



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

November 15, 2011

Mr. Gerardo Rios
Chief – Permits Office
U. S. EPA, Region IX
75 Hawthorne Street, Air 3
San Francisco, CA 94105

Dear Mr. Rios:

Subject: Long Beach Memorial Medical Center (ID 14213) – Title V Permit
Revision (Application No. 526281)

Long Beach Memorial Medical Center has proposed to revise their Title V permit by installing Low NOx burners on three boilers nos. 1, 2, and 3 to meet the upcoming Rule 1146 limits. This is a medical care facility (SIC 8060) located at 2801 Atlantic Ave, Long Beach, CA 90806. This proposed permit revision is considered as a “minor permit revision” to their Title V permit. Attached for your review are the permit evaluation and proposed Section D. With your receipt of the proposed Section D today, we will note that the EPA 45-day review period begins on November 15, 2011.

If you have any questions or need additional information regarding the proposed permit revision, please call Chris Perri at (909) 396-2696.

Very truly yours,

Brian L. Yeh
Senior Manager
Chemical, Mechanical & Public Services

BLY:AYLJTY:cgp

Attachments

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

PERMIT TO CONSTRUCT

A/N 526278

Equipment Description:

MODIFICATION OF:

BOILER NO. 1, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-14 LOW NOX BURNER, 19,860,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61318

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH 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 FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1146]
4. THIS EQUIPMENT SHALL BE FIRED ON NATURAL GAS ONLY, LOW NITROGEN FUEL OIL WITH LESS THAN 0.01% NITROGEN AND SULFUR CONTENT WHICH MEETS THE RULE 431.2 LIMIT, MAY BE FIRED DURING PERIODS OF FORCED MAJEURE GAS CURTAILMENTS, DURING MAINTENANCE TESTING OF THE BURNER NOT TO EXCEED 30 MINUTES PER MONTH OR DURING COMPLIANCE TESTING.
[RULE 1303(a)]
5. THE BURNER SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR FUEL AND RECIRCULATED FLUE GAS AS THE BOILER LOAD VARIES. THE AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED AT LEAST TWICE PER YEAR, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE PERFORMANCE AT THE SAME BURNER FIRING RATE. THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS FOR A PERIOD OF AT LEAST FIVE YEARS AND THE RECORDS SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

6. THE EMISSIONS FROM THIS BOILER SHALL NOT EXCEED BY VOLUME ON A DRY BASIS AT 3% O₂, AVERAGED OVER 15 CONSECUTIVE MINUTES:
 - A. UNTIL DECEMBER 31, 2012 - 30 PPM NOX WHEN FIRING NATURAL GAS
 - B. BEGINNING JANUARY 1, 2013 - 9 PPM NOX WHEN FIRING NATURAL GAS
 - C. 40 PPM NOX WHEN FIRING FUEL OIL
 - D. 400 PPM CARBON MONOXIDE WHEN FIRING NATURAL GAS OR FUEL OIL[RULE 1146]

7. THE BURNER SHALL NOT FIRE ON LESS THAN 1667 SCF/HR OF NATURAL GAS DURING NORMAL OPERATION, NOT INCLUDING START-UPS AND SHUTDOWNS.
[RULE 1146]

8. THE OPERATOR SHALL INSTALL A FLOW METER TO ACCURATELY INDICATE THE FLOW RATE OF THE GAS AND SHALL RECORD THE HOURLY GAS BEING FIRED IN THE BOILER. THE MEASURING DEVICE SHALL CONTINUOUSLY MEASURE THE FLOW RATE AND SHALL BE ACCURATE TO WITHIN PLUS OR MINUS 5 PERCENT AND SHALL BE CALIBRATED ONCE EVERY 12 MONTHS. CALIBRATION RECORDS AND HOURLY FLOW RECORDS SHALL BE KEPT ON SITE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

9. THE OPERATOR SHALL PERFORM PERIODIC EMISSION TESTS ON THE BOILER WITH A PORTABLE ANALYZER IN ACCORDANCE WITH THE SCHEDULE AND SPECIFICATIONS OUTLINED IN RULE 1146.
[RULE 1146]

10. THE OPERATOR SHALL CONDUCT A SOURCE TEST ON THE BOILER UNDER THE FOLLOWING CONDITIONS:
 - A. THE INITIAL TEST SHALL BE CONDUCTED WITHIN 60 DAYS AFTER APPROVAL OF THE SOURCE TEST PROTOCOL BUT NOT LATER THAN 180 DAYS AFTER THE PERMIT IS ISSUED. AFTER THE INITIAL TEST, TESTING SHALL BE CONDUCTED ONCE EVERY 3 YEARS, OR IN ACCORDANCE WITH THE SCHEDULE SPECIFIED IN RULE 1146.
 - B. THE TEST SHALL BE CONDUCTED TO DETERMINE THE EMISSIONS OF NOX AND CO USING ONE OF THE TEST METHODS SPECIFIED IN RULE 1146. THE TEST SHALL BE CONDUCTED OVER 15 MINUTE AVERAGING TIME. THE TEST SHALL BE CONDUCTED DURING GAS FIRING AT A GREATER THAN 90% LOAD, 50% LOAD, AND 25% LOAD.
 - C. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH AN AQMD APPROVED TEST PROTOCOL. THE PROTOCOL SHALL BE SUBMITTED TO THE AQMD ENGINEER NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE AQMD BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE PROPOSED OPERATING CONDITIONS OF THE BOILER DURING THE TESTS, THE IDENTITY OF THE TESTING LAB, A STATEMENT FROM THE TESTING LAB CERTIFYING THAT IT MEETS THE CRITERIA OF RULE 304, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES. THE AQMD SHALL BE NOTIFIED ON THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST. TEST RESULTS SHALL BE SUBMITTED TO THE AQMD WITHIN 30 DAYS OF COMPLETION OF THE TEST.[RULE 1146]

PERIODIC MONITORING:

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

11. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSION FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THIS EQUIPMENT HAS COMBUSTED ONE MILLION GALLONS OF DIESEL FUEL, TO BE COUNTED CUMULATIVELY OVER A FIVE YEAR PERIOD. THE INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE HOUR, THE OPERATOR SHALL EITHER:
- A. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN THE SAME FASHION AS DEVIATIONS ARE REQUIRED TO BE REPORTED IN SECTION K OF THIS PERMIT; OR
 - B. HAVE A CARB-CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.

