SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION APPLICATION PROCESSING AND CALCULATIONS	PAGE 1	PAGES 6
	APPL. NO. Boiler 1 PO R2	DATE 1/13/2012
	PROCESSOR MFN	REVIEWER

PERMIT TO OPERATE ANALYSIS

FACILITY MAILING ADDRESS

Baker Commodities, Inc.
4021 Bandini Blvd.
Vernon, CA 90058

(ID: 800016 NOx RECLAIM Cycle 2 - TITLE V)

EQUIPMENT LOCATION

SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO. 378514 - EQUIPMENT MODIFICATION
PROCESS 5: AIR POLLUTION CONTROL: BAKER COMMODITIES

MODIFICATION OF BOILER NO. 1, DEVICE ID. C200 BY:

1. DERATING IT FROM 41.85 TO 39.9 MMBTU/HR AND REMOVING THE ANNUAL FUEL LIMIT.
2. INSTALL A FLUE GAS RECIRCULATION SYSTEM
3. INSTALL ELECTRIC AIR/FUEL CONTROLLERS
4. ALLOWING THE USE OF YELLOW GREASE AS AN ALTERNATIVE FUEL
5. RECLASSIFY IT FROM A STANDBY UNIT TO A VAPOR INCINERATION DEVICE

HISTORY

Application No. 378514 was filed on December 22, 2000, for a Class I equipment modification. On July 11, 2002, Permits to Construct were granted. The equipment was source tested in October 25 & 30, 2002. The source test report was received by Don Nguyen of RECLAIM Admin on December 17, 2002. The source test report was sent to Source Test Engineering (STE) for RECLAIM evaluation. March 22, 2007, the source test report was submitted to STE for engineering evaluation. On March 31, 2011, STE determined the report to be conditionally acceptable.

The following compliance activity was found in District records (CLASS computer database) during the past 2 years.

Complaints:
204872 on 06/24/09 for strong foul odors.
Odors were confirmed by two night inspectors, however, only in the immediate parameter of the facility. Insufficient complainants' for a R402 Violation, only one person complained.

Notices to Comply:
D20269, 9/17/09 Ensure that all NOx emissions from Rule 219 equipment are reported per RECLAIM MRR.
On 10/01/09, inspector found applicant to be in compliance.

Notices of Violation:
There were no Notices of Violation issued to Baker Commodities within the last 2 years.

PROCESS DESCRIPTION

Baker Commodities primarily renders animal matter into products such as tallow and meat meal. They also process restaurant grease and oil into yellow grease; and operate a small on-site wastewater treatment facility.

EVALUATION

The applicant has "derated" the Standby Boiler, so it could be classified as a NOx RECLAIM Large Source without an annual fuel limiting condition or CEMS. The installation of the Flue Gas Recirculation System with variable electronic air and fuel controllers was to lower combustion emissions. The applicant wishes to include the combustion of Yellow Grease as an alternative fuel to Natural Gas. The Boiler is currently permitted to burn Diesel Oil as an alternative fuel to Natural Gas. Boiler has had duel burners (Oil and Gas) prior to 1976. Baker Commodities wishes to use Yellow Grease as their primary alternative fuel to natural gas while maintaining the option to use Diesel Oil. The applicant feels that the combustion of yellow grease in the Boilers would save money in fuel costs in the event that natural gas prices increase substantially.

The Boiler was already equipped with burners capable of burning fuel oil. However, to burn yellow grease Baker lengthened the existing oil guns (the guns atomize the yellow grease prior to combustion) and installed a new fuel delivery system for the yellow grease from an existing tank.

The Permit to Construct was evaluated based on the premise that there is no emission increase associated with the combustion of Yellow Grease in the Boiler when compared

to the combustion of Natural Gas. Combustion emissions from a similar sized boiler owned by Baker burning Yellow Grease was used as preliminary emissions for the Permit to Construct evaluation. A condition to limit emissions to the maximum daily pre-modification was conditioned to the permit based on these preliminary calculations. For Boiler #1, the source test evaluation indicates that CO and ROG emissions for Yellow Grease combustion are below Natural Gas Combustion and that the determining pollutant to stay under existing baseline emissions is PM_{10}, not CO as originally believed.

