulting in net emissions reduction and reduced cancer risk. No public notice is required. Compliance is expected.

Rule 401, 402, 404, 407, and 409: Compliance is expected based on other permitted boilers fired with DG and natural gas.

Rule 431.1: Digester gas is expected to have < 40 ppmv total sulfur as H2S. Facility has an approved alternative monitoring plan. Compliance is expected.

Rule 1146: Boiler emission controls will be designed for NOx at 15ppmv and 9 ppmv, 3% O2, using DG and NG, respectively. Proposed new burner is a low-NOx burner. Boiler retains FGR and O2 trim. Condition is imposed for such limit for the respective fuel, at 3% O2. Rule CO limit =400 ppmv. Rule 1146 (c)(1) (D), Table 1146-1 (Amended Sept. 5, 2008) requires compliance with 15 ppmv NOx, at 3% O2, by January 2015. Also, Group III units (NG) must meet 9 ppmv by same date. Compliance can be determined upon receipt of the S /T results.

REG. XIII: A modification to a permit unit (source) is covered by this regulation, however, Since the new burners will result in no emission increase, there are no BACT, Modeling, or Offset requirements.

Rule 1401: Exempt per R1401 (g) (1) (B), for modification with reduced emissions, hence, reduced cancer risk, HIA and HIC indices.

REG. XXX: Title V Permits

Compliance with Reg. XXX is expected. A/N 545002 for Title V revision is submitted. For this minor revision no public notice is required but subject to 45-day EPA review. Approved boiler permit will be included under Title V revision.

40CFR Part 60 (Regulation IX of SCAQMD Rules)

- **Subpart D** of 40 CFR Part 60 - New Source Performance Standards for Fossil Fuel Fired Steam Generators constructed after August 17, 1971
- **Subpart Da** of 40 CFR Part 60 - New Source Performance Standards for Electric Utility Steam Generating Units constructed after September 18, 1978
- **Subpart Db** of 40 CFR Part 60 - New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units constructed after June 19, 1984
- **Subpart Dc** of 40 CFR Part 60 - New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units constructed after June 9, 1989

These boilers were constructed after June 9, 1989 (actually in 1994), and therefore subject to Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

§ 60.40c - Applicable for this boiler (heat input >10 mmbtu/hr and <= 100 mmbtuh).
§ **60.42c - 60.47c** – Emission limits, testing, monitoring for Sox and PM are not applicable to this equipment which only burn digester gas and natural gas.
§ 60.48c – Initial notification only.

Since the initial notification requirement is a prior requirement, no specific Dc permit conditions will be imposed.

National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR part 63 subpart DDDDD for Industrial, Commercial, and Institutional and Process Heaters
The facility is a Major Source for hazardous air pollutants (HAPs) based on toxic pollutants' emissions reported for the year 2012, as Formaldehyde emission was 25, 480 lbs/yr (12.74 TPY > 10 TPY, definition for HAP major source). OCSD confirmed reported formaldehyde emissions, email of 7/17/13.

The boiler is subject to subpart DDDDD compliance requirements, initial notification only:

- Boiler can be classified as an Industrial boiler used for processing or used in an industry to provide steam, hot water, and/or electricity.
- It is designed to burn gas 1 fuels; means a gaseous fuel that is not natural gas or refinery gas and does not exceed a maximum concentration of 40 micrograms/cubic meters of mercury.
- It meets the large gaseous fuel subcategory.
- **Per § 63.7500 (e)**, boilers and process heaters in the units designed to burn gas 1 fuels subcategory **are not subject to** the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart.
- **Per § 63.7506 (b)(1),** Existing large gaseous fuel unit are subject only to initial notification (i.e., not subject to emission limits, work practice standards, performance testing, monitoring, SSMP, plans, recordkeeping, or reporting).

Since the initial notification requirement is a prior requirement, no specific DDDDD permit conditions will be imposed

CONCLUSION/RECOMMENDATION:
The above boiler is expected to comply with all applicable AQMD's Rules and Regulations. A Permit to Construct is recommended subject to conditions, and upon 45-day EPA review for the Title V Facility Permit revision.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 28, 2012

TERRY AHN
ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

Facility ID: 29110
Located at: 22212 BROOKHURST ST, HUNTINGTON BEACH

Thank you for filing your application(s) with the South Coast Air Quality Management District (AQMD).

The application number(s) assigned by AQMD to your application package(s) is/are on Page 2 of this letter. Please refer to information on Page 2 when contacting AQMD for assistance. The information you submitted with your application(s) or in your latest submittal is complete to the extent that allows us to begin processing of your however some clarifying data may still be needed. The acceptance of your application(s) does not imply that permit(s) has/have been approved.
The engineer assigned to your application(s) will contact you if additional information is required.

If you have any questions or need additional information about your application(s), please contact the engineer listed below:

Engineer: GAURANG RAWAL **Telephone:** (909) 396-2543

For general information about AQMD's permit process, please call (909) 396-2468.

cc: Application file(s)

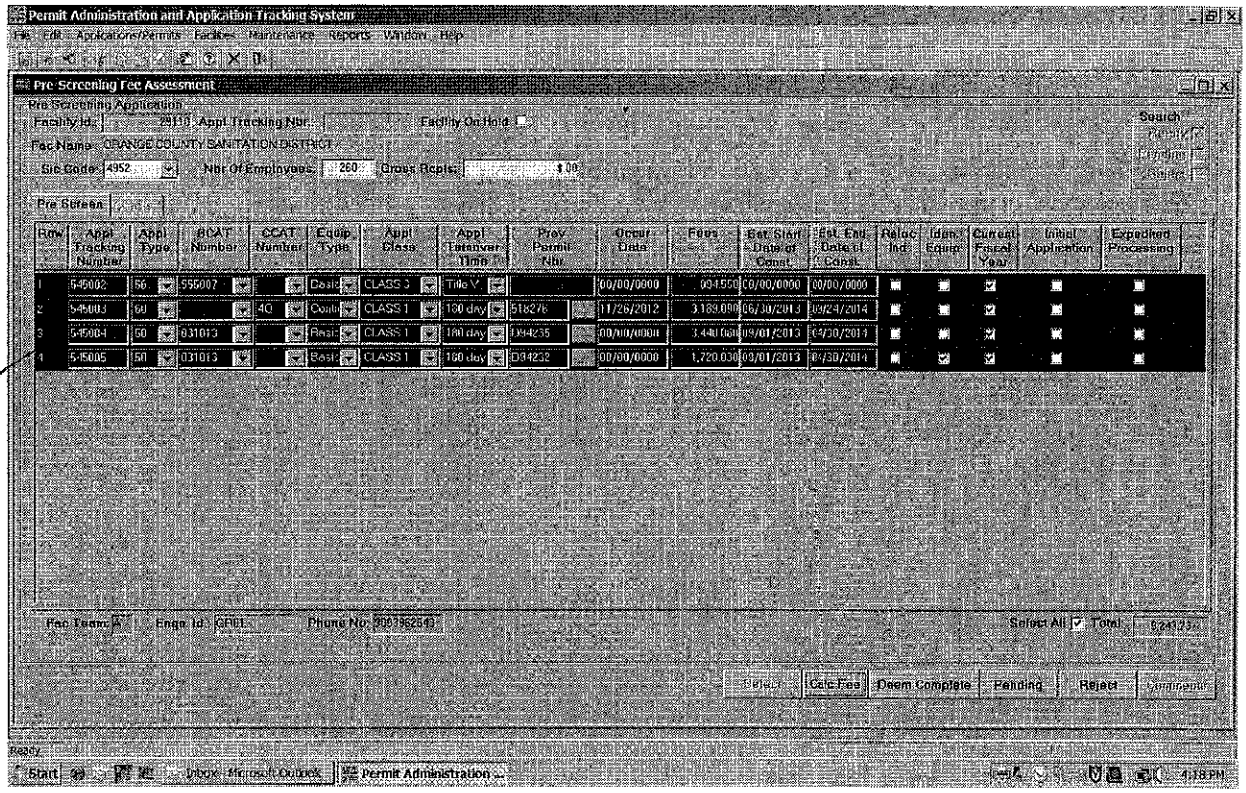
AQMD PERMIT APPLICATION INFORMATION

(Please refer to this information when contacting AQMD for Assistance)

December 28, 2012

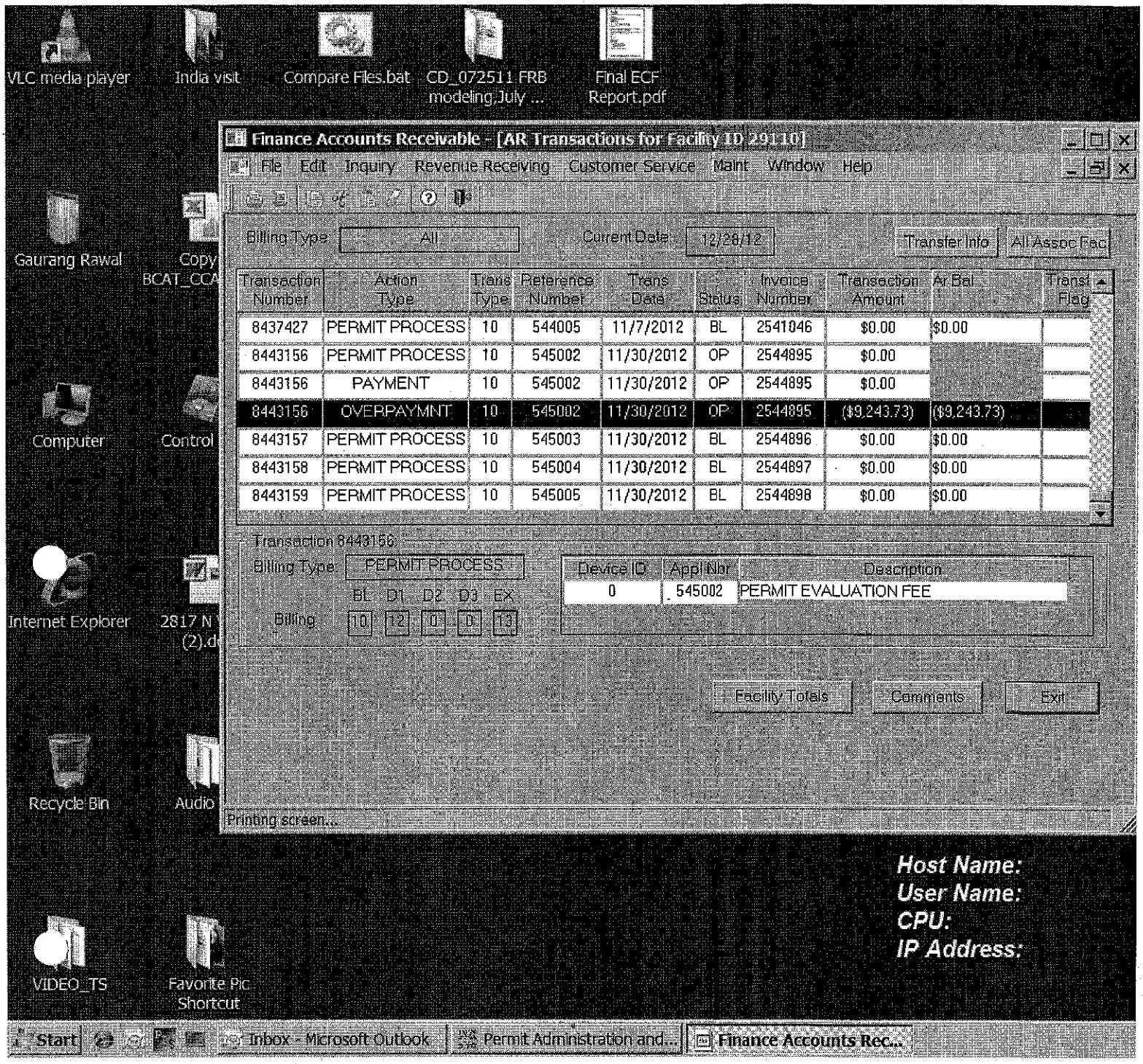
Facility ID: 29110

Application Number (s)	Equipment Description	
545002	Title V Permit Revision	
545003	ODOR CONTROL UNIT – Biofilter	
545004	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG
545005	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG – identical



identical to AN 545004

12/28/2012


VLC media player
India visit
Compare Files.bat
CD_072511 FRB modeling July ...
Final ECF Report.pdf
Finance Accounts Receivable - [AR Transactions for Facility ID 29110]
File Edit Inquiry Revenue Receiving Customer Service Maint Window Help
Billing Type: All
Current Date: 12/28/12
Transfer Info
All Assoc Fac
Transaction Number | Action Type | Trans Type | Reference Number | Trans Date | Status | Invoice Number | Transaction Amount | Ar Bal | Transt Flag
8437427 | PERMIT PROCESS | 10 | 544005 | 11/7/2012 | BL | 2541046 | $0.00 | $0.00
8443156 | PERMIT PROCESS | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | PAYMENT | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | OVERPAYMNT | 10 | 545002 | 11/30/2012 | OP | 2544895 | ($9,243.73) | ($9,243.73)
8443157 | PERMIT PROCESS | 10 | 545003 | 11/30/2012 | BL | 2544896 | $0.00 | $0.00
8443158 | PERMIT PROCESS | 10 | 545004 | 11/30/2012 | BL | 2544897 | $0.00 | $0.00
8443159 | PERMIT PROCESS | 10 | 545005 | 11/30/2012 | BL | 2544898 | $0.00 | $0.00
Transaction 8443156
Billing Type: PERMIT PROCESS
BL D1 D2 D3 EX
Billing 10 12 0 0 13
Device ID | Appl Nbr | Description
0 | 545002 | PERMIT EVALUATION FEE
Facility Totals
Comments
Exit
Printing screen...
Gaurang Rawal
Copy BCAT_CCA
Computer
Control
Internet Explorer
2817 N (2).d
Recycle Bin
Audio
VIDEO_TS
Favorite Pic Shortcut
Host Name:
User Name:
CPU:
IP Address:
Start
Inbox - Microsoft Outlook
Permit Administration and...
Finance Accounts Rec...

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. R-D94232
A/N 291031

Equipment Description:

BOILER, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092868, 10.46 MMBTU PER HOUR, DIGESTER GAS AND NATURAL GAS FIRED WITH LO-NOx BURNERS AND FLUE GAS RECIRCULATION (FGR) SYSTEM.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY.
[RULE 204]

4. CSDOC SHALL PROPERLY MAINTAIN AND OPERATE A DRY GAS METER TO MEASURE THE QUANTITY (IN CFM) OF DIGESTER GAS USED IN THIS EQUIPMENT.
[RULE 1146; RULE 1303(b) (1), (b) (2)-MODELING AND OFFSETS]

5. RECORDS OF THE DAILY FUEL USAGE OF THIS EQUIPMENT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

6. EMISSIONS OF NOx SHALL NOT EXCEED 40 PPM REFERENCED AT 3% 02 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.
[RULE 1146]

7. EMISSIONS OF CO SHALL NOT EXCEED 400 PPM REFERENCED AT 3% 02 ON A DRY BASIS, AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.
[RULE 1146]

8. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(A) (1)-BACT]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions And Requirements:

9. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, RULE 1146
NOx	30 PPMV, RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53

10. THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE CO AND NOx EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 10.1 (METHOD 7.1 FOR NOx); OR (b) CONDUCTING A TEST AT LEAST ANNUALLY USING A PORTABLE ANALYZER AND AQMD-APPROVED TEST METHOD.. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 3004 (a) (4)]

THIS PERMIT TO OPERATE R-D94232 SUPERSEDES PERMIT TO OPERATE D94232 ISSUED 11/06/1995.

Serving:
Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

Orange County Sanitation District

10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

October 8, 2012

Permit Services
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

SUBJECT: Application for Title V Permit Revision for Orange County Sanitation District Plant No. 2 (Facility ID No. 029110): Modification of Permit-to-Construct Odor Control System for Dissolved Air Floatation Thickening Process (A/N 518276) and Modification of Permits-to-Operate Boilers (Permit Nos. R-D94232 and R-D94235)

Enclosed with this letter is an application for Title V permit revision for Orange County Sanitation District's Wastewater Treatment Plant No. 2. The Title V permit revision is requested for the following:

1. Modification Permit-to-Construct Odor Control System A/N 518276 which allows the construction of a new odor control system for the existing Dissolved Air Floatation Thickening Facility. The construction of the new odor control system is currently underway.

   The main purpose of the permit modification is to change Condition No. 11, which imposes an extremely stringent exhaust H_2S limit, prior to the completion of the construction. We are also requesting changes to the Equipment Description and other Conditions in order to streamline the permit and ensure operational flexibility. The proposed changes are provided in the attached Supplemental Information for Odor Control System.

2. Modification of Permits-to-Operate Nos. R-D94232 and R-D94235 which allow operation of two gas-fired steam boilers. These boilers will be retrofitted with new burners in order to comply with Rule 1146 NOx emission limits. Additional information is provided in the attached Supplemental Information for Boilers.

Enclosed with this letter are:

- (1) SCAQMD Form 500-A1: Title V Application Submittal
- (1) SCAQMD Form 500-A2: Title V Application Certification
- (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
- Modification of Existing Permit-to-Construct Odor Control System A/N 518276
  - (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Page 2 Only)
  - Supplemental Information for Odor Control System
- Modification of Permits-to-Operate Nos. R-D94232 and R-D94235
  - (2) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA with Notice of Exemption
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Pages 2 and 4 Only)
  - (1) SCAQMD Form 400-E-9a External Combustion: Boiler/Heater
  - (1) SCAQMD Form 400-PS Plot Plan And Stack Information
  - Supplemental Information for Boilers

- A check in the amount of $9,243.73 ($894.55 for Title V Permit Revision; $3,189.09 for Odor Control System; and $5,160.09 for Boilers) for application processing fee

If you have any questions or require further information, please contact Terry Ahn at (714) 593-7082 or tahn@ocsd.com.

James Colston
Environmental Compliance Manager

TA:JC:jb
H:\dept\eng\790\Groups\Compliance\Staff\ahn\Permitting Projects\P2-89_P2-106\P2-89_P2-106_ApplCvr.doc

Enclosure(s)

cc: V. Kogan (w/o enclosures)
Gaurang Rawal (SCAQMD)

Notice of Exemption

To: ☐ Office of Planning and Research
P0 Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 958 12-3044

☒ County Clerk
County of Orange
12 Civic Center Plaza , P.O. Box 238
Santa Ana, CA 92701-0238

From: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Recorded in Official Records, Orange County
Tom Daly, County Recorder
NO FEE
201185000440 3:06 pm 04/14/11
281 OR03 Z01
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

Project Title: Chemical Scrubber Conversions and Piping System Improvements, Project No. P2-106

Project Location — 22212 Brookhurst Street Huntington Beach CA 92646

Project Location — City: Huntington Beach **Project Location — County:** Orange

Description of Project:

This project will convert existing chemical scrubbers to biotrickling filters (BTF) by replacing the internal equipment within the scrubber towers; install multiple booster pumps in the dewatering building plant water supply line(s); and replace 2 boilers and rehabilitate the boiler feed water system. There is no new capacity being added to the systems and minimal excavation.

Name of Public Agency Approving Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Name of Person or Agency Carrying Out Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

POSTED
APR 14 2011
TOM DALY, CLERK-RECORDER
By _____ DEPUTY

Exempt Status: (check one)

☐ Ministerial (Sec. 21080(b)(1); 15268);
☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
☒ Categorical Exemption. State type and section number: 15301(b) Class 1
☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:

This project will convert only replace existing equipment internal to the scrubber towers; install pumps to increase water pressure but not capacity; and replace 2 boilers and rehabilitate the boiler feed water system with similar sized units. These are utility systems owned and operated by a utility operator with no new capacity being added to the systems with minimal excavation.

Lead Agency
Contact Person: Jim Burror Area Code/Telephone/Extension: (714) 593-7335

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: _____ Date: 4/13/11 Title: Engineering Supervisor

FILED

☒ Signed by Lead Agency

Date received for filing at OPR: APR 14 2011

☒ Signed by Applicant

TOM DALY, CLERK-RECORDER
By _____ DEPUTY

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2011 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 413633

STATE CLEARING HOUSE # (If applicable) N/A

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: Orange County Sanitation District — DATE: 4-14-11

COUNTY/STATE AGENCY OF FILING: County of Orange — DOCUMENT NUMBER: 201185000440

PROJECT TITLE: Chemical Scrubber Conversions & Piping System Improv No. P2-106

PROJECT APPLICANT NAME: Orange County Sanitation District — PHONE NUMBER: 714 593 733[illegible]

PROJECT APPLICANT ADDRESS: 10844 Ellis Ave — CITY: Fountain Valley — STATE: Ca — ZIP CODE: 92708

PROJECT APPLICANT *(Check appropriate box):*

☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,839.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,044.00	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ ~~Projects Subject to Certified Regulatory Programs (CRP)~~	~~$965.50~~	$
☐ County Administrative Fee	$50.00	$ 0
☒ Project that is exempt from fees		
☒ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other		$ 0

PAYMENT METHOD:

☐ Cash ☐ Credit ☐ Check ☐ Other — TOTAL RECEIVED $ 0

SIGNATURE: X Priscilla Gonzales — TITLE: Deputy

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDEN ROD - COUNTY CLERK FG753.5a (Rev. 11/10)

Orange County
Clerk/Recorder's Office
Tom Daly

630N Broadway Bldg. 12 Suite
101
Santa Ana, CA, 92701

County

Finalization: 20110000091126
4/14/11 3:06 PM
291 0803

Item	Title	Count
1	701	1
	EIR Administrative Fee	Amount
	Document ID	
DOC# 201185000440		50.00
Time Recorded 3:05 PM		

Total	0.00
Payment Type	Amount
	50.00
	0.00

THANK YOU
PLEASE RETAIN THIS RECEIPT
FOR YOUR RECORDS
www.ocrecorder.com

South Coast Air Quality Management District

Form 400-CEQA

California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Project Description:

Replace burners on existing digester gas and natural gas fired boilers in order to meet January 1, 2015 NOx emission limits as set forth in SCAQMD Rule 1146.

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	◉	○	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
7.	○	◉	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If "**Yes**" is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	○	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	○	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	○	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	○	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	**Part II - Air Quality (cont.)**
5.	○	○	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	○	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	○	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	○	**a. the need for more than 350 new employees?**
	○	○	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	○	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	○	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	○	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	○	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

REMINDER: *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.*

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm:
James D. Ruth		General Manager
3. Print Name of Responsible Official of Firm:		4. Date Signed:
James D. Ruth		10-10-12
5. Phone # of Responsible Official of Firm:	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm:
(714) 593-7110	(714) 968-4389	jruth@ocsd.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer:
		Regulatory Specialist
10. Print Name of Preparer:		11. Date Signed:
Terry Ahn		10/8/12
12. Phone # of Preparer:	13. Fax # of Preparer:	14. Email of Preparer:
(714) 593-7082	(714) 962-2591	tahn@ocsd.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

11/9/2012

ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

RE: Application Tracking Number(s) 544003

Facility ID: 29110

Thank you for filing your permit application(s) with the South Coast Air Quality Management District. Your application(s) and processing fee payment (if any) are being returned because of delinquent fees pursuant to Rule 301 - Permit Fees (c)(1)(A), (c)(2)(C), (c)(3), (o)(5), (o)(6), (o)(7), or (p)(2). Rule 301 - Permit Fees requires that all delinquent fees associated with a facility be paid before any application can be accepted.

The South Coast Air Quality Management cannot accept your application(s) until you:

1) Call our **Customer Service Section** to determine the nature of the fees that must be paid prior to accepting your application(s). The toll free number is (866) 888-8838. Outside California, call (909) 396-2900. Please reference Facility ID Number 29110. Then,

2) Return the application(s), the permit processing fee for the application(s), and **a separate payment for all outstanding fees to:**

South Coast AQMD
P.O. Box 4944
Diamond Bar, CA 91765

In addition, please submit the requested information listed below:

Other Reasons:

Application and check returned due to unpaid fees. Please return application, check and a separate check for the unpaid fees so that your permit can be processed. If you have any questions about the fees due, please call Billing Services at 909-396-2900. Thank you.

Following these instructions is the fastest, most efficient way to get your application(s) accepted by South Coast AQMD.

South Coast Air Quality Management District

Form 400-E-9a
External Combustion: Boiler/Heater

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

22212 Brookhurst St, Huntington Beach, CA 92646 (●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Boiler/Heater

Manufacturer: Cleaver Brooks Model: CB700-250 Serial No.: L-092869

Max. Heat Input Rating (Higher Heating Value - HHV): 10,205,800 BTU per hour

Boiler Type: ( ) Water-Tube (●) Fire-Tube

Burner

Manufacturer: American Combustion Tech. or Equal Model: SLE-05-250 or Equal

Number of burners: 1 Rating of each burner (HHV): 10,205,800

Type: (●) Low NOx (please attach manufacturer's specifications) ( ) Other:

Blower

HP: 7.5

Fuel Type

Primary Fuel: ( ) Natural Gas ( ) LPG ( ) Refinery Gas* (●) Digester Gas* ( ) Landfill Gas* ( ) Other*: ( ) Fuel Oil (Specify Grade):

If Digester or Landfill Gas, List Higher Heating Value: 600

Secondary or Stand-by Fuel: (●) Natural Gas ( ) LPG ( ) Refinery Gas* ( ) Digester Gas* ( ) Landfill Gas* ( ) Other*: ( ) Fuel Oil (Specify Grade):

If Digester or Landfill Gas, List Higher Heating Value:

* If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content.

Type Of Controls (Check All That Apply)

[X] Low NOx Burner [X] Flue Gas Recirculation [X] Oxygen Trim [ ] CO Catalyst[1]
[ ] Selective Catalytic Reduction (SCR)[1] [ ] Thermal DeNOx (Selective Non-Catalytic Reduction, SNCR)[1]
[ ] Other (specify):

[1] A separate permit is required, please see Form 400-E-GI for instructions.

Fuel Usage

Average Load % OR Average Firing Rate (HHV): 7.60 MMBTU/hr

Section C - Process Description

Operating Parameters

Turn Down Ratio: 4.000 Percent Excess Air: 30.00 %

Operating Schedule

Normal:	24	hours/day	7	days/week	52 weeks/yr
Maximum:	24	hours/day	7	days/week	52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 10/8/12
Title: Regulatory Specialist Company Name: OCSD
Name: Terry Ahn
Phone #: (714) 593-7082 Fax #: (714) 962-2591
Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn
Title: Regulatory Specialist Company Name: OCSD
Phone #: (714) 593-7082 Fax #: (714) 962-2591
Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. [ ]

South Coast Air Quality Management District

Form 400-E-9a
Emission Calculations

Given

Rating:	10,205,800	BTU/hour
HHV:	600	BTU/ft^3
Operating Schedule:		
	24	hours/day
	7	days/week
	30	days/month
	52	weeks/year
	364	days/year
Fuel Usage:		
	17,009.67	ft^3/hour
	408,232.01	ft^3/day
	12,246,960.24	ft^3/month

Calculations

	EF	EF	HOURLY	DAILY	30 DAY AVE.	30 DAY NSR	ANNUAL
	lbs/mmcf	lb/mmbtu	lbs/hr	lbs/day	lbs/day	lbs/day	lbs/yr
ROG	5.5	0.0092	0.0936	2.2453	2.2685	2	817.2805
NOx	30	0.0145	0.1482	3.5565	3.5933	4	1,294.5723
SOx	40	0.0667	0.6804	16.3293	16.4980	16	5,943.8579
CO	100	0.0737	0.7517	18.0398	18.2262	18	6,566.4770
PM_{10}	7.5	0.0125	0.1276	3.0617	3.0934	3	1,114.4734

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst St, Huntington Beach, CA 92646

(●) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 18.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 14 feet

Stack Inside Diameter: 19.75 inches **Stack Flow:** 941 acfm **Stack Temperature:** 350 °F

Rain Cap Present: (●) Yes ( ) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Dewatering Building **Building #/Name:** _____

Building Height: 27 feet (above ground level) **Building Height:** _____ feet (above ground level)

Building Width: 105 feet **Building Width:** _____ feet

Building Length: 188 feet **Building Length:** _____ feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 950 feet **Distance to nearest business:** 950 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082
	Regulatory Specialist	Preparer's Email: tahn@ocsd.com

Contact Person: Terry Ahn	Contact's Phone#: (714) 593-7082	Date Signed: 10/8/12
Contact's Email: tahn@ocsd.com	Contact's Fax#: (714) 962-2591	

THIS IS A PUBLIC DOCUMENT.

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Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

Supplemental Information for Boilers

Retrofit of Existing Low NOx Boilers with New Burners at Plant No. 2 (OCSD Job No. P2-106)

Project Overview
OCSD's Capital Improvement Project Job No. P2-106 involves replacing the burners on two existing boilers to meet SCAQMD Rule 1146 NOx emission limits.

Process Description and Design Criteria
The existing boilers are designed to operate on either digester gas or natural gas with digester gas being the primary fuel. The pilot will be designed for operating on natural gas only.

The boiler emission controls will be designed for NOx concentration of 9 ppmv and 15 ppmv for natural gas and digester gas, respectively. Based on historical data at OCSD Plant No. 1, the digester gas heat value averages approximately 600 BTU/ft^3.

The following table and the attached Drawing M1001 provide specific details of the mechanical design of the new burner.

Design Criteria	Value
Boiler Horsepower (Nominal)	250 HP
Minimum Boiler Output	8,400,000 Btu/hr
Rated Burner Fuel Input	10,205,800 Btu/hr
Design Pressure Rating	150 psig
Boiler Water Flow	55 gpm
Stack Emissions – Digester Gas: NOx (Max.)	15 ppm
Stack Emissions – Natural Gas: NOx (Max.)	9 ppm
Overall Dimensions (not to exceed)	228 L by 88 W inches
Vent Stack - Diameter	19.75 inches
Vent Stack – Height (above grade)	18 feet

Operating Schedule
The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year

Project Location
The existing boilers are located in the Boiler Building as shown on the attached Drawings G0001 and G1001.

Project Schedule
The Project P2-106 construction is scheduled to begin in September 2013 and completion of construction is presently scheduled for April 2014.

Design Drawings

The following drawings are provided:

Description	Drawing Number
Cover Sheet, Vicinity Map, & Location Map	G0001
Plant No. 2 Site Plan	G1001
Boiler Building Demolition Plan	D1001
Boiler Building Mechanical Plan	M1001
Boiler Building Enlarged Plan	M1002

Emissions Estimation

Estimated Emissions of Criteria Pollutants

The estimated criteria pollutant emissions from the new boiler are presented in Table 1 below. These emissions represent the maximum operating schedule of 24 hrs/day and 365 days per year. The emission factors used to calculate the emissions were obtained from the SCAQMD's Emission Fees Report Program. For NOx emissions, see SCAQMD Form 400-E-9a.

Table 1. Summary of Criteria Pollutant Emissions from the Boiler (for Digester Gas)

	EF[1]	Maximum Uncontrolled Emissions	
Compound	(lbs/mmcf)	(lbs/yr)	(lbs/hr)
ROG	6.6	983.43	0.11
SOx	3.5	521.52	0.06
CO	18	2682.08	0.31
PM	15.6	2324.47	0.27

[1]EF = Emission Factors from SCAQMD's Emissions Fees Report.

Estimated Emissions of Toxic Air Contaminants (TAC)

The estimated TAC emissions from the boilers are presented in Table 2, These emissions represent the maximum operating schedule of 24 hrs/day and 365 days per year. The emission factors used to calculate the emissions were obtained from the SCAQMD's MATES-III Report. The Application Screening Indices for Cancer/Chronic and Acute pollutants were both less than 1; therefore, no further health risk analysis was conducted.

Table 2. Summary of TAC Emissions from the Boiler (for Digester Gas)

	EF[1]	Maximum Uncontrolled Emissions		Pollutant Screening Levels 100 Meter		Pollutant Screening Index	
Compound	**(lbs/mmcf)**	**(lbs/yr)**	**(lbs/hr)**	**(lbs/yr)**	**(lbs/hr)**	**$PSI_{cancer/chronic}$**	**PSI_{acute}**
Acetaldehyde	0.0031	0.46	5.27E-05	89.2	n/a	5.18E-03	0.00E+00
Benzene	0.0058	0.86	9.87E-05	8.92	3.96	9.69E-02	2.49E-05
Ethyl Benzene	0.0069	1.03	1.17E-04	517,000	n/a	1.99E-06	0.00E+00
Formaldehyde	0.123	18.33	2.09E-03	42.5	0.252	4.31E-01	8.30E-03
Stryene	0.04	5.96	6.80E-04	233,000	56.2	2.56E-05	1.21E-05
Toulene	0.0265	3.95	4.51E-04	77,500	99.1	5.09E-05	4.55E-06
Xylenes	0.0195	2.91	3.32E-04	181,000	58.9	1.61E-05	5.63E-06
				Application Screening Index		**5.33E-01**	**8.35E-03**

[1]EF = Emission Factors from SCAQMD's MATES III Study.

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: ○ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 962-2591
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 962-2591
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ○ Not In RECLAIM or Title V ○ In RECLAIM ◉ In Title V ○ In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:

- ○ Title V Application or Amendment (Refer to Title V Matrix)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ○ Administrative Change
- ◉ Alteration/Modification (50)
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application

If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

G2958
480908

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 03/26/2014

8b. Estimated End Date of Construction (mm/dd/yyyy): 10/18/2016

8c. Estimated Start Date of Operation (mm/dd/yyyy): 10/18/2016

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Installation of CatOx/SCR system on Internal Combustion Engine (CG1-HB), 4177 HP, Nat Gas/Digester Gas Fired

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ◉ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? ◉ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ◉ Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ◉ No ○ Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James D. Ruth

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ○ No ◉ Yes

20. Print Name: James D. Ruth

21. Date: 12-5-13

22. Do you claim confidentiality of data? (If Yes, see instructions.) ◉ No ○ Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	546364	1000053307	$ 15138.13		1/8/13 me

DATE	APP REJ	DATE	APP	CLASS	BASIC	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
3/13/13	GCR APP		REJ	I III	CONTROL	2B	A		

01 106735

2/6

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546364
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET ~~THE EMISSIONS LIMITS (EXHAUST)~~ OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

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EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
   [RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip. Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA. The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.

Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).

Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013):

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2 CO + H_2O \rightarrow 2 NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip.
Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d)(1)(C), effective January 1, 2016, as listed below:

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII:

Prevention of Significant deterioration (PSD)
This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO_2e for a single engine (including biogenic CO_2 in DG fuel)
= 1055.91 CO_2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO_2e MTon/yr
= 174,225 CO_2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:
The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

M E M O R A N D U M

DATE: February 21, 2014

TO: **A/Ns 546360-62 (id 17301), OCSD**
A/Ns 546364-68 (id 29110), OCSD

FROM: Gaurang Rawal

SUBJECT: OCSD, CGS post-modification emissions (with CatOx/SCR)

For the Title V renewal and de-minimis significant permit revision for the above CGS engines' modifications (DG cleaning system and CatOx/SCR), a condition #15 is added with estimated mass emissions based on Rule 1110.2 emissions limits (con.) for CO, VOC and NOx.
Please refer to the OCSD email (2-21-2014) provided with emissions rates, based on rule limit and exhaust flow rate for each plant.

Condition #15. (Plant #1, Id 17301, 3 engines)

POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY	R2 LB/HR	R1 LB/HR
CARBON MONOXIDE	390.0	16.24	18.34
NITROGEN OXIDES (AS NO2)	28.3	1.18	5.11
PARTICULATES (PM10)	12.0	0.5	0.5
ROG OR TNMHC (AS CH4)	20.0	0.83	3.83
SULFUR DIOXIDE [RULE 204]	12.0	0.5	0.5

Condition #15. (Plant #2, Id 29110, 5 engines)

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY	R2 LB/HR	R1 LB/HR
CARBON MONOXIDE	497.6	20.73	36.72
NITROGEN OXIDES (AS NO2)	36.0	1.5	11.5
PARTICULATES (PM10)	18.0	0.75	1.0
ROG OR TNMHC (AS CH4)	25.60	1.06	5.17
SULFUR DIOXIDE [RULE 204]	21.0	0.88	1.0

Gaurang Rawal

From: Charles Tupac
Sent: Friday, February 21, 2014 1:52 PM
To: Gaurang Rawal
Subject: FW:
Attachments: CGS Mass Emission Rates.xlsx

CGS Permits for Cond. #15 - Post-controlled emissions per R1110.2 limits

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Friday, February 21, 2014 12:19 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE:

You have a point. Here's the new table and Excel spreadsheet.

			Plant No. 1		Plant No. 2	
	Rule Limits at 15% O_2 (ppmv)	MW	Limits at Actual O_2 (ppmv)	lb/day for 3 engines	Limits at Actual O_2 (ppmv)	lb/day for 5 engines
NOx	11	46	17	85	17	180
CO	250	28	386	1169	390	2488
VOC	30	12	46	60	47	128

	Exhaust Flow Rate (scfm)	Actual %O_2
P1	9500	11.8
P2	12000	11.7

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Friday, February 21, 2014 12:15 PM
To: Ahn, Terry
Subject: RE:

But the rule limit is as carbon

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Friday, February 21, 2014 12:12 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE:

We used VOC as CH4.

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Friday, February 21, 2014 12:09 PM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE:

For VOC should MW be 12?

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Friday, February 21, 2014 11:54 AM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE:

Hi Charlie,

These are our numbers. The attached Excel spreadsheet shows the details. Please let us know if you need anything else.

			Plant No. 1		Plant No. 2	
	Rule Limits at 15% O_2 (ppmv)	MW	Limits at Actual O_2 (ppmv)	lb/day for 3 engines	Limits at Actual O_2 (ppmv)	lb/day for 5 engines
NOx	11	46	17	85	17	180
CO	250	28	386	1169	390	2488
VOC	30	16	46	80	47	171

Terry

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Friday, February 21, 2014 9:21 AM
To: Ahn, Terry; Kogan, Vladimir
Subject: RE:

Post mod emissions, lbs/day

Plant	Nox	CO	VOC
1 total 3 ICE	80	1100	60
2 total 5 ICE	160	2200	120
Basis, g/bhp-hr (ppm equivalent)	.15 g/bhp-hr (11 ppmv at 15% O2)	2 g/bhp-hr (250 ppmv at 15% O2)	.11 g/bhp-hr (30 ppmv at 15% O2)

OCSD ED 29110
546364-368 CGS

Digester Gas or Landfill Gas Combustion Equipment

	Design Parameters		
Design BTU Rating MMBTU/hour	33.00		
No. of engines	1.00		
Total Design Rating MMBTU/hour	33.00		
Methane % ge in Digester gas - assume all the BTU's are coming from methane	50.00		
BTU/SCF of methane - HHV (not landfill gas)	1,050.00		
SCF/min of methane - Calculated from Design MMBTU/hour	523.81		
Total Digester gas scf/min	1,047.62		
CO2 percentage in DIGESTER Gas Assumed	50.00		
Weight Destruction efficiency % ge for Methane	95.00		
Inlet CO2 scf/min	523.81		
Density of CH4 lb/cubic feet at SCFM conditions	0.0423		
Density of CO2 lb/cubic feet at SCFM conditions	0.1234		
Metric Tons of Methane destroyed per year	5,022.831		-
Metric Tons of CO2 generated from methane destroyed	13,812.79	Mass in Short Tons of CO2e generated from methane destroyed	15,221.69
Mass of CO2 in Metric Tons generated from CO2 present in Digester gas - Incoming CO2	15,424.10	Mass in Short Tons of CO2 Tons generated from CO2 present in landfill gas	16,997.36
6675 #/hr Total CO2 Tons	29,236.88	Total CO2 Short Tons	32,219.04
60.35 #/hr Methane not Burned (metric ton/yr)	264.36		
Metric Ton of CO2e generated from Methane not burned	5,551.55	CO2e Short Tons	6,117.81
Metric Ton of N2O Emissions from engines using Emission Factor 6.30E-4 Kg/MMBtu	0.182		
Metric Ton of CO2e from N2O	56.457	CO2e Short Tons from N2O	62.22
New Proposed Project (annual)			
	Metric Ton of CO2e	Short Ton of CO2e	Lbs/Hour - Based on 24/7 operation
Burning Methane in Gas engines	13,812.79	15,221.69	
Methane Not Burned	5,551.55	6,117.81	
CO2 in the Landfill Gas	15,424.10	16,997.36	
N2O	56.46	62.22	
Total	34,844.89	38,399.07	8,766.91

Co2 Equivalent Per MMBTU in One year	**1,055.91**	**1,163.61**	**265.6639626**

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/21/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

See rvsd 2/26/14

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. UPON START UP OF THE DIGESTER GAS CLEANING SYSTEM (DGCS), THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1303 (a) (1)]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

13. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

14. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

15. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

16. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	13.4
NITROGEN OXIDES (AS NO2)	14.3
PARTICULATES (PM10)	1.54
ROG OR TNMHC (AS CH4)	0.77
SULFUR DIOXIDE	0.44

[RULE 204]

17. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

18. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

19. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

20. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION

CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL

BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.

[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE MEASURED AND RECORDED DAILY.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA. The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.

Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).

Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes

present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

NH_3 OR HNCO + NOx + O_2 → N2 + H_2O + CO_2 (Catalytic Reduction)

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip.

Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII: Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401: Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

Gaurang Rawal

From: Ahn, Terry [tahn@ocsd.com]
Sent: Wednesday, January 29, 2014 2:44 PM
To: Andrew Lee
Cc: Gaurang Rawal; Charles Tupac; Kogan, Vlad; van Voorst, Donald
Subject: RE: OCSD Fountain Valley and Huntington Beach Digester Gas ICEs
Attachments: ID 17301 draft revised ptc for R1110 2 project.doc; Engine Temp_Pressure Operating Procedure .docx; Emmisions system temps pressures.pdf; Plt #1 Engine Performance DATA.pdf

Hi Andrew,

Per your request from our meeting please find OCSD's proposal for revised permit language and summary of engine operating procedure presented to your during the meeting. As to the sample ports, we are ok with leaving the way it is in the draft permit.

Thank you, and we're ready for further discussion if necessary.

Terry

From: Andrew Lee [mailto:ALee@aqmd.gov]
Sent: Friday, January 24, 2014 4:08 PM
To: Ahn, Terry; Kogan, Vladimir; van Voorst, Donald
Cc: Gaurang Rawal; Charles Tupac
Subject: OCSD Fountain Valley and Huntington Beach Digester Gas ICEs

Hi Terry,
I was able to get resolution on two of my action items from our meeting yesterday.

First, I've spoken with our source testing staff regarding the use of a flange and they agree it is acceptable. They also ask that the flange be a minimum of 4" Dia. to ensure all necessary probes/sampling tubes, testing apparatus, etc. can be accommodated and that they are located in areas where uniformed exhaust flow is located. Your source testing staff would be best to consult in determining the proper location. Our permit condition requests installation of test ports only so that you can determine the most appropriate location so that verified testing can take place.

Second I've added some verbiage regarding use of already approved source test protocol.

Excerpt from draft ICE Permit Conditions

15. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION OF ALL THREE ENGINES (CG1-FV, CG2-FV AND CG3-FV), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO

THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO,:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE (EXHAUST ONLY)
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE (EXHAUST ONLY)
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. Appropriate SCAQMD staff shall be notified a minimum of 90 days in advance of Compliance Source Testing to determine if PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.

Andrew Lee, P.E.
Sr. Air Quality Engineering Manager
Engineering & Compliance
Energy/Public Services/Waste Mgmt/Terminals
(909) 396-2643

Gaurang Rawal

From: Ahn, Terry [tahn@ocsd.com]
Sent: Monday, January 27, 2014 2:17 PM
To: Andrew Lee
Cc: Kogan, Vlad; van Voorst, Donald; Gaurang Rawal; Charles Tupac
Subject: RE: OCSD Fountain Valley and Huntington Beach Digester Gas ICEs

Hi Andrew,

Thank you for following up with your two action items.

I have comments on your findings. First is regarding the sample ports at the inlet and outlet of the air pollution control system (Condition No. 11). When we discussed the sample port size/type in our meeting, its focus was the inlet sample ports since we already have the outlet sample ports in the engine exhaust stack that meet the Rule 217 requirements (two 4-inch sample ports at 90 degrees located at least 2 duct diameter downstream and ½ duct diameter upstream of any flow disturbances). I thought we had agreed that the inlet sample ports are not subject to the Rule 217 requirements as further clarified by the basis of the condition being Rule 204. Your e-mail does not support our agreement. I think one 1-inch sample port before the catalyst system, as we discussed in our meeting, is adequate to support sampling at the inlet of the catalyst system.

Second, regarding the advanced notice for use of the previously approved source testing protocol, a 90-day advanced notice is too excessive. If you require a 30-day advanced submittal of new protocol for approval, why would you require a 90-day advanced notice just to use the previously approved protocol? We may not even have the contract with a source testing company in place and testing date selected that early in advance. I think 45-day notice is more reasonable.

I will shortly follow up with my action item which was to provide: 1) description of current operating procedure regarding the exhaust temperature and engine backpressure and 2) proposed changes to the conditions based on our discussion in the meeting.

We appreciate your continued support in resolving the permitting issues.

Thanks,

Terry Ahn
Orange County Sanitation District |Environmental Compliance
Regulatory Specialist
(714) 593-7082

From: Andrew Lee [mailto:ALee@aqmd.gov]
Sent: Friday, January 24, 2014 4:08 PM
To: Ahn, Terry; Kogan, Vladimir; van Voorst, Donald
Cc: Gaurang Rawal; Charles Tupac
Subject: OCSD Fountain Valley and Huntington Beach Digester Gas ICEs

Hi Terry,
I was able to get resolution on two of my action items from our meeting yesterday.

First, I've spoken with our source testing staff regarding the use of a flange and they agree it is acceptable. They also ask that the flange be a minimum of 4" Dia. to ensure all

necessary probes/sampling tubes, testing apparatus, etc. can be accommodated and that they are located in areas where uniformed exhaust flow is located. Your source testing staff would be best to consult in determining the proper location. Our permit condition requests installation of test ports only so that you can determine the most appropriate location so that verified testing can take place.

Second I've added some verbiage regarding use of already approved source test protocol.

Excerpt from draft ICE Permit Conditions

15. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION OF ALL THREE ENGINES (CG1-FV, CG2-FV AND CG3-FV), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO,:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE (EXHAUST ONLY)
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE (EXHAUST ONLY)
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. Appropriate SCAQMD staff shall be notified a minimum of 90 days in advance of Compliance Source Testing to determine if PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.

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Andrew Lee, P.E.
Sr. Air Quality Engineering Manager
Engineering & Compliance
Energy/Public Services/Waste Mgmt/Terminals
(909) 396-2643
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Orange County Sanitation District - Central Power Generation Systems

Summary of Current Operating Procedure Regarding the Engine Exhaust Temperature and Engine Back Pressure

Issue #1: The Catalyst will never be exposed to Exhaust temp below 600 F during normal operational load parameters of 60% to 100% load.

Justification: When an individual or single cylinder temp drops below 600 F the engine will alert an operator with an alarm. With the loss of one or two cylinders the post Turbo temp will still be above 700 F. This 600 F is hard coded in the control logic for the engine and cannot be modified.

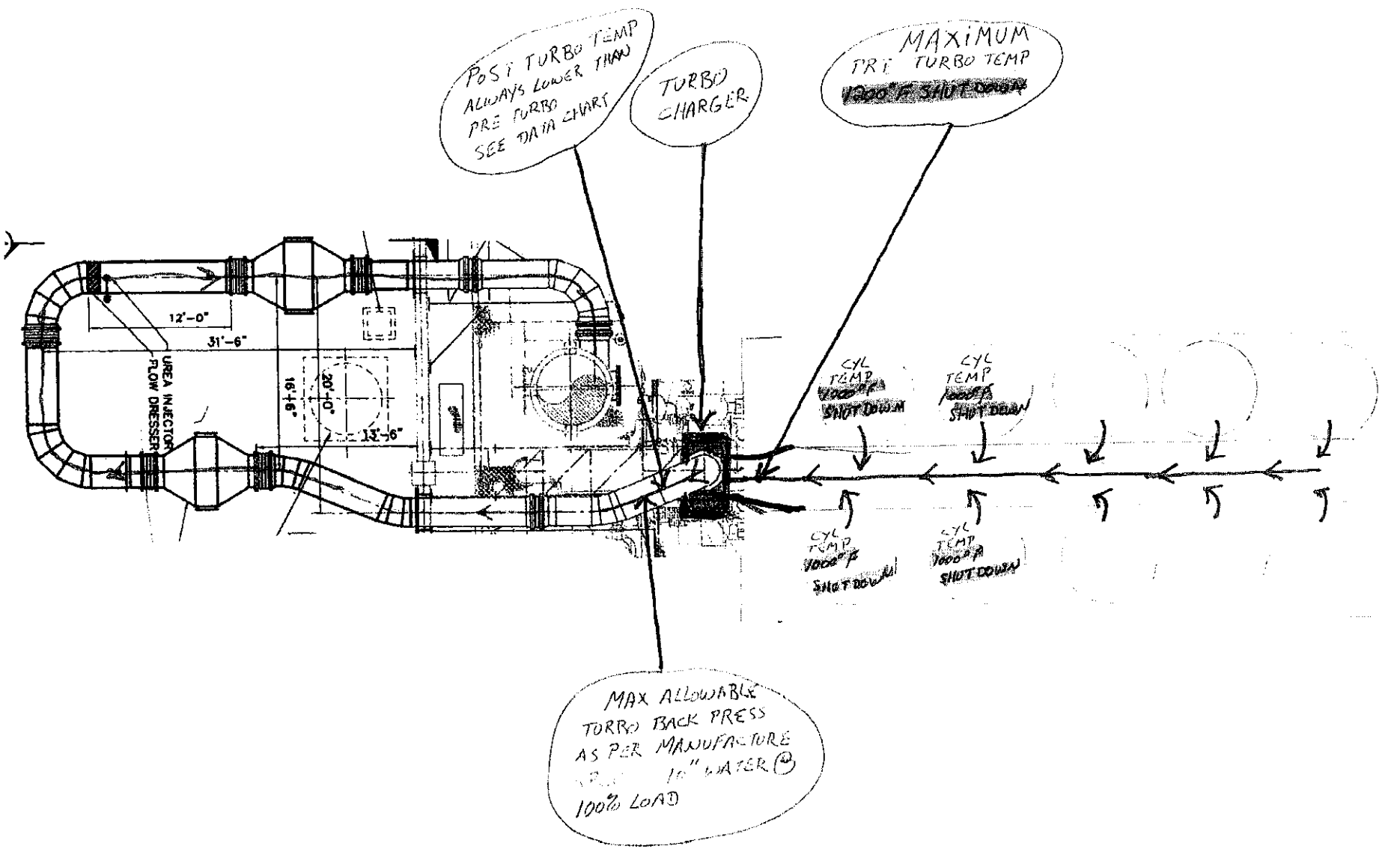
Issue #2: The Catalyst will never be exposed to Exhaust temp above 1200 F during normal operational load parameters of 60% to 100% load.

Justification: The inlet to the turbo charger where all of the cylinders meet to drive the turbo charger there is a pre-turbo temp. If this temp reaches 1200 F the engine will shut down. This 1200 F is hard coded in the control logic for the engine and cannot be modified.

Issue #3: How to read and guarantee the back pressure is minimal on the emission system.

Justification: On the discharge side of the turbo charger there is a pressure gauge that reads in inches of water. The engine manufacturer recommends that the back pressure on the Turbo charger never exceeds 10" of water at 100% load. If the Turbo back pressure starts to exceed 10" of back pressure, it will be documented and verified at multiple points on the engine. The first indicator will be that the back pressure itself will be rising. Secondly, the turbo charge waste gate will start to close trying to force more exhaust thru the turbo charger. The waste gate position is recorded as % open. Third, the reduced air to the engine will be seen with a rise in cylinder temperatures, creating a rise in raw NOX from the engine causing an increase in the volume of Urea injected to compensate for the rise in raw NOX. All of the above are continuously monitored by each engine control system and can be retrieved using historical trending.

Above explanation pertains to the engine operations and parameters. However, it does not affect cato×/SCR operations w/respect to required process parameters monitoring to maintain acceptable control efficiencies.—


POST TURBO TEMP
ALWAYS LOWER THAN
PRE TURBO
SEE DATA CHART
TURBO
CHARGER
MAXIMUM
PRE TURBO TEMP
1200° F SHUT DOWN
12'-0"
31'-6"
16'-6"
20'-0"
13'-6"
UREA INJECTOR
FLOW DRESSER
CYL
TEMP
1000° F
SHUT DOWN
CYL
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1000° F
SHUT DOWN
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TEMP
1000° F
SHUT DOWN
CYL
TEMP
1000° F
SHUT DOWN
MAX ALLOWABLE
TURBO BACK PRESS
AS PER MANUFACTURE
10" WATER
100% LOAD

OCSD

Unit Data							
Station Name		Plant 1	Plant 1	Plant 1	Plant 1	Plant 1	Plant 1
Unit #		1	1	1	1	1	1
Engine Model		LSVB-12-SGC	LSVB-12-SGC	LSVB-12-SGC	LSVB-12-SGC	LSVB-12-SGC	LSVB-12-SGC
Rated BHP		3,471	3,471	3,471	3,471	3,471	3,471
Rated Speed		400	400	400	400	400	400
Number of Cylinders		12	12	12	12	12	12
Load Setpoint (%)		**50**	**60**	**70**	**80**	**90**	**100**
Blend Setpoint (% Dig Gas)		**97**	**97**	**97**	**97**	**97**	**97**
EGT 1L (F)	A26EL1	798.50	818.10	833.40	818.10	812.70	817.90
EGT 2L (F)	A26EL2	793.10	813.90	830.90	790.00	777.00	784.60
EGT 3L (F)	A26EL3	832.80	844.70	856.10	835.00	822.40	825.80
EGT 4L (F)	A26EL4	808.90	831.80	847.40	795.60	786.90	794.00
EGT 5L (F)	A26EL5	805.30	829.20	845.30	789.10	780.30	786.20
EGT 6L (F)	A26EL6	843.80	856.60	869.40	828.20	763.40	790.40
EGT 1R (F)	A26ER1	766.80	801.20	827.30	787.10	781.20	788.90
EGT 2R (F)	A26ER2	791.40	821.10	840.90	798.60	794.90	798.60
EGT 3R (F)	A26ER3	792.50	825.60	846.20	805.30	798.30	803.10
EGT 4R (F)	A26ER4	792.50	819.50	842.20	815.20	809.80	813.60
EGT 5R (F)	A26ER5	793.80	819.30	837.90	796.30	787.50	792.70
EGT 6R (F)	A26ER6	814.10	835.20	850.70	829.80	820.20	826.40
Pre-Turbo Temp (F)	A26TEI	822.90	848.10	869.00	856.20	850.50	858.60
Post Turbo Temp (F)	A26TEO	767.70	785.50	800.10	753.80	731.70	728.60

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ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546360
Granted as of TBD

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G2957) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-FV), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-12 TYPE, MODEL NO. LSVB-12-SGC, 3471HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 2500 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 5,008,500 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), TWO VESSELS, EACH CONTAINING A MINIMUM OF 9,900 LBS OF MEDIA, TOTAL OF 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES OR EQUIVALENT CONTROL SYSTEM.

   COMMON TO THREE ENGINES (CG1-FV, CG2-FV AND CG3-FV).

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
   [RULE 204]

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6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF ~~FUEL~~ DIGESTER GAS (BTU/SCF) AT THE ~~COMBINED~~ INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 28.5 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	590 PPMV AT 15% O2
PARTICULATES (PM10)	0.0087 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	209 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. EFFECTIVE JANUARY 1, 2016, THE EMISSIONS FROM THIS EQUIPMENT POST AIR POLLUTION CONTROL EQUIPMENT AS SPECIFIED IN CONDITON NO. 17 SHALL BE OPERATED IN SUCH A MANNER THAT THE LIMITS OF TABLE III-B IN RULE 1110.2 (d)(1)(C), AMENDED SEPTEMBER 7, 2012, ARE MET, UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d)(1)(H).

[RULE 1110.2]

13. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	1321
NITROGEN OXIDES (AS NO2)	368
PARTICULATES (PM10)	36
ROG OR TNMHC (AS CH4)	276
SULFUR DIOXIDE	36

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

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14. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

15. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION OF ALL THREEE ENGINES (CG1-FV, CG2-FV AND CG3-FV), AND ANNUALLY THEREAFTER (WITHIN 45 DAYS OF ANNIVERSARY OF INITIAL TEST), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, TESTING OF THE INLET FUEL GAS AND THE ENGINE'S EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE (EXHAUST ONLY)
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (NATURAL AND DIGESTER GAS USED DURING TESTING)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.

16 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

17. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID DISTRICT PERMIT.

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ORANGE COUNTY SANITATION DISTRICT

Emissions And Requirements:

18. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

PERMIT TO CONSTRUCT

A/N 557227
Granted as of TBD

Equipment Description:

STORAGE TANK, NO. 16KTNK001, AQUEOUS UREA SOLUTION, ABOVE GROUND, 1,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION WITH A MAXIMUM 45 PERCENT BY VOLUME CONCENTRATION.

4. THE THROUGHPUT OF THIS EQUIPMENT SHALL NOT EXCEED 21 TURNOVERS IN ANY ONE MONTH.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N TBD
Granted as of TBD

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, A MINIMUM OF 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST OR AN EQUIVALENT CATALYTIC OXIDIZER SYSTEM.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, A MINIMUM 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST OR AN EQUIVALENT SELECTIVE CATLYTIC REDUCTION SYSTEM.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND UREA FEED CONTROL SYSTEM.

4. EXHAUST STACK, 2'-6" DIA. X ~~5'-2"~~ H., OR EQUIVALENT EXHAUST STACK (62' for Plant 1 and 59' for Plant 2 from the ground level)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. ~~THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.~~

~~[RULE 204]~~

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~~4. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET DIFFERENTIAL PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.~~
~~[RULE 204]~~

5. EXCEPT DURING STARTUP AND SHUTDOWN, THE ~~OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE INLET TO THE CATALYST BEDS ABOVE 600 DEG. F OR EQUIVALENT TEMPERATURE AS RECOMMENDED BY THE MANUFACTURER~~ ENGINE EXHAUST TEMPERATURE AND THE BACK PRESSURE SHALL BE MAINTAINED PER OCSD'S OPERATING PROCEDURE.
[RULE 204]

6. ~~EXCEPT DURING STARTUP AND SHUTDOWN, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE OUTLET OF THE CATALYST BEDS BELOW 1250 DEG. F OR EQUIVALENT TEMPERATURE AS RECOMMENDED BY THE MANUFACTURER.~~
~~[RULE 204]~~

7. WHEN SELECTIVE CATALYTIC REDUCTION SYSTEM IS IN OPERATION, EXCEPT DURING STARTUP AND SHUTDOWN, THE UREA FEED CONTROL SYSTEM SHALL BE IN FULL OPERATION TO MAINTAIN NOX EMISSION REDUCTIONS.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. THE DEVICE SHALL HAVE A RELATIVE ACCURACY OF +/- 5%.
[RULE 204]

10. THE OPERATOR SHALL CONTINUOUSLY ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON A ONE HOUR AVERAGE, EXCEPT DURING NOX ANALYZER FAILURE OR SHUTDOWN PERIOD FOR MAINTENANCE NOT TO EXCEED 96 CONSECUTIVE HOURS.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.

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[RULE 1303(b) (1)]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions And Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)]

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SCAQMD Response A/N 546360
Granted as of TBD

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Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G2957) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-FV), COOPER BESSMER, SPARK IGNITION, FOUR-STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-12 TYPE, MODEL NO. LSVB-12-SGC, 3471HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 2500 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 5,008,500 BTU/HR CAPACITY, UNFIRED.

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BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS) ~~EXPANSION~~, TWO VESSELS, EACH CONTAINING ~~MINIMUM OF 9,900 LBS OF~~ MEDIA FOR DIGESTER GAS TREATMENT, ~~TOTAL 2100 CFM CAPACITY,~~ WITH ASSOCIATED PIPING AND VALVES ~~FOR TWO STAGE CONFIGURATION~~.

Specifying a minimum amount of media is always problematic. The minimum of 9,900 lbs of media is based on the original design spec for the pilot engine which specified media from the Applied Filter Technology (now part of the Robinson Group). The "formula" for these manufacturers does not always stay the same. Since the operation of the pilot system, our Operations has been investigating and operating different media that is more effective in terms of performance and cost.

Information is based on application submittal. Amount of media is an integral spec, which is generally designed based on total siloxanes/impurities loading and to maintain optimum siloxanes removal efficiency. Alternatively, a condition can be imposed that OCSD provide final selection of vendor, media and specs upon installation completion and at least 30 days before start up.

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We have the ability to divert digester gas from one plant to the other and either plant may use more gas than normal. Specifying the total cfm capacity may limit our ability to do this and potentially put us in non-compliance situation or force us to flare.

DG flow capacity for the treatment system is believed to be based on CGEN engines operating deign and maximum KW generation rating. Again, this is based on information provided with the system.

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"TWO-STAGE" may imply that both vessels have to operating in series at all times. In normal operation, one vessel will operate as a primary and the second one as a secondary polishing vessel. However, during media change out or servicing of a vessel, only one vessel will be in operation. We will have the ability to run one or both vessels at any given time. In order to prevent any questioning during AQMD inspections, we request that this description be deleted.

"Two stage configuration" is based on application information. It is our understanding that both vessels can be online simultaneously providing treated DG to CGEN engines. Equipment description does not mention media

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vessels either in series or parallel (need to verify from P & ID). If second vessel is used as a polishing then both vessels operated as lead and lag mode. If equipment are operated as per application submittal and as per final P & ID there should not be any confusion and any questioning from SCAQMD inspector can be satisfied based on facts.

COMMON TO THREE ENGINES (CG1-FV, CG2-FV AND CG3-FV).

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME ~~FOR EACH FUEL BLEND BURNED~~.
[RULE 1110.2]

This condition is not new, but it really does not make sense. The fuel blend changes constantly. It could be at 100% digester gas, 100% natural gas, or any blend at any one time depending on the digester gas availability. The time meter runs whenever the engine is running regardless of the fuel type/blend.

FUEL implies either DG , NG or DG+NG blend This condition merely provides information as to what % of time each fuel (DG or NG or DG + NG blend) is burned and associated emissions to comply with mass emissions rates.

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS ~~OR FUEL BLEND SAMPLES~~.
[RULE 204]

This condition is not new, but it should be cleaned up. The fuel blend changes constantly and taking samples of the fuel blend makes no sense with no real practical purpose.

Equipment description states NATURAL GAS AND/OR DIGESTER GAS FIRED.

7. MONTHLY READINGS OF THE BTU CONTENT OF ~~FUEL~~ DIGESTER GAS (BTU/SCF) ~~AT THE COMBINED INLET TO THE CGS ENGINES~~ SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

This condition is not new, but it should be cleaned up. For our CEMS, we take samples of digester gas for ultimate gas analysis to estimate the F factor/stack flow. Btu content of the natural gas is provided by the Gas Company. The fuel

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blend changes constantly and taking one monthly sample of the fuel blend has no practical purpose. We have no use for such data.

Heat input rate, BTU/HR: monitoring is a function of hurly emissions (modeling) and daily emissions (offsets) as well as for other compliance, see condition #9.

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8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY. [RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 28.5 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING. [RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2. [RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	590 PPMV AT 15% O2
PARTICULATES (PM10)	0.0087 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	209 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

~~12.~~ EFFECTIVE JANUARY 1, 2016, THE EMISSIONS FROM THIS EQUIPMENT POST AIR POLLUTION CONTROL EQUIPMENT AS SPECIFIED IN CONDITION NO. 17 SHALL ~~BE OPERATED IN SUCH A MANNER THAT~~ MEET THE LIMITS OF TABLE III-B IN RULE 1110.2 (d)(1)(C)~~-ARE MET~~, UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d)(1)(H).

[RULE 1110.2, ~~RULE 1303 (a) (1) - BACT FOR NH3 SLIP~~]

The engine itself cannot meet the Rule 1110.2 limits without the APC. Rule 1110.2 has no limit for NH3 slip; therefore the Rule 1303(a)(1) reference for NH3 slip does not belong here.

Condition #17 states that equipment shall not be operated unless vented to an APC. Engine emissions implies to emissions "into the atmosphere" which is after post-combustion control and exhausting from the stack, as there is no atmospheric discharge point between engine and APCs NH3 slip emission limit is based on BACT/LAER which is Reg XIII.

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13. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	1321
NITROGEN OXIDES (AS NO2)	368
PARTICULATES (PM10)	36

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ROG OR TNMHC (AS CH4)	276
SULFUR DIOXIDE	36

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

14. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

15. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION OF ALL THREE ENGINES (CG1-FV, CG2-FV AND CG3-FV), ~~AND ANNUALLY THEREAFTER (WITHIN 45 DAYS OF ANNIVERSARY OF INITIAL TEST),~~ THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765 THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, ~~A TEST OF THE INLET FUEL GAS AND THE ENGINE'S EXHAUST FOR~~:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE (EXHAUST ONLY)
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (~~FUEL~~ DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE (EXHAUST ONLY)
L. BTU CONTENTS (~~FUEL~~ DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.

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[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

Your proposed permit wording for initial start-up test most likely will cause us to mobilize the independent source testing company three (five for Plant No. 2) different times adding potentially a significant cost to the testing. Rule 1110.2 (f)(1)(C) requires routine compliance testing to be conducted at least once every two years or every 8,760 hours, whichever occurs first. It even allows testing every three years if the engine operated less than 2,000 hours.

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OCSD has 180 days from the start up and each engine is required performance/compliance source test. Three engines an be scheduled for ST during 180 days. OCSD is operating engines for many years and had no problem scheduling tests.

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16 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

17. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT (A/N _____) WHICH IS IN ~~FULL USE AND HAS~~ OPERATION IN ACCORDANCE WITH ITS~~A~~ VALID DISTRICT PERMIT.

SCAQMD prefers not to tie in A/N as A/N may change in future and may be superseded by new A/N (modification, change of condition, etc.).

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Emissions And Requirements:

18. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

PERMIT TO CONSTRUCT

A/N 557227
Granted as of TBD

Equipment Description:

STORAGE TANK, NO. 16KTNK001, AQUEOUS UREA SOLUTION, ABOVE GROUND, 1,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION ~~WITH MAXIMUM 32.5 PERCENT BY VOLUME CONCENTRATION~~.

This condition is too restrictive. The urea system is designed for 32.5% urea, but it is available commercially in concentrations of 32.5%, 40.0%, and 45.0% as we speak. What if the manufacturer decides to make 33% concentration next month? We may also find that in the future that higher concentration may be more effective in terms of performance and cost.

This is simply based on information and MSDS provided.
Rate capacity."

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4. THE THROUGHPUT OF THIS EQUIPMENT SHALL NOT EXCEED 21 TURNOVERS IN ANY ONE MONTH.

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PERMIT TO CONSTRUCT

A/N TBD
Granted as of TBD

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, ~~18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND~~ WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

The volume specified refers to the Johnson Matthey system only. More importantly, specifying the exact volume will require a permit modification if we want to add more layers of catalyst in the future.

Catalyst specs is an important information which is based on expected performance.

Conditions 3 and 4 require installation of the temperature and pressure monitoring devices. Having the description here is redundant and makes the permit unnecessarily lengthy.

This can be corrected. However, it is the fact that such controls are installed for monitoring purpose and helps during field inspection.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, ~~37.33 CUBIC FOOT TOTAL VOLUME AND~~ WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

The volume specified refers to the Johnson Matthey system only. More importantly, specifying the exact volume will require a permit modification if we want to add more layers of catalyst in the future.

Again this is an important specs. Instead we can say "mimimum 37.33" volume. *In the event Mfr., type of catalyst and specs are changed, alteration/modification application is required.*

3. AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC ~~TEMPERATURE, PRESSURE MONITORING AND~~ UREA FEED ~~CONTROL DEVICES~~SYSTEM.

Temperature and pressure monitoring devices do not make sense here. "CONTROL DEVICES" implies air pollution control system to control NH3 which is not the intent.

4. ~~EXHAUST STACK, 2' 6" DIA. X 5' 2" H.~~

There is no stack for the catalyst system. The exhaust from the catalyst system is routed to the engine heat recovery system and to the engine exhaust stack. Even if we remove the catalyst system, the engine exhaust remains. By the way, I'm not sure where the 5'-2" height came from. The straight run portion of engine exhaust stack alone is approximately 12 ft.

This might be a typo. We will verify exhaust Ht from previous permits. Exhaust stack dimensions are important for modeling and HRA purpose.

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Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES
[RULE 204]

The following comment applies to Conditions 3 thru 6:

We strongly urge you to remove Conditions 3 thru 6. They impose unnecessary compliance and maintenance burden. Since the start-up of the pilot system on Plant 1 Engine 1 on April 1, 2010, we have been continuously measuring and recording the temperature and pressure data. However, these data have no practical use in that we have never used either of the parameters to make any catalyst system adjustment or troubleshooting of the catalyst system or the engine.

We monitor the digester gas treatment system deligently to prevent any fouling of the catalyst using markers such as H2S, siloxanes and other compounds. The new digester gas cleaning system will normally operate with a primary vessel followed by a secondary polishing vessel to ensure that no siloxanes get passed through. In addition to the redundant digester gas cleaning system, we also have the CEMS which is the ultimate tool for demonstrating continuous compliance. Any unusual increase in NOx or CO concentration is immediately noted and investigated.

3. ~~THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.~~
[RULE 204]

4. ~~THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET DIFFERENTIAL PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.~~
[RULE 204]

5. ~~EXCEPT DURING STARTUP AND SHUTDOWN, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE INLET TO THE CATALYST BEDS ABOVE 600 DEG. F.~~
[RULE 204]

6. ~~EXCEPT DURING STARTUP AND SHUTDOWN, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE OUTLET OF THE CATALYST BEDS BELOW 1250 DEG. F.~~
[RULE 204]

Above conditions are part of CAM requirements.

7. WHEN SELECTIVE CATALYTIC REDUCTION SYSTEM IS IN OPERATION, EXCEPT DURING STARTUP AND SHUTDOWN, THE UREA FEED CONTROL SYSTEM SHALL BE IN ~~FULL~~ OPERATION.
[RULE 204]

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8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION ~~(+/— 5%)~~ AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

What's the basis for +/- 5%? Even Rule 218 allows up to 20% relative accuracy.

~~+/-~~ is for instrument measurement accuracy. 20% is for the RATA range.

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10. THE OPERATOR SHALL ~~CONTINUOUSLY~~ ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.

What does it mean by "CONTINUOUSLY?"

In absence of continuously means monitoring can be done at will and may be at desired interval. Urea injection rate is a function of ammonia slip control and NOx reduction.

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[RULE 204]

11. ~~SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.~~

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The catalyst system has no exhaust stack. The compliance testing are conducted on engine stack where the sample ports that meet the SCAQMD requirements are located.
[RULE 204]

Equipment description #4 states exhaust stack where emissions are discharged into the atmosphere (only point of emissions by combusting fuel into the engines).

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12. THE AMMONIA SLIP SHALL BE TESTED ~~WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS~~ IN ACCORDANCE ~~WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.~~ WITH THE CONDITION NO. 15 OF THE RESPECTIVE ENGINE PERMIT (CG1-FV).
[RULE 1303(b) (1)], ~~[RULE 1402]~~

We do not undertand why Ruel 1402 is referenced here. In the permit application, we have demonstrated compliance with Rule 1303(a) for NH3 as a criteria pollutant and Rule 1401 for NH3 as a toxic air contaminant. In addition, the NH3 slip is emitted through the engine stack; therefore, this condition should belong in the engine permit.

Urea injection is for the engine's exhaust treatment thereby to control NOx and NH3 slip.Engine description does not have exhaust stack . Controlled emissions (NOx and NH3) can be measured after SCR or at exhaust stack.

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13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.

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ORANGE COUNTY SANITATION DISTRICT

[RULE 204]

Emissions And Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

NH3 (AMMONIA SLIP): ~~5~~ 10 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.

In the permit application, we have demonstrated even at 10 ppmv NH3 slip, NH3 emissions increase will be less than 1 lb/day for each engine.

[RULE 1303(b)(1)]~~, [RULE 1402]~~

OCSD has demonstrated during pilot tests that NH3 slip can be maintained below 5 ppmv. It is also a BACT/LAER limit.

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Gaurang Rawal

From: Charles Tupac
Sent: Wednesday, September 25, 2013 10:08 AM
To: Ahn, Terry
Cc: Kogan, Vlad; Gaurang Rawal
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,
We will not proceed on the cogen applications until urea applications are submitted.
Charlie

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 2:29 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

harlie,

It will save everyone's time and headache if you include the urea tanks as part of SCR equipment description. Urea has no other use except for SCRs and will be piped directly to them. It's not the money issue. I'm sorry for being stubborn, but at the end of the day, we're left with the permits and compliance burden. I'll feel so much better submitting permit application (and will do so ASAP) if you can show me some examples of other facilities with separate permits.

Terry

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, September 24, 2013 2:06 PM
To: Ahn, Terry
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,
don't have the time, and there is no exemption in 219. It's a couple of Schedule A's. Please file asap.
Charlie

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 12:54 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Wherever this power plant may be it's in AQMD's jurisdiction. Do YOU have other examples that you can use to convince me that AQMD issue separate permits for urea tanks?

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, September 24, 2013 12:48 PM
To: Ahn, Terry
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Because - we can't use a permit on an island somewhere in the pacific as an example.

What's your justification for requiring permits for the urea storage tanks? Can you send me sample copies of permits held by other facilities with SCR systems?

Thanks,

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Thursday, September 19, 2013 3:23 PM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Urea solution storage tanks are required applications for permits to construct.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, August 20, 2013 2:22 PM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Hi Gaurang,

The post-modification emissions data provided in the permit application were calculated based on the results of the annual compliance source test conducted on Plant 1 Engine 1 (with -79 pilot system) on Dec. 13, 2011. The attached excerpts from the source test report provide the summary of results you are looking for.

In regards to the urea storage tanks, we believe that they are exempt per Rule 219 m(21). It states that "Stationary equipment used exclusively to store and/or transfer organic compounds that do not contain VOCs." Urea is in a strictest sense is an organic compound. Please check out these hyperlinks: http://en.wikipedia.org/wiki/Urea and http://www.acdlabs.com/iupac/nomenclature/79/r79_661.htm (this is IUPAC rule for naming urea as an organic compound).

Please let me know if you need anything else.

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Friday, August 16, 2013 8:23 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

OCSD has provided post-modifications for CGS (DGCS, CatOx and SCR) maximum emission rates for 6 pollutants based on J-79 pilot study.
Please provide Summary of Results for the pilot study that were used for post-modification emissions rate for Plant #1 & #2, Table 2.3-1 and Table 2.3-2 submitted with application (e.g. exhaust flow rate, exhaust temperature, % H2O, %O2, , concentration for air pollutants, emission rate, engine load, etc.).

Thanks,

Gaurang Rawal

From: Gaurang Rawal
Sent: Wednesday, August 07, 2013 11:47 AM
To: 'Ahn, Terry'
Cc: 'Kogan, Vladimir'
Subject: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Hope you had a nice and relaxing vacation and, now busy with Back to School preparations and shopping!

We have received applications for CGS IC engine's modifications applications (Plant #1 & #2) for DG cleaning system, Catox and SCR add-on controls.

Please submit separate application for each of the Urea storage tank to be installed at both plants, with estimated daily emissions-lbs/hr, lbs/day.

Also provide greenhouse gas (GHG) and CO2e emissions for each of the engine, and total emissions (GHGs and CO2e) for the project, for plant #1 & #2.

Thanks.

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 1	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 546363 revsd	DATE 01/03/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

See Revised 2/21/14

TITLE V PERMIT EVALUATION
(De-Minimis Significant Revision)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: VLAD KOGAN, SENIOR SCIENTIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
2221 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646-8406

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: than@ocsd.com

Background:
This application 546363 was submitted for Title V permit revision on 01/08/2013. This revision consists of the following five applications for permits to construct (modification) proposed by the Orange County Sanitation District (OCSD);

A/Ns 546364 through 546368: Proposed modifications to existing Central Generation engine system (CGS), POs G2958, G2959, G2964, G2966 & G2967 to install a digester gas cleaning (DGCS) that is designed to process about 2100 cfm of digester gas. DG cleaning system will mainly remove volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. DG cleaning system will be common to all 5 engines, supplying clean DG as fuel.

A/Ns 557229 & 557230 were submitted for the installation of aqueous urea solution storage tanks, 2000 gallons each, and with piping connections to inject urea into the engine's exhaust stream, just before entering SCR to control NOx emission. These applications were submitted as addendum to the original applications, to include under Title V revision A/N 546363.

A/Ns 559228 through 559232: As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559056 through 559060 for APCs. The proposed modification will reduce CO and VOC emissions and Selective Catalytic Reactor (SCR), with ammonia injection will reduce NOx emissions. Such air pollution control equipment is installed to comply with Rule 1110.2 emissions limits for CO, VOC and NOx.

This revision is evaluated as de-minimis significant revision due to increase in NSR pollutant –ammonia emission (ammonia slip). The proposed modifications will result in net emissions reduction for other criteria pollutants. This TV permit revision is not subject to public notice requirement, however, subject to EPA review and comments.

For detailed information, please refer to the engines' modifications, urea storage tanks and CatOx/SCR evaluations included in folder.

Rules Evaluation:
Compliance with applicable Rule 1110.2, Reg. XXX -Title V permits and all applicable rules and regulations is expected.

Conclusions & Recommendations:
Upon completion of USEPA 45-day review period, issue Title V permit revision with revised Sections, as applicable.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 01/03/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G2964) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27398) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
   [RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
   [RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
   [RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE LIMITS OF TABLE III-B IN RULE 1110.2 (d) (1) (C) ARE MET, UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

13. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

14. EFFECTIVE JANUARY 1, 2016, POST-CONTROLLED EMISSIONS FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	13.4
NITROGEN OXIDES (AS NO2)	14.3
PARTICULATES (PM10)	1.54
ROG OR TNMHC (AS CH4)	0.77
SULFUR DIOXIDE	0.44

[RULE 204]

15. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

16. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER (WITHIN 45 DAYS OF ANNIVERSARY OF INITIAL TEST), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT.

THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, A TEST OF THE INLET FUEL GAS AND THE ENGINE'S EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE

L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT
[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

17. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

18. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 5'-2" H.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC

TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 5'-2" H.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 5'-2" H.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 5'-2" H.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 5'-2" H.

Conditions: (A/Ns 559228 - 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

5. EXCEPT DURING STARTUP AND SHUTDOWN, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE INLET TO THE CATALYST BEDS ABOVE 600 DEG. F.
[RULE 204]

6. EXCEPT DURING STARTUP AND SHUTDOWN, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE OUTLET OF THE CATALYST BEDS BELOW 1250 DEG. F.
[RULE 204]

7. WHEN SELECTIVE CATALYTIC REDUCTION SYSTEM IS IN OPERATION, EXCEPT DURING STARTUP AND SHUTDOWN, THE UREA FEED CONTROL SYSTEM SHALL BE IN FULL OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION (+/- 5%) AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. THE OPERATOR SHALL CONTINUOUSLY ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1402]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b)(1)], [RULE 1402]

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d)(1)(E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$(NH_2)_2CO \rightarrow NH_3 + HNCO$ (Pyrolysis)

NH_3 OR HNCO + NOx + $O_2 \rightarrow$ N2 + H_2O + CO_2 (Catalytic Reduction)

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip.
Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII: Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401: Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

December 3, 2013

OCSD J-111 CenGen Emission Controls Project

BASIS FOR UREA STORAGE TANK SIZING, DELIVERY, AND METERING (CONSUMPTION) CALCULATION:

Since NOx is a mix of NO and NO_2, the actual urea consumption would vary with the ratio of NO/NO_2 in the NOx, and hence is difficult to calculate. Therefore, the operating data from the existing pilot plant (Engine No. 1 at Plant No. 1) data was used as a basis for the design. Based on the actual operating data from October 2012 to May 2013, the correlation between Inlet NOx and Urea Flow Rate was determined as shown in the Table below. The engine loads were in the 90 to 100% range for all data. The calculated outlet NOx is within the AQMD allowable limits for all cases.

Table: Calculated values of Urea Flow Rate and Outlet NOx

Inlet NOx (ppm)	Urea Flow Rate (gph)	Outlet NOx (ppm)
50	0.9569	9.242
40	0.7539	7.487
30	0.5509	5.732
20	0.3479	3.977
10	0.1449	2.222

The new system is specified to be designed with a maximum Inlet NOx of 50 ppm which would require approximately 1 gph of urea per Table above. OCSD standard is to have a minimum of 7 days storage.

Plant 1

Design urea flow rate for each engine = 1 gph
Daily consumption for two engines at Plant 1 = 2 * 1 gph * 24 h/day = 48 gal/day
7 Day consumption at Plant 1 = 7 * 48 gal = 336 gal
2 tanks, each 1000 gal capacity are provided at Plant 1. The urea dosing pumps (2 for each engine) would have a capacity of 1 gph.

Plant 2

The ratio of the exhaust air flow rates of Plant 2 engine over Plant 1 engine is approximately 1.3. The urea flow rate would be correspondingly larger.

Design urea flow rate for each engine = 1.30 gph
Daily consumption for four engines at Plant 2 = 4 * 1.30 gph * 24 h/day = 124.8 gal/day
7 Day consumption at Plant 1 = 7 * 124.8 gal = 874 gal
2 tanks, each 2000 gal capacity are provided at Plant 2. The urea dosing pumps (2 for each engine) would have a capacity of 1.3 gph.

Basis for Urea Feedback Control System for NOx Control

The urea feed control system is specified to a proprietary system by the catalyst system supplier. The existing system on the pilot plant is a proprietary system by Johnson Matthey which is a feed forward control system based on the engine load and trimmed by the Outlet NOx. This approach was implemented at the pilot plant successfully. For this project, however, additional operating parameters such as NH_3 slip, Inlet NOx, and fuel blend will be added to the PLC as input so they are available for the catalyst system supplier to provide more enhanced system.

NH3 Slip Calculation

The NH3 slip on the current pilot engine is determined based on the following equation where CF is used as a correction factor to account for factors such as secondary reactions and limitations of the urea injection system and as a tool to adjust the calculation of total ammonia to estimate free ammonia.

NH3 = [Urea Fed – (NOx in – NOx out) /2] x CF

The CF was assumed to be equal to 1 during the pilot study. Throughout the pilot testing, differences were observed between the free ammonia measured in the field and total ammonia estimated using the calculation method. The calculated values were consistently higher than the measured values. For this project, additional testing will be conducted to determine more accurate correction factor.

Basis for CatOx and SCR Layers and Volume

Catox Units: For Johnson Matthey system, 16 whole oxidation catalyst blocks will be used for each engine. Each block will be 2 ft tall x 2 ft wide x 3 ½" thick with a volume of 1 ft^3. The blocks will be arranged in a single layer. This is consistent with the data provided in the SCAQMD Form 400-E-5 submitted with the permit application package.

SCR Catalyst Units: For Johnson Matthey system, 32 SCR catalyst blocks will be used. Each block is 2 ft wide x 2 ft tall x 3 ½" thick with a volume of 1 ft^3. The blocks will be arranged in two layers. This is consistent with the data provided in the SCAQMD Form 400-E-5 submitted with the permit application package.

Temperature Operating Range (min. – max.) for CatOx and SCR catalysts

The final design data may be provided after the system supplier is selected. However, our construction specs require that the catalyst housings be designed for a maximum temperature of 1250 degree F and the normal exhaust temperature of 850 degree F.

The existing Johnson Matthey system was designed based on the following temperature ranges:

- Minimum continuous operating temperature: 600º F
- Maximum continuous operating temperature: 924º F
- Maximum intermittent operating temperature: 1100ºF for max of 50 hrs.

South Coast Air Quality Management District

Plant No. 2 Engines

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey, Inc or Eq. Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or equivalent Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 Total Volume: 37.33 cu. ft. Total Weight: 1600 lbs.

Reducing Agent

(•) Urea ( ) Anhydrous Ammonia ( ) Aqueous Ammonia ____ % Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

Provided in a separate permit application.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia * A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 NOx: ____ gm/bhp-hr Ammonia Slip: 10 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey, Inc. or Equival Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equivalent Type: 200 cpsi oxidation catalyst or equivalent

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.5 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 Total Volume: 18.67 cu. ft. Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 1250 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/10/13

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

Plant No. 1 Engines

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 017301

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 10844 Ellis Avenue, Fountain Valley, CA 92708-7018 (●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey, Inc or Eq. Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or equivalent Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 Total Volume: 37.33 cu. ft. Total Weight: 1600 lbs.

Reducing Agent

(●) Urea ( ) Anhydrous Ammonia ( ) Aqueous Ammonia ____ % Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

Provided in a separate permit application.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia * A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 NOx: ____ gm/bhp-hr Ammonia Slip: 10 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey, Inc. or Equival Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equivalent Type: 200 cpsi oxidation catalyst or equivalent

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.5 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 Total Volume: 18.67 cu. ft. Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer: _____ Catalyst Active Material: _____

Model Number: _____ Type: _____

Size of Each Layer or Module: L: _____ ft. _____ in. W: _____ ft. _____ in. H: _____ ft. _____ in.

No. of Layers or Modules: _____ Total Volume: _____ cu. ft. Total Weight: _____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: _____ per hour

Manufacturer's Guarantee

NH_3: _____ ppm $\%O_2$: _____

Catalyst Life

_____ years (expected)

Cost

Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 1250 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/10/2013

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

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Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

Charles Tupac

From: Ahn, Terry [tahn@ocsd.com]
Sent: Tuesday, December 10, 2013 7:28 AM
To: Charles Tupac
Cc: Gaurang Rawal; Kogan, Vlad
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2
Attachments: P1 AQMDForm400-E-5 Rev.pdf; P2 AQMDForm400-E-5 Rev.pdf

Hi Charlie,

We noticed some discrepancies in the SCAQMD Form 400-E-5 submitted with the application with the data provided to you last week so to tidy things up we are submitting attached revised forms for both plants. As I mentioned in my e-mail below, both catalyst housings will be provided with two additional racks for adding two more layers of catalysts in the future, if necessary.

Thanks,

Terry

-----Original Message-----
From: Ahn, Terry
Sent: Friday, December 06, 2013 1:41 PM
To: Charles Tupac
Cc: Gaurang Rawal; Kogan, Vladimir
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Charlie,

Our consultant contacted Johnson Matthey (JM) to verify the catalyst system configuration for Plant 2 and JM confirmed that both Plants 1 and 2 would have the same type and number of layers of media (16 - 2' x 2' x 3.5" in single layer for CatOx and 32 - 2' x 2' x 3.5" in two layers for SCR). This is sufficient to treat the larger volume of Plant 2 exhaust gas as well. The head loss across the catalyst housing would be slightly higher at Plant 2, but still within the 2 inches WC maximum allowed for the system in our specification. Minimum headloss is 1" WC. The head loss is for the system, which is from the outlet of turbocharger to the inlet of the heat recovery system. It would include the head loss in the piping and the two catalyst housings (CatOx and SCR).

We are supplying this data to you meet your demand; however, we will not accept it as a permit condition unless you provide a regulatory basis for such condition. We have certified CEMS that show real time data for NOx and CO and other means that clearly indicate the health of the catalysts. The delta P condition is just another one of many onerous conditions that doesn't serve any real purpose. In addition, the catalyst housing is designed to allow up to two additional layers of catalysts in case we have difficulty meeting the emission limits (current and future Rule 1110.2 limits) and delta P condition will become an issue.

We firmly believe that the separate permit for the catalyst system does not make sense. The catalyst system sits between the turbocharger and the heat recovery system of the engine and has no emission points of its own. When the catalyst system is down the engine has to be shutdown. It is an integral part of the retrofitted engine.

Terry

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Thursday, December 05, 2013 8:02 AM
To: Ahn, Terry
Cc: Gaurang Rawal; Kogan, Vladimir
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Hi,
I have reviewed the attachment and have additional questions:
1 - What is the basis for the volume of the catalysts (SCR and CO) since they appear to be the same for FV and HB, even though the engines are not.
2- What are the min and max pressure drops across the SCR and CO catalysts for each site.

When will the additional applications be filed? Reviewing Rule 301 Tables - control equipment and basic equipment are separate.

Charlie

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, December 03, 2013 11:24 AM
To: Charles Tupac
Cc: Gaurang Rawal; Kogan, Vlad
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Hi Charlie,

Attached file provides OCSD's response to your request for additional information. Please review and let me or Vlad know if this is satisfactory.

Thanks,

Terry (714) 593-7082

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, November 19, 2013 11:23 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Terry,

Thanks for the info.

OCSD can provide information for item 1 & 2 below, in my email, as they are available.

I believe inlet temperature to the catalyst is an important parameter to maintain control efficiency and achieve emission limit. This is generally based on manufacturer's specs and recommendation.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Thursday, November 14, 2013 1:44 PM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Hi Gaurang,

As a public works agency, OCSD is subject to a competitive bidding process so we cannot simply install the same Johnson Matthey systems that we are currently operating under the research permit on the remaining seven engines. Therefore, we won't know the details for your first two items until the construction contractor is selected and they submit the catalyst system supplier information to us. The lack of this information at this time should not keep you moving forward with the permit application processing.

For Item 3, again this information may be provided after the system supplier is selected. However, our construction specs require that the catalyst housings be designed for a maximum temperature of 1250 degree F and the normal exhaust temperature of 850 degree F. We strongly urge you not to put the inlet temperature requirement as a permit condition since it can set us up for a potential permit violation when the engine temperature spike from time to time.

For Item 4, based on our experience with the Johnson Matthey's systems we should be okay with the 30-minute start-up and 30-minute shutdown periods during normal operation as well as with the 4-hour start-up period after the major maintenance/engine overhaul as Rule 1110.2 allows.

If you have any questions or require additional information please let me know.

Thanks,

Terry Ahn
Orange County Sanitation District |Environmental Compliance Regulatory Specialist
(714) 593-7082
From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, November 05, 2013 2:00 PM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: CGENs with CatOx and SCR, Plant 1 & 2

Terry,

I am near completion of CGEN applications (CatOx and SCR installations), however, the following additional information is required,

* Design basis for urea flow rate required with respect to inlet and outlet NOx (SCR- moles of ammonia: moles of NOx) and ammonia slip. Provide calculations. Urea delivery/metering system capacity and feedback system for NOx control.

* CatOx and SCR catalyst layers and volume basis.

* Temperature operating range (min. - Max.) for CatOx and SCR catalysts (Mfgr. recommendations).

* Confirm that engine start-up period not exceeding 30 minutes is adequate to reach sufficient temperatures for proper operation of emission control equipment. Shutdown period not to exceed 30 minutes. Engine start-up, after an engine overhaul, major repair or maintenance, period not to exceed four operating hrs. [See Exemptions - Rule 1110.2 (i) (10) and (11)]

Thanks,

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov<mailto:grawal@aqmd.gov>

40 CFR 63.6600 - What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

§ 63.6600

What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010]

Estate Planning, Tax Law
Los Angeles, CA
gold Badge

Jeffrey D. Goldman

Business Law, Entertainment & Sports,
Intellectual Property, Trademarks
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40 CFR 63, Subpart ZZZZ, Table 4 to Subpart ZZZZ of Part 63 - Requirements for Performance Tests

There are 17 Updates appearing in the Federal Register for *40 CFR 63*. Select the tab below to view, or View eCFR (GPOAccess)

CFR **Updates** **Authorities (U.S. Code)** **Rulemaking**

prev | next

View PDF at GPO Pt. 63, Subpt. ZZZZ, Table 4

TABLE 4 TO SUBPART ZZZZ OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

As stated in §§ 63.6610, 63.6611, 63.6612, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

For each . . .	Complying with therequirement to . . .	You must . . .	Using . . .	According to the following requirements . .
1. 2SLB, 4SLB, and CI stationary RICE	a. Reduce CO emissions	i. Measure the O2 at the inlet and outlet of the control device; and	(1) Portable CO and O2 analyzer	(a) Using ASTM D6522-00 (2005) [a] (incorporated by reference, see § 63.14). Measurements to determine O2 must be made at the same time as the measurements for CO concentration.
		ii. Measure the CO at the inlet and the outlet of the control device	(1) Portable CO and O2 analyzer	(a) Using ASTM D6522-00 (2005) *a b* (incorporated by reference, see § 63.14) or Method 10 of 40 CFR appendix A. The CO concentration

[a] You may also use Methods 3A and 10 as options to ASTM D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM-D6522-00 (2005) may be used to test both CI and SI stationary RICE.

[b] You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03.

[c] You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

For each . . .	Complying with therequirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
				must be at 15 percent O2, dry basis.
2. 4SRB stationary RICE	a. Reduce formaldehyde emissions	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A § 63.7(d)(1)(i)	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522-00m (2005)	(a) Measurements to determine O2 concentration must be made at the same time as the measurements for formaldehyde concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the inlet and the outlet of the control device	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03,[c] provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. Limit the concentration of formaldehyde or	i. Select the sampling port location and the	(1) Method 1 or 1A of 40 CFR part 60,	(a) If using a control device, the sampling

[a] You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM-D6522-00 (2005) may be used to test both CI and SI stationary RICE.

[b] You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03.

[c] You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

For each . . .	Complying with therequirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
	CO in the stationary RICE exhaust	number of traverse points; and	appendix A § 63.7(d)(1)(i)	site must be located at the outlet of the control device.
		ii. Determine the O2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522-00 (2005)	(a) Measurements to determine O2 concentration must be made at the same time and location as the measurements for formaldehyde concentration.
		iii. Measure moisture content of the stationary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03,[c] provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. Measure CO at the exhaust of the stationary RICE	(1) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522-00 (2005),[a] Method 320 of 40 CFR	(a) CO Concentration must be at 15 percent O2, dry basis. Results of this test consist of the average

[a] You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM-D6522-00 (2005) may be used to test both CI and SI stationary RICE.

[b] You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03.

[c] You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

For each . . .	Complying with therequirement to . . .	You must . . .	Using . . .	According to the following requirements . .
			part 63, appendix A, or ASTM D6348-03	of the three 1-hour longer runs.

a You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM-D6522-00 (2005) may be used to test both CI and SI stationary RICE.

b You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03.

c You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[75 FR 51597, Aug. 20, 2010]

Gaurang Rawal

From: Gaurang Rawal
Sent: Tuesday, November 19, 2013 11:23 AM
To: 'Ahn, Terry'
Cc: Kogan, Vlad
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Terry,

Thanks for the info.

OCSD can provide information for item 1 & 2 below, in my email, as they are available.