IN ADDITION, THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:

- A. STACK OR EMISSION POINT IDENTIFICATION;
- B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;
- C. DATE AND TIME VISIBLE EMISSION WAS ABATED; AND
- D. VISIBLE EMISSION OBSERVATION RECORDED BY A CERTIFIED SMOKE READER.
[RULE 3004 (a) (4)]

Emissions And Requirements:

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

NOx: 30 PPMV, RULE 1146, WHEN FIRING NATURAL GAS (UNTIL 12/31/12)
NOx: 9 PPM, RULE 1146, WHEN FIRING NATURAL GAS (ON AND AFTER 1/1/13)
NOx: 40 PPMV, RULE 1146, WHEN FIRING FUEL OIL
CO: 400 PPMV, RULE 1146
CO: 2000 PPMV, RULE 407
PM: 0.1 GR/SCF, RULE 409

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

PERMIT TO CONSTRUCT

A/N 526279

Equipment Description:

MODIFICATION OF:

BOILER NO. 2, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-14 LOW NOX BURNER, 19,860,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61319

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH 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 FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1146]
4. THIS EQUIPMENT SHALL BE FIRED ON NATURAL GAS ONLY, LOW NITROGEN FUEL OIL WITH LESS THAN 0.01% NITROGEN AND SULFUR CONTENT WHICH MEETS THE RULE 431.2 LIMIT, MAY BE FIRED DURING PERIODS OF FORCED MAJEURE GAS CURTAILMENTS, DURING MAINTENANCE TESTING OF THE BURNER NOT TO EXCEED 30 MINUTES PER MONTH OR DURING COMPLIANCE TESTING.
[RULE 1303(a)]
5. THE BURNER SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR FUEL AND RECIRCULATED FLUE GAS AS THE BOILER LOAD VARIES. THE AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED AT LEAST TWICE PER YEAR, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE PERFORMANCE AT THE SAME BURNER FIRING RATE. THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS FOR A PERIOD OF AT LEAST FIVE YEARS AND THE RECORDS SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

6. THE EMISSIONS FROM THIS BOILER SHALL NOT EXCEED BY VOLUME ON A DRY BASIS AT 3% O₂, AVERAGED OVER 15 CONSECUTIVE MINUTES:
 - A. UNTIL DECEMBER 31, 2012 - 30 PPM NOX WHEN FIRING NATURAL GAS
 - B. BEGINNING JANUARY 1, 2013 - 9 PPM NOX WHEN FIRING NATURAL GAS
 - C. 40 PPM NOX WHEN FIRING FUEL OIL
 - D. 400 PPM CARBON MONOXIDE WHEN FIRING NATURAL GAS OR FUEL OIL[RULE 1146]

7. THE BURNER SHALL NOT FIRE ON LESS THAN 1667 SCF/HR OF NATURAL GAS DURING NORMAL OPERATION, NOT INCLUDING START-UPS AND SHUTDOWNS.
[RULE 1146]

8. THE OPERATOR SHALL INSTALL A FLOW METER TO ACCURATELY INDICATE THE FLOW RATE OF THE GAS AND SHALL RECORD THE HOURLY GAS BEING FIRED IN THE BOILER. THE MEASURING DEVICE SHALL CONTINUOUSLY MEASURE THE FLOW RATE AND SHALL BE ACCURATE TO WITHIN PLUS OR MINUS 5 PERCENT AND SHALL BE CALIBRATED ONCE EVERY 12 MONTHS. CALIBRATION RECORDS AND HOURLY FLOW RECORDS SHALL BE KEPT ON SITE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

9. THE OPERATOR SHALL PERFORM PERIODIC EMISSION TESTS ON THE BOILER WITH A PORTABLE ANALYZER IN ACCORDANCE WITH THE SCHEDULE AND SPECIFICATIONS OUTLINED IN RULE 1146.
[RULE 1146]

10. THE OPERATOR SHALL CONDUCT A SOURCE TEST ON THE BOILER UNDER THE FOLLOWING CONDITIONS:
 - A. THE INITIAL TEST SHALL BE CONDUCTED WITHIN 60 DAYS AFTER APPROVAL OF THE SOURCE TEST PROTOCOL BUT NOT LATER THAN 180 DAYS AFTER THE PERMIT IS ISSUED. AFTER THE INITIAL TEST, TESTING SHALL BE CONDUCTED ONCE EVERY 3 YEARS, OR IN ACCORDANCE WITH THE SCHEDULE SPECIFIED IN RULE 1146.
 - B. THE TEST SHALL BE CONDUCTED TO DETERMINE THE EMISSIONS OF NOX AND CO USING ONE OF THE TEST METHODS SPECIFIED IN RULE 1146. THE TEST SHALL BE CONDUCTED OVER 15 MINUTE AVERAGING TIME. THE TEST SHALL BE CONDUCTED DURING GAS FIRING AT A GREATER THAN 90% LOAD, 50% LOAD, AND 25% LOAD.
 - C. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH AN AQMD APPROVED TEST PROTOCOL. THE PROTOCOL SHALL BE SUBMITTED TO THE AQMD ENGINEER NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE AQMD BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE PROPOSED OPERATING CONDITIONS OF THE BOILER DURING THE TESTS, THE IDENTITY OF THE TESTING LAB, A STATEMENT FROM THE TESTING LAB CERTIFYING THAT IT MEETS THE CRITERIA OF RULE 304, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES. THE AQMD SHALL BE NOTIFIED ON THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST. TEST RESULTS SHALL BE SUBMITTED TO THE AQMD WITHIN 30 DAYS OF COMPLETION OF THE TEST.[RULE 1146]

PERIODIC MONITORING:

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

11. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSION FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THIS EQUIPMENT HAS COMBUSTED ONE MILLION GALLONS OF DIESEL FUEL, TO BE COUNTED CUMULATIVELY OVER A FIVE YEAR PERIOD. THE INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE HOUR, THE OPERATOR SHALL EITHER:
- A. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN THE SAME FASHION AS DEVIATIONS ARE REQUIRED TO BE REPORTED IN SECTION K OF THIS PERMIT;
OR
 - B. HAVE A CARB-CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.

IN ADDITION, THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:

- A. STACK OR EMISSION POINT IDENTIFICATION;
- B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;
- C. DATE AND TIME VISIBLE EMISSION WAS ABATED; AND
- D. VISIBLE EMISSION OBSERVATION RECORDED BY A CERTIFIED SMOKE READER.
[RULE 3004 (a) (4)]

Emissions And Requirements:

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

NOx: 30 PPMV, RULE 1146, WHEN FIRING NATURAL GAS (UNTIL 12/31/12)
NOx: 9 PPM, RULE 1146, WHEN FIRING NATURAL GAS (ON AND AFTER 1/1/13)
NOx: 40 PPMV, RULE 1146, WHEN FIRING FUEL OIL
CO: 400 PPMV, RULE 1146
CO: 2000 PPMV, RULE 407
PM: 0.1 GR/SCF, RULE 409

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

PERMIT TO CONSTRUCT

A/N 525729

Equipment Description:

MODIFICATION OF:

BOILER NO. 3, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-18 LOW NOX BURNER, 25,700,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61321

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR, NATURAL GAS ONLY.