Pollutant	Assumed in P/C, lb/hr	Yellow Grease, lb/hr	Natural Gas‡ lb/hr	Diesel Oil‡ lb/hr
ROG	0.26	0.123 **	0.209	0.396
NOx	2.70	2.70	2.70	2.70
CO*	1.31	3.95	4.00	4.12
PM_{10}	0.28	0.439 ^	0.289	0.578

‡Diesel Oil and Natural Gas emissions based on 2000-2001 AER, with the exception of NOx emissions, which are based on RECLAIM concentration limit of 56 ppmv (actual NOx emissions were found to be less for the 3 fuels).

* CO emissions are overstated, reported source tested emissions fell below the instrument full scale range and have been adjusted upwards. P/C calculation used "other external combustion" factor, not factor for boiler. 35 lb/mmcf vs 84 lb/mmcf

** ROG emissions have been adjusted per Source Test Engineering's recommendation.

^ PM_{10} emissions for Yellow Grease are most likely over stated source test method used was to detect PM, not PM_{10}.

Per Source test results for Boiler #1, Yellow Grease PM_{10} emissions are higher than Natural gas combustion, but lower than Diesel combustion. Boilers #2 & #3 had PM_{10} emissions higher than both Natural Gas and Diesel. A likely explanation is that ash content of the Yellow Grease is variable: submitted analysis has it from 0.02% to 0.12%. The ash content will be limited to 0.02% wt (see condition B59.6), this coincides with the ash content for the Yellow grease used in Boiler #1 source test. All criteria pollutant emissions for Boiler #1 were found to be below that of Diesel.

See attached sheet for Natural Gas criteria pollutant emission calculations to be entered into NSR. NOx emissions are based on conditioned RECLAIM concentration limit of 56 ppmv. CO emissions are based on source tested emissions.

The Permit to Construct for this permit unit was as a standby boiler with a condition to limit the Yellow Grease emissions at or below the Natural Gas combustion emission. For the Permit to Operate, the description of this permit unit will be updated to clarify the

boiler is used as an incinerator with heat recovery, as requested in the application for Permit to Construct dated December 2000.

Prior to the Permit to Construct under this application no. this permit unit had no fuel usage restrictions, see Permit to Operate M61975 dated 4/25/88 (Prior permit P/O P-55955 (A/N A7660) is not in District imaging or CLASS, per information in the P/O evaluation for M61975 the previous permit was accidentally destroyed sometime after 1980). Per conditionally approved source test report Yellow Grease combustion was shown to be below Diesel Fuel combustion, for ROG, CO and PM_{10}. NOx for Yellow Grease tested higher than Diesel, but less than the permit limit, 56 ppm. The fuel usage restriction has been removed for Yellow Grease.

RULES COMPLIANCE

RULE 212: Public Notification

Paragraph 212 (c)(1) Requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. According to the website Geodistance the closest school Maywood Elementary, is almost over 4200 feet from Baker Commodities' property line. A 30-Day Public Notice is not required under this paragraph.

Paragraph 212(c)(2) The equipment will not result in on-site emission increase exceeding the daily maximums as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

Paragraph 212(c)(3) Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

RULE 401: Visible emissions are not expected with proper operation and maintenance of this equipment.

RULE 402: There is a potential for odors from most processes in a rendering operation. However, nuisance is not expected with proper operation and maintenance of this equipment.

RULE 472: All gases from equipment used in animal matter reduction are incinerated. Condition C8.1 has been adjusted to 1202°F, from 1200°F to comply with this rule. Products from the reduction equipment are not for human consumption.

RULE 1147: This permit unit is used as an incinerator, which is in compliance of the NOx limit in Table 1 of this rule.

REG XIII: The requested change did not result in an emission increase above allowed limits, **BACT** does not apply.

This permit unit is used as a control device (see attached BACT page for Rendering), exempt from **Offsets** and **Modeling** per R1304.
This permit unit complies with the **BACT** requirements for Rendering.
RULE 1401: The permit unit is in compliance of a Tier 2 Risk Assessment.
REG XXX: This is a Minor Permit Revision to the Title V permit. An EPA 45-day review period is required.

