

**San Joaquin Valley
Unified Air Pollution Control District**

**Guidelines for Expedited Application Review (GEAR) #21
New and Modified Chain-Driven Charbroilers with Catalytic Oxidizers**

Approved by: _____ Signed _____ Arnaud Marjollet Director of Permit Services	Date : <u>May 31, 2016</u>
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Purpose: To outline the procedures for expedited processing of Authority to Construct (ATC) applications for new and modified chain-driven charbroilers used in commercial charbroiling operations. These procedures will apply to processing of applications received over the counter or through the mail.

I. Applicability

This policy applies to applications for Authority to Construct permits for installing:

1. New chain-driven charbroilers with catalytic oxidizers, or
2. Catalytic oxidizers on existing chain-driven charbroilers that have already received Permits to Operate from the District, or
3. Increase the amount of meat-cooked.

In addition, this policy only applies under the following conditions:

- The charbroiler must be used in commercial charbroiling operations,
- The proposal is to allow more than 875 pounds of meat to be cooked per week, and
- The proposal is to use a catalytic oxidizer as a control device to comply with Rule 4692 (Commercial Charbroiling).

This policy does not apply to [charbroiler at a facility requiring a school notice](#), or [a charbroiler utilizing propane as the fuel for combustion](#), or existing charbroilers that have not yet obtained a Permit to Operate (PTO). Existing units must first apply for a PTO, after which this policy can be used.

II. Permit Application and Supplemental Forms

The applicant must complete an application for Authority to Construct and a supplemental application for Chain-Driven Charbroiler Operations.

III. Background

Prior to March 21, 2002, chain-driven charbroilers used in restaurant operations were deemed “sources of minor significance” by the Air Pollution Control Officer and were exempt from permit requirements. On March 21, 2002, Rule 4692 was adopted after a series of District and industry workshops. Chain-driven charbroilers are no longer deemed “sources of minor significance” and are no longer permit exempt. Other commercial restaurant cooking equipment, including but not limited to non-chain-driven charbroilers, may be subject to future rule provisions, but are not currently subject to Rule 4692 or permitting requirements. Carl’s Jr.[®], Burger King[®] and Red Robin, International[®] are the only known major fast food restaurants to currently utilize chain-driven charbroilers.

IV. Priority Processing

Applications processed under this policy will be automatically expedited if a complete application, a complete supplemental form, and an application filing fee for each charbroiler unit are submitted.

In order to meet the expedited timeframe, the engineer assigned for preliminary review will be automatically assigned to process the final review.

The application review and final ATC will be submitted to the supervisor or manager for review and signature.

Final action on all projects will occur within one week after the submittal of the complete application.

The priority processing will be preempted if:

- The application is subject to any public noticing requirements, including school notice per CH&SC 42301.6 (within 1000 feet of a K-12 school), or
- The application is part of a stationary source project where issuance of the permit will affect the outcome of the stationary source project (i.e. GDF/Convenience Store installing a mini Burger King).

V. Application Review

In order to standardize the application reviews for this source category, the application review found on the Airnet as either a “New” or “Modified” charbroiler will be used as the template document. The following pages are hard-copy versions of this standard review. This hard-copy version for the GEAR Policy Manual includes a copy of the required supplemental application form (Attachment I), a listing of Certified Charbroilers with Integrated Catalysts (Attachment II), the Authority to Construct Standard Conditions (Attachment III), and, for new units, a Health Risk Assessment Table (Attachment IV).

The use of this Application Review will ensure that:

- A. The proposed project complies with the Best Available Control Technology (BACT) requirement as specified in the District’s current BACT Clearinghouse.
- B. The proposed project will not trigger emission offset requirements.
- C. The PTO has enforceable daily emission limitations (DELs).
- D. The proposed charbroiler and control device has been certified as listed in Attachment II (or on SCAQMD’s website, www.aqmd.gov).

The generic application review should be used at all times for applicable projects.

VI. Equipment Description

To ensure uniformity, the following example of a standard description will be used for new installations:

COMMERCIAL CHARBROILER: 0.096 MMBTU/HR NEICO MODEL 960G NATURAL GAS-FIRED, CHAIN-DRIVEN SERVED BY AYR KING & PROTOTECH MODEL 902 CATALYTIC OXIDIZER.

For modifications to install catalysts, the following will be used:

MODIFY COMMERCIAL CHARBROILER: 0.096 MMBTU/HR NEICO MODEL 960G NATURAL GAS-FIRED, CHAIN-DRIVEN: INSTALL ENGLEHARD MODEL CHARCAT 900 CATALYTIC OXIDIZER.

VII. Permits Required

An Authority to Construct is required prior to any of the following occurring:

- A. A new charbroiler is installed.
- B. A catalytic oxidizer, or other air pollution control device, is installed on existing charbroilers.
- C. An increase in the amount of meat to be cooked in existing charbroilers.
- D. Replacement of existing charbroiler.
- E. Replacement of existing catalytic oxidizer with a different catalytic oxidizer.

VIII. Health Risk Assessment

For new installations, the District has developed a table indicating allowed fuel usage versus receptor distance for such sources. The combustion of natural gas for a chain-driven charbroiler satisfies the District's BACT requirement for air toxic control; therefore, if the project's fuel usage and receptor distance fall below or meets the requirements listed in the table in Attachment V, the prioritization score is less than one, and a health risk assessment is not required. If the project's fuel usage or receptor distance is above the requirements, then a health risk assessment will be necessary.

For modifications, no increase in hourly or annual emissions of hazardous air pollutants (HAPs) is expected with the installation of the catalytic oxidizer; therefore, a health risk assessment will not be required.

X. Authority to Construct Conditions

To ensure uniformity, a standard set of conditions will be used as a template for all applications (see Attachment III). Additional requirements may be required on a site-specific basis due to New Source Review or health risk assessment requirements.

X. Updates

This GEAR will be updated as necessary to accommodate any changes in prohibitory rules, changes in BACT Clearinghouse, or any other necessary changes.

The attached bibliography lists items that are referenced in this GEAR. Changes to the listed items may necessitate revisions to this document. Additionally, alterations to this policy may trigger changes to some of the listed items.

The updates will be made following the "GEAR Revision" policy, when adopted.

**Application Review for
New Chain-Driven Charbroiler
With a Catalytic Oxidizer**

Authority to Construct Application Review New Chain-Driven Charbroiler with Catalytic Oxidizer

Processing Engineer: [Engineer's Name]
Lead Engineer: [Lead Engineer]
Date: [Date]

Facility Name: [Facility Name]
Mailing Address: [Mailing Address]
[City, State, zip]

Contact Name: [Contact Name]
Phone: [Phone]

Project Number: [Project Number]
Permit Number: [Permit Number]
Deemed Complete: [Completion Date]

I. PROPOSAL

[Facility Name] is in the fast food restaurant business. The applicant is applying for an Authority to Construct for the installation of a new chain-driven charbroiler served by a catalytic oxidizer.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (September 21, 2006)
Rule 2520 Federally Mandated Operating Permits (June 21, 2001)
Rule 4101 Visible Emissions (February 17, 2005)
Rule 4102 Nuisance (December 17, 1992)
Rule 4201 Particulate Matter Concentration (December 17, 1992)
Rule 4692 Commercial Charbroiling (March 21, 2002)
Rule 4801 Sulfur Compounds (December 17, 1992)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA) California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. PROJECT LOCATION

The project is located at [Street Address] in [City], California. The applicant states that the source [is/is not] located within 1,000 feet of the outer boundaries of a K-12 school. The District has verified that the equipment [is/is not] located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 [is/is not] applicable to this project.

IV. PROCESS DESCRIPTION

This facility is a food handling and preparation facility that primarily serves the public. A chain-driven charbroiler is a semi-enclosed natural gas-fired cooking device that provides heat to cook food as it moves through the device while resting on the moving, chain-driven grated grill.

V. EQUIPMENT LISTING

[ATC Permit #]: COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER, SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

In this process' exhaust stream, PM₁₀ and VOCs are mixed with air before entering the flameless reactor vessel. The air mixture is evenly distributed into a bed of inert ceramic material coated with a metal catalyst. This bed provides complete mixing of the PM₁₀ and VOC with oxygen. The PM₁₀ and VOC adsorb on the surface of the ceramic bed are oxidize into carbon dioxide and water vapor once the polluted exhaust stream reaches operating temperature of 600-800°F. The scrubbed exhaust stream leaves the ceramic bed flowing out through the stack.

Proper cleaning and maintenance of the catalytic oxidizer is very important for effective oxidation of VOCs and PM₁₀. Visible emissions are also indicators of proper oxidation catalyst efficiency. Testing in the South Coast Air basin has shown an overall VOC and PM₁₀ removal efficiency of 86% and 83%, respectively. To ensure optimal removal efficiencies, visible emissions from the catalyst should be Ringelmann 0 or 0% opacity. Catalyst manufacturers' have recommended cleaning at least once per month with materials that do not damage the catalytic coating, such as a warm water bath.

VII. CALCULATIONS

A. Assumptions:

- The charbroiler will be fired on natural gas as fuel (per applicant).
- Worst-case Operating Schedule: [24] hours/day, 365 days/year.
- Maximum Burner Rating: [Burner Rating] MMBtu/hr.
- Catalytic Oxidizer has a PM₁₀ control efficiency of 83% (SCAQMD testing).
- Catalytic Oxidizer has a VOC control efficiency of 86% (SCAQMD testing).
- F-Factor: 8,578 dscf/MMBtu @ 60°F (STP) (40 CFR, Part 60, Appendix A).
- Exhaust Flow Rate: [Flow Rate] cfm (per applicant).
- Daily Maximum Meat Cooked: [Daily Meat] lbs/day (per applicant).

B. Emission Factors (EF):

The emission factors for NO_x, SO_x and CO are from AP-42 (10/96), Table 1.4-1 and 1.4-2 for natural gas combustion (burners – 0.3 MMBtu/hr or less).

