

4/4/13

To: Interested Parties

From: Leonard Scandura, Permit Services Manager SJVAPCD

Re: Emission reduction Credits (ERCs) proposed to be used as offsets for Hydrogen Energy of California (HECA) facility near Tupman, CA
District project S-7616, 1121903

The District's Preliminary Determination of Compliance (PDOC) for the proposed facility dated 2/7/13 listed several ERCs (by ERC #) proposed to be used by HECA to provided emission offsets for the project as required by Rule 2201 – New and Modified Stationary Source Review.

At the 4/2/13 public hearing concerning the District's PDOC there was a request to make available a description of the specific ERCs proposed to be by HECA for emission offsets. This document provides that information.

Attached are the following:

Attachment A: Copies of ERCs proposed to be used by HECA emission offsets.

Attachment B: For each ERC# a listing of the pollutant, the facility and location where the emission reduction occurred, the method of generating the emission reduction, and the original District project #.

Attachment C: Copies of the application reviews that quantified emission reduction and resulted in the issuance of ERCs to the original owner of the ERCs.

Attachment A

Copies of ERCs proposed to be used by HECA emission offsets.



Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

Emission Reduction Credit Certificate S-3273-2

ISSUED TO: HYDROGEN ENERGY CALIFORNIA, LLC
 ISSUED DATE: November 23, 2009
 LOCATION OF REDUCTION: 6500 REFINERY AVE, BAKERSFIELD
 SECTION: NE27 TOWNSHIP: 29S RANGE: 27E

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
120,500 lbs	120,500 lbs	120,500 lbs	120,500 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

SHUTDOWN OF CATALYTIC CRACKER, FLUID COKER, & CO BOILER - 12/18/01

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.



Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

Emission Reduction Credit Certificate S-3275-5

ISSUED TO: HYDROGEN ENERGY CALIFORNIA, LLC
 ISSUED DATE: November 23, 2009
 LOCATION OF 6451 ROSEDALE HWY, AREA I, BAKERSFIELD
 REDUCTION:
 SECTION: NE27 TOWNSHIP: 29S RANGE: 27E

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
42,000 lbs	42,000 lbs	42,000 lbs	42,000 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

SHUTDOWN TAILGAS INCINERATOR 2007027A

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Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT


HEALTHY AIR LIVING

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-1058-2

ISSUED TO: HYDROGEN ENERGY CA LLC
ISSUED DATE: March 17, 2010
LOCATION OF REDUCTION: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
10,100 lbs	10,100 lbs	10,100 lbs	10,100 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Cold tank rebuild of flat glass manufacturing line (install SCR and scrubber, and convert from fuel oil to natural gas)

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Seyed Sadredin, Executive Director / APCO


David Warner, Director of Permit Services





San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT


HEALTHY AIR LIVING

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-1058-5

ISSUED TO: HYDROGEN ENERGY CA LLC
ISSUED DATE: March 17, 2010
LOCATION OF REDUCTION: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
24,500 lbs	24,500 lbs	24,500 lbs	24,500 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Cold tank rebuild of flat glass manufacturing line (install SCR and scrubber, and convert from fuel oil to natural gas)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Sayed Sadredin, Executive Director, APCO



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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT


HEALTHY AIR LIVING

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

Emission Reduction Credit Certificate S-3305-1

ISSUED TO: HYDROGEN ENERGY CALIFORNIA, LLC
 ISSUED DATE: January 11, 2010
 LOCATION OF REDUCTION: 20807 STOCKDALE HIGHWAY
 BAKERSFIELD, CA (MAJOR SS)
 SECTION: NE06 TOWNSHIP: 30S RANGE: 26E

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
14,625 lbs	14,625 lbs	14,625 lbs	14,625 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

SHUTDOWN ENTIRE STATIONARY SOURCE

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO



David Warner, Director of Permit Services





Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

Emission Reduction Credit Certificate S-3557-1

ISSUED TO: HYDROGEN ENERGY CALIFORNIA, LLC
ISSUED DATE: February 9, 2011
LOCATION OF REDUCTION: 20807 STOCKDALE HIGHWAY
 BAKERSFIELD, CA (MAJOR SS)
 SECTION: NE06 TOWNSHIP: 30S RANGE: 26E

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
11,437 lbs	11,438 lbs	11,438 lbs	11,437 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

SHUTDOWN ENTIRE STATIONARY SOURCE

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Soyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services





San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT


HEALTHY AIR LIVING™

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Emission Reduction Credit Certificate S-3605-1

ISSUED TO: HYDROGEN ENERGY CALIFORNIA, LLC
ISSUED DATE: April 12, 2011
LOCATION OF REDUCTION: 20807 STOCKDALE HIGHWAY
 BAKERSFIELD, CA (MAJOR SS)
 SECTION: NE06 TOWNSHIP: 30S RANGE: 26E

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
7,937 lbs	7,937 lbs	7,937 lbs	7,937 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

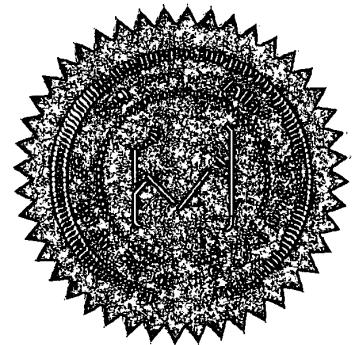
SHUTDOWN ENTIRE STATIONARY SOURCE

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO



David Warner, Director of Permit Services



Attachment B

For each ERC# a listing of the pollutant, the facility and location where the emission reduction occurred, the method of generating the emission reduction, and the original District project #.

The ERCs proposed to be used by HECA for emission offsets were originally generated by the emission reduction projects listed below. However the ERC #s owned by HECA have different ERC #s than those listed in the original application review due to subsequent transactions involving the original ERCs.

ERC #	pollutant	location of reduction	method of reduction	orig proj #
S-3273-2	NOx	Alon Refinery, Bakersfield	shutdown of cat cracker	870731
S-3275-5	SOx	Alon Refinery, Bakersfield	shutdown of tail gas incinerator	920024
C-1058-2	NOx	Guardian Industries, Kingsburg	add controls to glass furnace	1063337
C-1058-5	SOx	Guardian Industries, Kingsburg	add controls to glass furnace	1063337
S-3305-1	VOC	Frito Lay (old Continental Carbon facility), Bakersfield	shutdown facility	920416
S-3557-1	VOC	Frito Lay (old Continental Carbon facility), Bakersfield	shutdown facility	920416
S-3605-1	VOC	Frito Lay (old Continental Carbon facility), Bakersfield	shutdown facility	920416

Attachment C

Copies of the application reviews that quantified emission reduction and resulted in the issuance of ERCs to the original owner of the ERCs

Attachment C-1 (pages 12 – 41):	ERC S-3273-2 original application review
Attachment C-2 (pages 42 - 76):	ERC S-3275-5 original application review
Attachment C-3 (pages 77 – 114):	ERCs C1058-2 and C-1058-original application review
Attachment C-4 (pages 115 – 144):	ERCs S-3305-1, S-3557-1, and S3605-1 original application review

Attachment C-1

**ERC S-3273-2 original application review
original project # 870731**

Douglas W. McCormick

A. G. E. #

Date Started: 7 January 1988

Date Completed: 14 January 1988

REVIEWED BY J. S. [Signature], [Title]

Texaco Refining & Marketing Inc.

P. O. Box 1476

Bakersfield, CA. 93302

ATTN: Mr. L. E. Perrier

Plant Manager

Phone: (805) 326-4265

EMISSIONS SUMMARY PG. 17

Application #2: 2007130/101, '130/201,

'130/401, '130/501, '130/601

Date Received: 31 July 1987

I Project Description:

BANK ACTUAL HISTORICAL EMISSION REDUCTIONS RESULTING FROM SHUTDOWN OF THERMOF. CATALYTIC CRACKING UNIT, FLUID COKE, AND CO BOILER ON FLUID COKE EXHAUST (PSTIO 2007130, 2007134, AND 2007148 TO BE SURROUNDED)

Texaco Refining and Marketing Inc. is requesting five Banking Certificates for Actual Historical Emission Reduction Credits resulting from the shut down of equipment in Area 2 of their Bakersfield plant (the old Tosco refinery). The equipment shut down includes all process equipment associated with the Area 2 TCC unit, the Area 2 Coker, and the Area 2 CO boiler. As stated in Texaco's application, this equipment was last operated by Tosco Corp. in Nov. 1983, however, Permits to Operate for this equipment have been maintained by TEXACO REFINING & MARKETING, INC. AND THE EQUIPMENT is reputed to be in operable condition.

I. Project Description Cont:

Pursuant to District policy: "A source that renews its permits and keeps them current, has maintained all equipment in operating condition, has not removed, modified or disassembled any equipment and has a legal right to operate same shall be considered an operating source."

Since the permits and equipment in question have been maintained in accordance with this policy, these applications are considered as timely. ^{UNDER RULE 210.3 SECTION C.4.(b)} Therefore, Texaco has requested banking certificates for the following actual historical emission reductions:

PM₁₀ - 36,17 lbm/day, SO₂ - 1,621.23 lbm/day
 NO₂ - 2,791.38 lbm/day, H₂O - 1,431.68 lbm/day
 CO - 25,918.96 lbm/day

II. Applicable Rules and Regulations:

Rule 210.3 section C.2.(b) Ineligible Reductions - shutdown where product replaced by another stationary source.
 section C.3. Only reductions beyond RACT bankable for shutdowns.
 section C.4.(b) Application to be filed within 90 days of date reduction occurred.
 section D.1.(b) Reduction credit in validation criteria

- (1) has, in fact, actually occurred
- (2) is surplus, not previously required or used,
- (3) will be permanent,
- (4) can be quantified,
- (5) can be enforced.

2007130/101 + 4 others

(3)

III. Equipment Listing:

A. Thermafor Catalytic Cracking (TCC) Unit: (2007130)

1. Four compressor I e Engines. (330 hp each) scrubbed fuel gas fired
2. Four process heaters 17-H-11 Feed heater, 584 MM Btu/hr, Dual Fuel Fired
17-H-12 Combustion air heater, 6.4 MM Btu/hr, Scrubbed Fuel gas fired
3. Two fired kilns 17-H-13 Lift air heater, 6.4 MM Btu/hr, " " "
37.2 MM Btu/hr each, oil fired 17-H-61 Feed Preparation heater, 14.2 MM Btu/hr " "
4. Catalyst Lift Scrubber
5. Assorted valves and Flanges

B. Fluid Coker: (2007134)

1. Fluid coker w/Ducon venturi scrubber. exhausting through CO Boiler, (2007148)
60x10⁶ Btu/hr oil fired burner
2. Coke storage tank w/ABE Mark III fabric collector
3. Five compressor I e Engines (1-300 hp #4-330 hp) scrubbed fuel gas fired
4. Assorted valves and Flanges

C. CO Boiler: (2007148)

2.16 MM Btu/hr. DUAL FUEL FIRED FIVE CITY MODEL 42
S.A.O.A.-M.J.-DAR BURNER. w/ CO GAS VORTEX SECTION

* RESTRICTED TO SCRUBBED FUEL GAS FIRING, UNABLE TO
COMPLY WITH EMISSION LIMITS WHEN OIL FIRED.

IV. ERC Review:A. Section C. 2.i

This section identifies emission reductions which cannot be validated as ERCs, and therefore, are not eligible for the receipt of Banking Certificates.

(The applicant is proposing the permanent shutdown of three source operations within an existing stationary source. The emission reductions represented by shutdown of the Fluid Coker are not eligible for banking under 210.3 C.2(b) because the products produced by the fluid coker - fuel gas, naphthas, gas oils, residual oil, and coke - are now being produced by TRM at their recently acquired Gibson St. delayed coking unit) because in fact TRM is operating 1 coking operation where previously 2 coking operations were in use.

B. Section C. 3.

This section states that "Emission reductions shall be calculated in a manner not inconsistent with Rule 210.1. An ERC for a source operation shutdown shall be granted only in an amount equal to the emissions which would have occurred from the specific source if Reasonably Available Control Technology (RACT) for that source category had been applied."

Rule 210.1 allows the use of any consecutive two year period out of the five years preceeding the date of the application in calculating a source operations actual historical emissions, if the APCD determines such alternate period is more representative of normal operations.

IV. E.R.C. Review Cont.

B. Section C.3. Cont.

A review of 40 C.F.R. Part 51 Appendix B and District files reveals that RACT for the equipment to be shut down is defined as follows:

1. Valves and Flanges:

An effective inspection and maintenance program in accordance with the requirements of Rule 414.1

2. Compressor F.C. Engines:

Use of PUC quality (20.2 gr. S/100 scf) natural gas as fuel with proper adjustment of air to fuel ratio.

B. Fuel Burning Equipment:

d. Particulate Matter: Use of natural gas or distillate

fuel oil with a maximum emission factor of 2 lbm/1000 gal
(CAP-92 EXTERNAL COMBUSTION UNCONTROLLED AIR POLLUTION FACTOR) (0.015 lb/MBtu)

b. Sulfur Compounds: Limit sulfur content in fuel burned or

Treat flue gas. Suggested fuel sulfur limits are; 0.3% S by weight for residual oil and 10 gr H₂S/100 scf fuel gas

(40 C.F.R. Part 51 App. B sec. 3.1)

c. Oxides of Nitrogen: Use of low NOx burner assemblies

achieving the following emission factors; 0.11 lbm/MIN. BTU

for gas combustion and 0.30 lbm/MIN. BTU for fuel oil

(i.e. 25% NOx reduction resulting from excess air control)

d. Hydrocarbons: clean efficient combustion.

e. Carbon Monoxide: clean efficient combustion.