I believe inlet temperature to the catalyst is an important parameter to maintain control efficiency and achieve emission limit. This is generally based on manufacturer's specs and recommendation.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Thursday, November 14, 2013 1:44 PM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGENs with CatOx and SCR, Plant 1 & 2

Hi Gaurang,

As a public works agency, OCSD is subject to a competitive bidding process so we cannot simply install the same Johnson Matthey systems that we are currently operating under the research permit on the remaining seven engines. Therefore, we won't know the details for your first two items until the construction contractor is selected and they submit the catalyst system supplier information to us. The lack of this information at this time should not keep you moving forward with the permit application processing.

For Item 3, again this information may be provided after the system supplier is selected. However, our construction specs require that the catalyst housings be designed for a maximum temperature of 1250 degree F and the normal exhaust temperature of 850 degree F. We strongly urge you not to put the inlet temperature requirement as a permit condition since it can set us up for a potential permit violation when the engine temperature spike from time to time.

For Item 4, based on our experience with the Johnson Matthey's systems we should be okay with the 30-minute start-up and 30-minute shutdown periods during normal operation as well as with the 4-hour start-up period after the major maintenance/engine overhaul as Rule 1110.2 allows.

If you have any questions or require additional information please let me know.

Thanks,

Terry Ahn
Orange County Sanitation District |Environmental Compliance
Regulatory Specialist
(714) 593-7082

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, November 05, 2013 2:00 PM

To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: CGENs with CatOx and SCR, Plant 1 & 2

Terry,

I am near completion of CGEN applications (CatOx and SCR installations), however, the following additional information is required,

- Design basis for urea flow rate required with respect to inlet and outlet NOx (SCR- moles of ammonia: moles of NOx) and ammonia slip. Provide calculations. Urea delivery/metering system capacity and feedback system for NOx control.

- CatOx and SCR catalyst layers and volume basis.

- Temperature operating range (min. – Max.) for CatOx and SCR catalysts (Mfgr. recommendations).

- Confirm that engine start-up period not exceeding 30 minutes is adequate to reach sufficient temperatures for proper operation of emission control equipment. Shutdown period not to exceed 30 minutes. Engine start-up, after an engine overhaul, major repair or maintenance, period not to exceed four operating hrs. [See Exemptions - Rule 1110.2 (i) (10) and (11)]

Thanks,

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

Gaurang Rawal

From: Yolanda Roberts
Sent: Thursday, September 26, 2013 9:31 AM
To: Gaurang Rawal
Subject: RE: Request for B-Cat and Type change

Done

From: Gaurang Rawal
Sent: Thursday, September 26, 2013 8:45 AM
To: Yolanda Roberts
Subject: RE: Request for B-Cat and Type change

Thanks. Need Type 50 to take care of prev emissions, fees, etc.

From: Yolanda Roberts
Sent: Thursday, September 26, 2013 8:31 AM
To: Gaurang Rawal
Subject: RE: Request for B-Cat and Type change

Good Morning Gaurang,

I changed the BCat but what type do you want?

From: Gaurang Rawal
Sent: Thursday, September 26, 2013 7:50 AM
To: Yolanda Roberts
Subject: Request for B-Cat and Type change

Yolanda,

Good Morning,

A request to change **C-Cat # 2B to B-Cat # 056057** for the following applications (already prescreened);

Fac. ID # 029110

A/N 546364 Existing PO G2958

A/N 546365 Existing PO G2959

A/N 546366 Existing PO G2964

A/N 546367 Existing PO G2966, and

A/N 546368 Existing PO G2967

Please let me know when it is Done.

THANKS!

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

Gaurang Rawal

From: Charles Tupac
Sent: Wednesday, September 25, 2013 10:08 AM
To: Ahn, Terry
Cc: Kogan, Vlad; Gaurang Rawal
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,
We will not proceed on the cogen applications until urea applications are submitted.
Charlie

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 2:29 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

[redacted]harlie,

It will save everyone's time and headache if you include the urea tanks as part of SCR equipment description. Urea has no other use except for SCRs and will be piped directly to them. It's not the money issue. I'm sorry for being stubborn, but at the end of the day, we're left with the permits and compliance burden. I'll feel so much better submitting permit application (and will do so ASAP) if you can show me some examples of other facilities with separate permits.

Terry

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, September 24, 2013 2:06 PM
To: Ahn, Terry
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

[redacted]erry,
don't have the time, and there is no exemption in 219. It's a couple of Schedule A's. Please file asap.
Charlie

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 12:54 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Wherever this power plant may be it's in AQMD's jurisdiction. Do YOU have other examples that you can use to convince me that AQMD issue separate permits for urea tanks?

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, September 24, 2013 12:48 PM
To: Ahn, Terry
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Because - we can't use a permit on an island somewhere in the pacific as an example.

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 12:13 PM
To: Charles Tupac
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Charlie,

I asked for an example permit and you guys brought up the power plant operations. Now I know that the urea tank at this power plant is included in the equipment description for the SCR, I'd like to know why you require separate permits for us?

Terry

From: Charles Tupac [mailto:ctupac@aqmd.gov]
Sent: Tuesday, September 24, 2013 11:55 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Please proceed with applying for permits to construct/operate the urea tanks.

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 11:38 AM
To: Gaurang Rawal
Cc: Kogan, Vlad; Charles Tupac
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

You mean "anhydrous" not "aqueous." That's a whole another story and let's not go there.

I asked the consultant if the permit contained the A/N for the urea storage tank, and his answer was no. A/N's were given for SCR systems only. Obviously, the consultant could not give me a copy of the permit but he told me it's SCE power plant in Pebbly Beach, I think. Can't you get the permit and take a look at it for yourself? Who knows how long it will take me to go through AQMD's Public Records Request.

Thanks,

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Tuesday, September 24, 2013 11:18 AM
To: Ahn, Terry
Cc: Kogan, Vladimir; Charles Tupac
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

I understand the logical argument, however, at this time as there is no exemption under Rule 219, permit applications required for Urea soln. storage tanks. Therefore, tank A/N # may have been included under Reclaim Permit (as no exemption).

It is my understanding that when tank is filled, ammonia vapors displaced is routed back to tank trailer (vapor return line) thereby no filling losses. Assume breathing loss (NH3) is minimal at ambient condition. Perhaps, this maybe the

reason for no condition OR believe that tank may have been equipped with a pressure relief valve set at desired P setting minimizing breathing loss.

We did look into this requirement for R441 permit, however, since it was for a short duration and not on a permanent basis, we included under research permit equipment description.

Gaurang
p.s. Maybe next Rule 219 amendment, OCSD may bring it to the Rule writer's consideration (NH3 ?) . As you are aware aqueous NH3 storage tank requires permit

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, September 24, 2013 10:24 AM
To: Gaurang Rawal
Cc: Kogan, Vlad; Charles Tupac
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Gaurang,

Spoke with our engineering consultants who are familiar with power plants. He gave me an example of one power plant which, as expected, is a RECLAIM facility. Their facility permit includes the urea storage tank as part of the equipment description for one of their SCR systems. (i.e. the urea tank serves multiple SCR systems but the permit lists the tank in the equipment description for only one SCR system). Furthermore, there are no permit conditions specific to the urea storage tank.

Our J-79 research permit (A/N 497717) includes both catalyst systems, digester gas cleaning system, and urea storage tank all in one permit. Why can't you take that same approach?

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Friday, September 20, 2013 7:09 AM
To: Ahn, Terry
Cc: Kogan, Vladimir; Charles Tupac
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Here is no exemption for Urea solution storage tank under Rule 219 as it may contain free ammonia (NSR pollutant). I inquired within District and such permits are required (e.g. power plants operations with SCR). Staff have determined permit requirement. You may request permits issued by SCAQMD through Public Records Request.

Thanks.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Friday, September 20, 2013 6:50 AM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Gaurang,

What's your justification for requiring permits for the urea storage tanks? Can you send me sample copies of permits held by other facilities with SCR systems?

Thanks,

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Thursday, September 19, 2013 3:23 PM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Urea solution storage tanks are required applications for permits to construct.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, August 20, 2013 2:22 PM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Hi Gaurang,

The post-modification emissions data provided in the permit application were calculated based on the results of the annual compliance source test conducted on Plant 1 Engine 1 (with -79 pilot system) on Dec. 13, 2011. The attached excerpts from the source test report provide the summary of results you are looking for.

In regards to the urea storage tanks, we believe that they are exempt per Rule 219 m(21). It states that "Stationary equipment used exclusively to store and/or transfer organic compounds that do not contain VOCs." Urea is in a strictest sense is an organic compound. Please check out these hyperlinks: http://en.wikipedia.org/wiki/Urea and http://www.acdlabs.com/iupac/nomenclature/79/r79_661.htm (this is IUPAC rule for naming urea as an organic compound).

Please let me know if you need anything else.

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Friday, August 16, 2013 8:23 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

OCSD has provided post-modifications for CGS (DGCS, CatOx and SCR) maximum emission rates for 6 pollutants based on J-79 pilot study.
Please provide Summary of Results for the pilot study that were used for post-modification emissions rate for Plant #1 & #2, Table 2.3-1 and Table 2.3-2 submitted with application (e.g. exhaust flow rate, exhaust temperature, % H2O, %O2, , concentration for air pollutants, emission rate, engine load, etc.).

Thanks,

Gaurang Rawal

From: Gaurang Rawal
Sent: Wednesday, August 07, 2013 11:47 AM
To: 'Ahn, Terry'
Cc: 'Kogan, Vladimir'
Subject: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Hope you had a nice and relaxing vacation and, now busy with Back to School preparations and shopping!

We have received applications for CGS IC engine's modifications applications (Plant #1 & #2) for DG cleaning system, Catox and SCR add-on controls.

Please submit separate application for each of the Urea storage tank to be installed at both plants, with estimated daily emissions-lbs/hr, lbs/day.

Also provide greenhouse gas (GHG) and CO2e emissions for each of the engine, and total emissions (GHGs and CO2e) for the project, for plant #1 & #2.

Thanks.

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

FACILITY PERMIT TO OPERATE
AES HUNTINGTON BEACH, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions * And Requirements	Conditions
Process 5 : UREA TO AMMONIA GENERATION SYSTEM					
REACTOR, NO. R-104, UREA, UREA TO AMMONIA SYSTEM SERVING SCR NOS. 3 AND 4 A/N: 377759 † Permit to Construct Issued: 05/30/01	D111				
STORAGE TANK, FIXED ROOF, NO. T-104, 40 PERCENT UREA, REACTOR FEED TANK, DIAMETER: 12 FT; HEIGHT: 16 FT 6 IN A/N: 377759 † Permit to Construct Issued: 05/30/01	D112	G13056			
Process 6 : INORGANIC CHEMICAL STORAGE					
STORAGE TANK, FIXED ROOF, NO. 1, UREA, 30000 GALS A/N: 372930 † Permit to Construct Issued: 03/07/01	D97	PO G9993			193-1

Also A/N 372930 - Urea Stg. Tk

- (1) Denotes RECLAIM emission factor
- (2) Denotes RECLAIM emission rate
- (3) Denotes RECLAIM concentration limit
- (4) Denotes BACT emission limit
- (5)(5A)(5B) Denotes command and control emission limit
- (6) Denotes air toxic control rule limit
- (7) Denotes NSR applicability limit
- (8)(8A)(8B) Denotes 40 CFR limit(e.g. NSPS, NESHAPS,etc.)
- (9) See App B for Emission Limits
- (10) See Section J for NESHAP/MACT requirements

** Refer to Section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

Gaurang Rawal

From: Gaurang Rawal
Sent: Thursday, September 19, 2013 3:23 PM
To: 'Ahn, Terry'
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Urea solution storage tanks are required applications for permits to construct.

Gaurang

From: Ahn, Terry [mailto:tahn@ocsd.com]
Sent: Tuesday, August 20, 2013 2:22 PM
To: Gaurang Rawal
Cc: Kogan, Vlad
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Hi Gaurang,

The post-modification emissions data provided in the permit application were calculated based on the results of the annual compliance source test conducted on Plant 1 Engine 1 (with -79 pilot system) on Dec. 13, 2011. The attached excerpts from the source test report provide the summary of results you are looking for.

In regards to the urea storage tanks, we believe that they are exempt per Rule 219 m(21). It states that "Stationary equipment used exclusively to store and/or transfer organic compounds that do not contain VOCs." Urea is in a strictest sense is an organic compound. Please check out these hyperlinks: http://en.wikipedia.org/wiki/Urea and http://www.acdlabs.com/iupac/nomenclature/79/r79_661.htm (this is IUPAC rule for naming urea as an organic compound).

Please let me know if you need anything else.

Terry

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Friday, August 16, 2013 8:23 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: RE: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

OCSD has provided post-modifications for CGS (DGCS, CatOx and SCR) maximum emission rates for 6 pollutants based on J-79 pilot study.
Please provide Summary of Results for the pilot study that were used for post-modification emissions rate for Plant #1 & #2, Table 2.3-1 and Table 2.3-2 submitted with application (e.g. exhaust flow rate, exhaust temperature, % H2O, %O2, , concentration for air pollutants, emission rate, engine load, etc.).

Thanks,

Gaurang Rawal

From: Gaurang Rawal
Sent: Wednesday, August 07, 2013 11:47 AM
To: 'Ahn, Terry'
Cc: 'Kogan, Vladimir'
Subject: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Hope you had a nice and relaxing vacation and, now busy with Back to School preparations and shopping!

We have received applications for CGS IC engine's modifications applications (Plant #1 & #2) for DG cleaning system, Catox and SCR add-on controls.

Please submit separate application for each of the Urea storage tank to be installed at both plants, with estimated daily emissions-lbs/hr, lbs/day.

Also provide greenhouse gas (GHG) and CO2e emissions for each of the engine, and total emissions (GHGs and CO2e) for the project, for plant #1 & #2.

Thanks.

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

Gaurang Rawal

From: Kogan, Vladimir [VKOGAN@OCSD.COM]
Sent: Wednesday, August 14, 2013 2:57 PM
To: Gaurang Rawal
Cc: Colston, Jim; Rothbart, Lisa; Ahn, Terry; AbuShaban, Randa
Subject: FW: CGS ICEs' Modifications Applications, Plant #1 & #2
Attachments: GHG Summary Report_Plant1.pdf; 2011_GHG Summary Report_Plant2.pdf

Gaurang,
Per your request enclosed please find our 2011 Calendar Year GHG report for both plants. I believe that it contains all the information you have asked. We already have 2012 report but its verification is not completed and should be available by the end of this month. By the way, the engines 2012 GHG emission appeared to be even lower than in 2011. In any case, it is well below the Tailoring rule (40CFR 52.21) limits.
We are sending this material in order not to delay your review of the CGS reconstruction permit application. We need this permit as soon as possible in order to advertise the bids for the construction. It is our and other parties opinion that the EPA deferral of applicability of the Tailoring rule to the biogas processes is still valid despite the Circuit Court decision. As you know, the EPA decisions are becoming official only after their publishing in the Federal Register. In any case we firmly believe that this correspondence shouldn't result in any additional modeling, GHG BACT installation, etc. As you know we are undergoing this complex and costly project in order to reduce the engines emissions, including the emissions of greenhouse gases.
Your question regarding the urea tank will be addressed separately.
Thanks
VK

From: Gaurang Rawal [mailto:grawal@aqmd.gov]
Sent: Wednesday, August 07, 2013 11:47 AM
To: Ahn, Terry
Cc: Kogan, Vladimir
Subject: CGS ICEs' Modifications Applications, Plant #1 & #2

Terry,

Hope you had a nice and relaxing vacation and, now busy with Back to School preparations and shopping!

We have received applications for CGS IC engine's modifications applications (Plant #1 & #2) for DG cleaning system, Catox and SCR add-on controls.

Please submit separate application for each of the Urea storage tank to be installed at both plants, with estimated daily emissions-lbs/hr, lbs/day.

Also provide greenhouse gas (GHG) and CO2e emissions for each of the engine, and total emissions (GHGs and CO2e) for the project, for plant #1 & #2.

Thanks.

Gaurang Rawal
AQ Engineer
South Coast AQMD
Refinery & Waste Management
Phone: (909) 396-2543
grawal@aqmd.gov

Certification Statement:

The designated representative or alternate designated representative must sign (i.e., agree to) this certification statement. If you are an agent and you click on "SUBMIT", you are not agreeing to the certification statement, but are submitting the certification statement on behalf of the designated representative or alternate designated representative who is agreeing to the certification statement. An agent is only authorized to make the electronic submission on behalf of the designated representative, not to sign (i.e., agree to) the certification statement.

Facility Name: Orange County Sanitation District - Plant 2
Facility ARB ID: 101280
Facility Reporting Year: 2011
Facility Location:
Address: 22212 Brookhurst Street
City: Huntington Beach
State: CA
Postal Code: 92646
County: ORANGE

Facility Site Details:
CO2 Equivalent (mtons, Subparts C-AA): 1905 (excluding biogenic; does not include de minimis emissions)
CO2 Equivalent (mtons, Subparts MM-PP): 0 (does not include de minimis emissions)
Exempt Biogenic CO2 (mtons, Subparts C-AA): 22833 (does not include de minimis emissions)
Cogeneration Unit Emissions Indicator: Y
GHG Report Start Date: 2011-01-01
GHG Report End Date: 2011-12-31
Description of Changes to Calculation Methodology:
Description of Best Available Monitoring Methods Used:
Full or Abbreviated GHG Report? Full
Confidential Data and Other Comments:
De Minimis CO2 Emissions (metric tons):
De Minimis CH4 Emissions (metric tons):
De Minimis N2O Emissions (metric tons):
Primary NAICS Code: 221320
Second Primary NAICS Code:

Parent Company Details:
Parent Company Name: Orange County Sanitation District (OCSD)
Address: 10844 Ellis Avenue, Fountain Valley, CA 92708
Percent Ownership Interest: 100

Electricity Generating Unit Basic Information
CEC ID (if applicable): E0025
EIA ID (if applicable): 52099
FERC QFID (if applicable): 2804
CAISO ID (if applicable):
Total Facility Nameplate Generating Capacity (MW): 15
Facility Type: Independently operated and sited cogeneration facility
Facility's Energy Disposition: None of the above
Generated electricity used for other on-site industrial processes that are not in support of or a part of the power generation system (MWh): 41424.995
Generated thermal energy used for supporting power production (MMBtu): 46810.535
Generated thermal energy used by on-site industrial processes or operations and heating or cooling applications (MMBtu): 46810.535

Disposition of Generated Electricity

End-User Name	ARB ID	NAICS	Electricity Provided or Sold (MWh)
Southern California Edison (SCE)	3005		7.704

Electricity Purchases/Acquisitions

Electricity Provider's Name	Provider's ARB ID	Purchases/Acquisitions (MWh)
Southern California Edison (SCE)	3005	29998.044

Natural Gas Purchases/Acquisitions:

Natural Gas Provider Name	Provider's ARB ID/Customer Number	Purchases/Acquisitions (MMBtu)
The Gas Company	09421095002	29403
The Gas Company	09211095550	6008

Subpart C: General Stationary Fuel Combustion

Gas Information Details

Gas Name	Other Gas Name	Gas Quantity	Override	Override Explanation
Methane		1.46 (Metric Tons)		
Nitrous Oxide		0.281 (Metric Tons)		
Carbon Dioxide		1787 (Metric Tons)		
Exempt Biogenic Carbon dioxide		22833 (Metric Tons)		

Unit Details:

Unit Name : GP- Comfort Heating & Flare Pilot
Unit Type : OCS (Other combustion source)
Unit Description : Natural Gas supply for space heating, water heaters, bunsen burners in the laboratory, and flare complex pilot.

Small Unit Aggregation Details:

Highest Maximum Rated Heat Input Capacity: 0.95

Electricity Generation Capacity:

Does this configuration have the capacity to generate electricity? N
Nameplate Generating Capacity: ()
Prime Mover Technology:
Type of Thermal Energy Generation:
Gross Generation: ()
Net Generation: ()
Total Gross Thermal Output (for Congeneration or Bigeneration): ()
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted:
Geothermal Steam Utilized:
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):

Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 0.0
Annual Fossil fuel based CO2 Emissions (metric tons): 317.0

Tier Fuel Details:

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
317.0(Calculated Value Overridden) (Metric Tons)	0.01(Calculated Value Overridden) (Metric Tons)	0.001(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.3 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
5901800 (scf)	0.001016 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Unit Name : Generator CGS - 2
Unit Type : RICE (Reciprocating internal combustion engine)
Unit Description : Internal Combustion Engine , Cooper Bessmer, Model No. LSVB-16-SGC, 4166 HP, 3000 KW Electric Generator, 6010200 BTU/Hr capacity.

Individual Unit Details:
Maximum Rated Heat Input Capacity: 6.0102
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? Y
Nameplate Generating Capacity: 3.0 (MW)
Prime Mover Technology: Internal Combustion Engine
Type of Thermal Energy Generation: Cogeneration Topping Cycle
Gross Generation: 8931.631 (MWh)
Net Generation: 8407.048 (MWh)
Total Gross Thermal Output (for Congeneration or Bigeneration): 9362.107 (MMBtu)
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted: 0
Geothermal Steam Utilized: 9362.107
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 4500.2

Tier Fuel Details:
Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
4500.2(Calculated Value Overridden) (Metric Tons)	0.28(Calculated Value Overridden) (Metric Tons)	0.054(Calculated Value Overridden) (Metric Tons)	5.8 (Metric Tons)	16.7 (Metric Tons)

Equation Inputs:

Mass or Volume of	Annual	Fuel Specific	Fuel Specific	Fuel Specific

Fuel Combusted per Year	Average High Heat Value	CO2 Emissions Factor	CH4 Emissions Factor	N2O Emissions Factor
135279100 (scf)	0.000639 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
361.2(Calculated Value Overridden) (Metric Tons)	0.01(Calculated Value Overridden) (Metric Tons)	0.001(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.2 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
6691700 (scf)	0.001018 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Unit Name : Generator CGS - 4
Unit Type : RICE (Reciprocating internal combustion engine)
Unit Description : Internal Combustion Engine , Cooper Bessmer, Model No. LSVB-16-SGC, 4166 HP, 3000 KW Electric Generator, 6010200 BTU/Hr capacity.

Individual Unit Details:
Maximum Rated Heat Input Capacity: 6.0102
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? Y
Nameplate Generating Capacity: 3.0 (MW)
Prime Mover Technology: Internal Combustion Engine
Type of Thermal Energy Generation: Cogeneration Topping Cycle
Gross Generation: 5944.5934 (MWh)
Net Generation: 5420.0104 (MWh)
Total Gross Thermal Output (for Congeneration or Bigeneration): 9362.107 (MMBtu)
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted: 0
Geothermal Steam Utilized: 9362.107
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 3217.0

Tier Fuel Details:
Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
3217.0(Calculated Value Overridden) (Metric Tons)	0.20(Calculated Value Overridden) (Metric Tons)	0.039(Calculated Value Overridden) (Metric Tons)	4.2 (Metric Tons)	12.1 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
96660500 (scf)	0.000639 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
284.9(Calculated Value Overridden) (Metric Tons)	0.01(Calculated Value Overridden) (Metric Tons)	0.001(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.3 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
5279000 (scf)	0.001018 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Unit Name : Generator CGS - 5 & Steam Turbine
Unit Type : RICE (Reciprocating internal combustion engine)
Unit Description : Internal Combustion Engine , Cooper Bessmer, Model No. LSVB-16-SGC, 4166 HP, 3000 KW Electric Generator, 6010200 BTU/Hr capacity. Coppus Murray steam turbine, 1 MW, Serial No. T-5223, 767 HP, and 6520 RPM.

Individual Unit Details:
Maximum Rated Heat Input Capacity: 6.0102
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? Y
Nameplate Generating Capacity: 4 (MW)
Prime Mover Technology: Internal Combustion Engine
Type of Thermal Energy Generation: Cogeneration Topping Cycle
Gross Generation: 4328.635 (MWh)

Net Generation: 3279.469 (MWh)
Total Gross Thermal Output (for Congeneration or Bigeneration): 9362.107 (MMBtu)
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted:
Geothermal Steam Utilized: 9362.107
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 1896.8

Tier Fuel Details:
Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
142.8(Calculated Value Overridden) (Metric Tons)	0.00(Calculated Value Overridden) (Metric Tons)	0.000(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.0 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
2645900 (scf)	0.001018 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
1896.8(Calculated Value Overridden) (Metric Tons)	0.12(Calculated Value Overridden) (Metric Tons)	0.023(Calculated Value Overridden) (Metric Tons)	2.5 (Metric Tons)	7.1 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per	Annual Average High	Fuel Specific CO2 Emissions	Fuel Specific CH4 Emissions	Fuel Specific N2O Emissions

Year	Heat Value	Factor	Factor	Factor
57049500 (scf)	0.000639 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Unit Name : Generator CGS - 1
Unit Type : RICE (Reciprocating internal combustion engine)
Unit Description : Internal Combustion Engine , Cooper Bessmer, Model No. LSVB-16-SGC, 4166 HP, 3000 KW Electric Generator, 6010200 BTU/Hr capacity.

Individual Unit Details:
Maximum Rated Heat Input Capacity: 6.0102
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? Y
Nameplate Generating Capacity: 3.0 (MW)
Prime Mover Technology: Internal Combustion Engine
Type of Thermal Energy Generation: Cogeneration Topping Cycle
Gross Generation: 7211.846 (MWh)
Net Generation: 6687.263 (MWh)
Total Gross Thermal Output (for Congeneration or Bigeneration): 9362.107 (MMBtu)
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted: 0
Geothermal Steam Utilized: 9362.107
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 3851.0

Tier Fuel Details:
Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
3851.0(Calculated Value Overridden) (Metric Tons)	0.24(Calculated Value Overridden) (Metric Tons)	0.047(Calculated Value Overridden) (Metric Tons)	5.0 (Metric Tons)	14.6 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
115841000 (scf)	0.000638 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
239.5(Calculated Value Overridden) (Metric Tons)	0.01(Calculated Value Overridden) (Metric Tons)	0.000(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.1 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
4438300 (scf)	0.001018 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Unit Name : GP- Boilers (2)
Unit Type : OCS (Other combustion source)
Unit Description : Two (2) Boilers, Cleaver Brooks, Model No. CB700-250, 10.46 MMBtu/Hr, Low-Nox Burners and Flue Gas Recirculation (FGR) system.

Small Unit Aggregation Details:
Highest Maximum Rated Heat Input Capacity: 10.46
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? N
Nameplate Generating Capacity: ()
Prime Mover Technology:
Type of Thermal Energy Generation:
Gross Generation: ()
Net Generation: ()
Total Gross Thermal Output (for Congeneration or Bigeneration): ()
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted:
Geothermal Steam Utilized:
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 43.7
Annual Fossil fuel based CO2 Emissions (metric tons): 0.6

Tier Fuel Details:
Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e

43.7(Calculated Value Overridden) (Metric Tons)	0.00(Calculated Value Overridden) (Metric Tons)	0.001(Calculated Value Overridden) (Metric Tons)	0.1 (Metric Tons)	0.2 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
1313730 (scf)	0.000639 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
0.6(Calculated Value Overridden) (Metric Tons)	0.00(Calculated Value Overridden) (Metric Tons)	0.000(Calculated Value Overridden) (Metric Tons)	0.0 (Metric Tons)	0.0 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
106428 (scf)	0.001017 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Unit Name : Generator CGS - 3
Unit Type : RICE (Reciprocating internal combustion engine)
Unit Description : Internal Combustion Engine , Cooper Bessmer, Model No. LSVB-16-SGC, 4166 HP, 3000 KW Electric Generator, 6010200 BTU/Hr capacity.

Individual Unit Details:
Maximum Rated Heat Input Capacity: 6.0102
Electricity Generation Capacity:
Does this configuration have the capacity to generate electricity? Y
Nameplate Generating Capacity: 3.0 (MW)
Prime Mover Technology: Internal Combustion Engine
Type of Thermal Energy Generation: Cogeneration Topping Cycle
Gross Generation: 18013.022 (MWh)
Net Generation: 17488.439 (MWh)
Total Gross Thermal Output (for Congeneration or Bigeneration): 9362.107 (MMBtu)
Other Steam Used for Electricity Generation: ()
Supplemental Fuel Type:
Annual Mass or Volume of Fuel Combusted: 0
Geothermal Steam Utilized: 9362.107
Hydrogen Fuel Cell Fuel Utilized:

Emission Details: Configuration-Level Summary (User entered values):
Annual Sorbent based CO2 Emissions (metric tons): 0.0
Annual Exempt Biogenic CO2 Emissions (metric tons): 9324.4

Tier Fuel Details:

Fuel : Natural Gas (Weighted U.S. Average) (Natural Gas)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
439.6(Calculated Value Overridden) (Metric Tons)	0.01(Calculated Value Overridden) (Metric Tons)	0.001(Calculated Value Overridden) (Metric Tons)	0.2 (Metric Tons)	0.3 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
8145900 (scf)	0.001018 (mmBtu/scf)	53.02 (kg CO2/MMBtu)	0.001 (kg CH4/MMBtu)	0.0001 (kg N2O/MMBtu)

Fuel : Biogas (Captured methane) (Biomass-Derived Fuels - Gaseous)
Tier Name : Tier 2 (Equation C-2a)
Tier Methodology Start Date : 2011-01-01-00:08
Tier Methodology End Date : 2011-12-31-00:08
Frequency of HHV determinations : Monthly

Tier 2 HHV Substitute Data Information. Identify each month for which the monthly HHV value is calculated using one or more substitute data values:

January	February	March	April	May	June	July	August	September	October	November	December
N	N	N	N	N	N	N	N	N	N	N	N

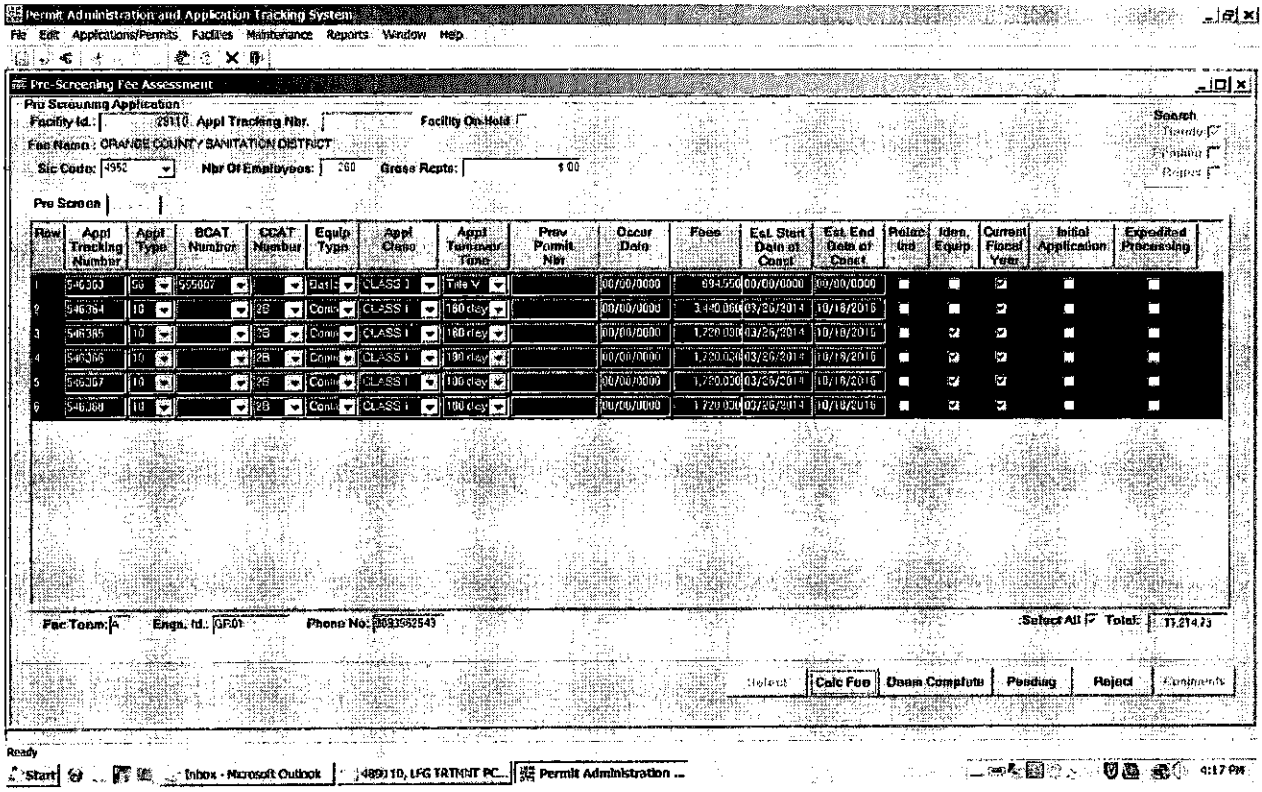
Fuel Emission Details:

Total CO2 emissions	Total CH4 emissions	Total N2O emissions	Total CH4 emissions CO2e	Total N2O emissions CO2e
9324.4(Calculated Value Overridden) (Metric Tons)	0.57(Calculated Value Overridden) (Metric Tons)	0.113(Calculated Value Overridden) (Metric Tons)	12.0 (Metric Tons)	35.0 (Metric Tons)

Equation Inputs:

Mass or Volume of Fuel Combusted per Year	Annual Average High Heat Value	Fuel Specific CO2 Emissions Factor	Fuel Specific CH4 Emissions Factor	Fuel Specific N2O Emissions Factor
280665200 (scf)	0.000638 (mmBtu/scf)	52.07 (kg CO2/MMBtu)	0.0032 (kg CH4/MMBtu)	0.00063 (kg N2O/MMBtu)

Time And Date Report Generated: 08/30/2012 11:55



546364 → 546368 5 A/Ns Add on Calc/SCR Ident. Equip.

C cat 2B
Sch C = $3440.06 1st
$1720.03 each ident. Eq.

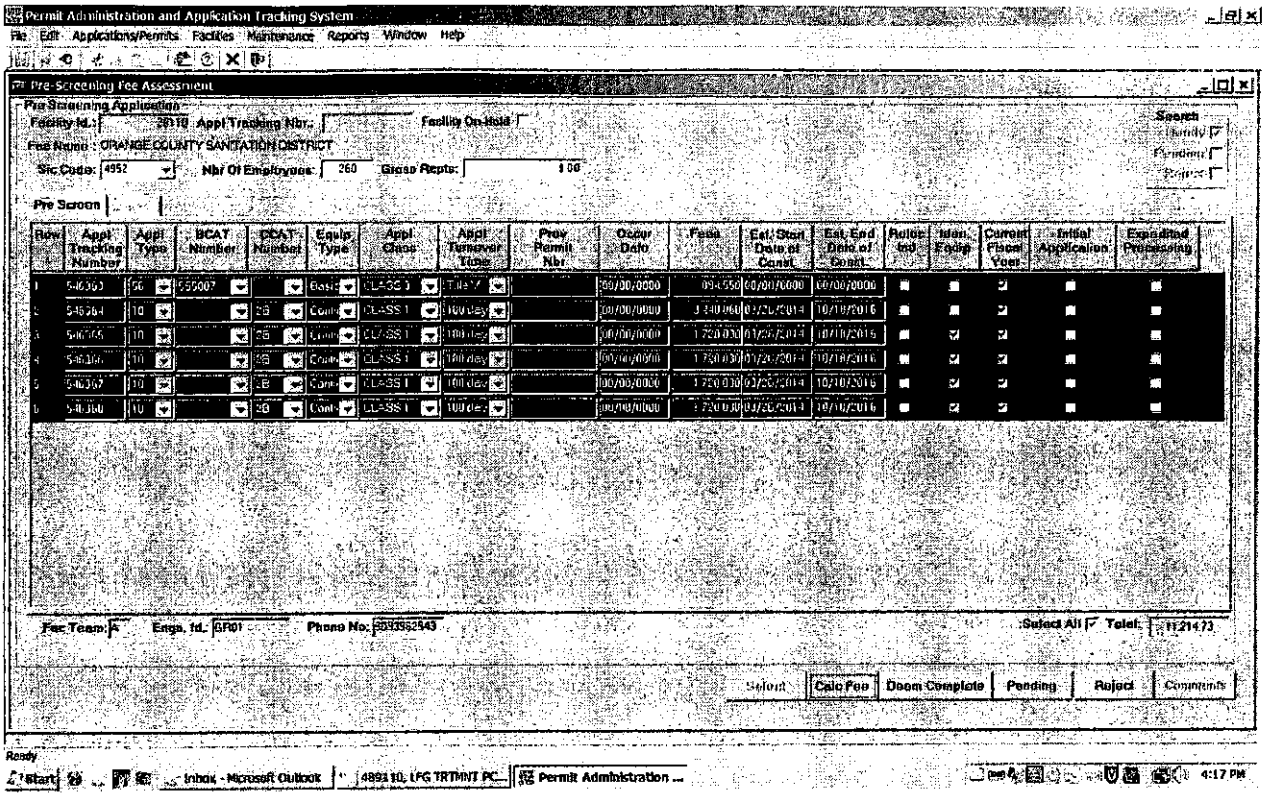
3/13/2013

ORANGE COUNTY
SANITATION DISTRICT

10844 Ellis Avenue
Fountain Valley, CA 92708-7018
(714) 962-2411

VENDOR NO. 83926 DATE: 12/[illegible]12 CHECK NO. 1000053307
VENDOR NAME SOUTH COAST AQMD

INVOICE NO.	INVOICE DATE	DESCRIPTION	GROSS AMOUNT	DISC. - ADJ.	PAYMENT AMOUNT
FACILITY ID NO. 029110	12/05/12	G2958,G2959,G2964,G296	15,138.13		15,138.13
		AMOUNT - U.S. DOLLARS			$****15,138.13



546364 —5 A/Ns→ 546368 Add on Catox/SCR Ident. Equip.

Cat 2B
Sch C = $3440.66 1st
$1720.03 each ident. Eq.

Sept. 27, 2013

Considering ALT/Modi. to ICE (and not as 2-add-on APCs)
(Sch. D)

1st Eq. 4747.86 (Sch. D, ALT-N, FY 12-13)
+ 9475.72 (4 Ident. ICEs) = $2373.93 / ident
+ $94.55 TV Rev.

$15,138.13

Fee paid is same
(see 40-A Note)

3/13/2013

Rule 301 Fee Schedule FY 12-13 (Effective 07/01/12 to 6/30/2013)

For Internal Use Only

New		Large Business/ Identical Equipment				Small Business			Annual Fee *No* Rebate
Previous Year Fee	Sch	Current Fee	Identical Equip	PO no PC	Identical PO no PC	Base or Identical	Higher Fee (50%)	PO no PC	
$1,332.65	A	$1,364.63	$682.32	$2,046.95	$1,023.48	$682.32	$341.16	$1,023.48	$310.85
$1,332.65	A1	$1,364.63	$682.32	$2,046.95	$1,023.48	$682.32	$341.16	$1,023.48	$155.13
$2,123.92	B	$2,174.89	$1,087.45	$3,262.34	$1,631.18	$1,087.45	$543.73	$1,631.18	$310.85
$3,359.43	B1	$3,440.06	$1,720.03	$5,160.09	$2,580.05	$1,720.03	$860.02	$2,580.05	$310.85
$3,359.43	C	$3,440.06	$1,720.03	$5,160.09	$2,580.05	$1,720.03	$860.02	$2,580.05	$1,113.34
$4,636.58	D	$4,747.86	$2,373.93	$7,121.79	$3,560.90	$2,373.93	$1,186.97	$3,560.90	$1,113.34
$5,330.66	E	$5,458.60	$2,729.30	$8,187.90	$4,093.95	$2,729.30	$1,364.65	$4,093.95	$2,673.27
$13,396.27	F**	$13,717.78	$6,858.89	$20,576.67	$10,288.34	$6,858.89	$3,429.45	$10,288.34	$2,673.27
$15,811.76	G**	$16,191.24	$8,095.62	$24,286.86	$12,143.43	$8,095.62	$4,047.81	$12,143.43	$2,673.27
$24,501.81	H**	$25,089.85	$12,544.93	$37,634.78	$18,817.40	$12,544.93	$6,272.47	$18,817.40	$2,673.27
				R461- Fuel dispensing per product per nozzle >>>					$91.90

Change Cond		Large Business/Identical Equipment				Small Business			Permit Reissue
Previous Year Fee	Sch	Current Fee	Identical Equip	PO no PC	Identical PO no PC	Base or Identical	Higher Fee (50%)	PO no PC	Admin Change
$694.15	A/A1	$710.81	$355.41	$1,066.22	$533.12	$355.41	$177.71	$533.12	$520.48
$1,052.18	B	$1,077.43	$538.72	$1,616.15	$808.08	$538.72	$269.36	$808.08	$710.82
$1,820.98	B1	$1,864.68	$932.34	$2,797.02	$1,398.51	$932.34	$466.17	$1,398.51	$710.82
$1,820.98	C	$1,864.68	$932.34	$2,797.02	$1,398.51	$932.34	$466.17	$1,398.51	$710.82
$3,114.35	D	$3,189.09	$1,594.55	$4,783.64	$2,391.83	$1,594.55	$797.28	$2,391.83	$710.82
$4,572.62	E	$4,682.36	$2,341.18	$7,023.54	$3,511.77	$2,341.18	$1,170.59	$3,511.77	$710.82
$6,675.72	F**	$6,835.94	$3,417.97	$10,253.91	$5,126.96	$3,417.97	$1,708.99	$5,126.96	$710.82
$11,328.26	G**	$11,600.14	$5,800.07	$17,400.21	$8,700.11	$5,800.07	$2,900.04	$8,700.11	$710.82
$14,363.30	H**	$14,708.02	$7,354.01	$22,062.03	$11,031.02	$7,354.01	$3,677.01	$11,031.02	$710.82

Alt/Modification		Large Business/Identical Equipment				Small Business			RECLAIM/T V Add'l Annual Renewal Fee *No Rebate*
Previous Year Fee	Sch	Current Fee	Identical Equip	PO no PC	Identical PO no PC	Base or Identical	Higher Fee (50%)	PO no PC	
$1,332.65	A/A1	$1,364.63	$682.32	$2,046.95	$1,023.48	$682.32	$341.16	$1,023.48	**Title V per fac.**
$2,123.92	B	$2,174.89	$1,087.45	$3,262.34	$1,631.18	$1,087.45	$543.73	$1,631.18	$448.72
$3,359.43	B1	$3,440.06	$1,720.03	$5,160.09	$2,580.05	$1,720.03	$860.02	$2,580.05	**RECLAIM fac.**
$3,359.43	C	$3,440.06	$1,720.03	$5,160.09	$2,580.05	$1,720.03	$860.02	$2,580.05	Major Device
$4,636.58	D	$4,747.86	$2,373.93	$7,121.79	$3,560.90	$2,373.93	$1,186.97	$3,560.90	$747.85
$5,330.66	E	$5,458.60	$2,729.30	$8,187.90	$4,093.95	$2,729.30	$1,364.65	$4,093.95	Large Device
$10,619.65	F**	$10,874.52	$5,437.26	$16,311.78	$8,155.89	$5,437.26	$2,718.63	$8,155.89	$149.58
$13,035.13	G**	$13,347.97	$6,673.99	$20,021.96	$10,010.99	$6,673.99	$3,337.00	$10,010.99	Process Unit Dev.
$21,725.19	H**	$22,246.59	$11,123.30	$33,369.89	$16,684.95	$11,123.30	$5,561.65	$16,684.95	$149.58

Change of Operator	
Small Bus | Large Bus	
$189.52 | $520.48	
Non RECL, non TV (cap)	$12,947.44
RECLAIM & Title V (no cap)	
$520.48/app + $1,789.12 amend	
RECLAIM Only (no cap)	
$520.48/app + $894.55 amend fee	
TV Only (cap)	$6,473.73 + $894.55
Title V Renewal	
$2031.86 + T&M ** > 8 hrs	
Title V Initial	
1-20 units	$1,421.77
21-75 units	$4,550.13
76-250 units	$10,238.24
>251 units	$17,348.34

ERC Processing		
	Change of Title, Alt or Modification, Conversion or Re-Issuance STC	$622.02
	Banking Application	$3,521.28

		** Additional T&M Fees	
Flat Emission fee *(No Rebate)*	$115.56		
Registration of Certified Equip.	$682.32	Regular	Expedite
Standard Streamlined Permits	$710.81	$142.17/hr	$213.25/hr
Rule 222	$173.56	Schedule F > 99 hrs	
Reissued Permit	$189.52	≤ $26,722.27	≤ $40,083.40,
Name/Address only, Not Admin COC		Schedule G > 117 hrs	
Certified Copy of Permit	$24.47	≤ $45,781.5	≤ $68,672.28
Plans - Site Specific	$535.75	Schedule H > 182 hrs	
R403/R461(i)/R1166 Plan Var Loc	$238.12	≤ $58,210.10	≤ $87,316.65
Returned Check fee	$25.00	Certified Copy of Fac Permit	
RTC Registration fee	$142.17	1st page	$24.47
Expedite Processing fee	50% of base	ea add'l pg	$1.73

South Coast Air Quality Management District

Form 500-A2

Title V Application Certification

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 029110

3. **This Certification is submitted with a** (Check one):
   - a. (●) Title V Application (Initial, Revision or Renewal)
   - b. ( ) Supplement/Correction to a Title V Application
   - c. ( ) MACT Part 1

4. **Is Form 500-C2 included with this Certification?** ( ) Yes (●) No

Section II - Responsible Official Certification Statement

Read each statement carefully and check each that applies – ***You must check 3a or 3b.***

1. **For Initial, Permit Renewal, and Administrative Application Certifications:**
   - a. ( ) The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,
     - i. [ ] except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.
     - ii. [ ] except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).
   - b. ( ) The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.
2. **For Permit Revision Application Certifications:**
   - a. [✓] The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.
3. **For MACT Hammer Certifications:**
   - a. ( ) The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).
   - b. ( ) The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official:	2. Title of Responsible Official:
James D. Ruth	General Manager
3. Print Name:	**4. Date:**
James D. Ruth	12-5-12
5. Phone #:	**6. Fax #:**
(714) 593-7110	(714) 968-4389

7. Address of Responsible Official:

10844 Ellis Avenue	Fountain Valley	CA	92708-7018
Street #	City	State	Zip

Acid Rain Facilities Only: Please Complete Section IV

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section IV - Designated Representative Certification Statement	
For Acid Rain Facilities Only: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.	
1. Signature of Designated Representative or Alternate:	2. Title of Designated Representative or Alternate:
3. Print Name of Designated Representative or Alternate:	4. Date:
5. Phone #:	6. Fax #:
7. Address of Designated Representative or Alternate:	

Street # _____ City _____ State CA Zip _____

Print Form

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: Orange
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

APPLICANT:
From: (Public Agency): Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018
(Address)

Project Title: Cengen Emissions Control Project (J-111)

Project Applicant: Orange County Sanitation District

Project Location - Specific: 10844 Ellis Avenue, Fountain Valley, CA 92708
OCSD - Plant No. 1(Fountain Valley) and Plant No. 2 (Huntington Beach) 22212 Brookhurst St H.B. CA 926

Project Location - City: Fount.Valley/Hunt. Bch Project Location - County: Orange

Description of Nature, Purpose and Beneficiaries of Project:
This project will install equipment at each plant to control the Central Generation emissions and comply with existing and proposed regulatory limits. The Central Generation System (CGS) engines provide both electricity and heat to our treatment plants and are permitted to operate by the South Coast Air Quality Mgmt. District.

Name of Public Agency Approving Project: Orange County Sanitation District

Name of Person or Agency Carrying Out Project: Orange County Sanitation District

Exempt Status: (check one):

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: 15329. Cogeneration Projects at Existing
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt:
Class 29 consists of the installation of cogeneration equipment with a capacity of 50 megawatts or less at existing facilities meeting the conditions described in this section.(1)Result in no net increases in air emissions from the industrial facility, or will produce emissions lower than the amount that would require review under the new source review rules applicable in the county, and 2)complies with all state, federal, local air quality law

Lead Agency Contact Person: James Burror Area Code/Telephone/Extension: 714.593.7335

If filed by applicant:
1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: Date: 9/20/12 Title: ENGINEERING SUPERVISOR

☒ Signed by Lead Agency ☐ Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR:

FILED
SEP 24 2012
TOM DALY, CLERK-RECORDER
By DEPUTY

POSTED
SEP 24 2012
TOM DALY, CLERK-RECORDER
By DEPUTY

Recorded in Official Records, Orange County
Tom Daly, County Recorder
NO FEE
$R000517841 45
201285000915 4:16 pm 09/24/12
214 OR03 Z01
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

South Coast Air Quality Management District

Form 500-C1

Title V Compliance Status Report

To provide the compliance status of your facility with applicable federally enforceable requirements and identify other local-only requirements, complete this form and attach it to a completed compliance certification Form 500-A2. As appropriate, all submittals of Form 500-C2 as appropriate should also be attached to this form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

PROCEDURES FOR DETERMINING COMPLIANCE STATUS

1. **Equipment verification:** Review the list of pending applications, and either the preliminary Title V facility permit or the list of current permits to operate that the AQMD provided you, to determine if they completely and accurately describe all equipment operating at the facility. Attach a statement to describe any discrepancies.
2. **Identify applicable requirements*:** Use the checklist in Section II to identify all applicable and federally-enforceable local, state, and federal rules and regulations, test methods, and monitoring, recordkeeping and reporting (MRR) requirements that apply to any equipment or process (including equipment exempt from a permit by Rule 219) at your facility.
   The potential applicable requirements, test methods and MRR requirements are identified and listed adjacent to each given equipment/process description. Check off each box adjacent to the corresponding requirement as it applies to your particular equipment/process.
   Note: Even if there is only one piece of equipment that is subject to a particular requirement, the appropriate box should be checked.
3. **Identify additional applicable requirements*:** Use Section III to identify any additional requirements not found in Section II. Section II is not a complete list of all applicable requirements. It does not include recently adopted NESHAP regulations by EPA or recent amendments to AQMD rules. Do not add rules listed in Section V here.
4. **Identify any requirements that do not apply to a specific piece of equipment or process:** Also use Section III to identify any requirements that are listed in Section II but that do not apply to a specific piece of equipment or process. Fill out Section III of this form and attach a separate sheet to explain the reason(s) why the identified rules do not apply. Note: Listing any requirement that does not apply to a specific piece of equipment will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and is approved by AQMD.
5. **Identify SIP-approved rules that are not current AQMD rules:** Use Section IV to identify older versions of current AQMD rules that are the EPA-approved versions in the State Implementation Plan (SIP), and that are still applicable requirements as defined by EPA. The facility is not required to certify compliance with the items checked in Section IV provided that the non-SIP approved rule in Section II is at least as stringent as the older SIP-approved version in Section IV. **
6. **Identify Local-Only Enforceable Regulatory Requirements:** Use Section V to identify AQMD rules that are not SIP-approved and are not federally enforceable.
7. **Determine compliance:** Determine if all equipment and processes are complying with all requirements identified in Sections II and III. If each piece of equipment complies with all applicable requirements, complete and attach Form 500-A2 to certify the compliance status of the facility. If any piece of equipment is not in compliance with any of the applicable requirements, complete and attach Form 500-C2 in addition to Form 500-A2.

* The following AQMD rules and regulations are not required to be included in Section II and do not have to be added to Section III: Regulation I, List and Criteria in Regulation II, Rule 201, Rule 201.1, Rule 202, Rule 203, Rule 205, Rule 206, Rule 207, Rule 208, Rule 209, Rule 210, Rule 212, Rule 214, Rule 215, Rule 216, Rule 217, Rule 219, Rule 220, Rule 221, Regulation III, Regulation V, Regulation VIII, Regulation XII, Regulation XV, Regulation XVI, Regulation XIX, Regulation XXI, Regulation XXII, and Regulation XXX.

** Emission units adversely affected by the gap between current and SIP-approved versions of rules may initially be placed in a non-Title V portion of the permit

Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations (12/15/00)	☐ Rule 442	☐ Rule 442(f)	☐ Rule 442(g)
☐ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☐ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☐ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☑ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☑ Rule 431.1 (06/12/98)	☑ Rule 431.1(f)	☑ Rule 431.1(d) & (e)
☐ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☐ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☑ All Equipment	☑ Rule 401 (11/09/01) ☑ Rule 405 (02/07/86) ☑ Rule 408 (05/07/76) ☑ Rule 430 (07/12/96) ☑ Rule 701 (06/13/97) ☑ New Source Review, BACT ☑ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☑ California Air Resources Board Visible Emission Evaluation ☑ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☑ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (06/03/05)	☐ Rule 403(d)(3)	☐ Rule 403(f)
☑ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☑ Rule 404 (02/07/86)	☑ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (05/01/09) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(e) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ Gasoline Transfer & Dispensing Operation	☐ Rule 461 (06/03/05)	☐ Rule 461(f)	☐ Rule 461(e)(6) & (e)(7)
☐ Glass Manufacturing	See Manufacturing, Glass		
☐ Grain Elevators	☐ 40 CFR60 SUBPART DD	See Applicable Subpart	See Applicable Subpart
☐ Halon-containing Equipment, Use for Technician Training, Testing, Maintenance, Service, Repair, or Disposal	☐ 40 CFR82 SUBPART H	See Applicable Subpart	See Applicable Subpart
☐ Hazardous Waste Combustors	☐ 40 CFR63 SUBPART EEE	See Applicable Subpart	See Applicable Subpart
☐ Heater, Asphalt Pavement	☐ Rule 1120 (08/04/78)	☐ AQMD Visible Emissions, AQMD TM 6.2	☐ Rule 1120(f)
☐ Heaters, Petroleum Refinery Process	☐ Rule 429 (12/21/90) ☐ Rule 431.1 (06/12/98) ☐ Rule 1146 (09/05/08) ☐ 40 CFR60 SUBPART J ☐ 40 CFR63 SUBPART DDDDD	N/A ☐ Rule 431.1(f) ☐ Rule 1146(d) See Applicable Subpart See Applicable Subpart	☐ Rule 429(d) ☐ Rule 431.1(d) & (e) ☐ Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart
☐ Heaters, Process	See Boilers		
☐ Incinerators	☐ 40 CFR60 SUBPART E ☐ 40 CFR60 SUBPART CCCC	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Inorganic Arsenic Emissions, Arsenic Trioxide & Metallic Arsenic Production Facilities	☐ 40 CFR61 SUBPART P	See Applicable Subpart	See Applicable Subpart
☑ Internal Combustion Engines, Reciprocating	☑ Rule 1110.2 (07/09/10) ☐ 40 CFR60 SUBPART IIII and JJJJ ☑ 40 CFR63 SUBPART ZZZZ	Rule 1110.2(g) See Applicable Subpart See Applicable Subpart	Rule 1110.2(f) See Applicable Subpart See Applicable Subpart
☐ Kiln, Cement Plant	☐ Rule 1112 (06/06/86) ☐ Rule 1112.1 (12/04/09) ☐ 40 CFR60 SUBPART F	N/A N/A See Applicable Subpart	N/A N/A See Applicable Subpart

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

South Coast Air Quality Management District

Form 400-CEQA

California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Project Description:

Installation of a catalytic oxidizer/selective catalytic reduction system on each of the Central Power Generation System engines. Installation of new common digester gas cleaning system. (OCSD Job No. J-111)

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	◉	○	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
7.	○	◉	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If "**Yes**" is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	○	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	○	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	○	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	○	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	**Part II - Air Quality (cont.)**
5.	○	○	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	○	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	○	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	○	**a. the need for more than 350 new employees?**
	○	○	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	○	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	○	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	○	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	○	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
REMINDER:** *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.			

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm:
James D. Ruth		General Manager
3. Print Name of Responsible Official of Firm:		4. Date Signed:
James D. Ruth		12-5-12
5. Phone # of Responsible Official of Firm:	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm:
(714) 593-7110	(714) 968-4389	jruth@ocsd.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer:
		Regulatory Specialist
10. Print Name of Preparer:		11. Date Signed:
Terry Ahn		12/5/12
12. Phone # of Preparer:	13. Fax # of Preparer:	14. Email of Preparer:
(714) 593-7082	(714) 962-2591	tahn@ocsd.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or Equal — Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 — Total Volume: 37.33 cu. ft. — Total Weight: 1600 lbs.

Reducing Agent

(•) Urea ( ) Anhydrous Ammonia ( ) Aqueous Ammonia ____ % — Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

See Section 2.2.3 in Supplemental Information.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia

* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 — NOx: ____ gm/bhp-hr — Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equal — Type: 200 cpsi oxidation catalyst or Equal

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.3 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 — Total Volume: 18.67 cu. ft. — Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer: _____ Catalyst Active Material: _____

Model Number: _____ Type: _____

Size of Each Layer or Module: L: _____ ft. _____ in. W: _____ ft. _____ in. H: _____ ft. _____ in.

No. of Layers or Modules: _____ Total Volume: _____ cu. ft. Total Weight: _____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: _____ per hour

Manufacturer's Guarantee

NH_3: _____ ppm $\%O_2$: _____

Catalyst Life

_____ years (expected)

Cost

Capital Cost: _____ Installation Cost: _____ Catalyst Replacement Cost: _____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 850 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/5/12

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

C61 - HB
G2958

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (•) No
If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(•) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(•) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 59.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 47 feet

Stack Inside Diameter: 29.90 inches **Stack Flow:** 26,816 acfm **Stack Temperature:** 600 °F

Rain Cap Present: ( ) Yes (•) No **Stack Orientation:** (•) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Distribution Center H **Building #/Name:** Standby Power Facility

Building Height: 33 feet (above ground level) **Building Height:** 46 feet (above ground level)

Building Width: 84 feet **Building Width:** 72 feet

Building Length: 126 feet **Building Length:** 102 feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 1,050 feet **Distance to nearest business:** 1,542 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (•) No
If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082
	Regulatory Specialist	Preparer's Email: tahn@ocsd.com

Contact Person: Terry Ahn	Contact's Phone#: (714) 593-7082	Date Signed: 12/5/12
Contact's Email: tahn@ocsd.com	Contact's Fax#: (714) 593-7785	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

SUPPLEMENTAL INFORMATION

APPLICATION FOR PERMITS-TO-CONSTRUCT FOR OCSD JOB NO. J-111

Orange County Sanitation District

Fountain Valley Reclamation Plant No. 1

Huntington Beach Treatment Plant No. 2

Table of Contents

1.0 Introduction

1.1 BACKGROUND

Orange County Sanitation District (OCSD) operates a Central Power Generation System (CGS) at each of its two wastewater treatment plants to produce electrical power and process heat for plant operations. The CGS at Reclamation Plant No. 1 located in Fountain Valley consists of three lean-burn 3,471 hp internal combustion engines each driving a 2.5 megawatt (MW) generator. The CGS at Treatment Plant No. 2 located in Huntington Beach consists of five lean-burn 4,166 hp internal combustion engines each driving a 3.0 MW generator. The CGS engines are fueled primarily with digester gas and supplemented with small amounts of natural gas.

In April 2008, OCSD conducted an emission reduction technology evaluation of the CGS engines in order to identify technologies for reducing NO_x, CO, and VOC emissions and meet the new Rule 1110.2 emission limits. After a detailed review of different technologies, OCSD determined that the post-combustion technology of catalytic oxidation/selective catalytic reduction (CatOx/SCR) system with digester gas cleaning system (DGCS) using carbon adsorption had the most potential for meeting the emission limits. Subsequently, OCSD embarked upon a full-scale pilot study (Project J-79) on April 1, 2010 CatOx/SCR system on Engine No. 1 at Plant No. 1 to determine if the digester gas-fired internal combustion engines could meet the future Rule 1110.2 requirements. The pilot study was completed on March 31, 2011. It was demonstrated that the CatOx/SCR system would meet the new Rule 1110.2 requirements.

1.2 PROJECT OVERVIEW

The purpose of the subject permit application is to obtain permits to construct the CatOx/SCR system on the remaining two CGS engines at Plant No. 1 and five CGS engines at Plant No. 2. Depending on the final engineering design which is expected in August of 2013, a modification may be required on the existing CatOx system on Engine No. 1 at Plant No. 1. In addition, new digester gas cleaning system (DGCS) and urea feed system will be constructed to serve all five engines at Plant No. 2. The existing digester gas cleaning system and the urea feed system will be expanded at Plant No. 1. This project is hereinafter known as. Project J-111.

The Project J-111 will result in a significant reduction in Nitrogen Oxides (NO_x,) Volatile Organic Compounds (VOCs), Carbon Monoxide (CO), and Toxic Air Contaminants (TACs) such as Formaldehyde at both Plant Nos. 1 and 2. Collateral reductions of Sulfur Oxides (SO_x) and Particulate Matter ($PM_{10}/PM_{2.5}$) will also be realized. The Project J-111 will require a de minimis significant permit revision to Plants No. 1 and No. 2 under SCAQMD Title V operating permitting rules. Additionally the Project J-111 will not trigger a need to obtain emission offsets since the CGS engines are being modified solely to comply with Rule 1110.2 as stipulated by SCAQMD Rule 1304(c)(4). After the Project J-111 is implemented the CGS engines at Plant Nos. 1 and 2 will continue to operate under the current combined daily mass emission limits stipulated in the Title V Permit. A tiered analysis was performed as part of the HRA requirements under SCAQMD Rule 1401. The HRA indicates that the Project J-111 will not cause any adverse impacts on nearby residential and other sensitive receptors.

1.3 APPLICATION OVERVIEW

The following sections in this air permit to construct and operate application contain a project characterization, discussion of baseline and projected criteria and TAC emissions, Health Risk Assessment (HRA), Best Available Control Technology Assessment (BACT), and discussion of federal, state, and local air quality requirements designed to provide a basis for the SCAQMD approval of a Permit to Construct (PTC) and Operate for the Project. In addition, the following Appendices are provided:

- Appendix A: Proposed Equipment Description and Permit Conditions
- Appendix B: Preliminary Project Drawings, Diagrams, and Schematics
- Appendix C: Emission Calculation Spreadsheets for Criteria Pollutants
- Appendix D: Emission Calculation Spreadsheets for Health Risk Analysis

2.0 Project Characterization

The following sections briefly characterize the Project including a general description of the location, facility, and modified emission units, and a summary of the estimated emissions.

2.1 PROJECT LOCATION

The CGS engines for the Project are located within the property boundary of the existing Plant No. 1 facility in Fountain Valley, California and the existing Plant No. 2 facility in Huntington Beach, California. The three CGS engines at Plant No. 1 are housed inside the existing Cogeneration building, while at Plant No. 2 the five CGS engines are house inside the existing Central Power Generation Building. The location of Plant Nos. 1 and 2 are illustrated in Figures 2-1 and 2-2, respectively.

Air emissions from the CGS engines will be exhausted through the three existing vertical stacks for each engine at Plant No. 1 and the five existing vertical stacks at Plant No. 2. The modifications for the Project at each facility will cause minimal changes to the existing layout of structures surrounding the stacks.

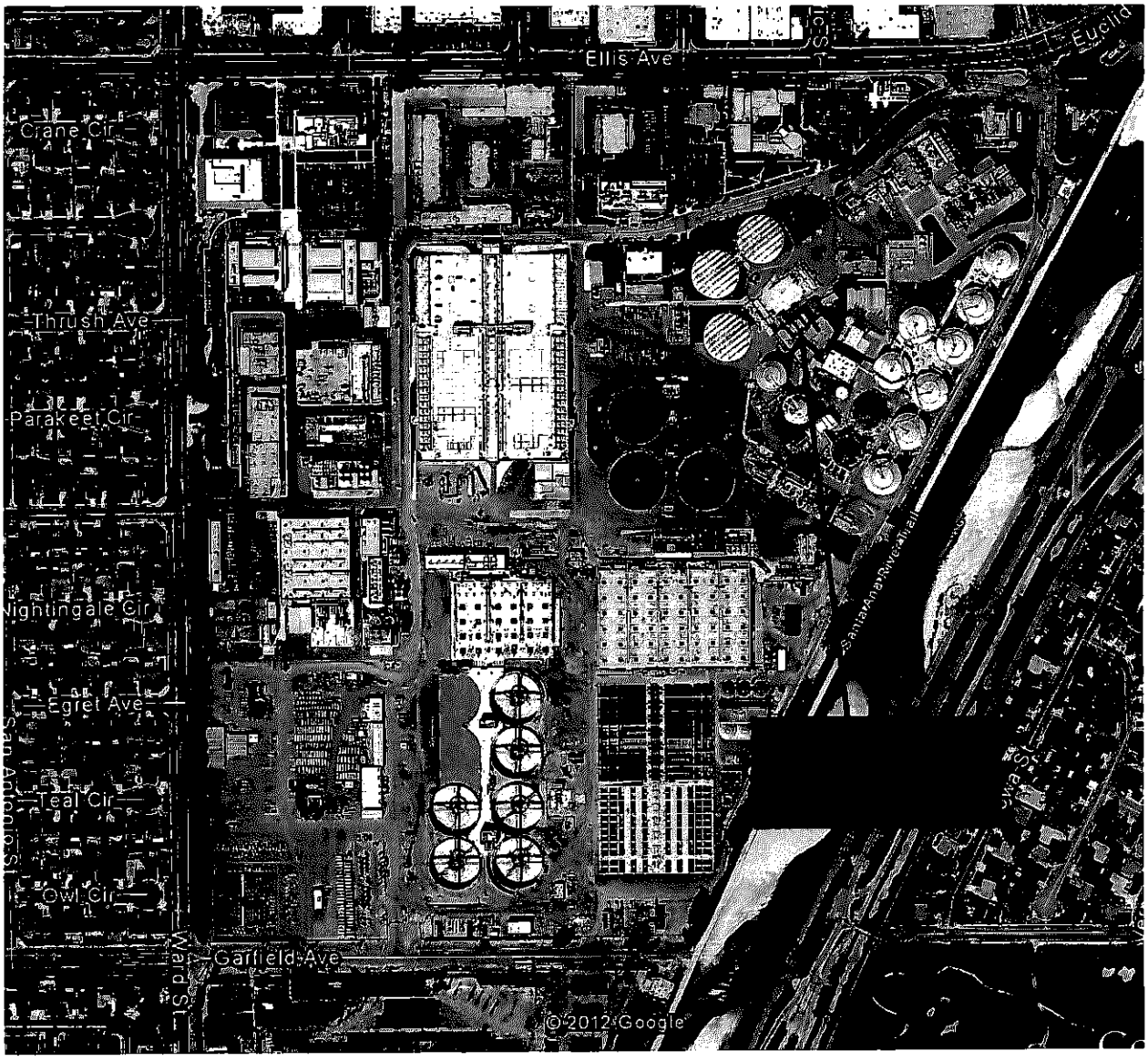


Figure 2-1 Plant 1 Area Map and Project Location

Figure 2-2 Plant 2 Area Map and Project Location

2.2 PROJECT DESCRIPTION

The CGS engines at Plant Nos. 1 and 2 are lean-burn, spark-ignited IC engines. Plant No. 1 has three 2.5 MW IC engines and Plant No. 2 has five 3 MW IC engines, fueled primarily by digester gas and supplemented by small amounts of natural gas. The CGS engines will be capable of combusting all of the digester gas produced by Plant Nos. 1 and 2 at current and at future digester gas production rates.

The digester gas at Plant Nos. 1 and 2 is generated during the anaerobic digestion of the sewage sludge produced during the wastewater treatment process. This biogas contains contaminants such as hydrogen sulfides (H_2S), VOCs, and low concentrations of volatile siloxane compounds. During combustion, the siloxanes convert to silica, sand-like particulate that deposit on the surfaces of combustion equipment contributing to a rapid degradation of engines, gas turbines, and boilers, along with media of any post-combustion control equipment. The digester gas at Plants No. 1 and 2 will pass through the Digester Gas Cleaning System (DGCS) prior to being supplied for combustion in the CGS engines. The DGCS is successful in removing contaminants such as siloxanes, H_2S, and VOCs from the digester gas, and extending the economic equipment life, as well as extending the catalyst performance life. Natural gas will be provided from an existing pipeline. The gases will be compressed and mixed in the fuel gas feeding system, which will supply the blended gas to each of the CGS engines.

After the digester gas has been cleaned by the DGCS and combusted in the CGS engines, the combustion source air emissions will pass through a CatOx/SCR, followed by SCR system prior to exhausting through a vertical stack. Each engine at Plant Nos. 1 and 2 have a dedicated exhaust stack. Continuous emissions monitoring system (CEMS) equipment for NO_x, CO and O_2 is currently installed on each exhaust stack.

The layout of the project within the existing buildings is presented in Appendix C-1 and C-2 for each facility. The design specifications for the existing CGS engines will not change as a result of the Project J-111. The major systems that have direct influence on the air emissions generated from the project are described in the following subsections.

2.2.1 Digester Gas Cleaning System

The DGCS is designed to remove siloxane compounds, H_2S, and VOCs from the digester gas prior to combustion in the engines. The ultimate goal of the system is to reduce the siloxane levels in the digester gas to a level that will not interfere with the operation of the CGS engines and the associated CatOx/SCR systems.

The J-79 pilot study installed and operated at Plant No. 1 a single vessel system containing 9,900 lbs of polymorphous graphite media (SAGTM) manufactured by Applied Filter Technology. At Plant No. 1 this system will be upgraded with the addition of a second digester gas cleaning vessel of the same design, size, and capacity adjacent to the existing vessel. The new system will be designed to scrub a maximum 2,100 scfm of digester gas for three-engine operation using a two stage arrangement consisting of a primary scrubbing vessel followed by a secondary polishing vessel. The valve and piping system will be configured such that the either vessel can function as the primary or secondary stage. This will be accomplished by using a header system connected with three port ball valves on the inlet and outlet of each vessel. The new vessel will be equipped with a bottom nozzle to facilitate the removal of the spent media and an inlet diffuser to improve the gas distribution. The existing vessel will be retrofitted with this same nozzle and diffuser.

At Plant No. 2 the Project J-111 will install three vessels of the same design, size, and capacity as the Plant No. 1 system. The new system will be designed to scrub a maximum 2,100 scfm (three engine operation) of digester gas using a two stage arrangement consisting of a primary scrubbing vessel followed by a secondary polishing vessel. The valve and piping system will be configured such that the either vessel can function as the primary or secondary stage. This will be accomplished by using a header system connected three port ball valves on the inlet and outlet of each vessel. The new vessel will be equipped with a bottom nozzle to facilitate the removal of the spent media and an inlet diffuser to improve the gas distribution. The existing vessel will be retrofitted with this same nozzle and diffuser.

2.2.2 Catalytic Oxidation and Selective Catalytic Reduction System

The J-79 pilot study installed and tested a CatOx/SCR system manufactured by Johnson Matthey on Plant No. 1, Engine 1. This system successfully reduced the NO_x, CO and VOCs below the guarantee levels during the study period. New oxidation and reduction catalyst systems of the same design, capacity, and arrangement will be added to engine 2 and engine 3 at Plant No. 1 and to the five CGS engines at Plant No. 2 to reduce the NO_x, CO and VOCs to levels below the limits set forth in the SCAQMD Rule 1110.2. These systems will consist of new exhaust ductwork from the engine manifold to the CatOx followed by the SCR catalyst and then new ductwork back to the inlet of the Heat Recovery Steam Generator (HRSG). The system will use precious metal/base metal oxidation and reduction catalysts technology on a metallic or ceramic honeycomb substrate monolith.

Urea will be injected upstream of the SCR to provide the ammonia required for the NO_x reduction reaction. Control of the urea feed rate will be maintained to keep the NO_x outlet levels within the permitted level while keeping ammonia slip to a minimum.

2.2.3 Urea Feed System

Urea will be injected into the engine exhaust gas flow upstream of the HRSGs as the reducing agent that, in the environment of the catalyst, reduces the amount of NO_x emitted. The urea feed system used in the J-79 study for Plant No. 1, Engine 1 consisted of a 1,000 gallon storage tank and automated feed system. The Project J-111 will add one new 1,000 gallon urea tank adjacent to the existing tank at Plant No. 1. The Plant No. 2 Urea Feed system will consist of two new 2,000 gallon urea tanks located below the oxidation and reduction catalyst system platform. Piping and valves will be designed so that either tank can supply all three and five SCRs at Plant Nos. 1 and 2, respectively. The urea feed systems installed at each facility will be of similar design as applied on the Plant No. 1 Engine 1 pilot study.

2.3 PROJECT J-111 EMISSIONS

The expansion of the existing DGCS and addition of CatOx/SCR systems to the existing CGS engines will impact the air emissions from the engines. As previously discussed, the Project J-111 will result in a significant reduction in NO_x, VOCs, CO, and volatile TACs such as Formaldehyde. Collateral reductions of SO_x and $PM_{10}/PM_{2.5}$ will also be realized as indicated by the stack tests conducted during the J-79 pilot study. Baseline and projected emissions of criteria pollutants, as well as the net change in emissions estimated because of the Project J-111 for each CGS Engine at Plant Nos. 1 and 2 are provided in Tables 2.3-1 and 2.3-2, respectively. The following subsections summarize the method of calculating the baseline and projected maximum hourly, daily, and annual emissions of criteria pollutants and TACs. Detailed emission calculation spreadsheets supporting

the subsections below are provided in Appendix C for criteria air pollutants and Appendix D for toxic air contaminants.

Table 2.3-1 Plant No. 1 Maximum Hourly, Daily, and Annual Baseline and Post Project Emissions Per CGS Engine

TYPE OF EMISSIONS	POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Baseline Emissions	NO_x	5.1	122.7	22.4
	CO	18.3	440.3	80.4
	VOC	3.8	92.0	16.8
	PM_{10}	0.5	12.0	2.2
	SO_2	0.5	12.0	2.2
	NH_3 Slip	--	--	--
Post Project Emissions	NO_x	0.497	11.9	2.17
	CO	0.466	11.2	2.04
	VOC	0.027	0.64	0.12
	PM_{10}	0.054	1.28	0.23
	SO_2	0.016	0.38	0.07
	NH_3 Slip	0.309	7.42	1.35
Net Change of Emissions	NO_x	-4.6	-110.8	-20.2
	CO	-17.8	-429.1	-78.4
	VOC	-3.8	-91.4	-16.7
	PM_{10}	-0.45	-10.7	-1.97
	SO_2	-0.48	-11.6	-2.1
	NH_3 Slip	0.31	7.4	1.4

Sample Calculations:

- Using the equation below in Section 2.3.1, the baseline maximum hourly emission rate is calculated as:

  E_h (NO_x) = [(368 lb/day)/(3 engines)] x (1 day/24 hours) = 5.11 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum hourly emission rate is calculated as:

  E_h (VOC) = (0.0264 lb/hr) x (2500 kw/2467 kw) = 0.02675 lb/hour

- Using the equation below in Section 2.3.1, the baseline maximum daily emission rate is calculated as:

  E_d (SO_2) = (0.5 lb/hr) x 24 hours/day = 12.0 lb/day

- Using the equation below in Section 2.3.1, the baseline maximum annual emission rate is calculated as:

  E_a (PM_{10}) = 12.0 lb/day x 365 days/year x 1 ton/2000 lbs = 2.19 tons/year

Table 2.3-2 Plant No. 2 Maximum Hourly, Daily, and Annual Baseline and Post Project Emissions Per CGS Engine

TYPE OF EMISSIONS	POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Baseline Emissions	NO_x	11.5	276.0	50.4
	CO	36.7	881.3	160.8
	VOC	5.2	124.0	22.6
	PM_{10}	1.0	24.0	4.38
	SO_2	1.2	28.0	5.11
	NH_3 Slip	--	--	--
Post Project Emissions	NO_x	0.596	14.3	2.61
	CO	0.559	13.4	2.45
	VOC	0.032	0.77	0.14
	PM_{10}	0.064	1.5	0.28
	SO_2	0.018	0.44	0.80
	NH_3 Slip	0.354	8.5	1.55
Net Change of Emissions	NO_x	-10.9	-261.7	-47.76
	CO	-36.1	-868	-158.4
	VOC	-5.2	-123.2	-22.49
	PM_{10}	-0.94	-22.46	-4.099
	SO_2	-1.18	-27.564	-5.0304
	NH_3 Slip	0.35	8.5	1.6

Sample Calculations:

- Using the equation below in Section 2.3.1, the baseline maximum hourly emission rate is calculated as:

  E_h (NO_x) = [(828 lb/day)/(3 engines)] x (1 day/24 hours) = 11.5 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum hourly emission rate is calculated as:

  E_h (VOC) = (0.0264 lb/hr) x (3000 kw/2467 kw) = 0.0321 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum daily emission rate is calculated as:

  E_d (SO_2) = (0.01818 lb/hr) x 24 hours/day = 0.436 lb/day

- Using the equation below in Section 2.3.1, the projected maximum annual emission rate is calculated as:

  E_a (PM_{10}) = 1.54 lb/day x 365 days/year x 1 ton/2000 lbs = 0.281 tons/year

2.3.1 Criteria Pollutants

Maximum Hourly – Baseline and Projected Emissions

Baseline Emissions

The maximum hourly baseline emissions of criteria pollutants from each of the CGS engines for Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. The baseline emissions were derived using the permitted emission rates listed in the Title V for each plant in accordance with SCAQMD Rule 1306(d)(2), which stipulates that for determining if a modified existing source needs offsets or install BACT, the baseline emissions can be based on the permitted pre-modification potential to emit. For Plant No. 1 the emission limits in the Title V permit were divided by three since there are three CGS engines. For Plant No. 2 the emission limits in the Title V permit were divided by three even though there are five engines. This is because the permit currently allows only three engines to operate simultaneously.

The following equation is used for calculating all criteria pollutant baseline emissions for Plant Nos. 1 and 2:

$$E_h = (\frac{EL}{N}) \times \frac{1\ day}{24\ hours}$$

Where, E_h = Hourly baseline emission rate (lbs/hour)
EL = Emission limit from Title V permit (lb/day)
N = Number of engines that can operate simultaneously

Projected Emissions

The maximum hourly emissions of criteria pollutants from each of the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. The projected maximum hourly emissions for all pollutants except SO_2 at Plant Nos. 1 and 2 were developed using computed emissions factors based on Plant No. 1 Engine 1 post air quality control system stack test data. Projected SO_2 emissions were developed using the respective fuel flow rate at high load for each Plant and the maximum H_2S concentration as provided in DGCS test data from the J-79 project. Projected maximum hourly ammonia slip emissions for each Plant are based on the maximum expected NH_3 concentration (10 ppmvd) in the exhaust flow and the plant-specific exhaust conditions (temperature and maximum exhaust flow rate).

<u>NO_x, CO, VOC, and PM_{10} Emissions for Plant Nos. 1 and 2</u>:

$$E_h = (ER_{st}/L_{st}) \times L_m$$

Where, E_h = Hourly projected emission rate (lbs/hour)
ER_{st} = Emission rate from annual source test for Plant 1, Engine 1 dated 12/13/2011.
L_{st} = Engine rating associated with ER_{st}
L_m = Maximum rating of CGS Engine

<u>SO_2 emissions from Plant Nos. 1 and 2</u>:

$$E_h = (ppmv \times MW_{H2S} \times Q_{sd} \times C_1 \times \frac{MW_{SO2}}{MW_{H2S}}) \times \frac{L_{st}}{L_m}$$

Where, E_h = Hourly projected SO_2 emission rate (lbs/hour)
ppmv = DGCS outlet H_2S concentration from OCSD Project No. J-79 Final Report, Table 3-5.

MW_{H2S} = Molecular weight of hydrogen sulfide (lb/lb-mol)
Q_{sd} = Fuel flow rate (scfm)
C_1 = Constant (lb-mol/ft³)(min/hr)
MW_{SO2} = Molecular weight of sulfur dioxide (lb/lb-mol)
L_{st} = Engine rating associated with Q_{sd}
L_m = Maximum rating of CGS Engine

Projected NH_3 emissions from Plant Nos. 1 and 2:

$$E_h = \frac{P \times EFM \times ppmvd \times MW_{NH3}}{R \times T}$$

Where, E_h = Hourly projected NH_3 emission rate (lbs/hour)
P = Standard pressure (atm)
EFM = Maximum rated exhaust flow rate of engine (ft³/min)
ppmvd = NH_3 concentration in the exhaust
MW = Molecular weight of NH_3 (lb/lb-mol)
R = Gas Constant (atm)(ft³/lb-mole)(°R)
T = Temperature (°R)

Maximum Daily

Maximum daily baseline and projected emissions of criteria pollutants for the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. Maximum daily baseline and projected emissions were calculated based on the maximum hourly emissions and assuming each engine operates 24 hours per day.
The following equation is used for calculating the maximum daily baseline and projected emissions from Plant Nos. 1 and 2:

$$E_d = E_h \times H_d$$

Where, E_d = Baseline or projected daily emission rate (lb/day)
E_h = Maximum baseline or projected hourly emission rate (lbs/hour)
H_d = Hours per day

Maximum Annual

Maximum annual baseline and projected emissions of criteria pollutants for the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. Maximum annual baseline and projected emissions were calculated based on the maximum hourly emissions and assuming each engine operates 24 hours per day for 365 days per year.
The following is the equation used for calculating the maximum annual baseline and projected emissions from Plant Nos. 1 and 2:

$$E_a = \frac{E_d \times D_a}{2000\ lbs}$$

Where, E_a = Maximum annual baseline or projected emissions (tons/year)
E_d = Maximum daily baseline or projected emission rate (lbs/day)
D_a = Days per year

Net Change of Emissions

The net change of emissions for each pollutant and averaging period resulting from the Project J-111 are provided for Plant Nos. 1 and 2 in Tables 2.3-1 and 2.3-2, respectively. The net change of emissions was calculated by subtracting the baseline emission rate from the post project emission rate.

The following equation is used for calculating the net change of emissions for Plant Nos. 1 and 2:

$$\Delta E = E_p - E_b$$

Where, ΔE = Net change of emissions
E_p = Project emission rate
E_b = Baseline emission rate

2.3.2 Toxic Air Contaminants

Maximum hourly, daily, and annual projected emissions of TACs from the three CGS engines at Plant No. 1 and the five CGS at Plant No. 2 post-control are provided below in Tables 2.4-3 and 2.4-4. These emissions were developed using emission rates from annual source test results from Plant No. 1 Engine 1 post air quality control system. A hazard risk assessment was performed as part of the health risk analysis (HRA) requirements under SCAQMD Rule 1401. The HRA is discussed further in Section 5.0.

Table 2.3-3 Plant No. 1 Maximum Hourly, Daily, and Annual Post Project Toxic Air Contaminant Emissions Per CGS Engine

POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Formaldehyde	0.026	0.634	0.116
Acetaldehyde	6.76E-04	0.016	2.96E-03
Vinyl Chloride	8.39E-05	2.01E-03	3.67E-04
Dichloromethane	1.43E-04	3.43E-03	6.26E-04
Chloroform	1.61E-04	3.86E-03	7.04E-04
1,2-dichloroethane	1.66E-04	3.98E-03	7.25E-04
1,1,1-trichloroethane	1.79E-04	4.29E-03	7.83E-04
Benzene	1.05E-04	2.52E-03	4.59E-04
Carbon Tetrachloride	2.06E-04	4.95E-03	9.04E-04
Trichloroethene	1.76E-04	4.23E-03	7.73E-04
Toluene	1.55E-04	3.72E-03	6.78E-04
Perchloroethene	2.23E-04	5.36E-03	9.78E-04
Chlorobenzene	1.90E-04	4.55E-03	8.31E-04
Xylenes (Total)	1.79E-04	4.29E-03	7.83E-04
Dichlorobenzene (Total)	4.93E-04	0.012	2.16E-03

Table 2.3-4 Plant No. 2 Maximum Hourly, Daily, and Annual Post Project Toxic Air Contaminant Emissions Per CGS Engine

POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Formaldehyde	0.032	0.760	0.139
Acetaldehyde	8.11E-04	0.0195	3.55E-03
Vinyl Chloride	1.01E-04	2.42E-03	4.41E-04
Dichloromethane	1.71E-04	4.11E-03	7.51E-04
Chloroform	1.93E-04	4.63E-03	8.45E-04
1,2-dichloroethane	1.99E-04	4.77E-03	8.71E-04
1,1,1-trichloroethane	2.15E-04	5.15E-03	9.40E-04
Benzene	1.26E-04	3.02E-03	5.51E-04
Carbon Tetrachloride	2.48E-04	5.95E-03	1.09E-03
Trichloroethene	2.12E-04	5.08E-03	9.27E-04
Toluene	1.86E-04	4.46E-03	8.14E-04
Perchloroethene	2.68E-04	6.43E-03	1.17E-03
Chlorobenzene	2.28E-04	5.46E-03	9.97E-04
Xylenes (Total)	2.15E-04	5.15E-03	9.40E-04
Dichlorobenzene (Total)	5.92E-04	0.014	2.59E-03

3.0 Federal, State, and Local Air Quality Requirements

This section presents a summary of the applicability of current, proposed and future federal and SCAQMD regulations to the Project J-111 that will be implemented on the CGS engines at Plant Nos. 1 and 2.

3.1 REGULATION II – PERMITS

3.1.1 Rule 201 – Permit to Construct

Rule 201 requires that the Project obtain written authorization for the construction of new and modified sources of air contaminants. This application is being provided in support of the permit to construct application (as required under Rule 210 – Applications) to authorize the installation of the equipment being added as part of the Project J-111. This document provides the necessary information for completing the PTC application.

3.1.2 Rule 212 – Standards for Approving Permits

The Project J-111 will result in a net decrease in all short-term (lb/day) emissions, except for ammonia (See Appendix D). Ammonia emissions will occur as a byproduct of the reaction between urea and NO_x in the SCR and will be released as ammonia slip. Ammonia emissions will increase on a short-term and long-term (tons per year (tpy)) basis.

For pollutants other than ammonia, assuming 100 percent utilization of all the engines (year long, 24 x 7 operation), The Project J-111 will result in a net reduction in long-term emissions on all engines based on current emission limits in each plants' Title V permit.

Ammonia emissions have been identified by the SCAQMD as having a potential to cause chronic and acute health effects. The Project J-111 will need to demonstrate compliance with the air toxic requirements of Rule 1401 and Rule 212 (c) (3)(A) for Plant Nos. 1 and 2. Compliance with these requirements is discussed in Section 5.0 and Appendix E. The public notification requirements are applicable dependent on the distance of the nearest school to the CGS engine stacks.

For Plant No. 1, the nearest outer boundary of the Robert Gisler School is located 2,500 feet from the CGS engine stacks. The Project J-111 will also not result in emission increases beyond the daily maximum thresholds outlined in Rule 212(g). Therefore, the Project J-111 at Plant No. 1 will not be subject to the public notice requirements of Rule 212 and Rule 1401.1.

As far as Plant No. 2 is concerned, there are no schools located within 1,000 feet of the CGS engine stacks. The Project J-111 will also not result in emission increases beyond the daily maximum thresholds outlined in Rule 212(g). The Project J-111 at Plant No. 2 will not be subject to the public notice requirements.

3.1.3 Rule 218 – Continuous Emission Monitoring

Each of the CGS engines at Plant Nos. 1 and 2 have NO_x and CO CEMS to verify that the emissions do not exceed the emission limits. OCSD will continue to comply with this regulation after the implementation of the Project J-111.

3.1.4 Rule 218.1 – Continuous Emission Monitoring Performance Specifications

Each of the CGS engines at Plant Nos. 1 and 2 have NO_x and CO CEMS to verify that the emissions do not exceed the emission limits. A new Rule 218.1 was proposed in May 2012 to align the provisions

for CEMS calibration on non-operating days with the provisions in RECLAIM. OCSD will continue to comply with this regulation after the implementation of the Project J-111.

3.2 REGULATION IV – PROHIBITIONS

3.2.1 Rule 401 – Visible Emissions

Rule 401 establishes limits upon visible emissions from any single source of emissions. Visible emissions as dark or darker than No. 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any 1 hour are prohibited. OCSD will continue to demonstrate compliance with Rule 401 post Project J-111 since visible emissions are not expected under normal operations due to the use of low sulfur digester gas and natural gas.

3.2.2 Rule 402 – Nuisance

Rule 402 prohibits discharge from any single source of emissions that contain quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to the public or which endanger the health or safety of a member of the public, or cause damage to business or property. The Project J-111 will demonstrate compliance with Rule 402, since nuisance problems are not expected under normal operating conditions.

3.2.3 Rule 403 – Fugitive Dust

Rule 403 is designed to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources. The rule requires the use of best available control measures to minimize fugitive dust formation from "active operations" including, but not limited to, earth moving, construction, and vehicular movement. The rule prohibits visible emissions that extend beyond the facility's fenceline. OCSD plans to use the best available control measures during construction.

3.2.4 Rule 404 – Particulate Matter Concentration

This rule limits the concentration of PM in CGS engine stacks. The concentration limits are dependent upon the stack gas volume discharged through each of the stacks (standard conditions and dry basis). A concentration table is provided in the rule. The engines are currently in compliance and will remain in compliance post Project J-111.

3.2.5 Rule 431.1 – Sulfur Content of Gaseous Fuels

Rule 431.1 limits SO_x emissions from the burning of gaseous fuels (including natural gas and digester gas) in stationary equipment requiring a permit to operate. The rule limits the sulfur content of natural gas (calculated as H_2S) to less than 16 ppmv. The rule limits the sulfur content of digester gas (calculated as H_2S) to less 40 ppmv on a daily basis or 40 ppmv on a monthly basis and 500 ppmv on a 15 minute basis. The digester gas currently used at Plant 1 and Plant 2, prior to being combusted, has sulfur content less than the requirements of this rule. Additionally, the proposed sulfur removal system for the Project J-111 will further reduce sulfur prior to combustion in the CGS engines. Therefore, continued compliance with Rule 431.1 is expected post the Project J-111.

3.2.6 Rule 474 – Fuel Burning Equipment – Nitrogen Oxides

Compliance with Rule 1110.2 will ensure compliance with this regulation as well.

3.3 REGULATION IX – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Regulation IX incorporates by reference the federal New Source Performance Standards (NSPS) codified under 40 CFR Part 60. NSPS Subpart JJJJ Standards of Performance for Spark Ignition Engines is applicable to new, modified or reconstructed spark ignition engines. Modification under NSPS is defined as "any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted". The pollutants to which the standard applies for digester gas fired non-emergency engines include CO, VOCs and NO_x. Regulation IX is currently not applicable to the CGS engines at Plants No. 1 and No. 2. The Project J-111 will not result in an increase in the rated capacities of each of the CGS engines or an increase in the hourly emission rates of CO, VOC and NO_x. Therefore, Regulation IX will continue to be not applicable after Project J-111 has been implemented.

3.4 REGULATION X – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Regulation X incorporates by reference the federal Maximum Achievable Control Technology (MACT) standards codified under 40 CFR Part 63. 40 CFR Part 63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines is applicable to the CGS Engines. Plant Nos. 1 and 2 are classified as area sources of hazardous air pollutants (HAPs), i.e., sources with a potential to emit less than 10 tons per year of an individual HAP or 25 tons per year of a combination of HAPs. Existing digester gas fired non-emergency engines at area sources of HAPs do not have to meet any emission limitations but rather have to meet work practice standards.

The Project J-111 will not result in any new MACT requirements since the existing CGS engines will continue to be classified as existing units located at an area source of HAPs after the Project J-111 has been implemented.

3.5 REGULATION XI – SOURCE-SPECIFIC STANDARDS

3.5.1 Rule 1110.2 Emissions from Gaseous and Liquid Fueled Engines

While the CGS engines comply with the current Rule 1110.2, the recently adopted Rule 1110.2 is the driver for the Project J-111 and stipulates stringent emission limits for NO_x, VOCs and CO emissions. Rule 1110.2 is applicable for IC engines rated greater than 50 brake horse power (bhp).

The September 7, 2012 adopted rule:

- Re-establishes the effectiveness of the previously adopted 2012 limits and provides a compliance option with a longer averaging time to engine operators that can demonstrate through CEMS systems data that mass emission levels are at least 10 percent lower than allowable under the rule's proposed concentration limits for NO_x and CO.[1]
- Limits the OCSD Plant Nos. 1 and 2 CGS engine emissions to the following levels:

[1] The feasibility of the lower mass emissions was demonstrated by the recently completed pilot study by OCSD, which indicated that lower NO_x mass emissions can be achieved in conjunction with longer averaging times.

NO_x: 11 ppmvd at 15% O_2, averaged over 15 minutes OR 9.9 ppmvd @ 15% O_2, averaged over 24-hour period, after an initial 4-month demonstration period.

CO: 250 ppmvd at 15% O_2, averaged over 15 minutes OR 225 ppmvd @ 15% O_2, averaged over 24-hour period, after an initial 4-month demonstration period.

VOC: 30 ppmvd at 15% O_2, averaged over 15 minutes

- Allows biogas engine operators three and a half more years to comply with the 2012 emission limits. The new effective date will be January 1, 2016 for all biogas engines.
- Provides an alternate compliance option to give operators under long term fixed price power purchase agreements entered into prior to the February 1, 2008 amendments and extending beyond the January 1, 2016 compliance date additional time (up to two years beyond the compliance date) to comply with the emission limits with the payment of a compliance flexibility fee.
- Biogas engines achieving early compliance (i.e., January 1, 2015) will have their permit application fees refunded.

3.6 REGULATION XIII – NEW SOURCE REVIEW

The NSR regulation sets forth preconstruction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the ambient air quality standards (AAQS), and that future economic growth within the district is not unnecessarily restricted.

3.6.1 Rule 1302 – Definitions

According to Rule 1302, Plant Nos. 1 and 2 are existing major polluting facilities, because the emissions from the facilities exceeds one or more of the Major Source emission thresholds listed in the rule. Any changes to the facility will be seen as modifications, and the new or modified facilities will be subject to the NSR major modification requirements if they result in:

- An increase of one pound per day or more, of the facility's potential to emit NO_x or VOCs, or
- An increase of 40 tons per year or more, of the facility's potential to emit SO_x, or
- An increase of 15 tons per year or more, of the facility's potential to emit PM_{10};
- An increase of 50 tons per year or more, of the facility's potential to emit CO.

As shown in Tables 3.6-1 and 3.6-2 emissions of CO, NO_x, VOC, $PM_{10}/PM_{2.5}$, and SO_x are not expected to exceed the NSR major modification thresholds at Plant Nos. 1 and 2, and as such, the pollutants will not be subject to the requirements of Regulation XIII – New Source Review. However, as discussed later, ammonia emissions will be subject to Rule 1303(a) requirements for BACT. Appendix D contains the detailed emission spreadsheets for criteria pollutants.