RECOMMENDATION

Issue Permit to Operate for the Boiler/Incinerator, A/N 378514 with following conditions:

B59.1 The operator shall only use the following materials in this device:
Steam atomization during the entire period of fuel oil burning.

B59.6 The operator shall not use the following materials in this device:

Yellow grease with an ash content greater than 0.02 percent by weight.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

C6.7 The operator shall use this equipment in such a manner that the pressure being monitored, as indicated below, does not exceed 3.75 psig.

The operator shall install and maintain a pressure gauge to accurately indicate and continuously record the pressure of the natural gas feed to the boiler.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

C8.1 The operator shall use this equipment in such a manner that the temperature being monitored as indicated below is not less than 1202°F.

The operator shall install and maintain a temperature gauge to accurately indicate and continuously record the temperature in the combustion chamber of the boiler within one foot of the wall opposite of the burner plane.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

D12.6 The operator shall install and maintain a non-resettable totalizing fuel meter to accurately indicate the fuel usage of the equipment.

D328.1 The operator shall determine compliance with the CO emission limits either: (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.

D371.1 The operator shall conduct an inspection for visible emissions 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, the operator shall:

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 working days (or during the next fuel oil firing period if the unit ceases firing on fuel oil within the three working day time frame) 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 record by certified smoke reader.

K67.3 The operator shall keep records, in a manner approved by the District, for the following parameters or items:

Dates of operation when yellow grease is fired.

Amount of natural gas usage in cubic feet per day.

Amount of fuel oil usage in gallons per day.

Amount of yellow grease usage in gallons per day.

Analysis of the yellow grease used during source tests, including but not limited to nitrogen and sulfur content as a percentage by volume and ash content as a percentage by weight.

Boiler 1
C200

EMISSIONS FOR FIRING ON **NATURAL GAS**

Emission factors are from form B-1
Except NOx and CO which are calculated from ppm

Maximum Burner Rating in BTU/hr =	39,900,000	BTU/hr
Average Operating Schedule =	24	hr/day
Maximum Operating Schedule =	24	hr/day
Expected emission of NOx=	56	ppm
Expected emission of CO=	136	ppm
Average Loading=	75.0%	
Maximum Loading =	100.0%	
Maximum operating days per month =	30	days

AVERAGE EMISSIONS

RHC	=	0.1568	lb/hr	3.7620 lb/day
NOx	=	2.0277	lb/hr	48.6652 lb/day
SO2	=	0.0171	lb/hr	0.4104 lb/day
CO	=	3.0070	lb/hr	72.1676 lb/day
PART	=	0.2166	lb/hr	5.1984 lb/day

MAXIMUM EMISSIONS

RHC	=	0.2090	lb/hr	5.0160 lb/day
NOx	=	2.7036	lb/hr	64.8870 lb/day
SO2	=	0.0228	lb/hr	0.5472 lb/day
CO	=	4.0093	lb/hr	96.2234 lb/day
PART	=	0.2888	lb/hr	6.9312 lb/day

Thirty day average and yearly emissions

RHC	=	5.02	lb/dy	1806 lb/yr
NOx	=	64.89	lb/dy	23359 lb/yr
SO2	=	0.55	lb/dy	197 lb/yr
CO	=	96.22	lb/dy	34640 lb/yr
PART	=	6.93	lb/dy	2495 lb/yr

For CO, per Kien H: 1.289 ppm/lb/mmcf
RHC, SOx, and PM per 2004-2005 AER

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rendering

Subcategory/ Rating/Size	Criteria Pollutants					
	VOC	NOx	SOx	CO	PM_{10}	Inorganic
Processing Equipment[1)]					Vent to Afterburner or Boiler Fire Box (≥ 0.3 sec. Retention Time at ≥ 1200 °F) (1988) Rule 472 @ 1200°F	
Meal Grinding and Handling System					Enclosed Grinding and Screening Operation with Mechanical Conveyors Transporting Meal (1988)	
Tanks and Miscellaneous Equipment					Maintain Internal Temperature Below 140 °F (1988)	

1) Processing equipment includes crax pressing, filtering, centrifuging, evaporators, cookers, dryers, and grease and blood processing.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

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	APPL. NO. Boilers 2&3 PO R2	DATE 1/13/2012
	PROCESSOR MFN	REVIEWER