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH 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 FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1146]
4. THIS EQUIPMENT SHALL BE FIRED ON NATURAL GAS ONLY.
[RULE 1303(a)]
5. THE MODIFICATION TO INSTALL THE DE-RATED LOW NOX BURNER SHALL BE COMPLETED PRIOR TO JANUARY 31, 2012.
[RULE 1303(a)]
6. THE BURNER SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR FUEL AND RECIRCULATED FLUE GAS AS THE BOILER LOAD VARIES. THE AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED AT LEAST TWICE PER YEAR, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE PERFORMANCE AT THE SAME BURNER FIRING RATE. THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS FOR A PERIOD OF AT LEAST FIVE YEARS AND THE RECORDS SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

7. THE EMISSIONS FROM THIS BOILER SHALL NOT EXCEED BY VOLUME ON A DRY BASIS AT 3% O₂, AVERAGED OVER 15 CONSECUTIVE MINUTES:
 - A. UNTIL DECEMBER 31, 2011 - 30 PPM NOX WHEN FIRING NATURAL GAS
 - B. 40 PPM NOX WHEN FIRING FUEL OIL (UNTIL THE BURNER IS REPLACED)
 - C. BEGINNING JANUARY 1, 2012 - 9 PPM NOX WHEN FIRING NATURAL GAS
 - D. 400 PPM CARBON MONOXIDE[RULE 1146]

8. THE BURNER SHALL NOT FIRE ON LESS THAN 4729 SCF/HR OF NATURAL GAS DURING NORMAL OPERATION, NOT INCLUDING START-UPS AND SHUTDOWNS.
[RULE 1146]

9. THE OPERATOR SHALL INSTALL A FLOW METER TO ACCURATELY INDICATE THE FLOW RATE OF THE GAS AND SHALL RECORD THE HOURLY GAS BEING FIRED IN THE BOILER. THE MEASURING DEVICE SHALL CONTINUOUSLY MEASURE THE FLOW RATE AND SHALL BE ACCURATE TO WITHIN PLUS OR MINUS 5 PERCENT AND SHALL BE CALIBRATED ONCE EVERY 12 MONTHS. CALIBRATION RECORDS AND HOURLY FLOW RECORDS SHALL BE KEPT ON SITE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

10. THE OPERATOR SHALL PERFORM PERIODIC EMISSION TESTS ON THE BOILER WITH A PORTABLE ANALYZER IN ACCORDANCE WITH THE SCHEDULE AND SPECIFICATIONS OUTLINED IN RULE 1146.
[RULE 1146]

11. THE OPERATOR SHALL CONDUCT A SOURCE TEST ON THE BOILER UNDER THE FOLLOWING CONDITIONS:
 - A. THE INITIAL TEST SHALL BE CONDUCTED WITHIN 60 DAYS AFTER APPROVAL OF THE SOURCE TEST PROTOCOL BUT NO LATER THAN 180 DAYS AFTER THE PERMIT IS ISSUED. AFTER THE INITIAL TEST, TESTING SHALL BE CONDUCTED ONCE EVERY 3 YEARS, OR IN ACCORDANCE WITH THE SCHEDULE SPECIFIED IN RULE 1146.
 - B. THE TEST SHALL BE CONDUCTED TO DETERMINE THE EMISSIONS OF NOX AND CO USING ONE OF THE TEST METHODS SPECIFIED IN RULE 1146. THE TEST SHALL BE CONDUCTED OVER 15 MINUTE AVERAGING TIME. THE TEST SHALL BE CONDUCTED DURING GAS FIRING AT A GREATER THAN 90% LOAD, 50% LOAD, AND 25% LOAD.
 - C. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH AN AQMD APPROVED TEST PROTOCOL. THE PROTOCOL SHALL BE SUBMITTED TO THE AQMD ENGINEER NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE AQMD BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE PROPOSED OPERATING CONDITIONS OF THE BOILER DURING THE TESTS, THE IDENTITY OF THE TESTING LAB, A STATEMENT FROM THE TESTING LAB CERTIFYING THAT IT MEETS THE CRITERIA OF RULE 304, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES. THE AQMD SHALL BE NOTIFIED ON THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST. TEST RESULTS SHALL BE SUBMITTED TO THE AQMD WITHIN 30 DAYS OF COMPLETION OF THE TEST.[RULE 1146]

FACILITY PERMIT TO OPERATE LONG BEACH MEMORIAL MEDICAL CENTER

Emissions And Requirements:

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

NOx: 30 PPMV, RULE 1146 WHEN FIRING NATURAL GAS (UNTIL 12/31/11)
NOx: 9 PPM, RULE 1146 WHEN FIRING NATURAL GAS (ON AND AFTER 1/1/12)
NOx: 40 PPMV, RULE 1146 WHEN FIRING FUEL OIL, UNTIL THE BURNER IS REPLACED
CO: 400 PPMV, RULE 1146
CO: 2000 PPMV, RULE 407
PM: 0.1 GR/SCF, RULE 409



South Coast
Air Quality Management District
Engineering Division
Application Processing & Calculations

PAGE 1	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

APPLICANT:

Long Beach Memorial Medical Center
2801 Atlantic Ave
Long Beach, CA 90806
ID# 14213

EQUIPMENT LOCATION:

2801 Atlantic Ave
Long Beach, CA 90806

EQUIPMENT DESCRIPTION:

A/N 526278
MODIFICATION OF:

BOILER NO. 1, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-14 LOW NOX BURNER, 19,860,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61318

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR.

A/N 526279
MODIFICATION OF:

BOILER NO. 2, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-14 LOW NOX BURNER, 19,860,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61319



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 2	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR.

BACKGROUND:

The facility submitted these two applications to retrofit the boilers with new Low NOx burners for Rule 1146 compliance. The applications were submitted as Class I on August 10, 2011.

These boilers were originally permitted in the early 1970's under A/N's A06049, P/O A09279, and A06050, P/O A09280. In the early 1990's they were retrofit with 40 ppm Low NOx burners under A/N's 222052, P/O D61318 and 222053, P/O D61319. The boilers currently operate under the latest permits.

This facility is subject to Title V but is NOT in RECLAIM.

COMPLIANCE RECORD REVIEW:

The AQMD compliance database shows 1 compliance action taken against this facility in for the last 3 years. NOV P54717 was issued on 3/5/09 for failure to submit an annual Title V certification for 2008.

PROCESS DESCRIPTION:

The boilers are used to produce steam for heating and cooling. The facility is proposing to retrofit the units with an upgraded low NOx burner manufactured by Power Flame to reduce outlet NOx emissions to 9 ppm to comply with Rule 1146.

The boilers are identical units each rated at 19.86 mmbtu/hr. The burner is designed to reduce NOx emissions to 9 ppm at 3% O₂, with a maximum turndown ratio of 4:1 on natural gas (4,729 ft³/hr), and 5:1 on oil. Following are the specifications:

Specification	
Boiler Manufacturer	Babcock and Wilcox
Fuel Type	Natural gas, fuel oil back up
Maximum Fuel Consumption	18,914 ft ³ /hr ⁽¹⁾ , 142.9 gal/hr oil ⁽¹⁾
Maximum Exhaust Flow	200,657 ft ³ /hr ⁽²⁾ , 211,716 ⁽²⁾
Maximum Heat Input	19.86 mmbtu/hr
NOx Combustion Control	Low NOx Burner, FGR
Number of Burners	1
Burner Manufacturer/Model	Power Flame Nova Plus NVC-10-GO-30
Outlet NOx	9 ppm natural gas, 40 ppm oil at 3% O ₂

(1) Based on 1050 btu/cf natural gas and 139,000 btu/gal oil

(2) Based on an F factor of 8710 cf/mmbtu for natural gas and 9190 cf/mmbtu for oil, corrected to 3% O₂



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

PAGE 3	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

EMISSIONS:

Emission estimates are based on standard boiler emission factors for CO, ROG, PM, and SOx. NOx is based on the rule limit of 9 ppm. Calculations are shown in Appendix A, following is a summary.