Table 1. Natural Gas Emission Factors	
Pollutant	EF _(Natural Gas) (lb/MMBtu)
NO _x	0.0940
SO _x	0.0029
PM ₁₀	See Note (1)
CO	0.0210
VOC (non-methane)	See Note (1)

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for meat cooking discussed below.

The following uncontrolled emission factors for meat cooked were obtained from the South Coast Air Quality Management District (SCAQMD) and are based on source test results of similar units:

- EF_{PM10} = 7.42 lb-PM₁₀/10³ lb-Meat Cooked (Uncontrolled)
- EF_{VOC} = 2.27 lb-VOC/10³ lb-Meat Cooked (Uncontrolled)

C. Emissions Calculations:

For NO_x, SO_x and CO, the potentials to emit are calculated based on the quantity of natural gas combusted. For PM₁₀ and VOC, the potentials to emit are calculated based on the quantity of meat cooked.

1. Pre-Project Potential to Emit (PE1)

Daily, Annual, and Quarterly PE

Since this is a new emissions unit, PE1 = 0 for all criteria pollutants.

2. Post-project Potential to Emit (PE2)

PM₁₀ and VOC Emissions from Chain-driven Charbroiler:

Max. Meat Cooked (Daily) = [Proposed Daily Meat] lb/day

$$\begin{aligned} \text{PE}_{\text{PM}_{10}\text{-Meat Cooked}} &= \text{EF}_{\text{PM}_{10}} \text{ (lb-PM}_{10}\text{/10}^3\text{ lb-Meat Cooked)} \times \text{Max. Meat Cooked (lb/day)} \times (1 - \text{CE}) \\ &= (7.42 \text{ lb-PM}_{10}\text{/10}^3\text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.83) \\ &= [\text{x.x}] \text{ lb-PM}_{10}\text{/day} \end{aligned}$$

$$\begin{aligned}
 PE_{\text{VOC-Meat Cooked}} &= EF_{\text{VOC}} (\text{lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times \text{Max. Meat Cooked (lb/day)} \times (1 - \text{CE}) \\
 &= 2.27 \text{ lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.86) \\
 &= [\text{x.x}] \text{ lb-VOC/day}
 \end{aligned}$$

Emissions from the Combustion of Natural Gas:

Max. Burner Rating: [Burner Rating] MMBtu/hr
 Operating Hours: 24 hr/day

$$PE_{\text{Natural Gas}} (\text{lb/day}) = \text{Max. Natural Gas Usage (MMBtu/hr)} \times \text{Emission Factor (lb/MMBtu)} \times 24 \text{ hr/day}$$

Table 2. Natural Gas Combustion Emissions Summary				
Pollutant	EF _(Natural Gas) (lb/MMBtu)	Max Burner Rating (MMBtu/hr)	Hours of Operation (hr/day)	PE (lb/day)
NO _x	0.0940	[Burner Rating]	24	0.0
SO _x	0.0285	[Burner Rating]	24	0.0
PM ₁₀	See Note (1)			N/A
CO	0.0210	[Burner Rating]	24	0.0
VOC (non-methane)	See Note (1)			N/A

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for the meat cooked.

Total Emissions from the chain-driven charbroiler:

$$PE_{\text{Total}} = PE_{\text{Meat Cooked}} + PE_{\text{Combustion}}$$

$$\text{Annual PE} = PE_{\text{Total}} \times 365 \text{ days/year}$$

$$\text{Quarter PE} = \text{Annual PE} \div 4 \text{ qtr/yr}$$

Table 3. Post-Project Potential to Emit (PE2) Summary					
Pollutant	PE _{Meat Cooked} (lb/day)	PE _{Combustion} (lb/day)	PE _{Total} (lb/day)	Annual PE (lb/year)	Quarter PE (lb/qtr)
NO _x	---	X.X	0.0	0	0
SO _x	---	X.X	0.0	0	0
PM ₁₀	X.X	---	0.0	0	0
CO	---	X.X	0.0	0	0
VOC	X.X	---	0.0	0	0

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 will be equal to zero.

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Table 4. Post-Project (SSPE2) Summary					
	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE2	0	0	0	0	0
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
New Major Source?	No	No	No	No	No
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

5. Major Source Determination

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.25.2 states, “for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

As you can see from Tables 4, the facility is not a major source, and calculations are not required.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22

As shown in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant.

Since this is a new emissions unit, BE = PE1 = 0 for all criteria pollutants.

7. Major Modification

Major Modification is defined in 40 CFR Part 51.165 as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore, the project does not constitute a Major Modification.

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are shown in the table below:

Table 7. Quarterly Net Emissions Change (QNEC) Summary						
Permit		NO _x	SO _x	PM ₁₀	CO	VOC
X-XXXX-XX	Qtr PE2 (lb/qtr)	0	0	9	0	0
	Qtr PE1 (lb/qtr)	0	0	0	0	0
	Qtr ΔPE (lb/qtr)	0	0	9	0	0

VIII. COMPLIANCE

Rule 2201 - New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a charbroiler served by a catalytic oxidizer with a PE less than 2 lb/day for all criteria pollutants; therefore, BACT is not triggered and a BACT analysis is not required.

B. OFFSETS

Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Table 6. Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	--	--	--	--	--
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

* Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

As seen above, the SSPE2 is not greater than the offset thresholds for any of the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

C. PUBLIC NOTIFICATION

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. *New Major Source*

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any criteria pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

b. *Major Modification*

Based upon the determination in Section VII.C.5 above, this facility is not an existing Major Source; therefore Major Modification is not triggered for this project and public notification for Major Modification purposes does not apply.

c. *PE > 100 lb/day?*

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

d. Offset Threshold Exceeded?

As demonstrated in Section B of this rule, this project and this emission unit's annual emissions do not exceed offset threshold for all criteria pollutant; therefore, this project will not be required to provide offsets nor public notice.

e. SSIPE > 20,000 lb/yr?

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE in the following table is compared to the SSIPE Public Notice threshold of 20,000 lb/year.

Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE	SSIPE Threshold	Public Notice Required?
NO _x	0	0	0	20,000	No
SO _x	0	0	0	20,000	No
PM ₁₀	0	0	0	20,000	No
CO	0	0	0	20,000	No
VOC	0	0	0	20,000	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing is not required for SSIPE purposes.

2. Public Notice

As shown above, public notification thresholds are not exceeded; therefore public noticing is not required prior to Authority To Construct issuance.

D. DAILY EMISSION LIMITS

Section 5.7.2 requires a daily emissions limitation to be included on the Permit to Operate (PTO). For this project, the DEL is stated in the form of emission factors, maximum burner capacity, and maximum daily process rate of pounds of meat cooked per day.

- *{1929} Emissions from this unit shall not exceed either of the following limits: 0.32 lb-VOC per 1,000 lb-meat cooked or 1.26 lb-PM10 per 1,000 lb-meat cooked. [District Rule 2201] **
- *Emissions from this unit shall not exceed any of the following limits: 0.094 lb-NO_x/MMBtu, 0.021 lb-CO/MMBtu, or 0.00285 lb-SO_x/MMBtu. [District Rule 2201] N*
- *The maximum amount of meat cooked shall not exceed XXX lbs/day. [District Rule 2201]*

E. COMPLIANCE ASSURANCE

Compliance is enforced by recordkeeping requirements.

1. Source Testing

Annual source testing is not required for NO_x, CO, VOC, PM₁₀ and SO_x emissions, since the uncontrolled emissions from this unit is less than 30 pounds per day for any pollutant.

2. Monitoring

There is no monitoring required for this emission device.

3. Record Keeping

Daily records will be maintained of the amount of meat cooked. Monthly records will be maintained of the amount of meat purchased. Also, records will be maintained of the date of installation or changing of any catalyst, and date and time of cleaning and maintenance performed on catalyst. These records will be retained on the restaurant premises for a period of at least five years and made available to the District upon request.

4. Reporting

No reporting is required for charbroilers.

Therefore, compliance with this rule is expected.

Rule 2520 - Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

* 0.32 lb-VOC/1,000 lb-meat cooked = (2.27 lb-VOC/1,000 lb-meat cooked) × (1-0.86) and
1.26 lb-PM10/1,000 lb-meat cooked = (7.42 lb-PM10/1,000 lb-meat cooked) × (1-0.83)

Rule 4101 - Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour, which are as dark as or darker than Ringelmann 1 (20% opacity). According to manufacturers' data, visible emissions in excess of Ringelmann 0 or 0% opacity are not expected, and inspections will be performed annually to confirm this. Therefore, compliance is expected.

A permit condition will be listed on the permit as follows:

- {1955} No visible emissions shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101]

Rule 4102 - Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of this operation, provided the equipment is well maintained.

A permit condition will be listed on the permit as follows:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

Pursuant to District's Risk Management Policy APR 1905 (3/2/01), any sources with increases in toxic air emissions, the health risks resulting from such projects must be evaluated. Since the food grade material (cooked meat) has been tested and certified by FDA or their agents to be safe or acceptable for human consumption with no or minimal risk; therefore, the increase in cooked meat is not subject to a health risk assessment (HRA). In addition to emissions from the cooked meat, the charbroiler is fired on natural gas, and the combustion of natural gas emits hazardous air pollutants (HAPs) into the atmosphere. It was determined by District Technical Services that the natural gas throughput limit used by a chain-driven charbroiler would result in a prioritization score less than one at [Closest Receptor Distance]. Pursuant to District Policy (see Appendix A), a health risk assessment is not required when the prioritization score is less than one.