PERMIT TO OPERATE ANALYSIS

FACILITY MAILING ADDRESS

Baker Commodities, Inc.
4021 Bandini Blvd.
Vernon, CA 90058

(ID: 800016 NOx RECLAIM Cycle 2 - TITLE V)

EQUIPMENT LOCATION

SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO. 378516 - EQUIPMENT MODIFICATION
PROCESS 5: AIR POLLUTION CONTROL: BAKER COMMODITIES

MODIFICATION OF BOILER/INCINERATOR NO. 2, DEVICE ID. C216 TO ALLOW THE USE OF YELLOW GREASE AS AN ALTERNATIVE FUEL

APPLICATION NO. 378517 - EQUIPMENT MODIFICATION
PROCESS 5: AIR POLLUTION CONTROL: BAKER COMMODITIES

MODIFICATION OF BOILER/INCINERATOR NO. 3, DEVICE ID. C215 TO ALLOW THE USE OF YELLOW GREASE AS AN ALTERNATIVE FUEL

HISTORY

Application Nos. 378516 and 378517 were filed on December 22, 2000, for a Class I equipment modification. On November 16, 2001, Permits to Construct were granted. The equipment was source tested in January 2002. The source test report was issued on February 20, 2002, and subsequently submitted to Source Test Engineering (STE) for evaluation. STE determined the report to be conditionally acceptable for all reported emissions, however the RECLAIM Large Source RAA was found to be unacceptable. Subsequent RAA testing was found to be Acceptably Performed.

The following compliance activity was found in District records (CLASS computer database) during the past 2 years.

Complaints:
204872 on 06/24/09 for strong foul odors.
Odors were confirmed by two night inspectors, however, only in the immediate parameter of the facility. Insufficient complainants' for a R402 Violation, only one person complained.

Notices to Comply:
D20269, 9/17/09 Ensure that all NOx emissions from Rule 219 equipment are reported per RECLAIM MRR.
On 10/01/09, inspector found applicant to be in compliance.

Notices of Violation:
There were no Notices of Violation issued to Baker Commodities within the last 2 years.

PROCESS DESCRIPTION

Baker Commodities primarily renders animal matter into products such as tallow and meat meal. They also process restaurant grease and oil into yellow grease, in addition to operating a small on-site wastewater treatment facility.

EVALUATION

The modification of the two Boilers/Incinerators is to allow the combustion of Yellow Grease as an alternative fuel to Natural Gas. The Boilers/Incinerators are already allowed to burn Diesel Oil as an alternative fuel to Natural Gas. Baker Commodities wishes to use Yellow Grease as their primary alternative fuel to natural gas, while maintaining the option to use Diesel Oil. The applicant feels that the combustion of yellow grease in the Boilers/Incinerators would save money in fuel costs in the event that natural gas prices increase substantially.

The two Boilers/Incinerators were already equipped burners capable of burning fuel oil. However to burn yellow grease Baker lengthened the existing oil guns (the guns atomize the yellow grease prior to combustion) and installed a new fuel delivery system for the yellow grease from an existing tank.

The Permit to Construct was evaluated based on the premise that there is no emission increase associated with the combustion of Yellow Grease in the Boiler/Incinerator when compared to the combustion of Natural Gas. Combustion emissions from a similar sized boiler owned by Baker burning Yellow Grease was used as preliminary emissions for the Permit to Construct evaluation. A condition to limit emissions to the maximum daily pre-modification was conditioned to the permit. Source test evaluation

indicates the emissions for Boiler #2 and Boiler #3 vary slightly from each other when burning Yellow Grease. The source test evaluation also indicates that the determining pollutant to stay under existing baseline emissions is PM_{10}, not CO as originally thought. Source test result for Boiler #2, using Yellow Grease is based from the average of 2 runs at 50%, 75% and 100% load. The Source test result for Boiler #3, using Yellow Grease is based on the average of 3 runs at 100% load. The Source Test report submitted for Boilers #2 & #3 did not include test results for Natural Gas or Diesel combustion, thus default Emission Inventory combustion factors are used. NOx RECLAIM concentration limit has been verified for all fuels in subsequent testing.