Table 3.6-1 Plant Nos. 1 and 2 Change in Pound per Day Emissions Due to Project J-111 Modifications

POLLUTANT	BASELINE EMISSIONS (LB/DAY)		PROJECTED EMISSIONS (LB/DAY)		CHANGE IN EMISSIONS (LB/DAY)	
	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine
NO_x	122.7	276.0	11.9	14.3	-110.75	-261.7
CO	440.3	881.3	11.2	13.4	-429.15	-868
VOC	92.0	124.0	0.642	0.77	-91.36	-123.2
PM_{10}	12.0	24.0	1.28	1.54	-10.72	-22.46
SO_2	12.0	24.0	0.376	0.436	-11.62	-27.56
Ammonia Slip	0.0	0.00	7.42	8.5	7.42	8.5

Table 3.6-2 Plant Nos. 1 and 2 Change in SO_x, PM_{10}, and CO Emissions Due to Project J-111 Modifications

POLLUTANT	BASELINE EMISSIONS (TON/YR)		PROJECTED EMISSIONS (TON/YR)		CHANGE IN EMISSIONS (TON/YR)	
	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine
CO	80.4	160.8	2.04	2.45	-78.4	-158.4
PM_{10}	2.2	4.38	0.234	0.281	-1.97	-4.10
SO_2	2.2	5.11	0.069	0.80	-2.12	-5.03

3.6.2 Rule 1303(a) – Best Available Control Technology

BACT is applicable for any new or modified source that has emission increases of greater than 1 pound/day of CO, NO_x, VOC, PM_{10}, SO_x, lead, ammonia and ozone depleting compounds. BACT is defined in Rule 1303 – Definitions as the most stringent emission limitation or control technique which:

- Has been achieved in practice for such category or class of source.
- Is contained in any SIP approved by the USEPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable.
- Is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific

source, and cost-effective as compared to measures as listed in the AQMP or rules adopted by the District Governing Board.

In addition, BACT for sources located at major polluting facilities, such as the OCSD Plant Nos. 1 and 2, shall be at least as stringent as the LAER as defined in the federal CAA Section 171(3).

As shown in Table 3.6-1, the implementation of the Project J-111 will result in a net decrease in pounds per day of emissions of CO, NO_x, VOC, PM_{10}, and SO_x. Consequently, BACT for these pollutants is not triggered. Due to the proposed installation of a SCR system, ammonia slip greater than 1 lb/day will occur from each CGS engine at Plant Nos. 1 and 2, thereby subjecting the engines to the BACT requirements of Rule 1303(a). OCSD proposes that a new emission limitation be added for ammonia emissions restricting ammonia slip to no greater than 10 ppmvd at 15% O_2. See section 4.0 for further discussion on BACT.

3.6.3 Rule 1303(b)(1) – Modeling

This rule requires a demonstration via air dispersion modeling analyses that new facilities or modifications will not cause a violation, or make significantly worse an existing violation of any state or national AAQS at any receptor location in the District. The Project J-111 will result in a reduction in emissions at both Plant Nos. 1 and 2, i.e., the modification will not result in an emission increase greater than Table A-1 modeling screening thresholds (see Appendix D) in the rule (on an engine-by-engine basis). Therefore, the Project J-111 will comply with the modeling requirements of Rule 1303(b)(1).

3.6.4 Rule 1303(b)(2) – Emission Offsets

This rule requires that increases in emissions be offset. The CGS engines at Plant Nos. 1 and 2 are being modified solely to comply with Rule 1110.2 which exempts each engine from needing to obtaining offsets per Rule 1304(c)(4). Additionally, on an engine by engine basis, there are no emission increases of pollutants subject to this rule beyond the trigger thresholds (4 tpy for VOCs, SO_x, PM_{10} and NO_x; and 29 tpy for CO) stipulated by Rule 1304(d)(2). Emission offsets will not be required for the Project J-111.

3.6.5 Rule 1303(b)(4) – Facility Compliance

This rule requires that the subject facility complies with all applicable rules and regulations of the district. The existing OCSD Plant Nos. 1 and 2 are currently in compliance with all applicable rules and regulations and the Project J-111 will not change this.

3.6.6 Rule 1303(b)(5) – Major Polluting Facilities

Rule 1303(b)(5) requires that any new major polluting facility or major modification at an existing major facility comply with the following requirements perform an alternative analysis, verify statewide compliance and protect visibility at nearby Class I Areas. The Project J-111 will not result in a major modification thus this regulation is not applicable.

3.7 REGULATION XIV – TOXICS

3.7.1 Rule 1401 – New Source Review of Toxic Air Contaminants

Rule 1401 requires the determination of MICR, cancer burden, and noncancer AHI and CHI associated with the operation of new sources which emit toxic air contaminants listed in Table 1 of the rule. The Project J-111, though an AQCS project, will result in new emissions of ammonia and

thus will be subject to Rule 1401 requirements. Rule 1401requirements for new sources include the following:

- MICR: 1 in 1 million without T-BACT or 10 in 1 million with T-BACT on any receptor location.
- Cancer burden cannot be greater than 0.5.
- Chronic and acute HI for any target organ cannot be greater than 1.

A HRA was performed in accordance with Rule 1401 and is presented in Appendix E. The HRA followed the tiered analysis methodology on an engine by engine basis and shows that Project J-111 will comply with Rule 1401 requirements.

3.8 REGULATION XVII – PREVENTION OF SIGNIFICANT DETERIORATION

Regulation XVII incorporates the federal Prevention of Significant Deterioration (PSD) regulations and states that the PSD review applies to major sources and major modifications of major sources located in attainment areas.

A major stationary source is defined as any one of the listed major source categories which emits, or has the PTE, 100 tpy or more of any regulated pollutant, or 250 tpy or more of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. Both Plant Nos. 1 and 2 are not on the listed 100 tpy major source categories; therefore the applicable major source threshold is 250 tpy. A review of Plant Nos. 1 and 2 Annual Emission Reports (AER) indicates that each plant has historically reported actual emissions of CO pretty close to (for Plant No. 1) or greater (for Plant No. 2) than 250 tpy. This means that the PTE of at least one PSD pollutant, CO in this case, is greater than the major source threshold (PTE > 250 tpy) for Plant No. 2 and it is reasonable to expect that this would likely be the case with Plant No. 1 also. Consequently, for the purposes of this application, both Plant Nos. 1 and 2 are considered existing major PSD sources.

Major modification under PSD is triggered if the modification results in an increase in emissions greater than the significant emission rates (SERs: 40 tpy for NO_x, SO_x, and VOCs; 100 tpy for CO, 15/25 tpy for PM_{10}/PM). As stated previously, the proposed Project J-111 will not result in an emission increase (on a tpy basis) greater than the SERs. Therefore, this regulation is not applicable. For similar reasons, Class I Area analysis will also not be triggered. It should also be noted here that even if there was a major modification, Rule 1704 specifically exempts facilities such as OCSD, which are classified as providers of essential public services, if BACT is installed.

3.9 REGULATION XXX – TITLE V PERMITS

The Title V Permit system is the air pollution control permit system required to implement the federal Operating Permit Program, as required by Title V of the federal CAA as amended in 1990. Plant Nos. 1 and 2 have existing Title V permits (Plant No. 1 Facility I.D. 017301, Plant No. 2 Facility I.D. 029110). This rule prohibits the construction and operation of a Title V facility or modification to a Title V facility without first obtaining a Title V permit that allows such construction or operation. This air permit application package will also serve as an application for modifying the Title V permit to operate to incorporate the Project J-111 into the Title V Permit. As such, compliance with Regulation XXX is expected.

3.10 COMPLIANCE ASSURANCE MONITORING PLAN

The Compliance Assurance Monitoring (CAM) rule under 40 CFR Part 64 took effect on November 21, 1997. CAM applies to each pollutant specific emission unit (PSEU) that meets the three conditions below. The PSEU must:

- Be subject to an emission limitation or standard, and
- Use a control device to achieve compliance, and
- Have pre-control emissions that exceed or are equivalent to the major source threshold.

The following PSEUs are excluded from the CAM rule:

- Those subject to Clean Air Act Section 111 or 112 standards promulgated after 11/15/90, since those standards have been and will be designed with monitoring that provides a reasonable assurance of compliance;
- Those subject to the acid rain program, emissions trading programs such as the acid rain program, emissions caps, or continuous compliance determination methods, i.e., where a regulatory requirement specifies a monitoring method for compliance, because CAM is believed to be redundant for these units;
- Certain municipally-owned utility units, as defined in 40 CFR 72.2, that produce electricity during periods of peak electrical demand or emergency situations since these periods or situations are infrequent.

3.10.1 Plant No. 1

The CGS engines at Plant No. 1 have emission limitations in their Title V permit for the criteria pollutants NO_x, CO, SO_2, VOC, and PM_{10}. The project will use air pollution control devices only for NO_x, CO, and VOC emissions, thus eliminating SO_2 and PM_{10} from the need for a CAM plan. For determining the PTE for NOx, CO, and VOC Note 4 of SCAQMD's Instructions for Determining Applicability to the CAM Rule (SCAQMD Form 500-H) indicates for Title V significant permit revision applications submitted after April 20, 1998, to use the post-control device PTE emissions to determine CAM applicability. Table 2.3-1 provides the projected maximum annual post-control emissions from each engine at Plant No. 1. The maximum annual post-control emissions for NO_x, CO, and VOC are below the CAM PTE emission thresholds (i.e., 10 tpy or NO_x, 50 tpy for CO, and 10 tpy for VOC) for individual emission units at a Title V facility in the South Coast Air Basin (SCAB). Additionally, the Project will install and operate CO and NO_x CEMS on each unit to monitor the emissions for these pollutants. CAM is therefore not applicable to the CGS engines at Plant No. 1.

3.10.2 Plant No. 2

The CGS engines at Plant No. 2 have emission limitations in their Title V permit for the criteria pollutants NO_x, CO, SO_2, VOC, and PM_{10}. The project will use air pollution control devices only for NO_x, CO, and VOC emissions, thus eliminating SO_2 and PM_{10} from the need for a CAM plan. For determining the PTE for NOx, CO, and VOC Note 4 of SCAQMD's Instructions for Determining Applicability to the CAM Rule (SCAQMD Form 500-H) indicates for Title V significant permit revision applications submitted after April 20, 1998, to use the post-control device PTE emissions to determine CAM applicability. Table 2.3-2 provides the projected maximum annual post-control emissions from each engine at Plant No. 2. The maximum annual post-control emissions for NO_x, CO, and VOC are below the CAM PTE emission thresholds (i.e., 10 tpy or NO_x, 50 tpy for CO, and 10

tpy for VOC) for individual emission units at a Title V facility in the South Coast Air Basin (SCAB). Additionally, the Project will install and operate CO and NO_x CEMS on each unit to monitor the emissions for these pollutants. CAM is therefore not applicable to the CGS engines at Plant No. 2.

4.0 Best Available Control Technology Assessment

BACT is applicable for any new or modified source that has emission increases of greater than 1 pound/day of CO, NO_x, VOC, PM_{10}, SO_x, lead, ammonia and ozone depleting compounds. BACT is defined in Rule 1303 – Definitions as the most stringent emission limitation or control technique which:

- Has been achieved in practice for such category or class of source.
- Is contained in any state implementation plan (SIP) approved by the USEPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable.
- Is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board.

In addition, BACT for sources located at major polluting facilities such as the OCSD Plant Nos. 1 and 2 shall be at least as stringent as the lowest achievable emissions rate (LAER) as defined in the federal CAA Section 171(3).

As indicated in Tables 3.6-1 and 3.6-2, the implementation of the Project J-111 will result in a net decrease in pounds per day of emissions of CO, NO_x, VOC, PM_{10}, and SO_x at Plant Nos. 1 and 2. Consequently, BACT for these pollutants is not triggered. Due to the proposed installation of a SCR system, ammonia slip greater than 1 lb/day will occur from each engine, thereby subjecting the engines to the BACT requirements of Rule 1303(a). OCSD proposes that a new emission limitation be added for ammonia emissions restricting ammonia slip to no greater than 10 ppmvd at 15% O_2.

5.0 Toxic Air Contaminant Risk Analysis

A HRA was conducted to predict the concentration of compounds dispersed from the Plant Nos. 1 and 2 CGS engines into the environment and evaluate the risk to human health resulting from exposure to those concentrations. The HRA looks at the potential for exposure of human populations to the emissions and attempts to quantify the individual and population-wide health effects associated with exposure. The following sections discuss the HRA performed to evaluate the TAC impacts for the Project J-111.

5.1 BACKGROUND

The permitting process mandates compliance with stringent public health requirements set forth in SCAQMD Rule 1401 – New Source Review of Toxic Air Contaminants. As such, the analysis performed for the Project J-111 includes a Tier 2 Screening Risk Assessment in accordance with Version 7.0 of the *SCAQMD Risk Assessment Procedures for Rules 1041 and 212, July 1, 2005* utilizing the latest Attachment L which contains factors for calculating the carcinogenic and noncarcinogenic risks for applications deemed complete on or after July 1, 2005 (revised September 10, 2010).

According to the documentation, the *SCAQMD Risk Assessment Procedures* are based on *The Air Toxics hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* finalized by the state Office of Environmental Health Hazard Assessment (OEHHA) in August 2003 and the California *Air Resources Board (CARB) Recommended Interim Risk Management Policy of Inhalation-Based Residential Cancer Risk* issued on October 9, 2003.

5.2 HEALTH RISK ANALYSIS RESULTS

Adverse health effects from exposure to compounds are divided into two broad categories, carcinogenic and noncarcinogenic, based upon their end point of toxicity. Toxicity is quantified differently for these two categories. Carcinogenic compounds are those that may cause or induce cancer. They may also produce adverse health effects other than cancer. These noncarcinogenic (noncancer) effects include a variety of adverse impacts on health. Adverse health effects may be caused by long-term exposure to low concentrations (chronic) or short-term exposures to high concentrations (acute). In addition, noncancer health effects may occur in a specific organ, such as the liver or kidney, and result in disease or damage, or they may affect an entire system, resulting in central nervous system disorders, respiratory system distress, etc.

5.2.1 Carcinogenic Risks

Using the Tier 2 Screening Risk Analysis procedures and the projected toxic air contaminant emissions for Plant Nos. 1 and 2 provided in Tables 2.4-3 and 2.4-4, maximum individual cancer risk (MICR) was calculated for the nearest worker and residential receptor. Appendix E contains the spreadsheets that provide the MICR calculations for the nearest worker and residential receptor. The results for the calculation indicate that the MICR for the worker and residential receptor are less than the threshold risk of one in one million indicating the facilities will not pose a significant health risk. Since the maximum cancer risk is below one in one million, an analysis of cancer burden was not performed. Furthermore, since MICR for the worker and resident are below the risk threshold, a more detailed Tier 3 or Tier 4 risk assessment is not necessary.

5.2.2 Non-carcinogenic Risks (Chronic and Acute Hazards)

Using the Tier 2 Screening Risk Analysis procedures and the projected toxic air contaminant emissions for Plant Nos. 1 and 2 provided in Tables 2.4-3 and 2.4-4, respectively, noncancer risk

(also known as the chronic and acute hazard indices) have been estimated for the nearest worker and residential receptor. Appendix E contains the spreadsheets that provide the noncarcinogenic risks calculations for the nearest worker and residential receptor. The results for the calculation indicate that the chronic hazard index (CHI) and the acute hazard index (AHI) for the worker and residential receptors are less than the recommended threshold risk of 1.0 indicating the facilities will not pose a significant health risk. Furthermore, since the CHI and AHI for the worker and residential receptor are below the risk threshold, a more detailed Tier 3 or Tier 4 risk assessment is not necessary.

Appendix A Proposed Equipment Description and Permit Conditions

Proposed Equipment Description – Plant No. 1

INTERNAL COMBUSION ENGINE, COOPER BESSEMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-12 TYPE, MODEL NO. LSVB-12-SGC, 3471HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 2500 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 5,008,500 BTU/HR CAPACITY, UNFIRED EQUIPPED WITH CATALYTIC OXIDATION AND SELECTIVE CATALYTIC REDUCTION SYSTEM ON THE ENGINE EXHAUST AND COMMON INLET DIGESTER GAS CLEANING SYSTEM.

Proposed Equipment Description – Plant No. 2

INTERNAL COMBUSTION ENGINE, COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED EQUIPPED WITH CATALYTIC OXIDATION AND SELECTIVE CATALYTIC REDUCTION SYSTEM ON THE ENGINE EXHAUST AND COMMON INLET DIGESTER GAS CLEANING SYSTEM.

Proposed Permit Conditions

For Plant Nos. 1 and 2

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	590 PPMV AT 15% 02
PARTICULATES (PM 10)	0.0087 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	209 PPMV AT 15%02

THE ABOVE EMISSION LIMITS IN PERMIT CONDITION 11 ARE APPLICABLE FOR EACH CGS ENGINE THROUGH DECEMBER 31, 2015. STARTING ON JANUARY 1, 2016 EACH CGS ENGINE WHEN IN OPERATION MUST COMPLY WITH THE FOLLOWING REVISED EMISSION LIMITS STATED IN THE AMENDED RULE 1110.2 ADOPTED ON SEPTEMBER 7, 2012:

NOX: 11 PPMVD AT 15% 02, AVERAGED OVER 15 MINUTES OR 9.9 PPMVD @ 15% 02, AVERAGED OVER 24-HOUR PERIOD, AFTER AN INITIAL 4-MONTH DEMONSTRATION PERIOD, RULE 1110.2

CO: 250 PPMVD AT 15% 02, AVERAGED OVER 15 MINUTES OR 225 PPMVD @ 15% 02, AVERAGED OVER 24-HOUR PERIOD, AFTER AN INITIAL 4-MONTH DEMONSTRATION PERIOD, RULE 1110.2

VOC: 30 PPMVD AT 15% 02, AVERAGED OVER 15 MINUTES, RULE 1110.2

THE OPERATOR SHALL MAINTAIN THE AMMONIA SLIP AT 10 PPMVD @ 15% 02, 3-RUN AVERAGE. THE OPERATOR SHALL USE BEST MANAGEMENT PRACTICES TO CONTROL UREA INJECTION TO MEET THIS EMISSION LIMIT. THE OPERATOR SHALL CONDUCT ANNUAL TESTS AS PART OF THE ANNUAL SOURCE TEST REQUIRED BY CONDITION NO. 14 USING SCAQMD METHOD 207.1 OR OTHER METHOD AS APPROVED BY THE SCAQMD.

For Plant No. 2 Only

12. THE COMBINED EMISSIONS FROM THE ~~THREE (3)~~ FIVE (5) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM 10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

Appendix B Preliminary Project Drawings, Diagrams, and Schematics – Plant Nos. 1 and 2

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Notes [ ]

Calculations follow the methodology for Tier II Acute and Chronic Hazard Index Calculation outlined in SCAQMD Risk Assessment Procedures For Rules 1401 & 212, Version 7.0, dated July 1, 2005.
Acute and Chronic Hazard Indices are equal for all 3 Plant 1 Engines and all 5 Plant 2 Engines.
Plant 1 and Plant 2 Emission Rates were calculated using data from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011 . An Emission Factor was calculated from the Source Test TAC Emission Rates and Engine Load. The Emission Factors were then applied to Maximum Load (2500KW for Plant 1 & 3000KW for Plant 2) to obtain the maximum emission rates for the Engines. This applies to all TACs except for Ammonia. See note [9] for the methodology used to calculate the Ammonia emission rates.
Conservatively used X/Q value for a distance of 200 m for both commercial (worker) and residential receptors.
Conservatively used X/Q value for a distance of 300 m for both commercial (worker) and residential receptors.
Stack heights for Plants 1 & 2 Engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004; Tables 4-4 & 4-5.
Calculations assume that all 3 Engines at Plant 1 and 5 Engines at Plant 2 will be operating 24 hrs/day, 365 days/year.
Multi-Pathway Factor (MP) is 1 for all TACs in the HIC calculations, and is therefore not displayed in the table.
Ammonia slip calculated using a 10ppmvd concentration and the maximum design flow rate for the Plant 1 and Plant 2 Engines. A 10ppmvd ammonia concentration is being proposed as a permit limit by OCSD. Maximum design flow rate for the engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.

OCSD
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Projected Emissions Calculation

Ammonia Emission Rates for Plants 1 & 2

Plant 1

$$M_p = \frac{P\ V\ M}{RT}$$

$$V = EFM \times ppmv$$

Where:
- M_p = Emission Rate (lb/hr)
- M = Molecular Weight of NH_3 (lb/lb-mol) = 17.031
- EFM = Maximum Rated Exhaust Flow Rate (ft^3/min)[1] = 21222
- ppmvd = NH_3 Concentration in the Exhaust[2] = 10
- P = Standard Pressure (atm) = 1
- R = Gas Constant (atm)(ft^3)/lb-mole)(°R) = 0.7302
- T = Temperature (°R)[3] = 960

M_p = 0.309 lb/hr

Plant 2

$$M_p = \frac{P\ V\ M}{RT}$$

$$V = EFM \times ppmv$$

Where:
- M_p = Emission Rate (lb/hr)
- M = Molecular Weight of NH_3 (lb/lb-mol) = 17.031
- EFM = Maximum Rated Exhaust Flow Rate (ft^3/min)[1] = 26816
- ppmvd = NH_3 Concentration in the Exhaust[2] = 10
- P = Standard Pressure (atm) = 1
- R = Gas Constant (atm)(ft^3)/lb-mole)(°R) = 0.7302
- T = Temperature (°R)[3] = 1060

M_p = 0.354 lb/hr

Notes [ ]

1. Maximum Design Flow Rate for the engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.
2. Ammonia Concentration of 10ppmvd is being proposed by OCSD as a permit limit.
3. Exhaust Temperature at Maximum Design Flow Rate obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5. The temperature is 500°F for the Plant 1 Engines and 600°F for the Plant 2 Engines.

Appendix C Emission Calculation Spreadsheets for Criteria Pollutants – Plant Nos. 1 and 2

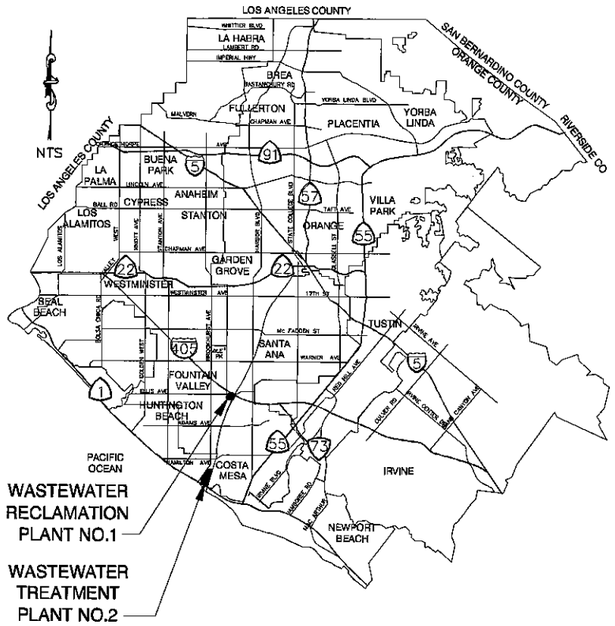
ORANGE COUNTY SANITATION DISTRICT

PROJECT NO. J-111
CENTRAL GENERATION EMISSION CONTROL

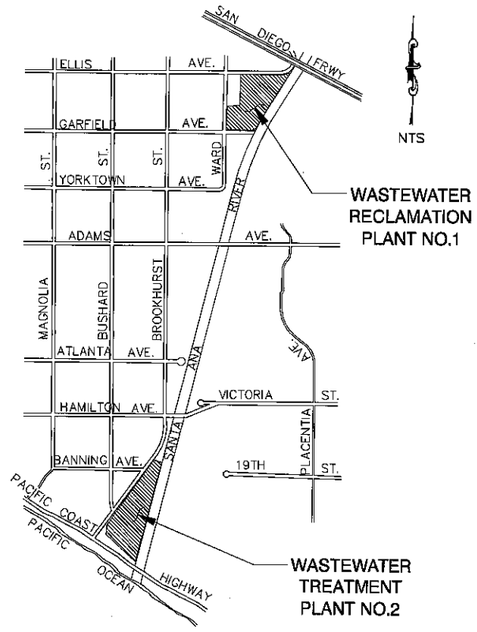
DRAFT
PRELIMINARY DESIGN REPORT

VOLUME II
DRAWINGS

NOVEMBER 2012



VICINITY MAP



LOCATION MAP

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XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: RATTO, V.
DRAWN BY: HO, S.
CHECKED BY: CHOW, B.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"—SCALE ACCORDINGLY)

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ORANGE COUNTY SANITATION DISTRICT

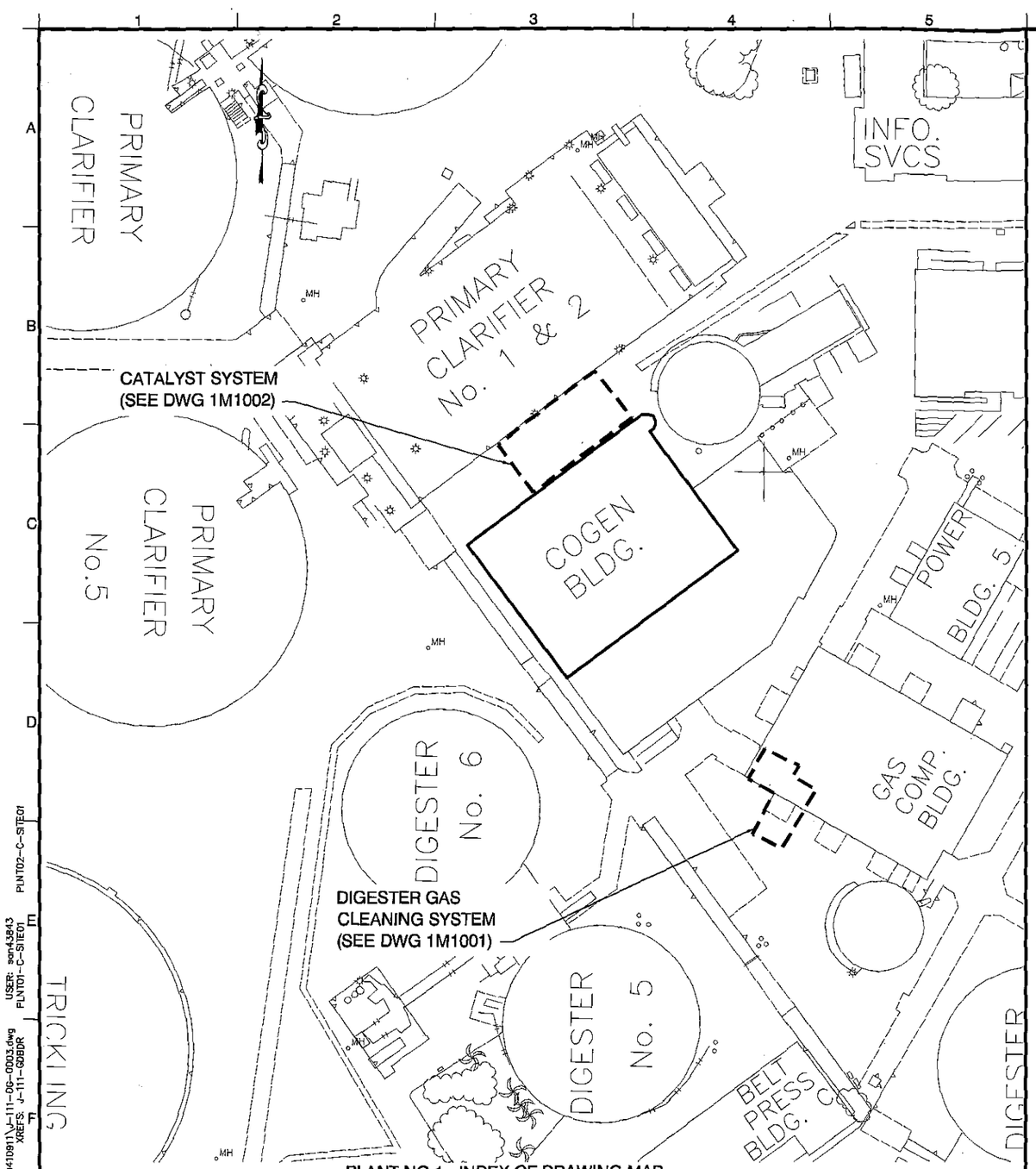
CENTRAL GENERATION EMISSIONS CONTROL

PROJECT NO. J-111

COVER SHEET

DRAWING NO. 0G0001

OF



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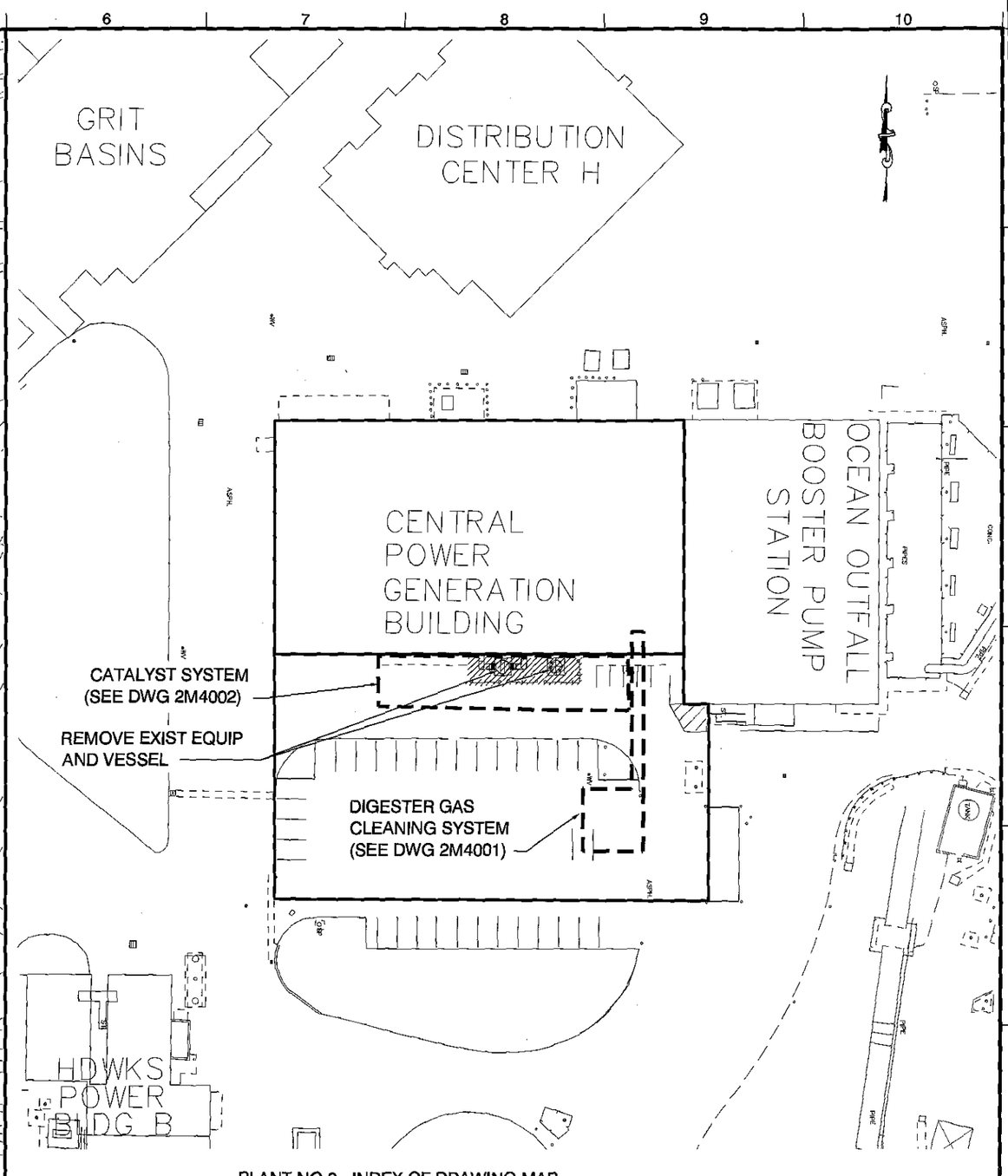

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USER: san43843
PLNT01-C-SITE01
PLNT02-C-SITE01

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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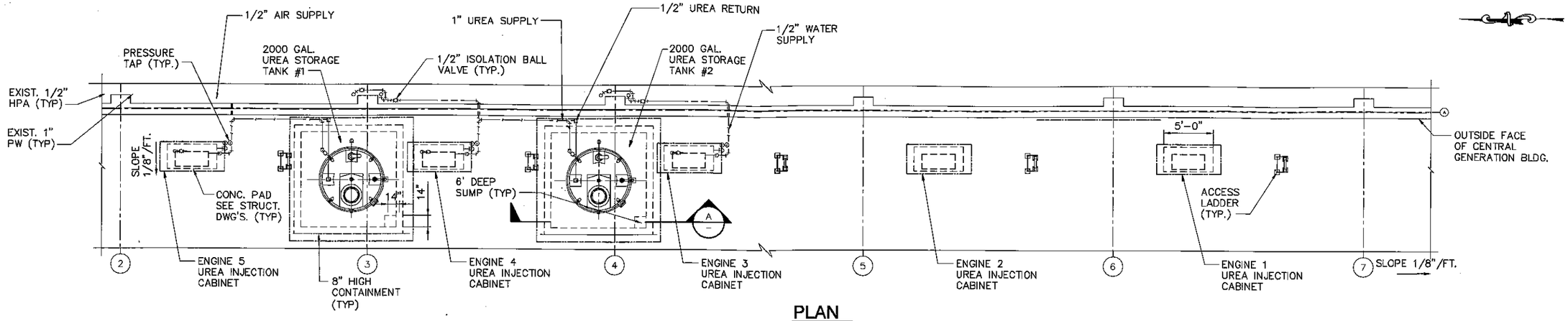
CENTRAL GENERATION EMISSIONS CONTROL

INDEX OF DRAWING MAPS (PLANT NOS.1 & 2)

PROJECT NO. J-111

DRAWING NO. 0G0003

OF



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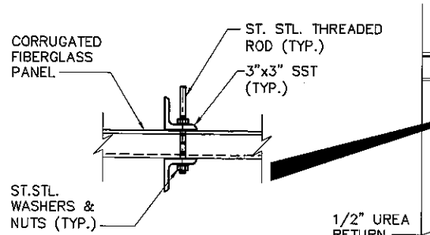

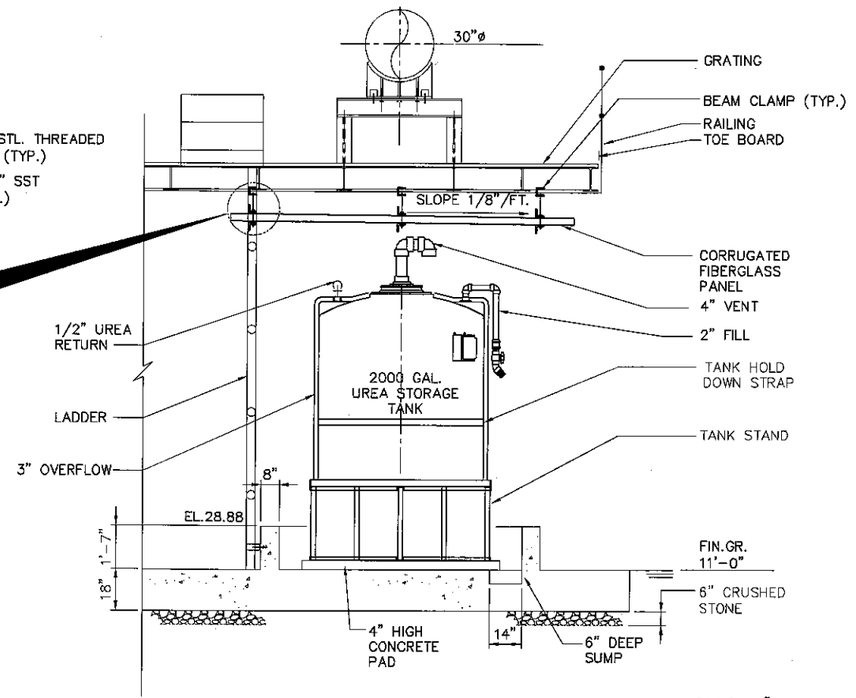

SECTION
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12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"–SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 CATALYST SYSTEM UREA FEED PLAN & SECTION

PROJECT NO. J-111

DRAWING NO. 2M4003

DF

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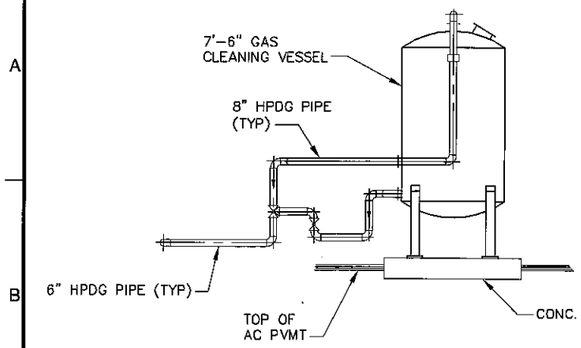
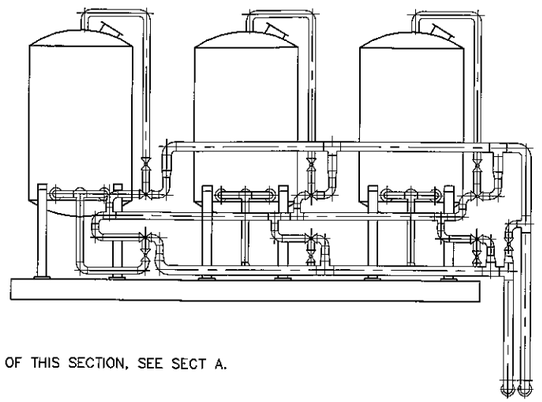


NOTE:

GUARD POST NOT SHOWN.

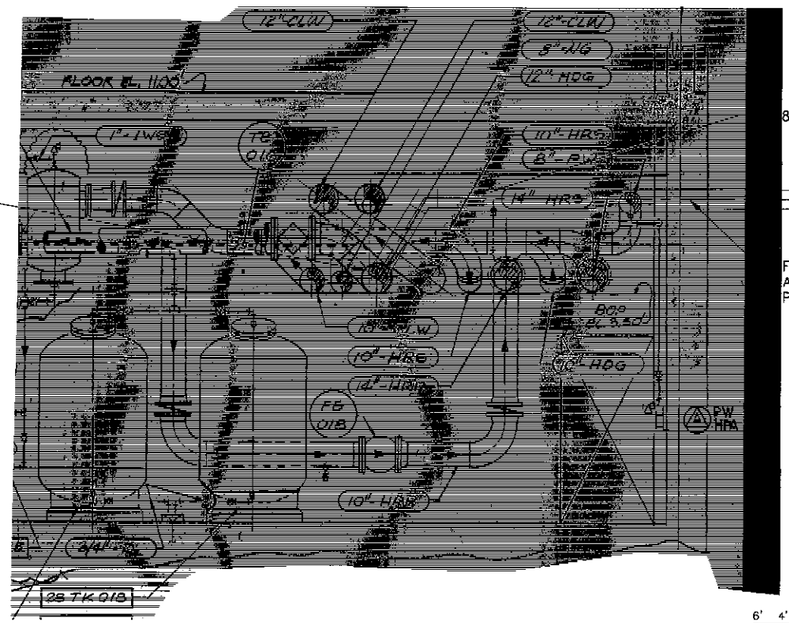
SECTION A 3/16"=1'-0"



NOTE:

FOR CALLOUT OF THIS SECTION, SEE SECT A.

SECTION B 3/16"=1'-0"



SECTION C 3/8"=1'-0"

NOTE:

FOR PROPOSED LOCATION OF THIS AREA, SEE DWG.

ENLARGED PLAN 1 2M1001 1/4"=1'-0"

6' 4' 2' 0 5' 10' 3/16"=1'-0"

12" 6" 0 1' 2' 3' 4' 5' 6' 7' 3/8"=1'-0"

4' 2' 0 4' 8' 1/4"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JEAN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
DIGESTER GAS CLEANING SYSTEM
PLAN AND SECTIONS

PROJECT NO. J-111

DRAWING NO. 2M4001

OF

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DATE: Oct 31, 2012 8:59am
XREFS: PLT102-C-SITE01 J-111-M-PLAN03 J-111-S-PLAN03 J-111-GDBDR J-111-M_PLAN04 J-111-M-PLAN04
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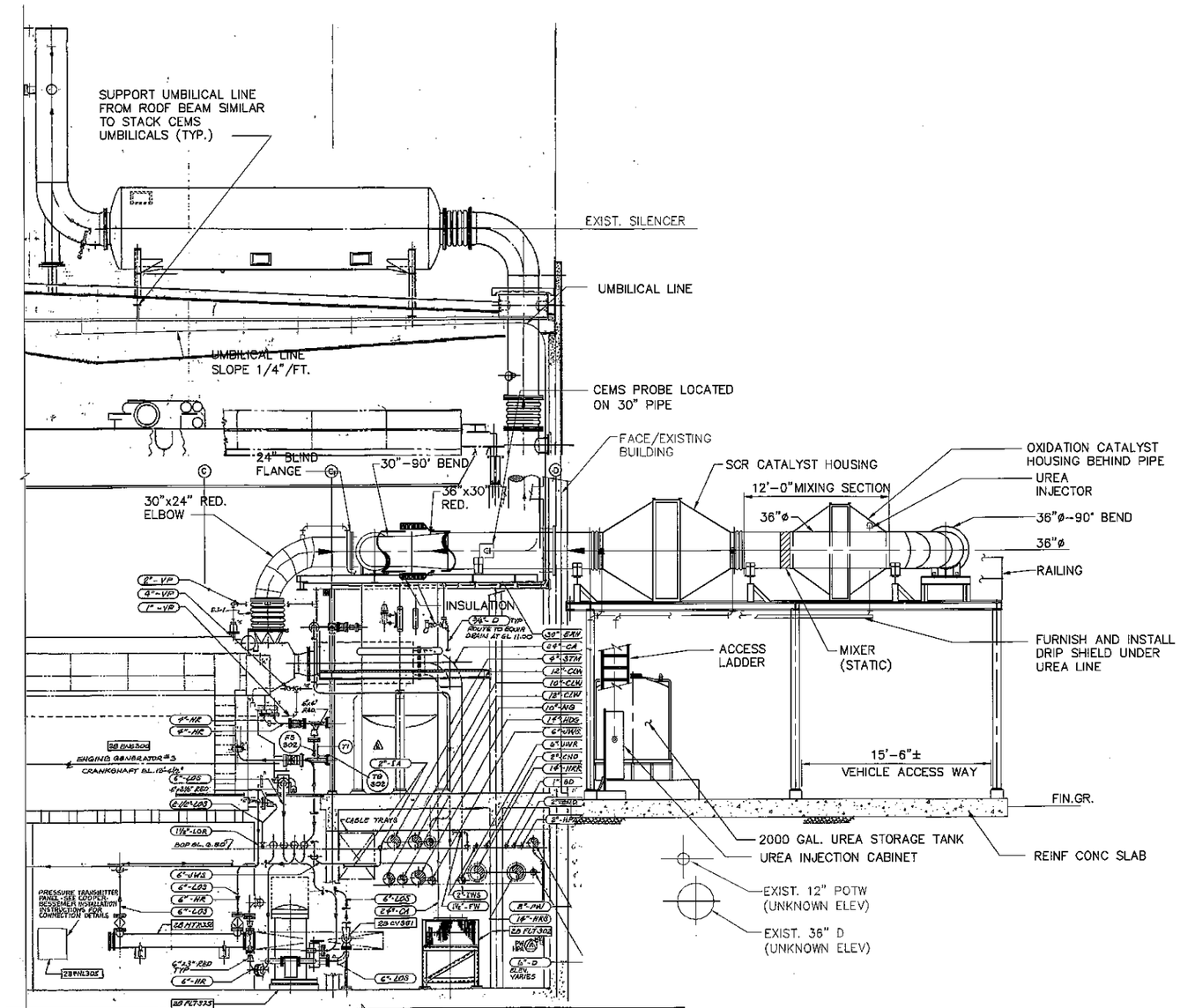

SECTION A
3/16"=1'-0" 2M1001

NOTE:

1. ARRANGEMENT BASED ON THE J-79 PILOT STUDY EQUIPMENT.

6' 4' 2' 0 5' 10'
3/16"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JEAN
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CHECKED BY: MORTELLORO, JEAN
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(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 - CENTRAL GENERATION BUILDING - CATALYST SYTEM - SECTION

PROJECT NO. J-111

DRAWING NO. 2M3002

OF

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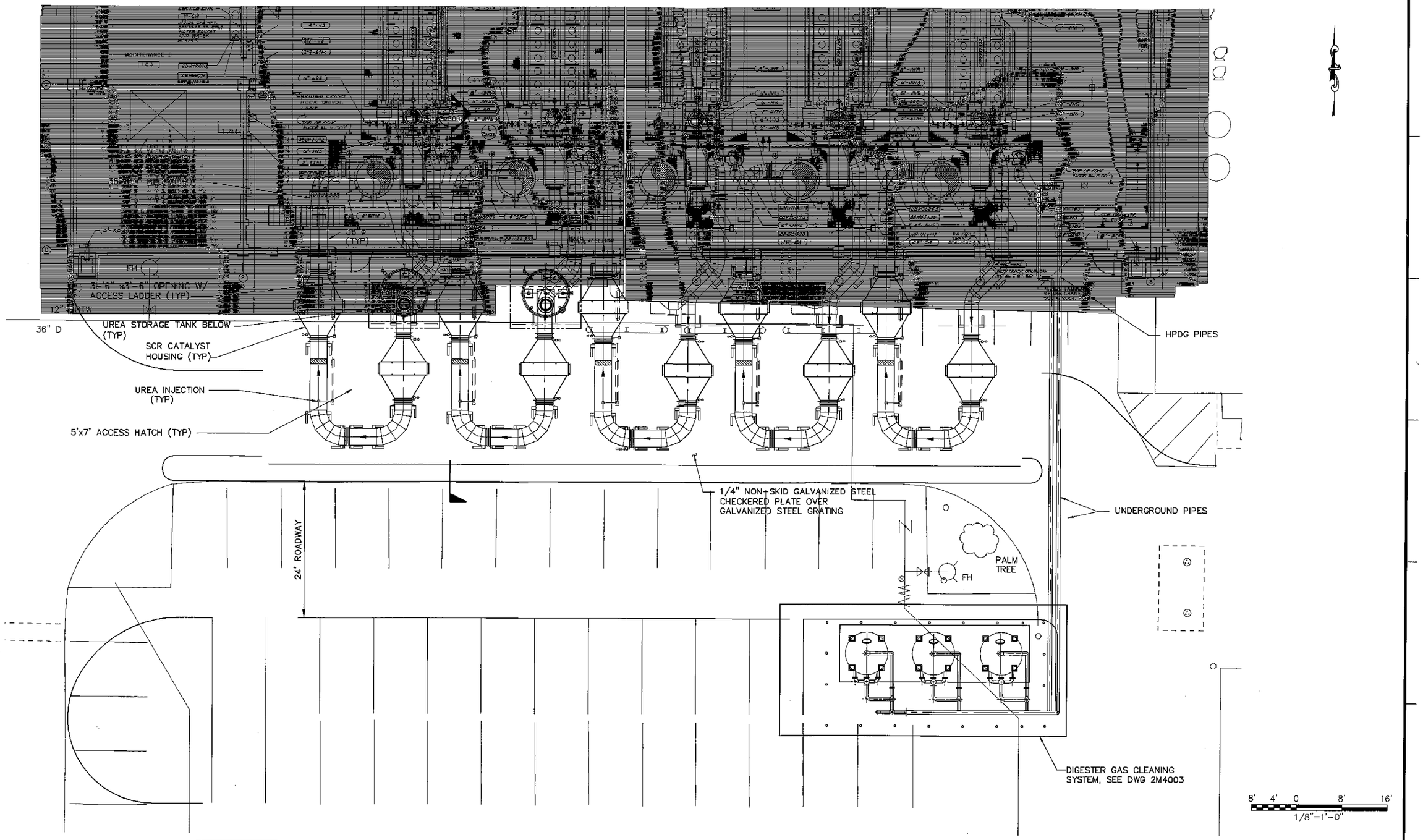

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 - CENTRAL GENERATION BUILDING - CATALYST SYSTEM - PLAN

PROJECT NO. J-111

DRAWING NO. 2M1001

OF

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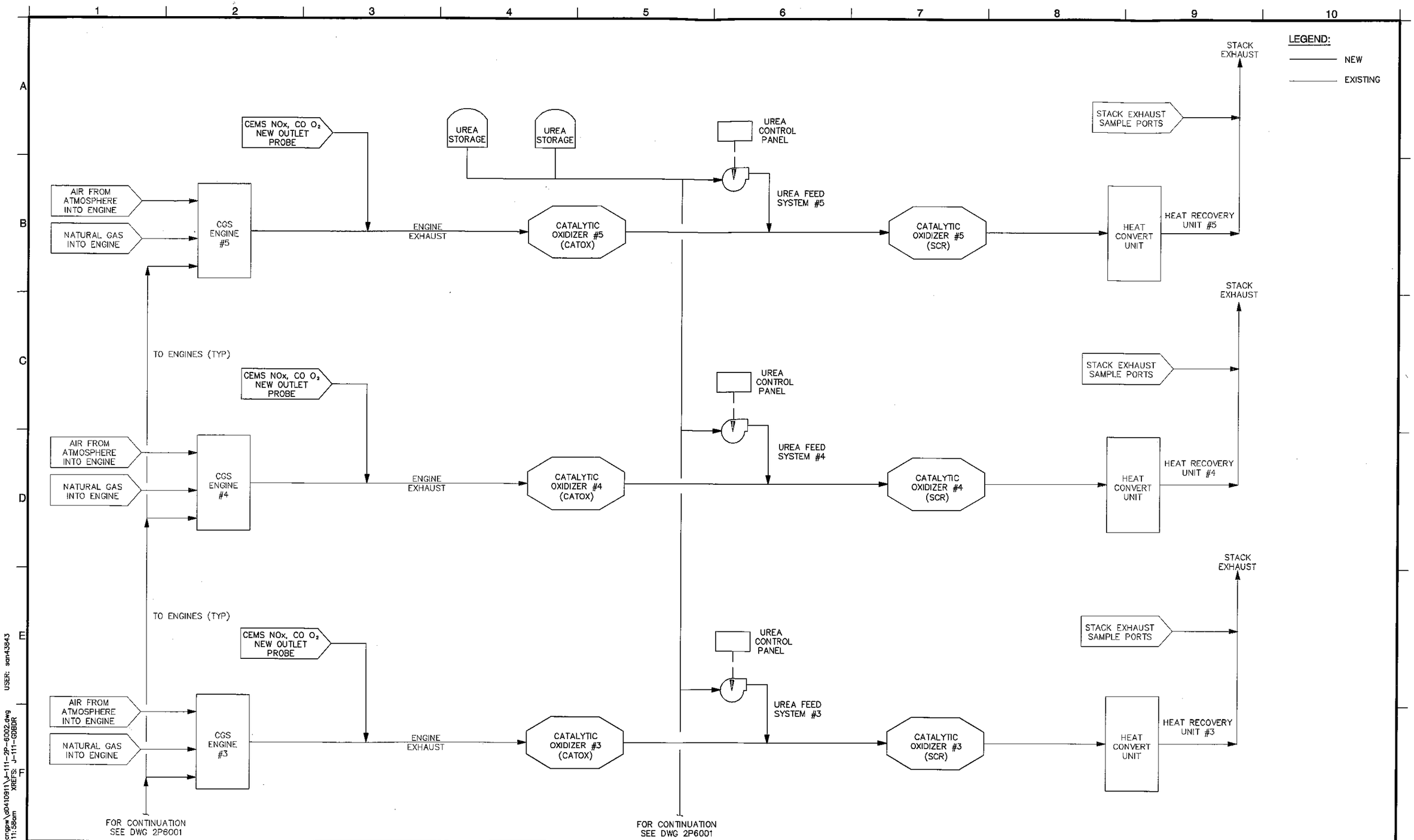
J-111-M-PLAN04



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USER: sam43843
XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
EMISSIONS PROCESS SCHEMATIC

PROJECT NO. J-111

DRAWING NO. 2P6002

OF

LEGEND:
NEW
EXISTING

SEE DWG 2P6002 FOR CONTINUATION

TO ENGINES (TYP)

AIR FROM ATMOSPHERE INTO ENGINE

NATURAL GAS INTO ENGINE

CGS ENGINE #2

CEMS NOx, CO O_2 NEW OUTLET PROBE

ENGINE EXHAUST

CATALYTIC OXIDIZER #2 (CATOX)

SEE DWG 2P6002 FOR CONTINUATION

UREA CONTROL PANEL

UREA FEED SYSTEM #2

CATALYTIC OXIDIZER #2 (SCR)

HEAT CONVERT UNIT

HEAT RECOVERY UNIT #2

STACK EXHAUST

STACK EXHAUST SAMPLE PORTS

TO ENGINES (TYP)

AIR FROM ATMOSPHERE INTO ENGINE

NATURAL GAS INTO ENGINE

CGS ENGINE #1

CEMS NOx, CO O_2 NEW OUTLET PROBE

ENGINE EXHAUST

CATALYTIC OXIDIZER #1 (CATOX)

UREA CONTROL PANEL

UREA FEED SYSTEM #1

CATALYTIC OXIDIZER #1 (SCR)

HEAT CONVERT UNIT

HEAT RECOVERY UNIT #1

STACK EXHAUST

STACK EXHAUST SAMPLE PORTS

TO ENGINES (TYP)

DGCS VESSEL #1

DGCS VESSEL #2

DGCS VESSEL #3

TO POLISHING VESSEL

BY-PASS

DIGESTER GAS FROM INTERPLANT GAS LINE

1P6001

DIGESTER GAS FROM GAS COMPRESSORS

USER: son43843

DWG: C:\pw_working\cmgpw\d0410911\J-111-2P-6001.dwg
DATE: Oct 31, 2012 11:57am
XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

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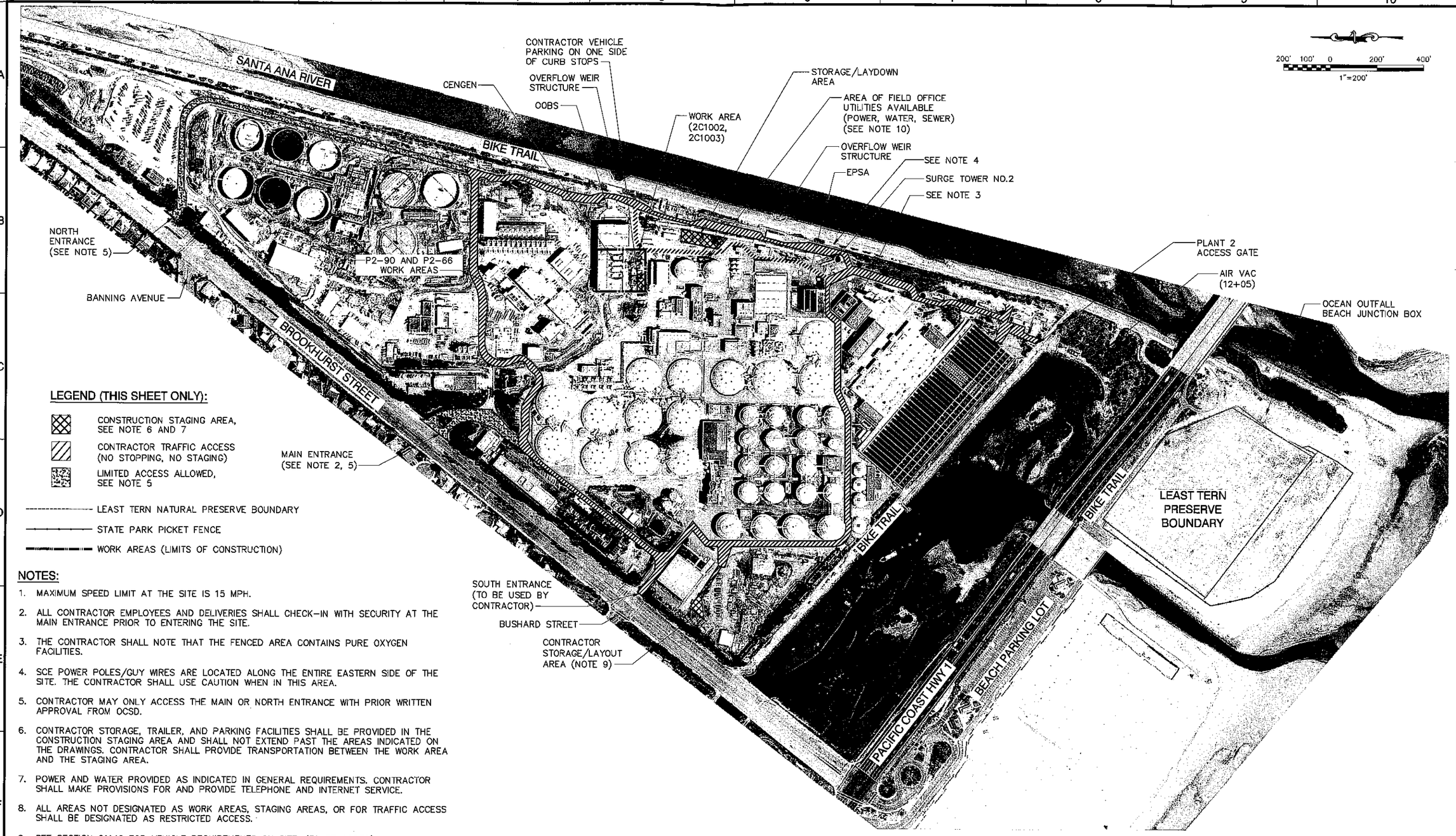
CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
EMISSIONS PROCESS SCHEMATIC

PROJECT NO. J-111

DRAWING NO. 2P6001

OF



LEGEND (THIS SHEET ONLY):

- CONSTRUCTION STAGING AREA, SEE NOTE 6 AND 7
- CONTRACTOR TRAFFIC ACCESS (NO STOPPING, NO STAGING)
- LIMITED ACCESS ALLOWED, SEE NOTE 5
- LEAST TERN NATURAL PRESERVE BOUNDARY
- STATE PARK PICKET FENCE
- WORK AREAS (LIMITS OF CONSTRUCTION)

NOTES:

1. MAXIMUM SPEED LIMIT AT THE SITE IS 15 MPH.
2. ALL CONTRACTOR EMPLOYEES AND DELIVERIES SHALL CHECK-IN WITH SECURITY AT THE MAIN ENTRANCE PRIOR TO ENTERING THE SITE.
3. THE CONTRACTOR SHALL NOTE THAT THE FENCED AREA CONTAINS PURE OXYGEN FACILITIES.
4. SCE POWER POLES/GUY WIRES ARE LOCATED ALONG THE ENTIRE EASTERN SIDE OF THE SITE. THE CONTRACTOR SHALL USE CAUTION WHEN IN THIS AREA.
5. CONTRACTOR MAY ONLY ACCESS THE MAIN OR NORTH ENTRANCE WITH PRIOR WRITTEN APPROVAL FROM OCSD.
6. CONTRACTOR STORAGE, TRAILER, AND PARKING FACILITIES SHALL BE PROVIDED IN THE CONSTRUCTION STAGING AREA AND SHALL NOT EXTEND PAST THE AREAS INDICATED ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE TRANSPORTATION BETWEEN THE WORK AREA AND THE STAGING AREA.
7. POWER AND WATER PROVIDED AS INDICATED IN GENERAL REQUIREMENTS. CONTRACTOR SHALL MAKE PROVISIONS FOR AND PROVIDE TELEPHONE AND INTERNET SERVICE.
8. ALL AREAS NOT DESIGNATED AS WORK AREAS, STAGING AREAS, OR FOR TRAFFIC ACCESS SHALL BE DESIGNATED AS RESTRICTED ACCESS.
9. SEE SECTION 01140 FOR VEHICLE REQUIREMENTS ON SITE. (TO BE ADDED)
10. SEE GENERAL REQUIREMENTS AND SECTION 01500 FOR DETAILS. (TO BE ADDED)

SITE PLAN
1" = 200'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: RATTO, VALERIE
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: STANTON, ANDY

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PROJECT NO. J-111

PLANT NO. 2 SITE PLAN AND STAGING AREA

DRAWING NO. 2C1001

OF

DWG: C:\pw_working\cngpw\d0410911\J-111-2C-1001.dwg
DATE: Oct 31, 2012 2:46pm
XREFS: J-111-GDBIR
USER: son43843

OCSD
Project J-111

Plants 1 and 2 Emissions Summary and Permitting Thresholds Comparison

Daily Emissions

Pollutant	Baseline Emissions (lbs/day)[1]				Projected Emissions (lbs/day)[2,3,4]				Difference (lbs/day)				BACT Thresholds (lbs/day)	Rule	Are Thresholds Exceeded?			
	Plant 1		Plant 2		Plant 1		Plant 2		Plant 1		Plant 2				Plant 1		Plant 2	
	Plant 1, Per CGS Engine	Plant 1 (All Engines)	Plant 2, Per CGS Engine	Plant2 Total	Per Engine Emissions	Plant Total	Per Engine Emissions	Plant Total	Plant 1, Per CGS Engine	Plant 1 Total	Plant 2, Per CGS Engine	Plant 2 Total			Per CGS Engine	Plant Total	Per CGS Engine	Plant Total
NO_x	122.7	368	276.0	828	11.9	35.8	14.3	71.5	-110.75	-332	-261.7	-756	1	1303	NO	NO	NO	NO
CO	440.3	1321	881.3	2644	11.2	33.6	13.4	67.1	-429.146	-1287	-868	-2577	1	1303	NO	NO	NO	NO
VOCs	92.0	276	124.0	372	0.642	1.93	0.770	3.85	-91.36	-274	-123.2	-368	1	1303	NO	NO	NO	NO
PM	12.0	36	24.0	72	1.28	3.85	1.54	7.70	-10.7166	-32.1	-22.46	-64.3	1	1303	NO	NO	NO	NO
SO_2	12.0	36	28.0	84	0.376	1.13	0.436	2.18	-11.62	-34.87	-27.564	-81.82	1	1303	NO	NO	NO	NO
Ammonia Slip[7]	0.00	0.00	0.00	0.00	7.42	22.3	8.50	42.5	7.42	22.3	8.50	42.5	1	1303	YES	YES	YES	YES

Yearly Emissions

Pollutant	Baseline Emissions (tons/year)[6]				Projected Emissions (tons/year)[2,3,4]				Difference (tons/year)				Offsets Thresholds (tons/year)	Rule	Are Thresholds Exceeded?			
	Plant 1		Plant 2		Plant 1		Plant 2		Plant 1		Plant 2				Plant 1		Plant 2	
	Plant 1, Per CGS Engine	Plant 1 (All Engines)	Plant 2, Per CGS Engine	Plant2 Total	Per Engine Emissions	Plant Total	Per Engine Emissions	Plant Total	Plant 1, Per CGS Engine	Plant 1 Total	Plant 2, Per CGS Engine	Plant 2 Total			Per CGS Engine	Plant Total	Per CGS Engine	Plant Total
NO_x	22.4	67.2	50.37	151.1	2.17	6.52	2.61	13.0	-20.212	-60.6	-47.76	-138.1	4	1304	NO	NO	NO	NO
CO	80.4	241.1	160.8	482.5	2.04	6.13	2.45	12.3	-78.319	-235	-158.4	-470	29	1304	NO	NO	NO	NO
VOCs	16.8	50.4	22.63	67.9	0.117	0.351	0.141	0.703	-16.673	-50.0	-22.49	-67.2	4	1304	NO	NO	NO	NO
PM	2.2	6.6	4.38	13.1	0.234	0.703	0.281	1.41	-1.9558	-5.87	-4.099	-11.73	4	1304	NO	NO	NO	NO
SO_2	2.2	6.6	5.11	15.3	0.0686	0.206	0.0796	0.398	-2.1214	-6.3641	-5.0304	-14.932	4	1304	NO	NO	NO	NO

Hourly Emissions

Pollutant	Projected Emissions (lbs/hr)[2,3,4]		Modeling Thresholds (lbs/hr)		Rule	Are Thresholds Exceeded?	
	Plant 1 Per Engine Emissions	Plant 2 Per Engine Emissions	Plant 1[5]	Plant 2[5]		Plant 1 Per Engine Emissions	Plant 2 Per Engine Emissions
NO_x	0.497	0.596	1.26	1.31	1303 Table A-1	NO	NO
CO	0.466	0.559	69.3	72.1		NO	NO
PM	0.0535	0.0642	7.60	7.90		NO	NO

Notes [ ]

1. Baseline emission Rates for all pollutants are based on the emission limits in the current Title V permit for each CGS Engine. The emission limits in the current Title V permit for each pollutant are a combined emission limit for three engines. For this analyis, the lbs/day baseline emission rate for each CGS Engine at Plant 1 is derived from the emission limit in the Title V permit divided by three. For Plant 2 it the lbs/day emission rate is also derived from the emission limit in the Title V permit divided by three .
2. Projected Emission Rates assume all 3 Engines at Plant 1 and All 5 Engines at Plant 2 run 24 hours a day, 365 days a year.
3. Plant 1 and Plant 2 Emission Rates were calculated using data from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011 . An Emission Factor was calculated from the Source Test TAC Emission Rates and Engine Load. The Emission Factors were then applied to Maximum Load (2500KW for Plant 1 & 3000KW for Plant 2) to obtain the maximum emission rates for the Engines.
4. The 3 Engines at Plant 1 and 5 Engines at Plant 2 are assumed to have identical Emission Rates for each pollutant.
5. Threshold values based on 28.5 mmBtu/hr permit limit on Plant 1 Engines and 33 mmBtu/hr permit limit on Plant 2 Engines; Permits G2955-G2962.
6. Annual baseline emissions are calculated using the lbs/day for each CGS engine and multiplying by 365 days/year for each pollutant.
7. Ammonia slip calculated using a 10 ppmvd concentration and the maximum design flow rate for the Plant 1 and Plant 2 Engines. A 10ppmvd ammonia concentration is being proposed as a permit limit by OCSD. Maximum design flow rate for the engines obtained fromOrange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.

OCSD
Project J-111

Projected Emissions Calculation - Criteria Pollutants and Ammonia Slip

Orange County Sanitation District Project No. J-111 Projected Emissions

Emission Factor Calculation			
NO_X	0.49	2467	1.99E-04
CO	0.46	2467	1.86E-04
TNMHC (As CH4)[3]	0.0264	2467	1.07E-05
PM_{Total} [3]	0.0528	2467	2.14E-05
PM_{10}	--	2467	--
$SO_{2\ (Plant\ 1)}$	0.01555	2480	6.27E-06
$SO_{2\ (Plant\ 2)}$	0.01835	3028.4	6.06E-06

Plant 1 Daily & Yearly Emissions Running All Three Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation							
NO_X	1.99E-04	2500	0.497	11.9	**35.8**	368	**6.5**
CO	1.86E-04	2500	0.466	11.2	**33.6**	1321	**6.1**
TNMHC (As CH4)[3]	1.07E-05	2500	0.0267	0.642	**1.93**	276	**0.35**
PM_{Total} [3,5]	2.14E-05	2500	0.0535	1.28	**3.85**	36	**0.70**
PM_{10}	--	2500	--	--	--	36	--
SO_2	6.27E-06	2500	0.01567	0.3762	**1.128**	36	**0.206**
NH_3 Slip [9]	--	--	0.30936	7.4246	**22.274**	--	**4.065**

OCSD
Project J-111

Projected Emissions Calculation - Criteria Pollutants and Ammonia Slip

Plant 2 Daily & Yearly Emissions Running All Five Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation							
NO_X	1.99E-04	3000	0.596	14.3	**71.5**	828	**13.0**
CO	1.86E-04	3000	0.559	13.4	**67.1**	2644	**12.3**
TNMHC (As CH4)[3]	1.07E-05	3000	0.0321	0.770	**3.85**	276	**0.70**
PM_{Total}[3,5]	2.14E-05	3000	0.0642	1.54	**7.70**	72	**1.41**
PM_{10}	--	3000	--	--	--	72	--
SO_2	6.06E-06	3000	0.01818	0.4363	**2.182**	84	**0.398**
NH_3 Slip [9]	--	3000	0.35403	8.4967	**42.483**	--	**7.753**

Notes [ ]

1. Emission Rates for all but SO_2 obtained from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011. Test Results are post-Pilot Project and therefore represent emission rates that include planned AQC modifications.
2. See "SO2 Emission Rate" worksheet for SO_2 Emission Rate calculations.
3. TNMHC and PM emission rates are only available for Normal Load (1870 KW). Therefore, a ratio was used to compute TNMHC and PM emission rates for maximum load (2467 KW). Engine Load Data was obtained from Table 1.1 in Annual Source Test Report dated 12/13/2011.
4. The three Plant 1 engines and five Plant 2 engines are rated at 2.5 MW and 3.0 MW respectively.
5. Actual permit limits are for PM-10, but specific PM-10 emission rates were unavailable. Therefore, total PM was used as a conservative estimate.
6. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
7. Per day Emissions Limits obtained from Facility Permit to Operate.
8. Maximum Load values for all but SO_2 were obtained from Table 1.1 in Annual Source Test Report dated 12/13/2011.
9. See "Ammonia Slip" worksheet for Ammonia Emission Rate calculations.
10. SO_2 Maximum Loads obtained from Table 1.2 in Annual Source Test Report dated 12/12/2011 and Table 1.4 in Annual Source Test Report dated 1/18/2011 for Plant 1 and Plant 2 respectively. Values represent the load the engine was running at when the Fuel Flow Rate that was used in the SO2 Emmision Rate calculation was measured.

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Orange County Sanitation District Project No. J-111 Projected Emissions

Emission Factor Calculation			
Formaldehyde	0.022	2083	1.06E-05
Acetaldehyde	5.63E-04	2083	2.70E-07
Vinyl Chloride	6.99E-05	2083	3.36E-08
Dichloromethane	1.19E-04	2083	5.71E-08
Chloroform	1.34E-04	2083	6.43E-08
1,2-dichloroethane	1.38E-04	2083	6.63E-08
1,1,1-trichloroethane	1.49E-04	2083	7.15E-08
Benzene	8.74E-05	2083	4.20E-08
Carbon Tetrachloride	1.72E-04	2083	8.26E-08
Trichloroethene	1.47E-04	2083	7.06E-08
Toluene	1.29E-04	2083	6.19E-08
Perchloroethene	1.86E-04	2083	8.93E-08
Chlorobenzene	1.58E-04	2083	7.59E-08
Xylenes (Total)	1.49E-04	2083	7.15E-08
Dichlorobenzene (Total)	4.11E-04	2083	1.97E-07

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Plant 1 Daily & Yearly Emissions Running All Three Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation						
Formaldehyde	1.06E-05	2500	0.0264	0.634	**1.90**	**0.347**
Acetaldehyde	2.70E-07	2500	6.76E-04	0.0162	**0.0487**	**8.88E-03**
Vinyl Chloride	3.36E-08	2500	8.39E-05	2.01E-03	**6.04E-03**	**1.10E-03**
Dichloromethane	5.71E-08	2500	1.43E-04	3.43E-03	**0.0103**	**1.88E-03**
Chloroform	6.43E-08	2500	1.61E-04	3.86E-03	**0.0116**	**2.11E-03**
1,2-dichloroethane	6.63E-08	2500	1.66E-04	3.98E-03	**0.0119**	**2.18E-03**
1,1,1-trichloroethane	7.15E-08	2500	1.79E-04	4.29E-03	**0.0129**	**2.35E-03**
Benzene	4.20E-08	2500	1.05E-04	2.52E-03	**7.55E-03**	**1.38E-03**
Carbon Tetrachloride	8.26E-08	2500	2.06E-04	4.95E-03	**0.0149**	**2.71E-03**
Trichloroethene	7.06E-08	2500	1.76E-04	4.23E-03	**0.0127**	**2.32E-03**
Toluene	6.19E-08	2500	1.55E-04	3.72E-03	**0.0111**	**2.03E-03**
Perchloroethene	8.93E-08	2500	2.23E-04	5.36E-03	**0.0161**	**2.93E-03**
Chlorobenzene	7.59E-08	2500	1.90E-04	4.55E-03	**0.0137**	**2.49E-03**
Xylenes (Total)	7.15E-08	2500	1.79E-04	4.29E-03	**0.0129**	**2.35E-03**
Dichlorobenzene (Total)	1.97E-07	2500	4.93E-04	0.0118	**0.0355**	**6.48E-03**

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Plant 2 Daily & Yearly Emissions Running All Five Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation						
Formaldehyde	1.06E-05	3000	0.0317	0.760	**3.80**	**0.694**
Acetaldehyde	2.70E-07	3000	8.11E-04	0.0195	**0.097**	**0.0178**
Vinyl Chloride	3.36E-08	3000	1.01E-04	2.42E-03	**0.0121**	**2.20E-03**
Dichloromethane	5.71E-08	3000	1.71E-04	4.11E-03	**0.0206**	**3.75E-03**
Chloroform	6.43E-08	3000	1.93E-04	4.63E-03	**0.0232**	**4.23E-03**
1,2-dichloroethane	6.63E-08	3000	1.99E-04	4.77E-03	**0.0239**	**4.35E-03**
1,1,1-trichloroethane	7.15E-08	3000	2.15E-04	5.15E-03	**0.0258**	**4.70E-03**
Benzene	4.20E-08	3000	1.26E-04	3.02E-03	**0.0151**	**2.76E-03**
Carbon Tetrachloride	8.26E-08	3000	2.48E-04	5.95E-03	**0.0297**	**5.43E-03**
Trichloroethene	7.06E-08	3000	2.12E-04	5.08E-03	**0.0254**	**4.64E-03**
Toluene	6.19E-08	3000	1.86E-04	4.46E-03	**0.0223**	**4.07E-03**
Perchloroethene	8.93E-08	3000	2.68E-04	6.43E-03	**0.0321**	**5.87E-03**
Chlorobenzene	7.59E-08	3000	2.28E-04	5.46E-03	**0.0273**	**4.98E-03**
Xylenes (Total)	7.15E-08	3000	2.15E-04	5.15E-03	**0.0258**	**4.70E-03**
Dichlorobenzene (Total)	1.97E-07	3000	5.92E-04	0.0142	**0.0710**	**0.0130**

Notes [ ]

1. Emission Rates obtained from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011. Test Results are post-Pilot Project and therefore represent emission rates that include planned AQC modifications.
2. The three Plant 1 engines and five Plant 2 engines are rated at 2.5 MW and 3.0 MW respectively.
3. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
4. Engine Load based on operitions data on the day of the source test. Orange County Sanitation District Reclamation Plant No. 1 Monthly Summary of Operations, December 2011.

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Baseline Emissions Calculation - Criteria Pollutants and Ammonia Slip

Plant 1 Daily & Yearly Emissions Pre-AQC Modification

Emission Rate Calculation					
NO_X	5.1	122.7	**368.0**	368	**67.2**
CO	18.3	440.3	**1321.0**	1321	**241.1**
TNMHC (As CH4)	3.8	92.0	**276.0**	276	**50.4**
PM_{10} [2]	0.5	12.0	**36.0**	36	**6.6**
SO_2	0.5	12.0	**36.0**	36	**6.6**
NH_3 Slip [5]	--	--	**--**	--	--

Plant 2 Daily & Yearly Emissions Pre-AQC Modification

Emission Rate Calculation					
NO_X	11.5	276.0	**828.0**	828	**151.1**
CO	36.7	881.3	**2644.0**	2644	**482.5**
TNMHC (As CH4)	5.2	124.0	**372.0**	372	**67.9**
PM_{10} [2]	1.0	24.0	**72.0**	72	**13.1**
SO_2	1.2	28.0	**84.0**	84	**15.3**
NH_3 Slip [5]	--	--	**--**	--	--

Notes [ ]

1. Emission Rates for all pollutants are based on the emission limits in the current Title V permit for each CGS Engine. The emission limits in the current Title V permit for each pollutant are a combined emission limit for three engines. For this analyis, the lbs/day emission rate for each CGS Engine at Plant 1 and Plant 2 are derived from the emission limit in the Title V permit divided by three.
2. Actual permit limits are for PM_{10}, but specific total PM was not available.
3. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
4. Per day Emissions Limits obtained from Facility Permit to Operate.
5. The current operating permits for each engine do not contain a permit limit for NH_3.

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Tier II Screening Risk Assessment - SCAQMD Tables[1]

Table – 3A Dispersion Factors (X/Q) For Point Source Equipment Operating More Than 12 Hours Per Day
Carcinogenic and Chronic X/Q Values ([µg/m3]/[tons/yr.])

Stack Height (ft)	Downwind Distance (meters) 25	50	75	100	200	300	500	1000
[3] 14 to 24	49.68	23.07	12.5	7.74	2.24	1.06	0.42	0.12
> 24 to 49	10.7	10.7	7.46	5.32	1.92	0.97	0.4	0.12
> 49	2.38	2.38	2.38	2.12	1.27	0.75	0.33	0.1

Note: Facilities with stack heights less than 14 feet must perform a Tier 3 or Tier 4 modeling.

Table – 6 Dispersion Factors (X/Q) For Acute Hazard Index (X/Qhr) Point Sources
All Daily Operating Conditions X/Qhr Values ([µg/m3]/[lbs/hr])

Stack Height (ft)	Downwind Distance (meters) 25	50	75	100	200	300	500	1000
[3] 14 to 24	2000	1000.6	577.9	373.5	119.2	59.8	25.4	8.4
> 24 to 49	548.1	548.1	406	295.2	109.6	57.1	24.8	8.3
> 49	110.1	110.1	103.8	92.4	67.3	42.9	20.6	7.2

Note: Facilities with stack heights less than 14 feet must perform a Tier 3 or Tier 4 modeling.

Table – 9A
Daily Breathing Rate Factors

Type of Receptor	DBR Value (liters/kilogram-day)
Sensitive	302
Residential	302
Off-site Worker	149

Table – 9B
Exposure Value Factors Factors

Type of Receptor	EVF Value (unitless)
Sensitive	0.96
Residential	0.96
Off-site Worker	0.38

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Tier II Screening Risk Assessment - SCAQMD Tables[1]

Table – 3B Meteorological Correction Factors (MET) For Point Source Equipment Operating More Than 12 Hours Per Day

STATION	MET	STATION	MET
Anaheim	0.69	Lynwood	0.68
Azusa	0.64	Malibu	0.84
Banning	0.63	Newhall	0.92
Burbank	0.64	Norco	0.6
Canoga Park	0.71	Palm Springs	0.88
Compton	0.6	Pasadena	0.88
Costa Mesa	0.69	Pico Rivera	0.68
Downtown L.A.	0.6	Pomona	1.28
El Toro	0.65	Redlands	1.74
Fontana	1.19	Reseda	0.64
Indio	0.6	Riverside	0.81
King Harbor	0.53	Santa Ana Canyon	0.8
La Canada	1.33	Upland	0.71
La Habra	0.78	Vernon	0.92
Lancaster	0.76	Walnut	0.71
Lennox	0.68	West L.A.	1
Long Beach	1	Whittier	0.55
Los Alamitos	0.69		

Hours of Operation Per Day	Hours Per Day / Days of Operation Per Week						
13	2.6	2.6	2.6	2.6	2.6	2.2	1.8
14	2.4	2.4	2.4	2.4	2.4	2	1.7
15	2.2	2.2	2.2	2.2	2.2	1.9	1.6
16	2.1	2.1	2.1	2.1	2.1	1.8	1.5
17	2	2	2	2	2	1.6	1.4
18	1.9	1.9	1.9	1.9	1.9	1.6	1.3
19	1.8	1.8	1.8	1.8	1.8	1.5	1.3
20	1.7	1.7	1.7	1.7	1.7	1.4	1.2
21	1.6	1.6	1.6	1.6	1.6	1.3	1.1
22	1.5	1.5	1.5	1.5	1.5	1.3	1.1
23	1.5	1.5	1.5	1.5	1.5	1.2	1
24	1.4	1.4	1.4	1.4	1.4	1.2	1

Note: The AFann value for residential/sensitive receptors is 1.0, which assumes exposure of 24 hours per day, 7 days per week.

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 MICR and Cancer Burden Calculations[1,2]

Pollutant	CAS Number	Emission Rate (lbs/hr)[8]		Qtons (tons/yr)	
		Plant 1	Plant 2	Plant 1	Plant 2
Formaldehyde	50-00-0	0.0264	0.0317	0.116	0.139
Acetaldehyde	75-07-0	6.76E-04	8.11E-04	2.96E-03	3.55E-03
Vinyl Chloride	75-01-4	8.39E-05	1.01E-04	3.67E-04	4.41E-04
Dichloromethane	75-09-2	1.43E-04	1.71E-04	6.26E-04	7.51E-04
Chloroform	67-66-3	1.61E-04	1.93E-04	7.04E-04	8.45E-04
1,2-dichloroethane	107-06-2	1.66E-04	1.99E-04	7.25E-04	8.71E-04
1,1,1-trichloroethane	71-55-6	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Benzene	71-43-2	1.05E-04	1.26E-04	4.59E-04	5.51E-04
Carbon Tetrachloride	56-23-5	2.06E-04	2.48E-04	9.04E-04	1.09E-03
Trichloroethene	79-01-6	1.76E-04	2.12E-04	7.73E-04	9.27E-04
Toluene	108-88-3	1.55E-04	1.86E-04	6.78E-04	8.14E-04
Perchloroethene	127-18-4	2.23E-04	2.68E-04	9.78E-04	1.17E-03
Chlorobenzene	108-90-7	1.90E-04	2.28E-04	8.31E-04	9.97E-04
Xylenes (Total)	1330-20-7	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Dichlorobenzene (Total)	106-46-7	4.93E-04	5.92E-04	2.16E-03	2.59E-03
Ammonia[10]	7664-41-7	0.309	0.354	1.355	1.551

Tier II Applicable Engine Parameters								
	Plant 1[5]			Plant 2[4]				
	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3	Engine 4	Engine 5
Distance to Nearest Commercial Receptor (m)	260	260	250	470	460	450	440	440
Distance to Nearest Residential Receptor (m)	310	300	300	320	320	330	340	340
Stack Height (ft.)[5]	62	62	62	59	59	59	59	59
Operating Schedule (hrs/yr)[6]	8760	8760	8760	8760	8760	8760	8760	8760

MICR = Cancer Potency (CP) x Dose-Inhalation (DI) x Multipathway Factor (MP)

Where:

$$DI = x\ C_{air} \times DBR \times EVF \times 10^{-6}; \text{ and}$$
$$C_{air} = Q_{tons} \times X/Q \times AF_{ann} \times MET$$

Therfore,

$$MICR = CP \times Q_{tons} \times X/Q \times AF_{ann} \times MET \times DBR \times EVF \times 10^{-6} \times MP$$

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 MICR and Cancer Burden Calculations[1,2]

Plant 1, Engines 1, 2, 3								
Pollutant	CAS Number	CP	X/Q_R	X/Q_W	MP_R [7]	MP_W [7]	MICR Worker	MICR Residential
Formaldehyde	50-00-0	2.10E-02	0.75	1.01	1	1	9.58E-08	3.64E-07
Acetaldehyde	75-07-0	1.00E-02	0.75	1.01	1	1	1.17E-09	4.44E-09
Vinyl Chloride	75-01-4	2.70E-01	0.75	1.01	1	1	3.91E-09	1.49E-08
Dichloromethane	75-09-2	3.50E-03	0.75	1.01	1	1	8.64E-11	3.28E-10
Chloroform	67-66-3	1.90E-02	0.75	1.01	1	1	5.28E-10	2.01E-09
1,2-dichloroethane	107-06-2	7.20E-02	0.75	1.01	1	1	2.06E-09	7.84E-09
1,1,1-trichloroethane	71-55-6	0	0.75	1.01	0	0	0	0
Benzene	71-43-2	1.00E-01	0.75	1.01	1	1	1.81E-09	6.89E-09
Carbon Tetrachloride	56-23-5	1.50E-01	0.75	1.01	1	1	5.35E-09	2.03E-08
Trichloroethene	79-01-6	7.00E-03	0.75	1.01	1	1	2.13E-10	8.12E-10
Toluene	108-88-3	0	0.75	1.01	0	0	0	0
Perchloroethene	127-18-4	2.10E-02	0.75	1.01	1	1	8.10E-10	3.08E-09
Chlorobenzene	108-90-7	0	0.75	1.01	0	0	0	0
Xylenes (Total)	1330-20-7	0	0.75	1.01	0	0	0	0
Dichlorobenzene (Total)	106-46-7	4.00E-02	0.75	1.01	1	1	3.41E-09	1.30E-08
Ammonia	7664-41-7	0	0.75	1.01	0	0	0	0
Total							**1.15E-07**	**4.38E-07**
Pass/Fail							**PASS**	**PASS**

Plant 2, Engines 1, 2, 3, 4, and 5								
Pollutant	CAS Number	CP	X/Q_R	X/Q_W	MP_R [7]	MP_W [7]	MICR Worker	MICR Residential
Formaldehyde	50-00-0	2.10E-02	0.71	0.46	1	1	5.19E-08	4.13E-07
Acetaldehyde	75-07-0	1.00E-02	0.71	0.46	1	1	6.33E-10	5.03E-09
Vinyl Chloride	75-01-4	2.70E-01	0.71	0.46	1	1	2.12E-09	1.69E-08
Dichloromethane	75-09-2	3.50E-03	0.71	0.46	1	1	4.68E-11	3.72E-10
Chloroform	67-66-3	1.90E-02	0.71	0.46	1	1	2.86E-10	2.27E-09
1,2-dichloroethane	107-06-2	7.20E-02	0.71	0.46	1	1	1.12E-09	8.88E-09
1,1,1-trichloroethane	71-55-6	0.00E+00	0.71	0.46	0	0	0	0
Benzene	71-43-2	1.00E-01	0.71	0.46	1	1	9.82E-10	7.81E-09
Carbon Tetrachloride	56-23-5	1.50E-01	0.71	0.46	1	1	2.90E-09	2.31E-08
Trichloroethene	79-01-6	7.00E-03	0.71	0.46	1	1	1.16E-10	9.19E-10
Toluene	108-88-3	0.00E+00	0.71	0.46	0	0	0	0
Perchloroethene	127-18-4	2.10E-02	0.71	0.46	1	1	4.39E-10	3.49E-09
Chlorobenzene	108-90-7	0.00E+00	0.71	0.46	0	0	0	0
Xylenes (Total)	1330-20-7	0.00E+00	0.71	0.46	0	0	0	0
Dichlorobenzene (Total)	106-46-7	4.00E-02	0.71	0.46	1	1	1.85E-09	1.47E-08
Ammonia	7664-41-7	0.00E+00	0.71	0.46	0	0	0	0
Total							**6.24E-08**	**4.96E-07**
Pass/Fail							**PASS**	**PASS**

Notes [ ]

1. Calculations follow the methodology outlined in SCAQMD Risk Assessment Procedures For Rules 1401 & 212.
2. MICR and Cancer Burden Values are equal for all 3 Plant 1 Engines and all 5 Plant 2 Engines.
3. Conservatively used X/Q value for a distance of 200 m for both commercial (worker) and residential receptors.
4. Conservatively used X/Q value for a distance of 300 m for both commercial (worker) and residential receptors.
5. Stack heights for Plants 1 & 2 Engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004; Tables 4-4 & 4-5.
6. Calculations assume that all 3 Engines at Plant 1 and 5 Engines at Plant 2 will be operating 24 hrs/day, 365 days/year.
7. There were only "1's" and "0's" provided in Table 8A for applicable TACs, therefore used "1" for all MP values per Tier II Procedures.
8. Plant 1 and Plant 2 Emission Rates were calculated using data from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011 . An Emission Factor was calculated from the Source Test TAC Emission Rates and Engine Load. The Emission Factors were then applied to Maximum Load (2500KW for Plant 1 & 3000KW for Plant 2) to obtain the maximum emission rates for the Engines. This applies to all TACs except for Ammonia. See note [10] for the methodology used to calculate the Ammonia emission rates.
9. Cancer Burden does not need to be calculated when the MICR for either Worker or Residential receptors is less than one in one million.
10. Ammonia slip calculated using a 10ppmvd concentration and the maximum design flow rate for the Plant 1 and Plant 2 Engines. A 10ppmvd ammonia concentration is being proposed as a permit limit by OCSD. Maximum design flow rate for the engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	Emission Rate (lbs/hr)[3]		Emission Rate (tons/yr)	
		Plant 1	Plant 2	Plant 1	Plant 2
Formaldehyde	50-00-0	0.0264	0.0317	0.1156505	0.1387806
Acetaldehyde	75-07-0	6.76E-04	8.11E-04	2.96E-03	3.55E-03
Vinyl Chloride	75-01-4	8.39E-05	1.01E-04	3.67E-04	4.41E-04
Dichloromethane	75-09-2	1.43E-04	1.71E-04	6.26E-04	7.51E-04
Chloroform	67-66-3	1.61E-04	1.93E-04	7.04E-04	8.45E-04
1,2-dichloroethane	107-06-2	1.66E-04	1.99E-04	7.25E-04	8.71E-04
1,1,1-trichloroethane	71-55-6	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Benzene	71-43-2	1.05E-04	1.26E-04	4.59E-04	5.51E-04
Carbon Tetrachloride	56-23-5	2.06E-04	2.48E-04	9.04E-04	1.09E-03
Trichloroethene	79-01-6	1.76E-04	2.12E-04	7.73E-04	9.27E-04
Toluene	108-88-3	1.55E-04	1.86E-04	6.78E-04	8.14E-04
chloroethene	127-18-4	2.23E-04	2.68E-04	9.78E-04	1.17E-03
Chlorobenzene	108-90-7	1.90E-04	2.28E-04	8.31E-04	9.97E-04
Xylenes (Total)	1330-20-7	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Dichlorobenzene (Total)	106-46-7	4.93E-04	5.92E-04	2.16E-03	2.59E-03
Ammonia[9]	7664-41-7	0.309	0.354	1.355	1.551

Tier II Applicable Engine Parameters								
	Plant 1[4]			Plant 2[5]				
	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3	Engine 4	Engine 5
Distance to Nearest Commercial Receptor (m)	260	260	250	470	460	450	440	440
Distance to Nearest Residential Receptor (m)	310	300	300	320	320	330	340	340
Stack Height (ft.)[6]	62	62	62	59	59	59	59	59
Operting Schedule (hrs/yr)[7]	8760	8760	8760	8760	8760	8760	8760	8760

$$\text{Total HIC}_{\text{target organ}} = \Sigma \{[\text{Qyr}_{TAC} \times (X/Q) \times \text{MET} \times \text{MP}]/\text{Chronic REL}_{TAC}\}_{\text{target organ}}$$

$$\text{Total HIA}_{\text{target organ}} = \Sigma \{[\text{Qhr}_{TAC} \times (X/Q)_{hr}]/\text{Acute REL}_{TAC}\}_{\text{target organ}}$$

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Plant 1 Acute Harzard Indices For Worker and Residential Receptors																					
Pollutant	CAS Number	AF	X/Q_{hr} W	X/Q_{hr} R	Accute REL	EYE		RESP		NS		DEV		REP		HEM		IMM		AL	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	--	55.1	42.9	55	2.65E-02	2.06E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	--	55.1	42.9	470	7.92E-05	6.17E-05	7.92E-05	6.17E-05	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	--	55.1	42.9	180000	2.57E-08	2.00E-08	2.57E-08	2.00E-08	2.57E-08	2.00E-08	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	--	55.1	42.9	14000	--	--	--	--	5.62E-07	4.38E-07	--	--	--	--	--	--	--	--	--	--
Chloroform	67-66-3	0.88	55.1	42.9	150	--	--	--	--	5.20E-05	4.05E-05	5.20E-05	4.05E-05	5.20E-05	4.05E-05	--	--	--	--	--	--
1,2-dichloroethane	107-06-2	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-trichloroethane	71-55-6	--	55.1	42.9	68000	--	--	--	--	1.45E-07	1.13E-07	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.88	55.1	42.9	1300	--	--	--	--	--	--	3.91E-06	3.05E-06	3.91E-06	3.05E-06	3.91E-06	3.05E-06	3.91E-06	3.05E-06	--	--
Carbon Tetrachloride	56-23-5	0.88	55.1	42.9	1900	--	--	--	--	5.27E-06	4.10E-06	5.27E-06	4.10E-06	5.27E-06	4.10E-06	--	--	--	--	5.27E-06	5.27E-06
Trichloroethene	79-01-6	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	--	55.1	42.9	37000	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	--	--	--	--	--	--
Perchloroethene	127-18-4	--	55.1	42.9	20000	6.15E-07	4.79E-07	6.15E-07	4.79E-07	6.15E-07	4.79E-07	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (Total)	1330-20-7	--	55.1	42.9	22000	4.48E-07	3.49E-07	4.48E-07	3.49E-07	--	--	--	--	--	--	--	--	--	--	--	--
hlorobenzene (Total)	106-46-7	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
.monia	7664-41-7	--	55.1	42.9	3200	5.33E-03	4.15E-03	5.33E-03	4.15E-03	--	--	--	--	--	--	--	--	--	--	--	--
Total HIA						0.0319	0.0248	0.00541	0.00421	5.88E-05	4.58E-05	6.14E-05	4.78E-05	6.14E-05	4.78E-05	3.91E-06	3.05E-06	3.91E-06	3.05E-06	5.27E-06	5.27E-06

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Plant 1 Chronic Hazard Indices For Worker and Residential Receptors[8]