IV ERE Review Cont.:

B. Section C. 3. Cont.:

4. TCC Catalyst Lift Scrubber:

Effective mist eliminator

TCC kiln - Complete secondary combustion of off gas in CO boiler or fume incinerator

5. Fluid Coker:

Complete secondary combustion of off gas in CO boiler

6. CO Boiler:

Use of ^{low sulfur} gas as fuel and low NOx burner assemblies

7. Coke storage Tank:

Ventilated through properly designed fabric collector

IV EBC Review, Cont.:

C. Section C. 4.(b):

This section requires an applicant to file an application for a banking certificate no more than 90 days after such reduction occurs. The APCO has determined that these applications are timely because the permits to operate this equipment are currently valid and the equipment is capable of being operated. THE DATE THE REDUCTIONS ARE DEEMED TO HAVE OCCURRED IS THE DATE THE PERMITS TO OPERATE ARE SURRENDERED TO THE DISTRICT.

D. Section D.1. b.

This section requires the Control Officer to determine the following:

1. The emission reductions have, in fact, actually occurred;

The applicant has submitted summaries and ^{partial copies of} refinery operational records pertaining to fuels consumption, fuel quality, unit throughputs and production for the process units in question. Since this equipment is no longer operating (verified by District inspection) and since the permits to operate will be surrendered, it is concluded that emissions reductions will have occurred by the time the banking certificates are issued.

IV ERE Review Cont.:

1. Section D. 1, b. Cont.:

2. That The ERE's Are Surplus:

A review of District files reveals that the shutdown of the TCC unit, the fluid coker and the CO boiler were not required by law and that the resulting emission reductions have not been utilized as tradeoffs or offsets for any other projects. Therefore, it is concluded that resulting emission reductions are surplus.

3. That the ERE's Are Permanent:

Texaco Refining and Marketing has indicated that the Permits To Operate for the TCC unit, the Fluid Coker and the CO Boiler will be surrendered and the equipment rendered inoperable upon issuance of the ERE banking certificates. Therefore, such emission reductions are considered to be permanent.

IV. ERC Review Cont.B. Section D.1. b. Cont.4. Can The ERCs be Quantified?

The applicant's submittal pertaining to actual fuel consumption, fuel quality, unit throughput and production for these process units along with source test data and the use of AP-42 emission factors allows quantification of emissions reductions calculated in a manner not inconsistent with the requirements of Rule 210.1 section 4.

5. Can The ERCs be Enforced?

Surrender of the Permits to operate and rendering the equipment inoperable provides the A.P.C. with the legal ability to insure the TCC Unit, the Fluid Coker, and the CO Boiler are not operated and thus are not the source of air contaminant emissions.

V. EPC Emission Calculations:

In accordance with the requirements of Rule 210.3 section e.3 and Rule 210.1 section 4. B. Texaco Refining And Marketing has submitted the following information: a) monthly gas reports giving gas consumption of TCC Heaters, TCC compressors and Coker compressors for July 1982 - August 1983 (gas consumption of this equipment for Sept. 1983 - October 1983 was estimated based on average heat input to TCC heaters per bbl of feedstock and average fuel gas flow to compressors per bbl of feed stock, b) monthly gas quantities reports (giving heating values and H₂S concentrations, c) Representative operating summaries for August 1983 (giving # of burners on TCC unit which were oil fired), d) MR-05 Final Unit Yield Report, "Refinery Operational Report" (giving CO boiler fuel sulfur content, fuel consumption and steam production), e) TCC burner capacity information, f) Final unit yield Report for TCC Unit and Fluid Coker (giving actual charge throughputs in bbl/month), g) summary of valve and flange count determination, h) equipment listing by permit unit and process flow diagrams for the TCC Unit and the Fluid Coker, i) a representative TCC kiln gas analysis, j) summary page of TCC Catalyst Lift Scrubber Test Data for 8/3/76, k) summary page of CO Boiler Source test data conducted on 9/22/82 and, l) copies of relevant AP-42 Emission Factors.

Since the equipment in question ceased operating in October 1983 no other operational data was submitted by Texaco.

V. ERC Emission Calculations Cont.:

The data submitted represents operating records for 141 days out of the five years preceding the date of application (July 1982 - July 1987). A review of this data reveals that the time period representing normal operation of the facility is July 1982 - June 1984, therefore, emission reductions will be average over this time period based on the 141 days of actual operation documented by the applicant within this time frame.

PLEASE SEE
ATTACHMENT

A. TCC Unit:

1. Gas-Fired Compressor Engines:

Ref. EPA-4P-42 Table 9.1-1 Emission Factors For Petroleum Refineries Gas Fired Compressor Engines, Reciprocating

	PM ₁₀	SO ₂	NO ₂	HC	CO
m lbm/10 ⁶ ft ³	neg	2000S	3400	1400	430

where S = gas sulfur content in lbm/10³ s.ft³

C. BACT sulfur level (see note pg. 12)

$$SO_2$$

$$(2000) \left(\frac{0.2 \text{ gr H}_2\text{S}}{100 \text{ scf}^3} \right) \left(\frac{1.0}{1.0} \right) \left(\frac{1 \text{ lb}}{7000 \text{ gr}} \right)$$

$$0.57 \text{ lbm SO}_2 / 10^6 \text{ ft}^3$$

IV ERE Emission Calculations Cont.

A. FCC Unit Cont.

1. Gas-Fired Compressors Engines : RECIPIRATING

Average daily fuel consumption = 283,056.4 ft³/day #

Average daily heating value = 1273.3 BTU/ft³

Average fuel gas H₂S content = 0.274 gr/100 ft³

⇒ 0.0004 lbm/1000 scf

(Assumed 99% lean in MEA Assurance is ACTUAL HISTORICAL AVG. H₂S CONTENT)

Adjusted Emission Factors

Adjustment for heating value = $\left(\frac{1273.2 \text{ BTU}}{\text{ft}^3}\right) \left(\frac{\text{ft}^3}{1050 \text{ BTU}}\right) = 1.21257$
 (per notes at f, Table 3.2-1 and ref, Table 3.1-1 AR42)

$m = (EF)(283,056.4 \text{ ft}^3/\text{day}) \frac{1.21257 \text{ scf} \cdot 21050 \text{ BTU/scf}}{\text{scf} \cdot 1273.2 \text{ BTU/scf}}$
 $M = (EF) 0.343 \times 10^6 \text{ eq. scf}^3/\text{day}$

	PM ₁₀	SO ₂	NO ₂	HCl	CO
⇒ m lbm/day =	Reg.	0.20	1166.97	480.52	147.59

* NOTE:

BAET for this equipment is the use of natural gas with a sulfur content of 0.2 gr/100 ft³, therefore, no higher emission factor may be used to calculate the bankable emission reduction from these compressors.

Actual fuel consumption for July 1982 - Aug 1983 (averaged over a full 2 year period (ie 17 months x Avg Fuel MONTH + estimated consumption for Sept - Nov '83 / 24 MONTHS = Avg Fuel MONTH for 2 yr period))

IV ERC Emission Calculations Cont.

A. TCC Unit Cont.

2. TCC Heaters Gas-Fired Emissions:

Ref. EPA -AP-42 Table 1.4-1 Uncontrolled Emission Factors For Natural Gas Combustion, Industrial Boilers

	PM ₁₀	SO ₂	NO ₂	HC	CO
EF lbm/10 ⁶ ft ³ =	1	0.6	105	2.8	35

*
SIE RACT
EMISSION FACTOR
BELOW

Average Daily Fuel Consumption: 759,622.7 sft³/day

Average Daily Heating Value: 1314 BTU/sft³

Average Fuel Gas H₂S Content: 1.67 gr/sft³

Fuel Gas H₂S Content BACT Level = 0.10 gr/sft³

RACT SO₂ Emission Factor

$$\Rightarrow EF_{SO_2} = \left(\frac{0.1 \text{ gr}}{5 \text{ ft}^3} \right) \left(\frac{16}{7000 \text{ gr}} \right) \left(\frac{64 \text{ lbm } SO_2}{34 \text{ lbm } H_2S} \right) (10^6) = 26.890756 \text{ lbm}/10^6 \text{ ft}^3$$

Adjustment for Heating Value = $\frac{1314}{1050} = 1.251429$

$$\Rightarrow \dot{m} = (EF)(759,622.7 \text{ sft}^3/\text{day}) \left(\frac{1.251429 \text{ sft}^3/1050 \text{ BTU}}{1 \text{ sft}^3/1314 \text{ BTU}} \right)$$

$$\rightarrow \dot{m} = (EF)(0.9506 \times 10^6 \text{ sft}^3/\text{day})$$

	PM ₁₀	SO ₂	NO ₂	HC	CO
\dot{m} in lbm/day =	0.95	25.56	99.81	2.66	33.27

#

Actual fuel consumption for July 1982 - Aug 1983 ^{+ estimated fuel consumption for Sept - Nov 83} averaged over a full 2 year period

* BACT Emission Factor for 25% control due to regulating excess air

V. ERE Emission Calculations Cont.:

A. TCC Unit Cont.:

3. TCC Heaters Oil Fired Emissions:

Ref. EPA-AP-42 Table 1.3-1 Uncontrolled Emission Factors

For Fuel Oil Combustion, Industrial Boilers

	PM ₁₀	SO ₂	NO _x *	HC	CO
E.F. lbm/10 ³ gal =	105 + 3	1575	45	0.28	5

Average Daily Fuel Consumption: 924.80514 gal/day[#]

Average Fuel Sulfur Content: 0.859705 % by weight

Fuel Sulfur Content BACT level: 0.30 % by weight

$m \text{ lbm/day} = (E.F.)(\text{Fuel consumption})$

	PM	SO ₂	NO _x	HC	CO
$\Rightarrow m \text{ lbm/day} =$	5.55	43.56	41.62	0.26	4.62

* BACT emission factor for 35% control due to regulating excess air

CALCULATED OIL CONSUMPTION BASED ON # OF BURNERS OPERATING AND RATED CAPACITY OF BURNERS REQUIRED BY DOWNTIME (17 WNTU/LE MONTH)

II. ERC Emission Calculations Cont.

A. TCC Unit Cont.

4. TCC Kiln Emissions:

Ref. EPA-AP-42 Table 9.1-1 Emission Factors For Petroleum Refineries, Moving Bed Catalytic Cracking Units

	PM ₁₀ w/o catalyst	SO ₂	NO ₂	H ₂ O	CO
EF 1lbm/10 ³ bbl feed = Lift scrubber No separate PM	60	60	5.0	87.0	3800

Emissions Validated for kiln #

Average daily throughput = 6,485,819 bbl/day

	PM	SO ₂	NO ₂	H ₂ O	CO
⇒ m 1lbm/day = sec catalyst lift scrubber	389.15	32.43	564.27	24,646.11	

5. TCC Catalyst Lift Scrubber:

From District witnessed compliance test conducted on 8/3/76 PM emissions from the catalyst lift scrubber were determined to be 1.9 lbm/550 bbl feed = 3.45 lbm/10³ bbl feed

	PM	PM ₁₀ *
⇒ m 1lbm/day =	22.41	22.19

Actual TCC unit feed throughput for July 1982 - Nov. 1983 averaged over a full 2 year period.

* Ref. Interim Report to state/local APC Agencies of Particle Size Distributions and Emission Factors (Including PM₁₀) Table C.2-3 Typical Control Efficiencies of Various PM Control Devices: Venturi Scrubber = 99% @ 10 microns or less

IV ERE Emission Calculations Cont.

B. Coker Compressor Emissions:

Ref. EPA-AP-42 Table 9.1-1 Emission Factors For Petroleum Refineries

Gas Fired Compressor Engines, Reciprocating

	PM ₁₀	SO ₂	NO _x	H.C.	CO
m lbm/10 ⁶ ft ³ =	Neg.	2000S	3400	1400	430

where S = gas sulfur content in lbm/1000 ft³

Average daily fuel consumption: 206,509.2 ft³/day #

Average daily heating value: 1273.2

Average fuel gas H₂S content: 2.74 gr/100 ft³ = 0.0039 $\frac{\text{lb}_S}{1000 \text{ft}^3}$

Adjustment factor for heating value: $\frac{1273.2}{1050} = 1.21257$

Fuel gas H₂S content BACT level = 0.2 gr/100 ft³ = 0.0003 $\frac{\text{lb}_S}{1000 \text{ft}^3}$

$$m \text{ lbm/day} = (EF)(206,509.2 \text{ ft}^3/\text{day}) \left(\frac{1.21257 \text{ ft}^3 1050 \text{ Btu gas}}{1 \text{ ft}^3 1273.2 \text{ Btu gas}} \right)$$

$$m \text{ lbm/day} = (EF) \times (0.2065 \times 10^6 \text{ ft}^3/\text{day})$$

	PM ₁₀	SO ₂	NO _x	H.C.	CO
⇒ m lbm/day =	Neg.	0.12	851.38	350.57	107.68

* BACT level based on AP-42 emission factor for SO₂

See note pg 11

II ERC Emission Calculations cont.

