



ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATIONS

APPL. NO.

555380, 555381

DATE:

September 10, 2013

PROCESSED BY

Douglas Gordon

CHECKED BY

Mohan B

ENGINEERING EVALUATION REPORT FOR PERMIT TO CONSTRUCT/OPERATE

Applicant's Name: CAJOLEBEN INC., dba GALASSO'S BAKERY Facility ID: 72351

Mailing Address: 10820 SAN SEVAINE WAY
MIRA LOMA, CALIFORNIA 91752

Equipment Location: SAME

EQUIPMENT DESCRIPTION

Appl. No. 555380: Bakery Oven – Modification to replace existing burners with low NOx burners

BAKERY OVEN NO. 3, CHUBCO/WINKLER, MODEL NO. BE/WC, 12'-0" W. X 60'-0" L. X 8'-0" H., 3,200,000 BTU/HR, NATURAL GAS FIRED ONLY, WITH TWO LOW NOX BURNERS, 1,600,000 BTU/HR EACH AND TWO 1.5 H.P. COMBUSTION AIR BLOWERS.

Permit 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.
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
3. VOC EMISSIONS FROM THIS OVEN SHALL BE LESS THAN 50 POUNDS IN ANY ONE DAY ON AN UNCONTROLLED BASIS.
[RULE 1153 & RULE 1303(b)(2)-OFFSET]
4. VOC EMISSIONS SHALL BE CALCULATED USING ATTACHMENT "A" OF RULE 1153.
[RULE 1153]
5. OPERATING RECORDS SHALL BE MAINTAINED ACCORDING TO RULE 1153(g).
[RULE 1153]



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6. RECORDS OF THE DAILY VOC EMISSIONS FROM THIS OVEN AND MONTHLY VOC EMISSIONS FROM THIS FACILITY SHALL BE MAINTAINED IN A FORMAT APPROVED BY THE DISTRICT TO DEMONSTRATE COMPLIANCE WITH CONDITION NO. 3. SUCH RECORDS SHALL BE RETAINED ON THE PREMISES FOR A PERIOD OF NOT LESS THAN FIVE YEARS AND BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1303(b)(2)-OFFSET]
7. THIS EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF RULE 1147.
8. THE OVEN BURNERS SHALL NOT EMIT MORE THAN 30 PPM OF OXIDES OF NITROGEN (NOX), CALCULATED AS NO2, MEASURED BY VOLUME ON A DRY BASIS AT 3% O2 AVERAGED OVER A PERIOD OF 15 CONSECUTIVE MINUTES.
9. A SOURCE TEST SHALL BE CONDUCTED TO VERIFY COMPLIANCE WITH NOX EMISSION LIMIT SPECIFIED IN CONDITION NO. 8.
10. THE OPERATOR SHALL MAINTAIN ADEQUATE RECORDS TO VERIFY COMPLIANCE WITH CONDITION NO. 8 ABOVE AND BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR HIS REPRESENTATIVE UPON REQUEST.
11. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT SOURCE TEST ACCORDING TO THE CONDITIONS OF THIS PERMIT.
12. THE SOURCE TEST SHALL ONLY MEASURE THE COMBUSTION EMISSION FROM THE BURNERS ONLY.
13. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED WITHIN 60 DAYS AFTER INITIAL START-UP OF THE NEW BURNERS, UNLESS OTHERWISE APPROVED IN WRITING BY THE EXECUTIVE OFFICER.
14. A SOURCE TEST SHALL BE CONDUCTED WITHIN 180 DAYS AFTER INITIAL START-UP OF THE NEW BURNERS, UNLESS OTHERWISE APPROVED IN WRITING BY THE EXECUTIVE OFFICER.
15. SOURCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH SCAQMD METHOD 100.1. THE TESTS SHALL BE CONDUCTED WHILE THE OVEN BURNER IS OPERATING AT MAXIMUM, MINIMUM, AND AVERAGE FIRING RATES. THE SAMPLING TIMES SHALL BE AT LEAST 15 CONSECUTIVE MINUTES.
16. WRITTEN CORRESPONDENCE SHALL BE ADDRESSED TO SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, P.O. BOX 4941, DIAMOND BAR, CA 91765, AND REFERENCING APPLICATION NO. 555380.
17. WRITTEN NOTICE OF THE SOURCE TEST SHALL BE SUBMITTED TO THE DISTRICT (ADDRESSED TO SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, P.O. BOX 4941, DIAMOND BAR, CA 91765) AT LEAST 14 DAYS PRIOR TO TESTING SO THAT AN OBSERVER MAY BE PRESENT.