Natural Gas

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽¹⁾	Annual Emissions
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	0.97	23.28	0.22	5.28	5	1927
CO	1.59	38.16	1.59	38.16	38	13928
ROG	0.10	2.4	0.10	2.4	2	876
PM10	0.14	3.36	0.14	3.36	3	1226
SOx	0.01	0.24	0.01	0.24	0	88

(1) Rounded to nearest whole number

Oil

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽²⁾	Annual Emissions ⁽²⁾
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	1.03	24.72	1.03	24.72	0	6
CO	0.03	0.72	0.03	0.72	0	0
ROG	0.03	0.72	0.03	0.72	0	0
PM10	0.29	6.96	0.29	6.96	0	2
SOx	0.30	7.2	0.30	7.2	0	2

(2) based on 30 minutes per month and 6 hours per year oil firing.

There is a reduction in NOx emissions from the installation of the 9 ppm Low NOx burner. All other pollutants remain unchanged.

Under the previous applications (222502, 222503), the NSR emissions were entered as 0's. Therefore the NSR database will be updated for the previous applications using the uncontrolled natural gas fired emissions as shown above.

EVALUATION:

Rule 212 – Standards for Approving Permits

The facility is not within 1000 feet of a school and there is no increase in emissions from the addition of the new burner under this application. Therefore, this is not considered a significant project under the rule and no public notice is required.

Rule 401 – Visible Emissions

Visible emissions are not expected under normal operation.



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

PAGE
4

PAGES
11

APPL NO.
526278, 9

DATE
10/25/2011

PROCESSED BY
CGP

CHECKED BY

Rule 402 – Nuisance

Nuisance problems are not expected with proper operation of this equipment.

Rule 407 – Liquid and Gaseous Air Contaminants

This rule limits the CO emissions to 2000 ppm. The Rule 1146 CO limit of 400 ppm is more stringent. Based on test results from similar equipment, CO emissions are typically very low. After installation of the new burner, compliance with the CO limit will be verified through a source test.

Rule 409 – Combustion Contaminants

This rule limits particulate emissions to 0.1 gr/scf. Although the units have not been tested for PM emissions, the following theoretical calculations show that compliance can be expected:

Estimated grain loading, gas firing = 0.14 lbs/hr X (7000 gr/lb)/.201E6 scf/hr
= 0.005 gr/scf

Estimated grain loading, oil firing = 0.29 lbs/hr X (7000 gr/lb)/0.212E6 scf/hr
= 0.0096 gr/scf

Rule 431.1. - Sulfur Content of Gaseous Fuels

The boilers will be fired on pipeline natural gas, which under this rule, is required to meet a sulfur content of 16 ppm sulfur. Compliance is expected.

Rule 1146 – NOx from Boilers

This rule applies to all boilers over 5 mmbtu/hr. Current emission limits are 30 ppm NOx for gas firing, 40 ppm NOx for oil firing, and 400 ppm CO for all fuels. Under the rule, the boilers are classified as Group III Units because their rating is between 5 and 20 mmbtu/hr. For Group III Units, the new limit that takes effect January 1, 2013 is 9 ppm NOx for gas firing. With the installation of the new Low NOX burners, the units should be able to meet the new limits. The burner manufacturer has provided a guarantee for NOx of < 9 ppm for natural gas firing, NOx < 40 ppm for oil firing, and CO < 400 ppm. A source test will be required to verify compliance. The facility has several options on which test method to use. The rule specifies either District Methods 100.1 or 7.1, or a portable analyzer method. Furthermore, periodic testing will be required every 3 years for these units.

The rule also requires submittal of a compliance plan specifying when the facility will come into compliance with the limits. Long Beach Memorial submitted their plan under A/N 519073, the plan was not submitted within the required timeframe (before 1/1/11). The plan was approved by AQMD on March 4, 2011. The plan specified a 9 ppm NOx compliance level to be achieved by January 1, 2013. The facility has submitted their modification applications within the required timeframe (before 1/1/12).



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 5	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

Regulation XIII – New Source Review

There is a reduction in NO_x, and no increase in any other criteria pollutant emissions as a result of the installation of the new burner. Therefore, NSR is not applicable to this modification.

The 30 day average emissions as shown in Table 1 of Appendix A should be used for the NSR entries. The previous NSR entries, which were entered as 0's, will be updated.

Rule 1401 – Toxic Air Contaminants

There is no increase in emissions of toxic contaminants as a result of the new burner installation, therefore Rule 1401 is not applicable to this modification.

Regulation XXX – Title V

Long Beach Memorial is a Title V facility because it is a major source of NO_x emissions. The facility is currently operating under a valid Title V permit issued on October 26, 2011. The installation of the Low NO_x burners is considered a minor permit revision because there is no increase in either criteria pollutant or HAP emissions. As a minor revision, the proposed permit is subject to a 45 day EPA review and comment period.

RECOMMENDATION:

A Permit to Construct is recommended subject to the conditions shown below. The following changes to the conditions should be incorporated:

1. Add a language to specify the use of only low nitrogen fuel oil during fuel oil firing.
2. Add a fuel limit to insure the boiler operates above the 4:1 turndown ratio.
3. Add a condition requiring a fuel meter to verify compliance with the fuel limit.
4. Add a condition specifying the periodic monitoring required under Rule 1146.
5. Add a source test condition.
6. Remove the old Rule 1146 periodic monitoring conditions.

All other existing conditions will remain the same.

CONDITIONS:

Proposed new condition language is shown in **bold underline**.

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

[RULE 204]



South Coast
Air Quality Management District
Engineering Division
Application Processing & Calculations

PAGE 6	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]
3. THE FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1146]
4. THIS EQUIPMENT SHALL BE FIRED ON NATURAL GAS ONLY, ~~EXCEPT DURING AN EMERGENCY AND REQUIRED TESTING AT WHICH FUEL OIL MAY BE USED~~ **LOW NITROGEN FUEL OIL WITH LESS THAN 0.01% NITROGEN AND SULFUR CONTENT WHICH MEETS THE RULE 431.2 LIMIT, MAY BE FIRED DURING PERIODS OF FORCED MAJEURE GAS CURTAILMENTS, DURING MAINTENANCE TESTING OF THE BURNER NOT TO EXCEED 30 MINUTES PER MONTH OR DURING COMPLIANCE TESTING.**
RULE 1303 – OFFSETS

~~THIS BOILER SHALL BE OPERATED IN FULL COMPLIANCE WITH THE APPLICABLE PROVISIONS OF RULE 1146.~~
[RULE 1146]