C. CO Boiler Emissions:

Ref, EPA - AP-42 Table 1.4-1 Uncontrolled Emission Factors
For Natural Gas Combustion, Industrial Boilers

	PM ₁₀	SO ₂	NO ₂	HC	CO
EF lbm/10 ⁶ ft ³ =	1	0.6 see BACT EM.FACTA BELOW	1.40 SEE SOURCE TESTING FACTORY	2.8	35 SEE SOURCE TESTING FACTORY

Emission factors based on 9/22/82 compliance testing

SOURCE TEST
EMISSION FACTORS

	NO ₂	CO
EF lbm/10 ⁶ BTU =	0.25	0.44

Average Daily Fuel Consumption = 1,694,497.26 ft³/day

Average Daily Heating Value = 1314 BTU/scf

Average Fuel Gas H₂S Content = 1.672375 gr/scf

Fuel Gas H₂S Content BACT level = 0.10 gr/scf

SO₂
BACT EMISSION
FACTOR

= EF SO₂ = $\left(\frac{0.1 \text{ gr}}{\text{scf}}\right) \times \left(\frac{1 \text{ lb}}{7000 \text{ gr}}\right) \times \left(\frac{64 \text{ lbm SO}_2}{34 \text{ lbm H}_2\text{S}}\right) (10^6) = 26.890756 \text{ lbm}/10^6 \text{ ft}^3$

BACT SO₂ EMISSION FACTOR

Average Daily heat input = $\left(\frac{1,694,497.26 \text{ ft}^3}{\text{day}}\right) \times \left(\frac{1314 \text{ BTU}}{\text{ft}^3}\right) = 2,226.57 \times 10^6 \text{ BTU/Day}$

Adjustment factor for heating value = $\frac{1314}{1050} = 1.251428571$

$M \frac{\text{lbm}}{\text{day}} = \text{EF} \frac{\text{lbm}}{10^6 \text{ ft}^3} \times 1,694,497.26 \frac{\text{ft}^3}{\text{day}} \times \frac{2,226.57 \times 10^6 \text{ BTU}}{1 \text{ scf} \times 1314 \text{ BTU/scf}} \times \text{CO}$

$M \frac{\text{lbm}}{\text{day}} = \left(\text{EF} \frac{\text{lbm}}{10^6 \text{ ft}^3}\right) \times (2.121 \times 10^6 \frac{\text{ft}^3}{\text{day}})$ for PM, SO₂ + HC

The SO₂ emission factor has been calculated for BACT and NO₂ and CO emission factors should be those documented by compliance testing.

IV. ERC Emission Calculations Cont.

C. CO Boiler Emissions:

Appropriate Emission Factors

	PM ₁₀	SO ₂	NO ₂	HC	CO
EF lbm/10 ⁶ ft ³ =	1.2	26.89		2.8	
lbm/10 ⁶ BTU =			0.25		0.44

$\dot{m} = (EF \text{ lbm}/10^6 \text{ ft}^3) (2.121 \times 10^6 \text{ ft}^3/\text{day})$ or $(EF \text{ lbm}/\text{MMBTU}) (2,226.57 \text{ MMBTU}/\text{day})$

	PM ₁₀	SO ₂	NO ₂	HC	CO
$\Rightarrow \dot{m} \text{ lbm}/\text{day} =$	2.12	57.03	556.64	5.94	979.69

D. Valve and Flange Emissions:

Ref. EPA-AP-42 Table 9.1-2 Uncontrolled Fugitive Emission Factors For Petroleum Refineries

Emission Source lbm/hr - source

Pipeline Valves - Gas Service	0.059
Light Liquid Service	0.024
Heavy Liquid Service	0.0005
Flanges - All streams	0.00056

II ERC Emission Calculations Cont.D. Valve and Flange Emissions Cont.Valve & Flange Count

Type of Source	TCC Unit	Fluid Coker	Total
Valves - Gas Service	125	161	286
Light Liquid	38	22	60
Heavy Liquid	49	85	134
Flanges	318	626	944

Applicant proposed control efficiency resulting from inspection and directed maintenance program (as referenced by EPA-600/52-080-085 Assessment of Atmospheric Emissions from Petroleum Refining Table 2 pg 5)

$$\therefore m = (EF)(\# \text{ sources})(24 \text{ hr/day})(1 - 91\%) (491 \text{ day}/730 \text{ days})^*$$

Type of Source	Controlled Emissions lbm/day
Valves - Gas Service	= 24.51
Light Liquid	= 2.09
Heavy Liquid	= 0.10
Flanges	= 0.77
<u>Total</u>	<u>= 27.47</u>

*

Adjustment to 2 year average when source operated 491 days

V Emission Calculations Cont.

E. Summary of Actual Historical Emission Reductions:

Emission Source

		PM ₁₀	SO ₂	NO ₂	HC	CO
pg (10)	TCC Unit Compressors Engines	0.00	0.20	1166.97	480.52	147.59
pg (12)	TCC Unit Heaters - Gas Fuel	0.95	25.56	99.81	2.66	33.27
pg (14)	TCC Unit Heaters - Oil Fuel	5.55	43.56	41.62	0.26	4.62
pg (15)	TCC Unit Kiln	0.00	389.15	32.43	564.27	24,646.11
pg (16)	Catalyst Lift Scrubber	22.19	0.00	0.00	0.00	0.00
pg (18)	Coker Compressors Engine	0.00	0.12	851.38	350.57	107.68
pg (17)	CO Boiler	2.12	57.03	556.64	5.94	979.69
	Fugitive Emissions	0.00	0.00	0.00	27.47	0.00
Total Actual ERCs =		30.81	515.62	2748.85	1431.69	35,918.96

VI Conclusion:

Texaco Refining and Marketing has documented in accordance with the requirements of Rule 210.3 that actual historical emission reductions have occurred at their Bakersfield plant. Therefore, Banking Certificates may be issued in the amounts calculated.

TCC UNIT HEATERS - OIL FIRED ERC SUMMARIES ON THIS PAGE, CALCULATED ON PG (13) AND INCLUDED (IN CONCLUSION) ON THIS PAGE ARE NOT VALIDATED PURSUANT TO RULE 210.3 SECTION D, (1)(b) AND WILL NOT BE INCLUDED IN BANKING CERTIFICATES ISSUED UNLESS, PRIOR TO ISSUANCE, TRMI SUBMITS EVIDENCE, TO THE SATISFACTION OF THE APCD, TO VALIDATE THE ERC CALCULATED HEREIN.

VII Recommendations:

Issue Actual Historical Emission Reduction Banking Certificates for the amounts summarized on page 19.

Include a condition that Permits to Operate #s 2007 130 (rec unit), 2007 134 (Fluid Coker) and 2007 148 (CO Boiler) be surrendered and all associated equipment shall be rendered inoperable for issuance of the banking certificate.

2007130/101 - '130/501

STANDARD OUTLINE FORM

PROCESSING ENGINEER:

Douglas W. Mc Cormick
A S E II

APPLICANT:

Texaco Refining and Marketing

PROPOSED PROJECT:

Five emission reduction banking certificate resulting from the
surrender of Permits to Operate for the Area 2 tee unit, FE unit
and the EO boiler

II. APPLICABLE RULES AND REGULATIONS:

- ___ A. Rule 202 (exemptions) - section(s) providing exemption(s):

- ___ B. Rule 210.1 (New Source Review) - applicable section(s):
 - ___ section 2.A.2 (compliance certification)
 - ___ section 3.B. (section 5.A applies)
 - ___ section 3.C.1., 2. (section 5.B. applies)
 - ___ section 3.D.1., 2. (section 5.B. exemptions)
 - ___ section 3.E. (cotton gins)
 - ___ section 5.A. (BACT)
 - ___ section 5.B. (LAER)
 - ___ section 5.B. (modeling)
 - ___ section 5.B. (offsets)
 - ___ section 5.B.4. (offset ratio: ___ 1.2:1 ___ 1.5:1 or
___ modeled ratio of ___:1)
 - ___ section 5.B.6. (non-standard offset)
 - ___ section 5.B.11. (interpollutant offsets)
 - ___ section 6.B. (permitting of previously permit-exempt equip.)
 - ___ section 7.A. (review period extension)
 - ___ section 7.B. (public notice)
 - ___ section 8 (subject to DEC review)
- C. Rule 210.3 (emissions reduction banking)
- ___ D. Rule 401 (visible emissions)
- ___ E. Rule 404 (valley basin PM concentration)
- ___ F. Rule 404.1 (desert basin PM concentration)
- ___ G. Rule 405 (___ valley basin ___ desert basin PM emission rate)

II. APPLICABLE RULES AND REGULATIONS CONT.:

- ____ H. Rule 406 (Portland cement kiln PM emission rate)
- ____ I. Rule 407 (sulfur compounds)
- ____ J. Rule 407.1 (disposal of solid and liquid waste)
 ____ section a. ____ section b. ____ section c. ____ section d.
- ____ K. Rule 407.2 (combustion contaminants)
- ____ L. Rule 408 (valley basin SO_x, NO_x, and PM emission rates)
 ____ exemption granted
- ____ M. Rule 409 (desert basin SO_x, NO_x, and PM emission rates)
- ____ N. Rule 410 (organic solvents)
 ____ section a. ____ section b.
 ____ section c. ____ section h. (exemption)
- ____ O. Rule 410.2 (disposal and evaporation of solvents)
- ____ P. Rule 410.3 (degreasing operations)
 ____ section b. ____ section c. ____ section d. (exemption)
- ____ Q. Rule 410.4 (surface coating)
 ____ section b. ____ section c. ____ section d. (exemption)
- ____ R. Rule 410.6 (perchloroethylene dry cleaning systems)
 ____ section b. ____ section d. (exemption)
- ____ S. Rule 410.7 (graphic arts)
 ____ section d. ____ section g. (exemption)
- ____ T. Rule 411 (storage of petroleum distillates or light crude)
 ____ section I.A.1. (welded tank/metallic shoe primary seal)
 ____ section I.A.2. (welded tank/resilient toroid primary seal)
 ____ section I.A.3. (riveted tank/metallic shoe primary seal)
 ____ section I.A.4. (closure device equivalent to I.A.1.)
 ____ section I.B. (fixed roof with internal floating roof)
 ____ section I.C. (fixed roof with vapor control system)
 ____ section VIII (emergency standby exemption)
 ____ vapor pressure exemption
 ____ size exemption
 ____ throughput exemption
- ____ U. Rule 411.1 (steam drive wells)
 ____ cyclic well exemption
 ____ section IV.B. (wellhead temperature increase exemption)
 ____ section IV.C. (pseudo-cyclic well exemption)
- ____ V. Rule 412 (gasoline storage tanks)
- ____ W. Rule 412.1 (refueling of motor vehicles)
- ____ X. Rule 413 (organic liquid loading)
 ____ non-"VOC-liquid" exemption
 ____ vapor pressure exemption
 ____ throughput exemption

II. APPLICABLE RULES AND REGULATIONS CONT.:

- ____ Y. Rule 414 (wastewater separator)
 - ____ section b.
 - ____ section c. (exemptions)

- ____ Z. Rule 414.1 (valves, pressure relief valves, and flanges)
 - ____ sections b., c., d., e., and f.
 - ____ section g. (exemption)

- ____ AA. Rule 414.2 (vacuum producing devices of systems)

- ____ BB. Rule 414.3 (refinery process unit turnaround)

- ____ CC. Rule 414.5 (pump and compressor seals)
 - ____ sections c., d., e., and f.
 - ____ section i. (exemption)

- ____ DD. Rule 414.6 (heavy oil test station)

- ____ EE. Rule 415 (reduction of animal matter)

- ____ FF. Rule 418 (incinerator burning)

- ____ GG. Rule 419 (nuisance)

- ____ HH. Rule 422 (New Source Performance Standards)
 - ____ subpart _____
 - ____ subpart _____

- ____ II. Rule 423 (National Emission Standards for Hazardous Air Pollutants)

- ____ JJ. Rule 424 (sulfur compounds from oil field steam generators)

____ section B.	____ section D.
____ section E. (exemption)	____ section F. (exemption)
____ size exemption	____ "non-existing" steam generator

- ____ KK. Rule 425 (oxides of nitrogen from oil field steam generators) (Western Kern County Fields)

____ section B.	____ section C.
____ section E.	____ section F. (exemption)
____ size exemption	____ "non-existing steam generator"

- ____ LL. Rule 425.1 (oxides of nitrogen from oil field steam generators) (Central Kern County Fields)

____ section B.	____ section C.
-----------------	-----------------

- ____ MM. Section 41700 of California Health & Safety Code (risk assessment)

- ____ NN. Other applicable requirements:
 - _____
 - _____
 - _____
 - _____

2007 130/101 - 130/601

Rule 202 Exempt Equipment:

Air Contaminants to be Considered:

PM₁₀, SO₂, SO₄, NO₂, H₂, CO

Possible Emission Points:

NA

NSR Considerations:

NA

Air Pollution Control Equipment Design Review:

NA

Project is to determine if the requirements of Rule 210.3 have been satisfied and to calculate the bankable emission reductions.

~~SINCE ACTUAL HISTORICAL EMISSIONS IN PERIOD PRECEDING DATE~~
~~REDUCTIONS BROUGHT ABOUT (DATE P to O SURRENDERED) ARE ZERO, ONLY SLC~~
~~ERC'S MAY BE ELIGIBLE FOR BANKABLE CERTIFICATES. (APPLICATION FOR "ACTUAL HISTORICAL~~
~~ERC'S ARE NOT TYPICAL UNDER 210.3 F.A.4.B)) FOR NON-ATTAINMENT AIR CONTAMINANTS, (cf 210.3.C.2)~~
~~"BASELINE EMISSIONS" (cf 210.3 B.3) WOULD BE ACTUAL HISTORICAL EMISSIONS (cf 210.4.B) ~~AND~~~~
~~ONLY REDUCTIONS BEYOND RACT ARE BANKABLE (cf 210.3 C.3) FOR~~ **TEG**
~~ATTAINMENT AIR CONTAMINANTS (SO₂, SO₄ & CO)~~ **1/5/98**

ENGINEERING EVALUATION OF APPLICATIONS FOR AUTHORITY TO CONSTRUCT

BREAK DOWN OF PROCESSING TIME

Name of Company: Texaco Refining and Marketing Inc.