Pollutant	CAS Number	X/Q W	X/Q R	Chronic REL	MET	EYE		RESP		NS		DEV		REP		HEM		AL		CV		KID	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	1.01	0.75	9	0.69	--	--	8.96E-03	6.65E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	1.01	0.75	140	0.69	--	--	1.47E-05	1.09E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	1.01	0.75	0	0.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	1.01	0.75	400	0.69	--	--	--	--	1.09E-06	8.09E-07	--	--	--	--	--	--	--	--	1.09E-06	8.09E-07	--	--
Chloroform	67-66-3	1.01	0.75	300	0.69	--	--	--	--	--	--	1.64E-06	1.22E-06	--	--	--	--	1.64E-06	1.22E-06	--	--	1.64E-06	1.22E-06
1,2-dichloroethane	107-06-2	1.01	0.75	400	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.26E-06	9.39E-07	--	--	--	--
1,1,1-trichloroethane	71-55-6	1.01	0.75	1000	0.69	--	--	--	--	5.46E-07	4.05E-07	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	1.01	0.75	60	0.69	--	--	--	--	5.34E-06	3.96E-06	5.34E-06	3.96E-06	--	--	5.34E-06	3.96E-06	--	--	--	--	--	--
Carbon Tetrachloride	56-23-5	1.01	0.75	40	0.69	--	--	--	--	1.58E-05	1.17E-05	1.58E-05	1.17E-05	--	--	--	--	1.58E-05	1.17E-05	--	--	--	--
Trichloroethene	79-01-6	1.01	0.75	600	0.69	8.98E-07	6.67E-07	--	--	8.98E-07	6.67E-07	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	1.01	0.75	300	0.69	--	--	1.58E-06	1.17E-06	1.58E-06	1.17E-06	1.58E-06	1.17E-06	--	--	--	--	--	--	--	--	--	--
Perchloroethene	127-18-4	1.01	0.75	35	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.95E-05	1.45E-05	--	--	1.95E-05	1.45E-05
Chlorobenzene	108-90-7	1.01	0.75	1000	0.69	--	--	--	--	--	--	--	--	5.79E-07	4.30E-07	--	--	5.79E-07	4.30E-07	--	--	5.79E-07	4.30E-07
Xylenes (Total)	1330-20-7	1.01	0.75	700	0.69	--	--	7.80E-07	5.79E-07	7.80E-07	5.79E-07	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene (Total)	106-46-7	1.01	0.75	800	0.69	--	--	1.88E-06	1.40E-06	1.88E-06	1.40E-06	--	--	--	--	--	--	1.88E-06	1.40E-06	--	--	1.88E-06	1.40E-06
Ammonia	7664-41-7	1.01	0.75	200	0.69	--	--	4.72E-03	3.51E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			Total HIC			8.98E-07	6.67E-07	0.0137	0.0102	2.79E-05	2.07E-05	2.43E-05	1.80E-05	5.79E-07	4.30E-07	5.34E-06	3.96E-06	4.06E-05	3.01E-05	1.09E-06	8.09E-07	2.36E-05	1.75E-05

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	AF	X/Q_{hr} W	X/Q_{hr} R	Accute REL	Plant 2 Acute Harzard Indices For Worker and Residential Receptors															
						EYE		RESP		NS		DEV		REP		HEM		IMM		AL	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	--	27.3	40.7	55	1.57E-02	2.34E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	--	27.3	40.7	470	4.71E-05	7.02E-05	4.71E-05	7.02E-05	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	--	27.3	40.7	180000	1.53E-08	2.27E-08	1.53E-08	2.27463E-08	1.5263E-08	2.27E-08	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	--	27.3	40.7	14000	--	--	--	--	3.34083E-07	4.9788E-07	--	--	--	--	--	--	--	--	--	--
Chloroform	67-66-3	0.88	27.3	40.7	150	--	--	--	--	3.08981E-05	4.60471E-05	3.09E-05	4.60E-05	3.09E-05	4.60E-05	--	--	--	--	--	--
1,2-dichloroethane	107-06-2	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-trichloroethane	71-55-6	--	27.3	40.7	68000	--	--	--	--	8.61218E-08	1.28346E-07	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.88	27.3	40.7	1300	--	--	--	--	--	--	2.33E-06	3.47E-06	2.33E-06	3.47E-06	2.33E-06	3.47E-06	2.33E-06	3.47E-06	--	--
Carbon Tetrachloride	56-23-5	0.88	27.3	40.7	1900	--	--	--	--	3.13107E-06	4.6662E-06	3.13E-06	4.67E-06	3.13E-06	4.67E-06	--	--	--	--	3.13E-06	4.67E-06
Trichloroethene	79-01-6	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	--	27.3	40.7	37000	1.37E-07	2.04E-07	1.37E-07	2.04218E-07	1.37032E-07	2.04218E-07	1.37E-07	2.04E-07	1.37E-07	2.04E-07	--	--	--	--	--	--
Perchloroethene	127-18-4	--	27.3	40.7	20000	3.66E-07	5.45E-07	3.66E-07	5.4474E-07	3.65526E-07	5.4474E-07	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (Total)	1330-20-7	--	27.3	40.7	22000	2.66E-07	3.97E-07	2.66E-07	3.96707E-07	--	--	--	--	--	--	--	--	--	--	--	--
[illegible]lorobenzene (Total)	106-46-7	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
[illegible]nonia	7664-41-7	--	27.3	40.7	3200	3.02E-03	4.50E-03	3.02E-03	4.50E-03	--	--	--	--	--	--	--	--	--	--	--	--
Total HIA						0.0188	0.0280	0.00307	0.00457	3.50E-05	5.21E-05	3.65E-05	5.44E-05	3.65E-05	5.44E-05	2.33E-06	3.47E-06	2.33E-06	3.47E-06	3.13E-06	4.67E-06

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	X/Q W	X/Q R	Chronic REL	MET	Plant 2 Chronic Harzard Indices For Worker and Residential Receptors[8]															
						EYE		RESP		NS		DEV		REP		HEM		AL		CV		KID	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	0.46	0.71	9	0.69	--	--	4.85E-03	7.53E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	0.46	0.71	140	0.69	--	--	7.98E-06	1.24E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	0.46	0.71	0	0.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	0.46	0.71	400	0.69	--	--	--	--	5.90E-07	9.17E-07	--	--	--	--	--	--	--	--	5.90E-07	9.17E-07	--	--
Chloroform	67-66-3	0.46	0.71	300	0.69	--	--	--	--	--	--	8.87E-07	1.38E-06	--	--	--	--	8.87E-07	1.38E-06	--	--	8.87E-07	1.38E-06
1,2-dichloroethane	107-06-2	0.46	0.71	400	0.69	--	--	--	--	--	--	--	--	--	--	--	--	6.85E-07	1.06E-06	--	--	--	--
1,1,1-trichloroethane	71-55-6	0.46	0.71	1000	0.69	--	--	--	--	2.96E-07	4.59E-07	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.46	0.71	60	0.69	--	--	--	--	2.89E-06	4.49E-06	2.89E-06	4.49E-06	--	--	2.89E-06	4.49E-06	--	--	--	--	--	--
Carbon Tetrachloride	56-23-5	0.46	0.71	40	0.69	--	--	--	--	8.53E-06	1.33E-05	8.53E-06	1.33E-05	--	--	--	--	8.53E-06	1.33E-05	--	--	--	--
Trichloroethene	79-01-6	0.46	0.71	600	0.69	4.86E-07	7.55E-07	--	--	4.86E-07	7.55E-07	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	0.46	0.71	300	0.69	--	--	8.53E-07	1.33E-06	8.53E-07	1.33E-06	8.53E-07	1.33E-06	--	--	--	--	--	--	--	--	--	--
Perchloroethene	127-18-4	0.46	0.71	35	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.05E-05	1.64E-05	--	--	1.05E-05	1.64E-05
Chlorobenzene	108-90-7	0.46	0.71	1000	0.69	--	--	--	--	--	--	--	--	3.14E-07	4.87E-07	--	--	3.14E-07	4.87E-07	--	--	3.14E-07	4.87E-07
Xylenes (Total)	1330-20-7	0.46	0.71	700	0.69	--	--	4.22E-07	6.56E-07	4.22E-07	6.56E-07	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene (Total)	106-46-7	0.46	0.71	800	0.69	--	--	1.02E-06	1.58E-06	1.02E-06	1.58E-06	--	--	--	--	--	--	1.02E-06	1.58E-06	--	--	1.02E-06	1.58E-06
Ammonia	7664-41-7	0.46	0.71	200	0.69	--	--	2.44E-03	3.79E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HIC						4.86E-07	7.55E-07	0.00730	0.01134	1.51E-05	2.34E-05	1.32E-05	2.04E-05	3.14E-07	4.87E-07	2.89E-06	4.49E-06	2.20E-05	3.41E-05	5.90E-07	9.17E-07	1.28E-05	1.98E-05

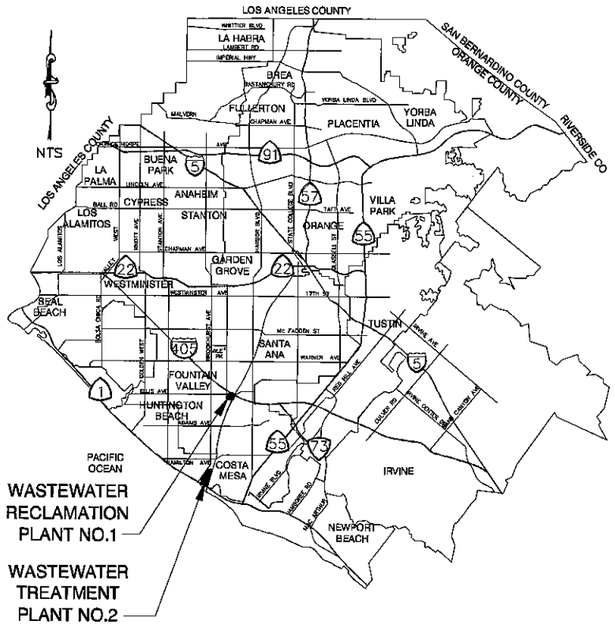
ORANGE COUNTY SANITATION DISTRICT

PROJECT NO. J-111
CENTRAL GENERATION EMISSION CONTROL

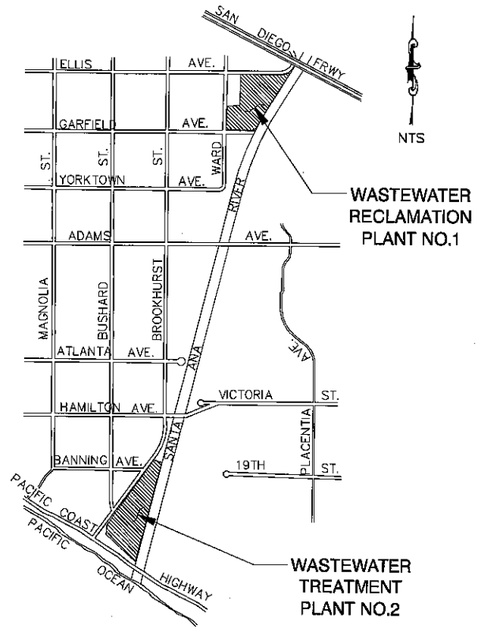
DRAFT
PRELIMINARY DESIGN REPORT

VOLUME II
DRAWINGS

NOVEMBER 2012



VICINITY MAP



LOCATION MAP

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DATE: Nov 01, 2012 10:16am
XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: RATTO, V.
DRAWN BY: HO, S.
CHECKED BY: CHOW, B.
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"—SCALE ACCORDINGLY)

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Black & Veatch Corporation, Irvine, California

ORANGE COUNTY SANITATION DISTRICT

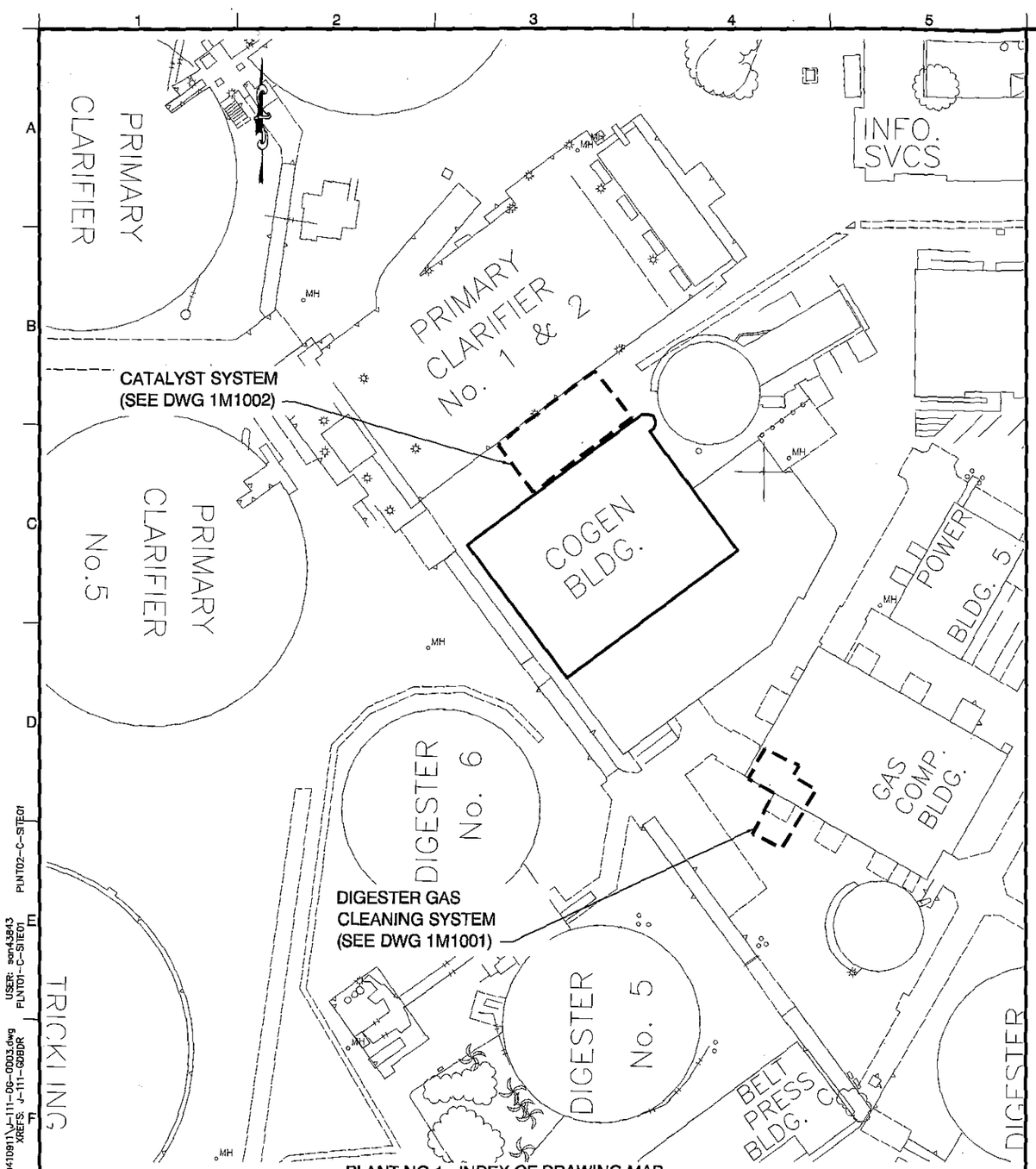
CENTRAL GENERATION EMISSIONS CONTROL

PROJECT NO. J-111

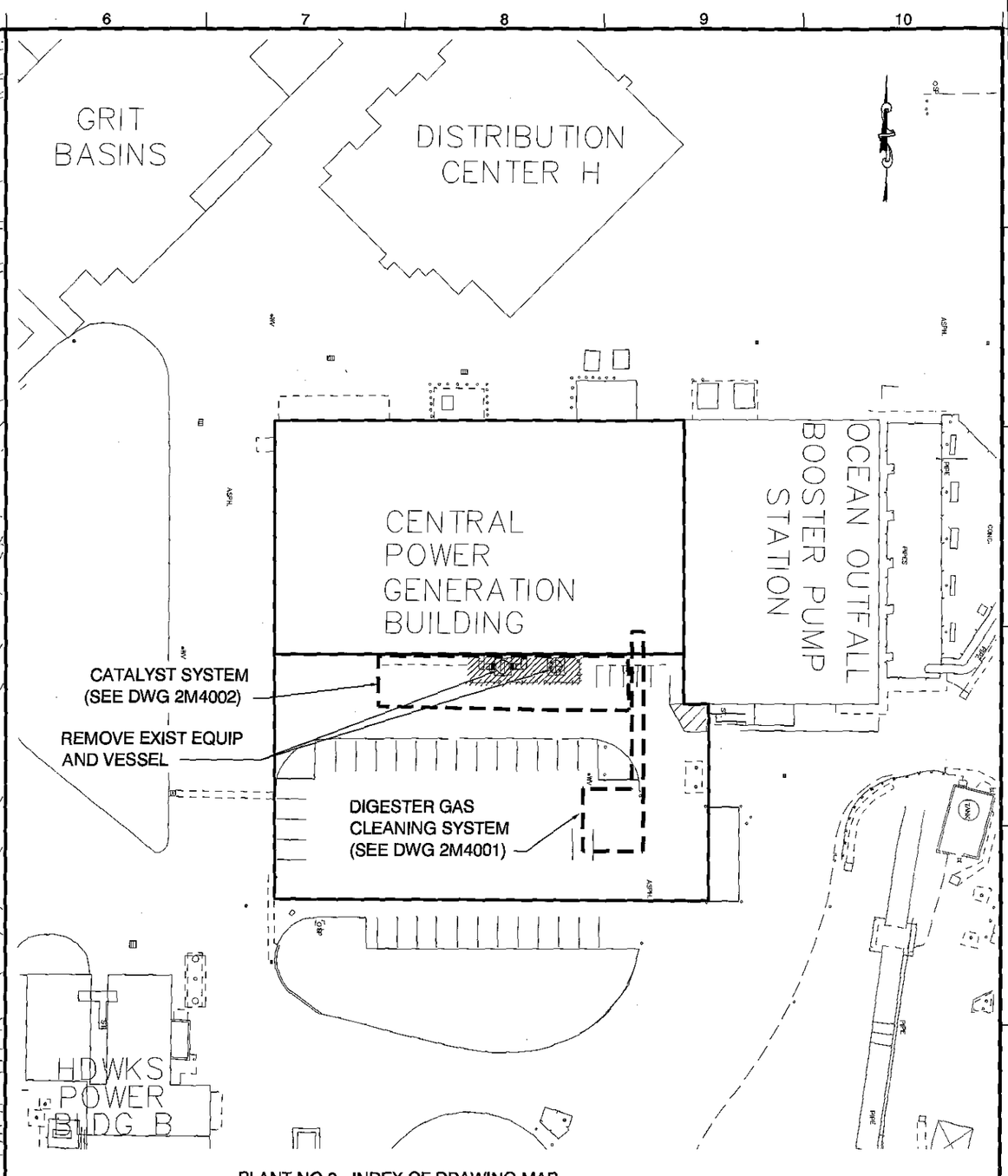
COVER SHEET

DRAWING NO. 0G0001

OF



PLANT NO.1 - INDEX OF DRAWING MAP
SCALE: 1"=30'



PLANT NO.2 - INDEX OF DRAWING MAP
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USER: san43843
PLNT01-C-SITE01
PLNT02-C-SITE01

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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Black & Veatch Corporation
Irvine, California

ORANGE COUNTY SANITATION DISTRICT

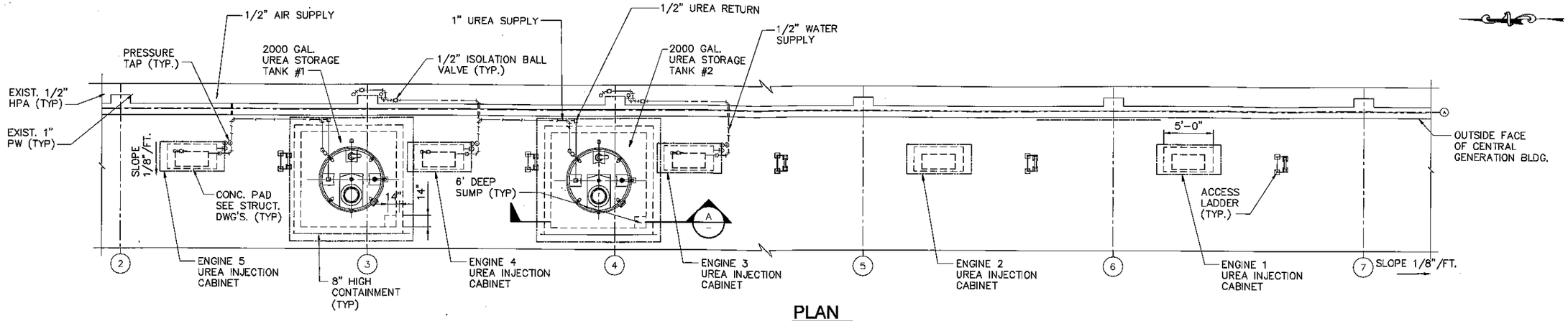
CENTRAL GENERATION EMISSIONS CONTROL

INDEX OF DRAWING MAPS (PLANT NOS.1 & 2)

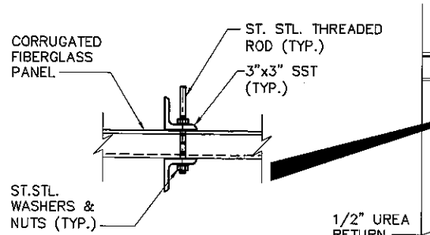
PROJECT NO. J-111

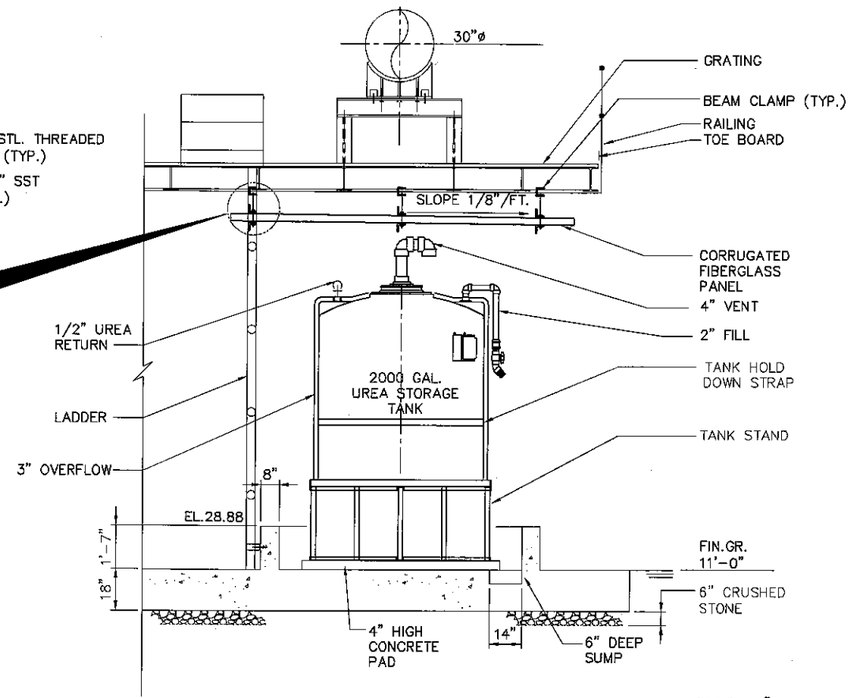
DRAWING NO. 0G0003

OF



PLAN
3/8"=1'-0"





SECTION
3/8"=1'-0"

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"–SCALE ACCORDINGLY)

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Black & Veatch Corporation
Irvine, California

ORANGE COUNTY SANITATION DISTRICT

CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 CATALYST SYSTEM UREA FEED PLAN & SECTION

PROJECT NO. J-111

DRAWING NO. 2M4003

DF

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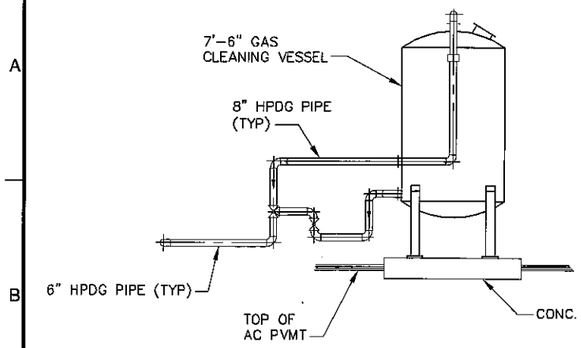
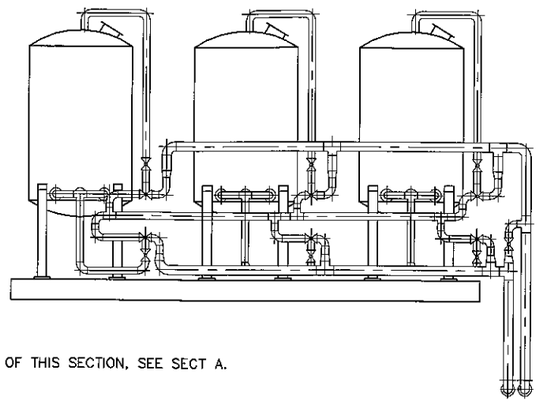
J-111-GDBDR
PLNT02-C-UTIL01



NOTE:

GUARD POST NOT SHOWN.

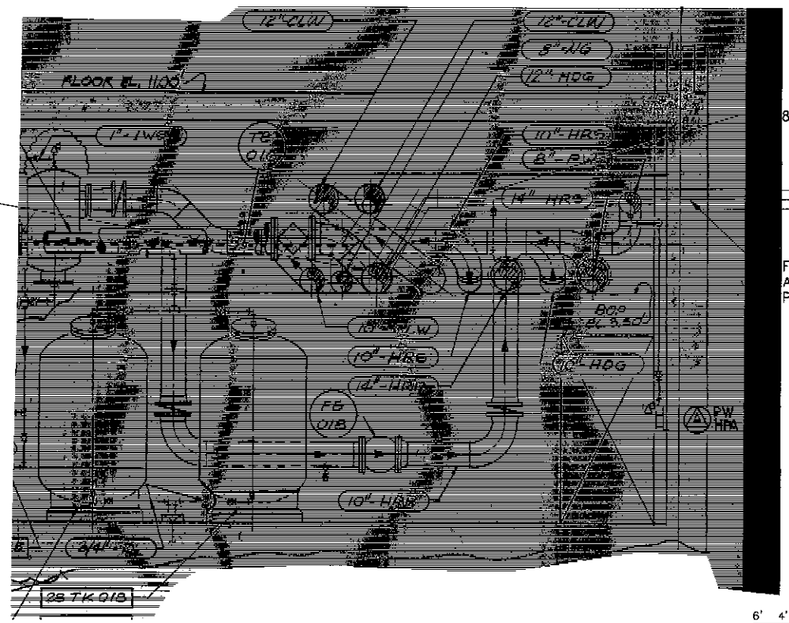
SECTION A 3/16"=1'-0"



NOTE:

FOR CALLOUT OF THIS SECTION, SEE SECT A.

SECTION B 3/16"=1'-0"



SECTION C 3/8"=1'-0"

NOTE:

FOR PROPOSED LOCATION OF THIS AREA, SEE DWG.

ENLARGED PLAN 1 2M1001 1/4"=1'-0"

6' 4' 2' 0 5' 10' 3/16"=1'-0"

12" 6" 0 1' 2' 3' 4' 5' 6' 7' 3/8"=1'-0"

4' 2' 0 4' 8' 1/4"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JEAN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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Irvine, California

ORANGE COUNTY SANITATION DISTRICT

CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
DIGESTER GAS CLEANING SYSTEM
PLAN AND SECTIONS

PROJECT NO. J-111

DRAWING NO. 2M4001

OF

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DATE: Oct 31, 2012 8:59am
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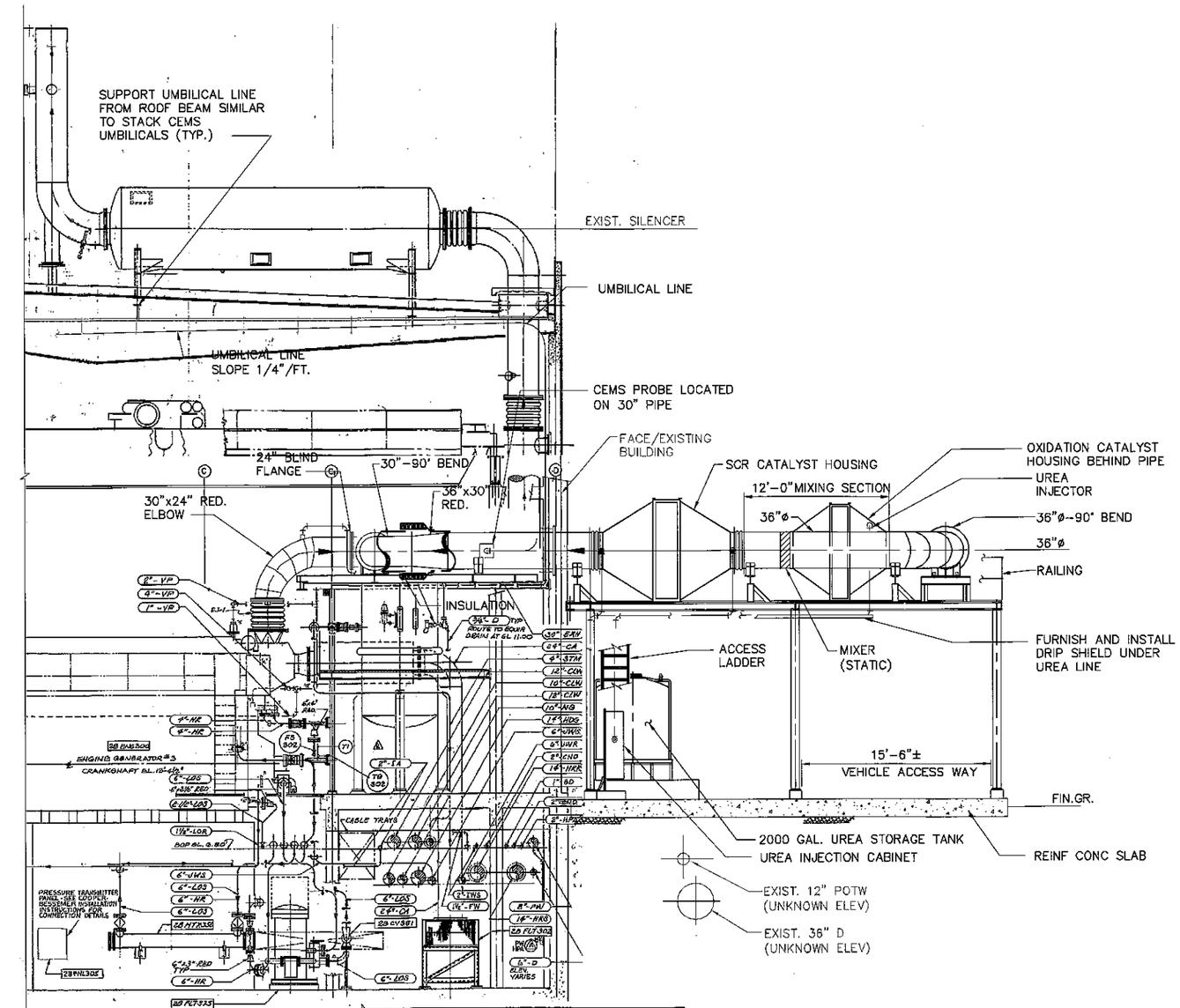

SECTION A
3/16"=1'-0" 2M1001

NOTE:

1. ARRANGEMENT BASED ON THE J-79 PILOT STUDY EQUIPMENT.

6' 4' 2' 0 5' 10'
3/16"=1'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JEAN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN
LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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Irvine, California

ORANGE COUNTY SANITATION DISTRICT

CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 - CENTRAL GENERATION BUILDING - CATALYST SYTEM - SECTION

PROJECT NO. J-111

DRAWING NO. 2M3002

OF

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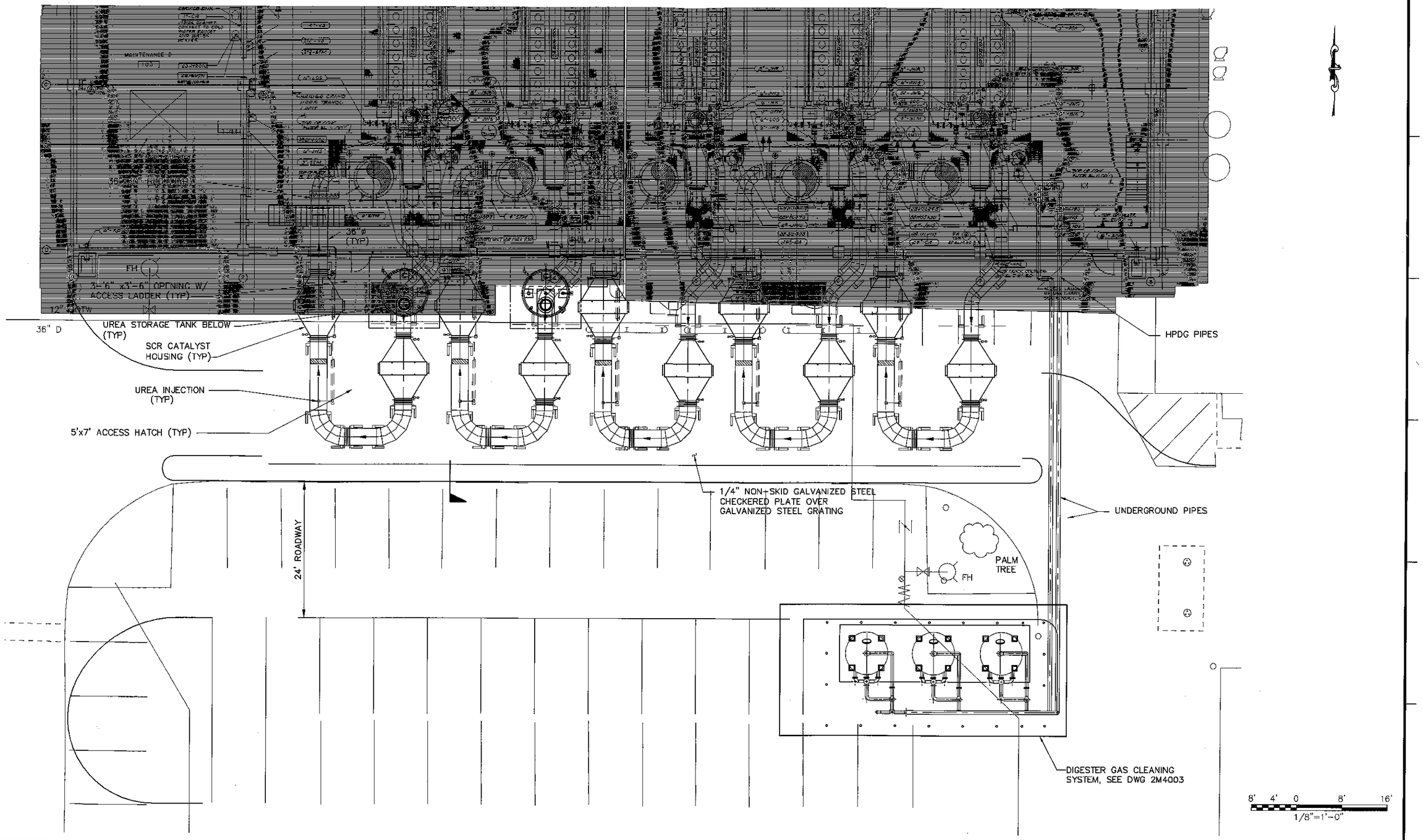
USER: sanA3843



MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

LINE IS 2 INCHES AT FULL SIZE
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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2 - CENTRAL GENERATION BUILDING - CATALYST SYSTEM - PLAN

PROJECT NO. J-111

DRAWING NO. 2M1001

OF

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DATE: Oct 31, 2012 7:54pm
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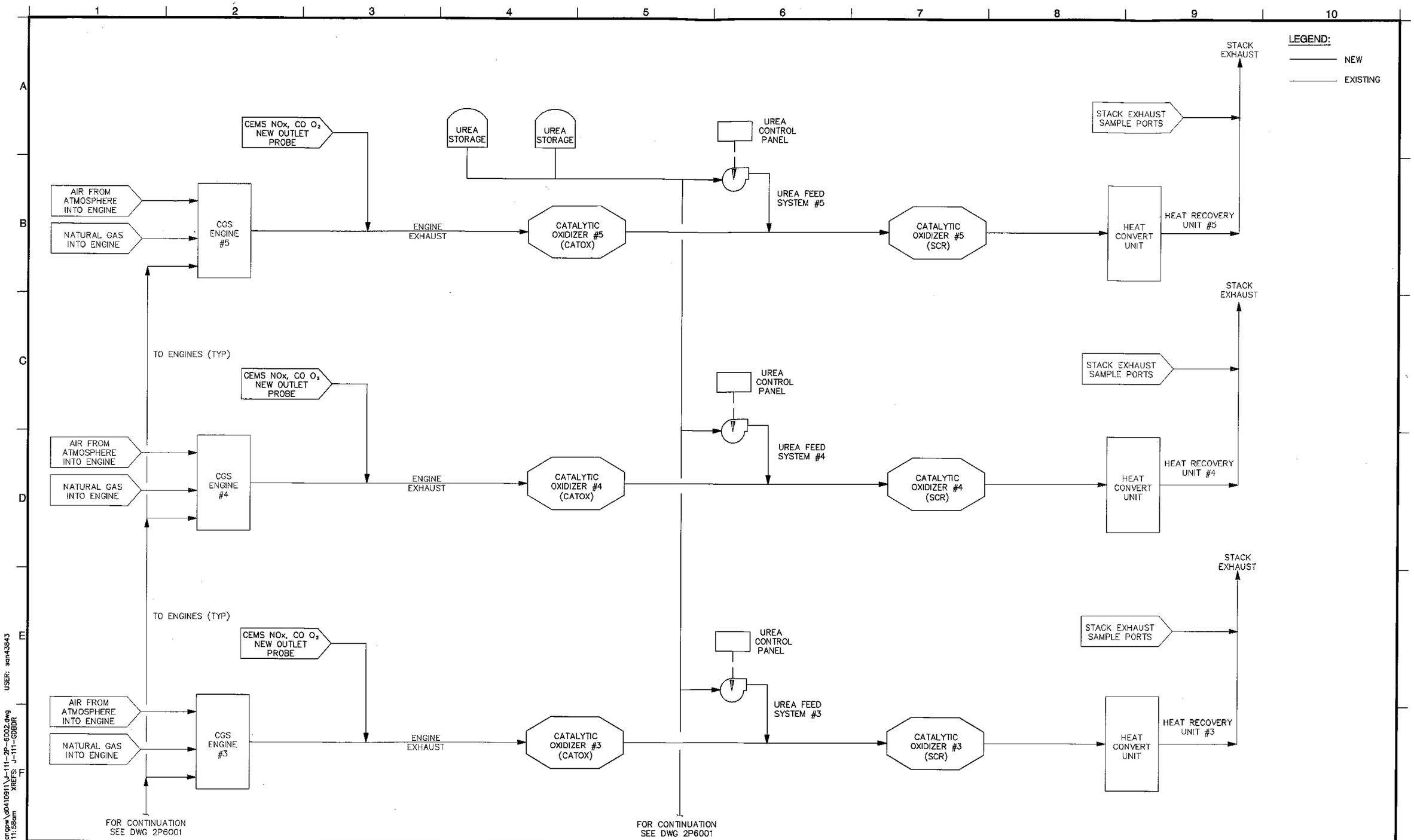
J-111-C-PLAN03-4
J-111-GDBDR
PLNT02-C-UTL01
J-111-M-PLAN03
J-111-M-PLAN04



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DATE: Oct 31, 2012 11:58am
USER: sam43843
XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
EMISSIONS PROCESS SCHEMATIC

PROJECT NO. J-111

DRAWING NO. 2P6002

OF

LEGEND:
NEW
EXISTING

SEE DWG 2P6002 FOR CONTINUATION

TO ENGINES (TYP)

AIR FROM ATMOSPHERE INTO ENGINE

NATURAL GAS INTO ENGINE

CGS ENGINE #2

CEMS NOx, CO O_2 NEW OUTLET PROBE

ENGINE EXHAUST

CATALYTIC OXIDIZER #2 (CATOX)

SEE DWG 2P6002 FOR CONTINUATION

UREA CONTROL PANEL

UREA FEED SYSTEM #2

CATALYTIC OXIDIZER #2 (SCR)

HEAT CONVERT UNIT

HEAT RECOVERY UNIT #2

STACK EXHAUST

STACK EXHAUST SAMPLE PORTS

TO ENGINES (TYP)

AIR FROM ATMOSPHERE INTO ENGINE

NATURAL GAS INTO ENGINE

CGS ENGINE #1

CEMS NOx, CO O_2 NEW OUTLET PROBE

ENGINE EXHAUST

CATALYTIC OXIDIZER #1 (CATOX)

UREA CONTROL PANEL

UREA FEED SYSTEM #1

CATALYTIC OXIDIZER #1 (SCR)

HEAT CONVERT UNIT

HEAT RECOVERY UNIT #1

STACK EXHAUST

STACK EXHAUST SAMPLE PORTS

TO ENGINES (TYP)

DGCS VESSEL #1

DGCS VESSEL #2

DGCS VESSEL #3

TO POLISHING VESSEL

BY-PASS

DIGESTER GAS FROM INTERPLANT GAS LINE

1P6001

DIGESTER GAS FROM GAS COMPRESSORS

USER: son43843

DWG: C:\pw_working\cmgpw\d0410911\J-111-2P-6001.dwg
DATE: Oct 31, 2012 11:57am
XREFS: J-111-GDBDR

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: PERRY, JOHN
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: MORTELLORO, JEAN

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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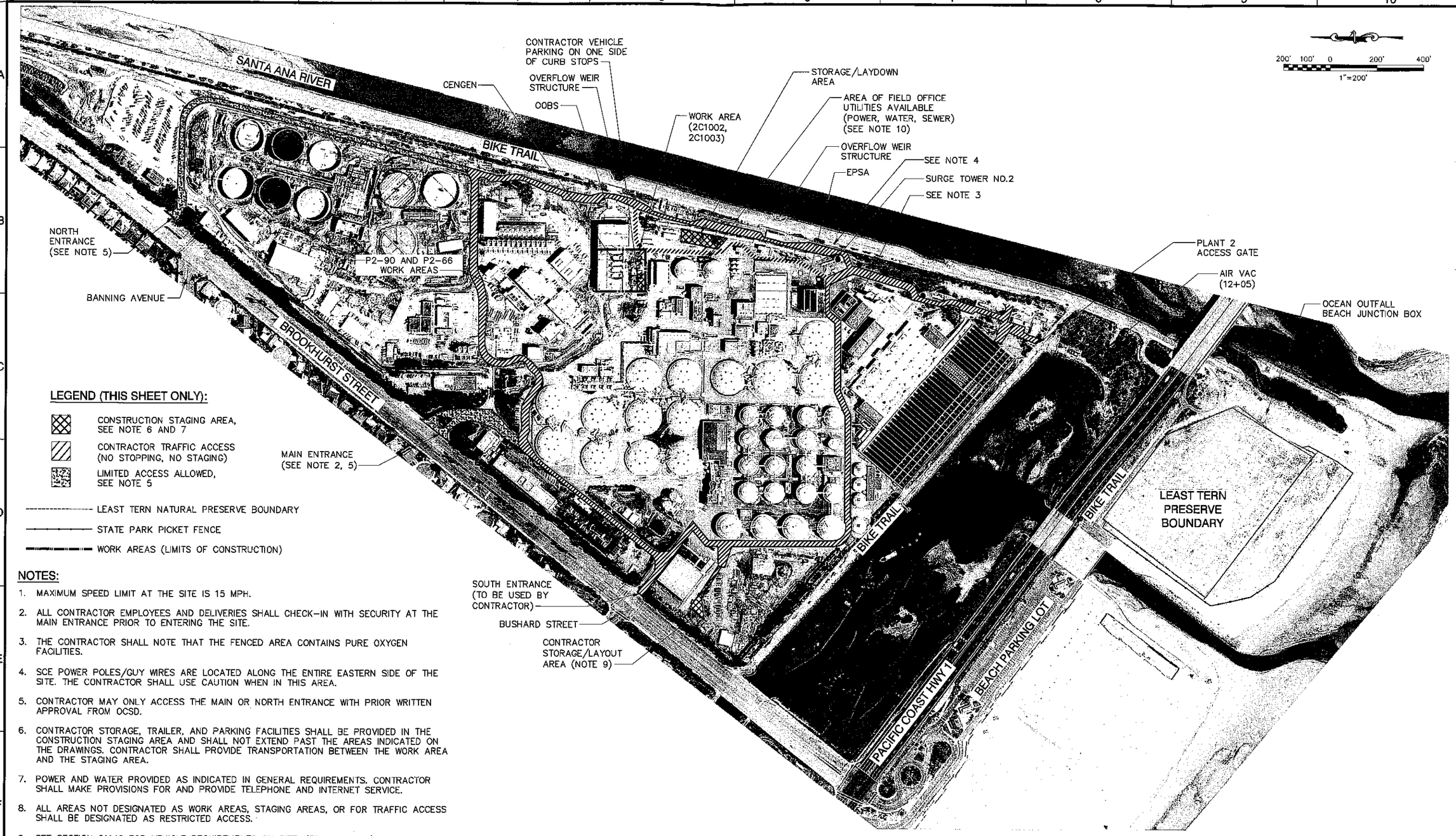
CENTRAL GENERATION EMISSIONS CONTROL

PLANT NO. 2
EMISSIONS PROCESS SCHEMATIC

PROJECT NO. J-111

DRAWING NO. 2P6001

OF



LEGEND (THIS SHEET ONLY):

- CONSTRUCTION STAGING AREA, SEE NOTE 6 AND 7
- CONTRACTOR TRAFFIC ACCESS (NO STOPPING, NO STAGING)
- LIMITED ACCESS ALLOWED, SEE NOTE 5
- LEAST TERN NATURAL PRESERVE BOUNDARY
- STATE PARK PICKET FENCE
- WORK AREAS (LIMITS OF CONSTRUCTION)

NOTES:

1. MAXIMUM SPEED LIMIT AT THE SITE IS 15 MPH.
2. ALL CONTRACTOR EMPLOYEES AND DELIVERIES SHALL CHECK-IN WITH SECURITY AT THE MAIN ENTRANCE PRIOR TO ENTERING THE SITE.
3. THE CONTRACTOR SHALL NOTE THAT THE FENCED AREA CONTAINS PURE OXYGEN FACILITIES.
4. SCE POWER POLES/GUY WIRES ARE LOCATED ALONG THE ENTIRE EASTERN SIDE OF THE SITE. THE CONTRACTOR SHALL USE CAUTION WHEN IN THIS AREA.
5. CONTRACTOR MAY ONLY ACCESS THE MAIN OR NORTH ENTRANCE WITH PRIOR WRITTEN APPROVAL FROM OCSD.
6. CONTRACTOR STORAGE, TRAILER, AND PARKING FACILITIES SHALL BE PROVIDED IN THE CONSTRUCTION STAGING AREA AND SHALL NOT EXTEND PAST THE AREAS INDICATED ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE TRANSPORTATION BETWEEN THE WORK AREA AND THE STAGING AREA.
7. POWER AND WATER PROVIDED AS INDICATED IN GENERAL REQUIREMENTS. CONTRACTOR SHALL MAKE PROVISIONS FOR AND PROVIDE TELEPHONE AND INTERNET SERVICE.
8. ALL AREAS NOT DESIGNATED AS WORK AREAS, STAGING AREAS, OR FOR TRAFFIC ACCESS SHALL BE DESIGNATED AS RESTRICTED ACCESS.
9. SEE SECTION 01140 FOR VEHICLE REQUIREMENTS ON SITE. (TO BE ADDED)
10. SEE GENERAL REQUIREMENTS AND SECTION 01500 FOR DETAILS. (TO BE ADDED)

SITE PLAN
1" = 200'-0"

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: RATTO, VALERIE
DRAWN BY: SANTOS, CHRISTOPHER
CHECKED BY: STANTON, ANDY

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2"-SCALE ACCORDINGLY)

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CENTRAL GENERATION EMISSIONS CONTROL

PROJECT NO. J-111

PLANT NO. 2 SITE PLAN AND STAGING AREA

DRAWING NO. 2C1001

OF

DWG: C:\pw_working\cngpw\d0410911\J-111-2C-1001.dwg
DATE: Oct 31, 2012 2:46pm
XREFS: J-111-GDBIR
USER: son43843

OCSD
Project J-111

Plants 1 and 2 Emissions Summary and Permitting Thresholds Comparison

Daily Emissions

Pollutant	Baseline Emissions (lbs/day)[1]				Projected Emissions (lbs/day)[2,3,4]				Difference (lbs/day)				BACT Thresholds (lbs/day)	Rule	Are Thresholds Exceeded?			
	Plant 1		Plant 2		Plant 1		Plant 2		Plant 1		Plant 2				Plant 1		Plant 2	
	Plant 1, Per CGS Engine	Plant 1 (All Engines)	Plant 2, Per CGS Engine	Plant2 Total	Per Engine Emissions	Plant Total	Per Engine Emissions	Plant Total	Plant 1, Per CGS Engine	Plant 1 Total	Plant 2, Per CGS Engine	Plant 2 Total			Per CGS Engine	Plant Total	Per CGS Engine	Plant Total
NO_x	122.7	368	276.0	828	11.9	35.8	14.3	71.5	-110.75	-332	-261.7	-756	1	1303	NO	NO	NO	NO
CO	440.3	1321	881.3	2644	11.2	33.6	13.4	67.1	-429.146	-1287	-868	-2577	1	1303	NO	NO	NO	NO
VOCs	92.0	276	124.0	372	0.642	1.93	0.770	3.85	-91.36	-274	-123.2	-368	1	1303	NO	NO	NO	NO
PM	12.0	36	24.0	72	1.28	3.85	1.54	7.70	-10.7166	-32.1	-22.46	-64.3	1	1303	NO	NO	NO	NO
SO_2	12.0	36	28.0	84	0.376	1.13	0.436	2.18	-11.62	-34.87	-27.564	-81.82	1	1303	NO	NO	NO	NO
Ammonia Slip[7]	0.00	0.00	0.00	0.00	7.42	22.3	8.50	42.5	7.42	22.3	8.50	42.5	1	1303	YES	YES	YES	YES

Yearly Emissions

Pollutant	Baseline Emissions (tons/year)[6]				Projected Emissions (tons/year)[2,3,4]				Difference (tons/year)				Offsets Thresholds (tons/year)	Rule	Are Thresholds Exceeded?			
	Plant 1		Plant 2		Plant 1		Plant 2		Plant 1		Plant 2				Plant 1		Plant 2	
	Plant 1, Per CGS Engine	Plant 1 (All Engines)	Plant 2, Per CGS Engine	Plant2 Total	Per Engine Emissions	Plant Total	Per Engine Emissions	Plant Total	Plant 1, Per CGS Engine	Plant 1 Total	Plant 2, Per CGS Engine	Plant 2 Total			Per CGS Engine	Plant Total	Per CGS Engine	Plant Total
NO_x	22.4	67.2	50.37	151.1	2.17	6.52	2.61	13.0	-20.212	-60.6	-47.76	-138.1	4	1304	NO	NO	NO	NO
CO	80.4	241.1	160.8	482.5	2.04	6.13	2.45	12.3	-78.319	-235	-158.4	-470	29	1304	NO	NO	NO	NO
VOCs	16.8	50.4	22.63	67.9	0.117	0.351	0.141	0.703	-16.673	-50.0	-22.49	-67.2	4	1304	NO	NO	NO	NO
PM	2.2	6.6	4.38	13.1	0.234	0.703	0.281	1.41	-1.9558	-5.87	-4.099	-11.73	4	1304	NO	NO	NO	NO
SO_2	2.2	6.6	5.11	15.3	0.0686	0.206	0.0796	0.398	-2.1214	-6.3641	-5.0304	-14.932	4	1304	NO	NO	NO	NO

Hourly Emissions

Pollutant	Projected Emissions (lbs/hr)[2,3,4]		Modeling Thresholds (lbs/hr)		Rule	Are Thresholds Exceeded?	
	Plant 1 Per Engine Emissions	Plant 2 Per Engine Emissions	Plant 1[5]	Plant 2[5]		Plant 1 Per Engine Emissions	Plant 2 Per Engine Emissions
NO_x	0.497	0.596	1.26	1.31	1303 Table A-1	NO	NO
CO	0.466	0.559	69.3	72.1		NO	NO
PM	0.0535	0.0642	7.60	7.90		NO	NO

Notes [ ]

1. Baseline emission Rates for all pollutants are based on the emission limits in the current Title V permit for each CGS Engine. The emission limits in the current Title V permit for each pollutant are a combined emission limit for three engines. For this analyis, the lbs/day baseline emission rate for each CGS Engine at Plant 1 is derived from the emission limit in the Title V permit divided by three. For Plant 2 it the lbs/day emission rate is also derived from the emission limit in the Title V permit divided by three .
2. Projected Emission Rates assume all 3 Engines at Plant 1 and All 5 Engines at Plant 2 run 24 hours a day, 365 days a year.
3. Plant 1 and Plant 2 Emission Rates were calculated using data from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011 . An Emission Factor was calculated from the Source Test TAC Emission Rates and Engine Load. The Emission Factors were then applied to Maximum Load (2500KW for Plant 1 & 3000KW for Plant 2) to obtain the maximum emission rates for the Engines.
4. The 3 Engines at Plant 1 and 5 Engines at Plant 2 are assumed to have identical Emission Rates for each pollutant.
5. Threshold values based on 28.5 mmBtu/hr permit limit on Plant 1 Engines and 33 mmBtu/hr permit limit on Plant 2 Engines; Permits G2955-G2962.
6. Annual baseline emissions are calculated using the lbs/day for each CGS engine and multiplying by 365 days/year for each pollutant.
7. Ammonia slip calculated using a 10 ppmvd concentration and the maximum design flow rate for the Plant 1 and Plant 2 Engines. A 10ppmvd ammonia concentration is being proposed as a permit limit by OCSD. Maximum design flow rate for the engines obtained fromOrange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.

OCSD
Project J-111

Projected Emissions Calculation - Criteria Pollutants and Ammonia Slip

Orange County Sanitation District Project No. J-111 Projected Emissions

Emission Factor Calculation			
NO_X	0.49	2467	1.99E-04
CO	0.46	2467	1.86E-04
TNMHC (As CH4)[3]	0.0264	2467	1.07E-05
PM_{Total} [3]	0.0528	2467	2.14E-05
PM_{10}	--	2467	--
$SO_{2\ (Plant\ 1)}$	0.01555	2480	6.27E-06
$SO_{2\ (Plant\ 2)}$	0.01835	3028.4	6.06E-06

Plant 1 Daily & Yearly Emissions Running All Three Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation							
NO_X	1.99E-04	2500	0.497	11.9	**35.8**	368	**6.5**
CO	1.86E-04	2500	0.466	11.2	**33.6**	1321	**6.1**
TNMHC (As CH4)[3]	1.07E-05	2500	0.0267	0.642	**1.93**	276	**0.35**
PM_{Total} [3,5]	2.14E-05	2500	0.0535	1.28	**3.85**	36	**0.70**
PM_{10}	--	2500	--	--	--	36	--
SO_2	6.27E-06	2500	0.01567	0.3762	**1.128**	36	**0.206**
NH_3 Slip [9]	--	--	0.30936	7.4246	**22.274**	--	**4.065**

OCSD
Project J-111

Projected Emissions Calculation - Criteria Pollutants and Ammonia Slip

Plant 2 Daily & Yearly Emissions Running All Five Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation							
NO_X	1.99E-04	3000	0.596	14.3	**71.5**	828	**13.0**
CO	1.86E-04	3000	0.559	13.4	**67.1**	2644	**12.3**
TNMHC (As CH4)[3]	1.07E-05	3000	0.0321	0.770	**3.85**	276	**0.70**
PM_{Total}[3,5]	2.14E-05	3000	0.0642	1.54	**7.70**	72	**1.41**
PM_{10}	--	3000	--	--	--	72	--
SO_2	6.06E-06	3000	0.01818	0.4363	**2.182**	84	**0.398**
NH_3 Slip [9]	--	3000	0.35403	8.4967	**42.483**	--	**7.753**

Notes [ ]

1. Emission Rates for all but SO_2 obtained from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011. Test Results are post-Pilot Project and therefore represent emission rates that include planned AQC modifications.
2. See "SO2 Emission Rate" worksheet for SO_2 Emission Rate calculations.
3. TNMHC and PM emission rates are only available for Normal Load (1870 KW). Therefore, a ratio was used to compute TNMHC and PM emission rates for maximum load (2467 KW). Engine Load Data was obtained from Table 1.1 in Annual Source Test Report dated 12/13/2011.
4. The three Plant 1 engines and five Plant 2 engines are rated at 2.5 MW and 3.0 MW respectively.
5. Actual permit limits are for PM-10, but specific PM-10 emission rates were unavailable. Therefore, total PM was used as a conservative estimate.
6. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
7. Per day Emissions Limits obtained from Facility Permit to Operate.
8. Maximum Load values for all but SO_2 were obtained from Table 1.1 in Annual Source Test Report dated 12/13/2011.
9. See "Ammonia Slip" worksheet for Ammonia Emission Rate calculations.
10. SO_2 Maximum Loads obtained from Table 1.2 in Annual Source Test Report dated 12/12/2011 and Table 1.4 in Annual Source Test Report dated 1/18/2011 for Plant 1 and Plant 2 respectively. Values represent the load the engine was running at when the Fuel Flow Rate that was used in the SO2 Emmision Rate calculation was measured.

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Orange County Sanitation District Project No. J-111 Projected Emissions

Emission Factor Calculation			
Formaldehyde	0.022	2083	1.06E-05
Acetaldehyde	5.63E-04	2083	2.70E-07
Vinyl Chloride	6.99E-05	2083	3.36E-08
Dichloromethane	1.19E-04	2083	5.71E-08
Chloroform	1.34E-04	2083	6.43E-08
1,2-dichloroethane	1.38E-04	2083	6.63E-08
1,1,1-trichloroethane	1.49E-04	2083	7.15E-08
Benzene	8.74E-05	2083	4.20E-08
Carbon Tetrachloride	1.72E-04	2083	8.26E-08
Trichloroethene	1.47E-04	2083	7.06E-08
Toluene	1.29E-04	2083	6.19E-08
Perchloroethene	1.86E-04	2083	8.93E-08
Chlorobenzene	1.58E-04	2083	7.59E-08
Xylenes (Total)	1.49E-04	2083	7.15E-08
Dichlorobenzene (Total)	4.11E-04	2083	1.97E-07

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Plant 1 Daily & Yearly Emissions Running All Three Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation						
Formaldehyde	1.06E-05	2500	0.0264	0.634	**1.90**	**0.347**
Acetaldehyde	2.70E-07	2500	6.76E-04	0.0162	**0.0487**	**8.88E-03**
Vinyl Chloride	3.36E-08	2500	8.39E-05	2.01E-03	**6.04E-03**	**1.10E-03**
Dichloromethane	5.71E-08	2500	1.43E-04	3.43E-03	**0.0103**	**1.88E-03**
Chloroform	6.43E-08	2500	1.61E-04	3.86E-03	**0.0116**	**2.11E-03**
1,2-dichloroethane	6.63E-08	2500	1.66E-04	3.98E-03	**0.0119**	**2.18E-03**
1,1,1-trichloroethane	7.15E-08	2500	1.79E-04	4.29E-03	**0.0129**	**2.35E-03**
Benzene	4.20E-08	2500	1.05E-04	2.52E-03	**7.55E-03**	**1.38E-03**
Carbon Tetrachloride	8.26E-08	2500	2.06E-04	4.95E-03	**0.0149**	**2.71E-03**
Trichloroethene	7.06E-08	2500	1.76E-04	4.23E-03	**0.0127**	**2.32E-03**
Toluene	6.19E-08	2500	1.55E-04	3.72E-03	**0.0111**	**2.03E-03**
Perchloroethene	8.93E-08	2500	2.23E-04	5.36E-03	**0.0161**	**2.93E-03**
Chlorobenzene	7.59E-08	2500	1.90E-04	4.55E-03	**0.0137**	**2.49E-03**
Xylenes (Total)	7.15E-08	2500	1.79E-04	4.29E-03	**0.0129**	**2.35E-03**
Dichlorobenzene (Total)	1.97E-07	2500	4.93E-04	0.0118	**0.0355**	**6.48E-03**

OCSD
Project J-111

Projected Emissions Calculation - Toxic Air Contaminants

Plant 2 Daily & Yearly Emissions Running All Five Engines 24 Hrs/Day Post-AQC Modification

Emission Rate Calculation						
Formaldehyde	1.06E-05	3000	0.0317	0.760	**3.80**	**0.694**
Acetaldehyde	2.70E-07	3000	8.11E-04	0.0195	**0.097**	**0.0178**
Vinyl Chloride	3.36E-08	3000	1.01E-04	2.42E-03	**0.0121**	**2.20E-03**
Dichloromethane	5.71E-08	3000	1.71E-04	4.11E-03	**0.0206**	**3.75E-03**
Chloroform	6.43E-08	3000	1.93E-04	4.63E-03	**0.0232**	**4.23E-03**
1,2-dichloroethane	6.63E-08	3000	1.99E-04	4.77E-03	**0.0239**	**4.35E-03**
1,1,1-trichloroethane	7.15E-08	3000	2.15E-04	5.15E-03	**0.0258**	**4.70E-03**
Benzene	4.20E-08	3000	1.26E-04	3.02E-03	**0.0151**	**2.76E-03**
Carbon Tetrachloride	8.26E-08	3000	2.48E-04	5.95E-03	**0.0297**	**5.43E-03**
Trichloroethene	7.06E-08	3000	2.12E-04	5.08E-03	**0.0254**	**4.64E-03**
Toluene	6.19E-08	3000	1.86E-04	4.46E-03	**0.0223**	**4.07E-03**
Perchloroethene	8.93E-08	3000	2.68E-04	6.43E-03	**0.0321**	**5.87E-03**
Chlorobenzene	7.59E-08	3000	2.28E-04	5.46E-03	**0.0273**	**4.98E-03**
Xylenes (Total)	7.15E-08	3000	2.15E-04	5.15E-03	**0.0258**	**4.70E-03**
Dichlorobenzene (Total)	1.97E-07	3000	5.92E-04	0.0142	**0.0710**	**0.0130**

Notes [ ]

1. Emission Rates obtained from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011. Test Results are post-Pilot Project and therefore represent emission rates that include planned AQC modifications.
2. The three Plant 1 engines and five Plant 2 engines are rated at 2.5 MW and 3.0 MW respectively.
3. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
4. Engine Load based on operitions data on the day of the source test. Orange County Sanitation District Reclamation Plant No. 1 Monthly Summary of Operations, December 2011.

OCSD
Project J-111

Baseline Emissions Calculation - Criteria Pollutants and Ammonia Slip

Plant 1 Daily & Yearly Emissions Pre-AQC Modification

Emission Rate Calculation					
NO_X	5.1	122.7	**368.0**	368	**67.2**
CO	18.3	440.3	**1321.0**	1321	**241.1**
TNMHC (As CH4)	3.8	92.0	**276.0**	276	**50.4**
PM_{10} [2]	0.5	12.0	**36.0**	36	**6.6**
SO_2	0.5	12.0	**36.0**	36	**6.6**
NH_3 Slip [5]	--	--	**--**	--	--

Plant 2 Daily & Yearly Emissions Pre-AQC Modification

Emission Rate Calculation					
NO_X	11.5	276.0	**828.0**	828	**151.1**
CO	36.7	881.3	**2644.0**	2644	**482.5**
TNMHC (As CH4)	5.2	124.0	**372.0**	372	**67.9**
PM_{10} [2]	1.0	24.0	**72.0**	72	**13.1**
SO_2	1.2	28.0	**84.0**	84	**15.3**
NH_3 Slip [5]	--	--	**--**	--	--

Notes [ ]

1. Emission Rates for all pollutants are based on the emission limits in the current Title V permit for each CGS Engine. The emission limits in the current Title V permit for each pollutant are a combined emission limit for three engines. For this analyis, the lbs/day emission rate for each CGS Engine at Plant 1 and Plant 2 are derived from the emission limit in the Title V permit divided by three.
2. Actual permit limits are for PM_{10}, but specific total PM was not available.
3. Facility Total Per Day and Per Year Emissions were calculated assuming all engines are operating 24 hrs/day.
4. Per day Emissions Limits obtained from Facility Permit to Operate.
5. The current operating permits for each engine do not contain a permit limit for NH_3.

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Tier II Screening Risk Assessment - SCAQMD Tables[1]

Table – 3A Dispersion Factors (X/Q) For Point Source Equipment Operating More Than 12 Hours Per Day
Carcinogenic and Chronic X/Q Values ([µg/m3]/[tons/yr.])

Stack Height (ft)	Downwind Distance (meters) 25	50	75	100	200	300	500	1000
[3] 14 to 24	49.68	23.07	12.5	7.74	2.24	1.06	0.42	0.12
> 24 to 49	10.7	10.7	7.46	5.32	1.92	0.97	0.4	0.12
> 49	2.38	2.38	2.38	2.12	1.27	0.75	0.33	0.1

Note: Facilities with stack heights less than 14 feet must perform a Tier 3 or Tier 4 modeling.

Table – 6 Dispersion Factors (X/Q) For Acute Hazard Index (X/Qhr) Point Sources
All Daily Operating Conditions X/Qhr Values ([µg/m3]/[lbs/hr])

Stack Height (ft)	Downwind Distance (meters) 25	50	75	100	200	300	500	1000
[3] 14 to 24	2000	1000.6	577.9	373.5	119.2	59.8	25.4	8.4
> 24 to 49	548.1	548.1	406	295.2	109.6	57.1	24.8	8.3
> 49	110.1	110.1	103.8	92.4	67.3	42.9	20.6	7.2

Note: Facilities with stack heights less than 14 feet must perform a Tier 3 or Tier 4 modeling.

Table – 9A
Daily Breathing Rate Factors

Type of Receptor	DBR Value (liters/kilogram-day)
Sensitive	302
Residential	302
Off-site Worker	149

Table – 9B
Exposure Value Factors Factors

Type of Receptor	EVF Value (unitless)
Sensitive	0.96
Residential	0.96
Off-site Worker	0.38

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Tier II Screening Risk Assessment - SCAQMD Tables[1]

Table – 3B Meteorological Correction Factors (MET) For Point Source Equipment Operating More Than 12 Hours Per Day

STATION	MET	STATION	MET
Anaheim	0.69	Lynwood	0.68
Azusa	0.64	Malibu	0.84
Banning	0.63	Newhall	0.92
Burbank	0.64	Norco	0.6
Canoga Park	0.71	Palm Springs	0.88
Compton	0.6	Pasadena	0.88
Costa Mesa	0.69	Pico Rivera	0.68
Downtown L.A.	0.6	Pomona	1.28
El Toro	0.65	Redlands	1.74
Fontana	1.19	Reseda	0.64
Indio	0.6	Riverside	0.81
King Harbor	0.53	Santa Ana Canyon	0.8
La Canada	1.33	Upland	0.71
La Habra	0.78	Vernon	0.92
Lancaster	0.76	Walnut	0.71
Lennox	0.68	West L.A.	1
Long Beach	1	Whittier	0.55
Los Alamitos	0.69		

Hours of Operation Per Day	Hours Per Day / Days of Operation Per Week						
13	2.6	2.6	2.6	2.6	2.6	2.2	1.8
14	2.4	2.4	2.4	2.4	2.4	2	1.7
15	2.2	2.2	2.2	2.2	2.2	1.9	1.6
16	2.1	2.1	2.1	2.1	2.1	1.8	1.5
17	2	2	2	2	2	1.6	1.4
18	1.9	1.9	1.9	1.9	1.9	1.6	1.3
19	1.8	1.8	1.8	1.8	1.8	1.5	1.3
20	1.7	1.7	1.7	1.7	1.7	1.4	1.2
21	1.6	1.6	1.6	1.6	1.6	1.3	1.1
22	1.5	1.5	1.5	1.5	1.5	1.3	1.1
23	1.5	1.5	1.5	1.5	1.5	1.2	1
24	1.4	1.4	1.4	1.4	1.4	1.2	1

Note: The AFann value for residential/sensitive receptors is 1.0, which assumes exposure of 24 hours per day, 7 days per week.

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 MICR and Cancer Burden Calculations[1,2]

Pollutant	CAS Number	Emission Rate (lbs/hr)[8]		Qtons (tons/yr)	
		Plant 1	Plant 2	Plant 1	Plant 2
Formaldehyde	50-00-0	0.0264	0.0317	0.116	0.139
Acetaldehyde	75-07-0	6.76E-04	8.11E-04	2.96E-03	3.55E-03
Vinyl Chloride	75-01-4	8.39E-05	1.01E-04	3.67E-04	4.41E-04
Dichloromethane	75-09-2	1.43E-04	1.71E-04	6.26E-04	7.51E-04
Chloroform	67-66-3	1.61E-04	1.93E-04	7.04E-04	8.45E-04
1,2-dichloroethane	107-06-2	1.66E-04	1.99E-04	7.25E-04	8.71E-04
1,1,1-trichloroethane	71-55-6	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Benzene	71-43-2	1.05E-04	1.26E-04	4.59E-04	5.51E-04
Carbon Tetrachloride	56-23-5	2.06E-04	2.48E-04	9.04E-04	1.09E-03
Trichloroethene	79-01-6	1.76E-04	2.12E-04	7.73E-04	9.27E-04
Toluene	108-88-3	1.55E-04	1.86E-04	6.78E-04	8.14E-04
Perchloroethene	127-18-4	2.23E-04	2.68E-04	9.78E-04	1.17E-03
Chlorobenzene	108-90-7	1.90E-04	2.28E-04	8.31E-04	9.97E-04
Xylenes (Total)	1330-20-7	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Dichlorobenzene (Total)	106-46-7	4.93E-04	5.92E-04	2.16E-03	2.59E-03
Ammonia[10]	7664-41-7	0.309	0.354	1.355	1.551

Tier II Applicable Engine Parameters								
	Plant 1[5]			Plant 2[4]				
	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3	Engine 4	Engine 5
Distance to Nearest Commercial Receptor (m)	260	260	250	470	460	450	440	440
Distance to Nearest Residential Receptor (m)	310	300	300	320	320	330	340	340
Stack Height (ft.)[5]	62	62	62	59	59	59	59	59
Operating Schedule (hrs/yr)[6]	8760	8760	8760	8760	8760	8760	8760	8760

MICR = Cancer Potency (CP) x Dose-Inhalation (DI) x Multipathway Factor (MP)

Where:

$$DI = x\ C_{air} \times DBR \times EVF \times 10^{-6}; \text{ and}$$
$$C_{air} = Q_{tons} \times X/Q \times AF_{ann} \times MET$$

Therfore,

$$MICR = CP \times Q_{tons} \times X/Q \times AF_{ann} \times MET \times DBR \times EVF \times 10^{-6} \times MP$$

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 MICR and Cancer Burden Calculations[1,2]

Plant 1, Engines 1, 2, 3								
Pollutant	CAS Number	CP	X/Q_R	X/Q_W	MP_R [7]	MP_W [7]	MICR Worker	MICR Residential
Formaldehyde	50-00-0	2.10E-02	0.75	1.01	1	1	9.58E-08	3.64E-07
Acetaldehyde	75-07-0	1.00E-02	0.75	1.01	1	1	1.17E-09	4.44E-09
Vinyl Chloride	75-01-4	2.70E-01	0.75	1.01	1	1	3.91E-09	1.49E-08
Dichloromethane	75-09-2	3.50E-03	0.75	1.01	1	1	8.64E-11	3.28E-10
Chloroform	67-66-3	1.90E-02	0.75	1.01	1	1	5.28E-10	2.01E-09
1,2-dichloroethane	107-06-2	7.20E-02	0.75	1.01	1	1	2.06E-09	7.84E-09
1,1,1-trichloroethane	71-55-6	0	0.75	1.01	0	0	0	0
Benzene	71-43-2	1.00E-01	0.75	1.01	1	1	1.81E-09	6.89E-09
Carbon Tetrachloride	56-23-5	1.50E-01	0.75	1.01	1	1	5.35E-09	2.03E-08
Trichloroethene	79-01-6	7.00E-03	0.75	1.01	1	1	2.13E-10	8.12E-10
Toluene	108-88-3	0	0.75	1.01	0	0	0	0
Perchloroethene	127-18-4	2.10E-02	0.75	1.01	1	1	8.10E-10	3.08E-09
Chlorobenzene	108-90-7	0	0.75	1.01	0	0	0	0
Xylenes (Total)	1330-20-7	0	0.75	1.01	0	0	0	0
Dichlorobenzene (Total)	106-46-7	4.00E-02	0.75	1.01	1	1	3.41E-09	1.30E-08
Ammonia	7664-41-7	0	0.75	1.01	0	0	0	0
Total							**1.15E-07**	**4.38E-07**
Pass/Fail							**PASS**	**PASS**

Plant 2, Engines 1, 2, 3, 4, and 5								
Pollutant	CAS Number	CP	X/Q_R	X/Q_W	MP_R [7]	MP_W [7]	MICR Worker	MICR Residential
Formaldehyde	50-00-0	2.10E-02	0.71	0.46	1	1	5.19E-08	4.13E-07
Acetaldehyde	75-07-0	1.00E-02	0.71	0.46	1	1	6.33E-10	5.03E-09
Vinyl Chloride	75-01-4	2.70E-01	0.71	0.46	1	1	2.12E-09	1.69E-08
Dichloromethane	75-09-2	3.50E-03	0.71	0.46	1	1	4.68E-11	3.72E-10
Chloroform	67-66-3	1.90E-02	0.71	0.46	1	1	2.86E-10	2.27E-09
1,2-dichloroethane	107-06-2	7.20E-02	0.71	0.46	1	1	1.12E-09	8.88E-09
1,1,1-trichloroethane	71-55-6	0.00E+00	0.71	0.46	0	0	0	0
Benzene	71-43-2	1.00E-01	0.71	0.46	1	1	9.82E-10	7.81E-09
Carbon Tetrachloride	56-23-5	1.50E-01	0.71	0.46	1	1	2.90E-09	2.31E-08
Trichloroethene	79-01-6	7.00E-03	0.71	0.46	1	1	1.16E-10	9.19E-10
Toluene	108-88-3	0.00E+00	0.71	0.46	0	0	0	0
Perchloroethene	127-18-4	2.10E-02	0.71	0.46	1	1	4.39E-10	3.49E-09
Chlorobenzene	108-90-7	0.00E+00	0.71	0.46	0	0	0	0
Xylenes (Total)	1330-20-7	0.00E+00	0.71	0.46	0	0	0	0
Dichlorobenzene (Total)	106-46-7	4.00E-02	0.71	0.46	1	1	1.85E-09	1.47E-08
Ammonia	7664-41-7	0.00E+00	0.71	0.46	0	0	0	0
Total							**6.24E-08**	**4.96E-07**
Pass/Fail							**PASS**	**PASS**

Notes [ ]

1. Calculations follow the methodology outlined in SCAQMD Risk Assessment Procedures For Rules 1401 & 212.
2. MICR and Cancer Burden Values are equal for all 3 Plant 1 Engines and all 5 Plant 2 Engines.
3. Conservatively used X/Q value for a distance of 200 m for both commercial (worker) and residential receptors.
4. Conservatively used X/Q value for a distance of 300 m for both commercial (worker) and residential receptors.
5. Stack heights for Plants 1 & 2 Engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004; Tables 4-4 & 4-5.
6. Calculations assume that all 3 Engines at Plant 1 and 5 Engines at Plant 2 will be operating 24 hrs/day, 365 days/year.
7. There were only "1's" and "0's" provided in Table 8A for applicable TACs, therefore used "1" for all MP values per Tier II Procedures.
8. Plant 1 and Plant 2 Emission Rates were calculated using data from Annual Source Test Results for Plant 1, Engine 1 dated 12/13/2011 . An Emission Factor was calculated from the Source Test TAC Emission Rates and Engine Load. The Emission Factors were then applied to Maximum Load (2500KW for Plant 1 & 3000KW for Plant 2) to obtain the maximum emission rates for the Engines. This applies to all TACs except for Ammonia. See note [10] for the methodology used to calculate the Ammonia emission rates.
9. Cancer Burden does not need to be calculated when the MICR for either Worker or Residential receptors is less than one in one million.
10. Ammonia slip calculated using a 10ppmvd concentration and the maximum design flow rate for the Plant 1 and Plant 2 Engines. A 10ppmvd ammonia concentration is being proposed as a permit limit by OCSD. Maximum design flow rate for the engines obtained from Orange County Sanitation District Air Toxic Emission Reduction Strategic Plan, November 2004. Tables 4-4 & 4-5.

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	Emission Rate (lbs/hr)[3]		Emission Rate (tons/yr)	
		Plant 1	Plant 2	Plant 1	Plant 2
Formaldehyde	50-00-0	0.0264	0.0317	0.1156505	0.1387806
Acetaldehyde	75-07-0	6.76E-04	8.11E-04	2.96E-03	3.55E-03
Vinyl Chloride	75-01-4	8.39E-05	1.01E-04	3.67E-04	4.41E-04
Dichloromethane	75-09-2	1.43E-04	1.71E-04	6.26E-04	7.51E-04
Chloroform	67-66-3	1.61E-04	1.93E-04	7.04E-04	8.45E-04
1,2-dichloroethane	107-06-2	1.66E-04	1.99E-04	7.25E-04	8.71E-04
1,1,1-trichloroethane	71-55-6	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Benzene	71-43-2	1.05E-04	1.26E-04	4.59E-04	5.51E-04
Carbon Tetrachloride	56-23-5	2.06E-04	2.48E-04	9.04E-04	1.09E-03
Trichloroethene	79-01-6	1.76E-04	2.12E-04	7.73E-04	9.27E-04
Toluene	108-88-3	1.55E-04	1.86E-04	6.78E-04	8.14E-04
chloroethene	127-18-4	2.23E-04	2.68E-04	9.78E-04	1.17E-03
Chlorobenzene	108-90-7	1.90E-04	2.28E-04	8.31E-04	9.97E-04
Xylenes (Total)	1330-20-7	1.79E-04	2.15E-04	7.83E-04	9.40E-04
Dichlorobenzene (Total)	106-46-7	4.93E-04	5.92E-04	2.16E-03	2.59E-03
Ammonia[9]	7664-41-7	0.309	0.354	1.355	1.551

Tier II Applicable Engine Parameters								
	Plant 1[4]			Plant 2[5]				
	Engine 1	Engine 2	Engine 3	Engine 1	Engine 2	Engine 3	Engine 4	Engine 5
Distance to Nearest Commercial Receptor (m)	260	260	250	470	460	450	440	440
Distance to Nearest Residential Receptor (m)	310	300	300	320	320	330	340	340
Stack Height (ft.)[6]	62	62	62	59	59	59	59	59
Operting Schedule (hrs/yr)[7]	8760	8760	8760	8760	8760	8760	8760	8760

$$\text{Total HIC}_{\text{target organ}} = \Sigma \{[\text{Qyr}_{TAC} \times (X/Q) \times \text{MET} \times \text{MP}]/\text{Chronic REL}_{TAC}\}_{\text{target organ}}$$

$$\text{Total HIA}_{\text{target organ}} = \Sigma \{[\text{Qhr}_{TAC} \times (X/Q)_{hr}]/\text{Acute REL}_{TAC}\}_{\text{target organ}}$$

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Plant 1 Acute Harzard Indices For Worker and Residential Receptors																					
Pollutant	CAS Number	AF	X/Q_{hr} W	X/Q_{hr} R	Accute REL	EYE		RESP		NS		DEV		REP		HEM		IMM		AL	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	--	55.1	42.9	55	2.65E-02	2.06E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	--	55.1	42.9	470	7.92E-05	6.17E-05	7.92E-05	6.17E-05	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	--	55.1	42.9	180000	2.57E-08	2.00E-08	2.57E-08	2.00E-08	2.57E-08	2.00E-08	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	--	55.1	42.9	14000	--	--	--	--	5.62E-07	4.38E-07	--	--	--	--	--	--	--	--	--	--
Chloroform	67-66-3	0.88	55.1	42.9	150	--	--	--	--	5.20E-05	4.05E-05	5.20E-05	4.05E-05	5.20E-05	4.05E-05	--	--	--	--	--	--
1,2-dichloroethane	107-06-2	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-trichloroethane	71-55-6	--	55.1	42.9	68000	--	--	--	--	1.45E-07	1.13E-07	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.88	55.1	42.9	1300	--	--	--	--	--	--	3.91E-06	3.05E-06	3.91E-06	3.05E-06	3.91E-06	3.05E-06	3.91E-06	3.05E-06	--	--
Carbon Tetrachloride	56-23-5	0.88	55.1	42.9	1900	--	--	--	--	5.27E-06	4.10E-06	5.27E-06	4.10E-06	5.27E-06	4.10E-06	--	--	--	--	5.27E-06	5.27E-06
Trichloroethene	79-01-6	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	--	55.1	42.9	37000	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	2.31E-07	1.80E-07	--	--	--	--	--	--
Perchloroethene	127-18-4	--	55.1	42.9	20000	6.15E-07	4.79E-07	6.15E-07	4.79E-07	6.15E-07	4.79E-07	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (Total)	1330-20-7	--	55.1	42.9	22000	4.48E-07	3.49E-07	4.48E-07	3.49E-07	--	--	--	--	--	--	--	--	--	--	--	--
hlorobenzene (Total)	106-46-7	--	55.1	42.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
.monia	7664-41-7	--	55.1	42.9	3200	5.33E-03	4.15E-03	5.33E-03	4.15E-03	--	--	--	--	--	--	--	--	--	--	--	--
Total HIA						0.0319	0.0248	0.00541	0.00421	5.88E-05	4.58E-05	6.14E-05	4.78E-05	6.14E-05	4.78E-05	3.91E-06	3.05E-06	3.91E-06	3.05E-06	5.27E-06	5.27E-06

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Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Plant 1 Chronic Hazard Indices For Worker and Residential Receptors[8]

Pollutant	CAS Number	X/Q W	X/Q R	Chronic REL	MET	EYE		RESP		NS		DEV		REP		HEM		AL		CV		KID	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	1.01	0.75	9	0.69	--	--	8.96E-03	6.65E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	1.01	0.75	140	0.69	--	--	1.47E-05	1.09E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	1.01	0.75	0	0.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	1.01	0.75	400	0.69	--	--	--	--	1.09E-06	8.09E-07	--	--	--	--	--	--	--	--	1.09E-06	8.09E-07	--	--
Chloroform	67-66-3	1.01	0.75	300	0.69	--	--	--	--	--	--	1.64E-06	1.22E-06	--	--	--	--	1.64E-06	1.22E-06	--	--	1.64E-06	1.22E-06
1,2-dichloroethane	107-06-2	1.01	0.75	400	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.26E-06	9.39E-07	--	--	--	--
1,1,1-trichloroethane	71-55-6	1.01	0.75	1000	0.69	--	--	--	--	5.46E-07	4.05E-07	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	1.01	0.75	60	0.69	--	--	--	--	5.34E-06	3.96E-06	5.34E-06	3.96E-06	--	--	5.34E-06	3.96E-06	--	--	--	--	--	--
Carbon Tetrachloride	56-23-5	1.01	0.75	40	0.69	--	--	--	--	1.58E-05	1.17E-05	1.58E-05	1.17E-05	--	--	--	--	1.58E-05	1.17E-05	--	--	--	--
Trichloroethene	79-01-6	1.01	0.75	600	0.69	8.98E-07	6.67E-07	--	--	8.98E-07	6.67E-07	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	1.01	0.75	300	0.69	--	--	1.58E-06	1.17E-06	1.58E-06	1.17E-06	1.58E-06	1.17E-06	--	--	--	--	--	--	--	--	--	--
Perchloroethene	127-18-4	1.01	0.75	35	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.95E-05	1.45E-05	--	--	1.95E-05	1.45E-05
Chlorobenzene	108-90-7	1.01	0.75	1000	0.69	--	--	--	--	--	--	--	--	5.79E-07	4.30E-07	--	--	5.79E-07	4.30E-07	--	--	5.79E-07	4.30E-07
Xylenes (Total)	1330-20-7	1.01	0.75	700	0.69	--	--	7.80E-07	5.79E-07	7.80E-07	5.79E-07	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene (Total)	106-46-7	1.01	0.75	800	0.69	--	--	1.88E-06	1.40E-06	1.88E-06	1.40E-06	--	--	--	--	--	--	1.88E-06	1.40E-06	--	--	1.88E-06	1.40E-06
Ammonia	7664-41-7	1.01	0.75	200	0.69	--	--	4.72E-03	3.51E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
			Total HIC			8.98E-07	6.67E-07	0.0137	0.0102	2.79E-05	2.07E-05	2.43E-05	1.80E-05	5.79E-07	4.30E-07	5.34E-06	3.96E-06	4.06E-05	3.01E-05	1.09E-06	8.09E-07	2.36E-05	1.75E-05

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	AF	X/Q_{hr} W	X/Q_{hr} R	Accute REL	Plant 2 Acute Harzard Indices For Worker and Residential Receptors															
						EYE		RESP		NS		DEV		REP		HEM		IMM		AL	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	--	27.3	40.7	55	1.57E-02	2.34E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	--	27.3	40.7	470	4.71E-05	7.02E-05	4.71E-05	7.02E-05	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	--	27.3	40.7	180000	1.53E-08	2.27E-08	1.53E-08	2.27463E-08	1.5263E-08	2.27E-08	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	--	27.3	40.7	14000	--	--	--	--	3.34083E-07	4.9788E-07	--	--	--	--	--	--	--	--	--	--
Chloroform	67-66-3	0.88	27.3	40.7	150	--	--	--	--	3.08981E-05	4.60471E-05	3.09E-05	4.60E-05	3.09E-05	4.60E-05	--	--	--	--	--	--
1,2-dichloroethane	107-06-2	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,1-trichloroethane	71-55-6	--	27.3	40.7	68000	--	--	--	--	8.61218E-08	1.28346E-07	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.88	27.3	40.7	1300	--	--	--	--	--	--	2.33E-06	3.47E-06	2.33E-06	3.47E-06	2.33E-06	3.47E-06	2.33E-06	3.47E-06	--	--
Carbon Tetrachloride	56-23-5	0.88	27.3	40.7	1900	--	--	--	--	3.13107E-06	4.6662E-06	3.13E-06	4.67E-06	3.13E-06	4.67E-06	--	--	--	--	3.13E-06	4.67E-06
Trichloroethene	79-01-6	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	--	27.3	40.7	37000	1.37E-07	2.04E-07	1.37E-07	2.04218E-07	1.37032E-07	2.04218E-07	1.37E-07	2.04E-07	1.37E-07	2.04E-07	--	--	--	--	--	--
Perchloroethene	127-18-4	--	27.3	40.7	20000	3.66E-07	5.45E-07	3.66E-07	5.4474E-07	3.65526E-07	5.4474E-07	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (Total)	1330-20-7	--	27.3	40.7	22000	2.66E-07	3.97E-07	2.66E-07	3.96707E-07	--	--	--	--	--	--	--	--	--	--	--	--
[illegible]lorobenzene (Total)	106-46-7	--	27.3	40.7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
[illegible]nonia	7664-41-7	--	27.3	40.7	3200	3.02E-03	4.50E-03	3.02E-03	4.50E-03	--	--	--	--	--	--	--	--	--	--	--	--
Total HIA						0.0188	0.0280	0.00307	0.00457	3.50E-05	5.21E-05	3.65E-05	5.44E-05	3.65E-05	5.44E-05	2.33E-06	3.47E-06	2.33E-06	3.47E-06	3.13E-06	4.67E-06

OCSD
Project J-111

Tier II Screening Risk Assessment - Plant 1 and Plant 2 Acute and Chronic Hazard Index Calculations[1,2]

Pollutant	CAS Number	X/Q W	X/Q R	Chronic REL	MET	Plant 2 Chronic Harzard Indices For Worker and Residential Receptors[8]															
						EYE		RESP		NS		DEV		REP		HEM		AL		CV		KID	
						HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R	HIA W	HIA R
Formaldehyde	50-00-0	0.46	0.71	9	0.69	--	--	4.85E-03	7.53E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetaldehyde	75-07-0	0.46	0.71	140	0.69	--	--	7.98E-06	1.24E-05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	75-01-4	0.46	0.71	0	0.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	75-09-2	0.46	0.71	400	0.69	--	--	--	--	5.90E-07	9.17E-07	--	--	--	--	--	--	--	--	5.90E-07	9.17E-07	--	--
Chloroform	67-66-3	0.46	0.71	300	0.69	--	--	--	--	--	--	8.87E-07	1.38E-06	--	--	--	--	8.87E-07	1.38E-06	--	--	8.87E-07	1.38E-06
1,2-dichloroethane	107-06-2	0.46	0.71	400	0.69	--	--	--	--	--	--	--	--	--	--	--	--	6.85E-07	1.06E-06	--	--	--	--
1,1,1-trichloroethane	71-55-6	0.46	0.71	1000	0.69	--	--	--	--	2.96E-07	4.59E-07	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	0.46	0.71	60	0.69	--	--	--	--	2.89E-06	4.49E-06	2.89E-06	4.49E-06	--	--	2.89E-06	4.49E-06	--	--	--	--	--	--
Carbon Tetrachloride	56-23-5	0.46	0.71	40	0.69	--	--	--	--	8.53E-06	1.33E-05	8.53E-06	1.33E-05	--	--	--	--	8.53E-06	1.33E-05	--	--	--	--
Trichloroethene	79-01-6	0.46	0.71	600	0.69	4.86E-07	7.55E-07	--	--	4.86E-07	7.55E-07	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	0.46	0.71	300	0.69	--	--	8.53E-07	1.33E-06	8.53E-07	1.33E-06	8.53E-07	1.33E-06	--	--	--	--	--	--	--	--	--	--
Perchloroethene	127-18-4	0.46	0.71	35	0.69	--	--	--	--	--	--	--	--	--	--	--	--	1.05E-05	1.64E-05	--	--	1.05E-05	1.64E-05
Chlorobenzene	108-90-7	0.46	0.71	1000	0.69	--	--	--	--	--	--	--	--	3.14E-07	4.87E-07	--	--	3.14E-07	4.87E-07	--	--	3.14E-07	4.87E-07
Xylenes (Total)	1330-20-7	0.46	0.71	700	0.69	--	--	4.22E-07	6.56E-07	4.22E-07	6.56E-07	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene (Total)	106-46-7	0.46	0.71	800	0.69	--	--	1.02E-06	1.58E-06	1.02E-06	1.58E-06	--	--	--	--	--	--	1.02E-06	1.58E-06	--	--	1.02E-06	1.58E-06
Ammonia	7664-41-7	0.46	0.71	200	0.69	--	--	2.44E-03	3.79E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HIC						4.86E-07	7.55E-07	0.00730	0.01134	1.51E-05	2.34E-05	1.32E-05	2.04E-05	3.14E-07	4.87E-07	2.89E-06	4.49E-06	2.20E-05	3.41E-05	5.90E-07	9.17E-07	1.28E-05	1.98E-05

Appendix D Emission Calculation Spreadsheets for Health Risk Analysis – Plant Nos. 1 and 2

OCSD
Project J-111

Projected Emissions Calculation

SO_2 Emission Rates for Plants 1 & 2

Plant 1

$$M_{H2S} = ppmv \times MW_{H2S} \times Q_{sd} \times C_1$$

$$M_{SO2} = M_{H2S} \times \frac{MW_{SO2}}{MW_{H2S}}$$

Where:

M_{H2S}	=	H_2S Emission Rate (lb/hr)	
M_{SO2}	=	SO2 Emission Rate (lb/hr)	
MW_{H2S}	=	Molecular Weight of H_2S (lb/lb-mol)	= 34.081
MW_{SO2}	=	Molecular Weight of SO_2 (lb/lb-mol)	= 64.064
Q_{sd}	=	fuel flow rate (scfm)[3]	= 720.77
ppmv	=	H_2S concentration [1,2]	= 2.162
C_1	=	constant (lb-mol/ft^3)(min/hr)	= 1.56E-07

M_{SO2} = 0.0155 lb/hr

Plant 2

$$M_{H2S} = ppmv \times MW_{H2S} \times Q_{sd} \times C_1$$

$$M_{SO2} = M_{H2S} \times \frac{MW_{SO2}}{MW_{H2S}}$$

Where:

M_{H2S}	=	H_2S Emission Rate (lb/hr)	
M_{SO2}	=	SO2 Emission Rate (lb/hr)	
MW_{H2S}	=	Molecular Weight of H_2S (lb/lb-mol)	= 34.081
MW_{SO2}	=	Molecular Weight of SO_2 (lb/lb-mol)	= 64.064
Q_{sd}	=	fuel flow rate (scfm)[3]	= 850.83
ppmv	=	H_2S concentration [1,2]	= 2.162
C_1	=	constant (lb-mol/ft^3)(min/hr)	= 1.56E-07

M_{SO2} = 0.0184 lb/hr

Notes [ ]

1. H2S concentration (ppmv) obtained from Orange County Sanitation District (OCSD) Project No. J-79 Final Report, table 3-5. Value is the maximum concentration sampled at the outlet of the DGCS.
2. It is assumed that 1 mole H_2S pre-combustion is equal to 1 mole SO_2 post-combustion.
3. Fuel flow rate for Plant 1 is calculated using a ratio of fuel flow at high load to fuel flow rate at maximum design load. Fuel flow at high load obtained from Annual Source Test Results for Plant 1, Engine 2 dated 12/12/11. Values were chosen because they are the largest in available Annual Source Tests.
4. Fuel flow rate for Plant 2 obtained from Annual Source Test Results for Plant 2, Engine 5 dated 1/18/2011. Value was chosen because it is the largest in available Annual Source Tests.

Print Form

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: Orange
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

APPLICANT:
From: (Public Agency): Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018
(Address)

Project Title: Cengen Emissions Control Project (J-111)

Project Applicant: Orange County Sanitation District

Project Location - Specific: 10844 Ellis Avenue, Fountain Valley, CA 92708
OCSD - Plant No. 1(Fountain Valley) and Plant No. 2 (Huntington Beach) 22212 Brookhurst St H.B. CA 926

Project Location - City: Fount.Valley/Hunt. Bch Project Location - County: Orange

Description of Nature, Purpose and Beneficiaries of Project:
This project will install equipment at each plant to control the Central Generation emissions and comply with existing and proposed regulatory limits. The Central Generation System (CGS) engines provide both electricity and heat to our treatment plants and are permitted to operate by the South Coast Air Quality Mgmt. District.