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- 18. TWO COMPLETE COPIES OF THE SOURCE TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT, WITHIN 45 DAYS AFTER THE TEST. THE REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO EMISSIONS RATES IN POUNDS PER HOUR AND CONCENTRATIONS IN PPMV AT THE OUTLET EXHAUST OF THE OVEN BURNERS, MEASURED ON A DRY BASIS AT 3% OXYGEN. THE FOLLOWING OPERATING DATA SHALL ALSO BE INCLUDED FOR EACH FIRING RATE:
 - A. EXHAUST FLOW RATES, IN ACTUAL CUBIC FEET PER MINUTE (ACFM),
 - B. FIRING RATES, IN BTU PER HOUR,
 - C. OXYGEN CONTENT OF THE EXHAUST GASES, IN PERCENT, AND
 - D. FUEL FLOW RATE.
- 19. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD IN THE REQUIRED TEST METHODS FOR CRITERIA POLLUTANT TO BE MEASURED, AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THE TEST.
- 20. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217.

Periodic Monitoring:

- 21. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSIONS FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THERE IS A PUBLIC COMPLAINT OF VISIBLE EMISSIONS, WHENEVER VISIBLE EMISSIONS ARE OBSERVED, AND ON AN ANNUAL BASIS, AT LEAST, UNLESS THE EQUIPMENT DID NOT OPERATE DURING THE ENTIRE ANNUAL PERIOD. THE ROUTINE ANNUAL 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. VERIFY AND CERTIFY WITHIN 24 HOURS THAT THE EQUIPMENT CAUSING THE EMISSION AND ANY ASSOCIATED AIR POLLUTION CONTROL EQUIPMENT ARE OPERATING NORMALLY ACCORDING TO THEIR DESIGN AND STANDARD PROCEDURES AND UNDER THE SAME CONDITIONS UNDER WHICH COMPLIANCE WAS ACHIEVED IN THE PAST;
 - B. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN ACCORDANCE WITH THE REPORTING REQUIREMENTS IN SECTION K OF THIS PERMIT; OR
 - C. 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.



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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)]

22. PERMIT SHIELD. NOT WITHSTANDING THE OTHER REQUIREMENTS AND CONDITIONS IN THIS PERMIT, THIS EQUIPMENT(S) IS NOT SUBJECT TO THE FOLLOWING RULE REQUIREMENTS:

- 1. RULE 1153 (c)(1), AMENDED JANUARY 13TH, 1995;
- 2. RULE 1153 (c)(2), AMENDED JANUARY 13TH, 1995

COMPLIANCE WITH THE CONDITIONS OF THIS TITLE V PERMIT SHALL BE DEEMED IN COMPLIANCE WITH ANY REGULATORY REQUIREMENTS APPLICABLE AS OF THE DATE OF PERMIT ISSUANCE TO THIS FACILITY, PROVIDED THAT SUCH REGULATORY REQUIREMENTS ARE INCLUDED AND SPECIFICALLY IDENTIFIED IN THIS PERMIT. NOTHING IN THIS PERMIT OR IN ANY PERMIT SHIELD CAN ALTER OR AFFECT:

- A. UNDER SECTION 303 OF THE FEDERAL CLEAN AIR ACT, THE PROVISIONS FOR EMERGENCY ORDERS;
- B. THE LIABILITY OF THE OPERATOR FOR ANY VIOLATION OF APPLICABLE REQUIREMENTS PRIOR TO OR AT THE TIME OF PERMIT ISSUANCE;
- C. THE APPLICABLE REQUIREMENTS OF THE ACID RAIN PROGRAM;
- D. THE ABILITY OF EPA TO OBTAIN INFORMATION FROM THE OPERATOR PURSUANT TO SECTION 114 OF THE FEDERAL CLEAN AIR ACT;
- E. THE APPLICABILITY OF STATE OR LOCAL REQUIREMENTS THAT ARE NOT "APPLICABLE REQUIREMENTS", AS DEFINED IN RULE 3000, AT THE TIME OF PERMIT ISSUANCE BUT WHICH DO NOT APPLY TO THE FACILITY, SUCH AS TOXICS REQUIREMENTS UNIQUE TO THE STATE; OR
- F. THE APPLICABILITY OF REGULATORY REQUIREMENTS WITH COMPLIANCE DATES AFTER THE PERMIT ISSUANCE DATE. THIS PERMIT SHIELD SHALL NOT APPLY TO ANY OPERATIONAL CHANGE MADE PURSUANT TO THE OPERATIONAL FLEXIBILITY PROVISIONS OF DISTRICT RULE 3005. [RULE 3004 (c)(1)]



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Emissions And Requirements:

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

- PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
- VOC: RULE 1153
- NOX: RULE 1147

Appl. No. 555381: Title V Permit Revision

This application was submitted per Rule 301 as a permit revision fee for a Title V facility.

BACKGROUND/HISTORY

Cajoleben Inc. submitted two applications on August 20th. The reason for submitting these two applications on August 20th was:

Application No.	Equipment	Action
555380	Bakery Oven	Modification – burner replacement
555381	Title V revision	Reissue Title V Permit

Cajoleben, Inc., dba Galasso’s Bakery has been in the business of bread manufacturing since 1968. Their products consist of French breads, sourdough breads, sliced breads, rolls, buns and specialty bread products. The company is currently operating under a Title V permit but is not in the RECLAIM program. The company is in the Title V program due to their high level of VOC emission.

Facility Type:

<u>RECLAIM</u>		<u>Title V</u>
SOx	NOx	
No	No	Yes

The reason for the filing of the two applications listed above is explained by the following:

Appl. No. 555380 – Bakery Oven No. 3

This bakery oven has been in operation at this facility for some time. This oven is currently operating under Permit No. F69932 which was issued to the company in 2006. The company was aware that District Rule 1147, which was adopted in 2008, has requirements for “in use” food ovens to meet a NOx



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emission level of 30 ppm by July 2014. Since this oven is equipped with a burner that was manufactured prior to low NOx burners that could achieve a NOx level of 30 ppm or lower, the company realized that compliance could only be achieved if they replaced their current burners with new low NOx burners that would achieve a 30 ppm or lower NOx emission level. Therefore, Application No. 555380 was submitted to modify the current oven with new burners.

PROCESS DESCRIPTION

Bakery Ovens

The oven referenced in this evaluation is used to bake bread type products. With bread type products, yeast is involved in the baking process and result in VOC emissions during the baking/fermentation process. The application indicates that the material processed in the oven will have a yeast percentage of 6% and a fermentation time of 1 hour. This confirms that the oven will emit VOC emission. The amount will be determined in the Emission Section and any District rules that apply will be evaluated in the Rules Section of this evaluation.

Emission Control Systems

This company has a permitted thermal oxidizer (Permit No. F83750) that control the VOC emission from Oven No. 1, 5, and 6. The oven being evaluated under this application is Oven No. 3 and is presently not vented to the thermal oxidizer.