5. THE BURNER SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR FUEL AND RECIRCULATED FLUE GAS AS THE BOILER LOAD VARIES. THE AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED AT LEAST TWICE PER YEAR, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE PERFORMANCE AT THE SAME BURNER FIRING RATE. **THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS FOR A PERIOD OF AT LEAST FIVE YEARS AND THE RECORDS SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.**
[RULE 1146]

~~THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS, AS SPECIFIED IN CONDITION NO. 6 ABOVE FOR A PERIOD OF AT LEAST FIVE YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.~~
[RULE 1146]

6. THE EMISSIONS FROM THIS BOILER SHALL NOT EXCEED BY VOLUME ON A DRY BASIS AT 3% O₂, AVERAGED OVER 15 CONSECUTIVE MINUTES:
 - A. **UNTIL DECEMBER 31, 2012 - 30 PPM NOX WHEN FIRING NATURAL GAS**
 - B. **BEGINNING JANUARY 1, 2013 – 9 PPM NOX WHEN FIRING NATURAL GAS**
 - C. 40 PPM NOX WHEN FIRING FUEL OIL
 - D. 400 PPM CARBON MONOXIDE **WHEN FIRING NATURAL GAS OR FUEL OIL**
- [RULE 1146]



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 7	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

7. THE BURNER SHALL NOT FIRE ON LESS THAN 1667 SCF/HR OF NATURAL GAS DURING NORMAL OPERATION, NOT INCLUDING START-UPS AND SHUTDOWNS.
[RULE 1146]

8. THE OPERATOR SHALL INSTALL A FLOW METER TO ACCURATELY INDICATE THE FLOW RATE OF THE GAS AND SHALL RECORD THE HOURLY GAS BEING FIRED IN THE BOILER. THE MEASURING DEVICE SHALL CONTINUOUSLY MEASURE THE FLOW RATE AND SHALL BE ACCURATE TO WITHIN PLUS OR MINUS 5 PERCENT AND SHALL BE CALIBRATED ONCE EVERY 12 MONTHS. CALIBRATION RECORDS AND HOURLY FLOW RECORDS SHALL BE KEPT ON SITE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1146]

9. THE OPERATOR SHALL PERFORM PERIODIC EMISSION TESTS ON THE BOILER WITH A PORTABLE ANALYZER IN ACCORDANCE WITH THE SCHEDULE AND SPECIFICATIONS OUTLINED IN RULE 1146.
[RULE 1146]

10. THE OPERATOR SHALL CONDUCT A SOURCE TEST ON THE BOILER UNDER THE FOLLOWING CONDITIONS:
 - A. THE INITIAL TEST SHALL BE CONDUCTED WITHIN 60 DAYS AFTER APPROVAL OF THE SOURCE TEST PROTOCOL BUT NOT LATER THAN 180 DAYS AFTER THE PERMIT IS ISSUED. AFTER THE INITIAL TEST, TESTING SHALL BE CONDUCTED ONCE EVERY 3 YEARS, OR IN ACCORDANCE WITH THE SCHEDULE SPECIFIED IN RULE 1146.
 - B. THE TEST SHALL BE CONDUCTED TO DETERMINE THE EMISSIONS OF NOX AND CO USING ONE OF THE TEST METHODS SPECIFIED IN RULE 1146. THE TEST SHALL BE CONDUCTED OVER 15 MINUTE AVERAGING TIME. THE TEST SHALL BE CONDUCTED DURING GAS FIRING AT A GREATER THAN 90% LOAD, 50% LOAD, AND 25% LOAD.
 - C. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH AN AQMD APPROVED TEST PROTOCOL. THE PROTOCOL SHALL BE SUBMITTED TO THE AQMD ENGINEER NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE AQMD BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE PROPOSED OPERATING CONDITIONS OF THE BOILER DURING THE TESTS, THE IDENTITY OF THE TESTING LAB, A STATEMENT FROM THE TESTING LAB CERTIFYING THAT IT MEETS THE CRITERIA OF RULE 304, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES. THE AQMD SHALL BE NOTIFIED ON THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST.



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE

8

APPL NO.

526278, 9

PROCESSED BY

CGP

PAGES

11

DATE

10/25/2011

CHECKED BY

**TEST RESULTS SHALL BE SUBMITTED TO THE AQMD WITHIN 30
DAYS OF COMPLETION OF THE TEST.**

[RULE 1146]

PERIODIC MONITORING:

~~THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE NOX EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 7.1; 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 CONCENTRATION LIMIT. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.~~

[RULE 3004 (a)(4)]

~~THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE CO EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 10.1; 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 CONCENTRATION LIMIT. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.~~

[RULE 3004 (a)(4)]

11. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSION FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THIS EQUIPMENT HAS COMBUSTED ONE MILLION GALLONS OF DIESEL FUEL, TO BE COUNTED CUMULATIVELY OVER A FIVE YEAR PERIOD. THE INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE HOUR, THE OPERATOR SHALL EITHER:
 - A. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN THE SAME FASHION AS DEVIATIONS ARE REQUIRED TO BE REPORTED IN SECTION K OF THIS PERMIT; OR
 - B. HAVE A CARB-CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.

IN ADDITION, THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:

- A. STACK OR EMISSION POINT IDENTIFICATION;
- B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 9	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

- C. DATE AND TIME VISIBLE EMISSION WAS ABATED; AND
 - D. VISIBLE EMISSION OBSERVATION RECORDED BY A CERTIFIED SMOKE READER.
- [RULE 3004 (a) (4)]

Emissions And Requirements:

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

NO_x: 30 PPMV, RULE 1146, WHEN FIRING NATURAL GAS (UNTIL 12/31/12)
NO_x: 9 PPM, RULE 1146, WHEN FIRING NATURAL GAS (ON AND AFTER 1/1/13)
NO_x: 40 PPMV, RULE 1146, WHEN FIRING FUEL OIL
CO: 400 PPMV, RULE 1146
CO: 2000 PPMV, RULE 407
PM: 0.1 GR/SCF, RULE 409



PAGE 10	PAGES 11
APPL NO. 526278, 9	DATE 10/25/2011
PROCESSED BY CGP	CHECKED BY

Appendix A

Emission Calculations

Emission Factors

Pollutant	Natural Gas (lbs/mmcf)	Oil (lbs/Mgal)
NOx	R1 = 40 ppm R2 = 9 ppm	R1 = 40 ppm R2 = 40 ppm
CO	84.00 (R1 = R2)	0.2 (R1 = R2)
ROG	5.5 (R1 = R2)	0.2 (R1 = R2)
PM10	7.6 (R1 = R2)	2.0 (R1 = R2)
SOx	0.60 (R1 = R2)	2.13 (R1 = R2)

Data:

Exhaust flow

Natural gas 200,657 ft³/hr (based on an F factor of 8710 corrected to 3% O₂)
 Oil 211,716 ft³/hr (based on an F factor of 9190 corrected to 3% O₂)

Fuel Use

Natural gas 18,914 ft³/hr (based on 1050 btu/ft³)
 Oil 142.9 gal/hr (based on 139,000 btu/gal)