Name of Public Agency Approving Project: Orange County Sanitation District

Name of Person or Agency Carrying Out Project: Orange County Sanitation District

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: 15329. Cogeneration Projects at Existing
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt:
Class 29 consists of the installation of cogeneration equipment with a capacity of 50 megawatts or less at existing facilities meeting the conditions described in this section.(1)Result in no net increases in air emissions from the industrial facility, or will produce emissions lower than the amount that would require review under the new source review rules applicable in the county, and 2)complies with all state, federal, local air quality law

Lead Agency
Contact Person: James Burror Area Code/Telephone/Extension: 714.593.7335

If filed by applicant:
1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: [signature] Date: 9/20/12 Title: ENGINEERING SUPERVISOR

☒ Signed by Lead Agency ☐ Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

FILED
SEP 24 2012
TOM DALY, CLERK-RECORDER
By [signature] DEPUTY

POSTED
SEP 24 2012
TOM DALY, CLERK-RECORDER
By [signature] DEPUTY

Recorded in Official Records, Orange County
Tom Daly, County Recorder
* $ R 0 0 0 5 1 7 8 4 1 4 $ *
NO FEE
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SUPPLEMENTAL INFORMATION

APPLICATION FOR PERMITS-TO-CONSTRUCT FOR OCSD JOB NO. J-111

Orange County Sanitation District

Fountain Valley Reclamation Plant No. 1

Huntington Beach Treatment Plant No. 2

Table of Contents

1.0 Introduction

1.1 BACKGROUND

Orange County Sanitation District (OCSD) operates a Central Power Generation System (CGS) at each of its two wastewater treatment plants to produce electrical power and process heat for plant operations. The CGS at Reclamation Plant No. 1 located in Fountain Valley consists of three lean-burn 3,471 hp internal combustion engines each driving a 2.5 megawatt (MW) generator. The CGS at Treatment Plant No. 2 located in Huntington Beach consists of five lean-burn 4,166 hp internal combustion engines each driving a 3.0 MW generator. The CGS engines are fueled primarily with digester gas and supplemented with small amounts of natural gas.

In April 2008, OCSD conducted an emission reduction technology evaluation of the CGS engines in order to identify technologies for reducing NO_x, CO, and VOC emissions and meet the new Rule 1110.2 emission limits. After a detailed review of different technologies, OCSD determined that the post-combustion technology of catalytic oxidation/selective catalytic reduction (CatOx/SCR) system with digester gas cleaning system (DGCS) using carbon adsorption had the most potential for meeting the emission limits. Subsequently, OCSD embarked upon a full-scale pilot study (Project J-79) on April 1, 2010 CatOx/SCR system on Engine No. 1 at Plant No. 1 to determine if the digester gas-fired internal combustion engines could meet the future Rule 1110.2 requirements. The pilot study was completed on March 31, 2011. It was demonstrated that the CatOx/SCR system would meet the new Rule 1110.2 requirements.

1.2 PROJECT OVERVIEW

The purpose of the subject permit application is to obtain permits to construct the CatOx/SCR system on the remaining two CGS engines at Plant No. 1 and five CGS engines at Plant No. 2. Depending on the final engineering design which is expected in August of 2013, a modification may be required on the existing CatOx system on Engine No. 1 at Plant No. 1. In addition, new digester gas cleaning system (DGCS) and urea feed system will be constructed to serve all five engines at Plant No. 2. The existing digester gas cleaning system and the urea feed system will be expanded at Plant No. 1. This project is hereinafter known as. Project J-111.

The Project J-111 will result in a significant reduction in Nitrogen Oxides (NO_x,) Volatile Organic Compounds (VOCs), Carbon Monoxide (CO), and Toxic Air Contaminants (TACs) such as Formaldehyde at both Plant Nos. 1 and 2. Collateral reductions of Sulfur Oxides (SO_x) and Particulate Matter ($PM_{10}/PM_{2.5}$) will also be realized. The Project J-111 will require a de minimis significant permit revision to Plants No. 1 and No. 2 under SCAQMD Title V operating permitting rules. Additionally the Project J-111 will not trigger a need to obtain emission offsets since the CGS engines are being modified solely to comply with Rule 1110.2 as stipulated by SCAQMD Rule 1304(c)(4). After the Project J-111 is implemented the CGS engines at Plant Nos. 1 and 2 will continue to operate under the current combined daily mass emission limits stipulated in the Title V Permit. A tiered analysis was performed as part of the HRA requirements under SCAQMD Rule 1401. The HRA indicates that the Project J-111 will not cause any adverse impacts on nearby residential and other sensitive receptors.

1.3 APPLICATION OVERVIEW

The following sections in this air permit to construct and operate application contain a project characterization, discussion of baseline and projected criteria and TAC emissions, Health Risk Assessment (HRA), Best Available Control Technology Assessment (BACT), and discussion of federal, state, and local air quality requirements designed to provide a basis for the SCAQMD approval of a Permit to Construct (PTC) and Operate for the Project. In addition, the following Appendices are provided:

- ~~Appendix A: Proposed Equipment Description and Permit Conditions~~
- Appendix B: Preliminary Project Drawings, Diagrams, and Schematics
- Appendix C: Emission Calculation Spreadsheets for Criteria Pollutants
- Appendix D: Emission Calculation Spreadsheets for Health Risk Analysis

2.0 Project Characterization

The following sections briefly characterize the Project including a general description of the location, facility, and modified emission units, and a summary of the estimated emissions.

2.1 PROJECT LOCATION

The CGS engines for the Project are located within the property boundary of the existing Plant No. 1 facility in Fountain Valley, California and the existing Plant No. 2 facility in Huntington Beach, California. The three CGS engines at Plant No. 1 are housed inside the existing Cogeneration building, while at Plant No. 2 the five CGS engines are house inside the existing Central Power Generation Building. The location of Plant Nos. 1 and 2 are illustrated in Figures 2-1 and 2-2, respectively.

Air emissions from the CGS engines will be exhausted through the three existing vertical stacks for each engine at Plant No. 1 and the five existing vertical stacks at Plant No. 2. The modifications for the Project at each facility will cause minimal changes to the existing layout of structures surrounding the stacks.

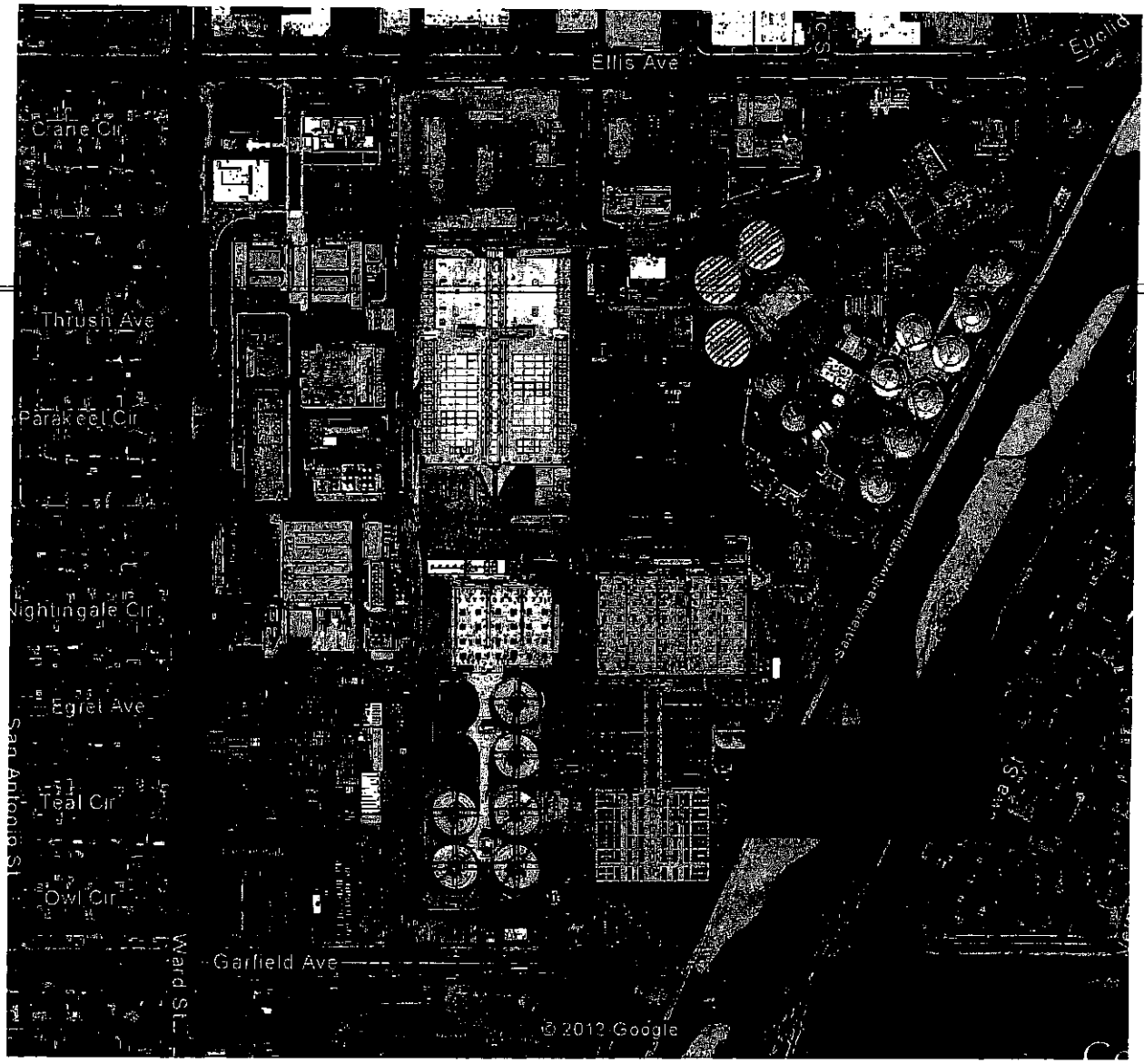


Figure 2-1 Plant 1 Area Map and Project Location

Figure 2-2 **Plant 2 Area Map and Project Location**

2.2 PROJECT DESCRIPTION

The CGS engines at Plant Nos. 1 and 2 are lean-burn, spark-ignited IC engines. Plant No. 1 has three 2.5 MW IC engines and Plant No. 2 has five 3 MW IC engines, fueled primarily by digester gas and supplemented by small amounts of natural gas. The CGS engines will be capable of combusting all of the digester gas produced by Plant Nos. 1 and 2 at current and at future digester gas production rates.

The digester gas at Plant Nos. 1 and 2 is generated during the anaerobic digestion of the sewage sludge produced during the wastewater treatment process. This biogas contains contaminants such as hydrogen sulfides (H_2S), VOCs, and low concentrations of volatile siloxane compounds. During combustion, the siloxanes convert to silica, sand-like particulate that deposit on the surfaces of combustion equipment contributing to a rapid degradation of engines, gas turbines, and boilers, along with media of any post-combustion control equipment. The digester gas at Plants No. 1 and 2 will pass through the Digester Gas Cleaning System (DGCS) prior to being supplied for combustion in the CGS engines. The DGCS is successful in removing contaminants such as siloxanes, H_2S, and VOCs from the digester gas, and extending the economic equipment life, as well as extending the catalyst performance life. Natural gas will be provided from an existing pipeline. The gases will be compressed and mixed in the fuel gas feeding system, which will supply the blended gas to each of the CGS engines.

After the digester gas has been cleaned by the DGCS and combusted in the CGS engines, the combustion source air emissions will pass through a CatOx/SCR, followed by SCR system prior to exhausting through a vertical stack. Each engine at Plant Nos. 1 and 2 have a dedicated exhaust stack. Continuous emissions monitoring system (CEMS) equipment for NO_x, CO and O_2 is currently installed on each exhaust stack.

The layout of the project within the existing buildings is presented in Appendix C-1 and C-2 for each facility. The design specifications for the existing CGS engines will not change as a result of the Project J-111. The major systems that have direct influence on the air emissions generated from the project are described in the following subsections.

2.2.1 Digester Gas Cleaning System

The DGCS is designed to remove siloxane compounds, H_2S, and VOCs from the digester gas prior to combustion in the engines. The ultimate goal of the system is to reduce the siloxane levels in the digester gas to a level that will not interfere with the operation of the CGS engines and the associated CatOx/SCR systems.

The J-79 pilot study installed and operated at Plant No. 1 a single vessel system containing 9,900 lbs of polymorphous graphite media (SAGTM) manufactured by Applied Filter Technology. At Plant No. 1 this system will be upgraded with the addition of a second digester gas cleaning vessel of the same design, size, and capacity adjacent to the existing vessel. The new system will be designed to scrub a maximum 2,100 scfm of digester gas for three-engine operation using a two stage arrangement consisting of a primary scrubbing vessel followed by a secondary polishing vessel. The valve and piping system will be configured such that the either vessel can function as the primary or secondary stage. This will be accomplished by using a header system connected with three port ball valves on the inlet and outlet of each vessel. The new vessel will be equipped with a bottom nozzle to facilitate the removal of the spent media and an inlet diffuser to improve the gas distribution. The existing vessel will be retrofitted with this same nozzle and diffuser.

At Plant No. 2 the Project J-111 will install three vessels of the same design, size, and capacity as the Plant No. 1 system. The new system will be designed to scrub a maximum 2,100 scfm (three engine operation) of digester gas using a two stage arrangement consisting of a primary scrubbing vessel followed by a secondary polishing vessel. The valve and piping system will be configured such that the either vessel can function as the primary or secondary stage. This will be accomplished by using a header system connected three port ball valves on the inlet and outlet of each vessel. The new vessel will be equipped with a bottom nozzle to facilitate the removal of the spent media and an inlet diffuser to improve the gas distribution. The existing vessel will be retrofitted with this same nozzle and diffuser.

2.2.2 Catalytic Oxidation and Selective Catalytic Reduction System

The J-79 pilot study installed and tested a CatOx/SCR system manufactured by Johnson Matthey on Plant No. 1, Engine 1. This system successfully reduced the NO_x, CO and VOCs below the guarantee levels during the study period. New oxidation and reduction catalyst systems of the same design, capacity, and arrangement will be added to engine 2 and engine 3 at Plant No. 1 and to the five CGS engines at Plant No. 2 to reduce the NO_x, CO and VOCs to levels below the limits set forth in the SCAQMD Rule 1110.2. These systems will consist of new exhaust ductwork from the engine manifold to the CatOx followed by the SCR catalyst and then new ductwork back to the inlet of the Heat Recovery Steam Generator (HRSG). The system will use precious metal/base metal oxidation and reduction catalysts technology on a metallic or ceramic honeycomb substrate monolith.

Urea will be injected upstream of the SCR to provide the ammonia required for the NO_x reduction reaction. Control of the urea feed rate will be maintained to keep the NO_x outlet levels within the permitted level while keeping ammonia slip to a minimum.

2.2.3 Urea Feed System

Urea will be injected into the engine exhaust gas flow upstream of the HRSGs as the reducing agent that, in the environment of the catalyst, reduces the amount of NO_x emitted. The urea feed system used in the J-79 study for Plant No. 1, Engine 1 consisted of a 1,000 gallon storage tank and automated feed system. The Project J-111 will add one new 1,000 gallon urea tank adjacent to the existing tank at Plant No. 1. The Plant No. 2 Urea Feed system will consist of two new 2,000 gallon urea tanks located below the oxidation and reduction catalyst system platform. Piping and valves will be designed so that either tank can supply all three and five SCRs at Plant Nos. 1 and 2, respectively. The urea feed systems installed at each facility will be of similar design as applied on the Plant No. 1 Engine 1 pilot study.

2.3 PROJECT J-111 EMISSIONS

The expansion of the existing DGCS and addition of CatOx/SCR systems to the existing CGS engines will impact the air emissions from the engines. As previously discussed, the Project J-111 will result in a significant reduction in NO_x, VOCs, CO, and volatile TACs such as Formaldehyde. Collateral reductions of SO_x and $PM_{10}/PM_{2.5}$ will also be realized as indicated by the stack tests conducted during the J-79 pilot study. Baseline and projected emissions of criteria pollutants, as well as the net change in emissions estimated because of the Project J-111 for each CGS Engine at Plant Nos. 1 and 2 are provided in Tables 2.3-1 and 2.3-2, respectively. The following subsections summarize the method of calculating the baseline and projected maximum hourly, daily, and annual emissions of criteria pollutants and TACs. Detailed emission calculation spreadsheets supporting

the subsections below are provided in Appendix C for criteria air pollutants and Appendix D for toxic air contaminants.

Table 2.3-1 Plant No. 1 Maximum Hourly, Daily, and Annual Baseline and Post Project Emissions Per CGS Engine

TYPE OF EMISSIONS	POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Baseline Emissions	NO_x	5.1	122.7	22.4
	CO	18.3	440.3	80.4
	VOC	3.8	92.0	16.8
	PM_{10}	0.5	12.0	2.2
	SO_2	0.5	12.0	2.2
	NH_3 Slip	--	--	--
Post Project Emissions	NO_x	0.497	11.9	2.17
	CO	0.466	11.2	2.04
	VOC	0.027	0.64	0.12
	PM_{10}	0.054	1.28	0.23
	SO_2	0.016	0.38	0.07
	NH_3 Slip	0.309	7.42	1.35
Net Change of Emissions	NO_x	-4.6	-110.8	-20.2
	CO	-17.8	-429.1	-78.4
	VOC	-3.8	-91.4	-16.7
	PM_{10}	-0.45	-10.7	-1.97
	SO_2	-0.48	-11.6	-2.1
	NH_3 Slip	0.31	7.4	1.4

Sample Calculations:

- Using the equation below in Section 2.3.1, the baseline maximum hourly emission rate is calculated as:

  E_h (NO_x) = [(368 lb/day)/(3 engines)] x (1 day/24 hours) = 5.11 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum hourly emission rate is calculated as:

  E_h (VOC) = (0.0264 lb/hr) x (2500 kw/2467 kw) = 0.02675 lb/hour

- Using the equation below in Section 2.3.1, the baseline maximum daily emission rate is calculated as:

  E_d (SO_2) = (0.5 lb/hr) x 24 hours/day = 12.0 lb/day

- Using the equation below in Section 2.3.1, the baseline maximum annual emission rate is calculated as:

  E_a (PM_{10}) = 12.0 lb/day x 365 days/year x 1 ton/2000 lbs = 2.19 tons/year

Table 2.3-2 Plant No. 2 Maximum Hourly, Daily, and Annual Baseline and Post Project Emissions Per CGS Engine

TYPE OF EMISSIONS	POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
	NO_x	11.5	276.0	50.4
	CO	36.7	881.3	160.8
Baseline Emissions	VOC	5.2	124.0	22.6
	PM_{10}	1.0	24.0	4.38
	SO_2	1.2	28.0	5.11
	NH_3 Slip	--	--	--
Post Project Emissions	NO_x	0.596	14.3	2.61
	CO	0.559	13.4	2.45
	VOC	0.032	0.77	0.14
	PM_{10}	0.064	1.5	0.28
	SO_2	0.018	0.44	0.80
	NH_3 Slip	0.354	8.5	1.55
Net Change of Emissions	NO_x	-10.9	-261.7	-47.76
	CO	-36.1	-868	-158.4
	VOC	-5.2	-123.2	-22.49
	PM_{10}	-0.94	-22.46	-4.099
	SO_2	-1.18	-27.564	-5.0304
	NH_3 Slip	0.35	8.5	1.6

Sample Calculations:

- Using the equation below in Section 2.3.1, the baseline maximum hourly emission rate is calculated as:

  E_h (NO_x) = [(828 lb/day)/(3 engines)] x (1 day/24 hours) = 11.5 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum hourly emission rate is calculated as:

  E_h (VOC) = (0.0264 lb/hr) x (3000 kw/2467 kw) = 0.0321 lb/hour

- Using the equation below in Section 2.3.1, the projected maximum daily emission rate is calculated as:

  E_d (SO_2) = (0.01818 lb/hr) x 24 hours/day = 0.436 lb/day

- Using the equation below in Section 2.3.1, the projected maximum annual emission rate is calculated as:

  E_a (PM_{10}) = 1.54 lb/day x 365 days/year x 1 ton/2000 lbs = 0.281 tons/year

2.3.1 Criteria Pollutants

Maximum Hourly – Baseline and Projected Emissions

Baseline Emissions

The maximum hourly baseline emissions of criteria pollutants from each of the CGS engines for Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. The baseline emissions were derived using the permitted emission rates listed in the Title V for each plant in accordance with SCAQMD Rule 1306(d)(2), which stipulates that for determining if a modified existing source needs offsets or install BACT, the baseline emissions can be based on the permitted pre-modification potential to emit. For Plant No. 1 the emission limits in the Title V permit were divided by three since there are three CGS engines. For Plant No. 2 the emission limits in the Title V permit were divided by three even though there are five engines. This is because the permit currently allows only three engines to operate simultaneously.

The following equation is used for calculating all criteria pollutant baseline emissions for Plant Nos. 1 and 2:

$$E_h = (\frac{EL}{N}) \times \frac{1\ day}{24\ hours}$$

Where, E_h = Hourly baseline emission rate (lbs/hour)
EL = Emission limit from Title V permit (lb/day)
N = Number of engines that can operate simultaneously

Projected Emissions

The maximum hourly emissions of criteria pollutants from each of the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. The projected maximum hourly emissions for all pollutants except SO_2 at Plant Nos. 1 and 2 were developed using computed emissions factors based on Plant No. 1 Engine 1 post air quality control system stack test data. Projected SO_2 emissions were developed using the respective fuel flow rate at high load for each Plant and the maximum H_2S concentration as provided in DGCS test data from the J-79 project. Projected maximum hourly ammonia slip emissions for each Plant are based on the maximum expected NH_3 concentration (10 ppmvd) in the exhaust flow and the plant-specific exhaust conditions (temperature and maximum exhaust flow rate).

<u>NO_x, CO, VOC, and PM_{10} Emissions for Plant Nos. 1 and 2</u>:

$$E_h = (ER_{st}/L_{st}) \times L_m$$

Where, E_h = Hourly projected emission rate (lbs/hour)
ER_{st} = Emission rate from annual source test for Plant 1, Engine 1 dated 12/13/2011.
L_{st} = Engine rating associated with ER_{st}
L_m = Maximum rating of CGS Engine

<u>SO_2 emissions from Plant Nos. 1 and 2</u>:

$$E_h = (ppmv \times MW_{H2S} \times Q_{sd} \times C_1 \times \frac{MW_{SO2}}{MW_{H2S}}) \times \frac{L_{st}}{L_m}$$

Where, E_h = Hourly projected SO_2 emission rate (lbs/hour)
ppmv = DGCS outlet H_2S concentration from OCSD Project No. J-79 Final Report, Table 3-5.

MW_{H2S} = Molecular weight of hydrogen sulfide (lb/lb-mol)
Q_{sd} = Fuel flow rate (scfm)
C_1 = Constant (lb-mol/ft³)(min/hr)
MW_{SO2} = Molecular weight of sulfur dioxide (lb/lb-mol)
L_{st} = Engine rating associated with Q_{sd}
L_m = Maximum rating of CGS Engine

Projected NH_3 emissions from Plant Nos. 1 and 2:

$$E_h = \frac{P \times EFM \times ppmvd \times MW_{NH3}}{R \times T}$$

Where, E_h = Hourly projected NH_3 emission rate (lbs/hour)
P = Standard pressure (atm)
EFM = Maximum rated exhaust flow rate of engine (ft³/min)
ppmvd = NH_3 concentration in the exhaust
MW = Molecular weight of NH_3 (lb/lb-mol)
R = Gas Constant (atm)(ft³/lb-mole)(°R)
T = Temperature (°R)

Maximum Daily

Maximum daily baseline and projected emissions of criteria pollutants for the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. Maximum daily baseline and projected emissions were calculated based on the maximum hourly emissions and assuming each engine operates 24 hours per day.
The following equation is used for calculating the maximum daily baseline and projected emissions from Plant Nos. 1 and 2:

$$E_d = E_h \times H_d$$

Where, E_d = Baseline or projected daily emission rate (lb/day)
E_h = Maximum baseline or projected hourly emission rate (lbs/hour)
H_d = Hours per day

Maximum Annual

Maximum annual baseline and projected emissions of criteria pollutants for the CGS engines at Plant Nos. 1 and 2 are provided above in Tables 2.3-1 and 2.3-2, respectively. Maximum annual baseline and projected emissions were calculated based on the maximum hourly emissions and assuming each engine operates 24 hours per day for 365 days per year.
The following is the equation used for calculating the maximum annual baseline and projected emissions from Plant Nos. 1 and 2:

$$E_a = \frac{E_d \times D_a}{2000\ lbs}$$

Where, E_a = Maximum annual baseline or projected emissions (tons/year)
E_d = Maximum daily baseline or projected emission rate (lbs/day)
D_a = Days per year

Net Change of Emissions

The net change of emissions for each pollutant and averaging period resulting from the Project J-111 are provided for Plant Nos. 1 and 2 in Tables 2.3-1 and 2.3-2, respectively. The net change of emissions was calculated by subtracting the baseline emission rate from the post project emission rate.

The following equation is used for calculating the net change of emissions for Plant Nos. 1 and 2:

$$\Delta E = E_p - E_b$$

Where, ΔE = Net change of emissions
E_p = Project emission rate
E_b = Baseline emission rate

2.3.2 Toxic Air Contaminants

Maximum hourly, daily, and annual projected emissions of TACs from the three CGS engines at Plant No. 1 and the five CGS at Plant No. 2 post-control are provided below in Tables 2.4-3 and 2.4-4. These emissions were developed using emission rates from annual source test results from Plant No. 1 Engine 1 post air quality control system. A hazard risk assessment was performed as part of the health risk analysis (HRA) requirements under SCAQMD Rule 1401. The HRA is discussed further in Section 5.0.

Table 2.3-3 Plant No. 1 Maximum Hourly, Daily, and Annual Post Project Toxic Air Contaminant Emissions Per CGS Engine

POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Formaldehyde	0.026	0.634	0.116
Acetaldehyde	6.76E-04	0.016	2.96E-03
Vinyl Chloride	8.39E-05	2.01E-03	3.67E-04
Dichloromethane	1.43E-04	3.43E-03	6.26E-04
Chloroform	1.61E-04	3.86E-03	7.04E-04
1,2-dichloroethane	1.66E-04	3.98E-03	7.25E-04
1,1,1-trichloroethane	1.79E-04	4.29E-03	7.83E-04
Benzene	1.05E-04	2.52E-03	4.59E-04
Carbon Tetrachloride	2.06E-04	4.95E-03	9.04E-04
Trichloroethene	1.76E-04	4.23E-03	7.73E-04
Toluene	1.55E-04	3.72E-03	6.78E-04
Perchloroethene	2.23E-04	5.36E-03	9.78E-04
Chlorobenzene	1.90E-04	4.55E-03	8.31E-04
Xylenes (Total)	1.79E-04	4.29E-03	7.83E-04
Dichlorobenzene (Total)	4.93E-04	0.012	2.16E-03

Table 2.3-4 Plant No. 2 Maximum Hourly, Daily, and Annual Post Project Toxic Air Contaminant Emissions Per CGS Engine

POLLUTANT	MAXIMUM HOURLY EMISSION RATE (LB/HR)	MAXIMUM DAILY EMISSION RATE (LB/DAY)	MAXIMUM ANNUAL EMISSION RATE (TON/YEAR)
Formaldehyde	0.032	0.760	0.139
Acetaldehyde	8.11E-04	0.0195	3.55E-03
Vinyl Chloride	1.01E-04	2.42E-03	4.41E-04
Dichloromethane	1.71E-04	4.11E-03	7.51E-04
Chloroform	1.93E-04	4.63E-03	8.45E-04
1,2-dichloroethane	1.99E-04	4.77E-03	8.71E-04
1,1,1-trichloroethane	2.15E-04	5.15E-03	9.40E-04
Benzene	1.26E-04	3.02E-03	5.51E-04
Carbon Tetrachloride	2.48E-04	5.95E-03	1.09E-03
Trichloroethene	2.12E-04	5.08E-03	9.27E-04
Toluene	1.86E-04	4.46E-03	8.14E-04
Perchloroethene	2.68E-04	6.43E-03	1.17E-03
Chlorobenzene	2.28E-04	5.46E-03	9.97E-04
Xylenes (Total)	2.15E-04	5.15E-03	9.40E-04
Dichlorobenzene (Total)	5.92E-04	0.014	2.59E-03

3.0 Federal, State, and Local Air Quality Requirements

This section presents a summary of the applicability of current, proposed and future federal and SCAQMD regulations to the Project J-111 that will be implemented on the CGS engines at Plant Nos. 1 and 2.

3.1 REGULATION II – PERMITS

3.1.1 Rule 201 – Permit to Construct

Rule 201 requires that the Project obtain written authorization for the construction of new and modified sources of air contaminants. This application is being provided in support of the permit to construct application (as required under Rule 210 – Applications) to authorize the installation of the equipment being added as part of the Project J-111. This document provides the necessary information for completing the PTC application.

3.1.2 Rule 212 – Standards for Approving Permits

The Project J-111 will result in a net decrease in all short-term (lb/day) emissions, except for ammonia (See Appendix D). Ammonia emissions will occur as a byproduct of the reaction between urea and NO_x in the SCR and will be released as ammonia slip. Ammonia emissions will increase on a short-term and long-term (tons per year (tpy)) basis.

For pollutants other than ammonia, assuming 100 percent utilization of all the engines (year long, 24 x 7 operation), The Project J-111 will result in a net reduction in long-term emissions on all engines based on current emission limits in each plants' Title V permit.

Ammonia emissions have been identified by the SCAQMD as having a potential to cause chronic and acute health effects. The Project J-111 will need to demonstrate compliance with the air toxic requirements of Rule 1401 and Rule 212 (c) (3)(A) for Plant Nos. 1 and 2. Compliance with these requirements is discussed in Section 5.0 and Appendix E. The public notification requirements are applicable dependent on the distance of the nearest school to the CGS engine stacks.

For Plant No. 1, the nearest outer boundary of the Robert Gisler School is located 2,500 feet from the CGS engine stacks. The Project J-111 will also not result in emission increases beyond the daily maximum thresholds outlined in Rule 212(g). Therefore, the Project J-111 at Plant No. 1 will not be subject to the public notice requirements of Rule 212 and Rule 1401.1.

As far as Plant No. 2 is concerned, there are no schools located within 1,000 feet of the CGS engine stacks. The Project J-111 will also not result in emission increases beyond the daily maximum thresholds outlined in Rule 212(g). The Project J-111 at Plant No. 2 will not be subject to the public notice requirements.

3.1.3 Rule 218 – Continuous Emission Monitoring

Each of the CGS engines at Plant Nos. 1 and 2 have NO_x and CO CEMS to verify that the emissions do not exceed the emission limits. OCSD will continue to comply with this regulation after the implementation of the Project J-111.

3.1.4 Rule 218.1 – Continuous Emission Monitoring Performance Specifications

Each of the CGS engines at Plant Nos. 1 and 2 have NO_x and CO CEMS to verify that the emissions do not exceed the emission limits. A new Rule 218.1 was proposed in May 2012 to align the provisions

for CEMS calibration on non-operating days with the provisions in RECLAIM. OCSD will continue to comply with this regulation after the implementation of the Project J-111.

3.2 REGULATION IV – PROHIBITIONS

3.2.1 Rule 401 – Visible Emissions

Rule 401 establishes limits upon visible emissions from any single source of emissions. Visible emissions as dark or darker than No. 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any 1 hour are prohibited. OCSD will continue to demonstrate compliance with Rule 401 post Project J-111 since visible emissions are not expected under normal operations due to the use of low sulfur digester gas and natural gas.

3.2.2 Rule 402 – Nuisance

Rule 402 prohibits discharge from any single source of emissions that contain quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to the public or which endanger the health or safety of a member of the public, or cause damage to business or property. The Project J-111 will demonstrate compliance with Rule 402, since nuisance problems are not expected under normal operating conditions.

3.2.3 Rule 403 – Fugitive Dust

Rule 403 is designed to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources. The rule requires the use of best available control measures to minimize fugitive dust formation from "active operations" including, but not limited to, earth moving, construction, and vehicular movement. The rule prohibits visible emissions that extend beyond the facility's fenceline. OCSD plans to use the best available control measures during construction.

3.2.4 Rule 404 – Particulate Matter Concentration

This rule limits the concentration of PM in CGS engine stacks. The concentration limits are dependent upon the stack gas volume discharged through each of the stacks (standard conditions and dry basis). A concentration table is provided in the rule. The engines are currently in compliance and will remain in compliance post Project J-111.

3.2.5 Rule 431.1 – Sulfur Content of Gaseous Fuels

Rule 431.1 limits SO_x emissions from the burning of gaseous fuels (including natural gas and digester gas) in stationary equipment requiring a permit to operate. The rule limits the sulfur content of natural gas (calculated as H_2S) to less than 16 ppmv. The rule limits the sulfur content of digester gas (calculated as H_2S) to less 40 ppmv on a daily basis or 40 ppmv on a monthly basis and 500 ppmv on a 15 minute basis. The digester gas currently used at Plant 1 and Plant 2, prior to being combusted, has sulfur content less than the requirements of this rule. Additionally, the proposed sulfur removal system for the Project J-111 will further reduce sulfur prior to combustion in the CGS engines. Therefore, continued compliance with Rule 431.1 is expected post the Project J-111.

3.2.6 Rule 474 – Fuel Burning Equipment – Nitrogen Oxides

Compliance with Rule 1110.2 will ensure compliance with this regulation as well.

3.3 REGULATION IX – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Regulation IX incorporates by reference the federal New Source Performance Standards (NSPS) codified under 40 CFR Part 60. NSPS Subpart JJJJ Standards of Performance for Spark Ignition Engines is applicable to new, modified or reconstructed spark ignition engines. Modification under NSPS is defined as "any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted". The pollutants to which the standard applies for digester gas fired non-emergency engines include CO, VOCs and NO_x. Regulation IX is currently not applicable to the CGS engines at Plants No. 1 and No. 2. The Project J-111 will not result in an increase in the rated capacities of each of the CGS engines or an increase in the hourly emission rates of CO, VOC and NO_x. Therefore, Regulation IX will continue to be not applicable after Project J-111 has been implemented.

3.4 REGULATION X – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Regulation X incorporates by reference the federal Maximum Achievable Control Technology (MACT) standards codified under 40 CFR Part 63. 40 CFR Part 63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines is applicable to the CGS Engines. Plant Nos. 1 and 2 are classified as area sources of hazardous air pollutants (HAPs), i.e., sources with a potential to emit less than 10 tons per year of an individual HAP or 25 tons per year of a combination of HAPs. Existing digester gas fired non-emergency engines at area sources of HAPs do not have to meet any emission limitations but rather have to meet work practice standards.

The Project J-111 will not result in any new MACT requirements since the existing CGS engines will continue to be classified as existing units located at an area source of HAPs after the Project J-111 has been implemented.

3.5 REGULATION XI – SOURCE-SPECIFIC STANDARDS

3.5.1 Rule 1110.2 Emissions from Gaseous and Liquid Fueled Engines

While the CGS engines comply with the current Rule 1110.2, the recently adopted Rule 1110.2 is the driver for the Project J-111 and stipulates stringent emission limits for NO_x, VOCs and CO emissions. Rule 1110.2 is applicable for IC engines rated greater than 50 brake horse power (bhp).

The September 7, 2012 adopted rule:

- Re-establishes the effectiveness of the previously adopted 2012 limits and provides a compliance option with a longer averaging time to engine operators that can demonstrate through CEMS systems data that mass emission levels are at least 10 percent lower than allowable under the rule's proposed concentration limits for NO_x and CO.[1]
- Limits the OCSD Plant Nos. 1 and 2 CGS engine emissions to the following levels:

[1] The feasibility of the lower mass emissions was demonstrated by the recently completed pilot study by OCSD, which indicated that lower NO_x mass emissions can be achieved in conjunction with longer averaging times.

- NO_x: 11 ppmvd at 15% O_2, averaged over 15 minutes OR 9.9 ppmvd @ 15% O_2, averaged over 24-hour period, after an initial 4-month demonstration period.
- CO: 250 ppmvd at 15% O_2, averaged over 15 minutes OR 225 ppmvd @ 15% O_2, averaged over 24-hour period, after an initial 4-month demonstration period.
- VOC: 30 ppmvd at 15% O_2, averaged over 15 minutes

- Allows biogas engine operators three and a half more years to comply with the 2012 emission limits. The new effective date will be January 1, 2016 for all biogas engines.
- Provides an alternate compliance option to give operators under long term fixed price power purchase agreements entered into prior to the February 1, 2008 amendments and extending beyond the January 1, 2016 compliance date additional time (up to two years beyond the compliance date) to comply with the emission limits with the payment of a compliance flexibility fee.
- Biogas engines achieving early compliance (i.e., January 1, 2015) will have their permit application fees refunded.

3.6 REGULATION XIII – NEW SOURCE REVIEW

The NSR regulation sets forth preconstruction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the ambient air quality standards (AAQS), and that future economic growth within the district is not unnecessarily restricted.

3.6.1 Rule 1302 – Definitions

According to Rule 1302, Plant Nos. 1 and 2 are existing major polluting facilities, because the emissions from the facilities exceeds one or more of the Major Source emission thresholds listed in the rule. Any changes to the facility will be seen as modifications, and the new or modified facilities will be subject to the NSR major modification requirements if they result in:

- An increase of one pound per day or more, of the facility's potential to emit NO_x or VOCs, or
- An increase of 40 tons per year or more, of the facility's potential to emit SO_x, or
- An increase of 15 tons per year or more, of the facility's potential to emit PM_{10};
- An increase of 50 tons per year or more, of the facility's potential to emit CO.

As shown in Tables 3.6-1 and 3.6-2 emissions of CO, NO_x, VOC, $PM_{10}/PM_{2.5}$, and SO_x are not expected to exceed the NSR major modification thresholds at Plant Nos. 1 and 2, and as such, the pollutants will not be subject to the requirements of Regulation XIII – New Source Review. However, as discussed later, ammonia emissions will be subject to Rule 1303(a) requirements for BACT. Appendix D contains the detailed emission spreadsheets for criteria pollutants.

Table 3.6-1 Plant Nos. 1 and 2 Change in Pound per Day Emissions Due to Project J-111 Modifications

POLLUTANT	BASELINE EMISSIONS (LB/DAY)		PROJECTED EMISSIONS (LB/DAY)		CHANGE IN EMISSIONS (LB/DAY)	
	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine
NO_x	122.7	276.0	11.9	14.3	-110.75	-261.7
CO	440.3	881.3	11.2	13.4	-429.15	-868
VOC	92.0	124.0	0.642	0.77	-91.36	-123.2
PM_{10}	12.0	24.0	1.28	1.54	-10.72	-22.46
SO_2	12.0	24.0	0.376	0.436	-11.62	-27.56
Ammonia Slip	0.0	0.00	7.42	8.5	7.42	8.5

Table 3.6-2 Plant Nos. 1 and 2 Change in SO_x, PM_{10}, and CO Emissions Due to Project J-111 Modifications

POLLUTANT	BASELINE EMISSIONS (TON/YR)		PROJECTED EMISSIONS (TON/YR)		CHANGE IN EMISSIONS (TON/YR)	
	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine	Plant 1, Per CGS Engine	Plant 2, Per CGS Engine
CO	80.4	160.8	2.04	2.45	-78.4	-158.4
PM_{10}	2.2	4.38	0.234	0.281	-1.97	-4.10
SO_2	2.2	5.11	0.069	0.80	-2.12	-5.03

3.6.2 Rule 1303(a) – Best Available Control Technology

BACT is applicable for any new or modified source that has emission increases of greater than 1 pound/day of CO, NO_x, VOC, PM_{10}, SO_x, lead, ammonia and ozone depleting compounds. BACT is defined in Rule 1303 – Definitions as the most stringent emission limitation or control technique which:

- Has been achieved in practice for such category or class of source.
- Is contained in any SIP approved by the USEPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable.
- Is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific

source, and cost-effective as compared to measures as listed in the AQMP or rules adopted by the District Governing Board.

In addition, BACT for sources located at major polluting facilities, such as the OCSD Plant Nos. 1 and 2, shall be at least as stringent as the LAER as defined in the federal CAA Section 171(3).

As shown in Table 3.6-1, the implementation of the Project J-111 will result in a net decrease in pounds per day of emissions of CO, NO_x, VOC, PM_{10}, and SO_x. Consequently, BACT for these pollutants is not triggered. Due to the proposed installation of a SCR system, ammonia slip greater than 1 lb/day will occur from each CGS engine at Plant Nos. 1 and 2, thereby subjecting the engines to the BACT requirements of Rule 1303(a). OCSD proposes that a new emission limitation be added for ammonia emissions restricting ammonia slip to no greater than 10 ppmvd at 15% O_2. See section 4.0 for further discussion on BACT.

3.6.3 Rule 1303(b)(1) – Modeling

This rule requires a demonstration via air dispersion modeling analyses that new facilities or modifications will not cause a violation, or make significantly worse an existing violation of any state or national AAQS at any receptor location in the District. The Project J-111 will result in a reduction in emissions at both Plant Nos. 1 and 2, i.e., the modification will not result in an emission increase greater than Table A-1 modeling screening thresholds (see Appendix D) in the rule (on an engine-by-engine basis). Therefore, the Project J-111 will comply with the modeling requirements of Rule 1303(b)(1).

3.6.4 Rule 1303(b)(2) – Emission Offsets

This rule requires that increases in emissions be offset. The CGS engines at Plant Nos. 1 and 2 are being modified solely to comply with Rule 1110.2 which exempts each engine from needing to obtaining offsets per Rule 1304(c)(4). Additionally, on an engine by engine basis, there are no emission increases of pollutants subject to this rule beyond the trigger thresholds (4 tpy for VOCs, SO_x, PM_{10} and NO_x; and 29 tpy for CO) stipulated by Rule 1304(d)(2). Emission offsets will not be required for the Project J-111.

3.6.5 Rule 1303(b)(4) – Facility Compliance

This rule requires that the subject facility complies with all applicable rules and regulations of the district. The existing OCSD Plant Nos. 1 and 2 are currently in compliance with all applicable rules and regulations and the Project J-111 will not change this.

3.6.6 Rule 1303(b)(5) – Major Polluting Facilities

Rule 1303(b)(5) requires that any new major polluting facility or major modification at an existing major facility comply with the following requirements perform an alternative analysis, verify statewide compliance and protect visibility at nearby Class I Areas. The Project J-111 will not result in a major modification thus this regulation is not applicable.

3.7 REGULATION XIV – TOXICS

3.7.1 Rule 1401 – New Source Review of Toxic Air Contaminants

Rule 1401 requires the determination of MICR, cancer burden, and noncancer AHI and CHI associated with the operation of new sources which emit toxic air contaminants listed in Table 1 of the rule. The Project J-111, though an AQCS project, will result in new emissions of ammonia and

thus will be subject to Rule 1401 requirements. Rule 1401requirements for new sources include the following:

- MICR: 1 in 1 million without T-BACT or 10 in 1 million with T-BACT on any receptor location.
- Cancer burden cannot be greater than 0.5.
- Chronic and acute HI for any target organ cannot be greater than 1.

A HRA was performed in accordance with Rule 1401 and is presented in Appendix E. The HRA followed the tiered analysis methodology on an engine by engine basis and shows that Project J-111 will comply with Rule 1401 requirements.

3.8 REGULATION XVII – PREVENTION OF SIGNIFICANT DETERIORATION

Regulation XVII incorporates the federal Prevention of Significant Deterioration (PSD) regulations and states that the PSD review applies to major sources and major modifications of major sources located in attainment areas.

A major stationary source is defined as any one of the listed major source categories which emits, or has the PTE, 100 tpy or more of any regulated pollutant, or 250 tpy or more of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. Both Plant Nos. 1 and 2 are not on the listed 100 tpy major source categories; therefore the applicable major source threshold is 250 tpy. A review of Plant Nos. 1 and 2 Annual Emission Reports (AER) indicates that each plant has historically reported actual emissions of CO pretty close to (for Plant No. 1) or greater (for Plant No. 2) than 250 tpy. This means that the PTE of at least one PSD pollutant, CO in this case, is greater than the major source threshold (PTE > 250 tpy) for Plant No. 2 and it is reasonable to expect that this would likely be the case with Plant No. 1 also. Consequently, for the purposes of this application, both Plant Nos. 1 and 2 are considered existing major PSD sources.

Major modification under PSD is triggered if the modification results in an increase in emissions greater than the significant emission rates (SERs: 40 tpy for NO_x, SO_x, and VOCs; 100 tpy for CO, 15/25 tpy for PM_{10}/PM). As stated previously, the proposed Project J-111 will not result in an emission increase (on a tpy basis) greater than the SERs. Therefore, this regulation is not applicable. For similar reasons, Class I Area analysis will also not be triggered. It should also be noted here that even if there was a major modification, Rule 1704 specifically exempts facilities such as OCSD, which are classified as providers of essential public services, if BACT is installed.

3.9 REGULATION XXX – TITLE V PERMITS

The Title V Permit system is the air pollution control permit system required to implement the federal Operating Permit Program, as required by Title V of the federal CAA as amended in 1990. Plant Nos. 1 and 2 have existing Title V permits (Plant No. 1 Facility I.D. 017301, Plant No. 2 Facility I.D. 029110). This rule prohibits the construction and operation of a Title V facility or modification to a Title V facility without first obtaining a Title V permit that allows such construction or operation. This air permit application package will also serve as an application for modifying the Title V permit to operate to incorporate the Project J-111 into the Title V Permit. As such, compliance with Regulation XXX is expected.

3.10 COMPLIANCE ASSURANCE MONITORING PLAN

The Compliance Assurance Monitoring (CAM) rule under 40 CFR Part 64 took effect on November 21, 1997. CAM applies to each pollutant specific emission unit (PSEU) that meets the three conditions below. The PSEU must:

- Be subject to an emission limitation or standard, and
- Use a control device to achieve compliance, and
- Have pre-control emissions that exceed or are equivalent to the major source threshold.

The following PSEUs are excluded from the CAM rule:

- Those subject to Clean Air Act Section 111 or 112 standards promulgated after 11/15/90, since those standards have been and will be designed with monitoring that provides a reasonable assurance of compliance;
- Those subject to the acid rain program, emissions trading programs such as the acid rain program, emissions caps, or continuous compliance determination methods, i.e., where a regulatory requirement specifies a monitoring method for compliance, because CAM is believed to be redundant for these units;
- Certain municipally-owned utility units, as defined in 40 CFR 72.2, that produce electricity during periods of peak electrical demand or emergency situations since these periods or situations are infrequent.

3.10.1 Plant No. 1

The CGS engines at Plant No. 1 have emission limitations in their Title V permit for the criteria pollutants NO_x, CO, SO_2, VOC, and PM_{10}. The project will use air pollution control devices only for NO_x, CO, and VOC emissions, thus eliminating SO_2 and PM_{10} from the need for a CAM plan. For determining the PTE for NOx, CO, and VOC Note 4 of SCAQMD's Instructions for Determining Applicability to the CAM Rule (SCAQMD Form 500-H) indicates for Title V significant permit revision applications submitted after April 20, 1998, to use the post-control device PTE emissions to determine CAM applicability. Table 2.3-1 provides the projected maximum annual post-control emissions from each engine at Plant No. 1. The maximum annual post-control emissions for NO_x, CO, and VOC are below the CAM PTE emission thresholds (i.e., 10 tpy or NO_x, 50 tpy for CO, and 10 tpy for VOC) for individual emission units at a Title V facility in the South Coast Air Basin (SCAB). Additionally, the Project will install and operate CO and NO_x CEMS on each unit to monitor the emissions for these pollutants. CAM is therefore not applicable to the CGS engines at Plant No. 1.

3.10.2 Plant No. 2

The CGS engines at Plant No. 2 have emission limitations in their Title V permit for the criteria pollutants NO_x, CO, SO_2, VOC, and PM_{10}. The project will use air pollution control devices only for NO_x, CO, and VOC emissions, thus eliminating SO_2 and PM_{10} from the need for a CAM plan. For determining the PTE for NOx, CO, and VOC Note 4 of SCAQMD's Instructions for Determining Applicability to the CAM Rule (SCAQMD Form 500-H) indicates for Title V significant permit revision applications submitted after April 20, 1998, to use the post-control device PTE emissions to determine CAM applicability. Table 2.3-2 provides the projected maximum annual post-control emissions from each engine at Plant No. 2. The maximum annual post-control emissions for NO_x, CO, and VOC are below the CAM PTE emission thresholds (i.e., 10 tpy or NO_x, 50 tpy for CO, and 10

tpy for VOC) for individual emission units at a Title V facility in the South Coast Air Basin (SCAB). Additionally, the Project will install and operate CO and NO_x CEMS on each unit to monitor the emissions for these pollutants. CAM is therefore not applicable to the CGS engines at Plant No. 2.

4.0 Best Available Control Technology Assessment

BACT is applicable for any new or modified source that has emission increases of greater than 1 pound/day of CO, NO_x, VOC, PM_{10}, SO_x, lead, ammonia and ozone depleting compounds. BACT is defined in Rule 1303 – Definitions as the most stringent emission limitation or control technique which:

- Has been achieved in practice for such category or class of source.
- Is contained in any state implementation plan (SIP) approved by the USEPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable.
- Is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board.

In addition, BACT for sources located at major polluting facilities such as the OCSD Plant Nos. 1 and 2 shall be at least as stringent as the lowest achievable emissions rate (LAER) as defined in the federal CAA Section 171(3).

As indicated in Tables 3.6-1 and 3.6-2, the implementation of the Project J-111 will result in a net decrease in pounds per day of emissions of CO, NO_x, VOC, PM_{10}, and SO_x at Plant Nos. 1 and 2. Consequently, BACT for these pollutants is not triggered. Due to the proposed installation of a SCR system, ammonia slip greater than 1 lb/day will occur from each engine, thereby subjecting the engines to the BACT requirements of Rule 1303(a). OCSD proposes that a new emission limitation be added for ammonia emissions restricting ammonia slip to no greater than 10 ppmvd at 15% O_2.

5.0 Toxic Air Contaminant Risk Analysis

A HRA was conducted to predict the concentration of compounds dispersed from the Plant Nos. 1 and 2 CGS engines into the environment and evaluate the risk to human health resulting from exposure to those concentrations. The HRA looks at the potential for exposure of human populations to the emissions and attempts to quantify the individual and population-wide health effects associated with exposure. The following sections discuss the HRA performed to evaluate the TAC impacts for the Project J-111.

5.1 BACKGROUND

The permitting process mandates compliance with stringent public health requirements set forth in SCAQMD Rule 1401 – New Source Review of Toxic Air Contaminants. As such, the analysis performed for the Project J-111 includes a Tier 2 Screening Risk Assessment in accordance with Version 7.0 of the *SCAQMD Risk Assessment Procedures for Rules 1041 and 212, July 1, 2005* utilizing the latest Attachment L which contains factors for calculating the carcinogenic and noncarcinogenic risks for applications deemed complete on or after July 1, 2005 (revised September 10, 2010).

According to the documentation, the *SCAQMD Risk Assessment Procedures* are based on *The Air Toxics hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* finalized by the state Office of Environmental Health Hazard Assessment (OEHHA) in August 2003 and the California *Air Resources Board (CARB) Recommended Interim Risk Management Policy of Inhalation-Based Residential Cancer Risk* issued on October 9, 2003.

5.2 HEALTH RISK ANALYSIS RESULTS

Adverse health effects from exposure to compounds are divided into two broad categories, carcinogenic and noncarcinogenic, based upon their end point of toxicity. Toxicity is quantified differently for these two categories. Carcinogenic compounds are those that may cause or induce cancer. They may also produce adverse health effects other than cancer. These noncarcinogenic (noncancer) effects include a variety of adverse impacts on health. Adverse health effects may be caused by long-term exposure to low concentrations (chronic) or short-term exposures to high concentrations (acute). In addition, noncancer health effects may occur in a specific organ, such as the liver or kidney, and result in disease or damage, or they may affect an entire system, resulting in central nervous system disorders, respiratory system distress, etc.

5.2.1 Carcinogenic Risks

Using the Tier 2 Screening Risk Analysis procedures and the projected toxic air contaminant emissions for Plant Nos. 1 and 2 provided in Tables 2.4-3 and 2.4-4, maximum individual cancer risk (MICR) was calculated for the nearest worker and residential receptor. Appendix E contains the spreadsheets that provide the MICR calculations for the nearest worker and residential receptor. The results for the calculation indicate that the MICR for the worker and residential receptor are less than the threshold risk of one in one million indicating the facilities will not pose a significant health risk. Since the maximum cancer risk is below one in one million, an analysis of cancer burden was not performed. Furthermore, since MICR for the worker and resident are below the risk threshold, a more detailed Tier 3 or Tier 4 risk assessment is not necessary.

5.2.2 Non-carcinogenic Risks (Chronic and Acute Hazards)

Using the Tier 2 Screening Risk Analysis procedures and the projected toxic air contaminant emissions for Plant Nos. 1 and 2 provided in Tables 2.4-3 and 2.4-4, respectively, noncancer risk

(also known as the chronic and acute hazard indices) have been estimated for the nearest worker and residential receptor. Appendix E contains the spreadsheets that provide the noncarcinogenic risks calculations for the nearest worker and residential receptor. The results for the calculation indicate that the chronic hazard index (CHI) and the acute hazard index (AHI) for the worker and residential receptors are less than the recommended threshold risk of 1.0 indicating the facilities will not pose a significant health risk. Furthermore, since the CHI and AHI for the worker and residential receptor are below the risk threshold, a more detailed Tier 3 or Tier 4 risk assessment is not necessary.

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: ○ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 962-2591
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 962-2591
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ○ Not In RECLAIM or Title V ○ In RECLAIM ◉ In Title V ○ In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:

- ○ Title V Application or Amendment (Refer to Title V Matrix)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ○ Administrative Change
- ◉ Alteration/Modification (5)
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:
G2959
A/N 480909

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
03/26/2014	10/18/2016	10/18/2016

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Installation of CatOx/SCR system on Internal Combustion Engine (CG2-HB), 4177 HP, Nat Gas/Digester Gas Fired

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ◉ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? ◉ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ◉ Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ◉ No ○ Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James D. Ruth

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ○ No ◉ Yes

20. Print Name: James D. Ruth

21. Date: 12-5-12

22. Do you claim confidentiality of data? (If Yes, see instructions.) ◉ No ○ Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	546365	1000053807	$15138.13		1/8/13 mp

DATE	APP REJ	DATE	APP REJ	CLASS	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
3/13/13 GCR				I III		2B	A		

Ident.

3/6

CM 10673

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546365
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

3. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

[RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
   [RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip. Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 12	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW	DATE 10/25/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

See Revsd 12/26/13

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: than@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), COMMON TO ALL ENGINES, WITH THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES FOR TWO-STAGE CONFIGURATION.

3. CATALYTIC OXIDIZER (CATOX), JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.7 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS.

4. SELECTIVE CATALYTIC REDUCTION (SCR) CATALYST, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.3 CUBIC FOOT TOTAL VOLUME, AQUEOUS UREA SOLUTION INJECTION SYSTEM AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

5. EXHAUST STACK, 2'-6" DIA. X 4'-11" H. (EXISTING), 26,816 CFM.

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

3. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. CLEAN DIGESTER GAS SUPPLY LINE.

3. CATALYTIC OXIDIZER (CATOX), JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.7 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS.

4. SELECTIVE CATALYTIC REDUCTION (SCR) CATALYST, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.3 CUBIC FOOT TOTAL VOLUME, AQUEOUS UREA SOLUTION INJECTION SYSTEM AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

5. EXHAUST STACK, 2'-6" DIA. X 4'-11" H. (EXISTING), 26,816 CFM.

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G2964) CONSISTING OF:

4. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. CLEAN DIGESTER GAS SUPPLY LINE.

3. CATALYTIC OXIDIZER (CATOX), JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.7 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS.

4. SELECTIVE CATALYTIC REDUCTION (SCR) CATALYST, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.3 CUBIC FOOT TOTAL VOLUME, AQUEOUS UREA SOLUTION INJECTION SYSTEM AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

5. EXHAUST STACK, 2'-6" DIA. X 4'-11" H. (EXISTING), 26,816 CFM.

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

5. INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. CLEAN DIGESTER GAS SUPPLY LINE.

3. CATALYTIC OXIDIZER (CATOX), JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.7 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS.

4. SELECTIVE CATALYTIC REDUCTION (SCR) CATALYST, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.3 CUBIC FOOT TOTAL VOLUME, AQUEOUS UREA SOLUTION INJECTION SYSTEM AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

5. EXHAUST STACK, 2'-6" DIA. X 4'-11" H. (EXISTING), 26,816 CFM.

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27398) CONSISTING OF:

6. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. CLEAN DIGESTER GAS SUPPLY LINE.

3. CATALYTIC OXIDIZER (CATOX), JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.7 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS.

4. SELECTIVE CATALYTIC REDUCTION (SCR) CATALYST, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.3 CUBIC FOOT TOTAL VOLUME,

AQUEOUS UREA SOLUTION INJECTION SYSTEM AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

5. EXHAUST STACK, 2'-6" DIA. X 4'-11" H. (EXISTING), 26,816 CFM.

Conditions: (A/Ns 54634 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
[RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. WHEN CATALYTIC OXIDIZER IS IN OPERATION, THE OXIDIZER'S INLET AND OUTLET TEMPERATURE AND PRESSURE DROP READINGS SHALL BE RECORDED ONCE A SHIFT.

12. WHEN SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM IS IN OPERATION, THE INLET AND OUTLET TEMPERATURE AND PRESSURE DROP READINGS SHALL BE RECORDED ONCE A SHIFT.

13. EXCEPT DURING STARTUP, THE OPERATOR SHALL MAINTAIN THE TEMPERATURE AT THE INLET TO THE CATALYST BEDS BETWEEN 600 AND 850 DEG. F.

14. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING SYSTEM TO ACCURATELY INDICATE THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.

15. THE OPERATOR SHALL CONTINUOUSLY ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.

16. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

17. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	AVERAGED OVER 15 MINUTES	OR	AVERAGED OVER 24-HR, AFTER AN INITIAL 4-MONTH DEMONSTRATION PERIOD.
CARBON MONOXIDE	250 PPMVD AT 15% O2	OR	225 PPMVD AT 15% O2
OXIDES OF NITROGEN (AS NO2)	11 PPMVD AT 15% O2	OR	9.9 PPMVD AT 15% O2
ROG OR TNMHC (AS CARBON)	30 PPMVD AT 15% O2		-
AMMONIA (AMMONIA SLIP)	5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP		

[RULE 1110.2, RULE 1303 (a) (1) – BACT FOR NH3 SLIP]

18. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

19. EMISSIONS FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING (STARTING JANUARY 1, 2016):

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	13.4
NITROGEN OXIDES (AS NO2)	14.3
PARTICULATES (PM10)	1.54
ROG OR TNMHC (AS CH4)	0.77
SULFUR DIOXIDE	0.44
NH3 SLIP	4.25

[RULE 203]

20. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

21. WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER (WITHIN 45 DAYS OF ANNIVERSARY OF INITIAL TEST), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT.

THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, A TEST OF THE INLET FUEL GAS AND THE ENGINE'S EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

22 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

23. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOX: 45.4 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26), UNTIL 12/31/2015
ROG: 315 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26), UNTIL 12/31/2015
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA. The proposed modification for each engine is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel. Although, at prescreening stage applications were prescreened as control systems, two in a series for the add-on control (Schedule C), these applications, however, for simplicity of processing and with addition of few conditions for APC's, these applications Rae processed as modifications to existing engines' permits. Fee will be kept same as submitted with the applications.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive

temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$(NH_2)_2CO \rightarrow NH_3 + HNCO$ (Pyrolysis)

NH_3 OR HNCO + NOx + $O_2 \rightarrow$ N2 + H_2O + CO_2 (Catalytic Reduction)

EMISSIONS:
Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 1 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP	-	4.25	0.18	+4.3

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source. Based on reduced VOC /TAC emissions, this reg. and 40 CFR Part 63 subpart ZZZZ is not applicable.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.
Compliance with this rule is expected.

REG XIII: Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT applicability. A permit limit of 5 ppmv NH_3 slip is imposed. NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401: Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**
This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

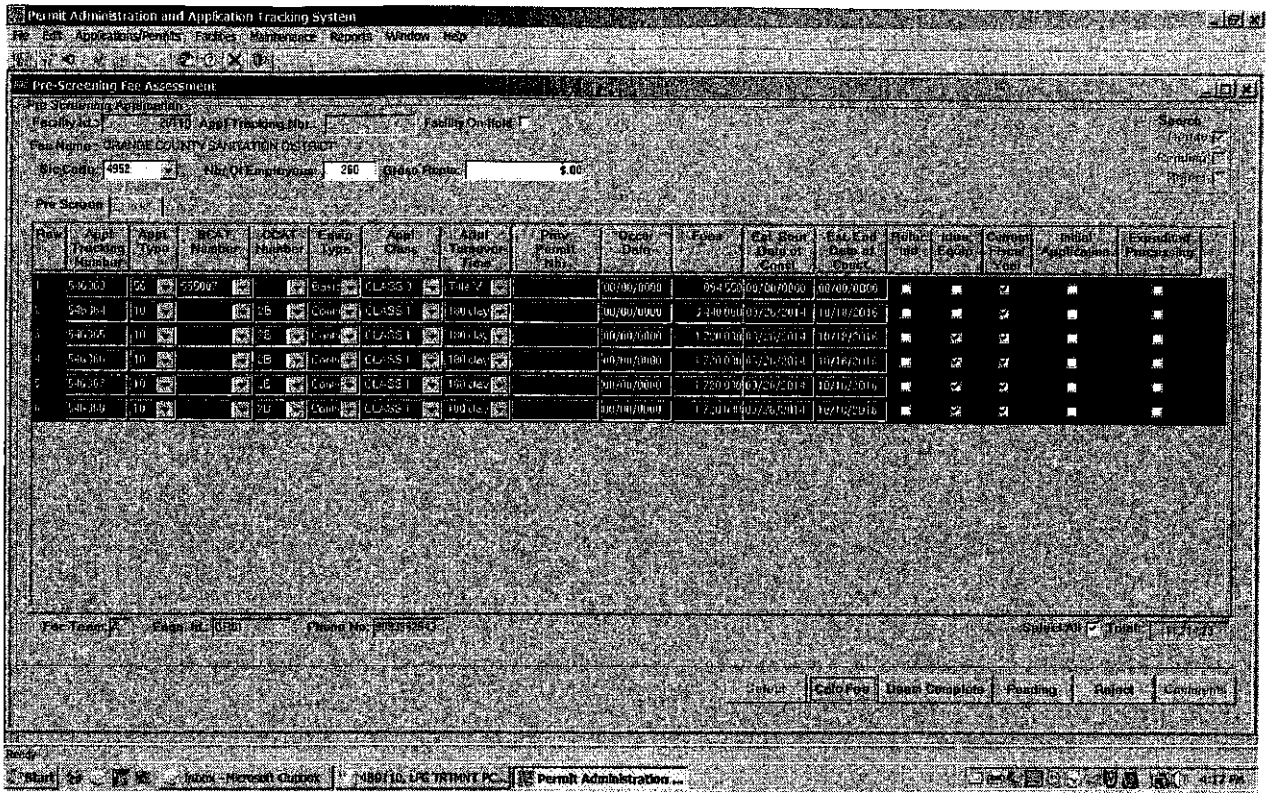
Rule 1714: **Prevention of significant deterioration for greenhouse gases**
The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr

= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations. Permit to construct is recommended subject to conditions listed above, on Pgs. 4 through 7.



546364 → 546368 (5 MNS) Add on Catox/SCR Ident. Equip.

C cat 2B
Sch C = $3440.66 1st
$1720.03 each ident. Eq.

3/13/2013

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or Equal — Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 — Total Volume: 37.33 cu. ft. — Total Weight: 1600 lbs.

Reducing Agent

(•) Urea ( ) Anhydrous Ammonia ( ) Aqueous Ammonia ____ % — Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

See Section 2.2.3 in Supplemental Information.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia

* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 — NOx: ____ gm/bhp-hr — Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equal — Type: 200 cpsi oxidation catalyst or Equal

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.3 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 — Total Volume: 18.67 cu. ft. — Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 850 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/5/12

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

CG2-HB
G2959

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
22212 Brookhurst Street, Huntington Beach, CA 92646

(•) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (•) No
If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(•) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(•) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 59.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 47 feet

Stack Inside Diameter: 29.90 inches **Stack Flow:** 26,816 acfm **Stack Temperature:** 400 °F

Rain Cap Present: ( ) Yes (•) No **Stack Orientation:** (•) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Distribution Center H **Building #/Name:** Standby Power Facility

Building Height: 33 feet (above ground level) **Building Height:** 46 feet (above ground level)

Building Width: 84 feet **Building Width:** 72 feet

Building Length: 126 feet **Building Length:** 102 feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 1,050 feet **Distance to nearest business:** 1,509 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (•) No
If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082 Preparer's Email: tahn@ocsd.com
	Regulatory Specialist	

Contact Person: Terry Ahn Contact's Email: tahn@ocsd.com	Contact's Phone#: (714) 593-7082 Contact's Fax#: (714) 593-7785	Date Signed: 12/5/12

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: ○ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street (Street Address)
Huntington Beach (City), CA (State) 92646-8406 (Zip)
Terry Ahn (Contact Name) Regulatory Specialist (Title)
(714) 593-7082 (Phone #) (Ext.) (714) 962-2591 (Fax #)
E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue (Address)
Fountain Valley (City), CA (State) 92708-7018 (Zip)
Terry Ahn (Contact Name) Regulatory Specialist (Title)
(714) 593-7082 (Phone #) (Ext.) (714) 962-2591 (Fax #)
E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ○ Not In RECLAIM or Title V ○ In RECLAIM ◉ In Title V ○ In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:
- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:
- ○ Title V Application or Amendment (Refer to Title V Matrix)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ○ Administrative Change
- ◉ Alteration/Modification (60)
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:
G2964
MN 480911

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
03/26/2014	10/18/2016	10/18/2016

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Installation of CatOx/SCR system on Internal Combustion Engine (CG3-HB), 4177 HP, Nat Gas/Digester Gas Fired

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process): 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ◉ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? ◉ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System): 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ◉ Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ◉ No ○ Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James D. Ruth

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ○ No ◉ Yes

20. Print Name: James D. Ruth

21. Date: 12-5-12

22. Do you claim confidentiality of data? (If Yes, see instructions.) ◉ No ○ Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	E46366	100058307	$ 15138.17		1/8/13 MR

DATE	APP / REJ	DATE	APP / REJ	CLASS I / II	BASIC / CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
3/13/13	G4					213	A		Ident,

CM 106737

4/6

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546366
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

4. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
   [RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip. Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

22212 Brookhurst Street, Huntington Beach, CA 92646 (◉ Fixed Location ○ Various Locations)

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or Equal — Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 — Total Volume: 37.33 cu. ft. — Total Weight: 1600 lbs.

Reducing Agent

◉ Urea ○ Anhydrous Ammonia ○ Aqueous Ammonia ____ % — Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

See Section 2.2.3 in Supplemental Information.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia

* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 — NOx: ____ gm/bhp-hr — Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equal — Type: 200 cpsi oxidation catalyst or Equal

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.3 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 — Total Volume: 18.67 cu. ft. — Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 850 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/5/12

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

CG3-HB
G2964

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 22212 Brookhurst Street, Huntington Beach, CA 92646

(●) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)

( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 59.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 47 feet

Stack Inside Diameter: 29.90 inches **Stack Flow:** 26,816 acfm **Stack Temperature:** 400 °F

Rain Cap Present: ( ) Yes (●) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Distribution Center H **Building #/Name:** Standby Power Facility

Building Height: 33 feet (above ground level) **Building Height:** 46 feet (above ground level)

Building Width: 84 feet **Building Width:** 72 feet

Building Length: 126 feet **Building Length:** 102 feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 1,083 feet **Distance to nearest business:** 1,476 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082 Preparer's Email: tahn@ocsd.com
	Regulatory Specialist	

Contact Person: Terry Ahn	Contact's Phone#: (714) 593-7082	Date Signed: 12/5/12
Contact's Email: tahn@ocsd.com	Contact's Fax#: (714) 593-7785	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. **Facility Name** (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 029110

3. **Owner's Business Name** (If different from Business Name of Operator):

Section B - Equipment Location Address

4. **Equipment Location Is:** ○ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext. — (714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley , CA 92708-7018
City State Zip

Terry Ahn — Contact Name
Regulatory Specialist — Title
(714) 593-7082 — Phone # — Ext. — (714) 962-2591 — Fax #
E-Mail: tahn@ocsd.com

Section D - Application Type

6. **The Facility Is:** ○ Not In RECLAIM or Title V ○ In RECLAIM ◉ In Title V ○ In RECLAIM & Title V Programs

7. **Reason for Submitting Application** (Select only ONE):

7a. New Equipment or Process Application:
- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:
- ○ Title V Application or Amendment (Refer to Title V Matrix)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ○ Administrative Change
- ◉ Alteration/Modification (5)
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:
G2967
A/N 480916

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
03/26/2014	10/18/2016	10/18/2016

9. **Description of Equipment or Reason for Compliance Plan** (list applicable rule):
Installation of CatOx/SCR system on Internal Combustion Engine (CG5-HB), 4177 HP, Nat Gas/Digester Gas Fired

10. **For Identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each equipment / process): 4

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ◉ No ○ Yes

12. **Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment?** ◉ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. **What type of business is being conducted at this equipment location?** Municipal Wastewater Treatment

14. **What is your business primary NAICS Code?** (North American Industrial Classification System): 221320

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** ○ No ◉ Yes

16. **Are there any schools (K-12) within 1000 feet of the facility property line?** ◉ No ○ Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. **Signature of Responsible Official:** James D. Ruth

18. **Title of Responsible Official:** General Manager

19. **I wish to review the permit prior to issuance.** (This may cause a delay in the application process.) ○ No ◉ Yes

20. **Print Name:** James D. Ruth

21. **Date:** 12-5-12

22. **Do you claim confidentiality of data?** (If Yes, see instructions.) ◉ No ○ Yes

23. **Check List:** ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	546368	1000533[illegible]	$ 15,138-13		9/8/13 mc

DATE	APP REJ	DATE	APP REJ	CLASS	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
3/13/13 GGR				(I) II		2B	A		

Ident.

CA 106737

6/6

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546368
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

6. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 16	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW Rvsd	DATE 2/26/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Modifications to add DG cleaning system & addition of post-combustion controls to the CGS IC engines, POs' G27394, G27395, G27396, G27397 & G27398)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: WASTEWATER TREATMENT PLANT NO. 2
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA 92646

FACILITY ID. NO. : **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082 FAX: (714) 962-2591
E-mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION:
Application No. 546364

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546365

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546366

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546367

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Application No. 546368

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5(G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC

GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions: (A/Ns 546364 through 546368)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
   [RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
   [RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60

SULFUR DIOXIDE 21.0
[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 204]

EMISSIONS AND REQUIREMENTS:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOX: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

Application No. 559228:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559229:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559230:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559231:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Application No. 559232:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.

3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.

4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions: (A/Ns 559228 through 559232)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
   [RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP. [RULE 1303(b) (1)], [RULE 1402]

Note: Above are the proposed revised permits, as deemed necessary, based on OCSD's and SCAQMD's meetings and comments to the draft permits.

BACKGROUND:

On January 8, 2013, Orange County Sanitation District (OCSD) submitted above applications (546364 through 546368, inclusive) to add post-combustion control equipment (CatOx and SCR) and digester gas clean up system for the existing five IC engines (G27394, G27395, G27396, G27397 & G27398) at Huntington Beach (Sewage Treatment Plant #2), CA.
The proposed modification for the digester gas cleaning system (DGCS) and treatment of the engine's exhaust to further control emissions is required for regulatory compliance with new Rule 1110.2 emissions limits for CO, NOx and ROG using biogas fuel.
Although, at prescreening stage these applications were initially prescreened as control systems, two in a series for the add-on control (Schedule C), however, for simplicity of processing and with addition of few conditions for APC's, these applications are processed as modifications to existing engines' permits*, as current emissions are tied to the previous engine's permit and for simplicity of AEIS/NSR entries, with respect to pre and post modifications of engine(s).
Fee will be kept same as submitted with the applications. (this was based on modifications to current permits to operate for the engines).

*As per District's direction, OCSD was asked to submit new separate applications for the add-on control devices (CatOx /SCR). Therefore, on 12/20/2013, OCSD submitted 5 new applications; #559228 through 559232 for APCs.

A/Ns 557229 & 557230 for aqueous urea solution storage tanks were submitted on 10/13/2013.

A/N 546363 is also submitted for Title V de-minimis significant revision to include above permits to appropriate Title V permit sections (D and H) upon approval.

Note: If the equipment demonstrates compliance with the emissions limits by January 1, 2015 then their respective permit application fees to be refunded- Rule 1110.2 (d) (1) (E), amended Sept. 7, 2012.

PROCESS DESCRIPTION:

OCSD was granted a Rule 441 research permit (A/N 497717, G4633, 10/15/2009) for engine #1 at Fountain Valley location, ID #1730, that included digester gas cleaning system (DGCS) to remove mainly volatile silicon organic compounds (VSOC - Siloxanes), other impurities, some TNMOCs and total sulfur compounds from the digester gas to help improve combustion characteristics, improve engine operations and to extend engine life. Over several years, OCSD had conducted various experiments to develop emission reduction technology that employed post combustion control equipment- catalytic oxidation (to reduce CO and VOC emissions) and Selective Catalytic reduction (SCR), using aqueous urea solution injection into the engine's exhaust prior to SCR for NOx emission reduction. OCSD had made presentations about this emission reduction technology demonstrating that engine is capable of meeting Rule 1110.2 emissions limits for CO, NOx and ROG.

Based on successful results for achieving low emissions, OCSD had decided to modify existing engine's permits (3 engines at plant #1 and 5 engines at plant #2) with add-on controls in conjunction with DGCS that helps remove siloxanes present in DG. For information purpose, typical emissions reduction results for CO, NOx and VOC are listed below (Source: A & WMA, West Coast Workshop Presentation, May 16, 2013);

Pollutant	Engine Outlet Avg. ppmv	Post-combustion Emission Avg. ppmv	Rule 1110.2 Limit ppmv (Effective January 1, 2016)
CO	452	**7.5**	250
NOx	31	**7.2**	11
VOC	97	**3.6**	30

Validated data -ppmv values at 15% O2, dry @ 15% O2, 15-minute average.

Note: Proposed DGCS is common to all five engines, supplying clean DG as fuel.
DGCS, CatOx and SCR systems for both plants are identified as **OCSD Project J-111**.

Engine:
Maximum heat input rate, design = 33 MMBTU/HR
Exhaust (stack) flow rate = 26,816 acfm, 600 deg. F (Form 400-PS)
Exhaust Stack = 29.9" Diameter x 59' above ground (Form 400-PS)

Following is the brief operation for catalytic oxidizer (CatOx) and Selective Catalytic Reduction (SCR) with urea injection.

A catalytic oxidizer (CatOx) will be installed to reduce CO and VOC emissions from the engine's exhaust. CatOx, located upstream of the SCR, will be equipped with temperature and pressure monitoring devices and controls. Operating temperature range is min. 600 to max. 850 deg F. CatOx inlet and outlet samples will be taken and analyzed for speciated VOC analysis, including Formaldehyde and other TACs. For CatOx specifications please refer to the information submitted with application. The typical chemical reaction is,

$$2\ CO + O_2 \rightarrow 2\ CO_2$$

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Selective Catalytic Reduction (SCR) System for NOx Control

NO and NO_2 in the engine's exhaust, at high temperature, will be reduced by the Selective Catalytic Reduction (SCR) system in presence of aqueous urea injection. The Urea reagent using an injection lance, with compressed air, is injected into the center of the exhaust piping, prior to the catalyst surface. Once the exhaust gas stream reaches the proper reactive temperature for the catalyst, the reagent automatically begins to flow. Control of the proper amount of Urea reagent required is typically done by mapping of NOx reduction performance curve based on engine operating conditions or by following a programmable NOx output based on the signal from the existing CEMS.
At temperature greater than 400 deg F, in the presence of water, the Urea hydrolyses to ammonia (NH_3) and CO2. As these molecules pass through the catalyst they react with NO_x to form N_2, H_2O, and CO_2. The chemical reaction is,

$$(NH_2)_2\,CO + H_2O \rightarrow 2\ NH_3 + CO_2 \text{ (Hydrolysis)}$$

[Urea solution hydrolyzes, upon injection in the inlet duct line of SCR at >400 deg F]

$$(NH_2)_2\,CO \rightarrow NH_3 + HNCO \text{ (Pyrolysis)}$$

$$NH_3 \text{ OR } HNCO + NOx + O_2 \rightarrow N2 + H_2O + CO_2 \text{ (Catalytic Reduction)}$$

NH3 to NOx ratio:

$4NH_3 + 4NO \rightarrow 4N2 + 6H_2O$
$6NO2 + 8NH_3 \rightarrow 7N2 + 12H_2O$

This is the molar ratio of the injected ammonia over the NOx at the catalyst inlet. SCR reactions require only one mole of NH3 to remove one mole of NOx and about 1.33 moles of NH3 to remove one mole of NO2. Depending on the fraction of NO2 in the overall NOx concentration, no more than 1.1 moles of NH3 are needed per mole of NOx for above reactions to happen. In order to control ammonia slip the uniformity of the NH3/NOx profile across the catalyst face is critical to the SCR process.

Estimated NH3 Injection Rate:

NOx emission rate in engine's exhaust (Pre-modification) = 11.5 lbs/hr, Table 2.3-2 Application submittal
= 11.5/46 = 0.25 lb. moles NOx/hr
Maximum moles of NH3 required/ mole of NOx = 1.1
NH3 required = 0.25 x 1.1 = 0.275 lb. moles NH3/ hr
= 0.275 x 17 = 4.95 lbs NH3/hr
32.5% Wt. urea solution density =1.090 g/l x 8.33 = 9.08 lbs/gal. @20 deg C.
Lb. moles urea/gal = 9.08 lbs/gal x 0.325/ 60.05 MW of urea = 0.0491 lb moles urea/gal of solution.
When one mole of urea is injected in engine's exhaust, upon hydrolysis releases 2 moles of NH3.
$(NH_2)_2CO + H_2O \rightarrow 2\ NH_3 + CO_2$ (Hydrolysis)
Moles of NH3 released/gal of sol = 0.0491 x 2 = 0.0982 lb. moles NH3/ gallon of urea soln.

Urea injection rate needed = 0.275 lb. moles of NH3 required / 0.0982 lb. moles NH3/gallon
= 2.80 gallon urea soln. /hr.

Urea dosing can change depending on the NOx reduction and other factors such as exhaust temperature, space velocity (volumetric flow of exhaust gas through the catalyst (ft/hr/ft3) and exhaust flow rate. NOx could be measured before and/or after the SCR catalyst through the use of NOx sensor. NOx concentration after SCR catalyst can be measured using CEMS. The level of ammonia slip is dependent on how NOx is being controlled. For typical NOx reduction of 90% - 95%, ammonia slip generally can vary 5-25 ppmv, measured at 15% O2, 1-hr average.

EMISSIONS:

Proposed installations will result in net emission reduction for CO, NOx and VOC. OCSD has estimated reduction in SOx and PM10 emissions based on pilot study source tests results. There will be an increase in ammonia emission- NH3 slip- (due to SCR and urea solution injection).

Following is the summary for maximum emissions reduction/engine, as provided by the OCSD for Plant No. 2 (Please refer to application submittal, Table 3.6-1).

POLLUTANT	PRE-MODIFICATION EMISSION., LBS/DAY	POST-MODIFICATION EMISSION., LBS/DAY	LBS/HR	NET CHANGE IN EMISSION, LBS/DAY
CO	881.3	13.4 (= 0.06 g/bhp-hr)	0.56	-868
NOx	276.0	14.3 (= 0.065 g/bhp-hr)	0.59	-261.7
PM10	24.0	1.54	0.06	-22.46
SOx	24.0	0.436	0.02	-27.56
VOC	124.0	0.77(= 0.004 g/bhp-hr)	0.03	-123.2
NH3 SLIP*	-	4.25	0.18	+4.3

* Ammonia slip is based on 5 ppmv as the pilot project demonstrated maximum level of <5 ppmv ammonia slip. Results and Discussion of the research (pilot project), Final Report July 2011, Table 3-13, indicated free NH3 measurements at < Method Detection Limit (MDL), during 4/7/10 through 5/10/2011 at 65% to 100% engine load, whereas maximum calculated NH3 value was determined to be < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices. This can be considered as LAER for a major source.

AEIS/NSR:

Uncontrolled and controlled emissions are assigned to each IC engine (Basic Equipment) and respective APC (CatOx.SCR) are assigned zero emissions, except for ammonia slip.

For each engine,

Pollutant	**R1, lbs/hr**	**R2, lbs/hr**
CO	36.72	0.56
NOx	11.5	0.59
PM10	1.0	0.06
SOx	1.0	0.02
VOC	5.17	0.03

For each APC (CatOx/SCR)

	R1, lbs/hr	**R2, lbs/hr**
NH3 (slip)	0.18	0.18

RULES EVALUATION

RULE 212: There is no school within 1000' of emission source. The proposed modifications to install digester gas cleaning system and add post-combustion control equipment is expected to reduce emissions. However, there will be an increase in ammonia emission (NH3 slip- 8.5 lbs/day) due to urea solution injection for the SCR system. NO public notice is required. Compliance with this rule is expected.

RULE 401: With proper equipment operations, maintenance and keeping equipment in good operating condition, compliance is expected.

RULE 402: Nuisance complaints are not expected with the proper operation and monitoring of the equipment.

RULE 404: Compliance with this rule is expected. Previous source tests results (pre-modification) has shown compliance with this rule.

RULE 431.1: Total sulfur, as H2S, in DG is expected to be less than the rule limit of 40 ppmv H2S prior to DG combustion in IC engines. Also, DGCS is expected to reduce sulfur compounds from the DG. Compliance with this rule is expected.

REG IX: **Standards of Performance for New stationary Sources**
Federal New Source Performance Standard (NSPS), 40 CFR Part 60 subpart JJJJ for spark ignition engines.
This rule is for emissions increase for CO, VOC and NOx pollutants. The proposed modifications will have net emissions reduction for CO, VOC and ROG. There is no increase in rated capacity of the CGS engine. Therefore, Reg. IX and NSPS subsection JJJJ is not applicable.

REG X: **National Emission Standards for Hazardous Air Pollutants (NESHAP)**
40 CFR Part 63 subpart ZZZZ - MACT Standards
Based on year 2012 reported emissions for toxic air contaminants (TACs), Formaldehyde (single TAC) is greater than 10 TPY (reported 12.7 TPY) and cumulative TACs emission is below 25 TPY. Therefore, the facility is considered a major source for hazardous pollutants' emission.
With the addition of proposed CatOx, significant reduction (>99.5%) in VOC and TACs emissions is expected, thereby qualifying as an area source.

As per §63.6600 (c), stationary RICE >500 HP at major source of HAP, that combusts LFG or digester gas do not need to comply with emission limitations (Table 1a, 2a, 2c and 2d) or operating limitations (Tables 1b and 2b).
Compliance with this Regulation is expected.

REG 1110.2: Proposed modifications (DGCS, CatOx and SCR) are to meet the new regulatory emissions limits for CO, NOx and VOC under Rule 1110.2, amended September 7, 2012. Based on pilot study (OCSD Project J-79) for engine #1, significant reductions in CO, NOx and VOC emissions are expected. Each engine is, therefore, expected to comply with the emissions limits shown under Rule 1110.2 (d) (1) (C), effective January 1, 2016, as listed below;

CO 250 ppmvd*
NOx 11 ppmvd, and*
VOC 30ppmvd*
*corrected to 15% O2, dry basis and averaged over 15 minutes.

Engine is expected to comply with start-up and shut down periods not to exceed 30 minutes. Engine start-up, after an overhaul or major repair/maintenance period not to exceed 4 operating hours is expected (per Rule 1110.2 (i) (10) and (11) listed under Exemptions).

Compliance with this rule is expected.

REG XIII:

Proposed modifications is expected to reduce criteria pollutants' emissions with respect to mass emissions rates for the current permit(s), hence BACT is not applicable. Engine exhaust will be further treated by air pollution control equipment that is considered BACT for CO, NOx and VOC.

Note: Effective Jan. 1, 2016, Rule1110.2 compliance limits go into effect for CO, NOx and VOC. As a result, corresponding mass emissions rates (to be confirmed by approved source tests and 180 days operation) will be considered as achieved in practice, and shall be considered as LAER limit for the major source category.

No modeling or offsets are required for criteria pollutants.

NH_3 is subject to NSR for BACT/LAER applicability for major source. A permit limit of 5 ppmv NH_3 slip is imposed based on pilot test results demonstrating < Method Detection Limit (MDL), 65% to 110% engine load, and calculated total NH3 values of < 5 ppmv. Urea injection system is designed with associated automatic temperature, pressure monitoring and control devices.
NH_3 is not considered a criteria pollutant, therefore, is not subject to offset requirement.

CEQA: For the proposed project, OCSD has provided a copy of Notice of Exemption, signed 9/20/12 and filed on 9/24/2012. Exemption category section # 15329. Cogeneration Projects at existing facility.

Compliance with this regulation is expected.

RULE 1401:

Proposed modification for post-combustion exhaust treatment by CatOx is expected to significantly reduce VOC/TAC emissions. Therefore, health risk is expected to be lower than the current permit and no further health risk analysis is required.

Ammonia is a new pollutant from SCR operation. However, ammonia emission is estimated to be below Emission Screening Levels shown under Table-1A for 25 meter receptor location.

NH3 emission = 4.25 lbs/day = **0.177 lbs/hr** = **1,551 lbs/yr**.
Emission Screening Levels @ 25 meter, Acute threshold = **1.60 lbs/hr**
Chronic threshold = **6,610 lbs/yr**

Compliance with this Rule is expected.

REG XVII: **Prevention of Significant deterioration (PSD)**

This regulation incorporates the federal Prevention of Significant Deterioration (PSD) regulations and applies to major source or major modification of major sources located in attainment areas.

Major source is defined as any one of the 28 listed major source categories which emits, or has the PTE, ≥100 TPY of any regulated pollutant OR ≥ 250 TPY of any regulated pollutant if the stationary source does not fall under one of the 28 listed major source categories. OCSD plant is not listed on the 28 categories, therefore 250 TPY threshold applies. AER report (2012) shows CO emission of 167 TPY which is < 250 TPY threshold. Therefore OCSD plant 2 is not a major source and PSD is not applicable.

Major modification under PSD is triggered if the modification results in an increase in emissions > Significant Emission Rates (SERs) (40TPY for NOx, SOx and VOCs; 100 TPY CO, 15/25 TPY for Pm10/PM). The proposed modifications would not result in emission increase greater than SERs. Therefore, this regulation does not apply.

Also, Rule 1704 specifically exempts OCSD which is classified as providers of Essential Public Services (EPS), if BACT is installed.

Rule 1714: **Prevention of significant deterioration for greenhouse gases**

The proposed modification of the existing source is not considered a major modification and would not result in a significant emission increase (SEI) defined in paragraph 40 CFR part 52.21(b) (11). Therefore, this rule is not applicable.

For information purpose only;
Potential to Emit (PTE) CO2e for a single engine (including biogenic CO2 in DG fuel)
= 1055.91 CO2e MTon/MMBTU/Yr x 33 MMBTU
= 34,845 CO2e MTon/yr
= 174,225 CO2e MTon/yr for 5 identical engines (3 engines out of 5 are expected to be in operation).

CONCLUSIONS/RECOMMENDATION:

The above equipment is expected to comply with all applicable District's Rules and Regulations.

Permit to construct is recommended for each IC engine and APC with subject to conditions listed above (upon completion of EPA review for the proposed Title V revision).

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

22212 Brookhurst Street, Huntington Beach, CA 92646 (●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Selective Catalytic Reduction (SCR)

SCR Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Vanadium Pentoxide

Model Number: 79449 or Equal — Type: Metallic Substrate

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.50 in. H: 8 ft. ____ in.

No. of Layers or Modules: 2 — Total Volume: 37.33 cu. ft. — Total Weight: 1600 lbs.

Reducing Agent

(●) Urea ( ) Anhydrous Ammonia ( ) Aqueous Ammonia ____ % — Injection Rate: 0.700 lb/hr

Reducing Agent Storage*

See Section 2.2.3 in Supplemental Information.

Diameter: ____ ft. ____ in. Height: ____ ft. ____ in. Capacity: ____ gal

Pressure Setting: ____ psia

* A separate permit may be needed for the storage equipment.

Space Velocity

Gas Flow Rate/Catalyst Volume: 44289.0 per hour

Area Velocity

Gas Flow Rate/Wetted Catalyst Surface Area: ____ ft/hr

Manufacturer's Guarantee

NOx: 11.0 ppm $\%O_2$: 15.00 — NOx: ____ gm/bhp-hr — Ammonia Slip: 5 ppm @ 15.00 $\%O_2$

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

Oxidation Catalyst

Oxidation Catalyst

Manufacturer: Johnson Matthey Inc. or Equal — Catalyst Active Material: Aluminum Oxide or Platinum

Model Number: 91449 or Equal — Type: 200 cpsi oxidation catalyst or Equal

Size of Each Layer or Module: L: 8 ft. ____ in. W: ____ ft. 3.3 in. H: 8 ft. ____ in.

No. of Layers or Modules: 1 — Total Volume: 18.67 cu. ft. — Total Weight: 800.00 lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume: 88554.0 per hour

Manufacturer's Guarantee

VOC: 30 ppm VOC: ____ gm/bhp-hr $\%O_2$: 15.00

CO: 250 ppm CO: ____ gm/bhp-hr $\%O_2$: 15.00

Catalyst Life

2 years (expected)

Cost

Capital Cost: ____ Installation Cost: ____ Catalyst Replacement Cost: ____

South Coast Air Quality Management District

Form 400-E-5
Selective Catalytic Reduction (SCR) System, Oxidation Catalyst, and Ammonia Catalyst

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Ammonia Catalyst

Ammonia Catalyst

Manufacturer:_____ Catalyst Active Material:_____

Model Number:_____ Type:_____

Size of Each Layer or Module: L:_____ ft._____ in. W:_____ ft._____ in. H:_____ ft._____ in.

No. of Layers or Modules:_____ Total Volume:_____ cu. ft. Total Weight:_____ lbs.

Space Velocity

Gas Flow Rate/Catalyst Volume:_____ per hour

Manufacturer's Guarantee

NH_3:_____ ppm $\%O_2$:_____

Catalyst Life

_____ years (expected)

Cost

Capital Cost:_____ Installation Cost:_____ Catalyst Replacement Cost:_____

Section C - Operation Information

Operating Temperature

Minimum Inlet Temperature: 600 °F (from cold start) Maximum Temperature: 850 °F

Warm-up Time: 2 hr. _____ min. (maximum)

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: _____ Date: 12/5/12

Title: Regulatory Specialist Company Name: OCSD

Name: Terry Ahn

Phone #: (714) 593-7082 Fax #: _____

Email: tahn@ocsd.com

Contact Info

Name: Terry Ahn

Title: Regulatory Specialist Company Name: OCSD

Phone #: 7145937082 Fax #: _____

Email: tahn@ocsd.com

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

CG5-HB
G2967

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Orange County Sanitation District

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
22212 Brookhurst Street, Huntington Beach, CA 92646

(●) Fixed Location ( ) Various Locations

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No
If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3)
( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 59.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 47 feet

Stack Inside Diameter: 29.90 inches **Stack Flow:** 26,816 acfm **Stack Temperature:** 400 °F

Rain Cap Present: ( ) Yes (●) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: Distribution Center H **Building #/Name:** Standby Power Facility

Building Height: 33 feet (above ground level) **Building Height:** 46 feet (above ground level)

Building Width: 84 feet **Building Width:** 72 feet

Building Length: 126 feet **Building Length:** 102 feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence: 1,116 feet **Distance to nearest business:** 1,444 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No
If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (714) 593-7082 Preparer's Email: tahn@ocsd.com
	Regulatory Specialist	

Contact Person: Terry Ahn Contact's Email: tahn@ocsd.com	Contact's Phone#: (714) 593-7082 Contact's Fax#: (714) 593-7785	Date Signed: 12/5/12

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

ROUTING RECORD

DATE	FROM	TO	ACTION
11-30-12	AD01	GR01	Prescreen HQ
12-28-12	GR01		Accept TV Rev.
7-19-13	GR01	CT01	TV ~~Sig~~ Rev → ~~EP~~ EPA, notice
8-28-13	CT	AL	EPA Proposed Permit
~~10-15-13~~	~~GR01~~	~~CT01~~	~~OK to issue TV minor Rev.~~
3-11-14	GR01	CT01	EPA Review/Minor Rev.
5-6-14	CT	AL	EPA Review – De-minimis Revision
6-26-14	CT	PS	Revision Approved HQ

REFERENCE TO OTHER APCD RECORDS INCLUDING VARIANCES

545002 Grouped to 545004, 5 (Boiler Mody) PC Granted 10/17/13 Sec H Rev 4 FP Rev 7

545003 → (Scrubber c/cond)

Sec H Rev #7 FP Rev # 9 6/20/14

APPL # 545002

I.D. # 29110

ORANGE COUNTY SANITATION DISTRICT

22212 BROOKHURST ST

HUNTINGTON BEACH

~~ADMIN~~ PERMIT REVISION

~~De-minimis~~ MINOR ~~Sign~~ . Rev.

Date: 11/27/12

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

AQMD

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District
2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110
3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach, CA 92646-8406
City, Zip

Terry Ahn — Regulatory Specialist
Contact Name, Title

(714) 593-7082 Ext. — (714) 962-2591
Phone #, Fax #

E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley, CA 92708-7018
City, State, Zip

Terry Ahn — Regulatory Specialist
Contact Name, Title

(714) 593-7082 Ext. — (714) 962-2591
Phone #, Fax #

E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM (●) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:
- ( ) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:
- (●) Title V Application or Amendment (Also submit Form 500-A1) (7b)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):
8b. Estimated End Date of Construction (mm/dd/yyyy):
8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Title V Permit Revision for Modification of A/N 518276; R-D94232; and R-D94235

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System) 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature *I hereby certify that all information contained herein and information submitted with this application are true and correct.*

17. Signature of Responsible Official: James D. Ruth [signature]

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: James D. Ruth

21. Date: 10-10-12

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	545002	100005181	9,243.73		10-18-12

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
12/28/12						555007	A		11/27/12

(105816) (105816) A ~~Dellaquila~~ TS#53 184

SCAQMD PERMIT PROCESSING SYSTEM (PPS)

FEE DATA - SUMMARY SHEET

Application No : **545002**

IRS/SS No:

Previous Application No:

Previous Permit No:

Company Name : **ORANGE COUNTY SANITATION DISTRICT**

Facility ID: **29110**

Equipment Street: **22212 BROOKHURST ST , HUNTINGTON BEACH CA 92646**

Equipment Desc : **Title V Permit Revision**

32

Equipment Type : **BASIC**

Fee Charged by: **B-CAT**

B-CAT NO. : **555007**

C-CAT NO: **00**

Fee Schedule: **Z**

Facility Zone : **18**

Deemed Compl. Date: **12/27/2012**

Public Notice: **NO**

Evaluation Type : **MINOR PERMIT REVISION**

Disposition : **Approve Title V Application, Recommended by Engineer**

Lead Appl. No :

Small Business: ☐

Higher Fees for Failing to Obtain a Permit: ☐

Identical Permit Unit: ☐

Air quality Analysis			$0.00	Filing Fee Paid:	$0.00
E.I.R			$0.00	Permit Processing Fee Paid:	$894.55
Health Risk Assessment			$0.00	Permit Processing Fee Calculated*:	$894.55
Public Notice Preparation Fee			$0.00	Permit Processing Fee Adjustment:	$0.00
Public Notice Publication Fee			$0.00		
Expedited Processing	Hours:	0.00	$0.00		
Source Test Review	Hours:	0.00	$0.00		
Time & Material	Hours:	0.00	$0.00		
				Total Additional Fee:	$0.00
				Additional Charge:	$0.00

COMMENTS:

RECOMMENDED BY: **CHARLES D TUPAC**

DATE: **08/28/2013**

REVIEWED BY: CDT

DATE: 6/26/14

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT AND P/O NO P/C PENALTY

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

June 26, 2014

Mr. James Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Re: Title V Revised Permit for Orange County Sanitation District (OCSD), ID# 029110

Dear Mr. Herberg,

Enclosed please find revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The draft permit, which included minor revision (under A/N 556625) and de-minimis significant revision (under A/N 545002), was sent to EPA on May 6, 2014 for review and there were no comments received by the SCAQMD.