Rule 4201 - Particulate Matter Concentration

Section 3.0 requires emissions of dust, fumes, or particulate matter not to exceed 0.1 grain per cubic foot of gas at dry standard conditions. The PM emission concentration will be calculated based on the following parameters:

PM₁₀-to-PM Ratio: 50% PM₁₀/PM (Rule 2201, Section 4.11.2)

Exhaust Flow Rate = [Flow Rate] cfm

Typical Operating Schedule (worst-case) = 1,440 min/day

$$\begin{aligned}
 \text{PM Concentration} &= \frac{(\text{PM}_{10} \text{ Emission Rate}) \times (7,000 \text{ gr/lb})}{(\text{Air Flow Rate}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})} \\
 &= \frac{([\text{PM}_{10} \text{ Emission}]) \text{ lb-PM}_{10}/\text{day}) \times (7,000 \text{ gr/lb})}{([\text{Flow Rate}] \text{ cfm}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})}
 \end{aligned}$$

Concentration = **X.XX gr/scf**

The calculated emissions are well below the allowable emissions level. It can be assumed that under dry conditions emissions will not exceed the allowable 0.1 gr/dscf. Therefore, compliance with this rule is expected.

The following condition will be placed on the permit to ensure compliance with rule:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4692 - Commercial Charbroiling

The purpose of this rule is to limit VOC and PM-10 emissions from commercial chain-driven charbroilers.

Section 5.3 states, Catalytic oxidizers or other control devices shall be maintained in good working order to minimize visible emissions to the atmosphere and operated, cleaned, and maintained in accordance with the manufacturer's specifications in a maintenance manual or other written materials supplied by the manufacturer or distributor of the catalyst or other control device, or chain-driven charbroiler.

The following conditions insure compliance with this section:

- {1927} *The catalytic oxidizer shall be installed and maintained in good operating condition, in accordance with manufacturer's specifications. [District Rule 4692]*
- {1954} *The catalytic oxidizer shall be cleaned, with materials that do not damage the catalytic coating, at least once per month, when the charbroiler is not operating. Such cleaning shall be performed in accordance with instructions in a maintenance manual, bulletin, or memo prepared by the manufacturer or distributor of the catalyst or catalytic oxidizer. A copy of the cleaning instructions must be maintained on site. [District Rule 2201]*

Section 6.1 states, Owners and operators of chain-driven charbroilers equipped with control equipment shall maintain records of the date of installation or changing of any catalyst or, if applicable, other approved control device; and the date and time of cleaning and maintenance performed for the catalyst or, if applicable, other approved control device. Records of such actions shall be retained for a period of not less than five years, and made available to a District representative upon request.

The following condition insures compliance with this section:

- *{1953} Daily records shall be maintained of the amount of meat cooked. Monthly records shall be maintained of the amount of meat purchased. Also, records shall be maintained of the date of installation or changing of any catalyst, and date and time of cleaning or replacement of, and maintenance performed on, the catalyst. These records shall be retained on the restaurant premises for a period of at least five years and made available to the District upon request. [District Rules 2201 and 4692]*

Therefore, compliance with the rule is expected.

Rule 4801 - Sulfur Compounds

Section 3.1 prohibits emissions of sulfur compounds as SO₂ in excess of 0.2% by volume (2,000 ppmv).

From Table 1 of this evaluation, SO_x emissions when firing on natural gas (PUC quality) are calculated based on an emission factor of 0.00285 lb-SO_x/MMBtu.

$$\begin{aligned}\text{lb-SO}_x/\text{exhaust vol.} &= (\text{lb-SO}_x/\text{MMBtu}) \div (\text{F factor}) \\ &= (0.00285 \text{ lb-SO}_x/\text{MMBtu}) \div (8,578 \text{ dscf/MMBtu}) \\ &= 3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}\end{aligned}$$

$$\text{Volume SO}_x/\text{exhaust vol.} = nRT/P,$$

$$\begin{aligned}\text{Where } n &= \text{moles SO}_x = (3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}) \div (64 \text{ lb-SO}_2/\text{lb-mol}) \\ &= 5.0 \times 10^{-9} \text{ lb-mol/dscf}\end{aligned}$$

$$R = \text{Universal gas constant} = 10.73 \text{ psi-ft}^3/\text{lb-mol-}^\circ\text{R}$$

$$T = 60^\circ\text{F standard temperature} = 520^\circ \text{ Rankine, and}$$

$$P = \text{Standard atmospheric pressure} = 14.7 \text{ psi}$$

$$\begin{aligned}\text{Volume SO}_2/\text{exhaust vol.} &= (5.0 \times 10^{-9} \text{ lb-mol/dscf}) \times (10.73 \text{ psi-ft}^3/\text{lb-mol-}^\circ\text{R}) \times \\ &\quad (520^\circ\text{R}) \div (14.7 \text{ psi}) \\ &= 2.0 \times 10^{-6} \text{ dscf/dscf exhaust} \\ &= 2.0 \text{ ppmv} \ll 2,000 \text{ ppmv}\end{aligned}$$

Since 2.0 ppmv is \leq 2000 ppmv, this charbroiler is expected to comply with Rule 4801.

California Environmental Quality Act (CEQA)

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR).

Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit are based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

As described above, the project requires only ministerial approval, and is exempt from the provisions of CEQA. As such, an Indemnification Agreement or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. RECOMMENDATION

Issue ATC #[X-XXXX-XX-X] with the conditions listed on the attached draft Authority to Construct.

X. BILLING

The billing for this operation is based on the burner rating in kBtu/hr.

PERMIT NUMBER	FEE SCHEDULE	FEE DESCRIPTION	ANNUAL FEE
X-XXXX-XX-X	3020-02-A	[BURNER RATING] MMBTU/HR	\$74

Appendices:

Appendix A: Health Risk Assessment

Appendix B: Draft ATC

Appendix C: Emissions Profile

**Application Review for
Modified Chain-Driven Charbroilers:
Installing a Catalytic Oxidizer**

Authority to Construct Application Review Chain-Driven Charbroiler - Installing Catalytic Oxidizer

Processing Engineer: [Engineer's Name]
Lead Engineer: [Lead Engineer]
Date: [Date]

Facility Name: [Facility Name]
Mailing Address: [Mailing Address]
[City, State, zip]

Contact Name: [Contact Name]
Phone: [Phone]

Project Number: [Project Number]
Permit Number: [Permit Number]
Deemed Complete: [Completion Date]

I. PROPOSAL

[Facility Name] is in the fast food restaurant business. The applicant is proposing to modify their existing charbroiler, PTO [Old PTO #] (Appendix A), by installing a catalytic oxidizer to comply with the provisions of District Rule 4692 (Commercial Charbroiling).

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (September 21, 2006)
Rule 2520 Federally Mandated Operating Permits (June 21, 2001)
Rule 4101 Visible Emissions (February 17, 2005)
Rule 4102 Nuisance (December 17, 1992)
Rule 4201 Particulate Matter Concentration (December 17, 1992)
Rule 4692 Commercial Charbroiling (March 21, 2002)
Rule 4801 Sulfur Compounds (December 17, 1992)
Public Resources Code 21000-21177: California Environmental Quality Act
(CEQA) California Code of Regulations, Title 14, Division 6, Chapter 3, Sections
15000-15387: CEQA Guidelines

III. PROJECT LOCATION

The project is located at [Street Address] in [City], California. The applicant states that the source [is/is not] located within 1,000 feet of the outer boundaries of a K-12 school. The District has verified that the equipment [is/is not] located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 [is/is not] applicable to this project.

IV. PROCESS DESCRIPTION

This facility is a food handling and preparation facility that primarily serves the public. A chain-driven charbroiler is a semi-enclosed natural gas-fired cooking device that provides heat to cook food as it moves through the device while resting on the moving, chain-driven grated grill.

V. EQUIPMENT LISTING

Pre-Project Equipment Description:

[Current PTO #]: COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER

Proposed Modification:

[ATC Permit #]: MODIFICATION OF COMMERCIAL CHARBROILER: INSTALLING A CATALYTIC OXIDIZER [MANUFACTURER] MODEL [NUMBER] SERVING [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER

Post-Project Equipment Description:

[Proposed PTO #]:COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

In this process' exhaust stream, PM₁₀ and VOCs are mixed with air before entering the flameless reactor vessel. The air mixture is evenly distributed into a bed of inert ceramic material coated with a metal catalyst. This bed provides complete mixing of the PM₁₀ and VOC with oxygen. The PM₁₀ and VOC adsorb on the surface of the ceramic bed are oxidize into carbon dioxide and water vapor once the polluted exhaust stream reaches operating temperature of 600-800°F. The scrubbed exhaust stream leaves the ceramic bed flowing out through the stack.

Proper cleaning and maintenance of the catalytic oxidizer is very important for effective oxidation of VOCs and PM₁₀. Visible emissions are also indicators of proper oxidation catalyst efficiency. Testing in the South Coast Air basin has shown an overall VOC and PM₁₀ removal efficiency of 86% and 83%, respectively. To ensure optimal removal efficiencies, visible emissions from the catalyst should be Ringelmann 0 or 0% opacity. Catalyst manufacturers' have recommended cleaning at least once per month with materials that do not damage the catalytic coating, such as a warm water bath.

VII. CALCULATIONS

A. Assumptions:

- The charbroiler will be fired on natural gas as fuel (per applicant).
- Worst-case Operating Schedule: [24] hours/day, 365 days/year.
- Maximum Burner Rating: [Burner Rating] MMBtu/hr.
- Catalytic Oxidizer has a PM₁₀ control efficiency of 83% (SCAQMD testing).
- Catalytic Oxidizer has a VOC control efficiency of 86% (SCAQMD testing).
- F-Factor: 8,578 dscf/MMBtu @ 60°F (STP) (40 CFR, Part 60, Appendix A).
- Exhaust Flow Rate: [Flow Rate] cfm (per applicant).
- Current Daily Maximum Meat Cooked: [Current Daily Meat] lbs/day (per applicant).
- Proposed Daily Maximum Meat Cooked: [Proposed Daily Meat] lbs/day (per applicant).

B. Emission Factors (EF):

All combustion emission factors were obtained from the current permit.

Pollutant	EF _(Natural Gas) (lb/MMBtu)	Source
NO _x	0.0940	Current Permit
SO _x	0.00285	Current Permit
PM ₁₀	See Note (1)	
CO	0.0210	Current Permit
VOC (non-methane)	See Note (1)	

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for meat cooking discussed below.