Pollutant	Assumed in P/C, lb/hr	Yellow Grease C216, lb/hr	Yellow Grease C215, lb/hr	Diesel Oil‡ lb/hr	Natural Gas‡ lb/hr
ROG	0.26	0.1272 **	0.1403 **	0.396	0.206
NOx	2.70	2.669	2.664	2.669	2.669
CO	1.31	0.7427 *	0.7988 *	1.5	3.151
PM_{10}	0.28	1.772 **	1.417 **	0.6	0.285
PAH_{Total}			5.50×10^{-5}		

‡Diesel Oil and Natural Gas emissions based on 2000-2001 AER, with the exception of NOx emissions, which are based on the RECLAIM concentration limit.

* CO emissions are overstated, reported source tested emissions fell below the instrument full scale range and have been adjusted upwards.

** ROG and PM_{10} emissions have been adjusted per Source Test Engineering's recommendation.

Per Source test results, Yellow Grease combustion PM_{10} emissions are higher than Natural gas and Diesel. One of the explanations for this could be that the source test evaluated PM emissions, not PM_{10} emissions. However, even if we assume 50% PM_{10} for yellow grease and 100% PM_{10} for diesel, yellow grease is still higher than diesel. A likely explanation is that ash content of the Yellow Grease is variable: submitted analysis has it from 0.02% to 0.12%. The ash content will be limited to 0.02% wt (see condition B59.6), this coincides with the ash content for the Yellow grease used in Boiler #1 source test. PM_{10} emissions for Boiler #1 were found to be below that of Diesel.

See attached sheets for Natural Gas criteria pollutant emission calculations to be entered into NSR. NOx emissions are based on conditioned RECLAIM concentration limit of 56 ppmv.

For the Permit to Operate the description of these permit units will be updated to clarify that the boilers are used as incinerators with heat recovery.

Prior to the Permit to Construct under these application nos. the permit units had no fuel usage restrictions. Attached to this evaluation are copies of 3 "Command and Control" Permits to Operate for each permit unit. For Boiler/Incinerator No. 2 (C216) the oldest permit to operate is P55960, A/N A78216, dated 4/4/74. For Boiler/Incinerator No. 3 C215) the oldest permit to operate is M00177, A/N C08233, dated 2/25/77. The fuel usage restriction will be removed.

RULES COMPLIANCE

RULE 212: Public Notification

Paragraph 212 (c)(1) Requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. According to the website Geodistance the closest school Maywood Elementary, is almost over 4200 feet from Baker Commodities' property line. A 30-Day Public Notice is not required under this paragraph.

Paragraph 212(c)(2) The equipment will not result in on-site emission increase exceeding the daily maximums as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

Paragraph 212(c)(3) Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

RULE 401: Visible emissions are not expected with proper operation and maintenance of this equipment.

RULE 402: There is a potential for odors from most processes in a rendering operation. However, nuisance is not expected with proper operation and maintenance of this equipment.

RULE 472: All gases from equipment used in animal matter reduction are incinerated. Condition C8.1 has been adjusted to 1202°F, from 1200°F to comply with this rule. Products from the reduction equipment are not for human consumption.

RULE 1147: Incinerator is in compliance of the NOx limit in Table 1 of this rule.

REG XIII: This permit unit is used as a control device (see attached BACT page for Rendering), exempt from **Offsets** and **Modeling** per R1304.
This permit unit complies with the **BACT** requirements for Rendering.

RULE 1401: The permit unit is in compliance of a Tier 2 Risk Assessment.

REG XXX: This is a Minor Permit Revision to the Title V permit. An EPA 45-day review period is required.

RECOMMENDATION

Issue Permit to Operate for the Boilers/Incinerators, A/Ns 378516 & 378517 with following conditions:

B59.6 The operator shall not use the following materials in this device:

Yellow grease with an ash content greater than 0.02 percent by weight.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

C6.7 The operator shall use this equipment in such a manner that the pressure being monitored, as indicated below, does not exceed 3.75 psig.

The operator shall install and maintain a pressure gauge to accurately indicate and continuous record the pressure of the natural gas feed to the boiler.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

C8.1 The operator shall use this equipment in such a manner that the temperature being monitored as indicated below is not less than 1202°F.