The following applications were included under Section H (rev 07) - Permits to Construct and Temporary Permits to Operate.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25942, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System - Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.
545003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

This permit revision includes Title Page, Table of Contents and Section H. Please review the attached pages and section carefully. Insert the enclosed pages in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number or e-mail grawal@aqmd.gov, within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/
Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance-SCAQMD
Title V Central File
A/N 545002 - de minimis significant revision
A/N 556625- minor revision

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

Title Page	
Facility ID:	029110
Revision #:	9
Date:	June 26, 2014

FACILITY PERMIT TO OPERATE

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Barry R. Wallerstein, D. Env.
EXECUTIVE OFFICER

By: _____ For
Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

TABLE OF CONTENTS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

FACILITY WIDE CONDITION (S)

Condition(s):

1. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:

   A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
   B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (A) OF THIS CONDITION. [RULE 401]

2. THE OPERATOR SHALL NOT COMBUST DIGESTER GAS CONTAINING SULFUR COMPOUNDS IN EXCESS OF 40 PPMV CALCULATED AS HYDROGEN SULFIDE AVERAGED DAILY. [RULE 431.1]

3. THE OPERATOR SHALL NOT USE FUEL OIL CONTAINING SULFUR COMPOUNDS IN EXCESS OF 0.05 PERCENT BY WEIGHT. ON OR AFTER JUNE 1, 2004, A PERSON SHALL NOT PURCHASE ANY DIESEL FUEL FOR STATIONARY SOURCE APPLICATION IN THE DISTRICT, UNLESS THE FUEL IS LOW SULFUR DIESEL FOR WHICH THE SULFUR CONTENT SHALL NOT EXCEED 15 PPM BY WEIGHT AS SUPPLIED BY THE SUPPLIER. [RULE 431.2]

4. THE OWNER/OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART VVV - NON-INDUSTRIAL POTW PLANT NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) AND ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART ZZZZ – STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES NESHAP. [40 CFR 63 SUBPART VVV, AND 40 CFR 63 SUBPART ZZZZ]

5. THE OPERATOR SHALL MEASURE THE SULFUR CONTENT OF THE DIGESTER GAS ACCORDING TO THE FOLLOWING:

   A. FOR READINGS UP TO 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S, USING COLORIMETRIC TUBES, AND WEEKLY ANALYSIS OF THE DIGESTER GAS BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR.

   B. FOR READINGS ABOVE 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR. A MINIMUM OF THREE CONSECUTIVE DAILY SAMPLES ARE REQUIRED TO DEMONSTRATE THE TOTAL SULFUR CONTENT IS BELOW 36 PPM. [RULE 431.1]

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6. A COMPLETE APPLICATION FOR COMPLIANCE ASSURANCE MONITORING (CAM, 40 CFR PART 64) SHALL BE SUBMITTED WHENEVER THE ANNUAL MASS OF VOC OF THE DIGESTER GAS EXCEEDS 19,999 LBS/YR. THE VOC CONTENT OF THE DIGESTER GAS SHALL BE ANALYZED IN CONJUNCTION WITH THE ANNUAL SOURCE TESTING OF THE CGS ENGINES USING THE APPROVED METHODS. FOR EACH CALENDAR YEAR, THE VOC EMISSIONS SHALL BE CALCULATED BY MARCH 31ST OF THE SUBSEQUENT CALENDAR YEAR, OR WITHIN 30 DAYS OF SOURCE TEST REPORT DATE, WHICHEVER IS LATER, BASED ON THE DIGESTER GAS CONCENTRATION DATA FROM ANNUAL RULE 1110.2 SOURCE TESTING OF THE ENGINES. IF THE VOC EMISSIONS EXCEED 19,999 LBS/YR, THE CAM APPLICATION SHALL BE SUBMITTED BY MARCH 31ST, OR WITHIN 60 DAYS AFTER THE CALCULATION DUE DATE, WHICHEVER IS LATER.
[40 CFR PART 64, CAM]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 428804
Granted as of 9/22/2004

Equipment Description:

ODOR CONTROL FACILITY (P2-66) CONSISTING OF:

A. TRUNKLINES ODOR CONTROL SYSTEM:

1. THREE (3) SINGLE STAGE BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (ONE STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED RECIRCULATING PUMPS, AND AN EXHAUST SYSTEM WITH THREE 75 HP BLOWERS (40,000 SCFM TOTAL), TREATING FOUL AIR EXHAUST FROM THE DIVERSION STRUCTURE AND INFLUENT TRUNKLINES, VENTING TO THE 1ST STAGE BIOTRICKLING FILTERS AT THE HEADWORKS ODOR CONTROL FACILITY.

B. HEADWORKS ODOR CONTROL SYSTEM:

1. 1ST STAGE, THIRTEEN (13) BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (THREE ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED PUMPS, AND AN EXHAUST SYSTEM WITH THIRTEEN 75 HP BLOWERS (188,300 SCFM TOTAL), TREATING FOUL AIR FROM HEADWORKS FACILITY AND PRETREATED EXHAUST AIR FROM TRUNKLINE ODOR CONTROL FACILITY VENTING TO THE 2ND STAGE CHEMICAL SCRUBBERS AT THE HEADWORKS ODOR CONTROL FACILITY.

2. 2ND STAGE, EIGHT (8) CHEMICAL SCRUBBERS, IDENTICAL, (TWO ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 48'- 0" H., OVERALL DIMENSIONS, WITH Q-PAC OR TRIPACK TYPE, 10' - 0" H. POLYURETHANE PACKING, A MIST ELIMINATOR, AUTOMATIC CHEMICAL FEED, ASSOCIATED RECIRCULATION PUMPS, AND AN EXHAUST SYSTEM WITH EIGHT 60 HP BLOWERS (188,300 SCFM TOTAL), TREATING EXHAUST AIR FROM 1ST STAGE BIOTRICKLING FILTERS, AND VENTING TO THE ATMOSPHERE.

C. SODIUM HYPOCHLORITE, SODIUM HYDROXIDE AND HYDROCHLORIC ACID STORAGE TANKS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED, UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

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[RULE 204]

3 THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. THIS FACILITY (P2-66) SHALL ONLY TREAT FOUL AIR GENERATED FROM THE DIVERSION STRUCTURE AND TRUNKLINES, GRIT HANDLING BUILDING, BAR SCREEN BUILDING AND CHANNELS, PUMP STATION WET WELL, SCREENINGS WASHING AND LOADING BUILDINGS, GRIT BASINS, PRIMARY SPLITTER BOX, AND INFLUENT PUMP STATION DISCHARGE CHANNEL.
[RULE 402]

6. ALL THE EXHAUST FROM THE BIOTRICKLING FILTERS (TRUNKLINE AND HEADWORKS BIOTRICKLING FILTERS) SHALL BE VENTED TO AND TREATED BY THE FINAL CHEMICAL SCRUBBERS PRIOR TO RELEASE TO THE ATMOSPHERE.
[RULE 402]

7. A SUFFICIENT NUMBER OF BIOTRICKLING (BIOTOWERS) AND CHEMICAL SCRUBBERS SHALL BE IN OPERATION WHEN THE BASIC EQUIPMENT ARE IN OPERATION TO MAINTAIN THE CHEMICAL SCRUBBERS OUTLET H2S CONCENTRATIONS, AS MEASURED BY THE AUTOMATIC CHEMICAL FEED AND H2S MONITORING SYSTEM, LESS THAN THE MAXIMUM OUTLET H2S LIMITS AS SPECIFIED IN CONDITION NO. 14 EXCEPT DURING UNFORESEEN AND ROUTINE MAINTENANCE WORK OR POWER OUTAGE IN THE PLANT THAT REQUIRES THE SCRUBBERS TO BE SHUTDOWN FOR A PERIOD NOT TO EXCEED 10 HOURS PER INCIDENT PER EQUIPMENT AND 50 HOURS PER YEAR PER EQUIPMENT.
[RULE 402]

8. ALL BIOTRICKLING FILTERS AND CHEMICAL SCRUBBERS SHALL BE EQUIPPED WITH INLET AND OUTLET CONTINUOUS HYDROGEN SULFIDE MONITORING SYSTEM (VAPAX UNIT OR EQUIVALENT).
[RULE 204]

9. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, AUTOMATIC CHEMICAL FEED AND HYDROGEN SULFIDE (H_2S) MONITORING SYSTEM SHALL BE IN OPERATION AND MAINTAINED TO RECORD THE SCRUBBER INLET AND OUTLET H2S CONCENTRATIONS, IN PPMV, EXCEPT DURING SHUTDOWN FOR MAINTENANCE. THE H_2S MONITORING SYSTEM SHALL BE CALIBRATED PERIODICALLY PURSUANT TO MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
[RULE 204]

10. A FLOW METER, INDICATING GALLONS PER MINUTE (GPM) SHALL BE INSTALLED AND MAINTAINED IN THE CHEMICAL SCRUBBING SOLUTION [SODIUM HYDROXIDE (NaOH) AND SODIUM HYPOCHLORITE (NaOCl)] RECIRCULATION LINE FOR EACH OF THE CHEMICAL SCRUBBER. AT LEAST 785 GPM OF CHEMICAL SCRUBBING SOLUTION SHALL BE SUPPLIED TO EACH CHEMICAL SCRUBBER WHEN IT IS IN OPERATION.

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[RULE 204]

11. FOR THE CHEMICAL SCRUBBER(S), A DIFFERENTIAL PRESSURE GAUGE OR OTHER DEVICE SHALL BE INSTALLED AND MAINTAINED TO INDICATE, IN INCHES OF WATER COLUMN, THE DIFFERENTIAL PRESSURE DROP ACROSS THE PACKING MEDIA. DURING NORMAL OPERATION, THE PRESSURE DROP MEASURED ACROSS THE PACKING MEDIA SHALL BE MAINTAINED BETWEEN 1 AND 2 INCHES OF WATER COLUMN, UNLESS OTHERWISE APPROVED BY AQMD. [RULE 204]

12. THE PH OF THE CHEMICAL SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 9 TO 10.5. [RULE 204]

13. WHEN THE AUTOMATIC CHEMICAL FEED AND H_2S MONITORING SYSTEM IS NOT OPERATING, PH OF THE SCRUBBING LIQUID, SCRUBBER SOLUTION RECIRCULATION RATE (GPM), THE SCRUBBER INLET AND OUTLET H_2S CONCENTRATION (PPMV) AND DIFFERENTIAL PRESSURE (INCHES OF WATER COLUMN) ACROSS THE PACKING MEDIA SHALL BE MEASURED AND RECORDED AT LEAST ONCE PER SHIFT.
[RULE 204]

14. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, THE DAILY AVERAGE CONCENTRATION OF SULFUR COMPOUNDS, CALCULATED AS H2S MEASURED AT THE OUTLET OF THE SCRUBBER SHALL NOT EXCEED 1 PPMV.
[RULE 402]

15. WITHIN 60 DAYS AFTER ACHIEVING THE MAXIMUM FOUL AIR FLOW RATE FOR THE ODOR CONTROL (P2-66) FACILITY, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CONDUCT SOURCE TESTS IN ACCORDANCE WITH THE AQMD OR OTHER APPROVED TEST PROCEDURES. A TEST PROTOCOL INCLUDING ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE AQMD, TOXICS AND WASTE MANAGEMENT TEAM, FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF THE TESTS. NOTICE SHALL BE PROVIDED TO THE AQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. THE TESTS SHALL DETERMINE CONTROL EFFICIENCY OF THE AIR POLLUTION CONTROL EQUIPMENT (CHEMICAL SCRUBBERS) AND SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE EMISSIONS TO ATMOSPHERE FOR

A. TOTAL NON-METHANE HYDROCARBONS (NMHC), INLET AND OUTLET (LBS/HR AND PPMV).
B. TOXIC AIR CONTAMINANTS INCLUDING, BUT NOT LIMITED TO, AMMONIA, BENZENE, CHLOROFORM, 1,4 (p)-DICHLOROBENZENE, ETHYL BENZENE, HYDROGEN SULFIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE, STYRENE, TOLUENE, 1,1,1-TRICHLOROETHANE, TRICHLOROETHYLENE, XYLENES, ETC., INLET AND OUTLET, (LBS/HR AND PPMV).
C. CARBON DIOXIDE, OXYGEN AND NITROGEN
D. MOISTURE CONTENT, TEMPERATURE AND FLOW RATE
E. AMMONIA, NMHC, AND HYDROGEN SULFIDE (H2S) CONTROL EFFICIENCY (WT%).
F. METALLIC COMPOUNDS, SUCH AS ARSENIC, BERYLLIUM, CADMIUM, HEXAVALENT CHROMIUM, NICKEL, ETC.

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[RULE 204, 402]

16. SAMPLING PORTS SHALL BE PROVIDED IN THE SCRUBBER EXHAUST STACK, 8-10 DUCT DIAMETERS DOWNSTREAM AND 2 DUCT DIAMETERS UPSTREAM OF ANY FLOW DISTURBANCE. AT EACH LOCATION, TWO SAMPLING PORTS 90 DEGREES APART SHALL BE PROVIDED AND SHALL CONSIST OF 4-INCH WELDED NIPPLES WITH CAPS. SAFETY ACCESS TO THE SAMPLING PORTS SHALL BE PROVIDED BY THE APPLICANT.
[RULE 217]

17. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CALCULATE THE MAXIMUM INDIVIDUAL CANCER RISK (MICR), ACUTE HAZARD INDEX (HIA) AND CHRONIC HAZARD INDEX (HIC), BASED ON THE SOURCE TESTS RESULTS, USING AQMD PUBLISHED "RISK ASSESSMENT PROCEDURES FOR RULES 1401 (RULE VERSION AMENDED MAY 2, 2003) AND 212", VERSION 6.0, AUGUST 18, 2000, TO DETERMINE THE COMPLIANCE WITH RULE 1401. RESULTS SHALL BE SUBMITTED TO AQMD.
[RULE 1401]

18. ALL RECORDS SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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PERMIT TO CONSTRUCT

A/N 519422
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM FOR THE BIOSOLIDS TRUCK LOADING STATION, CONSISTING OF;

1. EXHAUST BLOWER, MAXIMUM 3000 CFM, 15 H. P., VENTING TWO (2) BIOSOLIDS STORAGE SILOS (PART OF THE SLUDGE PROCESSING STATION, PC 453240).

2. ADSORBER, BAY PRODUCTS, SPARROW 3000, 8' DIA. X 7'- 3" H. OVERALL, CONTAINING MINIMUM OF 3800 LBS OF ACTIVATED CARBON (BOTTOM LAYER) AND 1500 LBS OF POTASSIUM PERMANGANATE (KMNO4) IMPREGNATED MEDIA (TOP LAYER). EQUIPPED WITH DIFFERENTIAL PRESSURE GAUGE AND A DEMISTER.

3. EXHAUST STACK, 1' - 6" DIA. X 13' – 6" HIGH ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THIS PERMIT IS ISSUED.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
[RULE 204]

3. THE OPERATOR MAY USE ALTERNATE MEDIA AND AMOUNTS IN ORDER TO OPTIMIZE THE ODOR CONTROL SYSTEM, PROVIDED SUCH ALTERNATE MEDIA AND AMOUNTS ARE GUARANTEED BY THE VENDOR TO MEET THE EMISSION LIMITS IN THIS PERMIT.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. SAMPLING PORTS SHALL BE PROVIDED AT THE INLET AND OUTLET OF THE ODOR CONTROL SYSTEM TO ALLOW COLLECTION/ANALYSIS OF THE INLET FOUL AIR AND TREATED EXHAUST STREAM.
[RULE 204]

6. THE OPERATOR SHALL INSTALL AND MAINTAIN A DIFFERENTIAL PRESSURE GAUGE TO ACCURATELY INDICATE THE DIFFERENTIAL PRESSURE, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.

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[RULE 204]

7. THE OPERATOR SHALL, ON A WEEKLY BASIS, MEASURE AND RECORD THE DIFFERENTIAL PRESSURE DROP, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

8. IN OPERATION, THE PRESSURE DROP MEASURED ACROSS THE MEDIA BED SHALL BE MAINTAINED BETWEEN 4.8 AND 8.4 INCHES OF WATER COLUMN, OR ANOTHER RANGE SPECIFIED BY THE MANUFACTURER. MANUFACTURER'S PRESSURE DROP RANGE SPECIFICATIONS FOR THIS EQUIPMENT SHALL BE KEPT ON FILE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 204]

9. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) AT THE INLET TO ODOR CONTROL SYSTEM SHALL BE MONITORED AND RECORDED ON A WEEKLY BASIS FOR THE FIRST MONTH OF OPERATION, AND MONTHLY THEREAFTER USING COLORIMETRIC H2S TUBES OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

10. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL BE MEASURED AND RECORDED AT LEAST ONCE A WEEK USING COLORIMETRIC H2S TUBES, HANDHELD H2S ANALYZER, OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

11. IN OPERATION, THE HYDROGEN SULFIDE (H2S) CONCENTRATION IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL NOT EXCEED 1.0 PPMV.
[RULE 402, 1401]

12. THE MEDIA IN THE ADSORBER SHALL BE REPLACED WITH MINIMUM AMOUNT (LBS) OF FRESH CARBON MEDIA, AS DESCRIBED UNDER EQUIPMENT DESCRIPTION OR CONDITION NO. 3, WHENEVER NECESSARY TO COMPLY WITH THE CONDITIONS OF THIS PERMIT.
[RULE 204]

13. SPENT MEDIA REMOVED FROM THIS SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
[RULE 402]

14. RECORDS SHALL BE MAINTAINED AS REQUIRED BY THIS PERMIT INCLUDING MEDIA CHANGE OVER DATE(S), QUANTITY, AND VENDOR GUARANTEES FOR COMPLIANCE. THE RECORDS SHALL BE KEPT FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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PERMIT TO CONSTRUCT

A/N 518276
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM, TREATING EXHAUST FROM DISSOLVED AIR FLOATATION THICKENERS (DAFTS), CONSISTING OF:

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS) AND TWO (2) POLYMER MIX TANKS.

2. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH 100 H.P., MAXIMUM 35,000 CFM CAPACITY.

3. HUMIDIFICATION, IN-DUCT, WITH TWELVE (12) SPRAY NOZZLES, AND EQUIPPED WITH HYDROGEN SULFIDE (H2S) ANALYZER.

4. THREE (3) BIOFILTER CELLS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER CELL 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH INLET FOUL-AIR FLOW METERS, SAMPLING PORTS AND SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. A TEMPERATURE INDICATOR SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. THE INLET FOUL AIR TEMPERATURE READINGS, TAKEN ON A MONTHLY BASIS, SHALL BE MAINTAINED IN THE

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RANGE OF EQUIPMENT DESIGN SPECIFICATIONS OR AS PER MANUFACTURER'S RECOMMENDATION, AND WRITTEN SPECIFICATIONS SHALL BE KEPT ON FILE.
[RULE 204]

6. A HYDROGEN SULFIDE (H2S) ANALYZER SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. FOUL-AIR H2S CONCENTRATION (PPMV) SHALL BE MONITORED ON A MONTHLY BASIS AND RESULTS RECORDED. WHEN H2S ANALYZER IS NOT OPERATING, COLORIMETRIC H2S TUBES, HAND HELD H2S ANALYZERS OR ANY OTHER DISTRICT APPROVED METHODS SHALL BE USED FOR H2S MONITORING.
[RULE 204]

7. FOUL-AIR FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO EACH BIOFILTER.
[RULE 204]

8. FOUL-AIR FLOW RATE SHALL BE MONITORED AND RECORDED ON A DAILY BASIS. TOTAL FLOW RATE READING FOR INLET FOUL-AIR TO THREE (3) BIOFILTER CELLS SHALL NOT EXCEED 35, 000 SCFM.
[RULE 402, 1401]

9. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

10. HYDROGEN SULFIDE (H2S) AND AMMONIA (NH_3) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

11. EMISSIONS OF H2S FROM THE BIOFILTER SHALL NOT EXCEED 0.0175 LB/HR (93 PPBV AT THE SURFACE AT 35,000 CFM).
[RULE 204]

12. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

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c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC), H2S AND AMMONIA TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR TNMOCS,

III. THE TESTS SHALL BE CONDUCTED AND A WRITTEN REPORT SUBMITTED TO THE SCAQMD WITHIN 60 DAYS AT MAXIMUM FOUL-AIR INLET FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP.

[RULE 204, 217, 402, 1401]

13. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS, AREA OF COMPACTION AND/OR CHANNELING THAT NEEDS REPAIR.
[RULE 204]

14. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

15. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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PERMIT TO CONSTRUCT

A/N 545003
Granted as of 6-26-2014

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).

2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.

3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM *35,000 CFM* CAPACITY.

4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.

5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS.
[RULE 204]

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6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

        e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

        f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

        g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

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h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 1, WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

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8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR
      TOTAL NON-METHANE ORGANICS (EXHAUST)
      SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
      TOTAL PARTICULATES (EXHAUST)
      OXIDES OF NITROGEN (EXHAUST)
      CARBON MONOXIDE (EXHAUST)
      OXYGEN
      DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545005
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 2, WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

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ORANGE COUNTY SANITATION DISTRICT

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR
      TOTAL NON-METHANE ORGANICS (EXHAUST)
      SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
      TOTAL PARTICULATES (EXHAUST)
      OXIDES OF NITROGEN (EXHAUST)
      CARBON MONOXIDE (EXHAUST)
      OXYGEN
      DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

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ORANGE COUNTY SANITATION DISTRICT

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546364
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

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7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

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ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

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THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546365
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

3. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546366
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

4. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546367
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

5. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546368
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

6. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

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7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556626
Granted as of 6-26-2014

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

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ORANGE COUNTY SANITATION DISTRICT

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS), AND TRUCK LOADING BAY..

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF:
DIGESTED SLUDGE DEWATERING FACILITY, LOCATED IN A BUILDING, (OCSD PROJECT P2-92)

21. CENTRATE WET WELL.

22. BIOSOLIDS LOADING SLUDGE PUMPS (5)
CENTRIFUGES (5): ANDRITZ SEPARATION, TYPE D7LL OR SIMILAR
CENTRATE PUMPS (2): FAIRBANKS MORSE, MAXIMUM 1474 GPM, 18.5 H.P. OR SIMILAR
CAKE PUMPS (5) - SCHWING BIOSET, MODEL KSP25 V (HD) L, 39 GPM, 150 H.P. OR SIMILAR

23. TWO POLYMER STORAGE TANKS, EACH APPROXIMATELY 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

24. TWO POLYMER AGING TANKS, EACH APPROXIMATELY 5,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

7. AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; FACILITATE OPERATIONS/MAINTENANCE ACTIVITIES OR TO ALLEVIATE SAFETY ISSUES.
[RULE 204, 402]

8. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

10. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

11. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

12. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556627
Granted as of 6-26-2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), CONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL.

2. TWO BLOWERS, ONE STANDBY, HARTZELL SERIES 41 TYPE FA, OR SIMILAR, CAPABLE OF APPROXIMATELY 7500 CFM AT 12" STATIC PRESSURE.

3. WET SCRUBBER, PACKED BED, APPROXIMATELY 4' DIA. X 8' H., WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

4. BIOFILTER, CELL A, B AND C, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH APPROXIMATELY 8' H. INORGANIC ENGINEERED MEDIA, AND AN IRRIGATION SPRAY(S) SYSTEM.

5. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM, DAILY AVERAGE. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDING FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 2 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 1 TO 8.
[RULE 203]

9. WHEN THE EQUIPMENT IS IN OPERATION, THE INLET FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH OF THE SCRUBBING SOLUTION, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED SHALL BE MONITORED AND RECORDED AT LEAST ONCE A DAY FOR THE FIRST MONTH OF OPERATION AND WEEKLY THEREAFTER.
[RULE 203]

10. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY. THE BIOFILTER SURFACE IRRIGATION SYSTEM SHALL BE MAINTAINED IN GOOD OPERATING CONDITION AT ALL TIMES AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 402, 1401]

11. EMISSIONS FROM THIS EQUIPMENT MEASURED IN THE EXHAUST STACK SHALL NOT EXCEED THE FOLLOWING:

HYDROGEN SULFIDE (H2S)	1 PPMV- DAILY AVERAGE
AMMONIA (NH3)	5 PPMV- DAILY AVERAGE

[RULE 402, 1401]

12. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY.
[RULE 402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 203]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557229
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK001, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557230
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK005, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559228
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559229
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559230
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559231
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559232
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 6, 2014
Via electronic submittal

Mr. Gerardo Rios
USEPA – Region IX
Mail Stop A-5-2
75 Hawthorne Blvd.
San Francisco, CA 94105

Re: Proposed Revisions to Title V Permit for Orange County Sanitation District (OCSD), ID# 029110

Dear Mr. Rios,

Enclosed for your 45-day review are the proposed revisions to the Title V Permit for OCSD, sewage treatment plant, located at 22212 Brookhurst Street, Huntington Beach, CA in Orange County. The first revision for the project below results in an emission decrease and therefore is considered a Minor Title V Permit Revision and is not subject to public notice.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25942, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System - Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.

The second revision for the project below results in an increase in emissions and is therefore considered a deminimis significant revision and is not subject to public notice.

We are enclosing the appropriate pages of the proposed Section H which includes the permits as shown below, and the engineering evaluations.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
545003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

This request is being made via electronic submittal in order to facilitate your review. If you have any questions or need additional information, please contact Mr. Gaurang Rawal at (909) 396-2543 or by email at grawal@aqmd.gov.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/
Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: James Herberg, General Manager, OCSD, without enclosures
A/N 545002 - de minimis significant revision
A/N 556625- minor revision

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 2	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 545002 (2)	DATE 4/29/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

TITLE V PERMIT EVALUATION
(De Mimimis Significant Permit Revision)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

Background:
This application 545002 was submitted for Title V permit revision on 11/27/2012. This revision consists of the following two items proposed by the Orange County Sanitation District (OCSD);

1. Proposed changes to the equipment description for clarity and change of conditions to the existing odor control PC issued under A/N 518276, including revised H2S emission limit for the biofilters (3). New application for the odor control is A/N 545003.

2. Two new applications (545004 and 545005) for changing the existing boiler permits (R-D94232 and R-D94235) by retrofitting with new burners to comply with Rule 1146 NOx limits.

This Title V revision application is done in two parts, boiler applications were addressed (October 2013) first due to OCSD's need to go for the construction bids and proceed with the final design.

Odor control A/N 545003 (pending second part of TV Revision) is addressed now as a separate revision but under same revision A/N 545002.

Odor control A/N 545003 is for the change of condition for the existing 518276 PC to revise H2S emission limit and revise equipment description as deemed necessary. There is a net increase in H2S emission (from 93 ppbv to 1 ppmv), this is considered a deminimis significant revision. Please note that H2S is not a hazardous air pollutant (EPA had delisted H2S as HAP and Joint Resolution by Senate and House of Representatives was approved by President on 12-4-91). Compliance with applicable rules and regulations is expected.

Permit evaluation for the odor control equipment for the revised changes to the existing 518276 PC is included in folder for additional information.

Conclusions & Recommendations:

Issue the revised Title V permit, incorporating odor control equipment (Section H), upon completion of 45-day EPA review and commenting period.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 4	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO. 545003 rev.	DATE 4/24/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CAT

PERMIT TO CONSTRUCT EVALUATION
(Change of Condition for 518276 PC)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET (PLANT NO. 2)
HUNTINGTON BEACH, CA 92646-8406

FACILITY ID #: **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 FAX: (714) 962-2591

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).
2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.
3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM 35,000 CFM CAPACITY.
4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.
5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]
3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS.
[RULE 204]

6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

BACKGROUND

On 10/18/2012, Orange County Sanitation District (OCSD) submitted this A/N 545003 for change of conditions to the existing 518276 PC and revise equipment description for clarification. Current permit, 518276 PC is granted an extension until June 7, 2014 and construction is underway.

This application is grouped under TV Revision A/N 545002 that also includes boiler modifications- A/Ns 545004 & 05.

PROCESS DESCRIPTION:

This equipment provides air pollution control of odorous emissions from a portion of the sewage treatment process involving dissolved air floatation thickeners (DAFs).

EMISSIONS:

None, all are assigned to the basic process.

H2S Emission Dispersion AERMOD modeling Analysis and Recommendation:

OCSD has requested for greater than 93 ppbv H2S limit (for current PC) for the biofilter emission and proposed higher H2S limit and submitted dispersion modeling using ISCST3 program.

Planning Rule and Area sources (PRA) staff had reevaluated allowable H2S limit using US EPA designated AERMOD analysis. PRA staff has recommended that each biofilter cell shall not exceed 0.00804 g/s H2S emission (that is equal to maximum 1-hour H2S con. = 41.78 µg/m3 and annual con. = 1.63 µg/m3) which will not exceed the applicable standards (CAAQS).
Additionally, this limit is expected to comply with OEHHA chronic reference exposure level (REL) of 10 µg/m3 (8 ppb).

Modeling staff spent 25 hrs of time for the review (Please see memo dated Sept. 13, 2013 from Elaine Chang (PRA) to Andrew Lee (E & C).

For recommended $\mathbf{H_2S}$ emission = 0.00804 g/s,

Allowable total H2S emissions from biofilters (3) = 0.00804 g/s x 3 cells = 0.0241 g/s
= 0.0241 g/s x 3600/454
= 0.19 lbs H2S/hr, total

H2S, ppmv = $(0.19 \times 10^6 \times 379) / (35000 \times 34 \times 60)$ = **1.0 ppmv H2S** from the entire biofilter surfaces (3) cells, 35000 scfm

RULES EVALUATION:
H2S emission is revised from 93 ppbv to 1 ppmv (condition). Revised HRA analysis with H2S emission= 1 ppmv, 0% control efficiency, 35000 scfm, indicated compliance with Rule 1401 and Rule 402.

Recommendation:
A permit to construct is recommended with proposed conditions listed on page 1- 3.

Note: Upon approval, this PC to be included under Section H, Title V revision, A/N 545002.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545003
Granted as of TBD

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).

2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.

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FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

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FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

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[RULE 430, 402]

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[RULE 204]

Catherine Rodriguez

From: Catherine Rodriguez
Sent: Friday, October 18, 2013 2:32 PM
To: 'R9AirPermits_SC@epamail.epa.gov'
Cc: Gaurang Rawal; Charles Tupac; Andrew Lee; Helen Quintana
Subject: Orange County Sanitation District (OCSD) Huntington Beach Plant 2 (029110) Final Minor
Attachments: ID 029110 OCSD Sewage Treatment Plant Huntington Beach - Plant 2 - Facility Cover Letter with Final Revised Title V Permit ANs 545004 545005 545002.pdf

Facility Name: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach
Facility ID: 029110
Address: 22212 Brookhurst Street, Huntington Beach, CA
Type of Mod: Final Minor
Description: Section H: Permit to Construct and Temporary Permit to Operate

Appl. No.	Equipment	Description
545004	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits
545005	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.

Title V Application #: 545002
Attachments:

1. Facility Cover Letter w/ Final Revised Title V Permit

Catherine Rodriguez
Secretary to
Andrew Lee, P.E.
Sr. AQ Engineering Manager
South Coast AQMD
Energy/Public Services/Waste Mgmt/Terminals-Permitting
Engineering and Compliance Division
21865 Copley Drive
Diamond Bar, CA 91765
(909) 396-2735; crodriguez@aqmd.gov

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

October 17, 2013

Mr. James Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Subject: Minor Revision to Title V Facility Permit
Huntington Beach, Plant 2 (Facility ID 029110)

Dear Mr. Herberg,

Enclosed please find minor revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The draft permit was sent to EPA on August 28, 2013 for review and there were no comments received by the SCAQMD.

The following applications were included under Section H (rev 05) - Permits to Construct and Temporary Permits to Operate.

Appl. No.	Equipment	Description
545004	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.
545005	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.

This permit revision includes Title Page, Table of Contents and Section H. Please review the attached pages carefully. Insert the enclosed pages in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals
Permitting

AYL: CDT: GCR

cc: w/ enclosure
Geraldo Rios, EPA Region IX
Ms. Terry Ahn, Env. Compliance, OCSD
Compliance-SCAQMD
Title V Central File
A/N 545002, Title V Permit Revision

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

FACILITY PERMIT TO OPERATE

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Barry R. Wallerstein, D. Env.
EXECUTIVE OFFICER

By _____ for
Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

TABLE OF CONTENTS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	Permit to Construct Granted On	Equipment Description	Page Number
428804	9/22/2004	ODOR CONTROL UNIT	3
453244	10/19/2006	ODOR CONTROL UNIT	7
519422	6/07/2012	ODOR CONTROL SYSTEM, GRANULAR ACTIVATED CARBON	10
518276	6/07/2012	ODOR CONTROL UNIT, BIOFILTER	12
545004	10/17/2013 (will supersede R-D94235)	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	15
545005	10/17/2013 (will supersede R-D94232)	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	18

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 428804
Granted as of 9/22/2004

Equipment Description:

ODOR CONTROL FACILITY (P2-66) CONSISTING OF:

A. TRUNKLINES ODOR CONTROL SYSTEM:

1. THREE (3) SINGLE STAGE BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (ONE STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED RECIRCULATING PUMPS, AND AN EXHAUST SYSTEM WITH THREE 75 HP BLOWERS (40,000 SCFM TOTAL), TREATING FOUL AIR EXHAUST FROM THE DIVERSION STRUCTURE AND INFLUENT TRUNKLINES, VENTING TO THE 1ST STAGE BIOTRICKLING FILTERS AT THE HEADWORKS ODOR CONTROL FACILITY.

B. HEADWORKS ODOR CONTROL SYSTEM:

1. 1ST STAGE, THIRTEEN (13) BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (THREE ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED PUMPS, AND AN EXHAUST SYSTEM WITH THIRTEEN 75 HP BLOWERS (188,300 SCFM TOTAL), TREATING FOUL AIR FROM HEADWORKS FACILITY AND PRETREATED EXHAUST AIR FROM TRUNKLINE ODOR CONTROL FACILITY VENTING TO THE 2ND STAGE CHEMICAL SCRUBBERS AT THE HEADWORKS ODOR CONTROL FACILITY.

2. 2ND STAGE, EIGHT (8) CHEMICAL SCRUBBERS, IDENTICAL, (TWO ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 48'- 0" H., OVERALL DIMENSIONS, WITH Q-PAC OR TRIPACK TYPE, 10' - 0" H. POLYURETHANE PACKING, A MIST ELIMINATOR, AUTOMATIC CHEMICAL FEED, ASSOCIATED RECIRCULATION PUMPS, AND AN EXHAUST SYSTEM WITH EIGHT 60 HP BLOWERS (188,300 SCFM TOTAL), TREATING EXHAUST AIR FROM 1ST STAGE BIOTRICKLING FILTERS, AND VENTING TO THE ATMOSPHERE.

C. SODIUM HYPOCHLORITE, SODIUM HYDROXIDE AND HYDROCHLORIC ACID STORAGE TANKS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED, UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

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2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3 THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. THIS FACILITY (P2-66) SHALL ONLY TREAT FOUL AIR GENERATED FROM THE DIVERSION STRUCTURE AND TRUNKLINES, GRIT HANDLING BUILDING, BAR SCREEN BUILDING AND CHANNELS, PUMP STATION WET WELL, SCREENINGS WASHING AND LOADING BUILDINGS, GRIT BASINS, PRIMARY SPLITTER BOX, AND INFLUENT PUMP STATION DISCHARGE CHANNEL.
[RULE 402]

6. ALL THE EXHAUST FROM THE BIOTRICKLING FILTERS (TRUNKLINE AND HEADWORKS BIOTRICKLING FILTERS) SHALL BE VENTED TO AND TREATED BY THE FINAL CHEMICAL SCRUBBERS PRIOR TO RELEASE TO THE ATMOSPHERE.
[RULE 402]

7. A SUFFICIENT NUMBER OF BIOTRICKLING (BIOTOWERS) AND CHEMICAL SCRUBBERS SHALL BE IN OPERATION WHEN THE BASIC EQUIPMENT ARE IN OPERATION TO MAINTAIN THE CHEMICAL SCRUBBERS OUTLET H2S CONCENTRATIONS, AS MEASURED BY THE AUTOMATIC CHEMICAL FEED AND H2S MONITORING SYSTEM, LESS THAN THE MAXIMUM OUTLET H2S LIMITS AS SPECIFIED IN CONDITION NO. 14, EXCEPT DURING UNFORESEEN AND ROUTINE MAINTENANCE WORK OR POWER OUTAGE IN THE PLANT THAT REQUIRES THE SCRUBBERS TO BE SHUTDOWN FOR A PERIOD NOT TO EXCEED 10 HOURS PER INCIDENT PER EQUIPMENT AND 50 HOURS PER YEAR PER EQUIPMENT.
[RULE 402]

8. ALL BIOTRICKLING FILTERS AND CHEMICAL SCRUBBERS SHALL BE EQUIPPED WITH INLET AND OUTLET CONTINUOUS HYDROGEN SULFIDE MONITORING SYSTEM (VAPAX UNIT OR EQUIVALENT).
[RULE 204]

9. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, AUTOMATIC CHEMICAL FEED AND HYDROGEN SULFIDE (H_2S) MONITORING SYSTEM SHALL BE IN OPERATION AND MAINTAINED TO RECORD THE SCRUBBER INLET AND OUTLET H2S CONCENTRATIONS, IN PPMV, EXCEPT DURING SHUTDOWN FOR MAINTENANCE. THE H_2S MONITORING SYSTEM SHALL BE CALIBRATED PERIODICALLY PURSUANT TO MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
[RULE 204]

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10. A FLOW METER, INDICATING GALLONS PER MINUTE (GPM) SHALL BE INSTALLED AND MAINTAINED IN THE CHEMICAL SCRUBBING SOLUTION [SODIUM HYDROXIDE (NaOH) AND SODIUM HYPOCHLORITE (NaOCl)] RECIRCULATION LINE FOR EACH OF THE CHEMICAL SCRUBBER. AT LEAST 785 GPM OF CHEMICAL SCRUBBING SOLUTION SHALL BE SUPPLIED TO EACH CHEMICAL SCRUBBER WHEN IT IS IN OPERATION.
[RULE 204]

11. FOR THE CHEMICAL SCRUBBER(S), A DIFFERENTIAL PRESSURE GAUGE OR OTHER DEVICE SHALL BE INSTALLED AND MAINTAINED TO INDICATE, IN INCHES OF WATER COLUMN, THE DIFFERENTIAL PRESSURE DROP ACROSS THE PACKING MEDIA. DURING NORMAL OPERATION, THE PRESSURE DROP MEASURED ACROSS THE PACKING MEDIA SHALL BE MAINTAINED BETWEEN 1 AND 2 INCHES OF WATER COLUMN, UNLESS OTHERWISE APPROVED BY AQMD.
[RULE 204]

12. THE PH OF THE CHEMICAL SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 9 TO 10.5.
[RULE 204]

13. WHEN THE AUTOMATIC CHEMICAL FEED AND H_2S MONITORING SYSTEM IS NOT OPERATING, PH OF THE SCRUBBING LIQUID, SCRUBBER SOLUTION RECIRCULATION RATE (GPM), THE SCRUBBER INLET AND OUTLET H_2S CONCENTRATION (PPMV) AND DIFFERENTIAL PRESSURE (INCHES OF WATER COLUMN) ACROSS THE PACKING MEDIA SHALL BE MEASURED AND RECORDED AT LEAST ONCE PER SHIFT.
[RULE 204]

14. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, THE DAILY AVERAGE CONCENTRATION OF SULFUR COMPOUNDS, CALCULATED AS H2S MEASURED AT THE OUTLET OF THE SCRUBBER SHALL NOT EXCEED 1 PPMV.
[RULE 402]

15. WITHIN 60 DAYS AFTER ACHIEVING THE MAXIMUM FOUL AIR FLOW RATE FOR THE ODOR CONTROL (P2-66) FACILITY, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CONDUCT SOURCE TESTS IN ACCORDANCE WITH THE AQMD OR OTHER APPROVED TEST PROCEDURES. A TEST PROTOCOL INCLUDING ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE AQMD, TOXICS AND WASTE MANAGEMENT TEAM, FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF THE TESTS. NOTICE SHALL BE PROVIDED TO THE AQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. THE TESTS SHALL DETERMINE CONTROL EFFICIENCY OF THE AIR POLLUTION CONTROL EQUIPMENT (CHEMICAL SCRUBBERS) AND SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE EMISSIONS TO ATMOSPHERE FOR

    A. TOTAL NON-METHANE HYDROCARBONS (NMHC), INLET AND OUTLET (LBS/HR AND PPMV).
    B. TOXIC AIR CONTAMINANTS INCLUDING, BUT NOT LIMITED TO, AMMONIA, BENZENE, CHLOROFORM, 1,4 (p)-DICHLOROBENZENE, ETHYL BENZENE, HYDROGEN SULFIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE, STYRENE, TOLUENE, 1,1,1-TRICHLOROETHANE, TRICHLOROETHYLENE, XYLENES, ETC., INLET AND OUTLET, (LBS/HR AND PPMV).

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C. CARBON DIOXIDE, OXYGEN AND NITROGEN
D. MOISTURE CONTENT, TEMPERATURE AND FLOW RATE
E. AMMONIA, NMHC, AND HYDROGEN SULFIDE (H2S) CONTROL EFFICIENCY (WT%).
F. METALLIC COMPOUNDS, SUCH AS ARSENIC, BERYLLIUM, CADMIUM, HEXAVALENT CHROMIUM, NICKEL, ETC.

[RULE 204, 402]

16. SAMPLING PORTS SHALL BE PROVIDED IN THE SCRUBBER EXHAUST STACK, 8-10 DUCT DIAMETERS DOWNSTREAM AND 2 DUCT DIAMETERS UPSTREAM OF ANY FLOW DISTURBANCE. AT EACH LOCATION, TWO SAMPLING PORTS 90 DEGREES APART SHALL BE PROVIDED AND SHALL CONSIST OF 4-INCH WELDED NIPPLES WITH CAPS. SAFETY ACCESS TO THE SAMPLING PORTS SHALL BE PROVIDED BY THE APPLICANT.
[RULE 217]

17. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CALCULATE THE MAXIMUM INDIVIDUAL CANCER RISK (MICR), ACUTE HAZARD INDEX (HIA) AND CHRONIC HAZARD INDEX (HIC), BASED ON THE SOURCE TESTS RESULTS, USING AQMD PUBLISHED "RISK ASSESSMENT PROCEDURES FOR RULES 1401 (RULE VERSION AMENDED MAY 2, 2003) AND 212", VERSION 6.0, AUGUST 18, 2000, TO DETERMINE THE COMPLIANCE WITH RULE 1401. RESULTS SHALL BE SUBMITTED TO AQMD.
[RULE 1401]

18. ALL RECORDS SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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PERMIT TO CONSTRUCT

A/N 453244
Granted as of 10/19/2006

Equipment Description:

AIR POLLUTION CONTROL SYSTEM, CONSISTING OF;

1. FOUL AIR EXHAUST DUCTS FROM THREE (3) TRICKLING FILTERS, TRICKLING FILTER FACILITY'S (JOB NO. P2-90), IN PARALLEL.

2. THREE (3) EXHAUST BLOWERS, IN PARALLEL, EACH 11,000 SCFM, 25 H.P.

3. THREE (3) CAUSTIC IMPREGNATED ACTIVATED CARBON UNITS, IN PARALLEL, EACH CONTAINING MINIMUM OF 10,600 LBS OF ACTIVATED CARBON BY NORIT AMERICAS OR WESTATES OR EQUIVALENT, EACH VENTING A SINGLE TRICKLING FILTER.

4. THREE (3) EXHAUST STACKS, EACH 2.0'- 3" DIA. X 28' HIGH, AND WITH H2S MONITORING PROVISION.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THIS PERMIT IS ISSUED.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
[RULE 204]

3. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

4. IDENTIFICATION TAG (S) OR NAMEPLATE (S) SHALL BE DISPLAYED ON THE EQUIPMENT TO SHOW MANUFACTURER MODEL NO. AND SERIAL NO. THE TAG (S) OR PLATE (S) SHALL BE ISSUED BY THE MANUFACTURER AND SHALL BE AFFIXED TO THE EQUIPMENT IN A PERMANENT AND CONSPICUOUS POSITION.
[RULE 204]

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5. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO EACH OF THE CARBON UNIT TO INDICATE THE TOTAL FOUL AIR EXHAUST FROM THE TRICKLING FILTER TREATED, IN STANDARD CUBIC FEET PER MINUTE (SCFM). IN CASE A PRESSURE SENSOR DEVICE IS USED TO DETERMINE FLOW RATE, IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDENT FLOW RATE, IN SCFM, TO THE PRESSURE READING.
[RULE 204]

6. MAXIMUM FOUL AIR EXHAUST FLOW RATE FROM EACH TRICKLING FILTER TO BE TREATED BY EACH CARBON UNIT SHALL NOT EXCEED 11,000 SCFM.
[RULE 204, 402, 1401]

7. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE PRESSURE ACROSS THE CARBON BED IS LESS THAN 6.0 INCHES WATER COLUMN. TO COMPLY WITH THIS CONDITION THE OPERATOR SHALL INSTALL AND MAINTAIN A DIFFERENTIAL PRESSURE GAUGE TO ACCURATELY INDICATE THE DIFFERENTIAL PRESSURE ACROSS THE CARBON BED. THE OPERATOR SHALL DETERMINE AND RECORD THE PARAMETER BEING MONITORED ONCE EVERY WEEK.
[RULE 1303 (a) (1)-BACT]

8. WITHIN 60 DAYS AFTER STEADY STATE FLOW RATE FOR THE AIR POLLUTION CONTROL (APC) SYSTEM, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CONDUCT SOURCE TESTS FOR EACH OF THE APC SYSTEM TO DETERMINE EMISSIONS, IN ACCORDANCE WITH THE AQMD OR OTHER APPROVED TEST PROCEDURES. A TEST PROTOCOL INCLUDING ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE AQMD, REFINERY AND WASTE MANAGEMENT TEAM, FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF THE TESTS. NOTICE SHALL BE PROVIDED TO THE AQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. THE TESTS SHALL DETERMINE THE EMISSIONS TO ATMOSPHERE FROM EACH OF THE APC SYSTEM FOR:

   A. TOTAL NON-METHANE HYDROCARBONS (TNMHC) AND TOXIC AIR CONTAMINANTS (TAC) PRESENT, (LBS/HR AND PPMV).
   B. AMMONIA, (LBS/HR AND PPMV).
   C. HYDROGEN SULFIDE (H2S), (LBS/HR AND PPMV).
   D. CARBON DIOXIDE, OXYGEN AND NITROGEN
   E. MOISTURE CONTENT, TEMPERATURE AND EXHAUST FLOW RATE.

[RULE 204, 1401]

9. WHENEVER THE CARBON UNIT IS IN OPERATION THE HYDROGEN SULFIDE (H2S) CONCENTRATION IN THE EXHAUST SHALL BE MONITORED USING AN AUTOMATIC H2S MONITORING DEVICE OR MEASURED MANUALLY AT LEAST ONCE A SHIFT USING AN APPROVED AND CALIBRATED INSTRUMENT. DAILY AVERAGE H2S MEASUREMENT READINGS SHALL BE RECORDED AND MAINTAINED ON FILE.
[RULE 402, 1401]

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10. THE DAILY AVERAGE HYDROGEN SULFIDE (H2S) CONCENTRATION MEASURED IN THE EXHAUST FOR EACH OF THE CARBON UNIT SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

11. WHENEVER THE AVERAGE HYDROGEN SULFIDE (H2S) CONCENTRATION IS 0.9 PPMV OR HIGHER, THEN IMMEDIATE CORRECTIVE MEASURES SHALL BE TAKEN, INCLUDING FRESH ACTIVATED CARBON REPLACEMENT AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. THE OPERATOR SHALL RECORD THE DATE AND QUANTITY OF CARBON AT EACH REPLACEMENT EVENT.
[RULE 204]

12. SPENT CARBON REMOVED FROM THIS SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
[RULE 402]

13. RECORDS SHALL BE MAINTAINED AS REQUIRED BY THIS PERMIT FOR COMPLIANCE. THE RECORDS SHALL BE KEPT FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
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PERMIT TO CONSTRUCT

A/N 519422
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM FOR THE BIOSOLIDS TRUCK LOADING STATION, CONSISTING OF;

1. EXHAUST BLOWER, MAXIMUM 3000 CFM, 15 H. P., VENTING TWO (2) BIOSOLIDS STORAGE SILOS (PART OF THE SLUDGE PROCESSING STATION, PC 453240).

2. ADSORBER, BAY PRODUCTS, SPARROW 3000, 8' DIA. X 7'- 3" H. OVERALL, CONTAINING MINIMUM OF 3800 LBS OF ACTIVATED CARBON (BOTTOM LAYER) AND 1500 LBS OF POTASSIUM PERMANGANATE (KMNO4) IMPREGNATED MEDIA (TOP LAYER). EQUIPPED WITH DIFFERENTIAL PRESSURE GAUGE AND A DEMISTER.

3. EXHAUST STACK, 1' - 6" DIA. X 13' – 6" HIGH ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THIS PERMIT IS ISSUED.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
[RULE 204]

3. THE OPERATOR MAY USE ALTERNATE MEDIA AND AMOUNTS IN ORDER TO OPTIMIZE THE ODOR CONTROL SYSTEM, PROVIDED SUCH ALTERNATE MEDIA AND AMOUNTS ARE GUARANTEED BY THE VENDOR TO MEET THE EMISSION LIMITS IN THIS PERMIT.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. SAMPLING PORTS SHALL BE PROVIDED AT THE INLET AND OUTLET OF THE ODOR CONTROL SYSTEM TO ALLOW COLLECTION/ANALYSIS OF THE INLET FOUL AIR AND TREATED EXHAUST STREAM.
[RULE 204]

6. THE OPERATOR SHALL INSTALL AND MAINTAIN A DIFFERENTIAL PRESSURE GAUGE TO ACCURATELY INDICATE THE DIFFERENTIAL PRESSURE, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

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7. THE OPERATOR SHALL, ON A WEEKLY BASIS, MEASURE AND RECORD THE DIFFERENTIAL PRESSURE DROP, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

8. IN OPERATION, THE PRESSURE DROP MEASURED ACROSS THE MEDIA BED SHALL BE MAINTAINED BETWEEN 4.8 AND 8.4 INCHES OF WATER COLUMN, OR ANOTHER RANGE SPECIFIED BY THE MANUFACTURER. MANUFACTURER'S PRESSURE DROP RANGE SPECIFICATIONS FOR THIS EQUIPMENT SHALL BE KEPT ON FILE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 204]

9. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) AT THE INLET TO ODOR CONTROL SYSTEM SHALL BE MONITORED AND RECORDED ON A WEEKLY BASIS FOR THE FIRST MONTH OF OPERATION, AND MONTHLY THEREAFTER USING COLORIMETRIC H2S TUBES OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

10. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL BE MEASURED AND RECORDED AT LEAST ONCE A WEEK USING COLORIMETRIC H2S TUBES, HANDHELD H2S ANALYZER, OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

11. IN OPERATION, THE HYDROGEN SULFIDE (H2S) CONCENTRATION IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL NOT EXCEED 1.0 PPMV.
[RULE 402, 1401]

12. THE MEDIA IN THE ADSORBER SHALL BE REPLACED WITH MINIMUM AMOUNT (LBS) OF FRESH CARBON MEDIA, AS DESCRIBED UNDER EQUIPMENT DESCRIPTION OR CONDITION NO. 3, WHENEVER NECESSARY TO COMPLY WITH THE CONDITIONS OF THIS PERMIT.
[RULE 204]

13. SPENT MEDIA REMOVED FROM THIS SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
[RULE 402]

14. RECORDS SHALL BE MAINTAINED AS REQUIRED BY THIS PERMIT INCLUDING MEDIA CHANGE OVER DATE(S), QUANTITY, AND VENDOR GUARANTEES FOR COMPLIANCE. THE RECORDS SHALL BE KEPT FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

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PERMIT TO CONSTRUCT

A/N 518276
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM, TREATING EXHAUST FROM DISSOLVED AIR FLOATATION THICKENERS (DAFTS), CONSISTING OF:

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS) AND TWO (2) POLYMER MIX TANKS.

2. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH 100 H.P., MAXIMUM 35,000 CFM CAPACITY.

3. HUMIDIFICATION, IN-DUCT, WITH TWELVE (12) SPRAY NOZZLES, AND EQUIPPED WITH HYDROGEN SULFIDE (H2S) ANALYZER.

4. THREE (3) BIOFILTER CELLS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER CELL 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH INLET FOUL-AIR FLOW METERS, SAMPLING PORTS AND SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. A TEMPERATURE INDICATOR SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. THE INLET FOUL AIR TEMPERATURE READINGS, TAKEN ON A MONTHLY BASIS, SHALL BE MAINTAINED IN THE

RANGE OF EQUIPMENT DESIGN SPECIFICATIONS OR AS PER MANUFACTURER'S RECOMMENDATION, AND WRITTEN SPECIFICATIONS SHALL BE KEPT ON FILE.
[RULE 204]

6. A HYDROGEN SULFIDE (H2S) ANALYZER SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. FOUL-AIR H2S CONCENTRATION (PPMV) SHALL BE MONITORED ON A MONTHLY BASIS AND RESULTS RECORDED. WHEN H2S ANALYZER IS NOT OPERATING, COLORIMETRIC H2S TUBES, HAND HELD H2S ANALYZERS OR ANY OTHER DISTRICT APPROVED METHODS SHALL BE USED FOR H2S MONITORING.
[RULE 204]

7. FOUL-AIR FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO EACH BIOFILTER.
[RULE 204]

8. FOUL-AIR FLOW RATE SHALL BE MONITORED AND RECORDED ON A DAILY BASIS. TOTAL FLOW RATE READING FOR INLET FOUL-AIR TO THREE (3) BIOFILTER CELLS SHALL NOT EXCEED 35, 000 SCFM.
[RULE 402, 1401]

9. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

10. HYDROGEN SULFIDE (H2S) AND AMMONIA (NH_3) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

11. EMISSIONS OF H2S FROM THE BIOFILTER SHALL NOT EXCEED 0.0175 LB/HR (93 PPBV AT THE SURFACE AT 35,000 CFM).
[RULE 204]

12. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

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c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC), H2S AND AMMONIA TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR TNMOCS,

III. THE TESTS SHALL BE CONDUCTED AND A WRITTEN REPORT SUBMITTED TO THE SCAQMD WITHIN 60 DAYS AT MAXIMUM FOUL-AIR INLET FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP.

[RULE 204, 217, 402, 1401]

13. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS, AREA OF COMPACTION AND/OR CHANNELING THAT NEEDS REPAIR.
[RULE 204]

14. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

15. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 1 WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545005
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 2 WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

N S R D A T A S U M M A R Y S H E E T

Application No:	545002
Application Type:	Minor permit revision
Application Status:	PENDAPPRV
Previous Apps,Dev,Permit #:	NONE

Company Name:	ORANGE COUNTY SANITATION DISTRICT
Company ID:	29110
Address:	22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM:	NO
RECLAIM Zone:	01
Air Basin:	SC
Zone:	18
Title V:	YES

Device ID:	0 - TITLE-V
Estimated Completion Date:	
Heat Input Capacity:	0 Million BTU/hr
Priority Reserve:	NONE - No Priority Access Requested
Recommended Disposition:	32 - BANKING/ PLAN GRANTED
PR Expiration:	
School Within 1000 Feet:	NO
Operating Weeks Per Year:	52
Operating Days Per Week:	5
Monday Operating Hours:	08:00 to 16:00
Tuesday Operating Hours:	08:00 to 16:00
Wednesday Operating Hours:	08:00 to 16:00
Thursday Operating Hours:	08:00 to 16:00
Friday Operating Hours:	08:00 to 16:00
Saturday Operating Hours:	00:00 to 00:00
Sunday Operating Hours:	00:00 to 00:00

Emittant:	ROG
BACT:	
Cost Effectiveness:	NO
Source Type:	MINOR
Emis Increase:	0
Modeling:	N/A
Public Notice:	N/A
CONTROLLED EMISSION	
Max Hourly:	0 lbs/hr
Max Daily:	0 lbs/day
UNCONTROLLED EMISSION	
Max Hourly:	0 lbs/hr
Max Daily:	0 lbs/day
CURRENT EMISSION	
BACT 30 days Avg:	0 lbs/day
Annual Emission:	0 lbs/yr
District Exemption:	None

SUPERVISOR'S APPROVAL: _____ SUPERVISOR'S REVIEW DATE: _____

Processed By: charlest 8/28/2013 2:34:50 PM

Catherine Rodriguez

From: Catherine Rodriguez
Sent: Wednesday, August 28, 2013 4:01 PM
To: 'R9AirPermits_SC@epamail.epa.gov'
Cc: Gaurang Rawal; Charles Tupac; Andrew Lee; Helen Quintana
Subject: Orange County Sanitation District -Sewage Treatment Plant Huntington Beach (029110) Proposed Minor
Attachments: ID 029110 OCSD Sewage Treatment Plant Huntington Beach - EPA Cover Letter ANs 545004 545005 545002.pdf; ID 029110 OCSD Sewage Treatment Plant Huntington Beach - Proposed Title V Permit ANs 545004 545005 545002.pdf; ID 029110 OCSD Sewage Treatment Plant Huntington Beach - Engr Eval ANs 545004 545005.pdf; ID 029110 OCSD Sewage Treatment Plant Huntington Beach - Engr Eval AN 545002.pdf

Facility Name: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach
Facility ID: 029110
Address: 22212 Brookhurst Street, Huntington Beach, CA
Type of Mod: Proposed Minor
Description: Section H: Permit to Construct and Temporary Permit to Operate

Appl. No.	Equipment	Description
545004	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits
54005	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.

Title V Application #: 545002
Attachments:

1. EPA Cover Letter
2. Proposed Permits
3. Engr Evals

Please contact me if there are any problems with the transmission of the attached files
Thank you.
Catherine

Catherine Rodriguez
Secretary to
Andrew Lee, P.E.
Sr. AQ Engineering Manager
South Coast AQMD
Energy/Public Services/Waste Mgmt/Terminals-Permitting
Engineering and Compliance Division
21865 Copley Drive
Diamond Bar, CA 91765
(909) 396-2735; crodriguez@aqmd.gov

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

August 28, 2013
Via electronic submittal

Mr. Gerardo Rios
USEPA – Region IX
Mail Stop A-5-2
75 Hawthorne Blvd.
San Francisco, CA 94105

Dear Mr. Rios,

Proposed Minor Revision to Title V Permit for Orange County Sanitation District (OCSD), ID# 29110

Enclosed for your review is the proposed revision, submitted under A/N 545002, to the Title V Permit for OCSD, located at 22212 Brookhurst Street, Huntington Beach, CA in Orange County. This revision is considered to be a minor permit revision. We are enclosing the appropriate pages of the proposed permit (Section H), which includes the permits as shown below, and the engineering evaluation.

SECTION H: Permit to Construct and Temporary Permit to Operate

Appl. No.	Equipment	Description
545004	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.
545005	Boiler, digester gas and natural gas	Retrofit with a new burner to comply with Rule 1146 NOx emissions limits.

This request is being made via electronic submittal in order to facilitate your review. If you have any questions or need additional information, please contact Mr. Gaurang Rawal at (909) 396-2543 or by email at grawal@aqmd.gov.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: James Herberg, General Manager, OCSD, without enclosures
A/N 545002 – T V Permit Revision

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	*Permit to Construct* Granted On	Equipment Description	Page Number
428642	9/22/2004	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	3
428804	9/22/2004	ODOR CONTROL UNIT	6
453240	10/19/2006	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	10
453244	10/19/2006	ODOR CONTROL UNIT	15
519422	6/07/2012	ODOR CONTROL SYSTEM, GRANULAR ACTIVATED CARBON	18
518276	6/07/2012	ODOR CONTROL UNIT, BIOFILTER	20
545004	TBD, will supersede R-D94235	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	23
545005	TBD, will supersede R-D94232	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	26

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of TBD

Equipment Description:
MODIFICATION TO BOILER, NO. 1 WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

      THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
      [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

PERMIT TO CONSTRUCT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

A/N 545005
Granted as of TBD

Equipment Description:
MODIFICATION TO BOILER, NO. 2 WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)
      OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
      CARBON MONOXIDE (EXHAUST) (EACH FUEL)
      OXYGEN (EACH FUEL)
      DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER HOUR
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO:	2000 PPMV, RULE 407
CO:	400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	30 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx:	15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx:	9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM:	RULE 404, SEE APPENDIX B.
PM:	0.1 gr/scf, RULE 409
SO2:	500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2s:	40 PPMV TOTAL SULFUR, DIGESTER GAS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 2	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 545002	DATE 8/23/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CDT

TITLE V PERMIT EVALUATION
(Minor Permit Revision)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

Background:
This application 545002 was submitted for Title V permit revision on 11/27/2012. This revision consists of the following two items proposed by the Orange County Sanitation District (OCSD);

1. Proposed changes to the equipment description for clarity and change of conditions to the existing odor control PC issued under A/N 518276, including revised H2S emission limit for the biofilters (3). New application for the odor control is A/N 545003.

2. Two new applications (545004 and 545005) for changing the existing boiler permits (R-D94232 and R-D94235) by retrofitting with new burners to comply with Rule 1146 NOx limits.

This revision application will be done in two parts, boiler applications are addressed first due to OCSD's need to go for the construction bids and proceed with the final design. Odor control A/N 545003 will be handled in a separate revision but under same revision A/N 545002.

Please refer to the boilers evaluations included in folder. The changes result in no emission increase due to the slightly lower burner rating, and lower NOx guarantee. Additionally, the applicant has provided information regarding the costs of the project which demonstrate that the changes are not Reconstruction, as defined in Part 63. As such, and according to Rule 3000 (b)(15), a MINOR PERMIT REVISION means any Title V permit revision that:
(A) (i) does not require or change a case-by-case evaluation of:
reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or
maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;
(ii) does not violate a regulatory requirement;
(iii) does not require any significant change in monitoring terms or conditions in the permit;
(iv) does not require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit;
(v) does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process;

(vi) does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant;
(vii) does not result in an increase in GHG emissions of >75,000 tpy CO2e;
(viii) does not establish or change a permit condition that the facility has assumed to avoid an applicable requirement;
(ix) is not an installation of a new permit unit subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; and,
(x) is not a modification or reconstruction of an existing permit unit, resulting in new or additional NSPS requirements pursuant to 40 CFR Part 60, or new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
(B) incorporates an existing general permit, as defined in subdivision (e) of Rule 3004, and its associated requirements, into another Title V permit.

Conclusions & Recommendations:
Issue the revised Title V permit, incorporating two boiler permits (Section D), upon completion of 45-day EPA review and commenting period.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 7	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL. NOs. 545004 rev 545005 rev	DATE 8/20/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CDT

PERMIT TO CONSTRUCT EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

EQUIPMENT DESCRIPTION: (A/N 545004, 545005)

BOILER, NO. 1, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092869, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

BOILER, NO. 2, CLEAVER BROOKS, FIRE TUBE TYPE, MODEL CB700-250, SERIAL NO. L-092868, 10,205,800 BTU PER HOUR, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL) FIRED WITH LO-NOx BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, NATURAL GAS PILOT, FLUE GAS RECIRCULATION (FGR) SYSTEM AND OXYGEN TRIM.

Conditions: (A/N 545004, 545005)

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
   [RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1146, RULE 1303 (b) (2) – OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT FOR FUEL USAGE, AND INDICATING FOR DIGESTER GAS THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (2) – OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 204]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 204]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, UNLESS OTHERWISE APPROVED, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.
   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.
   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.
   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.
   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR (EACH FUEL)
      TOTAL NON-METHANE ORGANICS (EXHAUST) (DIGESTER GAS)
      TOTAL PARTICULATES (PM10) (EXHAUST) (DIGESTER GAS)

OXIDES OF NITROGEN (EXHAUST) (EACH FUEL)
CARBON MONOXIDE (EXHAUST) (EACH FUEL)
OXYGEN (EACH FUEL)
DIGESTER GAS BTU (HHV) AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
SCAQMD – ATTN. GAURANG RAWAL
ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a) (1) - BACT, 1303(b) (2) - OFFSET, RULE 3004 (a)(4)- PERIODIC MONITORING]

Emissions And Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOX: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/1/2015)

NOX: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOX: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS-RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 GR/SCF, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

BACKGROUND:

On 11/27/12, Orange County Sanitation District (OCSD) submitted the following applications;

A/N 545002 Title V Revision
A/N 545003 Change of permit conditions (and equipment description revision) to current PC 518276 for odor control system (Biofilters) to treat exhaust from the DAFTs.
A/N 545004 Alteration/modification to existing boiler (R-D94235, A/N 291030) to comply with Rule 1146 NOx emission limit.
A/N 545005 Alteration/modification to existing boiler (R-D94232, A/N 291031) to comply with Rule 1146 NOx emission limit. (This is identical equipment to 545004).

Based on 2012 Yr. reported emissions for formaldehyde, the facility is considered a major source for Hazardous Air Pollutants (HAP).

PROCESS DESCRIPTION:

The existing identical boilers are designed to operate on a digester gas (primary fuel) and natural gas (as secondary or standby fuel) to generate steam used in the anaerobic digestion process. These boilers are to be modified with new burners to meet Rule 1146 compliance emission limit for NOx. The new burner is rated at 10,250,800 Btu/hr as compared to existing burner rated at 10.46 MMBTU/hr (2% reduction in heat input rating). The boilers are also being rehabilitated with new ancillary feed water pipes, makeup water pipes, steam pipes, feedwater tank, feedwater pump and motor, and new natural gas and digester gas trains.

EMISSIONS:

Rated Heat input = 10,205,800 Btu/hr
Digester gas, HHV = approx 600 Btu/ft^3
Digester gas, scfm = 10,205,800 Btu/hr /600 Btu/ft^3 x 1hr/60 min = 283.5 scfm
Natural gas, scfm = 10,205,800 Btu/hr /1050 Btu/ft^3 x 1hr/60 min = 162 scfm

Exhaust flow rate (DG) = 3317 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3317 x (460+60=520)/ (460+350=810) = 2129 dscfm at 3% O2
Exhaust flow rate (NG) = 3070 cfm, 350 deg F, 3% O2 (dry) - per burner mfr., email 4-19-13
= 3070 x (460+60=520)/ (460+350=810) = 1971 dscfm at 3% O2

Check:
Exhaust Flow Rate (NG) = 8710 dscfm/mmbtu, 3% O2, 162 scfm = 1737.8 dscfm at 3% O2

The larger flows will be used to be conservative.

NOx (DG) = (2129 dscfm) (**15** E-06) (1/379) (46) (60) = **0.23 lbs NOx/hr** = 5.52 lbs NOx /day
CO (DG) = (2129 dscfm) (**400** E-06) (1/379) (28) (60) = **3.77 lbs CO/hr** = 90.6 lbs CO/day

NOx (NG) = (1971 dscfm) (**9** E-06) (1/379) (46) (60) = 0.13 lbs NOx/hr = 3.12 lbs NOx /day
CO (NG) = (1971 dscfm) (**400** E-06) (1/379) (28) (60) = 3.49 lbs CO/hr = 83.76 lbs CO/day

Pollutant	EF* Lbs/mmcf	Max. Emissions lbs/hr ($R_1 = R_2$)	lbs/day
CO		3.77+	90.6
NOx		0.23+	5.52
PM= PM_{10}	7.5	0.1276	3.06
ROG	6	0.11	2.6
		(R1= 5.5at 98% DRE)	
SOx	3.5	0.06	1.4

*EF from AQMD Emissions Fees Report/400-E-9
+ Calculated, using DG fuel and burner guarantee/Rule 1146

Maximum Emissions:

Post Modification

Pollutant	Lbs/hr	Lbs/day
CO	3.77	90.6
NOx	0.23	5.52 (3.1 WITH NATURAL GAS)
PM10	0.13	3.1
ROG	0.11	2.6
SOx	0.06	1.4

Pre-Modification

Pollutant	Lbs/hr	Lbs/day
CO	7	168
NOx	0.86	20.6
PM10	0.13	3.1
ROG	0.13	3.1
SOx	0.32	7.7

RULES EVALUATION:

Rule 212: This is not a significant project and there is no school within 1000' of the emission source. Proposed modification is the replacement of existing burner (10.46 MMBTU/hr to a reduced rating (10.205 MMBTU/hr), resulting in net emissions reduction and reduced cancer risk. No public notice is required. Compliance is expected.

Rule 401, 402, 404, 407, and 409: Compliance is expected based on other permitted boilers fired with DG and natural gas.

Rule 431.1: Digester gas is expected to have < 40 ppmv total sulfur as H2S. Facility has an approved alternative monitoring plan. Compliance is expected.

Rule 1146: Boiler emission controls will be designed for NOx at 15ppmv and 9 ppmv, 3% O2, using DG and NG, respectively. Proposed new burner is a low-NOx burner. Boiler retains FGR and O2 trim. Condition is imposed for such limit for the respective fuel, at 3% O2. Rule CO limit =400 ppmv. Rule 1146 (c)(1) (D), Table 1146-1 (Amended Sept. 5, 2008) requires compliance with 15 ppmv NOx, at 3% O2, by January 2015. Also, Group III units (NG) must meet 9 ppmv by same date. Compliance can be determined upon receipt of the S /T results.

REG. XIII: A modification to a permit unit (source) is covered by this regulation, however, Since the new burners will result in no emission increase, there are no BACT, Modeling, or Offset requirements.

Rule 1401: Exempt per R1401 (g) (1) (B), for modification with reduced emissions, hence, reduced cancer risk, HIA and HIC indices.

REG. XXX: Title V Permits

Compliance with Reg. XXX is expected. A/N 545002 for Title V revision is submitted. For this minor revision no public notice is required but subject to 45-day EPA review. Approved boiler permit will be included under Title V revision.

40CFR Part 60 (Regulation IX of SCAQMD Rules)

- **Subpart D** of 40 CFR Part 60 - New Source Performance Standards for Fossil Fuel Fired Steam Generators constructed after August 17, 1971
- **Subpart Da** of 40 CFR Part 60 - New Source Performance Standards for Electric Utility Steam Generating Units constructed after September 18, 1978
- **Subpart Db** of 40 CFR Part 60 - New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units constructed after June 19, 1984
- **Subpart Dc** of 40 CFR Part 60 - New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units constructed after June 9, 1989

These boilers were constructed after June 9, 1989 (actually in 1994), and therefore subject to Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

§ 60.40c - Applicable for this boiler (heat input >10 mmbtu/hr and <= 100 mmbtuh).
§ **60.42c - 60.47c** – Emission limits, testing, monitoring for Sox and PM are not applicable to this equipment which only burn digester gas and natural gas.
§ 60.48c – Initial notification only.

Since the initial notification requirement is a prior requirement, no specific Dc permit conditions will be imposed.

National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR part 63 subpart DDDDD for Industrial, Commercial, and Institutional and Process Heaters
The facility is a Major Source for hazardous air pollutants (HAPs) based on toxic pollutants' emissions reported for the year 2012, as Formaldehyde emission was 25, 480 lbs/yr (12.74 TPY > 10 TPY, definition for HAP major source). OCSD confirmed reported formaldehyde emissions, email of 7/17/13.

The boiler is subject to subpart DDDDD compliance requirements, initial notification only:

- Boiler can be classified as an Industrial boiler used for processing or used in an industry to provide steam, hot water, and/or electricity.
- It is designed to burn gas 1 fuels; means a gaseous fuel that is not natural gas or refinery gas and does not exceed a maximum concentration of 40 micrograms/cubic meters of mercury.
- It meets the large gaseous fuel subcategory.
- **Per § 63.7500 (e)**, boilers and process heaters in the units designed to burn gas 1 fuels subcategory **are not subject to** the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart.
- **Per § 63.7506 (b)(1),** Existing large gaseous fuel unit are subject only to initial notification (i.e., not subject to emission limits, work practice standards, performance testing, monitoring, SSMP, plans, recordkeeping, or reporting).

Since the initial notification requirement is a prior requirement, no specific DDDDD permit conditions will be imposed

CONCLUSION/RECOMMENDATION:
The above boiler is expected to comply with all applicable AQMD's Rules and Regulations. A Permit to Construct is recommended subject to conditions, and upon 45-day EPA review for the Title V Facility Permit revision.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

December 28, 2012

TERRY AHN
ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

Facility ID: 29110
Located at: 22212 BROOKHURST ST, HUNTINGTON BEACH

Thank you for filing your application(s) with the South Coast Air Quality Management District (AQMD).

The application number(s) assigned by AQMD to your application package(s) is/are on Page 2 of this letter. Please refer to information on Page 2 when contacting AQMD for assistance. The information you submitted with your application(s) or in your latest submittal is complete to the extent that allows us to begin processing of your however some clarifying data may still be needed. The acceptance of your application(s) does not imply that permit(s) has/have been approved.
The engineer assigned to your application(s) will contact you if additional information is required.

If you have any questions or need additional information about your application(s), please contact the engineer listed below:

Engineer: GAURANG RAWAL **Telephone:** (909) 396-2543

For general information about AQMD's permit process, please call (909) 396-2468.

cc: Application file(s)

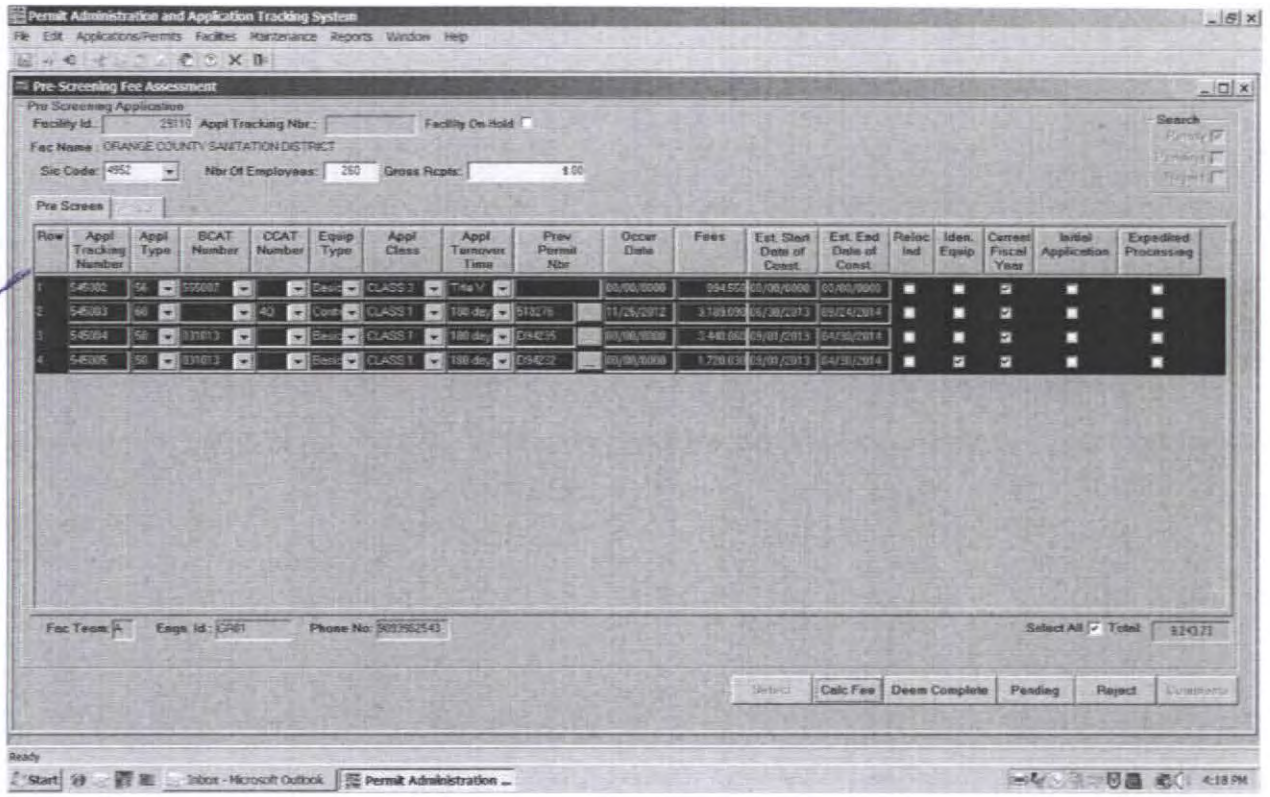
AQMD PERMIT APPLICATION INFORMATION

(Please refer to this information when contacting AQMD for Assistance)

December 28, 2012

Facility ID: 29110

Application Number (s)	Equipment Description	
545002	Title V Permit Revision	
545003	ODOR CONTROL UNIT - Biofilter	
545004	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG
545005	BOILER (5-20 MMBTU/HR) NAT-PROC GAS C/G	DG/NG - identical


Permit Administration and Application Tracking System
File Edit Applications/Permits Facilities Maintenance Reports Window Help
Pre-Screening Fee Assessment
Pre Screening Application
Facility Id.: 29110 Appl Tracking Nbr.: Facility On Hold
Fac Name : ORANGE COUNTY SANITATION DISTRICT
Sic Code: 4952 Nbr Of Employees: 260 Gross Rcpts: 0.00
Search
Pre Screen
Row
Appl Tracking Number
Appl Type
BCAT Number
CCAT Number
Equip Type
Appl Class
Appl Turnover Time
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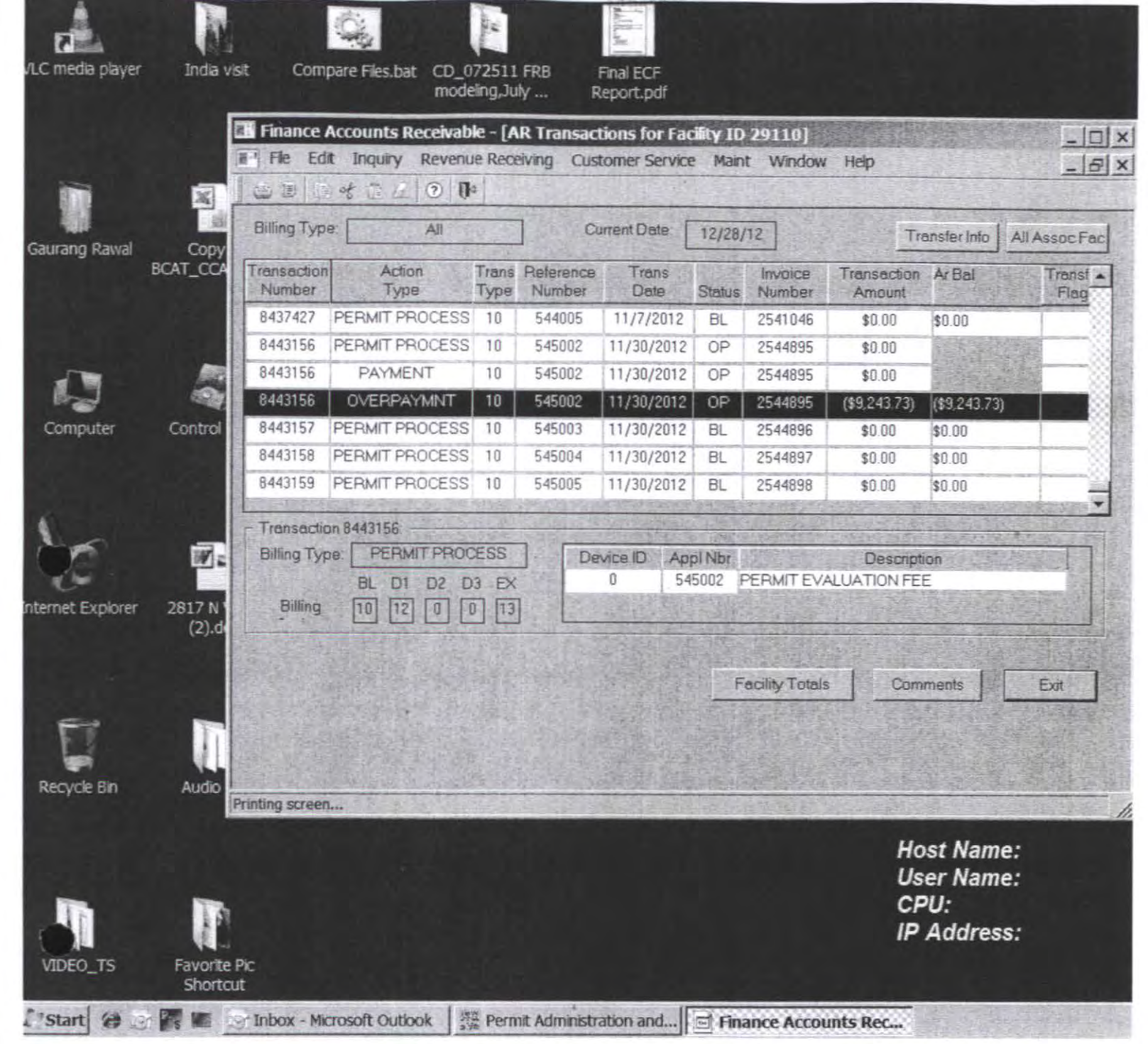
12/28/2012


VLC media player
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CD_072511 FRB modeling,July ...
Final ECF Report.pdf
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File Edit Inquiry Revenue Receiving Customer Service Maint Window Help
Billing Type: All
Current Date: 12/28/12
Transfer Info
All Assoc Fac
Transaction Number | Action Type | Trans Type | Reference Number | Trans Date | Status | Invoice Number | Transaction Amount | Ar Bal | Transf Flag
8437427 | PERMIT PROCESS | 10 | 544005 | 11/7/2012 | BL | 2541046 | $0.00 | $0.00
8443156 | PERMIT PROCESS | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | PAYMENT | 10 | 545002 | 11/30/2012 | OP | 2544895 | $0.00
8443156 | OVERPAYMNT | 10 | 545002 | 11/30/2012 | OP | 2544895 | ($9,243.73) | ($9,243.73)
8443157 | PERMIT PROCESS | 10 | 545003 | 11/30/2012 | BL | 2544896 | $0.00 | $0.00
8443158 | PERMIT PROCESS | 10 | 545004 | 11/30/2012 | BL | 2544897 | $0.00 | $0.00
8443159 | PERMIT PROCESS | 10 | 545005 | 11/30/2012 | BL | 2544898 | $0.00 | $0.00
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BL D1 D2 D3 EX
Billing 10 12 0 0 13
Device ID | Appl Nbr | Description
0 | 545002 | PERMIT EVALUATION FEE
Facility Totals
Comments
Exit
Printing screen...
Host Name:
User Name:
CPU:
IP Address:
Start
Inbox - Microsoft Outlook
Permit Administration and...
Finance Accounts Rec...

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 31, 2013

Mr. James Herberg
General Manager
Orange County Sanitation District
PO Box 8127
Fountain Valley, CA 92728-8127

Subject: Administrative Revision to Title V Facility Permit
Huntington Beach, Plant 2 (Facility ID 029110)

Dear Mr. Herberg,

Enclosed please find an administrative revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. This revision does not require public notice or EPA review.

The administrative revision includes the name change for the designated Responsible Official to Mr. James Herberg, General Manager, and final permit to operate for an air pollution control system for which a permit to construct (under A/N 457410) was previously issued.

The following application is added to Section D - Facility Equipment and Requirements, and removed from Section H - Permits to Construct and Temporary Permits to Operate.

Appl. No.	Permit no.	Description
457410	G24634	Activated Carbon Adsorber, Drum Vent Single Source

This administrative permit revision includes Title Page, Table of Contents, Section A, Section D and Section H. Please review the attached pages carefully. Insert the enclosed pages in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals
Permitting

AYL: CDT: GCR

cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance
Title V Central File
A/N 457410

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

Most Recent Reference

June 7, 2012

Mr. James D. Ruth
General Manager
Orange County Sanitation District
PO Box 8127
Fountain Valley, CA 92728-8127

Subject: De Minimis Significant Revision to Title V Facility Permit, Sewage Treatment Plant, Huntington Beach (ID# 029110)

Dear Mr. Ruth,

Enclosed please find the revised Title Page, Table of Content and Section H (Revision 02) of the Title V facility permit for your Huntington Beach Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The South Coast Air Quality Management District (AQMD) issued the draft permit for Environmental Protection Agency (EPA) review on March 15, 2012, and no comments were received from EPA. No public notice was required for this revision. The revised Section H reflects the approval of the permits as shown below

SECTION H, PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

Appl. No.	Equipment	Description
519422	Odor Control equipment	Installation of an odor control equipment (GAC) treating 3,000 cfm exhaust from the biosolids storage silos (Truckloading Facility) .This supersedes permit to construct (PC) issued under A/N 471696, which is cancelled and removed from Section H.
518276	Odor Control equipment	Installation of an odor control equipment (Biofilter) treating 35,000 cfm exhaust from the DAFTs.

Please review the attached sections carefully. Questions concerning these permits should be directed to Mr. Charles Tupac at (909) 396-2684 or Email ctupac@aqmd.gov.

Sincerely,

Jay Chen, P.E.
Senior AQ Engineering Manager
Refinery and Waste Management Permitting

JC: CDT: GCR
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance
Title V Central File
A/N 519421 and 518235 -Title V Permit Revision (Sec. H; Rev 02)

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Facility Equipment and Requirements
(Section D)

This section consists of a table listing all permitted equipment at the facility, facility wide requirements, copies of all individual Permits to Construct and Permits to Operate issued to various equipment at the facility, and Rule 219-exempt equipment subject to source-specific requirements. Each permit and Rule 219-exempt equipment will list operating conditions including periodic monitoring requirements, and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

The following is a list of all permits to construct and operate at this facility:

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST (CONT'D)

The following is a list of all permits to construct and permits to operate at this facility:

Application Number	Permit Number	Equipment Description	Page Number
512604	G12233	STORAGE TANK, FIXED ROOF, HCl, W/SPARGER	67
512832	G12234	STORAGE TANK, FIXED ROOF, HCl, W/CONTROL	68
512833	G12235	STORAGE TANK, FIXED ROOF, HCl, W/CONTROL	69

NOTE: APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	Permit to Construct Granted On	Equipment Description	Page Number
428642	9/22/2004	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	3
428804	9/22/2004	ODOR CONTROL UNIT	6
453240	10/19/2006	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	10
453244	10/19/2006	ODOR CONTROL UNIT	15
457410	10/24/2006	ACTIVATED CARBON ADSORBER, DRUM VENT SINGLE SOURCE	18
519422	6/07/2012	ODOR CONTROL SYSTEM, GRANULAR ACTIVATED CARBON	20
518276	6/07/2012	ODOR CONTROL UNIT, BIOFILTER	22

NOTE: EQUIPMENT LISTED ABOVE THAT *HAVE NO* CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

Serving:
Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

Orange County Sanitation District
10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

October 8, 2012

Permit Services
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

SUBJECT: Application for Title V Permit Revision for Orange County Sanitation District Plant No. 2 (Facility ID No. 029110): Modification of Permit-to-Construct Odor Control System for Dissolved Air Floatation Thickening Process (A/N 518276) and Modification of Permits-to-Operate Boilers (Permit Nos. R-D94232 and R-D94235)

Enclosed with this letter is an application for Title V permit revision for Orange County Sanitation District's Wastewater Treatment Plant No. 2. The Title V permit revision is requested for the following:

1. Modification Permit-to-Construct Odor Control System A/N 518276 which allows the construction of a new odor control system for the existing Dissolved Air Floatation Thickening Facility. The construction of the new odor control system is currently underway.

   The main purpose of the permit modification is to change Condition No. 11, which imposes an extremely stringent exhaust H_2S limit, prior to the completion of the construction. We are also requesting changes to the Equipment Description and other Conditions in order to streamline the permit and ensure operational flexibility. The proposed changes are provided in the attached Supplemental Information for Odor Control System.

2. Modification of Permits-to-Operate Nos. R-D94232 and R-D94235 which allow operation of two gas-fired steam boilers. These boilers will be retrofitted with new burners in order to comply with Rule 1146 NOx emission limits. Additional information is provided in the attached Supplemental Information for Boilers.

Enclosed with this letter are:

- (1) SCAQMD Form 500-A1: Title V Application Submittal
- (1) SCAQMD Form 500-A2: Title V Application Certification
- (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
- Modification of Existing Permit-to-Construct Odor Control System A/N 518276
  - (1) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Page 2 Only)
  - Supplemental Information for Odor Control System
- Modification of Permits-to-Operate Nos. R-D94232 and R-D94235
  - (2) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
  - (1) SCAQMD Form 400-CEQA with Notice of Exemption
  - (1) SCAQMD Form 500-C1: Title V Compliance Status Report (Pages 2 and 4 Only)
  - (1) SCAQMD Form 400-E-9a External Combustion: Boiler/Heater
  - (1) SCAQMD Form 400-PS Plot Plan And Stack Information
  - Supplemental Information for Boilers

T5#53

- A check in the amount of $9,243.73 ($894.55 for Title V Permit Revision; $3,189.09 for Odor Control System; and $5,160.09 for Boilers) for application processing fee

If you have any questions or require further information, please contact Terry Ahn at (714) 593-7082 or tahn@ocsd.com.

James Colston
Environmental Compliance Manager

TA:JC:jb
H:\dept\eng\790\Groups\Compliance\Staff\ahn\Permitting Projects\P2-89_P2-106\P2-89_P2-106_ApplCvr.doc

Enclosure(s)

cc: V. Kogan (w/o enclosures)
Gaurang Rawal (SCAQMD)

South Coast Air Quality Management District

Form 400-CEQA

California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385 or (909) 396-2668.

Section A - Facility Information

1. Facility Name (Business Name of Operator To Appear On The Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Project Description:

Replace burners on existing digester gas and natural gas fired boilers in order to meet January 1, 2015 NOx emission limits as set forth in SCAQMD Rule 1146.

Section B - Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
1.	◉	○	**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**A request for a change of permittee only (without equipment modifications)?**
3.	○	◉	**A functionally identical permit unit replacement with no increase in rating or emissions?**
4.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
5.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
6.	○	◉	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
7.	○	◉	**A Title V administrative permit revision?**
8.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

If "**Yes**" is checked for any question in Section B, your application does not require additional evaluation for CEQA applicability. Skip to Section D - Signatures on page 2 and sign and date this form.

Section C - Review of Impacts Which May Trigger CEQA

Complete Parts I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Part I - General
1.	○	○	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	○	**Is this project part of a larger project?** If yes, attach a separate sheet to briefly describe the larger project.
			Part II - Air Quality
3.	○	○	**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.	○	○	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

Section C - Review of Impacts Which May Trigger CEQA (cont.)			
	Yes	No	Part II - Air Quality (cont.)
5.	○	○	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	○	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Part III – Water Resources
8.	○	○	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Part IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	○	**a. the need for more than 350 new employees?**
	○	○	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	○	**c. increase customer traffic by more than 700 visits per day?**
			Part V – Noise
11.	○	○	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Part VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	○	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	○	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

"REMINDER: *For each "Yes" response in Section C, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.*"

Section D - Signatures

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm:
James D. Ruth		General Manager
3. Print Name of Responsible Official of Firm:		4. Date Signed:
James D. Ruth		10-10-12
5. Phone # of Responsible Official of Firm:	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm:
(714) 593-7110	(714) 968-4389	jruth@ocsd.com
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer:
		Regulatory Specialist
10. Print Name of Preparer:		11. Date Signed:
Terry Ahn		10/8/12
12. Phone # of Preparer:	13. Fax # of Preparer:	14. Email of Preparer:
(714) 593-7082	(714) 962-2591	tahn@ocsd.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

Notice of Exemption

To: ☐ Office of Planning and Research
P0 Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 958 12-3044

☒ County Clerk
County of Orange
12 Civic Center Plaza , P.O. Box 238
Santa Ana, CA 92701-0238

From: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Project Title: Chemical Scrubber Conversions and Piping System Improvements, Project No. P2-106

Project Location — 22212 Brookhurst Street Huntington Beach CA 92646

Project Location — City: Huntington Beach **Project Location — County:** Orange

Description of Project:

This project will convert existing chemical scrubbers to biotrickling filters (BTF) by replacing the internal equipment within the scrubber towers; install multiple booster pumps in the dewatering building plant water supply line(s); and replace 2 boilers and rehabilitate the boiler feed water system. There is no new capacity being added to the systems and minimal excavation.

Name of Public Agency Approving Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Name of Person or Agency Carrying Out Project: Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708

Exempt Status: (check one)

☐ Ministerial (Sec. 21080(b)(1); 15268);
☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
☒ Categorical Exemption. State type and section number: 15301(b) Class 1
☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:

This project will convert only replace existing equipment internal to the scrubber towers; install pumps to increase water pressure but not capacity; and replace 2 boilers and rehabilitate the boiler feed water system with similar sized units. These are utility systems owned and operated by a utility operator with no new capacity being added to the systems with minimal excavation.