The following uncontrolled emission factors for meat cooked were obtained from the South Coast Air Quality Management District (SCAQMD) and are based on source test results of similar units:

- $EF_{PM_{10}} = 7.42 \text{ lb-PM}_{10}/10^3 \text{ lb-Meat Cooked (Uncontrolled)}$
- $EF_{VOC} = 2.27 \text{ lb-VOC}/10^3 \text{ lb-Meat Cooked (Uncontrolled)}$

C. Emissions Calculations:

For NO_x, SO_x and CO, the potentials to emit are calculated based on the quantity of natural gas combusted. For PM₁₀ and VOC, the potentials to emit are calculated based on the quantity of meat cooked.

1. Pre-Project Potential to Emit (PE1)

PM₁₀ and VOC Emissions from Chain-driven Charbroiler:

Max. Meat Cooked (Daily) = [Current Daily Meat] lb/day

$$\begin{aligned} PE_{PM_{10}\text{-Meat Cooked}} &= EF_{PM_{10}} \text{ (lb-PM}_{10}\text{/10}^3 \text{ lb-Meat Cooked)} \times \text{Max. Meat Cooked (lb/day)} \\ &= (7.42 \text{ lb-PM}_{10}\text{/10}^3 \text{ lb-Meat Cooked}) \times ([\text{Current Daily Meat}] \text{ lb/day)} \\ &= [\text{x.x}] \text{ lb-PM}_{10}\text{/day} \end{aligned}$$

$$\begin{aligned} PE_{VOC\text{-Meat Cooked}} &= EF_{VOC} \text{ (lb-VOC/10}^3 \text{ lb-Meat Cooked)} \times \text{Max. Meat Cooked (lb/day)} \\ &= 2.27 \text{ lb-VOC/10}^3 \text{ lb-Meat Cooked)} \times ([\text{Current Daily Meat}] \text{ lb/day)} \\ &= [\text{x.x}] \text{ lb-VOC/day} \end{aligned}$$

Emissions from the Combustion of Natural Gas:

Max. Burner Rating: [Burner Rating] MMBtu/hr
 Operating Hours: [24] hr/day

$$PE_{\text{Natural Gas}} \text{ (lb/day)} = \text{Max. Natural Gas Usage (MMBtu/hr)} \times \text{Emission Factor (lb/MMBtu)} \times [24] \text{ hr/day}$$

Table 2. Combustion Emissions Summary				
Pollutant	EF _(Natural Gas) (lb/MMBtu)	Max Burner Rating (MMBtu/hr)	Hours of Operation (hr/day)	PE (lb/day)
NO _x	0.0940	[Burner Rating]	24	0.0
SO _x	0.00285	[Burner Rating]	24	0.0
PM ₁₀	See Note (1)			N/A
CO	0.0210	[Burner Rating]	24	0.0
VOC (non-methane)	See Note (1)			N/A

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for the meat cooked.

Total Emissions from the chain-driven charbroiler:

$$PE_{Total} = PE_{Meat Cooked} + PE_{Combustion}$$

$$Annual PE = PE_{Total} \times 365 \text{ days/year}$$

$$Quarter PE = Annual PE \div 4 \text{ qtr/yr}$$

Table 3. Pre-Project Potential to Emit (PE1) Summary					
Pollutant	PE _{Meat Cooked} (lb/day)	PE _{Combustion} (lb/day)	PE _{Total} (lb/day)	Annual PE (lb/year)	Quarter PE (lb/qtr)
NO _x	---	X.X	0.0	0	0
SO _x	---	X.X	0.0	0	0
PM ₁₀	X.X	---	0.0	0	0
CO	---	X.X	0.0	0	0
VOC	X.X	---	0.0	0	0

2. Post-project Potential to Emit (PE2)

PM₁₀ and VOC Emissions from Chain-driven Charbroiler:

$$\text{Max. Meat Cooked (Daily)} = [\text{Proposed Daily Meat}] \text{ lb/day}$$

$$\begin{aligned} PE_{PM10\text{-Meat Cooked}} &= EF_{PM10} (\text{lb-PM}_{10}/10^3 \text{ lb-Meat Cooked}) \times \text{Max. Meat Cooked (lb/day)} \times (1 - CE) \\ &= (7.42 \text{ lb-PM}_{10}/10^3 \text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.83) \\ &= [\mathbf{x.x}] \text{ lb-PM}_{10}/\text{day} \end{aligned}$$

$$\begin{aligned} PE_{VOC\text{-Meat Cooked}} &= EF_{VOC} (\text{lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times \text{Max. Meat Cooked (lb/day)} \times (1 - CE) \\ &= 2.27 \text{ lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.86) \\ &= [\mathbf{x.x}] \text{ lb-VOC/day} \end{aligned}$$

Emissions from the Combustion of Natural Gas:

Since post-project emissions for natural gas combustion are the same as the pre-project emissions for natural gas combustion, then **PE2 = PE1** (in lbs/day).

Total Emissions from the chain-driven charbroiler:

$$PE_{Total} = PE_{Meat Cooked} + PE_{Combustion}$$

$$Annual PE = PE_{Total} \times 365 \text{ days/year}$$

$$Quarter PE = Annual PE \div 4 \text{ qtr/yr}$$

Table 4. Post-Project Potential to Emit (PE2) Summary					
Pollutant	PE _{Meat Cooked} (lb/day)	PE _{Combustion} (lb/day)	PE _{Total} (lb/day)	Annual PE (lb/year)	Quarter PE (lb/qtr)
NO _x	---	X.X	0.0	0	0
SO _x	---	X.X	0.0	0	0
PM ₁₀	X.X	---	0.0	0	0
CO	---	X.X	0.0	0	0
VOC	X.X	---	0.0	0	0

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Table 5. Pre-Project (SSPE1) Summary					
	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE1	0	0	0	0	0
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Existing Major Source?	No	No	No	No	No

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Table 6. Post-Project (SSPE2) Summary					
	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE2	0	0	0	0	0
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
New Major Source?	No	No	No	No	No
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

5. Major Source Determination

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.25.2 states, “for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

As you can see from Tables 5 and 6, the facility is not an existing major source or a new major source, and calculations are not required.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22

As shown in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant.

Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1), **BE = PE1**.

7. Major Modification

Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore, the project does not constitute a Major Modification.

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are shown in the table below:

Table 7. Quarterly Net Emissions Change (QNEC) Summary						
Permit		NO _x	SO _x	PM ₁₀	CO	VOC
X-XXXX-XX	Qtr PE2 (lb/qtr)	0	0	9	0	0
	Qtr PE1 (lb/qtr)	0	0	0	0	0
	Qtr ΔPE (lb/qtr)	0	0	9	0	0

VIII. COMPLIANCE

Rule 2201 - New and Modified Stationary Source Review Rule

Best Available Control Technology (BACT)

Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,

* Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

Since this is a modified emission unit, AIPE calculations are necessary in order to determine if BACT is required.

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)
 PE2 = Post-Project Potential to Emit, (lb/day)
 HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

- PE1 = The emissions unit's Potential to Emit prior to modification or relocation.
- EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1.
- EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation.

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

Table 8. AIPE				
Pollutants	Post-Project (lb/day)	Pre-Project (lb/day)	(EF2/EF1)	AIPE (lb/day)
NO _x	0.0	0.0	1.0000	0.0
SO _x	0.0	0.0	1.0000	0.0
PM ₁₀	0.0	0.0	1.0000	0.0
CO	0.0	0.0	1.0000	0.0
VOC	0.0	0.0	1.0000	0.0

As demonstrated above, the AIPE is less than 2.0 lb/day for the emission unit for all criteria pollutants; therefore, BACT is not triggered.

OFFSETS

Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	--	--	--	--	--
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

As seen above, the SSPE2 is not greater than the offset thresholds for any of the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

PUBLIC NOTIFICATION

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any criteria pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

b. Major Modification

Based upon the determination in Section VII.C.5 above, this facility is not an existing Major Source; therefore Major Modification is not triggered for this project and public notification for Major Modification purposes does not apply.

c. PE > 100 lb/day?

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

d. Offset Threshold Exceeded?

As demonstrated in Section B of this rule, this project and this emission unit's annual emissions do not exceed offset threshold for all criteria pollutant; therefore, this project will not be required to provide offsets nor public notice.

e. SSIPE > 20,000 lb/yr?

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE in the following table is compared to the SSIPE Public Notice threshold of 20,000 lb/year.

Table 7. Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE	SSIPE Threshold	Public Notice Required?
NO _x	0	0	0	20,000	No
SO _x	0	0	0	20,000	No
PM ₁₀	0	0	0	20,000	No
CO	0	0	0	20,000	No
VOC	0	0	0	20,000	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing is not required for SSIPE purposes.

2. Public Notice

As shown above, public notification thresholds are not exceeded; therefore public noticing is not required prior to Authority To Construct issuance.

DAILY EMISSION LIMITS

Section 5.7.2 requires a daily emissions limitation to be included on the Permit to Operate (PTO). For this project, the DEL is stated in the form of emission factors, maximum burner capacity, and maximum daily process rate of pounds of meat cooked per day.

- *{1929} Emissions from this unit shall not exceed either of the following limits: 0.32 lb-VOC per 1,000 lb-meat cooked or 1.26 lb-PM10 per 1,000 lb-meat cooked. [District Rule 2201] **
- *Emissions from this unit shall not exceed any of the following limits: 0.094 lb-NO_x/MMBtu, 0.021 lb-CO/MMBtu, or 0.00285 lb-SO_x/MMBtu. [District Rule 2201] N*
- *The maximum amount of meat cooked shall not exceed XXX lbs/day. [District Rule 2201]*

E. COMPLIANCE ASSURANCE

Compliance is enforced by recordkeeping requirements.

* 0.32 lb-VOC/1,000 lb-meat cooked = (2.27 lb-VOC/1,000 lb-meat cooked) × (1-0.86) and
1.26 lb-PM10/1,000 lb-meat cooked = (7.42 lb-PM10/1,000 lb-meat cooked) × (1-0.83)

1. Source Testing

Annual source testing is not required for NO_x, CO, VOC, PM₁₀ and SO_x emissions, since the uncontrolled emissions from this unit is less than 30 pounds per day for any pollutant.