Molecular weight

NO₂ 46 lbs/lb-mole

Specific Molar Volume

380 ft³/lb-mole

Calculations

Natural Gas

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽¹⁾	Annual Emissions
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	0.97	23.28	0.22	5.28	5	1927
CO	1.59	38.16	1.59	38.16	38	13928
ROG	0.10	2.4	0.10	2.4	2	876
PM10	0.14	3.36	0.14	3.36	3	1226
SOx	0.01	0.24	0.01	0.24	0	88



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE
11

PAGES
11

APPL NO.
526278, 9

DATE
10/25/2011

PROCESSED BY
CGP

CHECKED BY

(1) Rounded to nearest whole number

Oil

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽²⁾	Annual Emissions ⁽²⁾
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	1.03	24.72	1.03	24.72	0	6
CO	0.03	0.72	0.03	0.72	0	0
ROG	0.03	0.72	0.03	0.72	0	0
PM10	0.29	6.96	0.29	6.96	0	2
SOx	0.30	7.2	0.30	7.2	0	2

(2) based on 30 minutes per month and 6 hours per year oil firing.



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 1	PAGES 10
APPL NO. 525729	DATE 11/15/2011
PROCESSED BY CGP	CHECKED BY

PERMIT TO CONSTRUCT EVALUATION

APPLICANT:

Long Beach Memorial Medical Center
2801 Atlantic Ave
Long Beach, CA 90806
ID# 14213

EQUIPMENT LOCATION:

2801 Atlantic Ave
Long Beach, CA 90806

EQUIPMENT DESCRIPTION:

MODIFICATION OF:

BOILER NO. 3, BABCOCK AND WILCOX, WATER TUBE TYPE, NATURAL GAS OR FUEL OIL FIRED, COEN, MODEL SDAF-18 LOW NOX BURNER, 25,700,000 BTU PER HOUR, WITH A 7 ½ HP COMBUSTION AIR BLOWER, AND AN INDUCED DRAFT FLUE GAS RECIRCULATION SYSTEM.

OPERATING UNDER P/O D61321

BY REMOVAL OF THE COEN BURNER AND INSTALLATION OF A POWER FLAME NOVA PLUS LOW NOX BURNER, MODEL NVC-10-GO-30, RATED AT 19,860,000 BTU/HR, NATURAL GAS ONLY.

BACKGROUND:

The facility submitted this application to retrofit the boiler with a new Low NOx burner for Rule 1146 compliance. The application was submitted as Class I on July 27, 2011.

This boiler was originally permitted in the early 1970's under A/N A70039, P/O P48804. In the early 1990's it was retrofit with a 40 ppm Low NOx burner under A/N 222054, P/O D61321. The boiler currently operates under the latest permit.

This facility is subject to Title V but is NOT in RECLAIM.



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

PAGE
2

PAGES
10

APPL NO.
525729

DATE
11/15/2011

PROCESSED BY
CGP

CHECKED BY

COMPLIANCE RECORD REVIEW:

The AQMD compliance database shows 1 compliance action taken against this facility in for the last 3 years. NOV P54717 was issued on 3/5/09 for failure to submit an annual Title V certification for 2008.

PROCESS DESCRIPTION:

The boiler is used to produce steam for heating and cooling. The facility is proposing to retrofit the unit with an upgraded low NOx burner manufactured by Power Flame to reduce outlet NOx emissions to 9 ppm to comply with Rule 1146. The rating of the new burner is 19.86 mmbtu/hr, which is less than the current rating of the unit, which is 25.7 mmbtu/hr. The boiler is being de-rated so that it qualifies as a Group III unit under the rule.

The new burner is designed to reduce NOx emissions to 9 ppm at 3% O₂, with a maximum turndown ratio of 4:1 (4729 ft³/hr). The new burner will fire NATURAL GAS ONLY. Following are the specifications:

Specification	
Boiler Manufacturer	Babcock and Wilcox
Fuel Type	Natural gas
Maximum Fuel Consumption	18,914 ft ³ /hr ⁽¹⁾
Maximum Exhaust Flow	200,657 ft ³ /hr ⁽²⁾
Maximum Heat Input	19.86 mmbtu/hr
NOx Combustion Control	Low NOx Burner, FGR
Number of Burners	1
Burner Manufacturer/Model	Power Flame Nova Plus NVC-10-GO-30
Outlet NOx	9 ppm natural gas

(1) Based on 1050 btu/cf natural gas

(2) Based on an F factor of 8710 cf/mmbtu for natural gas

EMISSIONS:

Emission estimates are based on standard boiler emission factors for CO, ROG, PM, and SOx. NOx is based on the rule limit of 9 ppm. Calculations are shown in Appendix A, following is a summary.

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽¹⁾	Annual Emissions
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	0.97	23.28	0.22	5.28	5	1927
CO	1.59	38.16	1.59	38.16	38	13928
ROG	0.10	2.4	0.10	2.4	2	876
PM10	0.14	3.36	0.14	3.36	3	1226
SOx	0.01	0.24	0.01	0.24	0	88



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

PAGE 3	PAGES 10
APPL NO. 525729	DATE 11/15/2011
PROCESSED BY CGP	CHECKED BY

(1) Rounded to nearest whole number

Comparison of Existing to Proposed 30 Day Average Emissions

Pollutant	30 Day Average (lbs/day)	
	Existing	Proposed
NOx	30	5
CO	49	38
ROG	3	2
PM10	5	3
SOx	0	0

There is a reduction in NOx emissions from the installation of the 9 ppm Low NOx burner and the de-rating of the unit. The other pollutants are being reduced due to the de-rating only.

Under the previous application (222504), the NSR emissions were entered as 0's. Therefore the NSR database will be updated for the previous application using the emissions for the existing configuration as shown in Appendix A.

EVALUATION:

Rule 212 – Standards for Approving Permits

The facility is not within 1000 feet of a school and there is no increase in emissions from the addition of the new burner under this application. Therefore, this is not considered a significant project under the rule and no public notice is required.

Rule 401 – Visible Emissions

Visible emissions are not expected under normal operation.

Rule 402 – Nuisance

Nuisance problems are not expected with proper operation of this equipment.

Rule 407 – Liquid and Gaseous Air Contaminants

This rule limits the CO emissions to 2000 ppm. The Rule 1146 CO limit of 400 ppm is more stringent. Based on test results from similar equipment, CO emissions are typically very low. After installation of the new burner, compliance with the CO limit will be verified through a source test.

Rule 409 – Combustion Contaminants

This rule limits particulate emissions to 0.1 gr/scf. Although the units have not been tested for PM emissions, the following theoretical calculations show that compliance can be expected:

Estimated grain loading, gas firing = 0.14 lbs/hr X (7000 gr/lb)/.201E6 scf/hr



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 4	PAGES 10
APPL NO. 525729	DATE 11/15/2011
PROCESSED BY CGP	CHECKED BY

= 0.005 gr/scf

Rule 431.1. - Sulfur Content of Gaseous Fuels

The boilers will be fired on pipeline natural gas, which under this rule, is required to meet a sulfur content of 16 ppm sulfur. Compliance is expected.