Lead Agency
Contact Person: Jim Burror Area Code/Telephone/Extension: (714) 593-7335

If filed by applicant:

1. Attach certified document of exemption finding.

2. Has a Notice of Exemption been filed by the public agency approving the project? ☒ Yes ☐ No

Signature: _____ Date: 4/13/11 Title: Engineering Supervisor

☒ Signed by Lead Agency

☒ Signed by Applicant

Date received for filing at OPR: _____

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

2011 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 413633

STATE CLEARING HOUSE # *(If applicable)* N/A

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: Orange County Sanitation District — DATE: 4-14-11

COUNTY/STATE AGENCY OF FILING: County of Orange — DOCUMENT NUMBER: 20118500000440

PROJECT TITLE: Chemical Scrubber Conversions & Piping System Improv No. P2-106

PROJECT APPLICANT NAME: Orange County Sanitation District — PHONE NUMBER: 714 593 7335

PROJECT APPLICANT ADDRESS: 10844 Ellis Ave — CITY: Fountain Valley — STATE: Ca — ZIP CODE: 92708

PROJECT APPLICANT *(Check appropriate box)*:
☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,839.25	$
☐ Mitigated/Negative Declaration (ND)(MND)	$2,044.00	$
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$965.50	$
☐ County Administrative Fee	$50.00	$ 0
☐ Project that is exempt from fees		
☒ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		$ 0
☐ Other		$ 0

PAYMENT METHOD:
☐ Cash ☐ Credit ☐ Check ☐ Other — TOTAL RECEIVED $

SIGNATURE: X Priscilla Gonzalez — TITLE: Deputy

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDEN ROD - COUNTY CLERK FG753.5a (Rev. 11/10)

Orange County
Clerk/Recorder's Office
Tom Daly

630N Broadway Bldg. 12 Suite
101
Santa Ana, CA, 92701

County

Finalization: 20110000021126
4/14/11 3:05 PM
291 CR03

Item	Title	Count
1	701	1
	EIR Administrative Fee	Amount
	Document ID	
DOC# 20118500000440		50.00
Time Recorded 3:05 PM		

Total: 50.00

Payment Type Amount

THANK YOU!
PLEASE RETAIN THIS RECEIPT
FOR YOUR RECORDS
WWW.OCRECORDER.COM

South Coast Air Quality Management District

Form 500-A2
Title V Application Certification

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. This Certification is submitted with a (Check one):
- a. (●) Title V Application (Initial, Revision or Renewal)
- b. ( ) Supplement/Correction to a Title V Application
- c. ( ) MACT Part 1

4. Is Form 500-C2 included with this Certification? ( ) Yes (●) No

Section II - Responsible Official Certification Statement

*Read each statement carefully and check each that applies – **You must check 3a or 3b.***

For Initial, Permit Renewal, and Administrative Application Certifications:

a. ( ) The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,

i. [ ] except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.

ii. [ ] except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).

b. ( ) The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.

2. For Permit Revision Application Certifications:

a. [✓] The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.

3. For MACT Hammer Certifications:

a. ( ) The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).

b. ( ) The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official:	2. Title of Responsible Official:
James D. Ruth	General Manager
3. Print Name:	**4. Date:**
James D. Ruth	10-10-12
5. Phone #:	**6. Fax #:**
(714) 593-7110	(714) 968-4389

7. Address of Responsible Official:

Street #	City	State	Zip
10844 Ellis Avenue	Fountain Valley	CA	92708-7018

Acid Rain Facilities Only: Please Complete Section IV

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section IV - Designated Representative Certification Statement	
For Acid Rain Facilities Only: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.	
1. Signature of Designated Representative or Alternate:	2. Title of *Designated Representative or Alternate:*
3. Print Name of Designated Representative or Alternate:	4. Date:
5. Phone #:	6. Fax #:
7. Address of Designated Representative or Alternate:	

Street #	City	State	Zip
		CA	

South Coast Air Quality Management District

Form 500-A1

Title V Permit Application Supplemental

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit):

Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

029110

3. Facility Is Located In Title V Area:

- ◉ 1 All other zip codes not listed below
- ○ 2 92201 92202 92203 92210 92211 92234 92235 92236 92239* 92240 92241 92247 92248 92253 92254 92255 92258 92260 92261 92262 92263 92264 92270 92274 92275 92276 92282 92292 92561
- ○ 3 92239*

* If your zip code is 92239, please call (909) 396-3385 to verify your Title V area.

Section II - Title V Application

1. This is an application for a(n) (Check all applicable boxes and provide the requested information as appropriate):

a. ☐ Initial Title V Permit
b. ☐ Permit Renewal: (Provide current permit expiration date) _____
c. ☐ Administrative Change (check all that apply)
   - ☐ Change of Operator. (Complete and attach equipment-specific Form 400-E-XX series forms)
   - ☐ Change of Facility Information
   - ☐ Other, Please specify: _____
d. ☑ Title V Permit Revision
e. ☐ Title V Exemption Plan
f. ☐ MACT Part 1
g. ☐ Permit Shield

Complete and attach equipment specific Form 400-E-XX series form(s) to this form if your application involves permit action for new construction, change of location, non-administrative permit revision, alternative operating scenario (AOS), permit shield, streamlined permit conditions, or temporary source permit.

2. Is this facility required to prepare a Risk Management Plan (RMP) for another agency? ○ Yes ◉ No

Section III - Title V Submittal Checklist

1. Enter the quantity of each type form submitted in the space provided:

_____ 400-A (REQUIRED)	_____ 500-C1 (REQUIRED)	_____ 500-F1	_____ 500-H (REQUIRED)
_____ 400-CEQA (REQUIRED)	_____ 500-C2	_____ 500-F2	_____ 500-MACT PART 1
_____ 500-A2 (REQUIRED)	_____ 500-D	_____ 500-F3	_____ OTHER (SPECIFY): _____
_____ 500-B (REQUIRED)	_____ 500-E	_____ 500-F4	

2. Additional information referenced in this application submitted:

Section II - Applicable Requirements, Test Methods & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations (12/15/00)	☐ Rule 442	☐ Rule 442(f)	☐ Rule 442(g)
☐ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☐ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☐ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☐ Rule 431.1 (06/12/98)	☐ Rule 431.1(f)	☐ Rule 431.1(d) & (e)
☐ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☐ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☑ All Equipment	☑ Rule 401 (11/09/01) ☐ Rule 405 (02/07/86) ☑ Rule 408 (05/07/76) ☑ Rule 430 (07/12/96) ☑ Rule 701 (06/13/97) ☑ New Source Review, BACT ☐ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☐ California Air Resources Board Visible Emission Evaluation ☐ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☐ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (06/03/05)	☐ Rule 403(d)(3)	☐ Rule 403(f)
☐ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☐ Rule 404 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (05/01/09) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(e) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

Section II - Applicable Requirements, Test Method , MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations (12/15/00)	☐ Rule 442	☐ Rule 442(f)	☐ Rule 442(g)
☐ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☑ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☐ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☑ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☐ Rule 431.1 (06/12/98)	☐ Rule 431.1(f)	☐ Rule 431.1(d) & (e)
☐ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☐ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☑ All Equipment	☑ Rule 401 (11/09/01) ☐ Rule 405 (02/07/86) ☑ Rule 408 (05/07/76) ☑ Rule 430 (07/12/96) ☑ Rule 701 (06/13/97) ☑ New Source Review, BACT ☐ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☐ California Air Resources Board Visible Emission Evaluation ☐ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☐ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (06/03/05)	☐ Rule 403(d)(3)	☐ Rule 403(f)
☑ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☑ Rule 404 (02/07/86)	☑ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (05/01/09) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(e) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☑ Boiler, ≥ 5 Mmbtu/Hr (non-RECLAIM sources)	☐ Rule 218 (05/14/99) ☑ Rule 429 (12/21/90) ☐ Rule 475 (08/07/78) ☐ Rule 476 (10/08/76) ☑ Rule 1146 (09/05/08) ☐ 40 CFR60 SUBPART D ☐ 40 CFR60 SUBPART Da ☐ 40 CFR60 SUBPART Dc ☑ 40 CFR63 SUBPART DDDDD	☐ AQMD TM 100.1 N/A ☐ AQMD TM 5.1, 5.2, or 5.3 ☐ AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3 ☑ Rule 1146(d) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	☐ Rule 218(e) & (f) ☐ Rule 429(d) ☑ Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart
☐ Boiler, ≥ 5 Mmbtu/Hr (RECLAIM sources)	☐ Rule 475 (08/07/78) ☐ Rule 476 (10/08/76) - excluding NOx requirements ☐ Rule 1146 (09/05/08) - excluding NOx requirements ☐ Rule 2011 (05/06/05) ☐ or Rule 2012 (05/06/05) ☐ 40 CFR60 SUBPART D ☐ 40 CFR60 SUBPART Da ☐ 40 CFR60 SUBPART Dc ☐ 40 CFR63 SUBPART DDDDD	☐ AQMD TM 5.1, 5.2, or 5.3 ☐ AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3 ☐ Rule 1146(d) ☐ Rule 2011, App. A (05/06/05) ☐ or Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	☐ Rule 1146(c)(6) & (c)(7) ☐ Rule 2011, App. A (05/06/05) ☐ or Rule 2012, App. A (05/06/05) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart
☐ Boiler, Petroleum Refining (non-RECLAIM sources)	☐ Rule 218 (05/14/99) ☐ Rule 429 (12/21/90) ☐ Rule 431.1 (06/12/98) ☐ Rule 475 (08/07/78) ☐ Rule 1146 (09/05/08) ☐ 40 CFR60 SUBBPART J ☐ 40 CFR63 SUBPART DDDDD	☐ AQMD TM 100.1 N/A ☐ Rule 431.1(f) ☐ AQMD TM 5.1, 5.2, or 5.3 ☐ Rule 1146(d) See Applicable Subpart See Applicable Subpart	☐ Rule 218(e) & (f) ☐ Rule 429(d) ☐ Rule 431.1(d) & (e) ☐ Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

11/9/2012

ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

RE: Application Tracking Number(s) 544003

Facility ID: 29110

Thank you for filing your permit application(s) with the South Coast Air Quality Management District. Your application(s) and processing fee payment (if any) are being returned because of delinquent fees pursuant to Rule 301 - Permit Fees (c)(1)(A), (c)(2)(C), (c)(3), (o)(5), (o)(6), (o)(7), or (p)(2). Rule 301 - Permit Fees requires that all delinquent fees associated with a facility be paid before any application can be accepted.

The South Coast Air Quality Management cannot accept your application(s) until you:

1) Call our **Customer Service Section** to determine the nature of the fees that must be paid prior to accepting your application(s). The toll free number is (866) 888-8838. Outside California, call (909) 396-2900. Please reference Facility ID Number 29110. Then,

2) Return the application(s), the permit processing fee for the application(s), and [a] **separate payment for all outstanding fees to:**

South Coast AQMD
P.O. Box 4944
Diamond Bar, CA 91765

In addition, please submit the requested information listed below:

Other Reasons:

Application and check returned due to unpaid fees. Please return application, check and a separate check for the unpaid fees so that your permit can be processed. If you have any questions about the fees due, please call Billing Services at 909-396-2900. Thank you.

Following these instructions is the fastest, most efficient way to get your application(s) accepted by South Coast AQMD.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

11/9/2012

ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

RE: Application Tracking Number(s) 544002

Facility ID: 29110

Thank you for filing your permit application(s) with the South Coast Air Quality Management District. Your application(s) and processing fee payment (if any) are being returned because of delinquent fees pursuant to Rule 301 - Permit Fees (c)(1)(A), (c)(2)(C), (c)(3), (o)(5), (o)(6), (o)(7), or (p)(2). Rule 301 - Permit Fees requires that all delinquent fees associated with a facility be paid before any application can be accepted.

The South Coast Air Quality Management cannot accept your application(s) until you:

1) Call our **Customer Service Section** to determine the nature of the fees that must be paid prior to accepting your application(s). The toll free number is (866) 888-8838. Outside California, call (909) 396-2900. Please reference Facility ID Number 29110. Then,

2) Return the application(s), the permit processing fee for the application(s), and [a] **separate payment for all outstanding fees to:**

South Coast AQMD
P.O. Box 4944
Diamond Bar, CA 91765

In addition, please submit the requested information listed below:

Other Reasons:

Application and check returned due to unpaid fees. Please return application, check and a separate check for the unpaid fees so that your permit can be processed. If you have any questions about the fees due, please call Billing Services at 909-396-2900. Thank you.

Following these instructions is the fastest, most efficient way to get your application(s) accepted by South Coast AQMD.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

11/9/2012

ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

RE: Application Tracking Number(s) 544005,544004

Facility ID: 29110

Thank you for filing your permit application(s) with the South Coast Air Quality Management District. Your application(s) and processing fee payment (if any) are being returned because of delinquent fees pursuant to Rule 301 - Permit Fees (c)(1)(A), (c)(2)(C), (c)(3), (o)(5), (o)(6), (o)(7), or (p)(2). Rule 301 - Permit Fees requires that all delinquent fees associated with a facility be paid before any application can be accepted.

The South Coast Air Quality Management cannot accept your application(s) until you:

1) Call our **Customer Service Section** to determine the nature of the fees that must be paid prior to accepting your application(s). The toll free number is (866) 888-8838. Outside California, call (909) 396-2900. Please reference Facility ID Number 29110. Then,

2) Return the application(s), the permit processing fee for the application(s), and [a] **separate payment for all outstanding fees to:**

South Coast AQMD
P.O. Box 4944
Diamond Bar, CA 91765

In addition, please submit the requested information listed below:

Other Reasons:

Applications and check returned due to unpaid fees. Please return application, check and a separate check for the unpaid fees so that your permit can be processed. If you have any questions about the fees due, please call Billing Services at 909-396-2900. Thank you.

Following these instructions is the fastest, most efficient way to get your application(s) accepted by South Coast AQMD.

ORANGE COUNTY
SANITATION DISTRICT

10844 Ellis Avenue
Fountain Valley, CA 92708-7018
(714) 962-2411

VENDOR NO. 15843 DATE: 10/17/12 CHECK NO. 1000051847

VENDOR NAME SOUTH COAST AIR QUALITY MGT RE

INVOICE NO.	INVOICE DATE	DESCRIPTION	GROSS AMOUNT	DISC. - ADJ.	PAYMENT AMOUNT
D94232 D94235 PERMIT FE	10/08/12	R-D94232 & R-D94235	6,054.64		6,054.64
518276 PERMIT FEE	10/08/12	A/N 518276	3,189.09		3,189.09
		AMOUNT - U.S. DOLLARS			$*****9,243.73

ORANGE COUNTY SANITATION DISTRICT
10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018

Hasler
11/21/2012
US POSTAGE
FIRST-CLASS MA
$02.10
ZIP 92708
011D1161932

South Coast Air Quality Management District
P.O. Box 4943
Diamond Bar, CA 91765-0943

Attention: Novella Gower, Finance/Billing Services

ROUTING RECORD

DATE	FROM	TO	ACTION
10/8/13	CT	GR	prescreen - HP
10/18/13	GRØ1		TV Rev. minor - Accept
11/22/13	GRØ1		
01/22/14	GRØ1	CTØ1	TV Rev. → EPA,
5-6-14	CT	AL	EPA Review - Minor Revision
6-26-14	CT	JS	Revision Approved HP

REFERENCE TO OTHER APCD RECORDS INCLUDING VARIANCES

Sec H Rev #7 6/26/14
FP Rev #9

APPL # 556625
I.D. # 28110

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH
TITLE V REVISION MINOR

Date: 10/03/13

(30 u)

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

XPP (3)

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach , CA 92646-8406
City Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 593-7773
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
[X] Check here if same as equipment location address

22212 Brookhurst Street
Address

Huntington Beach , CA 92646-8406
City State Zip

Terry Ahn — Regulatory Specialist
Contact Name — Title

(714) 593-7082 — Ext. — (714) 593-7773
Phone # — Fax #

E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ( ) Not In RECLAIM or Title V ( ) In RECLAIM (●) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- ( ) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

7b. Facility Permits:

- (●) Title V Application or Amendment (Refer to Title V Matrix) (70)
- ( ) RECLAIM Facility Permit Amendment

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):	8b. Estimated End Date of Construction (mm/dd/yyyy):	8c. Estimated Start Date of Operation (mm/dd/yyyy):
08/01/2014	12/31/2017	12/31/2017

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
New Sludge Dewatering Facility Odor Control System (OCSD Job No. P2-92)

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System) 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ( ) No (●) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official: James Herberg

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name: James Herberg

21. Date: 9-26-13

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: [X] Authorized Signature/Date [X] Form 400-CEQA [X] Supplemental Form(s) (ie., Form 400-E-xx) [X] Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
	556625	100059537	$ 28,599.07		10/3/13 ast

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
							A		

1/3

13 OCT -3 P1:29

S.C.A.Q.M.D.
PERMIT PROCESSING

SCAQ[illegible]D PERMIT PROCESSING SYSTE[illegible]PPS)

FEE DATA - SUMMARY SHEET

Application No : **556625** IRS/SS No:

Previous Application No: Previous Permit No:

32

Company Name : **ORANGE COUNTY SANITATION DISTRICT** Facility ID: **29110**

Equipment Street: **22212 BROOKHURST ST , HUNTINGTON BEACH CA 92646**

Equipment Desc : **Title V Permit Revision**

Equipment Type : **BASIC** Fee Charged by: **B-CAT**

B-CAT NO. : **555007** C-CAT NO: **00** Fee Schedule: **Z**

Facility Zone : **18** Deemed Compl. Date: **10/18/2013** Public Notice: **NO**

Evaluation Type : **MINOR PERMIT REVISION** Small Business: ☐

Disposition : **Approve Title V Application, Recommended by Engineer** Higher Fees for Failing to Obtain a Permit: ☐

Lead Appl. No : Identical Permit Unit: ☐

Air quality Analysis			$0.00	Filing Fee Paid:	$0.00
E.I.R			$0.00	Permit Processing Fee Paid:	$912.44
Health Risk Assessment			$0.00	Permit Processing Fee Calculated*:	$912.44
Public Notice Preparation Fee			$0.00	Permit Processing Fee Adjustment:	$0.00
Public Notice Publication Fee			$0.00		
Expedited Processing	Hours:	0.00	$0.00		
Source Test Review	Hours:	0.00	$0.00		
Time & Material	Hours:	0.00	$0.00		
				Total Additional Fee:	$0.00
				Additional Charge:	$0.00

COMMENTS: A/NS 556626 & 556627 ARE GROUPED UNDER THIS TV REVISION.

RECOMMENDED BY: **GAURANG RAWAL** DATE: **11/12/2013**

REVIEWED BY: CM DATE: 6/26/14

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT AND P/O NO P/C PENALTY

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

June 26, 2014

Mr. James Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Re: Title V Revised Permit for Orange County Sanitation District (OCSD), ID# 029110

Dear Mr. Herberg,

Enclosed please find revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The draft permit, which included minor revision (under A/N 556625) and de-minimis significant revision (under A/N 545002), was sent to EPA on May 6, 2014 for review and there were no comments received by the SCAQMD.

The following applications were included under Section H (rev 07) - Permits to Construct and Temporary Permits to Operate.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25942, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System - Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.
545003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

This permit revision includes Title Page, Table of Contents and Section H. Please review the attached pages and section carefully. Insert the enclosed pages in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number or e-mail grawal@aqmd.gov, within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/
Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance-SCAQMD
Title V Central File
A/N 545002 - de minimis significant revision
A/N 556625- minor revision

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

Title Page	
Facility ID:	029110
Revision #:	9
Date:	June 26, 2014

FACILITY PERMIT TO OPERATE

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Barry R. Wallerstein, D. Env.
EXECUTIVE OFFICER

By _____ For
Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

Table of Content
Facility ID: 029110
Revision #: 9
Date: June 26, 2014

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

TABLE OF CONTENTS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

FACILITY WIDE CONDITION (S)

Condition(s):

1. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:

   A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
   B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (A) OF THIS CONDITION. [RULE 401]

2. THE OPERATOR SHALL NOT COMBUST DIGESTER GAS CONTAINING SULFUR COMPOUNDS IN EXCESS OF 40 PPMV CALCULATED AS HYDROGEN SULFIDE AVERAGED DAILY. [RULE 431.1]

3. THE OPERATOR SHALL NOT USE FUEL OIL CONTAINING SULFUR COMPOUNDS IN EXCESS OF 0.05 PERCENT BY WEIGHT. ON OR AFTER JUNE 1, 2004, A PERSON SHALL NOT PURCHASE ANY DIESEL FUEL FOR STATIONARY SOURCE APPLICATION IN THE DISTRICT, UNLESS THE FUEL IS LOW SULFUR DIESEL FOR WHICH THE SULFUR CONTENT SHALL NOT EXCEED 15 PPM BY WEIGHT AS SUPPLIED BY THE SUPPLIER. [RULE 431.2]

4. THE OWNER/OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART VVV - NON-INDUSTRIAL POTW PLANT NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) AND ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART ZZZZ – STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES NESHAP. [40 CFR 63 SUBPART VVV, AND 40 CFR 63 SUBPART ZZZZ]

5. THE OPERATOR SHALL MEASURE THE SULFUR CONTENT OF THE DIGESTER GAS ACCORDING TO THE FOLLOWING:

   A. FOR READINGS UP TO 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S, USING COLORIMETRIC TUBES, AND WEEKLY ANALYSIS OF THE DIGESTER GAS BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR.

   B. FOR READINGS ABOVE 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR. A MINIMUM OF THREE CONSECUTIVE DAILY SAMPLES ARE REQUIRED TO DEMONSTRATE THE TOTAL SULFUR CONTENT IS BELOW 36 PPM. [RULE 431.1]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

6. A COMPLETE APPLICATION FOR COMPLIANCE ASSURANCE MONITORING (CAM, 40 CFR PART 64) SHALL BE SUBMITTED WHENEVER THE ANNUAL MASS OF VOC OF THE DIGESTER GAS EXCEEDS 19,999 LBS/YR. THE VOC CONTENT OF THE DIGESTER GAS SHALL BE ANALYZED IN CONJUNCTION WITH THE ANNUAL SOURCE TESTING OF THE CGS ENGINES USING THE APPROVED METHODS. FOR EACH CALENDAR YEAR, THE VOC EMISSIONS SHALL BE CALCULATED BY MARCH 31ST OF THE SUBSEQUENT CALENDAR YEAR, OR WITHIN 30 DAYS OF SOURCE TEST REPORT DATE, WHICHEVER IS LATER, BASED ON THE DIGESTER GAS CONCENTRATION DATA FROM ANNUAL RULE 1110.2 SOURCE TESTING OF THE ENGINES. IF THE VOC EMISSIONS EXCEED 19,999 LBS/YR, THE CAM APPLICATION SHALL BE SUBMITTED BY MARCH 31ST, OR WITHIN 60 DAYS AFTER THE CALCULATION DUE DATE, WHICHEVER IS LATER.
[40 CFR PART 64, CAM]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 428804
Granted as of 9/22/2004

Equipment Description:

ODOR CONTROL FACILITY (P2-66) CONSISTING OF:

A. TRUNKLINES ODOR CONTROL SYSTEM:

1. THREE (3) SINGLE STAGE BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (ONE STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED RECIRCULATING PUMPS, AND AN EXHAUST SYSTEM WITH THREE 75 HP BLOWERS (40,000 SCFM TOTAL), TREATING FOUL AIR EXHAUST FROM THE DIVERSION STRUCTURE AND INFLUENT TRUNKLINES, VENTING TO THE 1ST STAGE BIOTRICKLING FILTERS AT THE HEADWORKS ODOR CONTROL FACILITY.

B. HEADWORKS ODOR CONTROL SYSTEM:

1. 1ST STAGE, THIRTEEN (13) BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (THREE ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED PUMPS, AND AN EXHAUST SYSTEM WITH THIRTEEN 75 HP BLOWERS (188,300 SCFM TOTAL), TREATING FOUL AIR FROM HEADWORKS FACILITY AND PRETREATED EXHAUST AIR FROM TRUNKLINE ODOR CONTROL FACILITY VENTING TO THE 2ND STAGE CHEMICAL SCRUBBERS AT THE HEADWORKS ODOR CONTROL FACILITY.

2. 2ND STAGE, EIGHT (8) CHEMICAL SCRUBBERS, IDENTICAL, (TWO ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 48'- 0" H., OVERALL DIMENSIONS, WITH Q-PAC OR TRIPACK TYPE, 10' - 0" H. POLYURETHANE PACKING, A MIST ELIMINATOR, AUTOMATIC CHEMICAL FEED, ASSOCIATED RECIRCULATION PUMPS, AND AN EXHAUST SYSTEM WITH EIGHT 60 HP BLOWERS (188,300 SCFM TOTAL), TREATING EXHAUST AIR FROM 1ST STAGE BIOTRICKLING FILTERS, AND VENTING TO THE ATMOSPHERE.

C. SODIUM HYPOCHLORITE, SODIUM HYDROXIDE AND HYDROCHLORIC ACID STORAGE TANKS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED, UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

[RULE 204]

3 THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. THIS FACILITY (P2-66) SHALL ONLY TREAT FOUL AIR GENERATED FROM THE DIVERSION STRUCTURE AND TRUNKLINES, GRIT HANDLING BUILDING, BAR SCREEN BUILDING AND CHANNELS, PUMP STATION WET WELL, SCREENINGS WASHING AND LOADING BUILDINGS, GRIT BASINS, PRIMARY SPLITTER BOX, AND INFLUENT PUMP STATION DISCHARGE CHANNEL.
[RULE 402]

6. ALL THE EXHAUST FROM THE BIOTRICKLING FILTERS (TRUNKLINE AND HEADWORKS BIOTRICKLING FILTERS) SHALL BE VENTED TO AND TREATED BY THE FINAL CHEMICAL SCRUBBERS PRIOR TO RELEASE TO THE ATMOSPHERE.
[RULE 402]

7. A SUFFICIENT NUMBER OF BIOTRICKLING (BIOTOWERS) AND CHEMICAL SCRUBBERS SHALL BE IN OPERATION WHEN THE BASIC EQUIPMENT ARE IN OPERATION TO MAINTAIN THE CHEMICAL SCRUBBERS OUTLET H2S CONCENTRATIONS, AS MEASURED BY THE AUTOMATIC CHEMICAL FEED AND H2S MONITORING SYSTEM, LESS THAN THE MAXIMUM OUTLET H2S LIMITS AS SPECIFIED IN CONDITION NO. 14 EXCEPT DURING UNFORESEEN AND ROUTINE MAINTENANCE WORK OR POWER OUTAGE IN THE PLANT THAT REQUIRES THE SCRUBBERS TO BE SHUTDOWN FOR A PERIOD NOT TO EXCEED 10 HOURS PER INCIDENT PER EQUIPMENT AND 50 HOURS PER YEAR PER EQUIPMENT.
[RULE 402]

8. ALL BIOTRICKLING FILTERS AND CHEMICAL SCRUBBERS SHALL BE EQUIPPED WITH INLET AND OUTLET CONTINUOUS HYDROGEN SULFIDE MONITORING SYSTEM (VAPAX UNIT OR EQUIVALENT).
[RULE 204]

9. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, AUTOMATIC CHEMICAL FEED AND HYDROGEN SULFIDE (H_2S) MONITORING SYSTEM SHALL BE IN OPERATION AND MAINTAINED TO RECORD THE SCRUBBER INLET AND OUTLET H2S CONCENTRATIONS, IN PPMV, EXCEPT DURING SHUTDOWN FOR MAINTENANCE. THE H_2S MONITORING SYSTEM SHALL BE CALIBRATED PERIODICALLY PURSUANT TO MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
[RULE 204]

10. A FLOW METER, INDICATING GALLONS PER MINUTE (GPM) SHALL BE INSTALLED AND MAINTAINED IN THE CHEMICAL SCRUBBING SOLUTION [SODIUM HYDROXIDE (NaOH) AND SODIUM HYPOCHLORITE (NaOCl)] RECIRCULATION LINE FOR EACH OF THE CHEMICAL SCRUBBER. AT LEAST 785 GPM OF CHEMICAL SCRUBBING SOLUTION SHALL BE SUPPLIED TO EACH CHEMICAL SCRUBBER WHEN IT IS IN OPERATION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

[RULE 204]

11. FOR THE CHEMICAL SCRUBBER(S), A DIFFERENTIAL PRESSURE GAUGE OR OTHER DEVICE SHALL BE INSTALLED AND MAINTAINED TO INDICATE, IN INCHES OF WATER COLUMN, THE DIFFERENTIAL PRESSURE DROP ACROSS THE PACKING MEDIA. DURING NORMAL OPERATION, THE PRESSURE DROP MEASURED ACROSS THE PACKING MEDIA SHALL BE MAINTAINED BETWEEN 1 AND 2 INCHES OF WATER COLUMN, UNLESS OTHERWISE APPROVED BY AQMD. [RULE 204]

12. THE PH OF THE CHEMICAL SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 9 TO 10.5. [RULE 204]

13. WHEN THE AUTOMATIC CHEMICAL FEED AND H_2S MONITORING SYSTEM IS NOT OPERATING, PH OF THE SCRUBBING LIQUID, SCRUBBER SOLUTION RECIRCULATION RATE (GPM), THE SCRUBBER INLET AND OUTLET H_2S CONCENTRATION (PPMV) AND DIFFERENTIAL PRESSURE (INCHES OF WATER COLUMN) ACROSS THE PACKING MEDIA SHALL BE MEASURED AND RECORDED AT LEAST ONCE PER SHIFT.
[RULE 204]

14. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, THE DAILY AVERAGE CONCENTRATION OF SULFUR COMPOUNDS, CALCULATED AS H2S MEASURED AT THE OUTLET OF THE SCRUBBER SHALL NOT EXCEED 1 PPMV.
[RULE 402]

15. WITHIN 60 DAYS AFTER ACHIEVING THE MAXIMUM FOUL AIR FLOW RATE FOR THE ODOR CONTROL (P2-66) FACILITY, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CONDUCT SOURCE TESTS IN ACCORDANCE WITH THE AQMD OR OTHER APPROVED TEST PROCEDURES. A TEST PROTOCOL INCLUDING ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE AQMD, TOXICS AND WASTE MANAGEMENT TEAM, FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF THE TESTS. NOTICE SHALL BE PROVIDED TO THE AQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. THE TESTS SHALL DETERMINE CONTROL EFFICIENCY OF THE AIR POLLUTION CONTROL EQUIPMENT (CHEMICAL SCRUBBERS) AND SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE EMISSIONS TO ATMOSPHERE FOR

A. TOTAL NON-METHANE HYDROCARBONS (NMHC), INLET AND OUTLET (LBS/HR AND PPMV).
B. TOXIC AIR CONTAMINANTS INCLUDING, BUT NOT LIMITED TO, AMMONIA, BENZENE, CHLOROFORM, 1,4 (p)-DICHLOROBENZENE, ETHYL BENZENE, HYDROGEN SULFIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE, STYRENE, TOLUENE, 1,1,1-TRICHLOROETHANE, TRICHLOROETHYLENE, XYLENES, ETC., INLET AND OUTLET, (LBS/HR AND PPMV).
C. CARBON DIOXIDE, OXYGEN AND NITROGEN
D. MOISTURE CONTENT, TEMPERATURE AND FLOW RATE
E. AMMONIA, NMHC, AND HYDROGEN SULFIDE (H2S) CONTROL EFFICIENCY (WT%).
F. METALLIC COMPOUNDS, SUCH AS ARSENIC, BERYLLIUM, CADMIUM, HEXAVALENT CHROMIUM, NICKEL, ETC.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

[RULE 204, 402]

16. SAMPLING PORTS SHALL BE PROVIDED IN THE SCRUBBER EXHAUST STACK, 8-10 DUCT DIAMETERS DOWNSTREAM AND 2 DUCT DIAMETERS UPSTREAM OF ANY FLOW DISTURBANCE. AT EACH LOCATION, TWO SAMPLING PORTS 90 DEGREES APART SHALL BE PROVIDED AND SHALL CONSIST OF 4-INCH WELDED NIPPLES WITH CAPS. SAFETY ACCESS TO THE SAMPLING PORTS SHALL BE PROVIDED BY THE APPLICANT.
[RULE 217]

17. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CALCULATE THE MAXIMUM INDIVIDUAL CANCER RISK (MICR), ACUTE HAZARD INDEX (HIA) AND CHRONIC HAZARD INDEX (HIC), BASED ON THE SOURCE TESTS RESULTS, USING AQMD PUBLISHED "RISK ASSESSMENT PROCEDURES FOR RULES 1401 (RULE VERSION AMENDED MAY 2, 2003) AND 212", VERSION 6.0, AUGUST 18, 2000, TO DETERMINE THE COMPLIANCE WITH RULE 1401. RESULTS SHALL BE SUBMITTED TO AQMD.
[RULE 1401]

18. ALL RECORDS SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 519422
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM FOR THE BIOSOLIDS TRUCK LOADING STATION, CONSISTING OF;

1. EXHAUST BLOWER, MAXIMUM 3000 CFM, 15 H. P., VENTING TWO (2) BIOSOLIDS STORAGE SILOS (PART OF THE SLUDGE PROCESSING STATION, PC 453240).

2. ADSORBER, BAY PRODUCTS, SPARROW 3000, 8' DIA. X 7'- 3" H. OVERALL, CONTAINING MINIMUM OF 3800 LBS OF ACTIVATED CARBON (BOTTOM LAYER) AND 1500 LBS OF POTASSIUM PERMANGANATE (KMNO4) IMPREGNATED MEDIA (TOP LAYER). EQUIPPED WITH DIFFERENTIAL PRESSURE GAUGE AND A DEMISTER.

3. EXHAUST STACK, 1' - 6" DIA. X 13' – 6" HIGH ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THIS PERMIT IS ISSUED.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
[RULE 204]

3. THE OPERATOR MAY USE ALTERNATE MEDIA AND AMOUNTS IN ORDER TO OPTIMIZE THE ODOR CONTROL SYSTEM, PROVIDED SUCH ALTERNATE MEDIA AND AMOUNTS ARE GUARANTEED BY THE VENDOR TO MEET THE EMISSION LIMITS IN THIS PERMIT.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. SAMPLING PORTS SHALL BE PROVIDED AT THE INLET AND OUTLET OF THE ODOR CONTROL SYSTEM TO ALLOW COLLECTION/ANALYSIS OF THE INLET FOUL AIR AND TREATED EXHAUST STREAM.
[RULE 204]

6. THE OPERATOR SHALL INSTALL AND MAINTAIN A DIFFERENTIAL PRESSURE GAUGE TO ACCURATELY INDICATE THE DIFFERENTIAL PRESSURE, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

[RULE 204]

7. THE OPERATOR SHALL, ON A WEEKLY BASIS, MEASURE AND RECORD THE DIFFERENTIAL PRESSURE DROP, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

8. IN OPERATION, THE PRESSURE DROP MEASURED ACROSS THE MEDIA BED SHALL BE MAINTAINED BETWEEN 4.8 AND 8.4 INCHES OF WATER COLUMN, OR ANOTHER RANGE SPECIFIED BY THE MANUFACTURER. MANUFACTURER'S PRESSURE DROP RANGE SPECIFICATIONS FOR THIS EQUIPMENT SHALL BE KEPT ON FILE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 204]

9. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) AT THE INLET TO ODOR CONTROL SYSTEM SHALL BE MONITORED AND RECORDED ON A WEEKLY BASIS FOR THE FIRST MONTH OF OPERATION, AND MONTHLY THEREAFTER USING COLORIMETRIC H2S TUBES OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

10. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL BE MEASURED AND RECORDED AT LEAST ONCE A WEEK USING COLORIMETRIC H2S TUBES, HANDHELD H2S ANALYZER, OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

11. IN OPERATION, THE HYDROGEN SULFIDE (H2S) CONCENTRATION IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL NOT EXCEED 1.0 PPMV.
[RULE 402, 1401]

12. THE MEDIA IN THE ADSORBER SHALL BE REPLACED WITH MINIMUM AMOUNT (LBS) OF FRESH CARBON MEDIA, AS DESCRIBED UNDER EQUIPMENT DESCRIPTION OR CONDITION NO. 3, WHENEVER NECESSARY TO COMPLY WITH THE CONDITIONS OF THIS PERMIT.
[RULE 204]

13. SPENT MEDIA REMOVED FROM THIS SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
[RULE 402]

14. RECORDS SHALL BE MAINTAINED AS REQUIRED BY THIS PERMIT INCLUDING MEDIA CHANGE OVER DATE(S), QUANTITY, AND VENDOR GUARANTEES FOR COMPLIANCE. THE RECORDS SHALL BE KEPT FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 518276
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM, TREATING EXHAUST FROM DISSOLVED AIR FLOATATION THICKENERS (DAFTS), CONSISTING OF:

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS) AND TWO (2) POLYMER MIX TANKS.

2. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH 100 H.P., MAXIMUM 35,000 CFM CAPACITY.

3. HUMIDIFICATION, IN-DUCT, WITH TWELVE (12) SPRAY NOZZLES, AND EQUIPPED WITH HYDROGEN SULFIDE (H2S) ANALYZER.

4. THREE (3) BIOFILTER CELLS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER CELL 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH INLET FOUL-AIR FLOW METERS, SAMPLING PORTS AND SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. A TEMPERATURE INDICATOR SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. THE INLET FOUL AIR TEMPERATURE READINGS, TAKEN ON A MONTHLY BASIS, SHALL BE MAINTAINED IN THE

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RANGE OF EQUIPMENT DESIGN SPECIFICATIONS OR AS PER MANUFACTURER'S RECOMMENDATION, AND WRITTEN SPECIFICATIONS SHALL BE KEPT ON FILE.
[RULE 204]

6. A HYDROGEN SULFIDE (H2S) ANALYZER SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. FOUL-AIR H2S CONCENTRATION (PPMV) SHALL BE MONITORED ON A MONTHLY BASIS AND RESULTS RECORDED. WHEN H2S ANALYZER IS NOT OPERATING, COLORIMETRIC H2S TUBES, HAND HELD H2S ANALYZERS OR ANY OTHER DISTRICT APPROVED METHODS SHALL BE USED FOR H2S MONITORING.
[RULE 204]

7. FOUL-AIR FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO EACH BIOFILTER.
[RULE 204]

8. FOUL-AIR FLOW RATE SHALL BE MONITORED AND RECORDED ON A DAILY BASIS. TOTAL FLOW RATE READING FOR INLET FOUL-AIR TO THREE (3) BIOFILTER CELLS SHALL NOT EXCEED 35, 000 SCFM.
[RULE 402, 1401]

9. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

10. HYDROGEN SULFIDE (H2S) AND AMMONIA (NH_3) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

11. EMISSIONS OF H2S FROM THE BIOFILTER SHALL NOT EXCEED 0.0175 LB/HR (93 PPBV AT THE SURFACE AT 35,000 CFM).
[RULE 204]

12. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

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c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC), H2S AND AMMONIA TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET TNMOC AND AMMONIA CONCENTRATIONS. (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR TNMOCS,

III. THE TESTS SHALL BE CONDUCTED AND A WRITTEN REPORT SUBMITTED TO THE SCAQMD WITHIN 60 DAYS AT MAXIMUM FOUL-AIR INLET FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP.

[RULE 204, 217, 402, 1401]

13. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS, AREA OF COMPACTION AND/OR CHANNELING THAT NEEDS REPAIR.
[RULE 204]

14. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

15. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545003
Granted as of 6-26-2014

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).

2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.

3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM 35,000 CFM CAPACITY.

4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.

5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS. [RULE 204]

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6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

        e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

        f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

        g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

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h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 1, WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR
      TOTAL NON-METHANE ORGANICS (EXHAUST)
      SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
      TOTAL PARTICULATES (EXHAUST)
      OXIDES OF NITROGEN (EXHAUST)
      CARBON MONOXIDE (EXHAUST)
      OXYGEN
      DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

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10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545005
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 2, WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

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7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

FUEL FLOW RATE (EACH FUEL)
FLUE GAS FLOW RATE (EACH FUEL)
TOTAL HEAT INPUT RATE, BTU/HR
TOTAL NON-METHANE ORGANICS (EXHAUST)
SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
TOTAL PARTICULATES (EXHAUST)
OXIDES OF NITROGEN (EXHAUST)
CARBON MONOXIDE (EXHAUST)
OXYGEN
DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
SCAQMD – ATTN. GAURANG RAWAL
ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
ENGINEERING AND COMPLIANCE DIVISION
21865 COPLEY DRIVE
DIAMOND BAR, CA 91765

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546364
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546365
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

3. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546366
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

4. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546367
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG4-HB); COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

5. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546368
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

6. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556626
Granted as of 6-26-2014

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D.; WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS), AND TRUCK LOADING BAY..

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF:
DIGESTED SLUDGE DEWATERING FACILITY, LOCATED IN A BUILDING, (OCSD PROJECT P2-92)

21. CENTRATE WET WELL.

22. BIOSOLIDS LOADING SLUDGE PUMPS (5)
CENTRIFUGES (5): ANDRITZ SEPARATION, TYPE D7LL OR SIMILAR
CENTRATE PUMPS (2): FAIRBANKS MORSE, MAXIMUM 1474 GPM, 18.5 H.P. OR SIMILAR
CAKE PUMPS (5) - SCHWING BIOSET, MODEL KSP25 V (HD) L, 39 GPM, 150 H.P. OR SIMILAR

23. TWO POLYMER STORAGE TANKS, EACH APPROXIMATELY 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

24. TWO POLYMER AGING TANKS, EACH APPROXIMATELY 5,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

7. AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; FACILITATE OPERATIONS/MAINTENANCE ACTIVITIES OR TO ALLEVIATE SAFETY ISSUES.
[RULE 204, 402]

8. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

10. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

11. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

12. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556627
Granted as of 6-26-2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), CONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL.

2. TWO BLOWERS, ONE STANDBY, HARTZELL SERIES 41 TYPE FA, OR SIMILAR, CAPABLE OF APPROXIMATELY 7500 CFM AT 12" STATIC PRESSURE.

3. WET SCRUBBER, PACKED BED, APPROXIMATELY 4' DIA. X 8' H., WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

4. BIOFILTER, CELL A, B AND C, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH APPROXIMATELY 8' H. INORGANIC ENGINEERED MEDIA, AND AN IRRIGATION SPRAY(S) SYSTEM.

5. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM, DAILY AVERAGE. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDING FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 2 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 1 TO 8.
[RULE 203]

9. WHEN THE EQUIPMENT IS IN OPERATION, THE INLET FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH OF THE SCRUBBING SOLUTION, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED SHALL BE MONITORED AND RECORDED AT LEAST ONCE A DAY FOR THE FIRST MONTH OF OPERATION AND WEEKLY THEREAFTER.
[RULE 203]

10. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY. THE BIOFILTER SURFACE IRRIGATION SYSTEM SHALL BE MAINTAINED IN GOOD OPERATING CONDITION AT ALL TIMES AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 402, 1401]

11. EMISSIONS FROM THIS EQUIPMENT MEASURED IN THE EXHAUST STACK SHALL NOT EXCEED THE FOLLOWING:

HYDROGEN SULFIDE (H2S)	1 PPMV- DAILY AVERAGE
AMMONIA (NH3)	5 PPMV- DAILY AVERAGE

[RULE 402, 1401]

12. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY.
[RULE 402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 203]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557229
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK001, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557230
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK005, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559228
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559229
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559230
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559231
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b)(1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559232
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

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[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

Catherine Rodriguez

From: Catherine Rodriguez
Sent: Friday, June 27, 2014 9:32 AM
To: 'R9AirPermits_SC@epamail.epa.gov'
Cc: Gaurang Rawal; Charles Tupac; Andrew Lee; Helen Quintana; Charlene Delgado
Subject: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach (029110) Final Minor/De Minimis Significant
Attachments: ID 29110 OCSD Huntington Beach - Facility Cover Letter with Final Title V Permit Revision ANs 556626 556627 545003 545002 556625.pdf

Facility Name: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach
Facility ID: 029110
Address: 22212 Brookhurst Street, Huntington Beach, CA
Type of Mod: Final Minor/De Minimis Significant
Description: Section H: Permit to Construct and Temporary Permit to Operate: (Minor)

Application No.	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25945, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System – Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.

Section H: Permit to Construct and Temporary Permit to Operate: (De Minimis Significant)

Application No.	Equipment	Description
545003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N 518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

Title V Application #: 556625 545002
Attachments:

1. Facility Cover Letter with Final Title V Permit Revision

Please contact me if there are any problems with the transmission of the attached files.

Catherine Rodriguez
Secretary to
Andrew Lee, P.E.
Sr. AQ Engineering Manager
South Coast AQMD
Energy/Public Services/Waste Mgmt/Terminals-Permitting
Engineering and Compliance Division
21865 Copley Drive
Diamond Bar, CA 91765
(909) 396-2735; crodriguez@aqmd.gov

Catherine Rodriguez

From: Catherine Rodriguez
Sent: Wednesday, May 07, 2014 10:34 AM
To: 'R9AirPermits_SC@epamail.epa.gov'
Cc: Gaurang Rawal; Charles Tupac; Andrew Lee; Helen Quintana
Subject: Orange County Sanitation Districts (OCSD) Sewage Treatment Plant, Huntington Beach (029110) Proposed Minor/De Minimis Significant
Attachments: ID 29110 OCSD Huntington Beach - EPA Cover Letter ANs 556626 556627 545003 545002 556625.pdf; ID 29110 OCSD Huntington Beach - Proposed TV Permits 556626 556627 545003 545002 556625.pdf; ID 29110 OCSD Huntington Beach - Engr Eval AN 556626 556627.pdf; ID 29110 OCSD Huntington Beach - Engr Eval AN 545003.pdf; ID 29110 OCSD Huntington Beach - Engr Eval AN 556625.pdf; ID 29110 OCSD Huntington Beach - Engr Eval AN 545002.pdf

Facility Name: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach
Facility ID: 029110
Address: 22212 Brookhurst Street, Huntington Beach, CA
Type of Mod: Proposed Minor/De Minimis Significant
[redacted]escription: Section H: Permit to Construct and Temporary Permit to Operate: (Minor)

Application No.	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25945, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System – Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.

Section H: Permit to Construct and Temporary Permit to Operate: (De Minimis Significant)

Application No.	Equipment	Description
[redacted]5003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N 518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

Title V Application #: 556625 545002
Attachments:

1. EPA Cover Letter
2. Proposed Permits
3. Engineering Evaluations

Please contact me if there are any problems with the transmission of the attached files.

Catherine Rodriguez
Secretary to
Andrew Lee, P.E.
Sr. AQ Engineering Manager
South Coast AQMD

Energy/Public Services/Waste Mgmt/Terminals-Permitting
Engineering and Compliance Division
21865 Copley Drive
Diamond Bar, CA 91765
(909) 396-2735; crodriguez@aqmd.gov

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 6, 2014
Via electronic submittal

Mr. Gerardo Rios
USEPA – Region IX
Mail Stop A-5-2
75 Hawthorne Blvd.
San Francisco, CA 94105

Re: Proposed Revisions to Title V Permit for Orange County Sanitation District (OCSD), ID# 029110

Dear Mr. Rios,

Enclosed for your 45-day review are the proposed revisions to the Title V Permit for OCSD, sewage treatment plant, located at 22212 Brookhurst Street, Huntington Beach, CA in Orange County. The first revision for the project below results in an emission decrease and therefore is considered a Minor Title V Permit Revision and is not subject to public notice.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
556626	Sewage Treatment (>5 MGD) Anaerobic	Modifications to permit to operate, G25942, by the removal of existing sludge dewatering facility (belt filter press) with new sludge dewatering facility (Centrifuges and associated equipment, Project P2-92).
556627	Air Pollution Control (APC) System - Wet Scrubber and Biofilter	APC system consisting of wet scrubber and biofilter to treat foul-air from the new Sludge Dewatering Facility (Project P2-92). Existing odor control permitted equipment will be replaced with new APC system.

The second revision for the project below results in an increase in emissions and is therefore considered a deminimis significant revision and is not subject to public notice.

We are enclosing the appropriate pages of the proposed Section H which includes the permits as shown below, and the engineering evaluations.

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
545003	Odor Control System, Biofilters	Change of condition and equipment description revision for clarification for the existing permit to construct, A/N518276. H2S emission limit is revised for the biofilters that treats dissolved air floatation thickeners (DAFTs), Project P2-89.

This request is being made via electronic submittal in order to facilitate your review. If you have any questions or need additional information, please contact Mr. Gaurang Rawal at (909) 396-2543 or by email at grawal@aqmd.gov.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/
Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: James Herberg, General Manager, OCSD, without enclosures
A/N 545002 - de minimis significant revision
A/N 556625- minor revision

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 1	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 556625	DATE 11/07/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CDT

TITLE V PERMIT REVISION EVALUATION
(Minor Permit Revision)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET
(WASTEWATER TREATMENT PLANT NO. 2)
HUNTINGTON BEACH, CA 92646-8406

FACILITY ID NO.: 029110

Background:
This application 556625 was submitted for Title V permit revision on 10/03/2013. This revision is to include proposed modifications (A/N 556626) to the existing permit to operate G25942 (A/N 453240), a 250 mgd sewage treatment plant. The proposed modification is to replace the existing sludge dewatering system (described under G25942) consisting of belt filter processes and, the existing sludge dewatering facility scrubbers (F99406 / A/N 444112) and odor control system for Biosolids Silos (A/N 519422 PC). This project is identified as OCSD Job no. P2-92. Existing sludge dewatering belt filter facility will be replaced by five centrifuges and associated equipment. Proposed new dewatering facility employing five centrifuges is considered a functionally identical process with no increase in permitted wastewater treatment throughput.

A/N 556627 is also submitted for the air pollution control system consisting of wet scrubbers followed by biofilter to treat foul air from the new centrifuges, Centrate wet well and cake storage bins.

Most recent Title V permit revision was issued on 9/27/2013.

Evaluation:
Evaluations for the proposed new sludge dewatering system using centrifuges (A/N 556626) and new construction of the odor control system (A/N 556627) consisting wet scrubber followed by biofilter is included in this folder.

This is considered a minor permit revision with no change in permitted wastewater treatment plant throughput and no net increase in emissions. Also, foul air to be treated by the proposed APC system is significantly reduced (7,500 cfm Vs 95,000 cfm for the existing odor control systems that will be replaced). These additions are considered functionally identical replacements with no net increase in emissions. Therefore, modifications of the existing permit with installation of a new equipment and APC systems are not subject to additional requirements for NSPS pursuant to 40 CFR 60 and 40 CFR 63. No public notice is required for this minor revision; however, EPA 45-day review is required.

Rules Evaluation:
Compliance with Reg. XXX -Title V permit and applicable rules and regulations is expected.

Conclusions & Recommendations:
Issue the revised Title V permit (Section H, Rev?) upon EPA review and approval.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 13	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 556626 rev 556627 rev	DATE 5/06/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CQT

PERMIT TO CONSTRUCT EVALUATION
(MODIFICATION TO G25942, A/N 453240)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET (PLANT NO. 2)
HUNTINGTON BEACH, CA 92646

FACILITY ID NO.: **029110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082
E-mail: than@ocsd.com

A/N 556626:

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS), AND TRUCK LOADING BAY..

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF:
DIGESTED SLUDGE DEWATERING FACILITY, LOCATED IN A BUILDING, (OCSD PROJECT P2-92)

21. CENTRATE WET WELL.

22. BIOSOLIDS LOADING SLUDGE PUMPS (5)
CENTRIFUGES (5): ANDRITZ SEPARATION, TYPE D7LL OR SIMILAR
CENTRATE PUMPS (2): FAIRBANKS MORSE, MAXIMUM 1474 GPM, 18.5 H.P. OR SIMILAR
CAKE PUMPS (5) - SCHWING BIOSET, MODEL KSP25 V (HD) L, 39 GPM, 150 H.P. OR SIMILAR

23. TWO POLYMER STORAGE TANKS, EACH APPROXIMATELY 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

24. TWO POLYMER AGING TANKS, EACH APPROXIMATELY 5,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

7. AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; FACILITATE OPERATIONS/MAINTENACE ACTIVITIES OR TO ALLEVIATE SAFETY ISSUES.
[RULE 204, 402]

8. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

9. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

10. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

11. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

12. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

NOTE: Equipment description and conditions are revised (5-06-14) based on OCSD's comments to the draft permit.

BACKGROUND:

The above A/N 556626 was submitted on 10/3/2013 by the Orange County Sanitation district (OCSD) for the modifications to the existing permit to operate G25942 (A/N 453240), a 250 mgd sewage treatment plant. The proposed modification is to replace the existing sludge dewatering system (described under G25942) consisting of belt filter processes and the existing sludge dewatering facility scrubbers (F99406 / A/N 444112) and odor control system for Biosolids Silos (A/N 519422 PC). This project is identified as OCSD Job no. P2-92. Existing sludge dewatering belt filter facility will be replaced by five centrifuges and associated equipment. Proposed new dewatering facility employing five centrifuges is considered a functionally identical process with no increase in permitted wastewater treatment throughput.

A/N 556627 is also submitted for the air pollution control system consisting of wet scrubbers followed by biofilter to treat foul air from the new centrifuges, Centrate wet well and cake storage bins.

A/N 556625 is submitted for Title V permit Revision (minor) to include above applications.

Most recent Title V permit revision was issued on 9/27/2013.

Final design for the proposed project P2-92 target date is February 2014 with an estimated construction startup date in August 2014 and construction completion and startup date in December 2017.

PROCESS DESCRIPTION:

The proposed modifications (for PO G25942, A/N 453240) replaces the existing belt filter process facility used for digested sludge dewatering with a new Sludge Dewatering Facility (Project P2-92) which includes five dewatering centrifuges and associated equipment. The centrifuges will be housed in a two-story building. Some of the process equipment includes centrifuge grinders, sludge feed and transfer pumps, centrate and cake transfer pumps, polymer storage and polymer aging tanks, and centrate wet well. Modified dewatering process using centrifuges will reduce maintenance and biosolids-hauling costs by producing cake with reduced water content.

Note: Existing biosolids storage silos (or cake storage Bins A & B) and solids loading truck bay area will remain.

For additional information, engineering drawings and flow diagram please refer to the application package submitted, included in folder.

Additional Information For Process/Equipment Design Specs. for the OCSD P2-92 New Centrifuge Facility and Odor Control Equipment, A/Ns 556626 and 556627: (Per OCSD email 3/19/2014)

Following information is provided by the OCSD regarding the proposed modifications;

1. **Pre-mod and post-mod sludge processing design capacity sludge in (dry and wet basis), sludge out (dry and wet basis), tons/day**

Sludge Processing Design Capacity

	Sludge In		Sludge Out (at 97% capture rate)	
	gpm	dry tons/day	wet tons	dry tons/day

Existing	1300	185	820 @ 22% solids	180
Proposed	1300	185	640 @ 28% solids	180

2. Example of proposed centrifuges, with spec sheets, and design basis, including basis for 330 cfm for centrate and cake discharge air

There are four potential centrifuge suppliers project. The model produced by Andritz is a typical example. A cut sheet is provided (See **Attachment 1** – Centrifuge Spec Sheet)

The centrifuge design basis is 325 gpm of feed sludge per centrifuge. The sludge processing design capacity of 1300 gpm is based on four centrifuges operating at design capacity.

Input was obtained from all four centrifuge suppliers on their recommended air flow rates. The design is based on the highest recommended value, plus a 10% safety factor for 660 cfm per machine, or 330 cfm from each of the two intake points.

4. Example of proposed centrate and cake pump, hp and flow rate estimate, and basis for 80 cfm collected air

There are multiple potential suppliers for the centrate pumps. See **Attachment 2** for a centrate pump spec sheet. The centrate pumps are not ventilated. See response to Question 6 regarding the centrate wetwell ventilation rate.

There are two potential manufacturers for the sludge cake pumps. See **Attachment 3** for the spec sheet for one of the two potential cake pumps. The 80-cfm ventilation rate from the cake pumps is based on the following parameters:

- A negative pressure of 0.1 in w.c. in the cake chute
- An 1/16-inch opening around the 11-foot perimeter of the cake chute
- A 10% safety factor

5. Example of polymer MSDS

See **Attachment 4** for the MSDS for one potential polymer that may be used.

6. Sulfuric acid MSDS

See **Attachment 5** for the MSDS of the sulfuric acid to be used. The commercial grade sulfuric acid is available in various % by volume concentration. The attached MSDS shows 93%. The permit condition should not require specific % concentration since it may vary depending on the supplier.

7. Basis for 800 cfm collected air from centrate wet well

The ventilation rate of the wet well is based on the following parameters.

- A minimum of 6 air changes per hour as a general design parameter.
- Maintaining a negative air pressure during peak liquid flows into the wetwell.

8. Basis for 1500 cfm collected air from each cake bin

The cake bin ventilation rate of 1500 cfm per bin is based on the following:

- A minimum of 5 air changes per hour as a general design parameter.
- A negative pressure of 0.1 in w.c. in the cake bin.
- A 10% factor of safety

9. Ammonia scrubber design basis to support information provided on form 400-E-3

The following summarizes the ammonia scrubber design basis:

Parameter	Value
Design Flow	7500 cfm
Peak Ammonia Concentration	65 ppmv

10. Biofilter design basis, including EBRT, and wetting requirements (and source of water) to support information provided on form 400-E-3

The biofilters are designed to provide an empty bed residence time (EBRT) of 45 seconds with three biofilter cells in operation.

The biofilters are irrigated with reclaimed water in order to keep the media wet. The reclaimed water is supplied by the Orange County Water District and is tertiary treated wastewater effluent.

The irrigation rate is based on an assumed rate of 5 inches per day. That rate is equivalent to 3 gallons per square foot of media per day.

EMISSIONS:

Proposed modifications are to replace existing belt filter presses with centrifuge process thereby producing cake with higher solids and reduced water content. Centrifuge dewatering process is considered functionally identical process. There is no change in wastewater treatment throughput rate for the plant and, hence, no net increase in criteria pollutants' emissions is expected. The new digested sludge dewatering facility equipment will be located in a new building. The objective is to prevent any odorous compounds emissions and to avoid any potential nuisance complaints.

Therefore, emissions listed under current permit, G25942, will be kept same as before (NSR sheet is included infolder),

Ammonia H2S ROG

Lbs/day	9.6	29.04	151.68

Note:
New dewatering building's exhaust (from centrifuges = 3700cfm) along with centrate wet well (800cfm) and cake bins' storage exhaust (3000 cfm). Total combined foul-air = 7500 cfm will be treated by wet scrubber followed by biofilter (A/N 556627).

For information purpose,
7500 cfm total foul-air,5 ppmv ammonia and 1 ppmv H2S limit for APC system (wet scrubber/biofilter- A/N 556627),

Ammonia = 7500 cfm x (5E-06 ammonia) x 1/379 x 34 x 60 = 0.04 lbs/hr = 0.96 lbs/ammonia/ day
H2S = 7500 cfm x (1E-06 H2S) x 1/379 x 17 x 60 = 0.10 lbs/hr = 2.4 lbs/H2S / day

RULES EVALUATION:

Rule 212:
There are no schools within 1/4 mile of the emission source. For the proposed modifications, no net increase in emissions is expected and no impact on health risk is expected. Compliance is expected.

Rule 401 (Visible Emissions):
With proper operation, maintenance and control of equipment compliance is expected.

Rule 402 (Nuisance):
With proper operation, maintenance and control of equipment compliance is expected.

Regulation XIII:
Proposed modification for sludge dewatering is considered a functionally identical replacement with no net increase in emissions. No BACT is required. However, foul air exhaust from the dewatering building plus exhaust from centrate well and solids storage bins will be treated by the wet scrubber followed by 3-cell biofilter controlling ammonia and H2 odes emissions. No offsets required.

EIR: In January 2013, Lead agency, OCSD, approved P2-92 Sludge Dewatering And Odor Control Project and Final Subsequent EIR (SEIR) was issued. On March 28, 2013, NOD was filed.

The project P2-92, that involve construction and replacement for the existing sludge dewatering system and associated odor control ventilation system at Plant 2. The project would require the demolition of existing Plant 2 facility but would not expand the capacity of the existing wastewater treatment facility and would be constructed entirely within the existing Plant 2 property.

The project will have a significant effect on environment. Mitigation measures were made condition to the approval of the project. Mitigation measures and monitoring plan was adopted for this project. Finding was made pursuant to the provisions of CEQA.

OCSD had given written response to the comments made by the SCAQMD, Planning Rule development & Area Sources prior to issuing final SEIR (include in SEIR, Chapter 12, January 2013).

Based up on above discussions, compliance with this Reg. is expected.

Rule 1401:
This rule is not applicable as there is no net increase in emissions. Sludge dewatering process is a functionally identical process to existing belt filter presses process and there is no change in wastewater treatment throughput rate. No health risk is required. Compliance is expected.

Rule 1401.1:
This rule is not applicable. OCSD Plant No. 2 at Huntington Beach is an existing facility.

Recommendations:
Compliance with applicable rules and regulations is expected.
A permit to operate is recommended with above proposed conditions.

This permit to be included in Tile V revision A/N 556625 upon completion of EPA 45-day review period.

A/N 556627:

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), CONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL.

2. TWO BLOWERS, ONE STANDBY, HARTZELL SERIES 41 TYPE FA, OR SIMILAR, CAPABLE OF APPROXIMATELY 7500 CFM AT 12" STATIC PRESSURE.

3. WET SCRUBBER, PACKED BED, APPROXIMATELY 4' DIA. X 8' H.,WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

4. BIOFILTER, CELL A, B AND C, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH APPROXIMATELY 8' H. INORGANIC ENGINEERED MEDIA, AND AN IRRIGATION SPRAY(S) SYSTEM.

5. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM, DAILY AVERAGE. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDING FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 2 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 1 - 8.
[RULE 203]

9. WHEN THE EQUIPMENT IS IN OPERATION, THE EINLET FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH OF THE SCRUBBING SOLUTION, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED SHALL BE MONITORED AND RECORDED AT LEAST ONCE A DAY FOR THE FIRST MONTH OF OPERATION AND WEEKLY THEREAFTER.
[RULE 203]

10. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY. THE BIOFILTER SURFACE IRRIGATION SYSTEM SHALL BE MAINTAINED IN GOOD OPERATING CONDITION AT ALL TIMES AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 402, 1401]

11. EMISSIONS FROM THIS EQUIPMENT MEASURED IN THE EXHAUST STACK SHALL NOT EXCEED *THE FOLLOWING:*

HYDROGEN SULFIDE (H2S)	1 PPMV- DAILY AVERAGE
AMMONIA (NH3)	5 PPMV- DAILY AVERAGE

[RULE 402, 1401]

12. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. [RULE 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 203]

NOTE: Equipment description and conditions are revised (5-06-14) based on OCSD's comments to the draft permit.

BACKGROUND:

The above A/N 556627 was submitted on 10/3/2013 by the Orange County Sanitation district (OCSD) for the new construction of air pollution (odors) control system consisting of wet scrubber, to control ammonia emissions from the new digested sludge dewatering system (OCSD Project P2-92, A/N 556626), followed by biofilter (three cells) to control H2S odors and VOCs.

The proposed APC system will replace existing permitted odor control equipment (F99406/ A/N 444112) that controls odors and VOCs emissions from existing sludge dewatering system (belt press filters building) and odor emissions from the existing biosolids storage silos using GACs (A/N 519422PC, granted 6/7/2012). This is considered a functionally identical equipment replacement.

A/N 556626 is also submitted for the new digested biosolids dewatering system, consisting of centrifuges, biosolids (cake) bins and centrate wet well). This is considered modifications to the sewage treatment plant (G25942, A/N 453240) which will replace existing dewatering facility. The existing building will be demolished and new dewatering facility building will be constructed.

A/N 556625 is submitted for Title V permit Revision (minor) to include above applications.
Most recent Title V permit revision was issued on 9/27/2013.

Final design for the proposed project P2-92 (covers above A/Ns 556626 & 556627) target date is February 2014 with an estimated construction startup date in August 2014 and construction completion and startup date in December 2017.

PROCESS DESCRIPTION:

The proposed new construction for foul-air treatment, APC system, consists of wet scrubber- packed tower to remove ammonia and the scrubber exhaust will be further treated by biofilter to control mainly H2S odors and VOCs. APC system is designed for 7,500 cfm of foul-air generated from the new sludge dewatering system (centrifuges, biosolids storage bins and centrate wet well).

This proposed APC system (A/N 556627) will replace the existing odor control equipment, shown below;
(This is considered a functionally identical equipment replacement).

Existing APC system (Dewatering systemP2-28-1), A/N 444112, PO F99406 - 92,000 cfm
Existing odor control system consisting of GAC to control odors from existing biosolids storage silos - 519422PC 3,000 cfm. (Existing two biosolids will remain which are known as cake bins, A & B under Project P2-92).

Total of 7,500 cfm (design) of foul- air form the new sludge dewatering system (centrifuges, biosolids storage bins and centrate wet well- A/N 556626) will be first treated by the wet scrubber containing 4' of polypropylene packing material and sprays. Foul air passes upward through the packing material and scrubbing water is sprayed from the top. Gas-liquid contact, using packing material surface area, will result in ammonia absorption in gas stream, with some VOCs. Ammonia concentration in foul air is expected to be low and hence water as scrubbing solution should be adequate. Sulfuric acid injection (as a back-up) will be used if needed with scrubbing solution PH maintained between 6 & 8. Foul air flow rate, pressure drop across the packing material, scrubbing solution PH, make-up water and acid flow rate will be monitors. Ammonia concentration in scrubber exhaust to be maintained below 5 ppmv. Scrubber operating parameters will be monitored and results recorded.

Scrubber exhaust will be further treated by biofilter to remove H2S odors and VOCs. Biofilter consists of three cells, A, B and C, each can process 2500 cfm air. Biofilter is a custom made with inorganic engineered material (media) that will be generally a rock-based mixture containing chemically reactive materials and active biological material. Water will be sprayed on biofilter surface to maintain desired moisture level. Treated air from each cell will be combined and discharged through a 2' diameter x 47' high stack (located above cake storage bins). Operating parameters will be monitored along with H2S concentration (ppmv) monitoring for the stack exhaust.

EMISSIONS:

Existing two odor control systems, treats total of 92,000 cfm (from existing sludge Dewatering Building) + 3000 cfm (from biosolids storage silos) = 95,000 cfm.
There is no change in wastewater throughput capacity for the plant.

Proposed APC system will treat total of 7,500 cfm from the new sludge Dewatering system and cake bins.

No net increase in emissions is expected due to improvements made by the new dewatering system (centrifuges) and approximately 90% reduced foul air to be treated.

5 ppmv ammonia limit and 1 ppmv H2S limit is imposed for the APC system.

AEIS/ NSR entries for ammonia and H2S, APC = 0 (Reflected under sewage treatment plant modification A/N 556627, with no net increase for ammonia and H2S emissions).

For information purpose,
7500 cfm total foul-air,5 ppmv ammonia and 1 ppmv H2S limit for APC system (wet scrubber/biofilter- A/N 556627),
Ammonia = 7500 cfm x (5E-06 ammonia) x 1/379 x 34 x 60 = 0.04 lbs/hr = 0.96 lbs/ammonia/ day
H2S = 7500 cfm x (1E-06 H2S) x 1/379 x 17 x 60 = 0.10 lbs/hr = 2.4 lbs H2S / day

RULES EVALUATION:

Rule 212:

There are no schools within 1/4 mile of the emission source. For the proposed modifications, no net increase in emissions is expected and no impact on health risk or HIA, HIC is expected. Compliance is expected.

Rule 401 (Visible Emissions):

With proper operation, maintenance and control of equipment compliance is expected.

Rule 402 (Nuisance):

With proper operation, maintenance and control of equipment compliance is expected.

Regulation XIII:

Proposed modification for sludge dewatering is considered a functionally identical replacement with no net increase in emissions. Amount of foul-air treated by new APC system is significantly reduced with no net increase in emissions. No BACT is required. (However, proposed wet scrubber and biofilter is expected to control potential odor emissions).

EIR: In January 2013, Lead agency, OCSD, approved P2-92 Sludge Dewatering and Odor Control Project and Final Subsequent EIR (SEIR) were issued. On March 28, 2013, NOD was filed.

The project P2-92, that involve construction and replacement for the existing sludge dewatering system and associated odor control ventilation system at Plant 2. The project would require the demolition of existing Plant 2 facility but would not expand the capacity of the existing wastewater treatment facility and would be constructed entirely within the existing Plant 2 property.

The project will have a significant effect on environment. Mitigation measures were made condition to the approval of the project. Mitigation measures and monitoring plan was adopted for this project. Finding was made pursuant to the provisions of CEQA.

OCSD had given written response to the comments made by the SCAQMD, Planning Rule development & Area Sources prior to issuing final SEIR (include in SEIR, Chapter 12, January 2013).

Based up on above discussions, compliance with this Reg. is expected.

Rule 1401:

Proposed APC operations with significantly reduced foul-air treatment (compared to existing odor control systems that will be replaced) by wet-scrubber and biofilter is expected to have net reduction in ammonia and H2S emissions.
Rule 1401 is not applicable. (Note: Tier 1 and Tier 2 screening passes).

Rule 1401.1:

This rule is not applicable. OCSD Plant No. 2 at Huntington Beach is an existing facility.

Recommendations:

Compliance with applicable rules and regulations is expected.
A permit to construct is recommended with above proposed conditions.

This permit to be included in Tile V minor revision, A/N 556625, upon completion of EPA 45-day review period.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 4	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 545003 rev.	DATE 4/24/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY CPT

PERMIT TO CONSTRUCT EVALUATION
(Change of Condition for 518276 PC)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET (PLANT NO. 2)
HUNTINGTON BEACH, CA 92646-8406

FACILITY ID #: **29110**

CONTACT: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 FAX: (714) 962-2591

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).
2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.
3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM 35,000 CFM CAPACITY.
4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.
5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]
3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS.
[RULE 204]

6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

BACKGROUND

On 10/18/2012, Orange County Sanitation District (OCSD) submitted this A/N 545003 for change of conditions to the existing 518276 PC and revise equipment description for clarification. Current permit, 518276 PC is granted an extension until June 7, 2014 and construction is underway.

This application is grouped under TV Revision A/N 545002 that also includes boiler modifications- A/Ns 545004 & 05.

PROCESS DESCRIPTION:

This equipment provides air pollution control of odorous emissions from a portion of the sewage treatment process involving dissolved air floatation thickeners (DAFs).

EMISSIONS:

None, all are assigned to the basic process.

H2S Emission Dispersion AERMOD modeling Analysis and Recommendation:

OCSD has requested for greater than 93 ppbv H2S limit (for current PC) for the biofilter emission and proposed higher H2S limit and submitted dispersion modeling using ISCST3 program.

Planning Rule and Area sources (PRA) staff had reevaluated allowable H2S limit using US EPA designated AERMOD analysis. PRA staff has recommended that each biofilter cell shall not exceed 0.00804 g/s H2S emission (that is equal to maximum 1-hour H2S con. = 41.78 µg/m3 and annual con. = 1.63 µg/m3) which will not exceed the applicable standards (CAAQS).
Additionally, this limit is expected to comply with OEHHA chronic reference exposure level (REL) of 10 µg/m3 (8 ppb).

Modeling staff spent 25 hrs of time for the review (Please see memo dated Sept. 13, 2013 from Elaine Chang (PRA) to Andrew Lee (E & C).

For recommended $\mathbf{H_2S}$ emission = 0.00804 g/s,

Allowable total H2S emissions from biofilters (3) = 0.00804 g/s x 3 cells = 0.0241 g/s
= 0.0241 g/s x 3600/454
= 0.19 lbs H2S/hr, total

H2S, ppmv = (0.19 x 10^6 x 379) / (35000 x 34 x 60) = **1.0 ppmv H2S** from the entire biofilter surfaces (3) cells, 35000 scfm

RULES EVALUATION:

H2S emission is revised from 93 ppbv to 1 ppmv (condition). Revised HRA analysis with H2S emission= 1 ppmv, 0% control efficiency, 35000 scfm, indicated compliance with Rule 1401 and Rule 402.

Recommendation:

A permit to construct is recommended with proposed conditions listed on page 1- 3.

Note: Upon approval, this PC to be included under Section H, Title V revision, A/N 545002.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 2	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 545002 (2)	DATE 4/29/2014
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY VOT

TITLE V PERMIT EVALUATION
(De Mimimis Significant Permit Revision)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 Brookhurst Street (PLANT NO. 2)
Huntington Beach, CA 92646

FACILITY ID NO.: **029110**

CONTACT NAME: Terry Ahn, Regulatory Specialist
Ph: (714) 593-7082 Fax: (714) 962-2591
E mail: tahn@ocsd.com

Background:
This application 545002 was submitted for Title V permit revision on 11/27/2012. This revision consists of the following two items proposed by the Orange County Sanitation District (OCSD);

1. Proposed changes to the equipment description for clarity and change of conditions to the existing odor control PC issued under A/N 518276, including revised H2S emission limit for the biofilters (3). New application for the odor control is A/N 545003.

2. Two new applications (545004 and 545005) for changing the existing boiler permits (R-D94232 and R-D94235) by retrofitting with new burners to comply with Rule 1146 NOx limits.

This Title V revision application is done in two parts, boiler applications were addressed (October 2013) first due to OCSD's need to go for the construction bids and proceed with the final design.

Odor control A/N 545003 (pending second part of TV Revision) is addressed now as a separate revision but under same revision A/N 545002.

Odor control A/N 545003 is for the change of condition for the existing 518276 PC to revise H2S emission limit and revise equipment description as deemed necessary. There is a net increase in H2S emission (from 93 ppbv to 1 ppmv), this is considered a deminimis significant revision. Please note that H2S is not a hazardous air pollutant (EPA had delisted H2S as HAP and Joint Resolution by Senate and House of Representatives was approved by President on 12-4-91). Compliance with applicable rules and regulations is expected.

Permit evaluation for the odor control equipment for the revised changes to the existing 518276 PC is included in folder for additional information.

Conclusions & Recommendations:

Issue the revised Title V permit, incorporating odor control equipment (Section H), upon completion of 45-day EPA review and commenting period.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556626
Granted as of TBD

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS), AND TRUCK LOADING BAY..

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF:
DIGESTED SLUDGE DEWATERING FACILITY, LOCATED IN A BUILDING, (OCSD PROJECT P2-92)

21. CENTRATE WET WELL.

22. BIOSOLIDS LOADING SLUDGE PUMPS (5)
CENTRIFUGES (5): ANDRITZ SEPARATION, TYPE D7LL OR SIMILAR
CENTRATE PUMPS (2): FAIRBANKS MORSE, MAXIMUM 1474 GPM, 18.5 H.P. OR SIMILAR
CAKE PUMPS (5) - SCHWING BIOSET, MODEL KSP25 V (HD) L, 39 GPM, 150 H.P. OR SIMILAR

23. TWO POLYMER STORAGE TANKS, EACH APPROXIMATELY 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

24. TWO POLYMER AGING TANKS, EACH APPROXIMATELY 5,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

7. AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; FACILITATE OPERATIONS/MAINTENANCE ACTIVITIES OR TO ALLEVIATE SAFETY ISSUES.
[RULE 204, 402]

8. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

10. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

11. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

12. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556627
Granted as of TBD

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), CONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL.

2. TWO BLOWERS, ONE STANDBY, HARTZELL SERIES 41 TYPE FA, OR SIMILAR, CAPABLE OF APPROXIMATELY 7500 CFM AT 12" STATIC PRESSURE.

3. WET SCRUBBER, PACKED BED, APPROXIMATELY 4' DIA. X 8' H., WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

4. BIOFILTER, CELL A, B AND C, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH APPROXIMATELY 8' H. INORGANIC ENGINEERED MEDIA, AND AN IRRIGATION SPRAY(S) SYSTEM.

5. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM, DAILY AVERAGE. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDING FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 2 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 1 TO 8.
[RULE 203]

9. WHEN THE EQUIPMENT IS IN OPERATION, THE INLET FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH OF THE SCRUBBING SOLUTION, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED SHALL BE MONITORED AND RECORDED AT LEAST ONCE A DAY FOR THE FIRST MONTH OF OPERATION AND WEEKLY THEREAFTER.
[RULE 203]

10. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY. THE BIOFILTER SURFACE IRRIGATION SYSTEM SHALL BE MAINTAINED IN GOOD OPERATING CONDITION AT ALL TIMES AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 402, 1401]

11. EMISSIONS FROM THIS EQUIPMENT MEASURED IN THE EXHAUST STACK SHALL NOT EXCEED THE FOLLOWING:

HYDROGEN SULFIDE (H2S)	1 PPMV- DAILY AVERAGE
AMMONIA (NH3)	5 PPMV- DAILY AVERAGE

[RULE 402, 1401]

12. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY.
[RULE 402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 203]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545003
Granted as of TBD

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).

2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.

3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM 35,000 CFM CAPACITY.

4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.

5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS. [RULE 204]

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ORANGE COUNTY SANITATION DISTRICT

6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

        e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

        f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

        g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

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h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

NSR DATA SUMMARY SHEET

Application No	556625
Application Type	55
Application status	PENDAPPRV
Previous Apps, Dev	,

Company Name	ORANGE COUNTY SANITATION DISTRICT
Company ID	29110
Address	22212 BROOKHURST ST, HUNTINGTON BEACH, CA 92646-8457
Reclaim	NO
Reclaim Zone	01
Air Basin	SC
Zone	18
Title V	YES

Device ID	0 - TITLE-V
Estimated Completion Date	12-31-2017
Heat Input Capacity	0 Millions BTU/Hr
Priority Reserve	NONE - No Priority Access Requested
Recommended Disposition	32 - BANKING/ PLAN GRANTED
PR Expiration	12-31-9999
School within 100 feet	NO
Operating Weeks per year	52
Operating Days per week	5
Operating Hours	
Monday	08:00 to 16:00
Tuesday	08:00 to 16:00
Wednesday	08:00 to 16:00
Thursday	08:00 to 16:00
Friday	08:00 to 16:00
Saturday	00:00 to 00:00
Sunday	00:00 to 00:00

Emittant	ROG	
BACT		
Cost effectiveness	NO	
Source Type	MINOR	
Emis Increase	0	
Modelling	N/A	
Public Notice	N	
Controlled Emission		
Max Hourly	0.00	Lbs/Hr
Max Daily	0.00	Lbs/day
Uncontrolled Emission		
Max Hourly	0.00	Lbs/Hr
Max Daily	0.00	Lbs/day
Current Emission		
BACT 30 Day Avg	0.00	Lbs/day
Annual Emission	0.00	Lbs/year
District Emission		

Supervisor's Approval _____ Supervisor's Review Date _____

Processed By gaurangr

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 6	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 556626	DATE 10/27/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION
(MODIFICATION TO G25942; A/N 453240)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET (PLANT NO. 2)
HUNTINGTON BEACH, CA 92646

FACILITY ID NO.: **029110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082
E-mail: than@ocsd.com

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D.,

EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED STORAGE HOPPERS, AND TRUCK LOADING HOPPER.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF: (OCSD PROJECT P2-92)

1. DIGESTED SLUDGE DEWATERING FACILITY (LOCATED IN A BUILDING), CONSISTING OF;

- SLUDGE FEED PUMPS, FIVE CENTRIFUGES AND CENTRIFUGE GRINDERS
- CENTRATE AND CAKE TRANSFER PUMPS
- POLYMER STORAGE AND AGING TANKS AND ASSOCIATED FEED PUMPS
- CENTRATE GRAVITY PIPING, TRANSFER PUMPS AND CENTRATE WET WELL
- DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS) AND BIOSOLIDS LOADING

- TRUCK BAY (EXISTING).
- SLUDGE DEWATERING BUILDING EXHAUST DUCTS TO THE AIR POLLUTION CONTROL SYSTEM (A/N 556627).

2. TWO POLYMER STORAGE TANKS, EACH 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

3. TWO POLYMER MIX TANKS, EACH 5,000 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a)(1)-BACT, 1401]

7. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

8. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

9. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

10. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

11. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

BACKGROUND:

The above A/N 556626 was submitted on 10/3/2013 by the Orange County Sanitation district (OCSD) for the modifications to the existing permit to operate G25942 (A/N 453240), a 250 mgd sewage treatment plant. The proposed modification is to replace the existing sludge dewatering system (described under G25942) consisting of belt filter processes and the existing sludge dewatering facility scrubbers (F99406 / A/N 444112) and odor control system for Biosolids Silos (A/N 519422 PC). This project is identified as OCSD Job no. P2-92. Existing sludge dewatering belt filter facility will be replaced by five centrifuges and associated equipment. Proposed new dewatering facility employing five centrifuges is considered a functionally identical process with no increase in permitted wastewater treatment throughput.

A/N 556627 is also submitted for the air pollution control system consisting of wet scrubbers followed by biofilter to treat foul air from the new centrifuges, Centrate wet well and cake storage bins.

A/N 556625 is submitted for Title V permit Revision (minor) to include above applications.

Most recent Title V permit revision was issued on 9/27/2013.

Final design for the proposed project P2-92 target date is February 2014 with an estimated construction startup date in August 2014 and construction completion and startup date in December 2017.

PROCESS DESCRIPTION:

The proposed modifications (for PO G25942, A/N 453240) replaces the existing belt filter process facility used for digested sludge dewatering with a new Sludge Dewatering Facility (Project P2-92) which includes five dewatering centrifuges and associated equipment. The centrifuges will be housed in a two-story building. Some of the process equipment includes centrifuge grinders, sludge feed and transfer pumps, centrate and cake transfer pumps, polymer storage and polymer aging tanks, and centrate wet well. Modified dewatering process using centrifuges will reduce maintenance and biosolids-hauling costs by producing cake with reduced water content.

Note: Existing biosolids storage silos (or cake storage Bins A & B) and solids loading truck bay area will remain.

For additional information, engineering drawings and flow diagram please refer to the application package submitted, included in folder.

EMISSIONS:

Proposed modifications are to replace existing belt filter presses with centrifuge process thereby producing cake with higher solids and reduced water content. Centrifuge dewatering process is considered functionally identical process. There is no change in wastewater treatment throughput rate for the plant and, hence, no net increase in criteria pollutants' emissions is expected. The new digested sludge dewatering facility equipment will be located in a new building. The objective is to prevent any odorous compounds emissions and to avoid any potential nuisance complaints.

Therefore, emissions listed under current permit, G25942, will be kept same as before (NSR sheet is included infolder),

	Ammonia	H2S	ROG
Lbs/day	9.6	29.04	151.68

Note:

New dewatering building's exhaust (from centrifuges = 3700cfm) along with centrate wet well (800cfm) and cake bins' storage exhaust (3000 cfm). Total combined foul-air = 7500 cfm will be treated by wet scrubber followed by biofilter (A/N 556627).

For information purpose,

7500 cfm total foul-air,5 ppmv ammonia and 1 ppmv H2S limit for APC system (wet scrubber/biofilter- A/N 556627),

Ammonia = 7500 cfm x (5E-06 ammonia) x 1/379 x 34 x 60 = 0.04 lbs/hr = 0.96 lbs/ammonia/ day
H2S = 7500 cfm x (1E-06 H2S) x 1/379 x 17 x 60 = 0.10 lbs/hr = 2.4 lbs/H2S / day

RULES EVALUATION:

Rule 212:

There are no schools within 1/4 mile of the emission source. For the proposed modifications, no net increase in emissions is expected and no impact on health risk is expected. Compliance is expected.

Rule 401 (Visible Emissions):

With proper operation, maintenance and control of equipment compliance is expected.

Rule 402 (Nuisance):

With proper operation, maintenance and control of equipment compliance is expected.

Regulation XIII:
Proposed modification for sludge dewatering is considered a functionally identical replacement with no net increase in emissions. No BACT is required. However, foul air exhaust from the dewatering building plus exhaust from centrate well and solids storage bins will be treated by the wet scrubber followed by 3-cell biofilter controlling ammonia and H2 odes emissions. No offsets required.

EIR: In January 2013, Lead agency, OCSD, approved P2-92 Sludge Dewatering And Odor Control Project and Final Subsequent EIR (SEIR) was issued. On March 28, 2013, NOD was filed.

The project P2-92, that involve construction and replacement for the existing sludge dewatering system and associated odor control ventilation system at Plant 2. The project would require the demolition of existing Plant 2 facility but would not expand the capacity of the existing wastewater treatment facility and would be constructed entirely within the existing Plant 2 property.

The project will have a significant effect on environment. Mitigation measures were made condition to the approval of the project. Mitigation measures and monitoring plan was adopted for this project. Finding was made pursuant to the provisions of CEQA.

OCSD had given written response to the comments made by the SCAQMD, Planning Rule development & Area Sources prior to issuing final SEIR (include in SEIR, Chapter 12, January 2013).

Based up on above discussions, compliance with this Reg. is expected.

Rule 1401:
This rule is not applicable as there is no net increase in emissions. Sludge dewatering process is a functionally identical process to existing belt filter presses process and there is no change in wastewater treatment throughput rate. No health risk is required. Compliance is expected.

Rule 1401.1:
This rule is not applicable. OCSD Plant No. 2 at Huntington Beach is an existing facility.

Recommendations:
Compliance with applicable rules and regulations is expected.
A permit to operate is recommended with above proposed conditions, pgs. 3 and 4.

This permit to be included in Tile V revision A/N 556625 upon completion of EPA 45-day review period.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 5	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO 556627	DATE 11/02/2013
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

(Odor Control Systems F99406 and 519422PC will be replaced under proposed P2-92 Project)

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018
ATTN.: TERRY AHN, REGULATORY SPECIALIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET (PLANT NO. 2)
HUNTINGTON BEACH, CA 92646

FACILITY ID NO.: **029110**

CONTACT: Terry Ahn, Regulatory Specialist
Phone: (714) 593-7082
E-mail: than@ocsd.com

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), ONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL, TOTAL 7,500 CFM.

2. WET SCRUBBER, PACKED BED, 4' DIA. X 8' H.,WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

3. BIOFILTER, CELL A, B AND C, 2500 CFM PER CELL, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH 8' H. INORGANIC ENGINEERED MEDIA AND IRRIGATION SPRAY(S) SYSTEM..

4. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.

[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDENT FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 0.8 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 6 AND 8.
[RULE 203]

9. FLOW METER SHALL BE INSTALLED TO INDICATE SCRUBBING SOLUTION FLOW RATE. THE SCRUBBING SOLUTION FLOW RATE SHALL BE MAINTAINED AT LEAST 0.6 GPM AVERAGE OR AS PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
[RULE 203]

10. THE CONCENTRATION OF AMMONIA, PPMV, AT THE OUTLET OF THE WET SCRUBBER SHALL BE MONITORED USING HANDHELD DEVICES OR OTHER APPROVED METHODS, AT LEAST ONCE A DAY WHEN OPERATING. MEASURED AMMONIA CONCENTRATION SHALL BE MAINTAINED BELOW 5 PPMV.
[RULE 402]

11. WHEN IN OPERATION, THE EXHAUST FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED AND AMMONIA CONCENTRATION SHALL BE MONITORED AND RECORDED AT LEAST ONCE PER SHIFT.
[RULE 203]

12. WHEN BIOFILTER IS IN OPERATION, THE OPERATING PARAMETERS, SUCH AS INLET FOUL-AIR FLOW RATE, MOISTURE, PH, IRRIGATION SPRAYS, ETC., SHALL BE MONITORED AND MAINTAINED PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS. DAILY RECORDS SHALL BE KEPT FOR THE MEASURED PARAMETERS.
[RULE 203]

13. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF TOTAL SULFUR COMPOUNDS MEASURED AS HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY FOR THE FIRST MONTH, AND ONCE A WEEK THEREAFTER, USING PORTABLE DEVICES; SUCH AS COLORIMETRIC H2S TUBES, HAND HELD H2S ANALYZERS OR ANY OTHER DISTRICT APPROVED METHODS.
[RULE 402, 1401]

14. THE HYDROGEN SULFIDE (H2S) CONCENTRATION MEASURED IN EXHAUST SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

15. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, THE WORK SHALL CEASE AND MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY. WORK SHALL NOT RESUME UNTIL EMISSIONS CAUSING THE COMPLAINTS IS MITIGATED.
[RULE 402]

16. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 203]

BACKGROUND:

The above A/N 556627 was submitted on 10/3/2013 by the Orange County Sanitation district (OCSD) for the new construction of air pollution (odors) control system consisting of wet scrubber, to control ammonia emissions from the new digested sludge dewatering system (OCSD Project P2-92, A/N 556626), followed by biofilter (three cells) to control H2S odors and VOCs.

The proposed APC system will replace existing permitted odor control equipment (F99406/ A/N 444112) that controls odors and VOCs emissions from existing sludge dewatering system (belt press filters building) and odor emissions from the existing biosolids storage silos using GACs (A/N 519422PC, granted 6/7/2012). This is considered a functionally identical equipment replacement.

A/N 556626 is also submitted for the new digested biosolids dewatering system, consisting of centrifuges, biosolids (cake) bins and centrate wet well). This is considered modifications to the sewage treatment plant (G25942, A/N 453240) which will replace existing dewatering facility. The existing building will be demolished and new dewatering facility building will be constructed.

A/N 556625 is submitted for Title V permit Revision (minor) to include above applications.
Most recent Title V permit revision was issued on 9/27/2013.

Final design for the proposed project P2-92 (covers above A/Ns 556626 & 556627) target date is February 2014 with an estimated construction startup date in August 2014 and construction completion and startup date in December 2017.

PROCESS DESCRIPTION:

The proposed new construction for foul-air treatment, APC system, consists of wet scrubber- packed tower to remove ammonia and the scrubber exhaust will be further treated by biofilter to control mainly H2S odors and VOCs. APC system is designed for 7,500 cfm of foul-air generated from the new sludge dewatering system (centrifuges, biosolids storage bins and centrate wet well).

This proposed APC system (A/N 556627) will replace the existing odor control equipment, shown below;
(This is considered a functionally identical equipment replacement).

Existing APC system (Dewatering systemP2-28-1), A/N 444112, PO F99406 - 92,000 cfm
Existing odor control system consisting of GAC to control odors from existing biosolids storage silos - 519422PC 3,000 cfm. (Existing two biosolids will remain which are known as cake bins, A & B under Project P2-92).

Total of 7,500 cfm (design) of foul- air form the new sludge dewatering system (centrifuges, biosolids storage bins and centrate wet well- A/N 556626) will be first treated by the wet scrubber containing 4' of polypropylene packing material and sprays. Foul air passes upward through the packing material and scrubbing water is sprayed from the top. Gas-liquid contact, using packing material surface area, will result in ammonia absorption in gas stream, with some VOCs. Ammonia concentration in foul air is expected to be low and hence water as scrubbing solution should be adequate. Sulfuric acid injection (as a back-up) will be used if needed with scrubbing solution PH maintained between 6 & 8. Foul air flow rate, pressure drop across the packing material, scrubbing solution PH, make-up water and acid flow rate will be monitors. Ammonia concentration in scrubber exhaust to be maintained below 5 ppmv. Scrubber operating parameters will be monitored and results recorded.

Scrubber exhaust will be further treated by biofilter to remove H2S odors and VOCs. Biofilter consists of three cells, A, B and C, each can process 2500 cfm air. Biofilter is a custom made with inorganic engineered material (media) that will be generally a rock-based mixture containing chemically reactive materials and active biological material. Water will be sprayed on biofilter surface to maintain desired moisture level. Treated air from each cell will be combined and discharged through a 2' diameter x 47' high stack (located above cake storage bins). Operating parameters will be monitored along with H2S concentration (ppmv) monitoring for the stack exhaust.

EMISSIONS:

Existing two odor control systems, treats total of 92,000 cfm (from existing sludge Dewatering Building) + 3000 cfm (from biosolids storage silos) = 95,000 cfm.
There is no change in wastewater throughput capacity for the plant.

Proposed APC system will treat total of 7,500 cfm from the new sludge Dewatering system and cake bins.

No net increase in emissions is expected due to improvements made by the new dewatering system (centrifuges) and approximately 90% reduced foul air to be treated.

5 ppmv ammonia limit and 1 ppmv H2S limit is imposed for the APC system.

AEIS/ NSR entries for ammonia and H2S, APC = 0 (Reflected under sewage treatment plant modification A/N 556627, with no net increase for ammonia and H2S emissions).

For information purpose,
7500 cfm total foul-air,5 ppmv ammonia and 1 ppmv H2S limit for APC system (wet scrubber/biofilter- A/N 556627),

Ammonia = 7500 cfm x (5E-06 ammonia) x 1/379 x 34 x 60 = 0.04 lbs/hr = 0.96 lbs/ammonia/ day

H2S = 7500 cfm x (1E-06 H2S) x 1/379 x 17 x 60 = 0.10 lbs/hr = 2.4 lbs H2S / day

RULES EVALUATION:

Rule 212:

There are no schools within 1/4 mile of the emission source. For the proposed modifications, no net increase in emissions is expected and no impact on health risk or HIA, HIC is expected. Compliance is expected.

Rule 401 (Visible Emissions):

With proper operation, maintenance and control of equipment compliance is expected.

Rule 402 (Nuisance):

With proper operation, maintenance and control of equipment compliance is expected.

Regulation XIII:

Proposed modification for sludge dewatering is considered a functionally identical replacement with no net increase in emissions. Amount of foul-air treated by new APC system is significantly reduced with no net increase in emissions. No BACT is required. (However, proposed wet scrubber and biofilter is expected to control potential odor emissions).

EIR: In January 2013, Lead agency, OCSD, approved P2-92 Sludge Dewatering And Odor Control Project and Final Subsequent EIR (SEIR) was issued. On March 28, 2013, NOD was filed.

The project P2-92, that involve construction and replacement for the existing sludge dewatering system and associated odor control ventilation system at Plant 2. The project would require the demolition of existing Plant 2 facility but would not expand the capacity of the existing wastewater treatment facility and would be constructed entirely within the existing Plant 2 property.

The project will have a significant effect on environment. Mitigation measures were made condition to the approval of the project. Mitigation measures and monitoring plan was adopted for this project. Finding was made pursuant to the provisions of CEQA.

OCSD had given written response to the comments made by the SCAQMD, Planning Rule development & Area Sources prior to issuing final SEIR (include in SEIR, Chapter 12, January 2013).

Based up on above discussions, compliance with this Reg. is expected.

Rule 1401:

Proposed APC operations with significantly reduced foul-air treatment (compared to existing odor control systems that will be replaced) by wet-scrubber and biofilter is expected to have net reduction in ammonia and H2S emissions.
Rule 1401 is not applicable. (Note: Tier 1 and Tier 2 screening passes).

Rule 1401.1:

This rule is not applicable. OCSD Plant No. 2 at Huntington Beach is an existing facility.

Recommendations:

Compliance with applicable rules and regulations is expected.
A permit to construct is recommended with above proposed conditions, pgs. 1 trough 3.

This permit to be included in Tile V minor revision, A/N 556625, upon completion of EPA 45-day review period.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

September 27, 2013

Reference

Mr. James Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Re: Title V Permit Minor Revision for Orange County Sanitation District (OCSD), Sewage Treatment Plant, Huntington Beach (ID# 029110)

Dear Mr. Herberg,

Enclosed please find the revised Title Page, Table of Content and Section D (Revision 05) of the Title V facility permit for your Huntington Beach Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The South Coast Air Quality Management District (AQMD) issued the draft permit for Environmental Protection Agency (EPA) review on August 6, 2013, and no comments were received from EPA. No public notice was required for this revision. The revised Section D reflects the approval of the permits as shown below

SECTION D: Facility Equipment and Requirements

Application Number	Permit No.	Equipment	Description
540708 through 540712	G27394 through G27398	ICE (>500 HP, CG1-HB TO CG5-HB)	Revised ROG concentration limit (condition No. 11) and corrected condition No. 12.