2. Monitoring

There is no monitoring required for this emission device.

3. Record Keeping

Daily records will be maintained of the amount of meat cooked. Monthly records will be maintained of the amount of meat purchased. Also, records will be maintained of the date of installation or changing of any catalyst, and date and time of cleaning and maintenance performed on catalyst. These records will be retained on the restaurant premises for a period of at least five years and made available to the District upon request.

4. Reporting

No reporting is required for charbroilers.

Therefore, compliance with this rule is expected.

Rule 2520 - Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4101 - Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour, which are as dark as or darker than Ringelmann 1 (20% opacity). According to manufacturers' data, visible emissions in excess of Ringelmann 0 or 0% opacity are not expected, and inspections will be performed annually to confirm this. Therefore, compliance is expected.

A permit condition will be listed on the permit as follows:

- {1955} No visible emissions shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101]

Rule 4102 - Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of this operation, provided the equipment is well maintained.

A permit condition will be listed on the permit as follows:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

Pursuant to District's Risk Management Policy APR 1905 (3/2/01), any sources with increases in toxic air emissions, the health risks resulting from such projects must be evaluated. Since the food grade material (cooked meat) has been tested and certified by U.S. FDA or their agents to be safe or acceptable for human consumption with no or minimal risk; therefore, the increase in cooked meat is not subject to a health risk assessment (HRA). However, the charbroiler is fired on natural gas, and the combustion of natural gas does emit hazardous air pollutants (HAPs) into the atmosphere. Since this project does not proposed an increase in the quantity of natural gas combusted, there is no increase in HAPs, and a HRA is not required.

Rule 4201 - Particulate Matter Concentration

Section 3.0 requires emissions of dust, fumes, or particulate matter not to exceed 0.1 grain per cubic foot of gas at dry standard conditions. The PM emission concentration will be calculated based on the following parameters:

PM₁₀-to-PM Ratio: 50% PM₁₀/PM (Rule 2201, Section 4.11.2)

Exhaust Flow Rate = [Flow Rate] cfm

Typical Operating Schedule (worst-case) = 1,440 min/day

$$\begin{aligned} \text{PM Concentration} &= \frac{(\text{PM}_{10} \text{ Emission Rate}) \times (7,000 \text{ gr/lb})}{(\text{Air Flow Rate}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})} \\ &= \frac{([\text{PM}_{10} \text{ Emission}] \text{ lb-PM}_{10}/\text{day}) \times (7,000 \text{ gr/lb})}{([\text{Flow Rate}] \text{ cfm}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})} \end{aligned}$$

Concentration = X.XX gr/scf

The calculated emissions are well below the allowable emissions level. It can be assumed that under dry conditions emissions will not exceed the allowable 0.1 gr/dscf. Therefore, compliance with this rule is expected.

The following condition will be placed on the permit to ensure compliance with rule:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4692 - Commercial Charbroiling

The purpose of this rule is to limit VOC and PM-10 emissions from commercial chain-driven charbroilers.

Section 5.3 states, Catalytic oxidizers or other control devices shall be maintained in good working order to minimize visible emissions to the atmosphere and operated, cleaned, and maintained in accordance with the manufacturer's specifications in a maintenance manual or other written materials supplied by the manufacturer or distributor of the catalyst or other control device, or chain-driven charbroiler.

The following conditions insure compliance with this section:

- *{1927} The catalytic oxidizer shall be installed and maintained in good operating condition, in accordance with manufacturer's specifications. [District Rule 4692]*
- *{1954} The catalytic oxidizer shall be cleaned, with materials that do not damage the catalytic coating, at least once per month, when the charbroiler is not operating. Such cleaning shall be performed in accordance with instructions in a maintenance manual, bulletin, or memo prepared by the manufacturer or distributor of the catalyst or catalytic oxidizer. A copy of the cleaning instructions must be maintained on site. [District Rule 2201]*

Section 6.1 states, Owners and operators of chain-driven charbroilers equipped with control equipment shall maintain records of the date of installation or changing of any catalyst or, if applicable, other approved control device; and the date and time of cleaning and maintenance performed for the catalyst or, if applicable, other approved control device. Records of such actions shall be retained for a period of not less than five years, and made available to a District representative upon request.

The following condition insures compliance with this section:

- *{1953} Daily records shall be maintained of the amount of meat cooked. Monthly records shall be maintained of the amount of meat purchased. Also, records shall be maintained of the date of installation or changing of any catalyst, and date and time of cleaning or replacement of, and maintenance performed on, the catalyst. These records shall be retained on the restaurant premises for a period of at least five years and made available to the District upon request. [District Rules 2201 and 4692]*

Therefore, compliance with the rule is expected.

Rule 4801 - Sulfur Compounds

Section 3.1 prohibits emissions of sulfur compounds as SO₂ in excess of 0.2% by volume (2,000 ppmv).

From Table 1 of this evaluation, SO_x emissions when firing on natural gas (PUC quality) are calculated based on an emission factor of 0.00285 lb-SO_x/MMBtu.

$$\begin{aligned}\text{lb-SO}_x/\text{exhaust vol.} &= (\text{lb-SO}_x/\text{MMBtu}) \div (\text{F factor}) \\ &= (0.00285 \text{ lb-SO}_x/\text{MMBtu}) \div (8,578 \text{ dscf/MMBtu}) \\ &= 3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}\end{aligned}$$

Volume SO_x/exhaust vol. = nRT/P,

$$\begin{aligned}\text{Where } n &= \text{moles SO}_x = (3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}) \div (64 \text{ lb-SO}_2/\text{lb-mol}) \\ &= 5.0 \times 10^{-9} \text{ lb-mol/dscf}\end{aligned}$$

R = Universal gas constant = 10.73 psi-ft³/lb-mol-°R

T = 60°F standard temperature = 520° Rankine, and

P = Standard atmospheric pressure = 14.7 psi

$$\begin{aligned}\text{Volume SO}_2/\text{exhaust vol.} &= (5.0 \times 10^{-9} \text{ lb-mol/dscf}) \times (10.73 \text{ psi-ft}^3/\text{lb-mol-}^\circ\text{R}) \times \\ &\quad (520^\circ\text{R}) \div (14.7 \text{ psi}) \\ &= 2.0 \times 10^{-6} \text{ dscf/dscf exhaust} \\ &= 2.0 \text{ ppmv} \ll 2,000 \text{ ppmv}\end{aligned}$$

Since 2.0 ppmv is ≤ 2000 ppmv, this charbroiler is expected to comply with Rule 4801.

California Environmental Quality Act (CEQA)

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR).

Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

IX. RECOMMENDATION

Issue ATC #[X-XXXX-XX-X] with the conditions listed on the attached draft Authority to Construct.

X. BILLING

The billing for this operation is based on the burner rating in kBtu/hr.

PERMIT NUMBER	FEE SCHEDULE	FEE DESCRIPTION	ANNUAL FEE
X-XXXX-XX-X	3020-02-A	[BURNER RATING] MMBTU/HR	\$74

Appendices:

Appendix A: Current PTO

Appendix B: Draft ATC

Appendix C: Emissions Profile

**Application Review for
Modified Chain-Driven Charbroilers:
Increasing Meat Cooked**

Authority to Construct Application Review Chain-Driven Charbroiler - Increasing Meat Cooked

Processing Engineer: [Engineer's Name]
Lead Engineer: [Lead Engineer]
Date: [Date]

Facility Name: [Facility Name]
Mailing Address: [Mailing Address]
[City, State, zip]

Contact Name: [Contact Name]
Phone: [Phone]

Project Number: [Project Number]
Permit Number: [Permit Number]
Deemed Complete: [Completion Date]

I. PROPOSAL

[Facility Name] is in the fast food restaurant business. The applicant is proposing to modify their existing charbroiler, PTO [Old PTO #] (Appendix A), by increasing the maximum amount of meat cooked from XXX lb/day to XXX lb/day.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (September 21, 2006)
Rule 2520 Federally Mandated Operating Permits (June 21, 2001)
Rule 4101 Visible Emissions (February 17, 2005)
Rule 4102 Nuisance (December 17, 1992)
Rule 4201 Particulate Matter Concentration (December 17, 1992)
Rule 4692 Commercial Charbroiling (March 21, 2002)
Rule 4801 Sulfur Compounds (December 17, 1992)
Public Resources Code 21000-21177: California Environmental Quality Act
(CEQA) California Code of Regulations, Title 14, Division 6, Chapter 3, Sections
15000-15387: CEQA Guidelines

III. PROJECT LOCATION

The project is located at [Street Address] in [City], California. The applicant states that the source [is/is not] located within 1,000 feet of the outer boundaries of a K-12 school. The District has verified that the equipment [is/is not] located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 [is/is not] applicable to this project.

IV. PROCESS DESCRIPTION

This facility is a food handling and preparation facility that primarily serves the public. A chain-driven charbroiler is a semi-enclosed natural gas-fired cooking device that provides heat to cook food as it moves through the device while resting on the moving, chain-driven grated grill.

V. EQUIPMENT LISTING

Pre-Project Equipment Description:

[Current PTO #]: COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER, SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER

Proposed Modification:

[ATC Permit #]: MODIFICATION OF COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER: INCREASE MEAT THROUGHPUT FROM [CURRENT DAILY MEAT] LB/DAY TO [PROPOSED DAILY MEAT] LB/DAY.

Post-Project Equipment Description:

[Proposed PTO #]: COMMERCIAL CHARBROILER: [BURNER RATING] MMBTU/HR [MANUFACTURER'S NAME] MODEL [NUMBER] NATURAL GAS-FIRED CHAIN-DRIVEN CHARBROILER SERVED BY [MANUFACTURER] MODEL [NUMBER] CATALYTIC OXIDIZER

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

In this process' exhaust stream, PM₁₀ and VOCs are mixed with air before entering the flameless reactor vessel. The air mixture is evenly distributed into a bed of inert ceramic material coated with a metal catalyst. This bed provides complete mixing of the PM₁₀ and VOC with oxygen. The PM₁₀ and VOC will oxidize into carbon dioxide and water vapor once the mixture reaches the combustion temperature. The released combustion energy is absorbed by the ceramic bed and is transferred to the exhaust stream leaving the catalytic oxidizer.