Rule 1146 – NOx from Boilers

This rule applies to all boilers over 5 mmbtu/hr. Current emission limits are 30 ppm NOx for gas firing, 40 ppm NOx for oil firing, and 400 ppm CO for all fuels. Under the rule, this boiler was classified as a Group II Unit because it was rated over 20 mmbtu/hr. The facility submitted a Rule 1146 plan for the unit under A/N 507643. However, the plan was submitted after the rule deadline and For Group III Units, the new limit that takes effect January 1, 2013 is 9 ppm NOx for gas firing. With the installation of the new Low NOX burners, the units should be able to meet the new limits. The burner manufacturer has provided a guarantee for NOx of < 9 ppm and CO < 400 ppm. A source test will be required to verify compliance. The facility has several options on which test method to use. The rule specifies either District Methods 100.1 or 7.1, or a portable analyzer method. Furthermore, periodic testing will be required every 3 years for these units.

The rule also requires submittal of a compliance plan specifying when the facility will come into compliance with the limits. Long Beach Memorial submitted their plan under A/N 519073, the plan was not submitted within the required timeframe (before 1/1/11). The plan was denied by AQMD on May 6, 2011 because it specified a 9 ppm NOx compliance level to be achieved by January 1, 2013, but, for facilities which submit a late plan, the rule requires that their Group II units meet a 5 ppm NOx level by 1/1/15. The facility has re-submitted their plan to ask for a 9 ppm compliance level with the de-rated unit (A/N 525727).

The new 9 ppm 19.87 mmbtu/hr burner will have to be installed on this unit by January 1, 2012 to comply with the requirements of Rule 1146.

Regulation XIII – New Source Review

There is a reduction in all criteria pollutants as a result of the installation of the new burner and the de-rating of the unit. Therefore, NSR is not applicable to this modification.

The 30 day average emissions as shown in Table 1 of Appendix A should be used for the NSR entries. The previous NSR entries, which were entered as 0's, will be updated.

Rule 1401 – Toxic Air Contaminants

There is no increase in emissions of toxic contaminants as a result of the new burner installation, therefore Rule 1401 is not applicable to this modification.

Regulation XXX – Title V

Long Beach Memorial is a Title V facility because it is a major source of NOx emissions. The facility is currently operating under a valid Title V permit issued on October 26, 2011. The installation of the Low NOX burners is considered a minor permit revision because there is no increase in either criteria pollutant or HAP emissions. As a minor revision, the proposed permit is subject to a 45 day EPA review and comment period.



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE
5

APPL NO.
525729

PROCESSED BY
CGP

PAGES
10

DATE
11/15/2011

CHECKED BY

RECOMMENDATION:

A Permit to Construct is recommended subject to the conditions shown below. The following changes to the conditions should be incorporated:

1. Add a condition requiring that the modification to de-rate the unit be completed before 1/31/12. This is a management decision to allow the facility time to complete the modification.
2. Add a fuel limit to insure the boiler operates above the 4:1 turndown ratio.
3. Add a condition requiring a fuel meter to verify compliance with the fuel limit.
4. Add a condition specifying the periodic monitoring required under Rule 1146.
5. Add a source test condition.
6. Remove the old Rule 1146 periodic monitoring conditions.

All other existing conditions will remain the same.

CONDITIONS:

Proposed new condition language is shown in **bold underline**.

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH 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 FLUE GAS RECIRCULATION SYSTEM SHALL BE IN FULL USE WHENEVER THE BOILER IS IN OPERATION.
[RULE 1146]
4. THIS EQUIPMENT SHALL BE FIRED ON NATURAL GAS ONLY, ~~EXCEPT DURING AN EMERGENCY AND REQUIRED TESTING AT WHICH FUEL OIL MAY BE USED.~~
[RULE 1303(a)]
5. **THE MODIFICATION TO INSTALL THE DE-RATED LOW NOX BURNER SHALL BE COMPLETED PRIOR TO JANUARY 31, 2012.**
[RULE 1146]

~~THIS BOILER SHALL BE OPERATED IN FULL COMPLIANCE WITH THE APPLICABLE PROVISIONS OF RULE 1146.~~

~~[RULE 1146]~~



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE 6	PAGES 10
APPL NO. 525729	DATE 11/15/2011
PROCESSED BY CGP	CHECKED BY

6. THE BURNER SHALL BE EQUIPPED WITH A CONTROL SYSTEM TO AUTOMATICALLY REGULATE THE COMBUSTION AIR FUEL AND RECIRCULATED FLUE GAS AS THE BOILER LOAD VARIES. THE AUTOMATIC CONTROL SYSTEM SHALL BE ADJUSTED AND TUNED AT LEAST TWICE PER YEAR, ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS TO ASSURE ITS ABILITY TO REPEAT THE PERFORMANCE AT THE SAME BURNER FIRING RATE. **THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS FOR A PERIOD OF AT LEAST FIVE YEARS AND THE RECORDS SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.**
[RULE 1146]

~~THE OWNER OR OPERATOR OF THIS BOILER SHALL MAINTAIN ALL BOILER TUNE UP RECORDS, AS SPECIFIED IN CONDITION NO. 6 ABOVE FOR A PERIOD OF AT LEAST FIVE YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.~~
[RULE 1146]

7. THE EMISSIONS FROM THIS BOILER SHALL NOT EXCEED BY VOLUME ON A DRY BASIS AT 3% O₂, AVERAGED OVER 15 CONSECUTIVE MINUTES:
- A. **UNTIL DECEMBER 31, 2011 - 30 PPM NOX WHEN FIRING NATURAL GAS**
 - B. **BEGINNING JANUARY 1, 2012 - 9 PPM NOX WHEN FIRING NATURAL GAS**
 - C. 40 PPM NOX WHEN FIRING FUEL OIL **(UNTIL THE BURNER IS REPLACED)**
 - D. 400 PPM CARBON MONOXIDE
- [RULE 1146]
8. **THE BURNER SHALL NOT FIRE ON LESS THAN 4729 SCF/HR OF NATURAL GAS DURING NORMAL OPERATION, NOT INCLUDING START-UPS AND SHUTDOWNS.**
[RULE 1146]
9. **THE OPERATOR SHALL INSTALL A FLOW METER TO ACCURATELY INDICATE THE FLOW RATE OF THE GAS AND SHALL RECORD THE HOURLY GAS BEING FIRED IN THE BOILER. THE MEASURING DEVICE SHALL CONTINUOUSLY MEASURE THE FLOW RATE AND SHALL BE ACCURATE TO WITHIN PLUS OR MINUS 5 PERCENT AND SHALL BE CALIBRATED ONCE EVERY 12 MONTHS. CALIBRATION RECORDS AND HOURLY FLOW RECORDS SHALL BE KEPT ON SITE AND SHALL BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.**
[RULE 1146]
10. **THE OPERATOR SHALL PERFORM PERIODIC EMISSION TESTS ON THE BOILER WITH A PORTABLE ANALYZER IN ACCORDANCE WITH THE SCHEDULE AND SPECIFICATIONS OUTLINED IN RULE 1146.**
[RULE 1146]