Please review the attached pages carefully. Insert the enclosed section(s) in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543 or Email grawal@aqmd.gov.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals-Permitting

AYL: CDT: GCR
Enclosures
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance
Title V Central File
A/N 540707-Title V Permit Revision

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

August 2, 2013

Mr. James Herberg
General Manager
Orange County Sanitation District
PO Box 8127
Fountain Valley, CA 92728-8127

Subject: Administrative Revision to Title V Facility Permit
Huntington Beach, Plant 2 (Facility ID 029110)

Dear Mr. Herberg,

Enclosed please find an administrative revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. This revision does not require public notice or EPA review.

The administrative revision includes the final permit to operate for an air pollution control system for which a permit to construct (under A/N 453240) was previously issued.

The following application is added to Section D - Facility Equipment and Requirements, and removed from Section H - Permits to Construct and Temporary Permits to Operate.

Appl. No.	Permit no.	Description
453240	G25942	Sewage Treatment (250 MGD), Anaerobic

Also A/N 222809 (D93957) is removed from section D, and A/N 428642 is removed from section H.

This administrative permit revision includes Title Page, Table of Contents, Section D and Section H. Please review the attached pages carefully. Insert the enclosed pages in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals
Permitting

AYL: CDT: GCR
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance
Title V Central File
A/N 453240

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Facility Equipment and Requirements
(Section D)

This section consists of a table listing all permitted equipment at the facility, facility wide requirements, copies of all individual Permits to Construct and Permits to Operate issued to various equipment at the facility, and Rule 219-exempt equipment subject to source-specific requirements. Each permit and Rule 219-exempt equipment will list operating conditions including periodic monitoring requirements, and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

The following is a list of all permits to construct and operate at this facility:

Application Number	Permit Number	Equipment Description	Page Number
06045A	R-M29144	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	5
06046A	R-M29146	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	7
06047A	R-M29147	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	9
06048A	R-M29148	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	11
291030	R-D94235	BOILER (5-20 MMBTU/HR) NATURAL & DIGESTER GAS	13
291031	R-D94232	BOILER (5-20 MMBTU/HR) NATURAL & DIGESTER GAS	15
331911	F11229	SCRUBBER, ODOR	17
394231	G12232	ODOR CONTROL SYSTEM, BIOFILTER	19
424369	F65823	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	21
429663	F71055	FLARE, ENCLOSED LANDFILL/DIGESTER GAS	23
444111	F99405	SCRUBBER, ODOR	27
444112	F99406	SCRUBBER, ODOR	29
444113	F99408	SCRUBBER, ODOR	31
453240	G25942	SEWAGE TREATMENT (>5 MGD) ANAEROBIC	33
455670	R-F81554	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	36
455671	R-F81555	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	38
455673	R-F81556	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	40
457410	G24634	ACTIVATED CARBON ADSORBER, DRUM VENT SINGLE SOURCE	42
474766	F95584	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	44
474767	F95585	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	46
474768	F95586	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	48
474769	F95587	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	50
474770	F95588	ICE (>500 HP) EMERGENCY ELECTRICAL GENERATOR DIESEL	52
512604	G12233	STORAGE TANK, FIXED ROOF, HCl, W/SPARGER	54
512832	G12234	STORAGE TANK, FIXED ROOF, HCl, W/CONTROL	55
512833	G12235	STORAGE TANK, FIXED ROOF, HCl, W/CONTROL	56

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST (CONT'D)

The following is a list of all permits to construct and permits to operate at this facility:

Application Number	Permit Number	Equipment Description	Page Number
540708	G27394	ICE (>500 HP) NATURAL & DIGESTER GAS	57
540709	G27395	ICE (>500 HP) NATURAL & DIGESTER GAS	60
540710	G27396	ICE (>500 HP) NATURAL & DIGESTER GAS	63
540711	G27397	ICE (>500 HP) NATURAL & DIGESTER GAS	66
540712	G27398	ICE (>500 HP) NATURAL & DIGESTER GAS	69

NOTE: APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. G25942
A/N 453240

Equipment Description:

SEWAGE TREATMENT PLANT, 250 MGD CAPACITY, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED STORAGE HOPPERS, AND TRUCK LOADING HOPPER.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND SLUDGE PROCESSING STATION SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

6. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

7. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

8. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

9. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	Permit to Construct Granted On	Equipment Description	Page Number
428804	9/22/2004	ODOR CONTROL UNIT	3
453244	10/19/2006	ODOR CONTROL UNIT	7
519422	6/07/2012	ODOR CONTROL SYSTEM, GRANULAR ACTIVATED CARBON	10
518276	6/07/2012	ODOR CONTROL UNIT, BIOFILTER	12
545004	10/17/2013 (will supersede R-D94235)	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	15
545005	10/17/2013 (will supersede R-D94232)	BOILER (5-20 MMBTU/HR) DIGESTER GAS AND NATURAL GAS	18

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

October 18, 2013

TERRY AHN
ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

Facility ID: 29110
Located at: 22212 BROOKHURST ST, HUNTINGTON BEACH

Thank you for filing your application(s) with the South Coast Air Quality Management District (AQMD).

The application number(s) assigned by AQMD to your application package(s) is/are on Page 2 of this letter. Please refer to information on Page 2 when contacting AQMD for assistance. The information you submitted with your application(s) or in your latest submittal is complete to the extent that allows us to begin processing of your however some clarifying data may still be needed. The acceptance of your application(s) does not imply that permit(s) has/have been approved.
The engineer assigned to your application(s) will contact you if additional information is required.

If you have any questions or need additional information about your application(s), please contact the engineer listed below:

Engineer: GAURANG RAWAL **Telephone:** (909) 396-2543

For general information about AQMD's permit process, please call (909) 396-2468.

cc: Application file(s)

AQMD PERMIT APPLICATION INFORMATION

(Please refer to this information when contacting AQMD for Assistance)

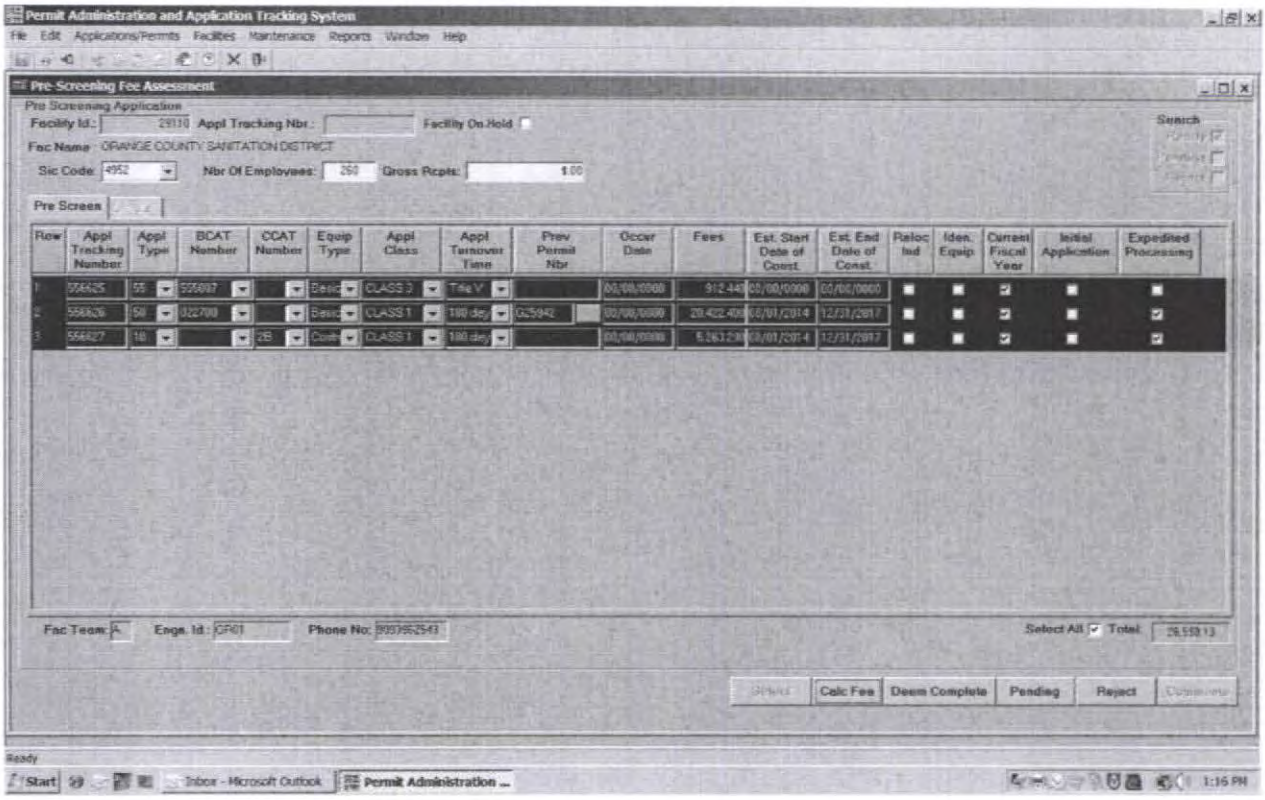
October 18, 2013

Facility ID: 29110

Application Number (s)	Equipment Description
556625	Title V Permit Revision
556626	SEWAGE TREATMENT (>5 MG/D) ANEROBIC
556627	CONTROL SYS, TWO SERIES

Modifn to PO G25942 to add New Sludge Dewatering System

odor control wet Scrubber/Biofilter



AN
556625
TV Rev., minor, $912.44

10/18/2013

TABLE VII
SUMMARY OF RECLAIM & TITLE V FEES

Description	Rule section	Fee
RECLAIM		
Facility Amendment Fee with Engineering Evaluation • RECLAIM only • RECLAIM & Title V	(k)(5)	 $912.44 $1,824.90
Facility Amendment Fee without Engineering Evaluation • RECLAIM only • RECLAIM & Title V	(k)(5)	 $912.44$1,824.90
Change of Operator • Facility Permit Amendment Fee + Application Processing Fee for Each Application	(k)(7)	$912.44 + $530.89
Title V		
Administrative Permit Revision Fee	(l)(6)	$912.44
Permit Revision Fee • Minor permit revision • De minimis significant permit revision • Significant permit revision	(l)(7)	 $912.44 $912.44 $912.44
Permit Renewal Fees + Final Fee if time exceeds 8 hours	(l)(8)	~~$2,072.50 +~~ $142.02/hr
Change of Operator • Administrative Permit Revision Fee	(m)(5)	$912.44

Serving
Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

Orange County Sanitation District
10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

September 26, 2013

Permit Services
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

SUBJECT: Application for Title V Permit Revision/Permits-to-Construct: New Sludge Dewatering Facility and Odor Control System at Orange County Sanitation District Plant No.2 (OCSD Job No. P2-92)

The purpose of this letter is to submit an application for Title V Permit Revision/Permits-to-Construct new Sludge Dewatering Facility and Odor Control System at Orange County Sanitation District's Plant No. 2 located in Huntington Beach, CA. (SCAQMD Facility ID. 029110).

The new Sludge Dewatering Facility will consist of five centrifuges and the associated equipment and will be a complete replacement of the existing belt filter press dewatering facility. SCAQMD Permit No. G25942 (A/N 453240) will need to be modified to allow the construction of the new Sludge Dewatering Facility.

The new Odor Control System serving the new Sludge Dewatering Facility will be a two-stage system consisting of a packed tower wet scrubber followed by a biofilter. The new system will be a complete replacement of the existing Dewatering Facility Scrubbers (SCAQMD Permit No. F99406) and Odor Control System for Biosolids Storage Silos (SCAQMD A/N 519422).

Enclosed with this letter are:

- (3) SCAQMD Form 400-A: Application for Permit to Construct and Permit to Operate
- (1) SCAQMD Form 500-A2: Title V Application Certification
- (1) SCAQMD Form 500-C1: Title V Compliance Status Report
- (1) SCAQMD Form 400-CEQA with a copy of Notice of Determination
- (2) SCAQMD Form 400-E-3: Scrubber
- (1) SCAQMD Form 400-PS: Plot Plan and Stack Information
- (1) SCAQMD Form 400-XPP: Express Permit Processing Request
- Supplemental Information
- A check in the amount of $28,599.07 for the processing fee

If you have any questions or require further information, please contact Terry Ahn at (714) 593-7082 or tahn@ocsd.com.

James Colston
Environmental Compliance Manager

TA:JC:jb
H:\dept\eng\790\Groups\Compliance\Staff\ahn\Permitting Projects\P2-92_Centrifuge\Permitting\P2-92_ApplCvr.doc

Enclosure(s)

cc: Gaurang Rawal (SCAQMD)

South Coast Air Quality Management District

Form 500-A2
Title V Application Certification

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 029110

3. **This Certification is submitted with a** (Check one):
   - a. ◉ Title V Application (Initial, Revision or Renewal)
   - b. ○ Supplement/Correction to a Title V Application
   - c. ○ MACT Part 1

4. **Is Form 500-C2 included with this Certification?** ○ Yes ◉ No

Section II - Responsible Official Certification Statement

Read each statement carefully and check each that applies – ***You must check 3a or 3b.***

1. **For Initial, Permit Renewal, and Administrative Application Certifications:**
   - a. ○ The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,
     - i. ☐ except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.
     - ii. ☐ except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).
   - b. ○ The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.
2. **For Permit Revision Application Certifications:**
   - a. ☑ The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.
3. **For MACT Hammer Certifications:**
   - a. ○ The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).
   - b. ○ The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official:	2. Title of Responsible Official:
James Herberg	General Manager
3. Print Name:	**4. Date:**
James Herberg	09-26-2013
5. Phone #:	**6. Fax #:**
(714) 593-7300	(714) 962-0356

7. Address of Responsible Official:

10844 Ellis Avenue	Fountain Valley	CA	92708-7018
Street #	City	State	Zip

Acid Rain Facilities Only: Please Complete Section IV

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section IV - Designated Representative Certification Statement	
For Acid Rain Facilities Only: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.	
1. Signature of Designated Representative or Alternate:	2. Title of Designated Representative or Alternate:
3. Print Name of Designated Representative or Alternate:	4. Date:
5. Phone #:	6. Fax #:
7. Address of Designated Representative or Alternate:	

Street #	City	State	Zip
		CA	

South Coast Air Quality Management District

Form 500-C1

Title V Compliance Status Report

To provide the compliance status of your facility with applicable federally enforceable requirements and identify other local-only requirements, complete this form and attach it to a completed compliance certification Form 500-A2. As appropriate, all submittals of Form 500-C2 as appropriate should also be attached to this form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

PROCEDURES FOR DETERMINING COMPLIANCE STATUS

1. **Equipment verification:** Review the list of pending applications, and either the preliminary Title V facility permit or the list of current permits to operate that the AQMD provided you, to determine if they completely and accurately describe all equipment operating at the facility. Attach a statement to describe any discrepancies.
2. **Identify applicable requirements*:** Use the checklist in Section II to identify all applicable and federally-enforceable local, state, and federal rules and regulations, test methods, and monitoring, recordkeeping and reporting (MRR) requirements that apply to any equipment or process (including equipment exempt from a permit by Rule 219) at your facility.
   The potential applicable requirements, test methods and MRR requirements are identified and listed adjacent to each given equipment/process description. Check off each box adjacent to the corresponding requirement as it applies to your particular equipment/process.
   Note: Even if there is only one piece of equipment that is subject to a particular requirement, the appropriate box should be checked.
3. **Identify additional applicable requirements*:** Use Section III to identify any additional requirements not found in Section II. Section II is not a complete list of all applicable requirements. It does not include recently adopted NESHAP regulations by EPA or recent amendments to AQMD rules. Do not add rules listed in Section V here.
4. **Identify any requirements that do not apply to a specific piece of equipment or process:** Also use Section III to identify any requirements that are listed in Section II but that do not apply to a specific piece of equipment or process. Fill out Section III of this form and attach a separate sheet to explain the reason(s) why the identified rules do not apply. Note: Listing any requirement that does not apply to a specific piece of equipment will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and is approved by AQMD.
5. **Identify SIP-approved rules that are not current AQMD rules:** Use Section IV to identify older versions of current AQMD rules that are the EPA-approved versions in the State Implementation Plan (SIP), and that are still applicable requirements as defined by EPA. The facility is not required to certify compliance with the items checked in Section IV provided that the non-SIP approved rule in Section II is at least as stringent as the older SIP-approved version in Section IV. **
6. **Identify Local-Only Enforceable Regulatory Requirements:** Use Section V to identify AQMD rules that are not SIP-approved and are not federally enforceable.
7. **Determine compliance:** Determine if all equipment and processes are complying with all requirements identified in Sections II and III. If each piece of equipment complies with all applicable requirements, complete and attach Form 500-A2 to certify the compliance status of the facility. If any piece of equipment is not in compliance with any of the applicable requirements, complete and attach Form 500-C2 in addition to Form 500-A2.

* The following AQMD rules and regulations are not required to be included in Section II and do not have to be added to Section III: Regulation I, List and Criteria in Regulation II, Rule 201, Rule 201.1, Rule 202, Rule 203, Rule 205, Rule 206, Rule 207, Rule 208, Rule 209, Rule 210, Rule 212, Rule 214, Rule 215, Rule 216, Rule 217, Rule 219, Rule 220, Rule 221, Regulation III, Regulation V, Regulation VIII, Regulation XII, Regulation XV, Regulation XVI, Regulation XIX, Regulation XXI, Regulation XXII, and Regulation XXX.

** Emission units adversely affected by the gap between current and SIP-approved versions of rules may initially be placed in a non-Title V portion of the permit

Section II - Applicable Requirements, Test Method MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations (12/15/00)	☐ Rule 442	☐ Rule 442(f)	☐ Rule 442(g)
☐ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☐ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☐ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☐ Rule 431.1 (06/12/98)	☐ Rule 431.1(f)	☐ Rule 431.1(d) & (e)
☐ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☐ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☑ All Equipment	☑ Rule 401 (11/09/01) ☐ Rule 405 (02/07/86) ☑ Rule 408 (05/07/76) ☑ Rule 430 (07/12/96) ☑ Rule 701 (06/13/97) ☑ New Source Review, BACT ☐ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☑ California Air Resources Board Visible Emission Evaluation ☐ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☑ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (06/03/05)	☐ Rule 403(d)(3)	☐ Rule 403(f)
☐ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☐ Rule 404 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (05/01/09) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(e) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

Orange County Sanitation District
10844 Ellis Ave, Fountain Valley, CA 92708
(714) 962-2411

PAYMENT STUB
Vendor:
SCAQMD

Check No.: 1000059537
Check Date: 10/2/2013
Vendor No.: 14146

Invoice Number	Invoice Date	Description	Gross	Discount	Payment Amount
TITLE V PERMIT 2014	9/25/2013	Fac. ID 029110	28,599.07		28,599.07
		Total Amount			U.S. $****28,599.07

ORANGE COUNTY
SANITATION DISTRICT
10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708-7018

Hasler
10/02/2013
US POSTAGE
FIRST-CLASS MAIL
$02.32⁰
ZIP 92708
011D11619321

Permit Services
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

ROUTING RECORD

DATE	FROM	TO	ACTION
6/27/14	CT01	GR01	prescreen HA
7-9-14	GR01		TV Rev., minor
7-22-14	GR01	CT01	TV Rev for EPA Review.
9-19-14	CT	AL	Proposed Minor Revision
11-05-14	GR01	CT01	Issue Final TV Rev.
11-12-14	CT	PS	Revision Approved HA

REFERENCE TO OTHER APCD RECORDS INCLUDING VARIANCES 565930

Title V Rev # 10 11/12/14

APPL # 565929
I.D. # 29110

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH
TITLE V REVISION – Minor.

Date: 06/25/14

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: ⊙ Fixed Location ○ Various Location
(For equipment operated at various locations, provide address of initial site.)

22212 Brookhurst Street
Street Address

Huntington Beach, CA 92646-8406
City, Zip

Terry Ahn — Regulatory Specialist
Contact Name, Title

(714) 593-7082 Ext — (714) 962-2591
Phone #, Fax #

E-Mail: tahn@ocsd.com

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Address

Fountain Valley, CA 92708-7018
City, State, Zip

Terry Ahn — Regulatory Specialist
Contact Name, Title

(714) 593-7082 Ext — (714) 962-2591
Phone #, Fax #

E-Mail: tahn@ocsd.com

Section D - Application Type

6. The Facility Is: ○ Not In RECLAIM or Title V ○ In RECLAIM ⊙ In Title V ○ In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:
- ○ New Construction (Permit to Construct)
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Equipment Operating Without A Permit *
- ○ Compliance Plan
- ○ Registration/Certification
- ○ Streamlined Standard Permit

7b. Facility Permits:
- ⊙ Title V Application or Amendment (Refer to Title V Matrix) (7b)
- ○ RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:
- ○ Administrative Change
- ○ Alteration/Modification
- ○ Alteration/Modification without Prior Approval *
- ○ Change of Condition
- ○ Change of Condition without Prior Approval *
- ○ Change of Location
- ○ Change of Location without Prior Approval *
- ○ Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy): 03/31/2015
8b. Estimated End Date of Construction (mm/dd/yyyy): 06/15/2016
8c. Estimated Start Date of Operation (mm/dd/yyyy): 06/15/2016

9. Description of Equipment or Reason for Compliance Plan (list applicable rule): Addition of three new chemical scrubbers to the existing activated carbon-based odor control system

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less OR a not-for-profit training center) ⊙ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? ⊙ No ○ Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location? Municipal Wastewater Treatment

14. What is your business primary NAICS Code? (North American Industrial Classification System) 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ⊙ Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? ⊙ No ○ Yes

Section F - Authorization/Signature *I hereby certify that all information contained herein and information submitted with this application are true and correct.*

17. Signature of Responsible Official: [signature]

18. Title of Responsible Official: General Manager

19. I wish to review the permit prior to issuance. (This may cause a delay in the application process.) ○ No ⊙ Yes

20. Print Name: James Herberg

21. Date: 06-24-2014

22. Do you claim confidentiality of data? (If Yes, see instructions.) ⊙ No ○ Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY

APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED	PAYMENT TRACKING #	VALIDATION
565929	1000065857	8,176.67	716869	6-25-14

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN
7/9/14	APP					555007	A		

2 of 2

South Coast Air Quality Management District

Form 500-A2

Title V Application Certification

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. **Facility Name** (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. **Valid AQMD Facility ID** (Available On Permit Or Invoice Issued By AQMD): 029110

3. **This Certification is submitted with a** (Check one):
   - a. (●) Title V Application (Initial, Revision or Renewal)
   - b. ( ) Supplement/Correction to a Title V Application
   - c. ( ) MACT Part 1

4. **Is Form 500-C2 included with this Certification?** ( ) Yes (●) No

Section II - Responsible Official Certification Statement

Read each statement carefully and check each that applies - ***You must check 3a or 3b.***

1. **For Initial, Permit Renewal, and Administrative Application Certifications:**
   - a. ( ) The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,
     - i. [ ] except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.
     - ii. [ ] except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).
   - b. ( ) The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.
2. **For Permit Revision Application Certifications:**
   - a. [✓] The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.
3. **For MACT Hammer Certifications:**
   - a. ( ) The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j).
   - b. ( ) The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

Section III - Authorization/Signature

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statement and information in this document and in all attached application forms and other materials are true, accurate, and complete.

1. Signature of Responsible Official:	2. Title of Responsible Official:
James Herberg	General Manager
3. Print Name:	**4. Date:**
James Herberg	06-24-2014
5. Phone #:	**6. Fax #:**
(714) 593-7300	(714) 962-0356

7. Address of Responsible Official:

Street #	City	State	Zip
10844 Ellis Avenue	Fountain Valley	CA	92708-7018

Acid Rain Facilities Only: Please Complete Section IV

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section IV - Designated Representative Certification Statement	
For Acid Rain Facilities Only: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.	
1. Signature of Designated Representative or Alternate:	2. Title of Designated Representative or Alternate:
3. Print Name of Designated Representative or Alternate:	4. Date:
5. Phone #:	6. Fax #:
7. Address of Designated Representative or Alternate:	

Street #	City	State	Zip
		CA	

South Coast Air Quality Management District

Form 500-C1

Title V Compliance Status Report

To provide the compliance status of your facility with applicable federally enforceable requirements and identify other local-only requirements, complete this form and attach it to a completed compliance certification Form 500-A2. As appropriate, all submittals of Form 500-C2 as appropriate should also be attached to this form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section I - Operator Information

1. Facility Name (Business Name of Operator That Appears On Permit): Orange County Sanitation District

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD): 029110

PROCEDURES FOR DETERMINING COMPLIANCE STATUS

1. **Equipment verification:** Review the list of pending applications, and either the preliminary Title V facility permit or the list of current permits to operate that the AQMD provided you, to determine if they completely and accurately describe all equipment operating at the facility. Attach a statement to describe any discrepancies.
2. **Identify applicable requirements***: Use the checklist in Section II to identify all applicable and federally-enforceable local, state, and federal rules and regulations, test methods, and monitoring, recordkeeping and reporting (MRR) requirements that apply to any equipment or process (including equipment exempt from a permit by Rule 219) at your facility.
   The potential applicable requirements, test methods and MRR requirements are identified and listed adjacent to each given equipment/process description. Check off each box adjacent to the corresponding requirement as it applies to your particular *equipment/process*.
   Note: Even if there is only one piece of equipment that is subject to a particular requirement, the appropriate box should be checked.
3. **Identify additional applicable requirements***: Use Section III to identify any additional requirements not found in Section II. Section II is not a complete list of all applicable requirements. It does not include recently adopted NESHAP regulations by EPA or recent amendments to AQMD rules. Do not add rules listed in Section V here.
4. **Identify any requirements that do not apply to a specific piece of equipment or process**: Also use Section III to identify any requirements that are listed in Section II but that do not apply to a specific piece of equipment or process. Fill out Section III of this form and attach a separate sheet to explain the reason(s) why the identified rules do not apply. Note: Listing any requirement that does not apply to a specific piece of equipment will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and is approved by AQMD.
5. **Identify SIP-approved rules that are not current AQMD rules:** Use Section IV to identify older versions of current AQMD rules that are the EPA-approved versions in the State Implementation Plan (SIP), and that are still applicable requirements as defined by EPA. The facility is not required to certify compliance with the items checked in Section IV provided that the non-SIP approved rule in Section II is at least as stringent as the older SIP-approved version in Section IV. **
6. **Identify Local-Only Enforceable Regulatory Requirements:** Use Section V to identify AQMD rules that are not SIP-approved and are not federally enforceable.
7. **Determine compliance:** Determine if all equipment and processes are complying with all requirements identified in Sections II and III. If each piece of equipment complies with all applicable requirements, complete and attach Form 500-A2 to certify the compliance status of the facility. If any piece of equipment is not in compliance with any of the applicable requirements, complete and attach Form *500-C2 in addition to Form* 500-A2.

* The following AQMD rules and regulations are not required to be included in Section II and do not have to be added to Section III: Regulation I, List and Criteria in Regulation II, Rule 201, Rule 201.1, Rule 202, Rule 203, Rule 205, Rule 206, Rule 207, Rule 208, Rule 209, Rule 210, Rule 212, Rule 214, Rule 215, Rule 216, Rule 217, Rule 219, Rule 220, Rule 221, Regulation III, Regulation V, Regulation VIII, Regulation XII, Regulation XV, Regulation XVI, Regulation XIX, Regulation XXI, Regulation XXII, and Regulation XXX.

** Emission units adversely affected by the gap between current and SIP-approved versions of rules may initially be placed in a non-Title V portion of the permit

Section II - Applicable Requirements, Test Methods, & MRR Requirements

Equipment/Process	Applicable Requirement	Test Method	MRR Requirement
☐ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations (12/15/00)	☐ Rule 442	☐ Rule 442(f)	☐ Rule 442(g)
☐ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☐ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☐ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☐ Rule 431.1 (06/12/98)	☐ Rule 431.1(f)	☐ Rule 431.1(d) & (e)
☐ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☐ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☑ All Equipment	☑ Rule 401 (11/09/01) ☐ Rule 405 (02/07/86) ☑ Rule 408 (05/07/76) ☑ Rule 430 (07/12/96) ☑ Rule 701 (06/13/97) ☐ New Source Review, BACT ☐ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☑ California Air Resources Board Visible Emission Evaluation ☐ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☑ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (06/03/05)	☐ Rule 403(d)(3)	☐ Rule 403(f)
☐ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☐ Rule 404 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (05/01/09) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(e) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)	☐ Rule 2011, App. A (05/06/05) ☐ Rule 2012, App. A (05/06/05)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	

KEY ABBREVIATIONS: **Reg.** = AQMD Regulation; **Rule** = AQMD Rule; **App.** = Appendix; **AQMD TM** = AQMD Test Method; **CFR** = Code of Federal Regulations; **CCR** = California Code of Regulations

SCAQMD PERMIT PROCESSING SYSTEM (PPS)

FEE DATA - SUMMARY SHEET

Application No	: 565929	IRS/SS No:	
Previous Application No:		Previous Permit No:	

Company Name :	ORANGE COUNTY SANITATION DISTRICT	Facility ID:	29110
Equipment Street:	22212 BROOKHURST ST , HUNTINGTON BEACH CA 92646		
Equipment Desc :	Title V Permit Revision		

Equipment Type :	BASIC			Fee Charged by:	B-CAT
B-CAT NO. :	555007	C-CAT NO:	00	Fee Schedule:	Z
Facility Zone :	18	Deemed Compl. Date:	7/9/2014	Public Notice:	NO

Evaluation Type :	MINOR PERMIT REVISION	Small Business:	☐
Disposition :	Approve Title V Application, Recommended by Engineer	Higher Fees for Failing to Obtain a Permit:	☐
Lead Appl. No :		Identical Permit Unit:	☐

Air quality Analysis			$0.00	Filing Fee Paid:	$0.00
E.I.R			$0.00	Permit Processing Fee Paid:	$912.44
Health Risk Assessment			$0.00	Permit Processing Fee Calculated*:	$954.85
Public Notice Preparation Fee			$0.00	Permit Processing Fee Adjustment:	$42.41
Public Notice Publication Fee			$0.00		
Expedited Processing	Hours:	0.00	$0.00		
Source Test Review	Hours:	0.00	$0.00		
Time & Material	Hours:	0.00	$0.00		
				Total Additional Fee:	$0.00
				Additional Charge:	$42.41

COMMENTS: NO ADDITIONAL CHARGE, AS CORRECT FEE WAS PAID FOR FY 2013-2014 WHEN A/N WAS SUBMITTED ON JUNE 26, 2014.

12/12/14

RECOMMENDED BY: GAURANG RAWAL DATE: 07/22/2014

REVIEWED BY: CDT DATE: 11/12/14

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT AND P/O NO P/C PENALTY

Catherine Rodriguez

From: Catherine Rodriguez
Sent: Tuesday, November 18, 2014 10:39 AM
To: 'R9AirPermits_SC@epa.gov'
Cc: Gaurang Rawal; Charles Tupac; Andrew Lee; Helen Quintana
Subject: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach (029110) Final Minor
Attachments: ID 29110 OCSD Huntington Beach - Facility Cover Letter with Final Title V Permit Revision.pdf

Facility Name: Orange County Sanitation District (OCSD) Sewage Treatment Plant, Huntington Beach
Facility ID: 029110
Address: 22212 Brookhurst Street, Huntington Beach, CA
Type of Mod: Final Minor
Description: Section H: Permit to Construct and Temporary Permit to Operate:

Application No.	Equipment	Description
565930	Air Pollution Control (APC) System	Modifications to permit to operate, G27920, by the addition of three new single stage chemical scrubbers to improve odor control treatment at the Trickling Filters facility (OCSD Job No. FE13-04).

Title V Application #: 565929
Attachments:

1. Facility Cover Letter w/Final Title V Permit Revision

Please contact me if there are any problems with the transmission of the attached files.

Catherine Rodriguez
Secretary to
Andrew Lee, P.E.
Sr. AQ Engineering Manager
South Coast AQMD
Energy/Public Services/Waste Mgmt/Terminals-Permitting
Engineering and Compliance Division
21865 Copley Drive
Diamond Bar, CA 91765
(909) 396-2735; crodriguez@aqmd.gov

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

November 12, 2014

Mr. James Herberg
General Manager
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92708-7018

Subject: Minor Revision to Title V Facility Permit
Huntington Beach, Plant 2 (Facility ID 029110)

Dear Mr. Herberg,

Enclosed please find minor revision to the Title V facility permit, for the Orange County Sanitation District (OCSD) Huntington Beach, Sewage Treatment Plant No. 2 (Facility ID 029110), located at 22212 Brookhurst Street, Huntington Beach, California. The draft permit was sent to EPA on September 23, 2014 for review and there were no comments received by the SCAQMD.

The following application was included under Section H (rev 08).

SECTION H: Permit to Construct and Temporary Permit to Operate

Application Number	Equipment	Description
565930	Air Pollution Control (APC) System	Modifications to permit to operate, G27920, by the addition of three new single stage chemical scrubbers to improve odor control treatment at the Trickling Filters facility (OCSD Job No. FE13-04).

This permit revision includes Title Page, Table of Contents and Section H. Please review the attached pages carefully. Insert the enclosed pages and section H in your Title V Facility Permit and discard the earlier versions. Questions concerning this revised permit should be directed to Mr. Gaurang Rawal at (909) 396-2543.

The operation of your facility is bound by the conditions and/or requirements stated in your Facility Permit to Operate. If you determine any administrative errors, please contact Mr. Gaurang Rawal at the above number within 30 days of receipt of your permit.

Sincerely,

Andrew Y. Lee, P.E.
Senior AQ Engineering Manager
Energy/Public Services/Waste Mgmt/Terminals
Permitting

AYL: CDT: GCR
cc: w/ enclosure
Geraldo Rios, EPA Region IX
Compliance-SCAQMD
Title V Central File
A/N 565929

South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178

Title Page
Facility ID: 029110
Revision #: 10
Date: November 12, 2014

FACILITY PERMIT TO OPERATE

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH, CA 92646

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR A COPY THEREOF MUST BE KEPT AT THE LOCATION FOR WHICH IT IS ISSUED.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT SHALL NOT BE CONSTRUED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF ANY OTHER FEDERAL, STATE OR LOCAL GOVERNMENTAL AGENCIES.

Barry R. Wallerstein, D. Env.
EXECUTIVE OFFICER

By _____
Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

TABLE OF CONTENTS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

This section consists of a table listing all equipment with Permits to Construct and copies of all individual Permits to Construct issued to various equipment at the facility. Each permit will list operating conditions including periodic monitoring requirements and applicable emission limits and requirements that the equipment is subject to. Also included is the rule origin and authority of each emission limit and permit condition.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMITTED EQUIPMENT LIST

THE FOLLOWING IS A LIST OF ALL PERMITS TO CONSTRUCT AND PERMITS TO OPERATE AT THIS FACILITY:

Application Number	Permit to Construct Granted On	Equipment Description	Page Number
428804	9/22/2004	ODOR CONTROL SYSTEM, FOR TRUNKLINES AND HEADWORKS	6
519422	6/07/2012	ODOR CONTROL SYSTEM, FOR BIOSOLIDS TRUCK LOADING STATION	10
518276	6/07/2012	ODOR CONTROL SYSTEM, FOR DAF THICKENING PROCESS	12
545003	6/26/2014	ODOR CONTROL UNIT, BIOFILTER	15
545004	10/17/2013, will supersede R-D94235	BOILER, 10.2 MMBTU/HR, DIGESTER GAS AND NATURAL GAS	18
545005	10/17/2013, will supersede R-D94232	BOILER, 10.2 MMBTU/HR, DIGESTER GAS AND NATURAL GAS	21
546364	4/16/2014	ICE CG-1, 4166 HP, DG/NG WITH DG FUEL PRETREATMENT	24
546365	4/16/2014	ICE CG-2, 4166 HP, DG/NG WITH DG FUEL PRETREATMENT	28
546366	4/16/2014	ICE CG-3, 4166 HP, DG/NG WITH DG FUEL PRETREATMENT	32
546367	4/16/2014	ICE CG-4, 4166 HP, DG/NG WITH DG FUEL PRETREATMENT	36
546368	4/16/2014	ICE CG-5, 4166 HP, DG/NG WITH DG FUEL PRETREATMENT	40
556626	6/26/2014	SEWAGE TREATMENT (>5 MG/D) ANAEROBIC	44
556627	6/26/2014	AIR POLLUTION CONTROL SYSTEM, WET SCRUBBER AND BIOFILTER	48
557229	4/16/2014	STORAGE TANK, AQUEOUS UREA SOLUTION	51
557230	4/16/2014	STORAGE TANK, AQUEOUS UREA SOLUTION	52
559228	4/16/2014	APC SYSTEM 1, SCR/CO CATALYST	53
559229	4/16/2014	APC SYSTEM 2, SCR/CO CATALYST	56
559230	4/16/2014	APC SYSTEM 3, SCR/CO CATALYST	59
559231	4/16/2014	APC SYSTEM 4, SCR/CO CATALYST	62
559232	4/16/2014	APC SYSTEM 4, SCR/CO CATALYST	65
565930	11/12/2014	AIR POLLUTION CONTROL SYSTEM, CHEM. SCRUBBERS FOR TRICKLING FILTERS	68

NOTE: EQUIPMENT LISTED ABOVE THAT HAVE NO CORRESPONDING PERMITS TO OPERATE NUMBER ARE ISSUED PERMITS TO CONSTRUCT. THE ISSUANCE OR DENIAL OF THEIR PERMITS TO OPERATE IS SUBJECT TO ENGINEERING FINAL REVIEW. ANY OTHER APPLICATIONS THAT ARE STILL BEING

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PROCESSED AND HAVE NOT BEEN ISSUED PERMITS TO CONSTRUCT OR PERMITS TO OPERATE WILL NOT BE FOUND IN THIS TITLE V PERMIT.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

FACILITY WIDE CONDITION (S)

Condition(s):

1. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:

   A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
   B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (A) OF THIS CONDITION. [RULE 401]

2. THE OPERATOR SHALL NOT COMBUST DIGESTER GAS CONTAINING SULFUR COMPOUNDS IN EXCESS OF 40 PPMV CALCULATED AS HYDROGEN SULFIDE AVERAGED DAILY. [RULE 431.1]

3. THE OPERATOR SHALL NOT USE FUEL OIL CONTAINING SULFUR COMPOUNDS IN EXCESS OF 0.05 PERCENT BY WEIGHT. ON OR AFTER JUNE 1, 2004, A PERSON SHALL NOT PURCHASE ANY DIESEL FUEL FOR STATIONARY SOURCE APPLICATION IN THE DISTRICT, UNLESS THE FUEL IS LOW SULFUR DIESEL FOR WHICH THE SULFUR CONTENT SHALL NOT EXCEED 15 PPM BY WEIGHT AS SUPPLIED BY THE SUPPLIER. [RULE 431.2]

4. THE OWNER/OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART VVV - NON-INDUSTRIAL POTW PLANT NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) AND ALL APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART ZZZZ – STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES NESHAP. [40 CFR 63 SUBPART VVV, AND 40 CFR 63 SUBPART ZZZZ]

5. THE OPERATOR SHALL MEASURE THE SULFUR CONTENT OF THE DIGESTER GAS ACCORDING TO THE FOLLOWING:

   A. FOR READINGS UP TO 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S, USING COLORIMETRIC TUBES, AND WEEKLY ANALYSIS OF THE DIGESTER GAS BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR.

   B. FOR READINGS ABOVE 36 PPM AS H2S, DAILY ANALYSIS OF THE DIGESTER GAS FOR H2S BY AQMD METHOD 307 – TOTAL SULFUR COMPOUNDS IN FUEL GAS BY GAS CHROMATOGRAPHY AND SULFUR CHEMILUMINESCENCE DETECTOR. A MINIMUM OF THREE CONSECUTIVE DAILY SAMPLES ARE REQUIRED TO DEMONSTRATE THE TOTAL SULFUR CONTENT IS BELOW 36 PPM. [RULE 431.1]

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6. A COMPLETE APPLICATION FOR COMPLIANCE ASSURANCE MONITORING (CAM, 40 CFR PART 64) SHALL BE SUBMITTED WHENEVER THE ANNUAL MASS OF VOC OF THE DIGESTER GAS EXCEEDS 19,999 LBS/YR. THE VOC CONTENT OF THE DIGESTER GAS SHALL BE ANALYZED IN CONJUNCTION WITH THE ANNUAL SOURCE TESTING OF THE CGS ENGINES USING THE APPROVED METHODS. FOR EACH CALENDAR YEAR, THE VOC EMISSIONS SHALL BE CALCULATED BY MARCH 31ST OF THE SUBSEQUENT CALENDAR YEAR, OR WITHIN 30 DAYS OF SOURCE TEST REPORT DATE, WHICHEVER IS LATER, BASED ON THE DIGESTER GAS CONCENTRATION DATA FROM ANNUAL RULE 1110.2 SOURCE TESTING OF THE ENGINES. IF THE VOC EMISSIONS EXCEED 19,999 LBS/YR, THE CAM APPLICATION SHALL BE SUBMITTED BY MARCH 31ST, OR WITHIN 60 DAYS AFTER THE CALCULATION DUE DATE, WHICHEVER IS LATER.
[40 CFR PART 64, CAM]

FACILITY PERMIT TO OPERATE
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PERMIT TO CONSTRUCT

A/N 428804
Granted as of 9/22/2004

Equipment Description:

ODOR CONTROL FACILITY (P2-66) CONSISTING OF:

A. TRUNKLINES ODOR CONTROL SYSTEM:

1. THREE (3) SINGLE STAGE BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (ONE STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED RECIRCULATING PUMPS, AND AN EXHAUST SYSTEM WITH THREE 75 HP BLOWERS (40,000 SCFM TOTAL), TREATING FOUL AIR EXHAUST FROM THE DIVERSION STRUCTURE AND INFLUENT TRUNKLINES, VENTING TO THE 1ST STAGE BIOTRICKLING FILTERS AT THE HEADWORKS ODOR CONTROL FACILITY.

B. HEADWORKS ODOR CONTROL SYSTEM:

1. 1ST STAGE, THIRTEEN (13) BIOTRICKLING FILTERS (BIOTOWERS), IDENTICAL, (THREE ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 46'- 9" H., OVERALL DIMENSIONS, WITH 8' - 6" H. POLYURETHANE FOAM PACKING, A MIST ELIMINATOR, ASSOCIATED PUMPS, AND AN EXHAUST SYSTEM WITH THIRTEEN 75 HP BLOWERS (188,300 SCFM TOTAL), TREATING FOUL AIR FROM HEADWORKS FACILITY AND PRETREATED EXHAUST AIR FROM TRUNKLINE ODOR CONTROL FACILITY VENTING TO THE 2ND STAGE CHEMICAL SCRUBBERS AT THE HEADWORKS ODOR CONTROL FACILITY.

2. 2ND STAGE, EIGHT (8) CHEMICAL SCRUBBERS, IDENTICAL, (TWO ON STAND-BY), VERTICAL TYPE, EACH 10'- 0" DIA. X 48'- 0" H., OVERALL DIMENSIONS, WITH Q-PAC OR TRIPACK TYPE, 10' - 0" H. POLYURETHANE PACKING, A MIST ELIMINATOR, AUTOMATIC CHEMICAL FEED, ASSOCIATED RECIRCULATION PUMPS, AND AN EXHAUST SYSTEM WITH EIGHT 60 HP BLOWERS (188,300 SCFM TOTAL), TREATING EXHAUST AIR FROM 1ST STAGE BIOTRICKLING FILTERS, AND VENTING TO THE ATMOSPHERE.

C. SODIUM HYPOCHLORITE, SODIUM HYDROXIDE AND HYDROCHLORIC ACID STORAGE TANKS.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED, UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

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3 THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. THIS FACILITY (P2-66) SHALL ONLY TREAT FOUL AIR GENERATED FROM THE DIVERSION STRUCTURE AND TRUNKLINES, GRIT HANDLING BUILDING, BAR SCREEN BUILDING AND CHANNELS, PUMP STATION WET WELL, SCREENINGS WASHING AND LOADING BUILDINGS, GRIT BASINS, PRIMARY SPLITTER BOX, AND INFLUENT PUMP STATION DISCHARGE CHANNEL.
[RULE 402]

6. ALL THE EXHAUST FROM THE BIOTRICKLING FILTERS (TRUNKLINE AND HEADWORKS BIOTRICKLING FILTERS) SHALL BE VENTED TO AND TREATED BY THE FINAL CHEMICAL SCRUBBERS PRIOR TO RELEASE TO THE ATMOSPHERE.
[RULE 402]

7. A SUFFICIENT NUMBER OF BIOTRICKLING (BIOTOWERS) AND CHEMICAL SCRUBBERS SHALL BE IN OPERATION WHEN THE BASIC EQUIPMENT ARE IN OPERATION TO MAINTAIN THE CHEMICAL SCRUBBERS OUTLET H2S CONCENTRATIONS, AS MEASURED BY THE AUTOMATIC CHEMICAL FEED AND H2S MONITORING SYSTEM, LESS THAN THE MAXIMUM OUTLET H2S LIMITS AS SPECIFIED IN CONDITION NO. 14 EXCEPT DURING UNFORESEEN AND ROUTINE MAINTENANCE WORK OR POWER OUTAGE IN THE PLANT THAT REQUIRES THE SCRUBBERS TO BE SHUTDOWN FOR A PERIOD NOT TO EXCEED 10 HOURS PER INCIDENT PER EQUIPMENT AND 50 HOURS PER YEAR PER EQUIPMENT.
[RULE 402]

8. ALL BIOTRICKLING FILTERS AND CHEMICAL SCRUBBERS SHALL BE EQUIPPED WITH INLET AND OUTLET CONTINUOUS HYDROGEN SULFIDE MONITORING SYSTEM (VAPAX UNIT OR EQUIVALENT).
[RULE 204]

9. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, AUTOMATIC CHEMICAL FEED AND HYDROGEN SULFIDE (H_2S) MONITORING SYSTEM SHALL BE IN OPERATION AND MAINTAINED TO RECORD THE SCRUBBER INLET AND OUTLET H2S CONCENTRATIONS, IN PPMV, EXCEPT DURING SHUTDOWN FOR MAINTENANCE. THE H_2S MONITORING SYSTEM SHALL BE CALIBRATED PERIODICALLY PURSUANT TO MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
[RULE 204]

10. A FLOW METER, INDICATING GALLONS PER MINUTE (GPM) SHALL BE INSTALLED AND MAINTAINED IN THE CHEMICAL SCRUBBING SOLUTION [SODIUM HYDROXIDE (NaOH) AND SODIUM HYPOCHLORITE (NaOCl)] RECIRCULATION LINE FOR EACH OF THE CHEMICAL SCRUBBER. AT LEAST 785 GPM OF CHEMICAL SCRUBBING SOLUTION SHALL BE SUPPLIED TO EACH CHEMICAL SCRUBBER WHEN IT IS IN OPERATION.
[RULE 204]

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11. FOR THE CHEMICAL SCRUBBER(S), A DIFFERENTIAL PRESSURE GAUGE OR OTHER DEVICE SHALL BE INSTALLED AND MAINTAINED TO INDICATE, IN INCHES OF WATER COLUMN, THE DIFFERENTIAL PRESSURE DROP ACROSS THE PACKING MEDIA. DURING NORMAL OPERATION, THE PRESSURE DROP MEASURED ACROSS THE PACKING MEDIA SHALL BE MAINTAINED BETWEEN 1 AND 2 INCHES OF WATER COLUMN, UNLESS OTHERWISE APPROVED BY AQMD. [RULE 204]

12. THE PH OF THE CHEMICAL SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 9 TO 10.5. [RULE 204]

13. WHEN THE AUTOMATIC CHEMICAL FEED AND H_2S MONITORING SYSTEM IS NOT OPERATING, PH OF THE SCRUBBING LIQUID, SCRUBBER SOLUTION RECIRCULATION RATE (GPM), THE SCRUBBER INLET AND OUTLET H_2S CONCENTRATION (PPMV) AND DIFFERENTIAL PRESSURE (INCHES OF WATER COLUMN) ACROSS THE PACKING MEDIA SHALL BE MEASURED AND RECORDED AT LEAST ONCE PER SHIFT.
[RULE 204]

14. WHEN THE CHEMICAL SCRUBBERS ARE IN OPERATION, THE DAILY AVERAGE CONCENTRATION OF SULFUR COMPOUNDS, CALCULATED AS H2S MEASURED AT THE OUTLET OF THE SCRUBBER SHALL NOT EXCEED 1 PPMV.
[RULE 402]

15. WITHIN 60 DAYS AFTER ACHIEVING THE MAXIMUM FOUL AIR FLOW RATE FOR THE ODOR CONTROL (P2-66) FACILITY, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CONDUCT SOURCE TESTS IN ACCORDANCE WITH THE AQMD OR OTHER APPROVED TEST PROCEDURES. A TEST PROTOCOL INCLUDING ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE AQMD, TOXICS AND WASTE MANAGEMENT TEAM, FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF THE TESTS. NOTICE SHALL BE PROVIDED TO THE AQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. THE TESTS SHALL DETERMINE CONTROL EFFICIENCY OF THE AIR POLLUTION CONTROL EQUIPMENT (CHEMICAL SCRUBBERS) AND SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE EMISSIONS TO ATMOSPHERE FOR

A. TOTAL NON-METHANE HYDROCARBONS (NMHC), INLET AND OUTLET (LBS/HR AND PPMV).
B. TOXIC AIR CONTAMINANTS INCLUDING, BUT NOT LIMITED TO, AMMONIA, BENZENE, CHLOROFORM, 1,4 (p)-DICHLOROBENZENE, ETHYL BENZENE, HYDROGEN SULFIDE, METHYLENE CHLORIDE, PERCHLOROETHYLENE, STYRENE, TOLUENE, 1,1,1-TRICHLOROETHANE, TRICHLOROETHYLENE, XYLENES, ETC., INLET AND OUTLET, (LBS/HR AND PPMV).
C. CARBON DIOXIDE, OXYGEN AND NITROGEN
D. MOISTURE CONTENT, TEMPERATURE AND FLOW RATE
E. AMMONIA, NMHC, AND HYDROGEN SULFIDE (H2S) CONTROL EFFICIENCY (WT%).
F. METALLIC COMPOUNDS, SUCH AS ARSENIC, BERYLLIUM, CADMIUM, HEXAVALENT CHROMIUM, NICKEL, ETC.

[RULE 204, 402]

FACILITY PERMIT TO OPERATE
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16. SAMPLING PORTS SHALL BE PROVIDED IN THE SCRUBBER EXHAUST STACK, 8-10 DUCT DIAMETERS DOWNSTREAM AND 2 DUCT DIAMETERS UPSTREAM OF ANY FLOW DISTURBANCE. AT EACH LOCATION, TWO SAMPLING PORTS 90 DEGREES APART SHALL BE PROVIDED AND SHALL CONSIST OF 4-INCH WELDED NIPPLES WITH CAPS. SAFETY ACCESS TO THE SAMPLING PORTS SHALL BE PROVIDED BY THE APPLICANT.
[RULE 217]

17. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL CALCULATE THE MAXIMUM INDIVIDUAL CANCER RISK (MICR), ACUTE HAZARD INDEX (HIA) AND CHRONIC HAZARD INDEX (HIC), BASED ON THE SOURCE TESTS RESULTS, USING AQMD PUBLISHED "RISK ASSESSMENT PROCEDURES FOR RULES 1401 (RULE VERSION AMENDED MAY 2, 2003) AND 212", VERSION 6.0, AUGUST 18, 2000, TO DETERMINE THE COMPLIANCE WITH RULE 1401. RESULTS SHALL BE SUBMITTED TO AQMD.
[RULE 1401]

18. ALL RECORDS SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 519422
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM FOR THE BIOSOLIDS TRUCK LOADING STATION, CONSISTING OF;

1. EXHAUST BLOWER, MAXIMUM 3000 CFM, 15 H. P., VENTING TWO (2) BIOSOLIDS STORAGE SILOS (PART OF THE SLUDGE PROCESSING STATION, PC 453240).

2. ADSORBER, BAY PRODUCTS, SPARROW 3000, 8' DIA. X 7'- 3" H. OVERALL, CONTAINING MINIMUM OF 3800 LBS OF ACTIVATED CARBON (BOTTOM LAYER) AND 1500 LBS OF POTASSIUM PERMANGANATE (KMNO4) IMPREGNATED MEDIA (TOP LAYER). EQUIPPED WITH DIFFERENTIAL PRESSURE GAUGE AND A DEMISTER.

3. EXHAUST STACK, 1' - 6" DIA. X 13' – 6" HIGH ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THIS PERMIT IS ISSUED.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
[RULE 204]

3. THE OPERATOR MAY USE ALTERNATE MEDIA AND AMOUNTS IN ORDER TO OPTIMIZE THE ODOR CONTROL SYSTEM, PROVIDED SUCH ALTERNATE MEDIA AND AMOUNTS ARE GUARANTEED BY THE VENDOR TO MEET THE EMISSION LIMITS IN THIS PERMIT.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. SAMPLING PORTS SHALL BE PROVIDED AT THE INLET AND OUTLET OF THE ODOR CONTROL SYSTEM TO ALLOW COLLECTION/ANALYSIS OF THE INLET FOUL AIR AND TREATED EXHAUST STREAM.
[RULE 204]

6. THE OPERATOR SHALL INSTALL AND MAINTAIN A DIFFERENTIAL PRESSURE GAUGE TO ACCURATELY INDICATE THE DIFFERENTIAL PRESSURE, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

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7. THE OPERATOR SHALL, ON A WEEKLY BASIS, MEASURE AND RECORD THE DIFFERENTIAL PRESSURE DROP, IN INCHES OF WATER COLUMN, ACROSS THE MEDIA BED.
[RULE 204]

8. IN OPERATION, THE PRESSURE DROP MEASURED ACROSS THE MEDIA BED SHALL BE MAINTAINED BETWEEN 4.8 AND 8.4 INCHES OF WATER COLUMN, OR ANOTHER RANGE SPECIFIED BY THE MANUFACTURER. MANUFACTURER'S PRESSURE DROP RANGE SPECIFICATIONS FOR THIS EQUIPMENT SHALL BE KEPT ON FILE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 204]

9. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) AT THE INLET TO ODOR CONTROL SYSTEM SHALL BE MONITORED AND RECORDED ON A WEEKLY BASIS FOR THE FIRST MONTH OF OPERATION, AND MONTHLY THEREAFTER USING COLORIMETRIC H2S TUBES OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

10. THE HYDROGEN SULFIDE (H2S) CONCENTRATION (PPMV) IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL BE MEASURED AND RECORDED AT LEAST ONCE A WEEK USING COLORIMETRIC H2S TUBES, HANDHELD H2S ANALYZER, OR ANY OTHER DISTRICT APPROVED METHOD.
[RULE 204]

11. IN OPERATION, THE HYDROGEN SULFIDE (H2S) CONCENTRATION IN THE EXHAUST OF THE ODOR CONTROL SYSTEM SHALL NOT EXCEED 1.0 PPMV.
[RULE 402, 1401]

12. THE MEDIA IN THE ADSORBER SHALL BE REPLACED WITH MINIMUM AMOUNT (LBS) OF FRESH CARBON MEDIA, AS DESCRIBED UNDER EQUIPMENT DESCRIPTION OR CONDITION NO. 3, WHENEVER NECESSARY TO COMPLY WITH THE CONDITIONS OF THIS PERMIT.
[RULE 204]

13. SPENT MEDIA REMOVED FROM THIS SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM SITE.
[RULE 402]

14. RECORDS SHALL BE MAINTAINED AS REQUIRED BY THIS PERMIT INCLUDING MEDIA CHANGE OVER DATE(S), QUANTITY, AND VENDOR GUARANTEES FOR COMPLIANCE. THE RECORDS SHALL BE KEPT FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 518276
Granted as of 6/07/2012

Equipment Description:

ODOR CONTROL SYSTEM, TREATING EXHAUST FROM DISSOLVED AIR FLOATATION THICKENERS (DAFTS), CONSISTING OF:

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS) AND TWO (2) POLYMER MIX TANKS.

2. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH 100 H.P., MAXIMUM 35,000 CFM CAPACITY.

3. HUMIDIFICATION, IN-DUCT, WITH TWELVE (12) SPRAY NOZZLES, AND EQUIPPED WITH HYDROGEN SULFIDE (H2S) ANALYZER.

4. THREE (3) BIOFILTER CELLS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER CELL 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH INLET FOUL-AIR FLOW METERS, SAMPLING PORTS AND SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES. [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION. [RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER. [RULE 205]

5. A TEMPERATURE INDICATOR SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. THE INLET FOUL AIR TEMPERATURE READINGS, TAKEN ON A MONTHLY BASIS, SHALL BE MAINTAINED IN THE

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RANGE OF EQUIPMENT DESIGN SPECIFICATIONS OR AS PER MANUFACTURER'S RECOMMENDATION, AND WRITTEN SPECIFICATIONS SHALL BE KEPT ON FILE.
[RULE 204]

6. A HYDROGEN SULFIDE (H2S) ANALYZER SHALL BE INSTALLED AND MAINTAINED IN THE MAIN FOUL-AIR HEADER PRIOR TO FOUL-AIR DISTRIBUTION TO THE BIOFILTERS. FOUL-AIR H2S CONCENTRATION (PPMV) SHALL BE MONITORED ON A MONTHLY BASIS AND RESULTS RECORDED. WHEN H2S ANALYZER IS NOT OPERATING, COLORIMETRIC H2S TUBES, HAND HELD H2S ANALYZERS OR ANY OTHER DISTRICT APPROVED METHODS SHALL BE USED FOR H2S MONITORING.
[RULE 204]

7. FOUL-AIR FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO EACH BIOFILTER.
[RULE 204]

8. FOUL-AIR FLOW RATE SHALL BE MONITORED AND RECORDED ON A DAILY BASIS. TOTAL FLOW RATE READING FOR INLET FOUL-AIR TO THREE (3) BIOFILTER CELLS SHALL NOT EXCEED 35, 000 SCFM.
[RULE 402, 1401]

9. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

10. HYDROGEN SULFIDE (H2S) AND AMMONIA (NH_3) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

11. EMISSIONS OF H2S FROM THE BIOFILTER SHALL NOT EXCEED 0.0175 LB/HR (93 PPBV AT THE SURFACE AT 35,000 CFM).
[RULE 204]

12. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

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c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC), H2S AND AMMONIA TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR TNMOCS,

III. THE TESTS SHALL BE CONDUCTED AND A WRITTEN REPORT SUBMITTED TO THE SCAQMD WITHIN 60 DAYS AT MAXIMUM FOUL-AIR INLET FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED, BUT NOT LATER THAN 180 DAYS AFTER INITIAL START-UP.

[RULE 204, 217, 402, 1401]

13. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS, AREA OF COMPACTION AND/OR CHANNELING THAT NEEDS REPAIR.
[RULE 204]

14. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

15. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545003
Granted as of 6-26-2014

Equipment Description:

ODOR CONTROL SYSTEM CONSISTING OF :

1. EXHAUST HEADER FROM FOUR (4) DISSOLVED AIR FLOATATION THICKENERS (DAFTS).

2. OPTIONAL EXHAUST FROM TWO (2) POLYMER MIX TANKS.

3. THREE (3) FOUL-AIR EXHAUST FANS (ONE STANDBY), EACH APPROXIMATELY 100 HP, TOTAL MAXIMUM 35,000 CFM CAPACITY.

4. IN-DUCT INLET AIR HUMIDIFICATION SYSTEM WITH APPROXIMATELY TWELVE (12) WATER SPRAY NOZZLES.

5. THREE (3) BIOFILTERS, CONCRETE WALLED, CUSTOM DESIGNED, EACH BIOFILTER APPROXIMATELY 20' W. X 33' L. X 9' D., CONTAINING PROPRIETARY INORGANIC MINERAL BASED MEDIA, EQUIPPED WITH A SURFACE IRRIGATION SYSTEM.

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT TO CONSTRUCT IS ISSUED UNLESS OTHERWISE NOTED BELOW. [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. FOUL-AIR INLET FLOW RATE (SCFM) MONITORING AND INDICATING DEVICE OR RECORDING SYSTEM SHALL BE INSTALLED AND MAINTAINED IN THE FOUL AIR INLET DUCT TO THE BIOFILTERS.
[RULE 204]

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6. FOUL-AIR INLET FLOW RATE TO THE BIOFILTERS SHALL BE MONITORED AND RECORDED AT LEAST ONCE EACH DAY. TOTAL AIR FLOW RATE MEASURED SHALL NOT EXCEED 35,000 SCFM, DAILY AVERAGE.
[RULE 402, 1401]

7. THE INCOMING FOUL AIR HUMIDIFICATION AND SURFACE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD OPERATING CONDITION, AT ALL TIMES, AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 204]

8. WHEN IN OPERATION, HYDROGEN SULFIDE (H2S) EMISSIONS FROM EACH BIOFILTER SURFACE (MULTI-POINT) SHALL BE MONITORED AT LEAST ONCE A MONTH USING PORTABLE ANALYZERS. THE MULTI-POINT SURFACE READINGS (PPMV) SHALL BE AVERAGED AND RECORDED.
[RULE 204]

9. H2S EMISSIONS MEASURED FROM THE BIOFILTERS' SURFACES SHALL NOT EXCEED 1 PPMV.
[RULE 402, 1401]

10. THE OWNER OR OPERATOR OF THE EQUIPMENT SHALL CONDUCT SOURCE PERFORMANCE TESTS UNDER THE FOLLOWING CONDITIONS:

    I. A TEST PROTOCOL SHALL BE SUBMITTED TO AQMD NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE EXECUTIVE OFFICER BEFORE THE TEST COMMENCES. AT A MINIMUM, THE TEST PROTOCOL SHOULD INCLUDE THE FOLLOWING:

        a. A DESCRIPTION OF THE EQUIPMENT TESTED. INCLUDE A PROCESS SCHEMATIC INDICATING SAMPLING LOCATIONS/PORTS; SAMPLING DUCT/STACK DIMENSIONS ALONG WITH UPSTREAM AND DOWNSTREAM FLOW DISTURBANCES (E.G. ELBOWS, TEES AND FANS).

        b. A BRIEF PROCESS DESCRIPTION.

        c. OPERATING CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, INCLUDING INLET AIR FLOW RATE (SCFM), TEMPERATURE, AND % MOISTURE.

        d. A DESCRIPTION OF THE SAMPLING AND ANALYTICAL METHODS FOR EACH CONSTITUENT MEASURED.

        e. COMPLETE CALCULATIONS FOR FLOW RATES, CONCENTRATIONS (PPMV), EMISSION RATES AND CONTROL EFFICIENCIES.

        f. A DESCRIPTION OF THE CALIBRATION AND QUALITY ASSURANCE PROCEDURES.

        g. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

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h. A STATEMENT DETERMINING THAT THE TESTING LABORATORY QUALIFIES AS AN "INDEPENDENT TESTING LABORATORY" UNDER RULE 304 (NO CONFLICT OF INTEREST) AND SIGNED BY THE RESPONSIBLE AUTHORITY.

II. THE TESTS SHALL DETERMINE BIOFILTER'S INLET AND OUTLET EMISSIONS FOR TOTAL NON-METHANE ORGANIC COMPOUNDS (TNMOC) AND AMMONIA (AT LEAST FOR ONE BIOFILTER), AND H2S (FROM EACH BIOFILTER) TO DETERMINE BIOFILTER'S CONTROL EFFICIENCY, IN WEIGHT PERCENT. TEST RESULTS SHOULD INCLUDE INLET AND OUTLET H2S, TNMOC AND AMMONIA CONCENTRATIONS (PPMV), AND EMISSIONS (LBS/HR), AND SPECIATED ANALYSIS FOR ORGANIC COMPOUNDS (EXHAUST FROM ONE BIOFILTER).

III. THE TESTS SHALL BE CONDUCTED AFTER EQUIPMENT INITIAL START-UP, BUT NOT LATER THAN 180 DAYS, AT A MAXIMUM ACHIEVABLE INLET FOUL-AIR FLOW RATE AT WHICH THE EQUIPMENT WILL BE OPERATED. A WRITTEN REPORT SHALL BE SUBMITTED TO THE SCAQMD WITHIN 60 DAYS UPON SOURCE TESTS COMPLETION. [RULE 204, 217, 402, 1401]

11. SMOKE BOMB TESTS SHALL BE CONDUCTED INITIALLY AND, THEREAFTER, EVERY THREE (3) YEARS TO DEMONSTRATE UNIFORM DISTRIBUTION OF AIR FLOWS OR IDENTIFY RESTRICTED OR CHANNELED AIR FLOW THAT NEEDS IMPROVEMENT.
[RULE 204]

12. ANY BREAKDOWN OR MALFUNCTION OF THIS EQUIPMENT RESULTING IN EXCESSIVE ODOR EMISSIONS INTO THE ATMOSPHERE SHALL BE REPORTED TO THE SCAQMD WITHIN TWENTY FOUR HOURS AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 430, 402]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545004
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 1, WITH PERMIT TO OPERATE D94235, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

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8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR
      TOTAL NON-METHANE ORGANICS (EXHAUST)
      SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
      TOTAL PARTICULATES (EXHAUST)
      OXIDES OF NITROGEN (EXHAUST)
      CARBON MONOXIDE (EXHAUST)
      OXYGEN
      DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

   THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
   [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

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10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 545005
Granted as of 10/17/2013

Equipment Description:
MODIFICATION TO BOILER, NO. 2, WITH PERMIT TO OPERATE D94232, BY THE REMOVAL OF THE EXISTING BURNER AND THE ADDITION OF A NEW BURNER, AMERICAN COMBUSTION TECHNOLOGY OR EQUAL, MODEL SLE-05-250 OR EQUAL, 10,205,800 BTU PER HOUR MAXIMUM, DIGESTER GAS AND NATURAL GAS (AS SECONDARY FUEL), AND REHABILITATION OF ANCILLARY EQUIPMENT

Conditions:

1. CONSTRUCTION AND OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS BOILER SHALL BE FIRED ON DIGESTER GAS AND OR NATURAL GAS ONLY. EXCEPT FOR PILOT GAS, NATURAL GAS SHALL ONLY BE USED IF DIGESTER GAS IS NOT AVAILABLE IN SUFFICIENT AMOUNT.
[RULE 204]

4. A FUEL METER SHALL BE INSTALLED AND MAINTAINED IN THE FUEL SUPPLY LINE(S) TO MEASURE, INDICATE AND RECORD THE AMOUNT OF FUEL(S) (SCFM) BURNED IN THIS EQUIPMENT.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

5. WHEN IN OPERATION, TOTAL HEAT INPUT FOR THIS EQUIPMENT SHALL NOT EXCEED 10, 205, 800 BTU/HR. A DAILY LOG SHALL BE KEPT, INDICATING THE TOTAL HEATING VALUE (BTU/SCF) OF FUEL BURNED IN THIS EQUIPMENT, BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) & 1303 (b) (2) – MODELING & OFFSET]

6. THIS EQUIPMENT SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR AND FUEL RATE AS THE BOILER LOAD VARIES. THIS AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED PERIODICALLY, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE SAME PERFORMANCE AT THE SAME BURNER FIRING RATE.
[RULE 1146]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1303(a) (1)-BACT]

8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT AN INITIAL PERFORMANCE SOURCE TESTS, FOR EACH FUEL, UNDER THE FOLLOWING CONDITIONS:

   A. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THIS TEST.

   B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO AQMD WITHIN 30 DAYS OF INITIAL START UP AND SHALL BE APPROVED BY AQMD BEFORE THE TEST COMMENCES. THE PROTOCOL SHALL INCLUDE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.

   C. SOURCE TESTING SHALL BE CONDUCTED WITHIN 60 CALENDAR DAYS AFTER NORMAL OPERATION OF THE EQUIPMENT HAS BEEN ESTABLISHED, BUT NO LATER THAN 180 DAYS AFTER INITIAL START UP.

   D. THE INITIAL PERFORMANCE SOURCE TESTS SHALL BE PERFORMED WHEN THE BOILER IS OPERATING AT MAXIMUM, MINIMUM AND AVERAGE LOAD FOR EACH FUEL (DIGESTER GAS AND NATURAL GAS) TO BE BURNED. THE SAMPLING TIME AT EACH LOAD SHALL BE FOR A MINIMUM OF 15 CONSECUTIVE MINUTES.

   E. TWO COPIES OF THE SOURCE TEST RESULTS SHALL BE SUBMITTED TO AQMD, ATTN. GAURANG RAWAL, WITHIN 60 DAYS OF THE TESTS COMPLETION. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

      FUEL FLOW RATE (EACH FUEL)
      FLUE GAS FLOW RATE (EACH FUEL)
      TOTAL HEAT INPUT RATE, BTU/HR
      TOTAL NON-METHANE ORGANICS (EXHAUST)
      SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
      TOTAL PARTICULATES (EXHAUST)
      OXIDES OF NITROGEN (EXHAUST)
      CARBON MONOXIDE (EXHAUST)
      OXYGEN
      DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

      THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
      [RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

9. THE SOURCE TEST PROTOCOL AND REPORT, PER CONDITION NO. 8, SHALL BE SUBMITTED TO,
   SCAQMD – ATTN. GAURANG RAWAL
   ENERGY/ PUBLIC SERVICES/WASTE MGMT. / TERMINALS - PERMITTING
   ENGINEERING AND COMPLIANCE DIVISION
   21865 COPLEY DRIVE
   DIAMOND BAR, CA 91765

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ORANGE COUNTY SANITATION DISTRICT

10. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	POUNDS PER DAY
CO	90.6
NOx	5.52 (3.1 WITH NATURAL GAS)
PM10	3.1
ROG	2.6
SOx	1.4

[RULE 1146, RULE 1303(a) (1), 1303(b) (2) - OFFSET]

Periodic Monitoring:

11. THE OPERATOR, AT LEAST ONCE EVERY FIVE YEARS, SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMITS IN CONDITION NO. 10 OF THIS PERMIT USING AQMD-APPROVED TEST METHODS. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. RULE 1146 COMPLIANCE TESTS MAY BE USED TO SATISFY PART OF THIS REQUIREMENT PROVIDED THAT MASS RATES ARE ALSO REPORTED. TO DEMONSTRATE COMPLIANCE WITH RULE 1146 CONCENTRATIONS LIMITS THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1146, RULE 1303(a)(1) – BACT, 1303(b) (2) - OFFSET , RULE 3004 (a) (4) – PERIODIC MONITORING]

Emissions and Requirements:

12. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407
CO: 400 PPMV, @ 3% O2, DRY BASIS, RULE 1146
NOx: 30 PPMV, @ 3% O2, DRY BASIS, RULE 1146 (UNTIL 1/1/2015)
NOx: 15 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, DIGESTER GAS, RULE 1146
NOx: 9 PPMV, @ 3% O2, DRY BASIS, ON AND AFTER JANUARY 1, 2015, NATURAL GAS, RULE 1146
PM: RULE 404, SEE APPENDIX B.
PM: 0.1 gr/scf, RULE 409
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53
H2S: 40 PPMV TOTAL SULFUR, DIGESTER GAS

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546364
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 1 (G27394) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

2. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546365
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 2 (G27395) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

3. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546366
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 3 (G27396) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

4. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546367
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 4 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

5. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 546368
Granted as of 4/16/2014

Equipment Description:

MODIFICATIONS TO THE RESOURCE RECOVERY SYSTEM NO. 5 (G27397) CONSISTING OF:

1. INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKES, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

BY THE ADDITION OF;

6. DIGESTER GAS CLEANING SYSTEM (DGCS), THREE VESSELS, EACH CONTAINING MINIMUM OF 9,900 LBS OF MEDIA, TOTAL 2100 CFM CAPACITY, WITH ASSOCIATED PIPING AND VALVES.

   COMMON TO FIVE ENGINES (CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB)

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
   [RULE 204]

5. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL ONLY BE VENTED TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND HAS A VALID PERMIT TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD.
   [RULE 1110.2]

6. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
   [RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

7. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE DIGESTER GAS SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF DIGESTER GAS (IN SCFM) BURNED.
[RULE 204]

8. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS SAMPLE.
[RULE 204]

9. MONTHLY READINGS OF THE BTU CONTENT OF DIGESTER GAS (BTU/SCF) SUPPLIED TO THE ENGINE SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

10. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

11. THE TOTAL HEAT INPUT OF GASEOUS FUEL BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	115 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

13. EFFECTIVE JANUARY 1, 2016, THIS EQUIPMENT SHALL MEET THE EMISSIONS LIMITS (EXHAUST) OF TABLE III-B IN RULE 1110.2 (d) (1) (C), UNLESS THE OPERATOR DEMONSTRATES COMPLIANCE WITH THE LIMITS AND SCHEDULE IN RULE 1110.2 (d) (1) (H).
[RULE 1110.2]

14. THE COMBINED EMISSIONS FROM THE FOUR (4) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING (UNTIL JANUARY 1, 2016) :

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

15. POST-COMBUSTION CONTROLLED EMISSIONS, INTO THE ATMOSPHERE, FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	*LBS/DAY*
CARBON MONOXIDE	497.6
NITROGEN OXIDES (AS NO2)	36.0
PARTICULATES (PM10)	18.0
ROG OR TNMHC (AS CH4)	25.60
SULFUR DIOXIDE	21.0

[RULE 204]

16. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR CO, NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL CO AND NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 203, 218, RULE 1110.2]

17. WITHIN 180 DAYS AFTER INITIAL START-UP, (POST- MODIFICATION OF FIVE ENGINES; CG1-HB, CG2-HB, CG3-HB, CG4-HB AND CG5-HB), THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS, AT MAXIMUM ACHIEVABLE LOAD, IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED FOR APPROVAL, AT LEAST 30 DAYS PRIOR TO START OF THE TESTS TO THE SCAQMD, ENERGY/PUBLIC SERVICES/WASTE MANAGEMENT/TERMINAL PERMITTING, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE SUBMITTAL SHALL INCLUDE A COPY OF THE ACTIVE PERMIT. WRITTEN RESULTS OF SUCH PERFORMANCE TESTS SHALL BE SUBMITTED WITHIN 60 DAYS AFTER TESTING. NOTICE SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN (EXHAUST ONLY)
F. FLOW RATE
G. MOISTURE (EXHAUST ONLY)
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (DIGESTER GAS ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (DIGESTER GAS ONLY)
M. POWER OUTPUT

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

THE ROUTINE COMPLIANCE SOURCE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RULE 1110.2 REQUIREMENTS AND ABOVE REQUIREMENTS. APPROPRIATE SCAQMD STAFF SHALL BE NOTIFIED A MINIMUM OF 45 DAYS IN ADVANCE OF COMPLIANCE SOURCE TESTING TO DETERMINE IF PREVIOUSLY APPROVED SOURCE TEST PROTOCOL MAY BE USED IF NO EQUIPMENT AND PROCESS CHANGES HAVE BEEN MADE.
[RULE 404], [RULE 1110.2], [RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET]

18. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions and Requirements:

19. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: RULE 1110.2 LIMIT
NOx: RULE 1110.2 LIMIT
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS.
VOC (TNMHC): RULE 1110.2 LIMIT
H2S: RULE 431.1

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556626
Granted as of 6-26-2014

Equipment Description:

ALTERATION OF THE EXISTING SEWAGE TREATMENT PLANT (250 MGD), P/O G25942, CONSISTING OF:

1. INFLUENT STATION (HEADWORKS "D") CONSISTING OF INFLUENT TRUNKLINES, INFLUENT DIVERSION AND METERING, SIX (5 DUTY + 1 STANDBY) BARSCREENS, SCREENING HANDLING, INFLUENT PUMPS, GRIT REMOVAL AND HANDLING, PRIMARY INFLUENT SPLITTER AND METERING, AND FERRIC CHLORIDE FACILITY.

2. WETWELL (WASTE SIDE STREAM PUMP STATION) WITH ASSOCIATED PUMPS.

3. SEVENTEEN PRIMARY BASINS, THREE 41'-0" W. X 179'-0" L. X 8'-0" D., WITH ALUMINUM COVERS, FOURTEEN 140'-0" DIA. X 9'-0" D., WITH ALUMINUM GEODESIC DOME COVERS, AND ASSOCIATED SLUDGE AND SCUM COLLECTORS AND PUMPS.

4. EIGHT ACTIVATED SLUDGE OXYGEN REACTORS, 139,656 CUBIC FEET CAPACITY, 46'-0" W. X 184'-0" L. X 16'-6" D., WITH ASSOCIATED MIXERS.

5. TWO PURE OXYGEN GENERATION UNITS, 40,000 GALLON CAPACITY EACH, WITH TWO STORAGE TANKS AND ASSOCIATED COMPRESSORS.

6. TWELVE SECONDARY CLARIFIERS, 61'-0" W. X 171'-0" L. X 14'-0" D., WITH ASSOCIATED SLUDGE COLLECTORS.

7. EAST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

8. WEST SECONDARY SLUDGE PUMP STATION WITH ASSOCIATED PUMPS.

9. FOUR DISSOLVED AIR FLOATATION THICKENERS, EACH 55'-0" DIA. X 8'-6" D., WITH ASSOCIATED COLLECTOR DRIVES AND PUMPS.

10. TWENTY DIGESTER TANKS, TWO 90'-0" DIA. X 30'-0" D., EACH 190,800 CUBIC FEET CAPACITY, SIX 80'-0" DIA. X 33'-0" D., EACH 164,120 CUBIC FEET CAPACITY, THREE 80'-0" DIA. X 33'-0" D., EACH 166,630 CUBIC FEET CAPACITY, FOUR 105'-0" DIA. X 30'-0" D., EACH 293,680 CUBIC FEET CAPACITY, FIVE 80'-0" DIA. X 18'-0" H., WITH ASSOCIATED PUMPS AND GRINDERS. EQUIPPED WITH OPTIONAL PASSIVE CARBON ADSORBERS.

11. LOW PRESSURE DIGESTER GAS STORAGE TANK, 25,000 CUBIC FEET CAPACITY, 42'-0" DIA. X 30'-0" H., WITH ASSOCIATED COMPRESSORS.

12. FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION WITH TWO STORAGE TANKS, EACH 12'-0" DIA. X 18'-0" H., AND ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS, BELT FILTER PRESSES, DEWATERED BIOSOLIDS STORAGE SILOS (OR CAKE STORAGE BINS), AND TRUCK LOADING BAY..

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

16. PRIMARY EFFLUENT DIVERSION STRUCTURE.

17. THREE TRICKLING FILTERS, COVERED, PRIMARY EFFLUENT TREATMENT (TOTAL 60 MGD AVERAGE CAPACITY AND 182 MGD PEAK FLOW), EACH 150' DIA. X 28' H., OVERALL, WITH MODULAR PLASTIC CROSS - FLOW FILTER MEDIA, SPRAY NOZZLES, AND ASSOCIATED PUMPS.

18. FOUR SOLIDS CONTACT (SC) REACTORS, FOUR SLUDGE RE-AERATION (SR) REACTORS, UNCOVERED, TWO MIXED LIQUOR CHANNELS (TOTAL 1.68 MG VOLUME), AND WITH ASSOCIATED AIR BLOWERS.

19. SIX TRICKLING FILTER CLARIFIERS, UNCOVERED, EACH 135' DIA. X 19' SIDEWATER DEPTH, WITH FLOCCULATING CENTER WELLS, HYDRAULIC SLUDGE COLLECTORS, AND INBOARD LAUNDERS.

20. SLUDGE BLENDING FACILITY WITH TWO SLUDGE BLENDING TANKS (SBTs), EACH 26,000 GALLON CAPACITY, WITH ASSOCIATED PIPING AND PUMPS.

BY THE REMOVAL OF:

13. SLUDGE PROCESSING STATION WITH ASSOCIATED GRINDERS AND BELT FILTER PRESSES.

14. TWO POLYMER STORAGE TANKS, EACH 20,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

15. FOUR POLYMER MIX TANKS, EACH 8,500 GALLON CAPACITY, WITH ASSOCIATED MIXERS AND PUMPS.

AND BY THE ADDITION OF:
DIGESTED SLUDGE DEWATERING FACILITY, LOCATED IN A BUILDING, (OCSD PROJECT P2-92)

21. CENTRATE WET WELL.

22. BIOSOLIDS LOADING SLUDGE PUMPS (5)
CENTRIFUGES (5): ANDRITZ SEPARATION, TYPE D7LL OR SIMILAR
CENTRATE PUMPS (2): FAIRBANKS MORSE, MAXIMUM 1474 GPM, 18.5 H.P. OR SIMILAR
CAKE PUMPS (5) - SCHWING BIOSET, MODEL KSP25 V (HD) L, 39 GPM, 150 H.P. OR SIMILAR

23. TWO POLYMER STORAGE TANKS, EACH APPROXIMATELY 7,500 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

24. TWO POLYMER AGING TANKS, EACH APPROXIMATELY 5,000 GALLON CAPACITY, WITH ASSOCIATED PUMPS.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. HEADWORKS FACILITY, PRIMARY BASINS, SLUDGE BLENDING FACILITY, DISSOLVED AIR FLOATATION THICKENERS, TRICKLING FILTER FACILITY AND NEW SLUDGE DEWATERING FACILITY (PROJECT P2-92) SHALL BE VENTED TO THEIR DESIGNATED AIR POLLUTION CONTROL SYSTEMS WHICH ARE IN OPERATION PER ITS' VALID PERMITS TO CONSTRUCT OR OPERATE ISSUED BY THE SCAQMD. IN THE EVENT AN AIR POLLUTION CONTROL SYSTEM IS REMOVED FROM OPERATION DURING CONSTRUCTION OR MAINTENANCE WORK, THE H2S CONCENTRATION IN EXHAUST AIR SHALL BE BELOW THE LIMITS SPECIFIED IN THE REMOVED AIR POLLUTION CONTROL SYSTEM'S PERMIT. EACH SUCH CONSTRUCTION OR MAINTENANCE EVENT SHALL BE RECORDED IN A DAILY LOG.
[RULE 402, 1303(a) (1)-BACT, 1401]

7. AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; AFTER COMPLETION OF CONSTRUCTION OF P2-92, THE BUILDING ENCLOSING THE DIGESTED SLUDGE DEWATERING FACILITY SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT TO ALLOW PERSONNEL TO ENTER OR EXIT; FACILITATE OPERATIONS/MAINTENANCE ACTIVITIES OR TO ALLEVIATE SAFETY ISSUES.
[RULE 204, 402]

8. THE FERROUS AND/OR FERRIC CHLORIDE INJECTION STATION SHALL BE IN USE TO THE EXTENT NECESSARY TO MAINTAIN THE H2S CONCENTRATION IN THE DIGESTER GAS TO THE PERMITTED LIMIT.
[RULE 431.1]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. RAW DIGESTER GAS PRODUCED AT THIS FACILITY SHALL NOT BE RELEASED INTO THE ATMOSPHERE, EXCEPT DURING MOMENTARY AUTOMATIC ACTIVATION OF PRESSURE RELIEF SAFETY DEVICES. ALL COLLECTED DIGESTER GAS SHALL BE EITHER COMBUSTED IN DIGESTER GAS FLARES, INTERNAL COMBUSTION ENGINES, OR BOILERS WITH VALID AQMD PERMIT, OR SHALL BE TREATED THROUGH OPTIONAL PASSIVE CARBON ADSORBERS. EACH SUCH PRESSURE RELIEF ACTIVATION SHALL BE MAINTAINED IN A DAILY LOG.
[RULE 402, RULE 1401]

10. RAW DIGESTER GAS RELEASES DUE TO EQUIPMENT FAILURE SHALL BE REPORTED IN ACCORDANCE WITH RULE 430. UPON DISCOVERY OF SUCH EMISSIONS, IMMEDIATE REMEDIAL MEASURES SHALL BE PUT INTO ACTION TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, RULE 430]

11. THE CALENDAR MONTHLY AVERAGE DAILY PRIMARY EFFLUENT FLOW RATE, TO THE SECONDARY TREATMENT PROCESS, SHALL NOT EXCEED 150 MILLIONS GALLONS PER DAY, EXCEPT DURING WET WEATHER PERIODS AND EMERGENCY PERIODS INVOLVING PUBLIC HEALTH SAFETY. THE RECORDS FOR THE PRIMARY EFFLUENT AVERAGE DAILY FLOW RATE (MGD), TREATED BY THE SECONDARY PROCESS, SHALL BE KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

12. THE CALENDAR MONTHLY AVERAGE DAILY FLOW RATE OF WASTEWATER TREATED AT THIS FACILITY SHALL NOT EXCEED 250 MILLION GALLONS PER DAY (MGD) EXCEPT DURING WET WEATHER PERIODS. THE RECORDS FOR THE WASTEWATER FLOW RATE (MGD) MEASURED SHALL BE RECORDED AND KEPT ON FILE.
[RULE 1303(b) (2) –OFFSETS, 402, 1401]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 556627
Granted as of 6-26-2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM FOR THE NEW SLUDGE DEWATERING FACILITY (P2-92), CONSISTING OF;

1. FOUL-AIR DUCT(S) FROM THE CENTRIFUGES, CAKE (BIOSOLIDS) BINS AND CENTRATE WET WELL.

2. TWO BLOWERS, ONE STANDBY, HARTZELL SERIES 41 TYPE FA, OR SIMILAR, CAPABLE OF APPROXIMATELY 7500 CFM AT 12" STATIC PRESSURE.

3. WET SCRUBBER, PACKED BED, APPROXIMATELY 4' DIA. X 8' H., WITH 4' H. POLYPROPYLENE PACKING MATERIAL, SPRAY NOZZLES, WATER RECIRCULATION, MAKE-UP WATER AND ACID SUPPLY (AS BACK-UP) LINES, SUMP WITH PH PROBE, AND ASSOCIATED PUMPS.

4. BIOFILTER, CELL A, B AND C, CUSTOM MADE, APPROXIMATELY 20' W. X 43' L. X 22' H., OVERALL DIMENSIONS, WITH APPROXIMATELY 8' H. INORGANIC ENGINEERED MEDIA, AND AN IRRIGATION SPRAY(S) SYSTEM.

5. TREATED AIR EXHAUST STACK, 2' DIA. X 47' - 6" H. ABOVE GRADE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
[RULE 205]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL COMPLY WITH ALL APPLICABLE MITIGATION MEASURES STIPULATED IN THE STATEMENT OF FINDINGS, STATEMENT OF OVERRIDING CONSIDERATION, AND MITIGATION OR MONITORING PLAN DOCUMENT (THAT APPLIES TO PROJECT P2-92), WHICH IS PART OF THE CERTIFIED FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR THIS FACILITY AS APPROVED BY THE LEAD AGENCY.
[CA PRC CEQA, 11-23-1970]

6. A FLOW METER SHALL BE INSTALLED AND MAINTAINED AT THE INLET STREAM TO THE WET SCRUBBER TO INDICATE THE TOTAL AIR FLOW RATE IN CUBIC FEET PER MINUTE (CFM). THE TOTAL AIR FLOW RATE SHALL NOT EXCEED 7,500 CFM, DAILY AVERAGE. IN CASE A PRESSURE SENSOR DEVICE IS USED IN PLACE OF THE FLOW METER, A CONVERSION CHART SHALL BE MAINTAINED TO INDICATE THE CORRESPONDING FLOW RATE, IN CFM, TO THE PRESSURE READING.
[RULE 203]

7. A PRESSURE DIFFERENTIAL GAUGE INDICATING THE PRESSURE DROP ACROSS THE SCRUBBER PACKING BED SHALL BE INSTALLED AND MAINTAINED. THE PRESSURE DROP ACROSS THE PACKING BED SHALL BE MAINTAINED BELOW 2 INCHES OF WATER COLUMN, WHEN THE SCRUBBER IS IN OPERATION.
[RULE 203]

8. A PH METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE PH OF THE SCRUBBING SOLUTION (SUMP), WHENEVER SULFURIC ACID IS USED. THE PH OF THE SCRUBBING SOLUTION SHALL BE MAINTAINED BETWEEN 1 TO 8.
[RULE 203]

9. WHEN THE EQUIPMENT IS IN OPERATION, THE INLET FLOW RATE, SCRUBBING SOLUTION FLOW RATE, PH OF THE SCRUBBING SOLUTION, PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER PACKING BED SHALL BE MONITORED AND RECORDED AT LEAST ONCE A DAY FOR THE FIRST MONTH OF OPERATION AND WEEKLY THEREAFTER.
[RULE 203]

10. WHEN BIOFILTER IS IN OPERATION, THE CONCENTRATION, PPMV, OF HYDROGEN SULFIDE (H2S), IN EXHAUST AIR (STACK) SHALL BE MONITORED AND RECORDED, AT LEAST DAILY. THE BIOFILTER SURFACE IRRIGATION SYSTEM SHALL BE MAINTAINED IN GOOD OPERATING CONDITION AT ALL TIMES AND SHALL BE UTILIZED TO MAINTAIN THE DESIRED MOISTURE CONTENT FOR THE BIOFILTER MEDIA.
[RULE 402, 1401]

11. EMISSIONS FROM THIS EQUIPMENT MEASURED IN THE EXHAUST STACK SHALL NOT EXCEED THE FOLLOWING:

HYDROGEN SULFIDE (H2S)	1 PPMV- DAILY AVERAGE
AMMONIA (NH3)	5 PPMV- DAILY AVERAGE

[RULE 402, 1401]

12. IF THE OPERATION OF THIS EQUIPMENT RESULTS IN CONSIDERABLE NUMBER OF ODOR COMPLAINTS, MITIGATION MEASURES SHALL BE IMPLEMENTED IMMEDIATELY.
[RULE 402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS, AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST. [RULE 203]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557229
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK001, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 557230
Granted as of 4/16/2014

Equipment Description:

STORAGE TANK, NO. 26KTNK005, AQUEOUS UREA SOLUTION (32.5% v), ABOVE GROUND, 2,000 GALLON CAPACITY, VENTING TO ATMOSPHERE.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT SHALL ONLY BE USED FOR STORAGE OF AQUEOUS UREA SOLUTION.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559228
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559229
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 2 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b)(1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559230
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 3 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559231
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 4 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Emissions and Requirements:

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
NH3 (AMMONIA SLIP): 5 PPMV AT 15% O2, 60 MINUTE AVERAGE, AFTER SCR START UP.
[RULE 1303(b) (1)], [RULE 1402]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO CONSTRUCT

A/N 559232
Granted as of 4/16/2014

Equipment Description:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. CATALYTIC OXIDIZER, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 91449 OR EQUAL, ALUMINUM OXIDE OR PLATINUM CATALYST ACTIVE MATERIAL, WITH 200 CPSI OXIDATION CATALYST OR EQUAL, 18.67 CUBIC FEET TOTAL VOLUME, WITH ASSOCIATED AUTOMATIC TEMPERATURE AND PRESSURE MONITORING DEVICES AND CONTROLS, AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
2. SELECTIVE CATALYTIC REDUCTION, JOHNSON MATTHEY INC. OR EQUAL, MODEL NO. 79449 OR EQUAL, METALLIC SUBSTRATE, 37.33 CUBIC FOOT TOTAL VOLUME AND WITH PROVISIONS FOR ADDING TWO LAYERS OF CATALYST.
3 AQUEOUS UREA SOLUTION DOSING UNIT, INJECTORS, AND WITH ASSOCIATED AUTOMATIC TEMPERATURE, PRESSURE MONITORING AND CONTROL DEVICES.
4. EXHAUST STACK, 2'-6" DIA. X 59' H., ABOVE GROUND.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE EQUIPMENT, ORANGE COUNTY SANITATION DISTRICT (OCSD) SHALL PROVIDE TO SCAQMD FINAL DESIGN DRAWINGS, PROCESS AND FLOW DIAGRAM, CONTROLS, EQUIPMENT SPECIFICATIONS (MAKE, MODEL, SIZE AND MAXIMUM CAPACITY).
[RULE 204]

4. THE OPERATOR SHALL INSTALL AND MAINTAIN TEMPERATURE MEASURING AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET TEMPERATURES OF THE OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. THE TEMPERATURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED. THE TEMPERATURE GAUGES SHALL BE ACCURATE TO PLUS OR MINUS 5 PERCENT, AND BE CALIBRATED ONCE EVERY TWELVE MONTHS.
[RULE 204]

5. THE OPERATOR SHALL INSTALL AND MAINTAIN DIFFERENTIAL PRESSURE AND RECORDING SYSTEMS TO MEASURE AND RECORD THE INLET AND OUTLET PRESSURES ACROSS THE

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

OXIDATION CATALYST AND THE SELECTIVE REDUCTION CATALYST. HE DIFFERENTIAL PRESSURES SHALL BE CONTINUOUSLY MEASURED AND RECORDED.
[RULE 204]

6. BASED ON THE OPERATING PARAMETERS' MEASURED AND MONITORED RESULTS OVER THE TWO-YEAR PERIOD (PER CONDITION #4 AND #5), OPERATING PARAMETERS' RANGE SHALL BE ESTABLISHED FOR THE PERMIT TO OPERATE.
[RULE 204]

7. EXCEPT DURING STARTUP AND SHUTDOWN OF THE SCR SYSTEM, THE UREA FEED CONTROL SYSTEM SHALL BE IN OPERATION.
[RULE 204]

8. THE OPERATOR SHALL INSTALL AND MAINTAIN A UREA FLOW RATE MEASURING AND RECORDING SYSTEM TO ACCURATELY INDICATE AND RECORD THE UREA INJECTION RATE TO THE SELECTIVE CATALYTIC REDUCTION SYSTEM.
[RULE 204]

9. THE OPERATOR SHALL INSTALL AND MAINTAIN A NOx ANALYZER TO MEASURE SCR INLET NOx CONCENTRATION AND CALIBRATED ANNUALLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
[RULE 204]

10. WHEN SCR IS IN OPERATION, THE OPERATOR SHALL ANALYZE THE UREA INJECTION RATE, AND THE SCR INLET AND OUTLET NOX EMISSION RATE TO ESTIMATE THE AMMONIA CONCENTRATION IN THE SCR OUTLET, BASED ON ONE HOUR AVERAGE.
[RULE 204]

11. SAMPLING PORTS SHALL BE INSTALLED AT THE INLET AND OUTLET OF THE AIR POLLUTION CONTROL SYSTEM.
[RULE 204]

12. THE AMMONIA SLIP SHALL BE TESTED WITHIN 180 DAYS AFTER INITIAL START-UP (POST MODIFICATION), AND ANNUALLY THEREAFTER. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS IN ACCORDANCE WITH THE APPROVED TEST PROCEDURES AND, FURNISH THE SCAQMD WRITTEN RESULTS OF SUCH PERFORMANCE TESTS WITHIN 45 DAYS AFTER TESTING.
[RULE 1303(b) (1)], [RULE 1401]

13. RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]