Proper cleaning and maintenance of the catalytic oxidizer is very important for effective oxidation of VOCs and PM₁₀. Visible emissions are also indicators of proper oxidation catalyst efficiency. Testing in the South Coast Air basin has shown an overall VOC and PM₁₀ removal efficiency of 86% and 83%, respectively. To ensure optimal removal efficiencies, manufacturers' state that visible emissions from the catalyst should be Ringelmann 0 or 0% opacity and have recommended the catalyst be cleaned at least once per month with materials that do not damage the catalytic coating, such as a warm water bath.

VII. CALCULATIONS

A. Assumptions:

- The charbroiler will be fired on natural gas as fuel (per applicant).
- Worst-case Operating Schedule: [24] hours/day, 365 days/year.
- Maximum Burner Rating: [Burner Rating] MMBtu/hr.
- Catalytic Oxidizer has a PM₁₀ control efficiency of 83% (SCAQMD testing).
- Catalytic Oxidizer has a VOC control efficiency of 86% (SCAQMD testing).
- F-Factor: 8,578 dscf/MMBtu @ 60°F (STP) (40 CFR, Part 60, Appendix A).
- Exhaust Flow Rate: [Flow Rate] cfm (per applicant).
- Current Daily Maximum Meat Cooked: [Current Daily Meat] lbs/day (per applicant).
- Proposed Daily Maximum Meat Cooked: [Proposed Daily Meat] lbs/day (per applicant).

B. Emission Factors (EF):

All combustion emission factors were obtained from the current permit.

Table 1. Pre- and Post-Project Combustion Emission Factors		
Pollutant	EF _(Natural Gas) (lb/MMBtu)	Source
NO _x	0.0940	Current Permit
SO _x	0.00285	Current Permit
PM ₁₀	See Note (1)	
CO	0.0210	Current Permit
VOC (non-methane)	See Note (1)	

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for meat cooking discussed below.

The following uncontrolled emission factors for meat cooked were obtained from the South Coast Air Quality Management District (SCAQMD) and are based on source test results of similar units:

- EF_{PM10} = 7.42 lb-PM₁₀/10³ lb-Meat Cooked (Uncontrolled)
- EF_{VOC} = 2.27 lb-VOC/10³ lb-Meat Cooked (Uncontrolled)

C. Emissions Calculations:

1. Pre-Project Potential to Emit (PE1)

PM₁₀ and VOC Emissions from Chain-driven Charbroiler:

Max. Meat Cooked (Daily) = [Current Daily Meat] lb/day

$$\begin{aligned}
 PE_{PM10\text{-Meat Cooked}} &= EF_{PM10} \text{ (lb-PM}_{10}\text{/10}^3\text{ lb-Meat Cooked)} \times \text{Max. Meat Cooked (lb/day)} \times (1 - CE) \\
 &= (7.42 \text{ lb-PM}_{10}\text{/10}^3\text{ lb-Meat Cooked}) \times (\text{[Current Daily Meat] lb/day}) \times (1 - 0.83) \\
 &= \text{[x.x] lb-PM}_{10}\text{/day}
 \end{aligned}$$

$$\begin{aligned}
 PE_{VOC\text{-Meat Cooked}} &= EF_{VOC} \text{ (lb-VOC/10}^3\text{ lb-Meat Cooked)} \times \text{Max. Meat Cooked (lb/day)} \times (1 - CE) \\
 &= 2.27 \text{ lb-VOC/10}^3\text{ lb-Meat Cooked}) \times (\text{[Current Daily Meat] lb/day}) \times (1 - 0.86) \\
 &= \text{[x.x] lb-VOC/day}
 \end{aligned}$$

Emissions from the Combustion of Natural Gas:

Max. Burner Rating: [Burner Rating] MMBtu/hr

Operating Hours: [24] hr/day

$$PE_{\text{Natural Gas}} \text{ (lb/day)} = \text{Max. Natural Gas Usage (MMBtu/hr)} \times \text{Emission Factor (lb/MMBtu)} \times [24] \text{ hr/day}$$

Table 2. Combustion Emissions Summary				
Pollutant	EF _(Natural Gas) (lb/MMBtu)	Max Burner Rating (MMBtu/hr)	Hours of Operation (hr/day)	PE (lb/day)
NO _x	0.0940	[Burner Rating]	24	0.0
SO _x	0.00285	[Burner Rating]	24	0.0
PM ₁₀	See Note (1)			N/A
CO	0.0210	[Burner Rating]	24	0.0
VOC (non-methane)	See Note (1)			N/A

(1) PM₁₀ and VOC emissions from combustion are included within the emission factors for the meat cooked.

Total Emissions from the chain-driven charbroiler:

$$PE_{\text{Total}} = PE_{\text{Meat Cooked}} + PE_{\text{Combustion}}$$

$$\text{Annual PE} = PE_{\text{Total}} \times 365 \text{ days/year}$$

$$\text{Quarter PE} = \text{Annual PE} \div 4 \text{ qtr/yr}$$

Table 3. Pre-Project Potential to Emit (PE1) Summary					
Pollutant	PE _{Meat Cooked} (lb/day)	PE _{Combustion} (lb/day)	PE _{Total} (lb/day)	Annual PE (lb/year)	Quarter PE (lb/qtr)
NO _x	---	X.X	0.0	0	0
SO _x	---	X.X	0.0	0	0
PM ₁₀	X.X	---	0.0	0	0
CO	---	X.X	0.0	0	0
VOC	X.X	---	0.0	0	0

2. Post-project Potential to Emit (PE2)

PM₁₀ and VOC Emissions from Chain-driven Charbroiler:

$$\text{Max. Meat Cooked (Daily)} = [\text{Proposed Daily Meat}] \text{ lb/day}$$

$$\begin{aligned} \text{PE}_{\text{PM}_{10}\text{-Meat Cooked}} &= \text{EF}_{\text{PM}_{10}} (\text{lb-PM}_{10}/10^3 \text{ lb-Meat Cooked}) \times \text{Max. Meat Cooked (lb/day)} \times (1 - \text{CE}) \\ &= (7.42 \text{ lb-PM}_{10}/10^3 \text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.83) \\ &= [\text{x.x}] \text{ lb-PM}_{10}/\text{day} \end{aligned}$$

$$\begin{aligned} \text{PE}_{\text{VOC-Meat Cooked}} &= \text{EF}_{\text{VOC}} (\text{lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times \text{Max. Meat Cooked (lb/day)} \times (1 - \text{CE}) \\ &= 2.27 \text{ lb-VOC}/10^3 \text{ lb-Meat Cooked}) \times ([\text{Proposed Daily Meat}] \text{ lb/day}) \times (1 - 0.86) \\ &= [\text{x.x}] \text{ lb-VOC/day} \end{aligned}$$

Emissions from the Combustion of Natural Gas/Propane:

Since post-project emissions for natural gas/propane combustion are the same as the pre-project emissions for natural gas/propane combustion, then **PE2 = PE1** (in lbs/day).

Total Emissions from the chain-driven charbroiler:

$$\text{PE}_{\text{Total}} = \text{PE}_{\text{Meat Cooked}} + \text{PE}_{\text{Combustion}}$$

$$\text{Annual PE} = \text{PE}_{\text{Total}} \times 365 \text{ days/year}$$

$$\text{Quarter PE} = \text{Annual PE} \div 4 \text{ qtr/yr}$$

Table 4. Post-Project Potential to Emit (PE2) Summary					
Pollutant	PE _{Meat Cooked} (lb/day)	PE _{Combustion} (lb/day)	PE _{Total} (lb/day)	Annual PE (lb/year)	Quarter PE (lb/qtr)
NO _x	---	X.X	0.0	0	0
SO _x	---	X.X	0.0	0	0
PM ₁₀	X.X	---	0.0	0	0
CO	---	X.X	0.0	0	0
VOC	X.X	---	0.0	0	0

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Table 5. Pre-Project (SSPE1) Summary					
	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE1	0	0	0	0	0
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Existing Major Source?	No	No	No	No	No

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Table 6. Post-Project (SSPE2) Summary					
	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE2	0	0	0	0	0
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
New Major Source?	No	No	No	No	No
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

5. Major Source Determination

As you can see from Tables 5 and 6, the facility is not an existing major source or a new major source, and calculations are not required.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22

As shown in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant.

Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1), **BE = PE1**.

7. Major Modification

Major Modification is defined in 40 CFR Part 51.165 as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore, the project does not constitute a Major Modification.

7. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are shown in the table below:

Table 7. Quarterly Net Emissions Change (QNEC) Summary						
Permit		NO _x	SO _x	PM ₁₀	CO	VOC
X-XXXX-XX	Qtr PE2 (lb/qtr)	0	0	0	0	0
	Qtr PE1 (lb/qtr)	0	0	0	0	0
	Qtr ΔPE (lb/qtr)	0	0	0	0	0

VIII. COMPLIANCE

Rule 2201 - New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

Since this is a modified emission unit, AIPE calculations are necessary in order to determine if BACT is required.

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

PE2 = Post-Project Potential to Emit, (lb/day)

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's Potential to Emit prior to modification or relocation.

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1.

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation.

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

* Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

Table 8. AIPE				
Pollutants	Post-Project (lb/day)	Pre-Project (lb/day)	(EF2/EF1)	AIPE (lb/day)
NO _x	0.0	0.0	1.0000	0.0
SO _x	0.0	0.0	1.0000	0.0
PM ₁₀	0.0	0.0	1.0000	0.0
CO	0.0	0.0	1.0000	0.0
VOC	0.0	0.0	1.0000	0.0

As demonstrated above, the AIPE is less than 2.0 lb/day for the emission unit for all criteria pollutants; therefore, BACT is not triggered.