Description of Project: 5 EBC Banking Applications

Receipt Date of Application: 31 July 1987

Processing Dates, Including Preliminaries: _____

<u>PROCESSING ACTIVITY:</u>	<u>ACTIVITY TIME (HRS)</u>	<u>INITIAL</u>
Initial Contact: ___ telephone ___ in person:	_____	_____
$\frac{3}{27} - \frac{1}{4}$	<u>0.25</u>	<u>APM</u>
Preliminary Review:		
$\frac{3}{27} - \frac{1}{4}, \frac{1}{5} - \frac{3}{4}, \frac{1}{7} - \frac{3}{14}$	<u>1.75</u>	<u>APM</u>
Organization/Familiarization:		
$\frac{3}{27} - \frac{1}{2}, \frac{1}{7} - \frac{1}{2}$	<u>2.00</u>	<u>APM</u>
Project Description/Schematic/Equip. Listing:		
$\frac{3}{27} - \frac{1}{4}, .$	<u>0.25</u>	<u>APM</u>
Listing of Applicable Rules:		
$\frac{1}{8} - \frac{6}{12}$	<u>6.50</u>	<u>APM</u>
Rule 210.3 Compliance Review		
$\frac{1}{8} - 1, \frac{1}{11} - 6, \frac{1}{12} - 2\frac{1}{2}, \frac{1}{13} - 3\frac{1}{2}, \frac{1}{14} - 1$	<u>14.00</u>	<u>APM</u>
Calculation of ERC's		
Air Quality Impact Assessment Review:	_____	_____
Preparation of Emission Profiles:	_____	_____
$\frac{3}{27} - \frac{1}{3/4}, \frac{1}{8} - \frac{1}{4}$	<u>2.00</u>	<u>APM</u>
Preparation of Written Request for Info.:		
Telephone and Verbal Request for Info.:	_____	_____
$\frac{3}{27} - 2$		
Reworking of Application Due to Change:	_____	_____
$\frac{1}{14} - 1$	<u>1.00</u>	<u>APM</u>
Preparation of Rough Draft A's to C:		
General Meeting with Applicant:	_____	_____
$\frac{1}{14} - \frac{1}{2}$		
Conclusions/Recommendations/Final Review :	<u>1.50</u>	<u>APM</u>
<u>TOTAL TIME SPENT ON EVALUATION:</u>	<u>29 1/4</u>	<u>APM</u>

BRIEF PROJECT DESCRIPTION: 5 ERE Banking Certificates

FINAL CHECKLIST: Engineering Evaluation of Application(s) for A to C

✓ X Engineering Analysis includes all items described in guidelines, all items appear in the correct order, and all parts of analysis read logically and are legible.

X Rule 210.1 Certification of Compliance, if required, has been received and is of the proper content and form.

✓ X Package is divided into sections (each one in a folder) as described in guidelines and each folder has a correctly prepared label.

✓ X Rough draft ^{Certificates} A's to C have been prepared in accordance with guidelines and in correct format with correct punctuation. Drafts read logically and are legible. Each Design Condition and each Operational Condition is followed by the number of the Rule requiring the condition or providing basis for the condition.

✓ X Applicant has been notified by telephone of all conditions appearing in the A's to C but not proposed in the application.

Do -
Add note
to system
36 - cancelled &
REPLACEMENT BY
BANKING CENTER
20071201/101/101, 104-106

NR Emissions summary sheets (one for whole project and one for each A to C) have been prepared including net emissions change for project as well as net cumulative emissions change for whole stationary source. One xerox copy of each has been prepared. NSPS status has been marked.

NR Emission profiles have been prepared in accordance with guidelines, i.e., "normal" emissions are depicted, a maximum daily emission limit (110% of normal emissions) has been set, and compliance (on a "moving" yearly average) has been required.

✓ NR NSR/PSD/NSPS/BACT/LAER report has been prepared and correct number of xerox copies has been prepared. (NSR, BACT/LAER - 3; PSD - 2; NSPS - 1).

✓ NR Source test requirements summary has been prepared (don't specify emission limits, just mark "inlet", "outlet", "units", etc.) and one xerox copy has been prepared.

✓ X Initial Permit fee billing has been prepared which includes all A's to C involved in project, even if there is no fee due for one or more A's to C.

None Problems encountered time sheet has been prepared which includes all items (understandably and clearly described) which resulted in the unnecessary expenditure of time; unnecessary meaning that the time would not have been spent if the application had been correctly submitted, the data was all correct, no changes were made "in midstream", etc.

✓ X Engineering evaluation time sheet has been prepared which includes all time spent in processing the applications. This includes time spent discussing the application with others, time spent revising, etc.

Signed: JD McCormick Project Evaluation Engineer

Initialed: TEG Supervising Engineer

8/18/94

AMPE

*
TEXACO 870731/2007130

1. Since the source was in operation for less than two years (in the baseline period) the calculations of emissions shall be based on the full operating history of the equipment (in the baseline period). See highlighted section of attached copy of NSR rule that the application was processed under.

8/18/94 MPE

For an existing source, the emissions of any air contaminant (or precursors, as defined in Section 3.C.2.) for which the area is designated nonattainment under Section 107 of the Clean Air Act, and any air contaminant emissions which are to be used as interpollutant tradeoffs (in accordance with Section 5.B.11) for air contaminants so designated shall be based on the actual operating conditions of the existing source averaged over the two years immediately preceding the date of application. The Control Officer may allow the use of a different consecutive two year period within five years immediately preceding the date of the complete application upon a determination that it is more representative of normal source operation. If a source has been in operation for less than two years, the calculation of emissions shall be based on the full operating history of the equipment. The Control Officer may allow the use of a shorter period which represents normal operation for seasonal sources.

Emissions shall be determined by using actual fuel use, source tests or other data. The burden is on the applicant to provide the necessary documentation. Where the source has not been built or has not yet begun normal operation, emission credits shall be limited to actual emission reductions provided to obtain the source's Authority to Construct. The actual emission reductions shall be based on actual fuel use, source tests, operational or other data.

The emissions of any air contaminant other than those for which the area is designated nonattainment under Section 107 of the Clean Air Act shall be based on the specific limiting conditions set forth in the existing source's Authority to Construct permits and Permits to Operate, and where no such conditions are specified, or where no Authority to Construct was required, on the actual operating conditions as set forth above. Where the operation of a specific source has been significantly reduced during the previous three years, the Control Officer may specify an averaging period or emission rate which he determines provides an equitable emission base. If violations of laws, rules, regulations, permit conditions, or orders of the District, the Air Resources Board, or the Federal Environmental Protection Agency occurred during the period used to determine the operating conditions, then adjustments to the operating conditions shall be made to determine the emissions the existing source would have caused without such violations.

- C. The cumulative net change in emissions from new or modified stationary sources which are not seasonal sources shall be determined using yearly emission profiles, or alternate method as specified by the Control Officer subject to consultation with the Executive Officer of the Air Resources Board.

Yearly emissions profiles for an existing or proposed stationary source or modification shall be established by plotting the daily emissions therefrom in descending order. A separate profile shall be constructed for each pollutant.

8/27/84
11/18/85
6/01/87

Attachment C-2

**ERC S-3275-5 original application review
original project # 920024**

Please note that the attached ERC application review erroneously refers to project # 920716 (due to administrative changes made to our application numbering system in mid 1992). The attached ERC application review correctly reflects the original emission reduction for ERC S-3275-5.

ERC APPLICATION REVIEW

Glen E. Stephens
App. Rec.: 07/15/92
Date: 09/22/92

Facility Name: TEXACO REFINING AND MARKETING INC.

Mailing Address: P.O. Box 1476
Bakersfield, California 93302

Applicant Name: Donald J. Slack, Supervisor Environmental, Safety & Health

Contact Name: Steve Powell
Phone Number: (805) 326-4426

Application: 2007027/101/201/301/401/601
Project #: 920716

Deemed Complete: 08/17/92

Reviewed by: *PE*

Submittal Date: *10/20/92*
Review Date: *10/20/92*
Senior AQE

I. SUMMARY:

Texaco Refining and Marketing Inc. (TRMI) has removed from operation the tailgas incinerator listed as item "j" on Permit to Operate (PTO) 2007027A (see Appendix "A"). The tailgas normally burned in the incinerator listed on PTO 2007027A has been permanently diverted to a new tailgas treating unit, included on permit 2007245 (see Appendix "A") as "Tail Gas Treating Unit". The removal of the old tailgas incinerator was authorized by ATC 2007027B (see Appendix "A"). Authority to construct for the new unit was not based on offsets to be provided for by the removal of the old tailgas incinerator listed on 2007027A. Texaco has applied to bank the emissions from the tailgas incinerator as an Emission Reduction Credit (ERC) Certificate pursuant to Rule 230.1 Subsection IV.B. Historic Actual Emissions have been adjusted for 10% to be deposited to the Community Bank. The following emission reductions have been found to qualify for banking:

(in Lbs/Quarter)

Quarter	PM ₁₀	SO ₂	SO _x	NO _x	CO
Jan - Mar	642.83	782.58	55479.23	1425.41	4569.70
Apr - Jun	761.90	927.52	65754.88	1689.42	5416.08
Jul - Sep	726.77	884.77	62723.64	1611.54	5166.41
Oct - Dec	801.13	975.29	69141.04	1776.42	5694.99

II. APPLICABLE RULES:

- A. Rule 220.1: (New and Modified Stationary Source Review Rule -- post 09/19/91, revised 03/11/92)
- B. Rule 230.1: (Emission Reduction Credit Banking -- adopted 09/19/91, revised 03/11/92)
- C. Rule 230.2: (Community Bank -- adopted 09/19/91, revised 03/11/92)

III. PROJECT LOCATION:

NW Section 27, Township 29 South, Range 27 East MDB&M
6451 Rosedale Highway., Area 1 of Texaco Refinery

IV. METHOD OF GENERATING REDUCTIONS:

Tailgas previously burned in incinerator has been permanently diverted to new unit (ATC 2007245 -- tail gas treating unit). No emission reductions for the removal of the old tailgas incinerator were used for the approval of the new unit.

V. EQUIPMENT LISTING:

1 - Tailgas incinerator, 16-M101 -- removed from service

See Attachment A for copies of PTO to be revised and ATC's to modify PTO #2007027A and for the new tailgas treating unit (ATC #2007245). These ATC's have been implemented and new permits are being prepared.

VI. CONTROL EQUIPMENT EVALUATION:

The emission reductions were generated by equipment being taken out of service, and not by the addition of control equipment. Therefore, no control equipment evaluation is required.

VII. CALCULATIONS:A. General:

Calculations will summarize the Historical Actual Emissions (HAE). Historical Actual Emissions for each quarter in the baseline period are calculated using fuel usage data (total offgas to claus furnace) and source test emission factors for each air contaminant. Source test data is summarized in Attachment B.

B. Fuel Consumption Data:

The data below is derived from applicant supplied data. The applicant supplied data is the average hourly volumetric offgas gas flow to the incinerator for destruction (see Attachment B). The quarterly fuel use were obtained by by the following calculations:

$$\text{Mscf/hr} \cdot 24 \text{ hr/day} \cdot 30 \text{ days/month}^1 = \text{Mscf/month}$$

$$\text{Mscf/month} \cdot 90 \text{ days/quarter}^2 = \text{Mscf/quarter}$$

The following represents the results of the calculations:

Average Quarterly Fuel Use (in Mscf/Quarter)			
Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
52451.40	62166.24	59300.44	65367.60

Adjustments were made to applicant supplied data (March '90 data was not used) because month identified did not coincide with 8 consecutive calendar quarters preceding the application for ERC banking Certificate.

C. Emission Factors¹

Incinerator was source tested (District witnessed source test) on December 20, 1991; the results of the source tests (Verified by District staff) are listed below. However, the PM₁₀ factor includes SO₂ emissions as the total PM₁₀. Therefore, the PM₁₀ factor must be reduced by the SO₂ factor to represent PM₁₀ and SO₂ emissions separately. The adjusted factors are listed below the source test factors.

Emission Factors From Source Tests (in Lbs/Mscf)					
PM ₁₀	SO ₂	SO ₂	NO _x	VOC	CO
0.0302	0.0166	1.1753	0.0302	NA	0.0968

Adjusted Emission Factors Used (in Lbs/Mscf)					
PM ₁₀	SO ₂	SO ₂	NO _x	VOC	CO
0.0136	0.0166	1.1753	0.0302	NA	0.0968

D. Historical Actual Emissions (HAE):

Based on the emission factors used. The product of the emission factors and the actual fuel used results in the historical actual emissions. Calculations to show HAE, adjustments and actual

¹ 30 days/month used as an example. Actual days/month for each month was used.

² 90 days/month used as an example. Actual days/month used for each quarter

emission reductions (AER) to be banked are included in Attachment C. HAE for each quarter are as follows:

Quarter	Historical Actual Emissions (in Lbs/Quarter)				
	PM ₁₀	SO _x	SO ₂	NO _x	CO
Jan - Mar	714.26	869.53	61643.59	1583.79	5077.44
Apr - Jun	846.55	1030.58	73060.97	1877.13	6017.87
Jul - Sep	807.53	983.07	69692.93	1790.60	5740.45
Oct - Dec	890.14	1083.65	76823.38	1973.80	6327.77

E. Adjustments to Initial Emission Reductions:

1. Early Implementation of BARCT:

In the San Joaquin Valley Unified Air Pollution Control District 1991 Air Quality Attainment Plan (AQAP) there are proposed measures for the control of NO_x emissions from external combustion sources. The section titled External Combustion Devices -- Boilers, Steam Generators, Process Heaters, Driers in the AQAP (see Attachment D) proposes NO_x control measures and lists SCC and CES codes for external combustion devices. Two of the SCC and CES codes listed in the above mentioned section apply to process gas incineration at a petroleum refinery source (SCC and CES codes 102007001 and 82081 respectively). However, the proposed removal of the incinerator was approved by Authority to Construct (April 18, 1991) prior to the issuance of the AQAP (January 30, 1992); therefore, a 75% HAE NO_x reduction, because of early implementation of BARCT (see Rule 220.1.V.B), is not required.