EMISSION CALCULATIONS

Application No. 555380
Combustion emissions

**Oven Combustion Emission:
Before Modification:**

Heat input of burner = 3.0 MM Btu per hour

$$\text{Natural gas consumption} = \frac{3,000,000 \text{ Btu (cu. ft.)}}{1050 \text{ Btu - hour}} = \underline{\underline{2,857 \text{ cu. ft.}}}$$

hour

Emissions from the Combustion of Natural Gas in 3.0 MM Btu/hr Oven:



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$$\text{ROG} = \frac{2,857 \text{ cu. ft.} \left(\frac{7 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{Hour}} = \frac{0.0199 \text{ lb}}{\text{hour}} = \frac{0.4776 \text{ lb}}{\text{day}} = \frac{174.3 \text{ lb}}{\text{year}}$$

$$\text{NO}_x = \frac{3,000,000 \text{ Btu} (8710 \text{ dscf}) (60 \text{ ppm}) \left(\frac{20.9}{10^6} \right) (46 \text{ lb NO}_x)}{\text{Hour} \quad 10^6 \text{ Btu} \quad 10^6 \quad 20.9 - 3.0 \quad 385 \text{ scf}} = \frac{0.219 \text{ lb}}{\text{hour}} = \frac{5.26 \text{ lb}}{\text{day}} = \frac{1919.9 \text{ lb}}{\text{year}}$$

$$\text{SO}_x = \frac{2,857 \text{ cu. ft.} \left(\frac{0.83 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{Hour}} = \frac{0.0024 \text{ lb}}{\text{hour}} = \frac{0.0576 \text{ lb}}{\text{day}} = \frac{21.0 \text{ lb}}{\text{year}}$$

$$\text{CO} = \frac{3,000,000 \text{ Btu} (8710 \text{ dscf}) (100 \text{ ppm}) \left(\frac{20.9}{10^6} \right) (28 \text{ lb CO})}{\text{hour} \quad 10^6 \text{ Btu} \quad 10^6 \quad 20.9 - 3.0 \quad 385 \text{ scf}} = \frac{0.221 \text{ lb}}{\text{hour}} = \frac{5.34 \text{ lb}}{\text{day}} = \frac{1,949 \text{ lb}}{\text{year}}$$

$$\text{PM} = \frac{2,857 \text{ cu. ft.} \left(\frac{7.5 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{hour}} = \frac{0.0214 \text{ lb}}{\text{hour}} = \frac{0.51 \text{ lb}}{\text{day}} = \frac{186.1 \text{ lb}}{\text{year}}$$

$$\text{PM}_{10} = \text{PM} = \frac{.0214 \text{ lb}}{\text{hour}} (0.5) = \frac{0.01 \text{ lb}}{\text{hour}} = \frac{0.24 \text{ lb}}{\text{day}} = \frac{-87.6 \text{ lb}}{\text{year}}$$

**Oven Combustion Emission:
After Modification:**

Heat input of burner = 3.2 MM Btu per hour

$$\text{Natural gas consumption} = \frac{3,200,000 \text{ Btu} \left(\frac{\text{cu. ft.}}{1050 \text{ Btu} - \text{hour}} \right)}{1050 \text{ Btu} - \text{hour}} = \frac{3,048 \text{ cu. ft.}}{\text{hour}}$$

Emissions from the Combustion of Natural Gas in 3.2 MM Btu/hr Oven:

$$\text{ROG} = \frac{3,048 \text{ cu. ft.} \left(\frac{7 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{Hour}} = \frac{0.021 \text{ lb}}{\text{hour}} = \frac{0.504 \text{ lb}}{\text{day}} = \frac{184 \text{ lb}}{\text{year}}$$

$$\text{NO}_x = \frac{3,200,000 \text{ Btu} (8710 \text{ dscf}) (30 \text{ ppm}) \left(\frac{20.9}{10^6} \right) (46 \text{ lb NO}_x)}{\text{Hour} \quad 10^6 \text{ Btu} \quad 10^6 \quad 20.9 - 3.0 \quad 385 \text{ scf}} = \frac{0.117 \text{ lb}}{\text{hour}} = \frac{2.8 \text{ lb}}{\text{day}} = \frac{1,022 \text{ lb}}{\text{year}}$$