B. OFFSETS

Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Table 9. Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	--	--	--	--	--
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

C. PUBLIC NOTIFICATION

1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any criteria pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

b. Major Modification

Based upon the determination in Section VII.C.5 above, this facility is not an existing Major Source; therefore Major Modification is not triggered for this project and public notification for Major Modification purposes does not apply.

c. PE > 100 lb/day?

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

d. Offset Threshold Exceeded?

As demonstrated in Section B of this rule, this project and this emission unit's annual emissions do not exceed offset threshold for all criteria pollutant; therefore, this project will not be required to provide offsets nor public notice.

e. SSIPE > 20,000 lb/yr?

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE in the following table is compared to the SSIPE Public Notice threshold of 20,000 lb/year.

Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE	SSIPE Threshold	Public Notice Required?
NO _x	0	0	0	20,000	No
SO _x	0	0	0	20,000	No
PM ₁₀	0	0	0	20,000	No
CO	0	0	0	20,000	No
VOC	0	0	0	20,000	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing is not required for SSIPE purposes.

2. Public Notice

As shown above, public notification thresholds are not exceeded; therefore public noticing is not required prior to Authority To Construct issuance.

D. DAILY EMISSION LIMITS

Section 5.7.2 requires a daily emissions limitation to be included on the Permit to Operate (PTO). For this project, the DEL is stated in the form of emission factors, maximum burner capacity, and maximum daily process rate of pounds of meat cooked per day.

- *{1929} Emissions from this unit shall not exceed either of the following limits: 0.32 lb-VOC per 1,000 lb-meat cooked or 1.26 lb-PM10 per 1,000 lb-meat cooked. [District Rule 2201] **
- *Emissions from this unit shall not exceed any of the following limits: 0.094 lb-NO_x/MMBtu, 0.021 lb-CO/MMBtu, or 0.00285 lb-SO_x/MMBtu. [District Rule 2201] N*
- *The maximum amount of meat cooked shall not exceed XXX lbs/day. [District Rule 2201]*

E. COMPLIANCE ASSURANCE

Compliance is enforced by recordkeeping requirements.

4. Source Testing

Pursuant to District Policy APR 1705, annual source testing is not required for NO_x, CO, VOC, PM₁₀ and SO_x emissions, since the uncontrolled emissions from this unit is less than 30 pounds per day for any pollutant.

5. Monitoring

There is no monitoring required for this emission device.

6. Record Keeping

Daily records will be maintained of the amount of meat cooked. Monthly records will be maintained of the amount of meat purchased. Also, records will be maintained of the date of installation or changing of any catalyst, and date and time of cleaning and maintenance performed on catalyst. These records will be retained on the restaurant premises for a period of at least five years and made available to the District upon request.

* 0.32 lb-VOC/1,000 lb-meat cooked = (2.27 lb-VOC/1,000 lb-meat cooked) × (1-0.86) and
1.26 lb-PM10/1,000 lb-meat cooked = (7.42 lb-PM10/1,000 lb-meat cooked) × (1-0.83)

4. Reporting

No reporting is required for charbroilers.

Therefore, compliance with this rule is expected.

Rule 2520 - Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4101 - Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour, which is dark or darker than Ringelmann 1 (20% opacity). According to manufacturers' data, visible emissions in excess of Ringelmann 0 or 0% opacity are not expected, and inspections will be performed annually to confirm this. Therefore, compliance is expected.

A permit condition will be listed on the permit as follows:

- {1955} No visible emissions shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101]

Rule 4102 - Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of this operation, provided the equipment is well maintained.

A Permit condition will be listed on the permit as follows:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

Pursuant to District's Risk Management Policy APR 1905 (3/2/01), any sources with increases in toxic air emissions, the health risks resulting from such projects must be evaluated. Since the food grade material (cooked meat) has been tested and certified by FDA or their agents to be safe or acceptable for human consumption with no or minimal risk; therefore, the increase in cooked meat is not subject to a health risk assessment (HRA). However, the charbroiler is fired on natural gas, and the combustion of natural gas do emit hazardous air pollutants (HAPs) into the atmosphere. Since this project did not proposed an increase in

heat input or combustion of natural gas, there is no increase in HAPs, and a HRA is not required.

Rule 4201 - Particulate Matter Concentration

Section 3.0 requires emissions of dust, fumes, or particulate matter not to exceed 0.1 grain per cubic foot of gas at dry standard conditions. The PM emission concentration will be calculated based on the following parameters:

PM₁₀-to-PM Ratio: 50% PM₁₀/PM (Rule 2201, Section 4.11.2)

Exhaust Flow Rate = [Flow Rate] cfm

Typical Operating Schedule (worst-case) = 1,440 min/day

$$\begin{aligned} \text{PM Concentration} &= \frac{(\text{PM}_{10} \text{ Emission Rate}) \times (7,000 \text{ gr/lb})}{(\text{Air Flow Rate}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})} \\ &= \frac{([\text{PM}_{10} \text{ Emission}]) \text{ lb-PM}_{10}/\text{day}) \times (7,000 \text{ gr/lb})}{([\text{Flow Rate}] \text{ cfm}) \times (1,440 \text{ min/day}) \times (0.50 \text{ PM}_{10}/\text{PM})} \end{aligned}$$

Concentration = **X.XX gr/scf**

The calculated emissions are well below the allowable emissions level. It can be assumed that under dry conditions emissions will not exceed the allowable 0.1 gr/dscf. Therefore, compliance with this rule is expected.

The following condition will be placed on the permit to ensure compliance with rule:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4692 - Commercial Charbroiling

The purpose of this rule is to limit VOC and PM-10 emissions from commercial chain-driven charbroilers.

For all charbroilers increasing the amount of cooked meat the following requirements apply:

- {1927} The catalytic oxidizer shall be installed and maintained in good operating condition, in accordance with manufacturer's specifications. [District Rule 4692]

- {1954} *The catalytic oxidizer shall be cleaned, with materials that do not damage the catalytic coating, at least once per month, when the charbroiler is not operating. Such cleaning shall be performed in accordance with instructions in a maintenance manual, bulletin, or memo prepared by the manufacturer or distributor of the catalyst or catalytic oxidizer. A copy of the cleaning instructions must be maintained on site. [District Rule 2201]*
- {1953} *Daily records shall be maintained of the amount of meat cooked. Monthly records shall be maintained of the amount of meat purchased. Also, records shall be maintained of the date of installation or changing of any catalyst, and date and time of cleaning or replacement of, and maintenance performed on, the catalyst. These records shall be retained on the restaurant premises for a period of at least five years and made available to the District upon request. [District Rules 2201 and 4692]*

Therefore, compliance with the rule is expected.

Rule 4801 - Sulfur Compounds

Section 3.1 prohibits emissions of sulfur compounds as SO₂ in excess of 0.2% by volume (2,000 ppmv).

From Table 1 of this evaluation, SO_x emissions when firing on natural gas (PUC quality) are calculated based on an emission factor of 0.00285 lb-SO_x/MMBtu.

$$\begin{aligned}
 \text{lb-SO}_x/\text{exhaust vol.} &= (\text{lb-SO}_x/\text{MMBtu}) \div (\text{F factor}) \\
 &= (0.00285 \text{ lb-SO}_x/\text{MMBtu}) \div (8,578 \text{ dscf/MMBtu}) \\
 &= 3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}
 \end{aligned}$$

$$\text{Volume SO}_x/\text{exhaust vol.} = nRT/P,$$

$$\begin{aligned}
 \text{Where } n &= \text{moles SO}_x = (3.38 \times 10^{-7} \text{ lb-SO}_x/\text{dscf}) \div (64 \text{ lb-SO}_2/\text{lb-mol}) \\
 &= 5.0 \times 10^{-9} \text{ lb-mol/dscf}
 \end{aligned}$$

$$R = \text{Universal gas constant} = 10.73 \text{ psi-ft}^3/\text{lb-mol-}^\circ\text{R}$$

$$T = 60^\circ\text{F standard temperature} = 520^\circ \text{ Rankine, and}$$

$$P = \text{Standard atmospheric pressure} = 14.7 \text{ psi}$$

$$\begin{aligned}
 \text{Volume SO}_2/\text{exhaust vol.} &= (5.0 \times 10^{-9}) \times (10.73) \times (520^\circ\text{R}) \div (14.7 \text{ psi}) \\
 &= 2.0 \times 10^{-6} \text{ dscf/dscf exhaust} \\
 &= 2.0 \text{ ppmv} \ll 2,000 \text{ ppmv}
 \end{aligned}$$

Since 2.0 ppmv is \leq 2000 ppmv, this charbroiler is expected to comply with Rule 4801.

California Environmental Quality Act (CEQA)

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District’s Guideline for Expedited Application Review (GEAR).

Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

IX. RECOMMENDATION

Issue ATC #[X-XXXX-XX-X] with the conditions listed on the attached draft Authority to Construct.

X. BILLING

The billing for this operation is based on the burner rating in kBtu/hr.

PERMIT NUMBER	FEE SCHEDULE	FEE DESCRIPTION	ANNUAL FEE
X-XXXX-XX-X	3020-02-A	[BURNER RATING] MMBTU/HR	\$74

ATTACHMENT I
Supplemental Application Form

**San Joaquin Valley Unified Air Pollution Control District
Supplemental Application Form**

CHAIN-DRIVEN & BATCH CHARBROILER

This form must be accompanied by a completed Application for Authority to Construct and Permit to Operate form.