2. Community Bank Allowance Reduction:

Rule 220.1.VI., states a portion of all onsite actual emissions reductions created after the adoption of Rule 220.1 (September 19, 1991) shall be used to fund the Community Bank and 10% of AER shall be deposited to the Community Bank; remaining AER qualifies for the ERC Certificate:

Quarter	For Deposit into the Community Bank (in Lbs/Qtr)				
	PM ₁₀	SO _x	SO ₂	NO _x	CO
Jan - Mar	71.43	86.95	6164.36	158.38	507.74
Apr - Jun	84.66	103.06	7306.10	187.71	601.79
Jul - Sep	80.75	98.31	6969.29	179.06	574.05
Oct - Dec	89.01	108.37	7682.34	197.38	632.78

For Deposit into the Community Bank (in Lbs/Day)

Quarter	PM ₁₀	SO ₄	SO ₂	NO ₂	CO
Jan - Mar	0.79	0.97	68.49	1.76	5.64
Apr - Jun	0.93	1.13	80.29	2.06	6.61
Jul - Sep	0.88	1.07	75.75	1.95	6.24
Oct - Dec	0.97	1.18	83.50	2.15	6.88

F. Bankable Emission Reductions:

The HAE less the community bank adjustment and adjusted for the portion of SO₄ included in the PM₁₀ emission factor gives bankable emission reductions of:

Bankable Emission Reductions (in Lbs/Qtr)

Quarter	PM ₁₀	SO ₄	SO ₂	NO ₂	CO
Jan - Mar	642.83	782.58	55479.23	1425.41	4569.70
Apr - Jun	761.90	927.52	65754.88	1689.42	5416.08
Jul - Sep	726.77	884.77	62723.64	1611.54	5166.41
Oct - Dec	801.13	975.29	69141.04	1776.42	5694.99

VIII. COMPLIANCE:

A. Rule 220.1:

1. Baseline Period:

During the processing of the ERC application, the baseline period was evaluated to assure compliance with Rules 220.1.II.F. and 230.1.V.E. The baseline period (8 calendar quarters) used ends within 180 days of the removal of the old incinerator (e.g. April '90 - March '92) and, therefore, complies with Rules 220.1 and 230.1 requirements.

2. Calculations:

Community Bank allotment was deducted from the AER as prescribed in Rules 220.1.VI and 230.2.IV. Calculations in determining the AER were used as described in Rule 220.1. ERC complies with Rule 220.1.V.E.2.

B. Rule 230.1:

The ERC application, eligibility and registration are all completed according to the requirements of Rule 230.1. The applicant has demonstrated the ERC to be valid by the definition in Rule 230.1.III.G.:

1. Real: The old incinerator did exist and was operated and had actual emissions at the location specified.
2. Surplus: The old incinerator has been replaced by a new incinerator (included on permit 2007245 -- see Attachment A). All emission increases from the new incinerator and associated equipment have been assessed under new source review. No emission reductions from the removal of the old incinerator were required for approval of emission increases from the new incinerator or for the approval of any other emissions unit.
3. Permanent: The incinerator has been taken out of service and rendered inoperable.
4. Quantifiable: Emissions were quantified by actual fuel use data and source tests determined the emission factors that were used. HAE were discounted where a prohibitory rule or permit condition resulted in less emissions.
5. Enforceable: Permit to Operate 2007027A includes incinerator (16-M101) as part of the equipment on the subject PTO. On ATC 2007027B incinerator 16-M101 has been removed and tailgas normally exhausted to the incineration unit is now required to exhaust to the new Tail Gas Treating Unit listed on ATC 2007245. Location can be inspected for equipment operating without valid a PTO or ATC.
6. Timeliness: Application was submitted within 180 days of when the reduction actually occurred.

ERC complies with Rule 230.1

C. Rule 230.2:

The 10% deductions from the AER's were made for the Community Bank and will be deposited to the Community Bank upon issuance of the ERC.

IX. RECOMMENDATION:

Upon completion of 30 day public notice period issue Emission Reduction Credit Certificates S-0002-2, '-3, '-4, '-5 and '-6.

ATTACHMENT A



KERN COUNTY AIR POLLUTION CONTROL DISTRICT

PERMIT TO OPERATE

Number: 2007027(A)

2700 "M" STREET, SUITE 275
BAKERSFIELD, CA. 93301
TELEPHONE: (805) 861-3682

PERMIT TO OPERATE IS HEREBY GRANTED TO: TEXACO REFINING & MARKETING INC.
 FOR EQUIPMENT LOCATED AT: 6451 Rosedale Hwy, Bakersfield
 EQUIPMENT OR PROCESS DESCRIPTION: Claus/ATS Sulfur Recovery Plant Unit #16
 OPERATIONAL CONDITIONS LISTED BELOW.

THIS PERMIT BECOMES VOID UPON ANY CHANGE OF OWNERSHIP OR LOCATION, OR ANY ALTERATION.

NOTE: The permittee may be required to provide adequate sampling and testing facilities. Equipment modification requires a new permit.

WILLIAM J. RODDY
AIR POLLUTION CONTROL OFFICER

REVOCABLE: This permit does not authorize the emission of air contaminants in excess of those allowed by the Rules and Regulations of the K.C.A.P.C.D.

By: W. J. RoddyFor Period: 08-31-90 TO 08-31-91CONDITIONAL APPROVAL:

Compliance with all conditions of approval imposed by any applicable Authority to Construct is required for life of this equipment unless modified by application.

EQUIPMENT DESCRIPTION: Claus/ATS Sulfur Recovery Plant Unit #16, including the following equipment:

- a. Sour water stripper overhead knockout drum,
- b. Amine solution H₂S knockout drum,
- c. Muffle furnace, 16-F-1,
- d. First stage reactor,
- e. Second stage reactor,
- f. Sulfur condenser, 16-V103,
- g. Sulfur storage tank, 16-T101,
- h. Primary reactor (ATS),
- i. Secondary reactor (ATS),
- ~~j. Tailgas incinerator, 16-M101, *shutdown*~~
- k. ATS storage tank, 16-T3,
- l. Miscellaneous vessels, heat exchangers and pumps,
- m. Ammonia storage tank.
- n. Piping from sour gas outlet of MEA Regenerator (2007204) to Claus plant inlet piping.

OPERATIONAL CONDITIONS:

1. Emissions Monitoring System (EMS) structured and operated per plan on file with and approved by the District shall be operated and maintained for entire refinery, including this process unit.
2. Entire refinery emissions, as determined by EMS, shall not exceed the following rates: SO₂ - 506.4 lbm/hr, NO₂ - 140.4 lbm/hr, and PM - 40.3 lbm/hr. If EMS is not operational, Claus ATS Sulfur Recovery Plant Unit #16 emissions shall not exceed the following rates: SO₂ - 40.0 lbm/hr, NO₂ - 0.8 lbm/hr, and PM - 1.7 lbm/hr. (All EMA

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

AUTHORITY TO CONSTRUCT

2700 "M" Street, Suite 275
 Bakersfield, CA 93301
 (805) 861-3682



William J. Roddy
 Air Pollution Control Officer

ISSUE DATE:	April 18, 1991	APPLICATION NO.	2007027B
EXPIRATION DATE:	April 18, 1993	DATE:	May 29, 1990

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED TO:

TEXACO REFINING & MARKETING, INC.

In the event an AUTHORITY TO CONSTRUCT is reissued to a new owner, any emissions increase assigned to this equipment during initial New Source Review Process remains with the initial bearer of this document.

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED FOR :

Modify Existing Claus Sulfur Recovery Unit.

COPY

(See attached sheets for equipment description and conditions)

S	T	R	Location :	Start-up Inspection Date :
27	29S	27E	6451 Rosedale Hwy., Area 1	

Upon completion of construction and/or installation, please telephone the Manager of Engineering. This document serves as a TEMPORARY Permit to Operate only as provided by Rule 201 of the District's Rules and Regulations. For issuance of a Permit to Operate, Rule 208 requires that the equipment authorized by this AUTHORITY TO CONSTRUCT be installed and operated in accordance with the conditions of approval. Changes to these conditions must be made by application and must be approved before such changes are made. This document does not authorize the emission of air contaminants in excess of New Source Review limits (Rule 210.1) or Regulation IV emission limits. Emission testing requirements set forth in this document must be satisfied before a Permit to Operate can be granted.

Validation Signature :

Lance Embree
 Manager of Engineering

TEXACO REFINING & MARKETING INC.
 Permit #2007027(A)
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- rates are to be one hour averages).
3. EMS printout demonstrating compliance with Condition #2 shall be made available for inspection by District staff upon notice.
 4. Visible emissions from any single emission point shall not equal or exceed 20% opacity (or R#1) for any more than an aggregate of three minutes in any one hour.
 5. Combustion contaminating emissions from any single emission point shall be less than 0.1 gr/scf calculated to 12% CO₂.
 6. Tailgas incinerator exhaust gas sulfur compounds concentration (as SO₂) shall not exceed 2000 ppm by volume and shall be monitored and recorded.
 7. Claus plant and ATS plant components shall be equipped with temperature indicators as necessary to operate units in manner recommended by manufacturer.
 8. Tailgas incinerator burning chamber temperature shall be maintained at no less than 1200°F and shall be monitored and recorded.
 9. Hydrocarbon emissions from whole-refinery stationary source shall not exceed 2,476.9 lbm/day without prior District approval. (Rule 210.1 and 210.3)
 10. Sulfur processing capacity of Claus plant shall be documented by Texaco Refining & Marketing, Inc. to not exceed 20.0 long tons per day or immediate compliance with Rule 424 is required. (Rule 424)
 11. Claus/ATS effluent sulfur compounds content shall be continuously monitored and recorded. (Rules 108 and 209)
 12. Operation shall not result in odors detectable at or beyond property boundary. (Rule 419)
 13. All connectors and piping shall be vapor-tight. (Rule 210.1)

EMISSION SAMPLING LIMITS:

Sulfur Compounds: 40.00 lbm/hr (as SO₂) (Rule 210.1)

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Continued

EQUIPMENT DESCRIPTION: Modify Existing Claus Sulfur Recovery Unit, including the following equipment and design specifications:

- A. Acid gas K.O. drum 16-D-10A, (existing)
- B. Sour water gas K.) drum 16-D-10B, (existing)
- C. Condensate pump 16-P-101, (existing)
- D. Two process air blowers 16-C-101/102, (existing)
- E. Muffle furnace 16-F-1, (existing)
- F. Sulfur Coaleser 16-V-103, (existing)
- G. Waste heat boiler 16-H-101, (existing)
- H. Sulfur condenser 16-E-101, (existing)
- I. Catalytic Reactor two stage 16-D-101, (existing)
- J. Sulfur Condenser 16-E-102, (existing)
- K. Sulfur storage pit 16-T-101, (existing)
- L. H2S/SO2 ratio analyzer/controller, (existing)
- M. Miscellaneous vessels, heat exchangers and pumps, (existing)
- N. Tail Gas Treating Unit and Incinerator shared with 2007245. (new)

CONDITIONAL APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware that all conditions of approval remain in effect for life of project unless modifications are approved by District.

DESIGN CONDITIONS:

1. No pressure relief valves shall be designed to relieve hydrocarbons or sulfur compounds to refinery fuel gas system. (Rule 209)
2. Area 1 refinery fuel gas system shall be equipped with hydrogen sulfide concentration monitoring/recording system. (Rules 209 & 422)
3. Unit shall be equipped with temperature indicators as necessary to operate units in manner recommended by manufacturer. (Rule 209)
4. All vessels, valves, flanges, connections and piping shall be designed and maintained in vapor-tight condition. (Rule 210.1)
5. All sampling connections, open-ended valves or lines shall be equipped with two closed valves or be capped with blind flanges or threaded plugs except during actual use. (Rule 422)
6. All new drains shall be equipped with a trap (water seal). (Rule 422)

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Continued

OPERATIONAL CONDITIONS:

- a. Area 1 fuel gas system sulfur content shall not exceed 0.10 gr/dscf as H₂S. (Rule 422)
- b. Vessels shall be depressurized (during turnaround) as required by Rule 414.3. (Rule 414.3)
- c. Sulfur Unit feed gas and gas produced from this emissions unit shall not be disposed of to flare except during upset breakdown conditions pursuant to Rule 111. (Rule 210.1)
- d. Hydrocarbon emissions from all emissions units existing in Area I prior to August 21, 1990 shall not exceed 2476.9 lbm/day without prior District approval. (Rule 210.1)
- e. Operation shall not result in odors detectable at or beyond property boundary. (Rule 419)
- f. Operation shall not create a public nuisance. (Rule 419)

EMISSION SAMPLING LIMITS:

Emissions sampling limits are included with limits for 2007245 as they are a common emissions point and combined emissions limit.

SPECIAL CONDITIONS:

- aa. Texaco Refining and Marketing Inc. shall adhere to source testing, monitoring, recordkeeping and notification requirements of Rule 422 at all times. (Rule 422)
- bb. During upset breakdown conditions pursuant to Rule 111 waste gas shall be disposed of only in manner approved by District under Authority to Construct 2007245. (Rule 210.1)
- cc. Overall refinery sulfur production shall not exceed 87 lt/day unless Authority to Construct 2007248 is fully implemented. (Rule 419)
- dd. Overall refinery sulfur production shall not exceed 128 lt/day after Authority to Construct 2007248 is fully implemented. (Rule 419)
- ee. When the tail gas treating unit is off line, total sour gas feed to SRU #1, SRU #3 and SRU #4 shall not exceed:

42.00 MMSCF during the first year of operation of #3 SRU,
56.00 MMSCF during the first two years of operation #3 SRU,
84.12 MMSCF during any consecutive three years of operation.