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$$SO_x = \frac{3,048 \text{ cu. ft.} \left(\frac{0.83 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{Hour}} = \underline{\underline{0.003 \text{ lb}}} = \underline{\underline{0.07 \text{ lb}}} = \underline{\underline{25.6 \text{ lb}}}$$

hour day year

$$CO = \frac{3,200,000 \text{ Btu} \left(\frac{8710 \text{ dscf}}{10^6 \text{ Btu}} \right) \left(\frac{100 \text{ ppm}}{10^6} \right) \left(\frac{20.9}{20.9 - 3.0} \right) \left(\frac{28 \text{ lb CO}}{385 \text{ scf}} \right)}{\text{hour}} = \underline{\underline{0.237 \text{ lb}}} = \underline{\underline{5.69 \text{ lb}}} = \underline{\underline{2,077 \text{ lb}}}$$

hour day year

$$PM = \frac{3,048 \text{ cu. ft.} \left(\frac{7.5 \text{ lb}}{10^6 \text{ cu. ft.}} \right)}{\text{hour}} = \underline{\underline{0.023 \text{ lb}}} = \underline{\underline{0.55 \text{ lb}}} = \underline{\underline{201 \text{ lb}}}$$

hour day year

$$PM_{10} = PM = \frac{0.023 \text{ lb}}{\text{hour}} (0.5) = \underline{\underline{0.0115 \text{ lb}}} = \underline{\underline{0.276 \text{ lb}}} = \underline{\underline{100.74 \text{ lb}}}$$

hour day year

Summary of Modification Emissions:

	Before Mod lb/day	After Mod lb/day	Difference lb/day
ROG	0.4776	0.504	+0.0264
NO_x	5.26	2.8	-2.46
SO_x	0.0576	0.07	+0.0124
CO	5.34	5.69	+0.35
PM	0.51	0.55	+0.04
PM₁₀	0.24	0.28	+0.04



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Summary of Emission:

		Hourly Max. Emissions lb/hr	Daily Max. Emissions lb/day	Annual Max. Emissions lb/yr	30 Day Average Emissions lb/day
App No. 555380	CO	0.237	5.7	2,077	5.7
Combustion Emission	NOx	0.117	2.8	1,022	2.8
	PM ₁₀	0.115	0.276	100.74	0.276
	ROG	0.021	0.504	184	0.504
	SOx	.003	0.07	25.6	0.07

RULE EVALUATION:

Rule 212: Standards for Approving Permits –

(c)(1) The closest school to this facility is Mission Bell Elementary School and Mira Loma Middle School which are located 1.0 miles away. The distant in feet is (1.0 mi) x (5,280 ft/mi) = 5,280 feet. Since this is more than 1000 feet, a public notice is not required. A map and printout of the closest schools K-12 near this location is shown in the Appendix.

(c)(2) This facility will **not** have on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of this rule. Those limits are:

Air Contaminant	Daily Maximum in lbs per Day
Volatile Organic Compounds	30
Nitrogen Oxides	40
PM ₁₀	30
Sulfur Dioxide	60
Carbon Monoxide	220
Lead	3



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(c)(3)(A)(i) This facility will have an increase in emissions of toxic air contaminants (combustion emission) and a determination has been made that the maximum individual cancer risk of each toxic air contaminant is **less than one in a million** during a lifetime and that the total facility-wide maximum individual cancer risk is **less than ten in a million** using the risk assessment procedures and toxic air contaminants specified under Rule 1402.

Rule 401: Visible Emissions - Visible emissions is not expected from the operation of the 3.2 MMBTU/hr bakery oven. There are no powders used in the operation of the oven and the only particulate emissions will be from the combustion of natural gas from the oven burner. Visible emissions from a small natural gas source should not cause any problems. Therefore, compliance with this rule is expected.

Rule 402: Public Nuisance - The only possible nuisance from the operation of the 3.2 MMBTU/hr bakery oven the smell of baked bread products. The company is located in an industrial area and therefore, compliance with this rule is expected.