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE
7

APPL NO.
525729

PROCESSED BY
CGP

PAGES
10

DATE
11/15/2011

CHECKED BY

11. THE OPERATOR SHALL CONDUCT A SOURCE TEST ON THE BOILER UNDER THE FOLLOWING CONDITIONS:

- A. THE INITIAL TEST SHALL BE CONDUCTED WITHIN 60 DAYS AFTER APPROVAL OF THE SOURCE TEST PROTOCOL BUT NO LATER THAN 180 DAYS AFTER THE PERMIT IS ISSUED. AFTER THE INITIAL TEST, TESTING SHALL BE CONDUCTED ONCE EVERY 3 YEARS, OR IN ACCORDANCE WITH THE SCHEDULE SPECIFIED IN RULE 1146.**
- B. THE TEST SHALL BE CONDUCTED TO DETERMINE THE EMISSIONS OF NOX AND CO USING ONE OF THE TEST METHODS SPECIFIED IN RULE 1146. THE TEST SHALL BE CONDUCTED OVER 15 MINUTE AVERAGING TIME. THE TEST SHALL BE CONDUCTED DURING GAS FIRING AT A GREATER THAN 90% LOAD, 50% LOAD, AND 25% LOAD.**
- C. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH AN AQMD APPROVED TEST PROTOCOL. THE PROTOCOL SHALL BE SUBMITTED TO THE AQMD ENGINEER NO LATER THAN 45 DAYS BEFORE THE PROPOSED TEST DATE AND SHALL BE APPROVED BY THE AQMD BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE THE PROPOSED OPERATING CONDITIONS OF THE BOILER DURING THE TESTS, THE IDENTITY OF THE TESTING LAB, A STATEMENT FROM THE TESTING LAB CERTIFYING THAT IT MEETS THE CRITERIA OF RULE 304, AND A DESCRIPTION OF ALL SAMPLING AND ANALYTICAL PROCEDURES. THE AQMD SHALL BE NOTIFIED ON THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST. TEST RESULTS SHALL BE SUBMITTED TO THE AQMD WITHIN 30 DAYS OF COMPLETION OF THE TEST.**

[RULE 1146]

PERIODIC MONITORING:

~~THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE NOX EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 7.1; 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 CONCENTRATION LIMIT. THE OPERATOR SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.~~

~~{RULE 3004 (a) (4)}~~

~~THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE CO EMISSION LIMIT(S) EITHER BY: (a) CONDUCTING A SOURCE TEST AT LEAST ONCE EVERY FIVE YEARS USING AQMD METHOD 100.1 OR 10.1; 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 CONCENTRATION LIMIT. THE OPERATOR~~



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE
8

PAGES
10

APPL NO.
525729

DATE
11/15/2011

PROCESSED BY
CGP

CHECKED BY

~~SHALL COMPLY WITH ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 3004 (a)(4)]~~

12. ~~THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSION FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THIS EQUIPMENT HAS COMBUSTED ONE MILLION GALLONS OF DIESEL FUEL, TO BE COUNTED CUMULATIVELY OVER A FIVE YEAR PERIOD. THE INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE HOUR, THE OPERATOR SHALL EITHER:~~
- ~~A. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN THE SAME FASHION AS DEVIATIONS ARE REQUIRED TO BE REPORTED IN SECTION K OF THIS PERMIT; OR~~
 - ~~B. HAVE A CARB CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.~~

~~IN ADDITION, THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:~~

- ~~A. STACK OR EMISSION POINT IDENTIFICATION;~~
- ~~B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;~~
- ~~C. DATE AND TIME VISIBLE EMISSION WAS ABATED; AND~~
- ~~D. VISIBLE EMISSION OBSERVATION RECORDED BY A CERTIFIED SMOKE READER.~~

~~[RULE 3004 (a)(4)]~~

Emissions And Requirements:

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

NOx: 30 PPMV, RULE 1146, WHEN FIRING NATURAL GAS (UNTIL 12/31/11)
NOx: 9 PPM, RULE 1146, (ON AND AFTER 1/1/12)
NOx: 40 PPMV, RULE 1146, WHEN FIRING FUEL OIL
CO: 400 PPMV, RULE 1146
CO: 2000 PPMV, RULE 407
PM: 0.1 GR/SCF, RULE 409



South Coast
Air Quality Management District

Engineering Division
Application Processing & Calculations

PAGE
9

PAGES
10

APPL NO.
525729

DATE
11/15/2011

PROCESSED BY
CGP

CHECKED BY

Appendix A

Emission Calculations

Emission Factors

Pollutant	Natural Gas (lbs/mmcf)
NOx	R1 = 40 ppm R2 = 9 ppm
CO	84.00 (R1 = R2)
ROG	5.5 (R1 = R2)
PM10	7.6 (R1 = R2)
SOx	0.60 (R1 = R2)

Data:

Molecular weight

NO₂ 46 lbs/lb-mole

Specific Molar Volume

380 ft³/lb-mole

Proposed New Rating (19.86 mmbtu/hr)

Exhaust flow

200,657 ft³/hr (based on an F factor of 8710 corrected to 3% O₂)

Fuel Use

18,914 ft³/hr (based on 1050 btu/ft³)

Existing Rating (25.7 mmbtu/hr)

Exhaust flow

259,663 ft³/hr (based on an F factor of 8710 corrected to 3% O₂)

Fuel Use

24,476 ft³/hr (based on 1050 btu/ft³)



**South Coast
Air Quality Management District**

Engineering Division
Application Processing & Calculations

PAGE 10	PAGES 10
APPL NO. 525729	DATE 11/15/2011
PROCESSED BY CGP	CHECKED BY

Calculations

1. Existing Rating (25.7 mmbtu/hr)

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽¹⁾	Annual Emissions
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	1.26	30.24	1.26	30.24	30	11,038
CO	2.06	49.44	2.06	49.44	49	18,046
ROG	0.13	3.12	0.13	3.12	3	1,139
PM10	0.19	4.56	0.19	4.56	5	1,664
SOx	0.01	0.24	0.01	0.24	0	88

(1) Rounded to nearest whole number

2. Proposed New Rating (19.86 mmbtu/hr)

Pollutant	Maximum Emissions, Uncontrolled		Maximum Emissions, Controlled		30 Day Average Emissions ⁽¹⁾	Annual Emissions
	Lbs/hr	lbs/day	Lbs/hr	Lbs/day	lbs/day	lbs/yr
NOx	0.22	5.28	0.22	5.28	5	1927
CO	1.59	38.16	1.59	38.16	38	13928
ROG	0.10	2.4	0.10	2.4	2	876
PM10	0.14	3.36	0.14	3.36	3	1226
SOx	0.01	0.24	0.01	0.24	0	88

(1) Rounded to nearest whole number

Comparison of Existing to Proposed 30 Day Average Emissions

Pollutant	30 Day Average (lbs/day)	
	Existing	Proposed
NOx	30	5
CO	49	38
ROG	3	2
PM10	5	3
SOx	0	0