If any of these limits is exceeded, Texaco Refining and Marketing, Inc. shall construct a second tail gas treating unit (separate Authority to Construct required) (Rule 210.1 BACT Req)

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Continued

SPECIAL CONDITIONS CONTINUED:

- ff. Texaco Refining and Marketing, Inc. shall monitor and record sour gas rate to SRU #1, SRU #3 and SRU #4 when tail gas treating unit is offline. This information shall be submitted quarterly in refinery CEM report and original records be made available for District inspection upon request. (Rule 210.1)
- gg. Prior to implementation of this Authority to Construct Texaco Refining and Marketing shall establish a computerized emissions monitoring system capable of providing the District with the following on-line emissions monitoring data on a call-up (in District office) basis:
- Sour gas flow to each sulfur recovery unit,
 - Sour gas flow to each refinery flare,
 - Total sour gas production,
 - SO2 concentration and SO2 emissions rate from each tail gas treating unit.
- Methods of viewing data and format of information shall be in a form approved by the Control Officer. (Rule 210.1)
- hh. Continuous emissions monitoring and reporting system (Special Condition gg.) shall continuously log and report to District office all exceedances of applicable sulfur emissions limits.
- ii. Authority to Construct 2007245 shall be implemented concurrently with this Authority to Construct. (Rule 210.1)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

STATIONARY SOURCE CURTAILMENT PLANS AND TRAFFIC ABATEMENT PLANS:

Facilities expected to emit 100 tons per year or more of carbon monoxide, hydrocarbons, particulate matter or oxides of nitrogen shall comply with KCAPCD Rule 613.

NOTES:

Rule 111 does not provide relief from legal action for volitions resulting from recurrent breakdown of same equipment.

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RULE 210.1 (NSR) ANALYSIS VALIDATION:

Maximum daily emission rate of each air contaminant from these emissions units under permits 2007027B, '245 and '248 shall not exceed the following daily emissions limitation:

<u>Particulate Matter (PM-10):</u>	23.64 lbm/day	(Rule 210.1)
<u>Sulfur Compounds:</u>	137.76 lbm/day	(of SO ₂) (Rule 210.1)
	20.64 lbm/day	(of SO ₄) (Rule 210.1)
<u>Oxides of Nitrogen:</u>	84.00 lbm/day	(as NO ₂) (Rule 210.1)
<u>Hydrocarbons:</u>	1.68 lbm/day	(Rule 210.1) stack
	51.24 lbm/day	(Rule 210.1) fugitive
<u>Carbon Monoxide:</u>	21.00 lbm/day	(Rule 210.1)

Compliance with daily emissions limitations shall be verified by source operator (with fuel consumption data, operational data, etc.) on daily basis and written documentation made readily available to District for period of three years.

RULE 210.1 (NSR) DAILY EMISSIONS LIMITATIONS: (See attached.)

KERN COUNTY AIR POLLUTION CONTROL DISTRICT

AUTHORITY TO CONSTRUCT

2700 "M" Street, Suite 275
 Bakersfield, CA 93301
 (805) 861-3682



William J. Roddy
 Air Pollution Control Officer

ISSUE DATE:	April 18, 1991	APPLICATION NO.	2007245
EXPIRATION DATE:	April 18, 1993	DATE:	May 29, 1990

AUTHORITY TO CONSTRUCT IS HEREBY GRANTED TO:

TEXACO REFINING & MARKETING, INC.

In the event an AUTHORITY TO CONSTRUCT is reissued to a new owner, any emissions increase assigned to this equipment during initial New Source Review Process remains with the initial bearer of this document.

<p>AUTHORITY TO CONSTRUCT IS HEREBY GRANTED FOR :</p> <p><u>Claus Sulfur Recovery Unit, Tail Gas Treating Unit and Waste Gas Incinerator.</u></p> <p style="text-align: center; font-size: 2em; opacity: 0.5;">COPY</p> <p>(See attached sheets for equipment description and conditions)</p>				
S	T	R	Location :	Start-up Inspection Date :
27	29S	27E	6451 Rosedale Hwy., Area 1	

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Validation Signature :

[Handwritten Signature]
 Manager of Engineering

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EQUIPMENT DESCRIPTION: Claus Sulfur Recovery Unit, Tail Gas Treating Unit and Waste Gas Incinerator, including the following equipment and design specifications:

SRU #3

- A. Combustion air blower 17-C101A 3600 scfm with 250 hp electric motor,
- B. Spare combustion air blower 17-C101B 3600 scf with 250 hp electric motor,
- C. Acid gas K.O. drum 17-D101 2 ft. 6 in. dia x 8 ft. 10 in. long,
- D. Two acid gas condensate pumps 17-P101A/B with 7.5 hp electric motors,
- E. Sour water stripper gas K.O. drum 17-D102 2 ft. 6 in. dia x 8 ft. 10 in. long,
- F. Condensate pumps 17-P102A/B with 5 hp electric motors,
- G. Claus combustor 22.5 MMbtu/hr 17-S101,
- H. Thermal reactor 17R-101,
- I. Primary boiler 17-E101,
- J. Primary sulfur condenser 17-E102,
- K. Catalytic reactor 17-R102 (three-stage),
- L. Final sulfur condenser 17-E105,
- M. Sulfur day tank 17-T101,
- N. Two sulfur transfer pumps 17-P103A/B with 15 hp electric motors,
- O. Sulfur storage tank 30 ft. dia x 30 ft. high,
- P. Two sulfur loading pumps 17-P104A/B with 20 hp electric motors,
- Q. H₂S/SO₂ ratio analyzer/controller,
- R. Spare H₂S/SO₂ ratio analyzer/controller,
- S. Miscellaneous small vessels, pumps, heat exchangers and piping.

Tail Gas Treating Unit (TGTU)
(all equipment new)

- T. Tail gas reactor 17-R103 9 ft. dia x 11 ft. long,
- U. Waste heat steam generator 17-E109,
- V. Booster blower suction K.O. drum 17-D103 and booster blower discharge K.O. drum 17D-104 stacked over all 3 ft. 6 in. dia x 22 ft. high,
- W. Two booster blowers each 4100 scf with 250 hp electric motors,
- X. Quench column 17-V101 5 ft. 6 in. dia x 41 ft. tall,
- Y. Quench water trim cooler 17-E111 with bypass valves/piping,
- Z. Quench water dual bank air fan cooler 17-F101 with two 15 hp electric motors and isolation piping/valves,
- AA. Two quench water circulation pumps 17-P105A/B with 40 hp electric motors,
- AB. Two quench water filters 17-D105A/B,
- AC. Absorber 17-V102 4 ft. 6 in. dia x 53 ft. high,
- AD. Two lean solvent trim coolers 17-E112A/B with isolation valves/piping,
- AE. Lean solvent dual bank air fan cooler 17-F102 with two 15 hp electric motors and isolation valves/piping,
- AF. Lean oil solvent filter 17-D106A/B,
- AG. Carbon filter 17-D107,
- AH. Carbon after filter 17-D108,

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Continued

EQUIPMENT DESCRIPTION CONTINUED:

- AI. Two rich solvent pumps 17-P107A/B with 20 hp electric motors,
- AJ. Two lean solvent pumps 17-P107A/B with 20 hp electric motors,
- AK. Lean rich solvent exchangers 17-E113A/B with isolation valves/piping,
- AL. Regenerator 17-V103 4 ft. dia x 100 ft. high,
- AM. Regenerator overhead condenser dual bank with two 15 hp electric motors and isolation valves/piping 17-F103,
- AN. Two reflux pumps 17-P108A/B with 5 hp electric motors,
- AO. Solvent sump tank 17-T104 6 ft. dia x 18 ft. long,
- AP. Solvent sump pump 17-P109 with 5 hp electric motor,
- AQ. Solvent sump filter 17-D111,
- AR. Lean solvent storage tank 17-T103 12 ft. dia x 15 ft. high,
- AS. Solvent circulation pump 17-P110 with 5 hp electric motor,
- AT. Two condensate pumps 17-P111A/B with 25 hp electric motors,
- AU. Two blowdown pumps 17-P112A/B with 25 hp electric motors,
- AV. Hot oil heater 5 MMBtu/hr (permit exempt),
- AW. Hot oil surge drum 8 ft. dia x 18 ft. high,
- AX. Two hot oil circulation pumps 17-P113A/B with 25 hp electric motors,
- AY. Miscellaneous small vessels, pumps, heat exchangers and piping.

Incinerator

- BA. Incinerator with 22 MMBtu/hr auxiliary fuel burner and 200 ft. stack,
- BB. Inlet H₂S analyzer,
- BC. In stack SO₂ analyzer,
- BD. In stack O₂ analyzer.

CONDITIONAL APPROVAL:

Pursuant to Rule 209, "conditional approval" is hereby granted. Please be aware that all conditions of approval remain in effect for life of project unless modifications are approved by District.

DESIGN CONDITIONS:

1. No pressure relief valves shall be designed to relieve hydrocarbons or sulfur compounds refinery fuel gas system. (Rule 209)
2. Area 1 refinery fuel gas system shall be equipped with hydrogen sulfide concentration monitoring/recording system. (Rules 209 & 422)
3. Unit shall be equipped with temperature indicators as necessary to operate units in manner recommended by manufacturer. (Rule 209)
4. All vessels, valves, flanges, connections and piping shall be designed and maintained in vapor-tight condition. (Rule 210.1)
5. All sampling connections, open-ended valves or lines shall be equipped with two closed valves or be capped with blind flanges or threaded plugs except during actual use. (Rule 422)
6. All new drains shall be equipped with a trap (water seal). (Rule 422)
7. Exhaust stack shall be equipped with continuously recording SO₂, and oxygen monitors. (Rule 108)

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DESIGN CONDITIONS CONTINUED:

8. Incinerator inlet shall be equipped with continuously recording H₂S monitor on absorber overhead line. (Rules 108 & 210.1 BACT req.)
9. Air fan coolers 17-F101, 17-F102, 17-F103 and exchangers 17-F112A/B and 17-E113A/B shall be sized to allow normal operation with one bank bypassed. (Rule 210.1 BACT req.)
10. Exhaust stack shall be equipped with adequate provisions facilitating the collection of samples consistent with EPA test methods; i.e., capped sample port in accessible location of uniform flow. (Rule 108.1)

OPERATIONAL CONDITIONS:

- a. Area 1 refinery fuel gas system(s) sulfur content shall not exceed 0.10 gr/dscf as H₂S. (Rule 422)
- b. Vessels shall be depressurized (during turnaround) as required by Rule 414.3. (Rule 414.3)
- c. Sulfur Unit feed gas and gas produced from this emissions unit shall not be disposed of to flare except during upset/breakdown conditions pursuant to Rule 111. (Rule 210.1)
- d. Incinerator firebox temperature shall be maintained at not less than 1200°F. (Rule 209)
- e. Incinerator supplemental fuel shall be gas purchased from a PUC carrier or treated refinery gas with sulfur content less than 0.1 gr/scf as H₂S. (Rule 209)
- f. Concentration of H₂S in incinerator feed shall not exceed 10 ppmv H₂S (moving 3-hour average). (Rule 210.1 BACT req.)
- g. During normal and upset operation sour gas shall be balanced between all operating sulfur recovery units in a manner minimizing sulfur emissions. (Rule 209)
- h. Operation shall not result in odors detectable at or beyond property boundary. (Rule 419)
- i. Operation shall not create a public nuisance. (Rule 419)

EMISSION SAMPLING LIMITS:

<u>Particulates (PM-10):</u>	0.99	lbm/hr	(Rule 210.1)
<u>Sulfur Compounds:</u>	5.74	lbm/hr	(of SO ₂) (Rule 210.1)
	0.86	lbm/hr	(of SO ₄) (Rule 210.1)
<u>Oxides of Nitrogen:</u>	3.50	lbm/hr	(as NO ₂) (Rule 210.1)
<u>Hydrocarbons:</u>	0.07	lbm/hr	(Rule 210.1) stack
	2.14	lbm/hr	(Rule 210.1) fugitive
<u>Carbon Monoxide:</u>	0.88	lbm/hr	(Rule 210.1)

2007245
ContinuedCOMPLIANCE TESTING REQUIREMENTS:

Compliance with all emissions sampling limits except fugitive hydrocarbons shall be demonstrated by District-witnessed sample collection by independent testing laboratory within 60 days of initial startup, and official test results and field data submitted within 60 days after collection. Compliance with fugitive hydrocarbon emissions shall be demonstrated by emissions testing, maintenance and reporting as required by Rule 414.1 and 414.5. (Rule 108.1)

SPECIAL CONDITIONS:

- aa. Texaco Refining and Marketing Inc. shall adhere to source testing, monitoring, recordkeeping and notification requirements of Rule 422 at all times. (Rule 422)
- bb. Within one hour of upset breakdown pursuant to Rule 111 of any sulfur recovery unit waste gas disposed of by flaring shall not exceed 12.73 mscfh in each area flare. (Rule 419)
- cc. In case of any exceedance of any sulfur compound emission limitation or any condition which results in flaring of sour gas, Texaco Refining and Marketing shall, within 30 minutes of initial exceedance, begin to reduce sour gas production by removing high sulfur feed stocks and reducing unit rates and shall reduce total sour gas to flares to no more than 25.46 Mscf/hr within four hours of initial exceedance. (Rule 209)
- dd. Whenever sour gas is being flared and odor complaints are received, the District may request further reductions in operations necessary to reduce flaring of sour gas. (Rule 419)
- ee. Overall refinery sulfur production shall not exceed 87 lt/day unless Authority to Construct 2007248 is fully implemented. (Rule 419)
- ff. Overall refinery sulfur production shall not exceed 128 lt/day after Authority to Construct 2007248 is fully implemented. (Rule 419)
- gg. When the tail gas treating unit is off line, total sour gas feed to SRU #1, SRU #3 and SRU #4 shall not exceed:

42.00 MMSCF during the first year of operation of #3 SRU,
56.00 MMSCF during the first two years of operation #3 SRU,
84.12 MMSCF during any consecutive three years of operation.