Rule 407: Liquid and Gaseous Air Contaminants

- (a) A person shall not discharge into the atmosphere from any equipment:
 - (1) Carbon monoxide (CO) exceeding 2,000 ppm by volume measured on a dry basis, averaged over 15 consecutive minutes.
 - (2) Sulfur compounds which would exist as liquid or gas at standard conditions, calculated as sulfur dioxide (SO₂) and averaged over 15 consecutive minutes, exceeding:
 - (A) In the South Coast Air Basin, 500 ppm by volume, effective July 1, 1982.
 - (B) In the Southeast Desert Air Basin portion of Riverside County:
 - (i) 500 ppm by volume for equipment which is issued a permit to construct or permit to operate after July 1, 1982.
 - (ii) 1,500 ppm by volume until January 1, 1984, and 500 ppm by volume thereafter for equipment that has been issued a permit to construct or permit to operate prior to July 1, 1982.

The company is replacing the current burners with Low NOx burners which should have the capability of meeting the CO requirement of 2,000 ppmv. The company will also be purchasing their natural gas from a supplier that will allow Galasso to meet the 500 ppm SO₂.

RULE 409. Combustion Contaminants

A person shall not discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO₂) at standard conditions averaged over a minimum of 15 consecutive minutes.

The company is replacing the current burners with Low NOx burners that should meet the above requirements of this rule.



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RULE 431.1. Sulfur Content of Gaseous Fuels

- (c) Sulfur Content Requirements
 - (2) Other Gaseous Fuels

On or after the applicable compliance dates specified in Table 1, a person shall not burn in equipment requiring a Permit to Operate, purchase, transfer, sell or offer for sale for use in the jurisdiction of the District, any gaseous fuel containing sulfur compounds calculated as H₂S, in excess of the concentration limits as measured over the averaging periods for various gaseous fuels as specified in Table 1.

TABLE 1

Fuel Type	Sulfur Limits ppmv	Averaging Period	Compliance Date On or After
Refinery Gas			
Small Refiners	40	4 hrs	May 4, 1996
Other Refiners	40	4 hrs	May 4, 1994
Landfill Gas	150	Daily	June 12, 1998
Sewage Digester Gas	40 or 40 and 500	Daily or Monthly and 15-minutes	November 17, 1995 November 17, 1995
Other Gases	40	4 hrs	May 4, 1994

The company will be burning natural gas from the regional gas company which supplies fuel that meets the above limit of 40 ppm for other fuels.

Rule 1147: NO_x REDUCTIONS FROM MISCELLANEOUS SOURCES

Application No. 555380

- (c) Requirements

(1) On or after January 1, 2010 any person owning or operating a unit subject to this rule shall not operate the unit in a manner that exceeds the applicable nitrogen oxide emission limit specified in Table 1 at the time a District permit is required for operation of a new, relocated or modified unit or, for in-use units, in accordance with the compliance schedule in Table 2, or at the time of a combustion modification.



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The rule definition of IN-USE UNIT means any UNIT that is demonstrated to the Executive Officer that it was in operation at the current location prior to January 1, 2010.

A look at the current permit for this equipment indicates that the permit was issued to the facility in 2006 and therefore qualifies as an IN-USE UNIT.

Table 1 – NO_x Emission Limit

Equipment Category(ies)	NO _x Emission Limit		
	PPM @ 3% O ₂ , dry or Pound/mmBtu heat input		
	Process Temperature		
Gaseous Fuel-Fired Equipment	≤ 800° F	> 800° F and < 1200° F	≥ 1200° F
Oven , Dehydrator, Dryer, Heater, Kiln, Crematory, Incinerator, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank	30 ppm or 0.036 lb/mmBtu	30 ppm or 0.036 lb/mmBtu	60 ppm or 0.073 lb/mmBtu

Table 2 – Compliance Schedule for In-Use Units

Equipment Category(ies)	Submit Permit Application	Unit Shall Be in Compliance
Afterburner, degassing unit, catalytic oxidizer, thermal oxidizer, vapor incinerator, evaporator, food oven , fryer, heated process tank, parts washer or spray booth make-up air heater manufactured prior to 1998	December 1, 2013	July 1, 2014

The company has meet the dead line of submitting application No. 555380 by December 2013 and is expected to have the new burners installed prior to July 1, 2014 and will be in compliance with the 30 ppm NO_x emission level requirement. A source test will be required as per permit conditions to verify compliance with the limit of 30 ppm NO_x.