PERMIT TO BE ISSUED TO:
LOCATION WHERE THE EQUIPMENT WILL BE OPERATED:

PROCESS DESCRIPTION

Product Data	Maximum Amount of Meat Cooked: _____ (pounds/day) _____ (pounds/week) _____ (pounds/year)
---------------------	--

EQUIPMENT DESCRIPTION

Charbroiler Data	Manufacturer:		Model:		
	Chain-Driver HP Rating:			hp	
	Type of Fuel:	Natural Gas []	LPG/Propane []	Other: _____	
	Charbroiler Burner:	Burner Rating:	MMBtu/hr	Qty of Fuel:	therm/month
	Number of Fans:	Fan(s) Motor HP Rating:		Exhaust Flow Rate:	m
	Stack Diameter _____ inches			Stack Height: _____ feet	
Control Type	<input type="checkbox"/> Catalytic Oxidizer <input type="checkbox"/> Scrubber (include manufacturer's specifications) <input type="checkbox"/> Other:				
	Manufacturer:		Model:		

ADDITIONAL INFORMATION

1. **Operating Schedule:**
 _____ Hours per day _____ Days per week _____ Weeks per year
2. **Nearest Receptor:**
 Distance to nearest Residence _____ feet (Examples of Residences includes apartments, houses, etc.)
 Distance to nearest Business _____ feet (Examples of Businesses includes office buildings, factories, etc.)
3. Is a rain cap (other than a flapper-type valve) present on exhaust stack? Yes No
 Direction of exhaust from structure or device: Vertical Horizontal
4. **Facility Location:** Urban (area of dense population) Rural (area of sparse population)
5. Describe any air pollution control equipment or technologies, including control efficiencies, not mentioned above on a separate sheet and submit it along with this form.

ATTACHMENT II

Certified Charbroilers with Integrated Catalysts

Manufacturer**Certified Models****Marshall Air Systems, Inc (charbroiler)**

419 Peachtree Drive South
 Charlotte, North Carolina 27217
 Ron Reynders
 704/525-6230

Reference No. 326977**with****Englehard Corporation (catalyst)**

101 Wood Avenue South
 Iselin, New Jersey 08830-0770
 Alan Bouney
 732/205-7149 fax 732/205-6146

Charbroiler - Catalyst

121224G - Charcat 900
 15624G - Charcat 900
 2424G - Charcat 900
 4-12GT - Charcat 900
 FR1212BG - Charcat 900
 FR156BG - Charcat 900
 FR24BG - Charcat 900

Remarks

Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane

Charbroiler - Catalyst**Remarks****Nieco (charbroiler)**

15 Guittard
 Burlingame, California 94010
 Pat Baker
 415/697-7335

with**Ayr King & Prototech (catalyst)**

2013 Cobalt Drive
 Louisville, Kentucky 40299
 Donald E. King
 502/266-6270

Reference No. 302191

Chad Harned
 chad@ayrking.com

815ETR - 901
 815ETR - 902
 815GTR - 901
 815GTR - 902
 815GTT - 901
 815GTT - 902

Electric
 Electric
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Nat. Gas/Propane
 Electric
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 Nat. Gas/Propane
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932G - 901
 932G - 902
 950G - 901
 950G - 902
 952G - 901
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 960G-901
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 1424G-901
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Nat. Gas/P
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 Nat. Gas/P

Nieco (charbroiler)

15 Guittard
 Burlingame, California 94010
 Pat Baker
 415/697-7335

with**Engelhard Corporation (catalyst)**

101 Wood Avenue South
 Iselin, New Jersey 08830-0770
 Alan Bouney
 732/205-7149 fax 732/205-6146

824E - Charcat 900
 850E - Charcat 900
 824G - Charcat 900
 850G - Charcat 900
 815ETR - Charcat 900
 815GTR - Charcat 900
 815GTT - Charcat 900
 922E - Charcat 900
 922G - Charcat 900
 932G - Charcat 900
 950G - Charcat 900

Electric
 Electric
 Nat Gas/Propane
 Nat Gas/Propane
 Electric
 Nat Gas/Propane
 Nat Gas/Propane
 Electric
 Nat Gas/Propane
 Nat Gas/Propane
 Nat Gas/Propane
 Nat Gas/Propane

Reference No. 301735

<p>Nieco (charbroiler) 15 Guittard Burlingame, California 94010 Pat Baker 415/697-7335</p>	<p>with</p>	<p>Engelhard Corporation (catalyst) (Formerly W.R. Grace & Company) 12000 Winrock Road Hiram, Ohio 44234 Chuck Patellis 440/548-5866</p>	<p>815ETR – Grace 815GTR – Grace 815GTT- Grace 824E – Grace 824G – Grace 850E- Grace 850G – Grace 922E- Grace 922G – Grace 932G – Grace 950G – Grace 952G – Grace 980G – Grace</p>	<p>Electric Nat Gas/Propane Nat Gas/Propane Electric Nat Gas/Propane Electric Nat Gas/Propane Electric Natural Gas Nat Gas/Propane Natural gas Nat Gas/Propane Nat Gas/Propane</p>
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<p>Nieco (charbroiler) 15 Guittard Burlingame, California 94010 Pat Baker 415/697-7335</p>	<p>with</p>	<p>Engelhard Corporation (catalyst) (Formerly W.R. Grace & Company) 12000 Winrock Road Hiram, Ohio 44234 Chuck Patellis 440/548-5866</p>	<p>815 – Charcat 910 815GTT – Charcat 910 824 – Charcat 910 850 – Charcat 910 880 – Charcat 910 885 – Charcat 910 922 – Charcat 910 932 – Charcat 910 950 – Charcat 910 952 – Charcat 910 960 – Charcat 910 980 – Charcat 910 1015 – Charcat 910 1424 – Charcat 910 1450 – Charcat 910 1480 – Charcat 910 824-Charcat 7-165 1424-Charcat 7-165</p>	<p>Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane</p>
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Nieco (charbroiler)	Charbroiler – Catalyst	Remarks
<p>15 Guittard Burlingame, California 94010 Pat Baker 415/697-7335</p>	<p>9025 – Charcat 930 9025-Charcat 7-193 9015-Charcat 7-213</p>	<p>Nat Gas/Propane Nat Gas/Propane Nat Gas/Propane</p>
<p>with Golden West Equipment, Inc/Engelhard</p>		

1000 South Euclid Street
La Habra, CA 90631
Mike Kennedy /Ken Halsaver
(714) 879-3850 mkennedy@gweinc.com
(800) 404-9040

Contact:
Raman C. Patel, Senior A.Q. Eng
SCAQMD
(909) 396-2466 (Fax 909-396-33
rpatel@aqmd.gov

ATTACHMENT III
Authority to Construct
Standard Conditions

STANDARD PERMIT CONDITIONS

- {98} No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]
- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

SPECIFIC PERMIT CONDITIONS

- {1926} The catalytic oxidizer shall be installed and operating by March 21, 2003. [District Rule 4692]
- {1955} No visible emissions shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101]
- {1927} The catalytic oxidizer shall be installed and maintained in good operating condition, in accordance with manufacturer's specifications. [District Rule 4692]
- {1954} The catalytic oxidizer shall be cleaned, with materials that do not damage the catalytic coating, at least once per month, when the charbroiler is not operating. Such cleaning shall be performed in accordance with instructions in a maintenance manual, bulletin, or memo prepared by the manufacturer or distributor of the catalyst or catalytic oxidizer. A copy of the cleaning instructions must be maintained on site. [District Rule 2201]
- {1929} Emissions from this unit shall not exceed either of the following limits: 0.32 lb-VOC per 1,000 lb-meat cooked or 1.26 lb-PM10 per 1,000 lb-meat cooked. [District Rule 2201]
- {1951} Emissions from this unit shall not exceed any of the following limits: NO_x - 0.094 lb/MMBtu, CO - 0.021 lb/MMBtu, or SO_x - 0.0029 lb/MMBtu. [District Rule 2201]
- {1952} The amount of meat cooked shall not exceed XXX pounds per day. [District Rules 2201]
- {1953} Daily records shall be maintained of the amount of meat cooked. Monthly records shall be maintained of the amount of meat purchased. Also, records shall be maintained of the date of installation or changing of any catalyst, and date and time of cleaning or replacement of, and maintenance performed on, the catalyst. These records shall be retained on the restaurant premises for a period of at least five years and made available to the District upon request. [District Rules 2201 and 4692]

ATTACHMENT IV

Health Risk Assessment Table

DATE: October 8, 2002
 TO: PSD Staff
 FROM: Ester Davila, AQS Senior
 SUBJECT: Chain-Driven Charbroiler

The process rates listed in the table below represent the natural gas throughput limits used by chain-driven charbroilers which would result in a prioritization score less than one, at the associated receptor distance. Pursuant to District Policy, a health risk assessment is not required when the prioritization score is less than one.

If a facility proposes a project with process rates less than the limits found in the table below, a health risk assessment is not required.

Prioritization Score Less Than One Requirements for Chain-Driven Charbroiler*					
Maximum Fuel Usage				Nearest Receptor Distance	
MMscf/hr	MMBtu/hr	MMscf/yr	MMBtu/yr	Meters	Feet
0.04	40	1,140	1,140,000	≤ 99	≈ 325
0.17	170	4,500	4,500,000	≥ 100	≈ 328
1.10	1100	28,500	28,500,000	≥ 250	≈ 820
4.00	4000	103,000	103,000,000	≥ 500	≈ 1,640

*To be used with natural gas-fired chain-driven charbroilers only.

BIBLIOGRAPHY

Rules and Regulations		
Rule Number	Title	Last Updated
District Rule 2201	New and Modified Stationary Source Review Rule	04/25/2002
District Rule 4101	Visible Emissions	02/17/2005
District Rule 4102	Nuisance	12/17/1992
District Rule 4201	Particulate Matter Concentration	12/17/1992
District Rule 4692	Commercial Charbroiling	03/21/2002
District Rule 4801	Sulfur Compounds	12/17/1992

Miscellaneous		
Item	Title	Last Updated
Supplemental Form	Supplemental Application Form for Chain-Driven Charbroiler Operations	07/02
General Conditions	General Condition #s 14, 15, and 98	10/02

Reference Materials		
Source Name	Title	Last Updated
UCR CE-CERT Final Report and Source Tests	Further Development of Emission Test Methods and Development of Emission Factors for Various Commercial Cooking Operations (SCAQMD Contract No. 96027)	07/1997