If any of these limits is exceeded, Texaco Refining and Marketing, Inc. shall construct a second tail gas treating unit (separate Authority to Construct required). (Rule 210.1 BACT Req)

2007245
Continued

SPECIAL CONDITIONS CONTINUED:

- hh. Texaco Refining and Marketing, Inc. shall monitor and record sour gas rate to SRU #1, SRU #2 and SRU #4 when tail gas treating unit is offline. This information shall be submitted quarterly in refinery CEM report and original records be made available for District inspection upon request. (Rule 210.1)
- ii. Prior to implementation of this Authority to Construct Texaco Refining and Marketing shall establish a computerized emissions monitoring system capable of providing the District with the following on-line emissions monitoring data on a call-up (in District office) basis:
- Sour gas flow to each sulfur recovery unit,
 - Sour gas flow to each refinery flare,
 - Total sour gas production,
 - SO2 concentration and SO2 emissions rate from each tail gas treating unit.
- Methods of viewing data and format of information shall be in a form approved by the Control Officer. (Rule 210.1)
- jj. Continuous emissions monitoring and reporting system (Special Condition ii.) shall continuously log and report to District office all exceedances of applicable sulfur emissions limits. (Rule 209)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

STATIONARY SOURCE CURTAILMENT PLANS AND TRAFFIC ABATEMENT PLANS:

Facilities expected to emit 100 tons per year or more of carbon monoxide, hydrocarbons, particulate matter or oxides of nitrogen shall comply with KCAPCD Rule 613.

NOTES:

Rule 111 does not provide relief from legal action for violations resulting from recurrent breakdown of same equipment.

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of
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2007245
Continued

RULE 210.1 (NSR) ANALYSIS VALIDATION:

Maximum daily emission rate of each air contaminant from these emissions units under permits 2007027B, '245 and '248 shall not exceed the following daily emissions limitation:

<u>Particulate Matter (PM-10):</u>	23.64 lbm/day	(Rule 210.1)
<u>Sulfur Compounds:</u>	137.76 lbm/day	(of SO ₂) (Rule 210.1)
	20.64 lbm/day	(of SO ₄) (Rule 210.1)
<u>Oxides of Nitrogen:</u>	84.00 lbm/day	(as NO ₂) (Rule 210.1)
<u>Hydrocarbons:</u>	1.68 lbm/day	(Rule 210.1) stack
	51.24 lbm/day	(Rule 210.1) fugitive
<u>Carbon Monoxide:</u>	21.00 lbm/day	(Rule 210.1)

Compliance with daily emissions limitations shall be verified by source operator (with fuel consumption data, operational data, etc.) on daily basis and written documentation made readily available to District for period of three years.

RULE 210.1 (NSR) DAILY EMISSIONS LIMITATIONS: (See attached.)

ATTACHMENT B

TEST DATE OPERATIONAL DATA
DECEMBER 20, 1991

16FHS302 TOTAL OFFGAS TO CLAUS FURNACE		TEST RESULTS AND EMISSION FACTORS	
TIME	MSCFHR	LB/HR	LB/MSCFHR
1200	34.16	PARTICULATE 1.02	0.030
1300	32.46	SULFATE 0.56	0.017
1400	33.12	SO2 39.70	1.175
1500	33.84	NOX 1.02	0.030
1600	34.20	CO 3.27	0.097
1700	34.39		
1800	34.03		
1900	34.03		
AVG	33.78		

PRECEDING 2 YEARS OPERATIONAL DATA

16FHS302 TOTAL OFFGAS TO CLAUS FURNACE				
	MSCFHR			QUARTERLY AVERAGE
	1990	1991	1992	MSCFHR
JAN		30.82	30.89	1 27.51
FEB		23.26	30.80	2 28.48
MAR	18.82	30.46		3 26.78
APR	22.63	32.68		4 29.59
MAY	26.79	27.33		
JUN	28.95	32.50		
JUL	27.50	33.23		
AUG	28.86	32.22		
SEP	28.84	10.01		
OCT	30.16	30.52		
NOV	24.81	31.63		
DEC	27.71	32.71		

QUARTERLY EMISSIONS LB/DAY				
	1	2	3	4
PARTICULATE	19.94	20.64	19.41	21.44
SULFATE	10.95	11.33	10.65	11.77
SO2	775.93	803.34	755.29	834.65
NOX	19.94	20.64	19.41	21.44
CO	63.91	66.17	62.21	68.75

TABLE 3-1. SUMMARY OF SOURCE EMISSION TEST DATA (60°F)

Unit Tested: Texaco R & M SRU Incinerator Date: December 20, 1991

Test Number	1	2	3	Average
Test Condition	Offset	Offset	Offset	
Barometric Pressure (in. Hg)	29.90	29.90	29.88	29.89
Stack Pressure (in. Hg)	29.88	29.88	29.86	29.87
Stack Area (ft ²)	4.91	4.91	4.91	4.91
Elapsed Sampling Time (min.)	120.00	120.00	120.00	120.00
Volume Gas Sampled (dscf)	90.541	90.541	89.299	90.127

GAS DATA

Average Gas Velocity (fps)	44.75	44.75	44.88	44.80
Average Gas Temperature (°F)	957.17	957.17	959.08	957.81
Gas Flowrate (dscfm)	4,460	4,460	4,536	4,485
Gas Analysis (Volume %)				
Carbon Dioxide, dry	5.00	4.98	4.97	4.98
Oxygen, dry	5.23	5.08	5.36	5.22
Water	7.66	7.66	6.14	7.16

EMISSION CONCENTRATION

Filterable Particulate (gr/dscf)		0.0353	0.0180	0.0267
Total Particulate (gr/dscf)		0.0485	0.0300	0.0392
Total Sulfate (gr/dscf)		0.0176	0.0115	0.0146
CO (ppm)	131.50	157.54	204.77	164.60
SO ₂ (ppm)		839.63	902.30	870.97
NO _x (ppm)	36.75	32.73	24.68	31.39

EMISSION RATE - lb/hr

Filterable Particulate		1.35	0.70	1.02
Total Particulate		1.85	1.17	1.51
Total Sulfate		0.67	0.45	0.56
CO	2.60	3.11	4.11	3.27
SO ₂		37.94	41.46	39.70
NO _x	1.19	1.06	0.81	1.02

ATTACHMENT C

AVERAGE MONTHLY OFFGAS
TO CLAUS FURNACE

MONTH	Mscf/Hr	Mscf/Mnth
JAN '90	---	0.00
FEB '90	---	0.00
MAR '90	(18.82)	(583.42)
APR '90	22.63	16293.60
MAY '90	26.79	19931.76
JUN '90	28.95	20844.00
JUL '90	27.50	20460.00
AUG '90	28.86	21474.07
SEP '90	28.84	20764.80
OCT '90	30.16	22439.04
NOV '90	24.81	17863.20
DEC '90	27.71	20616.24
JAN '91	30.82	22930.08
FEB '91	23.26	15630.72
MAR '91	30.46	22662.24
APR '91	32.68	23529.60
MAY '91	27.33	20333.52
JUN '91	32.50	23400.00
JUL '91	33.23	24723.12
AUG '91	32.22	23971.68
SEP '91	10.01	7207.20
OCT '91	30.52	22706.88
NOV '91	31.63	22773.60
DEC '91	32.71	24336.24
JAN '92	30.89	22982.16
FEB '92	30.80	20697.60
MAR '92	0.00	0.00

() Not used because the month does not coincide with 8 calendar quarters

EMISSION FACTORS FROM SOURCE TESTS

Lb/Mscf				
PM10	SO4	SO2	NO2	CO
0.0302	0.0166	1.1753	0.0302	0.0968

ADJUSTED EMISSION FACTORS SEGREGATING SO4 FROM TOTAL PM10

Lb/Mscf				
PM10	SO4	SO2	NO2	CO
0.0136	0.0166	1.1753	0.0302	0.0968

AVERAGE QUARTERLY FUEL USE

QUARTER	(in Mscf per quarter)
JAN-MAR	52451.40
APR-JUN	62166.24
JUL-SEP	59300.44
OCT-DEC	65367.60

ACTUAL HISTORICAL EMISSIONS

Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	714.26	869.53	61643.59	1583.79	5077.44
APR-JUN	846.55	1030.58	73060.97	1877.13	6017.87
JUL-SEP	807.53	983.07	69692.93	1790.60	5740.45
OCT-DEC	890.14	1083.65	76823.38	1973.80	6327.77

10% DEDUCTION FOR COMMUNITY BANK

Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	71.43	86.95	6164.36	158.38	507.74
APR-JUN	84.66	103.06	7306.10	187.71	601.79
JUL-SEP	80.75	98.31	6969.29	179.06	574.05
OCT-DEC	89.01	108.37	7682.34	197.38	632.78

10% DEDUCTION FOR COMMUNITY BANK

Lb/Day

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	0.79	0.97	68.49	1.76	5.64
APR-JUN	0.93	1.13	80.29	2.06	6.61
JUL-SEP	0.88	1.07	75.75	1.95	6.24
OCT-DEC	0.97	1.18	83.50	2.15	6.88

REMAINING EMISSION REDUCTIONS QUALIFYING FOR
EMISSION REDUCTION CREDITS

Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	642.83	782.58	55479.23	1425.41	4569.70
APR-JUN	761.90	927.52	65754.88	1689.42	5416.08
JUL-SEP	726.77	884.77	62723.64	1611.54	5166.41
OCT-DEC	801.13	975.29	69141.04	1776.42	5694.99

REMAINING EMISSION REDUCTIONS QUALIFYING FOR
EMISSION REDUCTION CREDITS

Lb/Qtr

QUARTER	PM10	SO4	SO2	NO2	CO
JAN-MAR	7.14	8.70	616.44	15.84	50.77
APR-JUN	8.37	10.19	722.58	18.57	59.52
JUL-SEP	7.90	9.62	681.78	17.52	56.16
OCT-DEC	8.71	10.60	751.53	19.31	61.90

ATTACHMENT D

1991 AIR QUALITY ATTAINMENT PLAN

EXTERNAL COMBUSTION DEVICES BOILERS, STEAM GENERATORS, PROCESS HEATERS, DRIERS

SOURCES AFFECTED: All existing boilers, steam generators, process heaters and driers subject to permitting may be affected. This control measure does not apply to boilers used to generate electricity. SCC and CES codes are shown below.

EXISTING REGULATIONS: Kern County Rule 425.1 - Oxides of Nitrogen Emissions from Existing Steam Generators used in Thermally Enhanced Oil Recovery.

Fresno and Kern Counties Rule 408 (and other SJVUAPCD zones) - Fuel Burning Equipment

No SJVUAPCD or Zone prohibitory rule requires the use of one fuel in place of another.

DESCRIPTION OF CONTROL MEASURE: The District will reduce NOx emissions by implementing several rules that establish emission standards for different categories of existing external combustion devices. Each separate rule will control NOx emissions from a distinct category with subcategories based upon size range and/or type of combustion device, e.g. large steam generators, refinery process heaters, small package boilers. These rules and the requirements therein will be based on energy, environmental and economic factors specific to the SJVAB at the time of rule development, and specific emission limits, exemptions and applicability criteria will be developed for each subcategory in each rule development process, after consideration of emission limits achieved in practice and cost effectiveness.

This control measure will be implemented in four phases based on source type and control type; several rules, or sets of requirements within rules, may result from each phase of the control measure. Each type of external combustion device operating in the SJVAB will be addressed in the control measure: equipment types not addressed during one phase of the control measure will be addressed in another phase.

Phase 1 of the external combustion NOx control measure will target larger combustion devices such as process heaters, boilers and steam generators, over a certain MMBtu/hr heat input capacity. MMBtu/hr "cut-offs", used to define

1991 AIR QUALITY ATTAINMENT PLAN

applicability of the rules, may vary for different equipment types; these cut-off values will be determined during rule development.

Recognizing that many SJVAB external combustion devices burn crude or fuel oil, Phase 2 of the control measure will address encouraging the use of "clean fuel" as a NOx reduction technique. The lowest NOx emissions for any type of combustion device are achievable through combustion of natural gas in place of other fuels; it is anticipated that the District will encourage (or require) switching to natural gas, where such a switch is feasible and cost effective.

Smaller combustion devices will be addressed during Phase 3 of the external combustion control measure. Limits may, or may not be developed, depending on technological and economic feasibility.

Phase 4 will address driers used in food processing and other industrial processes.

Operators will be able to achieve the emission standards by applying available control technology such as oxygen trim, low-NOx burners, flue-gas recirculation (FGR), selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), or radiant burners.

The suggested standards below are from the ARB Draft Determination of BARCT for boilers, steam generators and process heaters. In the ARB Draft Determination, less stringent requirements are suggested for devices with fuel input less than 90,000 therms annually. The ARB BARCT determination will be the starting point for development of the external combustion NOx strategy, but as stated above, District rules and the requirements therein will be based on energy, environmental and economic factors specific to the SJVAB and different source categories at the time of rule development.

<u>Fuel Type</u>	<u>ppm NOx @3% O₂</u>	<u>lb. NO₂/MMBtu</u>
Gaseous Fuel	30	0.036
Liquid Fuel	40	0.048

EMISSIONS ESTIMATES:	NOx - Tons/Day			
	<u>1987</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>
Baseline Inventory:	89.16	85.89	87.67	88.49
Anticipated Reduction:		65.13	66.41	66.98
Remaining Emissions:		20.76	21.26	21.51

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The emissions reductions shown are based on the ARB Draft BARCT Determination for Boilers, Steam Generators and Process Heaters.