Rule 1153: COMMERCIAL BAKERY OVENS

(c) Requirements

- (1) No person shall operate an existing bakery oven unless VOC emissions are reduced by at least:
 - (A) 70 percent by weight (as carbon) for an oven with a base year average daily VOC emissions of 50 pounds or more, but less than 100 pounds.
 - (B) 95 percent by weight (as carbon) for an oven with a base year average daily VOC emissions of 100 pounds or more.



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- (2) No person shall operate a new bakery oven unless VOC emissions are reduced by at least 95 percent by weight (as carbon) if the uncontrolled average daily VOC emissions are 50 pounds or more.

The company applied for a permit shield from Rule 1153 when their initial Title V was issued. This piece of equipment is shielded from any of the requirements of this rule as amended January 13, 1995 per the following condition:

22. PERMIT SHIELD. NOT WITHSTANDING THE OTHER REQUIREMENTS AND CONDITIONS IN THIS PERMIT, THIS EQUIPMENT(S) IS NOT SUBJECT TO THE FOLLOWING RULE REQUIREMENTS:

- 1. RULE 1153 (c)(1), AMENDED JANUARY 13TH, 1995;
- 2. RULE 1153 (c)(2), AMENDED JANUARY 13TH, 1995

COMPLIANCE WITH THE CONDITIONS OF THIS TITLE V PERMIT SHALL BE DEEMED IN COMPLIANCE WITH ANY REGULATORY REQUIREMENTS APPLICABLE AS OF THE DATE OF PERMIT ISSUANCE TO THIS FACILITY, PROVIDED THAT SUCH REGULATORY REQUIREMENTS ARE INCLUDED AND SPECIFICALLY IDENTIFIED IN THIS PERMIT. NOTHING IN THIS PERMIT OR IN ANY PERMIT SHIELD CAN ALTER OR AFFECT:

The conditions in the permit that the company is expected to comply with per this permit shield is:

- 3. VOC EMISSIONS FROM THIS OVEN SHALL BE LESS THAN 50 POUNDS IN ANY ONE DAY ON AN UNCONTROLLED BASIS.
[RULE 1153 & RULE 1303(b)(2)-OFFSET]
- 4. VOC EMISSIONS SHALL BE CALCULATED USING ATTACHMENT “A” OF RULE 1153.
[RULE 1153]
- 5. OPERATING RECORDS SHALL BE MAINTAINED ACCORDING TO RULE 1153(g).
[RULE 1153]
- 6. RECORDS OF THE DAILY VOC EMISSIONS FROM THIS OVEN AND MONTHLY VOC EMISSIONS FROM THIS FACILITY SHALL BE MAINTAINED IN A FORMAT APPROVED BY THE DISTRICT TO DEMONSTRATE COMPLIANCE WITH CONDITION NO. 3. SUCH RECORDS SHALL BE RETAINED ON THE PREMISES FOR A PERIOD OF NOT LESS THAN FIVE YEARS AND BE MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1303(b)(2)-OFFSET]

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Reg XIII: RULE 1303. REQUIREMENTS (BACT)

(a) Best Available Control Technology (BACT):

- (1) The Executive Officer or designee shall deny the Permit to Construct for any relocation or for any new or modified source which result in an emission increase of any non attainment air contaminant, any ozone depleting compound, or ammonia, unless BACT is employed for the new or relocated source or for the actual modification to an existing source.

The modification of replacing the existing burners rated at 3,000,000 Btu/hr with new low NOx burners with a rating of 3,200,000 Btu/hr will have an effect on the emission level from this source. The emission calculations indicate that there are emission increases for all the criteria pollutants with the exception of NOx. The NOx emission level will decrease. The increases for the other criteria pollutants are below 1 pound per day and therefore, does not warrant any BACT analysis.