The operator shall install and maintain a temperature gauge to accurately indicate and continuously record the temperature in the combustion chamber of the boiler within one foot of the wall opposite of the burner plane.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

D12.6 The operator shall install and maintain a non-resettable totalizing fuel meter to accurately indicate the fuel usage of the equipment.

D328.1 The operator shall determine compliance with the CO emission limits either: (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.

D371.1 The operator shall conduct an inspection for visible emissions 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, the operator shall:

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 working days (or during the next fuel oil firing period if the unit ceases firing on fuel oil within the three working day time frame) 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 record by certified smoke reader.

K67.3 The operator shall keep records, in a manner approved by the District, for the following parameters or items:

Dates of operation when yellow grease is fired

Amount of natural gas usage in cubic feet per day

Amount of fuel oil usage in gallons per day

Amount of yellow grease usage in gallons per day

Analysis of the yellow grease used during source tests, including but not limited to nitrogen and sulfur content as a percentage by volume and ash content as a percentage by weight.

Boiler 2
C216

EMISSIONS FOR FIRING ON **NATURAL GAS**
(OVENS, FURNACES, HEATERS, ETC.)

Emission factors are from form B-1
Except NOx which is calculated from the ppm of NOx

Maximum Burner Rating in BTU/hr =	39,387,000	BTU/hr
Average Operating Schedule =	24	hr/day
Maximum Operating Schedule =	24	hr/day
Expected emission of NOx=	56	ppm
Average Loading=	75.0%	
Maximum Loading =	100.0%	
Maximum operating days per month =	30	days

AVERAGE EMISSIONS

RHC	=	0.1547	lb/hr	3.7136 lb/day
NOx	=	2.0016	lb/hr	48.0395 lb/day
SO2	=	0.0169	lb/hr	0.4051 lb/day
CO	=	2.3632	lb/hr	56.7173 lb/day
PART	=	0.2138	lb/hr	5.1316 lb/day

MAXIMUM EMISSIONS

RHC	=	0.2063	lb/hr	4.9515 lb/day
NOx	=	2.6689	lb/hr	64.0527 lb/day
SO2	=	0.0225	lb/hr	0.5402 lb/day
CO	=	3.1510	lb/hr	75.6230 lb/day
PART	=	0.2851	lb/hr	6.8421 lb/day

Thirty day average and yearly emissions

RHC	=	4.95	lb/dy	1783 lb/yr
NOx	=	64.05	lb/dy	23059 lb/yr
SO2	=	0.54	lb/dy	194 lb/yr
CO	=	75.62	lb/dy	27224 lb/yr
PART	=	6.84	lb/dy	2463 lb/yr

RHC, SOx, CO and PM per 2004-2005 AER

Boiler 3
C215

EMISSIONS FOR FIRING ON **NATURAL GAS**
(OVENS, FURNACES, HEATERS, ETC.)

Emission factors are from form B-1
Except NOx which is calculated from the ppm of NOx

Maximum Burner Rating in BTU/hr =	39,313,000	BTU/hr
Average Operating Schedule =	24	hr/day
Maximum Operating Schedule =	24	hr/day
Expected emission of NOx=	56	ppm
Average Loading=	75.0%	
Maximum Loading =	100.0%	
Maximum operating days per month =	30	days

AVERAGE EMISSIONS

RHC	=	0.1544	lb/hr	3.7067 lb/day
NOx	=	1.9979	lb/hr	47.9493 lb/day
SO2	=	0.0168	lb/hr	0.4044 lb/day
CO	=	2.3588	lb/hr	56.6107 lb/day
PART	=	0.2134	lb/hr	5.1219 lb/day

MAXIMUM EMISSIONS

RHC	=	0.2059	lb/hr	4.9422 lb/day
NOx	=	2.6638	lb/hr	63.9324 lb/day
SO2	=	0.0225	lb/hr	0.5391 lb/day
CO	=	3.1450	lb/hr	75.4810 lb/day
PART	=	0.2846	lb/hr	6.8292 lb/day

Thirty day average and yearly emissions

RHC	=	4.94	lb/dy	1779 lb/yr
NOx	=	63.93	lb/dy	23016 lb/yr
SO2	=	0.54	lb/dy	194 lb/yr
CO	=	75.48	lb/dy	27173 lb/yr
PART	=	6.83	lb/dy	2459 lb/yr