RULE 1303 REQUIREMENTS (OFFSET)

- (b) The Executive Officer or designee shall, except as Rule 1304 applies, deny the Permit to Construct for any new or modified source which results in a net emission increase of any nonattainment air contaminant at a facility, unless each of the following requirements is met:

(2) Emission Offsets

- (A) Emission Reduction Credits Unless exempt from offsets requirements pursuant to Rule 1304, emission increases shall be offset by either Emission Reduction Credits approved pursuant to Rule 1309, or by allocations from the Priority Reserve in accordance with the provisions of Rule 1309.1, or allocations from the Offset Budget in accordance with the provisions of Rule 1309.2. Offset ratios shall be 1.2-to-1.0 for Emission Reduction Credits and 1.0-to-1.0 for allocations from the Priority Reserve, except for facilities not located in the South Coast Air Basin (SOCAB), where the offset ratio for Emission Reduction Credits only shall be 1.2-to-1.0 for VOC, NOx, SOx and PM10 and 1.0-to-1.0 for CO.

This facility has a Title V permit that allows all the equipment to operate under a facility wide VOC limit of:

THE TOTAL AMOUNT OF VOC EMISSIONS DISCHARGED TO THE ATMOSPHERE FROM THIS FACILITY SHALL NOT EXCEED 2040 POUNDS IN ANY ONE CALENDAR MONTH.

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



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Therefore, this bakery oven is allowed to operate under the facility limit of 2,040 pounds per month. This modification does not indicate that the production level of this oven will increase. The facility is required to keep monthly records and if their monthly production causes the VOC emission to exceed their monthly limit, the company would then need to submit application(s) to provide offsets for those emissions beyond the 2,040 pounds per month limit.

Rule 1401 New Source Review Of Toxic Air Contaminants - This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non cancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants listed in Table I of this regulation.

A 1401 risk analysis was performed on this project to determine if the emission increase from the larger burners would still be below 1401 threshold level. The combustion of natural gas does generate specific compounds that are listed in Rule 1401 and therefore a risk analysis is necessary.

The value below indicate that the values generated from the larger burners are still within the limits of Rule 1401 and therefore, compliance with this rule is expected.

TIER II ANALYSIS

Combustion Risk Analysis

Cancer Risk

Application No. 555380

Tier2 Analysis

Compound	Residential	Commercial
	MICR	MICR
	3.46E-07	3.67E-08
	PASSED	PASSED

Hazard Index

Chronic	Acute
Less than 1	Less than 1
PASSED	PASSED



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Green House Gas Emission:

As part of maintaining a District inventory of Green House Gas Emission any natural gas source is subject to the following calculations and input into the NSR data base:

Greenhouse gas calculation for natural gas:

EF: $CO_2 = 53.02 \text{ kg/MMBtu}$
 $CH_4 = 1.0 \text{ g/MMBtu}$
 $N_2O = 0.10 \text{ g/MMBtu}$

Calculation:

Application No. 555380

CO₂:

$$R_1 = 3.2 \text{ MMBtu/hr} \times 53.02 \text{ kg } CO_2/\text{MMBTU} \times 2.2046 \text{ lb/kg} = 374 \text{ lb/hr}$$

CH₄:

$$R_1 = 3.2 \text{ MMBtu/hr} \times 1.0 \text{ g } CH_4/\text{MMBTU} \times 0.0022046 \text{ lb/g} = 0.0071 \text{ lb/hr}$$

N₂O:

$$R_1 = 3.2 \text{ MMBtu/hr} \times 0.10 \text{ g } N_2O/\text{MMBTU} \times 0.0022046 \text{ lb/g} = 0.00071 \text{ lb/hr}$$

CONCLUSIONS/RECOMMENDATIONS

The proposed modification to the oven under Application No. 555380 will comply with all the rules and regulations of the District. A Permit to Construct/Operate for the replacement of two existing burners with low NOx burners should be granted with appropriate permit conditions.