COST EFFECTIVENESS: For retrofit applications, technological feasibility and costs of control are dependent on energy availability, equipment location, type of control, operating capacity modes, and physical size of the heater/boiler. Thus, some control techniques that are feasible for larger devices may not be practical for smaller devices because of cost or effect on efficiency. Burner replacement may be the most cost effective control technique for smaller boilers. ARB estimates the cost effectiveness of several typical control technologies as shown below. In general, cost effectiveness improves with size of the unit and annual usage rate.

<u>Control Technique</u>	<u>Unit Size Range (MMBtu/hr)</u>	<u>Cost Effectiveness (\$/ton NOx reduced)</u>
Low-NOx Burners	25 - 150	\$300 - \$27,000
Flue Gas Recirculation	10 - 350	\$1,000 - \$29,000
Selective Noncatalytic Reduction	50 - 375	\$1,300 - \$20,000
Selective Catalytic Reduction	50 - 350	\$4,000 - \$66,000

Santa Barbara County APCD estimates cost effectiveness for control of NOx emissions from smaller boilers using radiant burner technology as shown below:

<u>Boiler Size (MMBtu/hr)</u>	<u>Total Equipment Cost</u>	<u>Cost Effectiveness \$/ton NOx reduced</u>
1	\$18,000	10,000
5	\$25,000	3,000
10	\$30,000	2,000

Mobil Oil Company has identified the cost of retrofit of flue gas recirculation technology for their steam generators to be approximately \$36,000 per year per large (62.5 MMBtu/hr) steam generator. This retrofit reduces NOx from a single natural gas-fired generator by about 28 tons per year, for a cost effectiveness of \$1,300 per ton of NOx reduced. Mobil Oil's steam generators using flue gas recirculation currently have limits of 0.04 lb/MMBtu.

As of June 6, 1991, Kern River steam generator fuels cost \$12 per barrel (\$1.90/MMBtu) for produced oil and \$2.75/mcf (\$2.60/MMBtu) for produced natural gas. Assuming fuel costs remain constant, switching fuels from crude oil to natural gas to reduce NOx emissions would cost approximately \$5,800 per ton of NOx reduced. However, with increased availability, local natural gas prices are

1991 AIR QUALITY ATTAINMENT PLAN

expected to decrease. Additionally, flue gas sulfur scrubber operational costs, and maintenance costs associated with burning crude would be almost eliminated.

IMPLEMENTING AGENCY: SJVUAPCD

IMPLEMENTATION SCHEDULE:

	Phase 1	Phase 2	Phase 3	Phase 4
Draft Rule:	1Q/92	1Q/93	1Q/94	1Q/95
Workshop Rule:	2Q/92	2Q/93	2Q/94	2Q/95
Adopt Rule:	4Q/92	4Q/93	4Q/94	4Q/95
Full Implementation:	4Q/94	4Q/95	4Q/96	4Q/97

ENFORCEABILITY: Compliance is dependent on initial and annual emissions tests, annual inspections. Requirements for continuous emission monitors on large sources, and maintenance of operating logs will enhance the District's ability to enforce any proposed regulation.

TECHNICAL FEASIBILITY AND PUBLIC ACCEPTABILITY: Technology for certain combustion devices is currently in use that can achieve the NOx emission standards suggested in the ARB BARCT Determination. Implementation of this measure will be affected by the availability of clean fuels to meet fuel conversion demands. Pipeline capacity increases are expected to meet the increase in demand for natural gas. The Mojave/Kern River Pipeline project, which is expected to be completed in 1992, could provide an additional 1.1 billion scf of natural (equivalent to approximately 200,000 barrels of oil) gas per day. Public acceptability is expected to be neutral.

HEALTH, ENVIRONMENTAL, ENERGY, AND SOCIAL IMPACTS: Spent catalyst materials, including vanadium pentoxide, are considered hazardous materials and would have to be deposited in a Class I landfill; the only operational Class I disposal site in California is in Kings County. Ammonia emissions may occur if SCR or SNCR is used. Combustion of natural gas in place of residual, distillate or crude oil will result in lower toxic, carbon dioxide, particulate and SO2 emissions. Additional electrical energy will be required to operate all control systems. The control measure will encourage natural gas fuel use over fuel or crude oil.

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Switching from crude or fuel oil combustion to combustion of natural gas will reduce emissions of polycyclic aromatic hydrocarbons and toxic metals, some of which are known carcinogens. Minor increases in emissions of benzene and formaldehyde may result from the increased use of natural gas.

INFORMATION SOURCES:

Air Resources Board. Draft Proposed Determination of Reasonably Available Control Technology and Best Available Retrofit Technology for Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters. 1991.

Air Resources Board. 1989. Emissions Inventory Criteria and Guidelines Regulation Pursuant to the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Sacramento, California.

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Brinkman, P. E., Mobil Exploration and Production Company. 1990. Letter to Scott Nester, Kern County APCD. June 20, 1990.

Kings County APCD. "Preliminary Staff Report: Proposed Adoption of Rule 428 - Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters in Kings County", July 1990.

Lisenbee, Bob, Kern County Assessor's Office. June 7, 1991. Telephone conversation with Scott Nester, Kern Zone.

Pease, Robert R., Martin L. Kay, Andrew Y. Lee. "Industrial Boilers: Status of Oxides of Nitrogen Regulations and Control Technology in the South Coast Air Quality Management District", 1989, Annual Meeting and Exhibition, Air and Waste Management Association, June 1989.

Santa Barbara County Air Pollution Control District. 1990 Air Quality Attainment Plan. Control Measures N-5 SCAQMD, 1989, Control Measure C-7.

South Coast Air Quality Management District. Best Available Control Technology Guideline. October 1988.

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South Coast Air Quality Management District. Rule 1109 - Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries. August 5, 1988.

South Coast Air Quality Management District. Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators and Process Heaters. August 5, 1988.

South Coast Air Quality Management District. Draft Rule 1177 - Best Available Fuel Standard. 1991

South Coast Air Quality Management District. 1989 Air Quality Management Plan, "Appendix IV-A: Tier I, Tier II and Contingency Control Measures". March 1989.

Tompkins, Gene. "Flue-gas Recirculation Works for Packaged Boilers, Too." Power, April 1990.

US Environmental Protection Agency. 1985. Compilation of Air Pollutant Emission Factors, Fourth Edition. Research Triangle Park, North Carolina.

SCC and CES Codes for External Combustion Devices

SCC

10200401	10200402	10200403	10200501	10200502	10200503
10200601	10200602	10200603	10200701	10200799	10200902
10201002	10201201	10300401	10300402	10300501	10300502
10300503	10300601	10300602	10300603	30290003	30600101
30600103	30600104	30600105	30600106	31000402	31000403
31000404	31000411	31000412	31000414	39000499	39000599
39000603	39000689	39000699	39000889	39001099	

CES

47142	47159	47167	58727	66795	66803
82073	82081	83071			

Attachment C-3

**ERCs C1058-2 and C-1058-original application review
original project # 1063337**

APPLICATION REVIEW

Preliminary Decision - Emission Reduction Credits Flat Glass Furnace Modifications

Processing Engineer: Brian Clements

Lead Engineer: Sheraz Gill

Date: June 17, 2009

Facility Name: Guardian Industries Corp.
Mailing Address: 11535 E. Mountain View Ave.
Kingsburg, CA 93631-9211

Contact Name: Phillip Newell - Environmental Engineer
Phone: (559) 896-6400
E-mail: philnewell@engineer.net

Facility Location: 11535 E. Mountain View Ave.
Kingsburg, CA 93631-9211

Deemed Complete Date: June 4, 2009
Project Number: C-1063337

I. Summary:

The Guardian facility located in Kingsburg manufactures flat glass. The facility has performed a "cold tank" rebuild of their flat glass manufacturing line (permit C-598-4). The shutdown and rebuild began on January 7, 2008. The previous permit that was modified was PTO #C-598-4-7 (see **Appendix A** for the PTO). The modification was authorized under Authority to Construct (ATC) #C-598-4-8, project #C-1051269, finalized on June 5, 2006.

The modifications authorized by the ATC generated actual emission reductions (AERs) for NO_x and SO_x emissions. The application for Emission Reduction Credits (ERCs) was received by the District on November 7, 2006, prior to the shutdown of the emission unit (see **Appendix B** for the ERC application).

Guardian currently operates under implemented ATC #C-598-4-8 (see **Appendix C** for the ATC). The primary modifications of the rebuild under ATC #C-598-4-8 were as follows:

- Install Selective Catalytic Reduction (SCR)
- Install high temperature dry scrubber
- Replace electrostatic precipitator
- Remove fuel oil firing capabilities (to natural gas w/LPG backup)
- Increase furnace combustion rating from 182 MMBtu/hr to 212 MMBtu/hr
- Increase potential production from 219,000 ton/year to 255,500 ton/year

Based on the historical data prior to the shutdown, the amounts of bankable AERs for NO_x and SO_x emissions are as follows in the table below. These values are calculated in Section V of this document:

Bankable AERs				
Pollutant	Bankable AERs (lb/year)	Bankable AERs (ton/year)	Bankable AERs (lb/qtr)	Bankable AERs (ton/qtr)
NO _x	437,497	218.7	109,374	54.7
SO _x	451,887	225.9	112,972	56.5

II. Applicable Rules:

- Rule 2201 - New and Modified Stationary Source Review Rule (9/21/06)
- Rule 2301 - Emission Reduction Credit Banking (12/17/92)
- Rule 4354 - Glass Melting Furnaces (9/17/06)

III. Location of Reductions:

Physical Location of Equipment: 11535 E. Mountain View Ave. in Kingsburg, CA.

IV. Method of Generating Reductions:

The AERs were generated by modifying the current furnace and the control system, as authorized by ATC #C-598-4-8 under District project C-1051269. The equipment description for each unit is as follows:

C-598-4-7 (Previous PTO):

182.0 MMBTU/HR FLOAT GLASS MANUFACTURING LINE THAT INCLUDES: A MELTING FURNACE, TIN FLOAT BATH, ANNEALING LEHR, A UNITED MCGILL 3-500 MODULAR ELECTROSTATIC PRECIPITATOR, AND IS EQUIPPED WITH A CONTINUOUS EMISSIONS MONITOR

C-598-4-8 (Implemented ATC):

MODIFICATION OF 182.0 MMBTU/HR FLOAT GLASS MANUFACTURING LINE THAT INCLUDES: A MELTING FURNACE, TIN FLOAT BATH, ANNEALING LEHR, A UNITED MCGILL 3-500 MODULAR ELECTROSTATIC PRECIPITATOR, AND IS EQUIPPED WITH A CONTINUOUS EMISSIONS MONITOR: REBUILD THE FURNACE, INSTALL A HIGH TEMPERATURE (DRY) SCRUBBER (C/U1), A NEW ELECTROSTATIC PRECIPITATOR (C/U2), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (C/U3), CONVERT THE FURNACE TO FIRING ON NATURAL GAS AND LPG, INCREASE FURNACE COMBUSTION RATING FROM 182.0 MMBTU/HR TO 212.0 MMBTU/HR, AND INCREASE PRODUCTION THROUGHPUT FROM 600 TONS/DAY TO 700 TONS/DAY

V. Calculations:

A. Assumptions

1. The glass furnace operates at a constant throughput on an annual basis, and has not been shutdown at anytime since 1996; therefore, quarterly AERs = Annual AERs ÷ 4.
2. Fuel Oil #4, 5, and 6 Heating Value = 150 MMBtu/1,000 gallons (AP-42, page 1.3-8, 9/98).

B. Emission Factors (EFs)

Actual Emissions Reductions (AERs) for use as emission offsets must be surplus. Per Rule 2201, section 3.2, surplus AERs shall be in excess, at the time of application for Emission Reduction Credit (ERC) or an Authority to Construct (ATC) authorizing such reductions is deemed complete, of any emissions reductions which:

- Is required or encumbered by any laws, rules, regulations, agreements, orders, or
- Is attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation plan, or
- Is proposed in the APCOs adopted air quality plan pursuant to the California Clean Air Act.

The ATC project that authorized the reductions was C-1051269, and was deemed complete on 6/21/05. Therefore, per Rule 2201, section 3.2, the AERs will be discounted based on that date. Prior to that date, glass furnaces were identified as a control measure category in the District's 2003 PM10 Plan. As a result, the District began the process to amend Rule 4354 (*Glass Melting Furnaces*) by conducting a public scoping meeting in 12/04, and public workshops in 5/05 and 3/06. The amended rule was adopted on 9/17/06. Since glass furnaces were identified as a control measure category prior to the date that the ATC application was deemed complete, the AERs will be discounted to the levels resulting from the control measure, which were adopted via Rule 4354 on 9/17/06.

The AERs will be conservatively discounted based on the above-described Rule 2201 section, and the District's emission factor (EF) hierarchy policy. Note, CEMs data is considered more representative than source testing data; therefore, for the pollutants which CEMs data is available (NOx and SOx), source testing data is not considered. The following tables present the pre-project emission factors (EF1) for which the AERs could possibly be based on; the selected EF1 is in bold:

EF1 - NO _x		
CEMs	PTO Limit	Rule 4354
9.2 lb/ton ¹	11.6 lb/ton	7.0 lb/ton

EF1 - SO _x		
CEMs	PTO Limit	Rule 4354
4.3 lb/ton ¹	5.6 lb/ton	NG/LPG fuel ⇒ 4.6 lb/ton ²

The EFs used to calculate the AERs are summarized in the following table:

EF Summary		
Pollutant	EF1	EF2 ³
NO _x	7.0 lb/ton	3.25 lb/ton
SO _x	4.3 lb/ton	1.2 lb/ton

C. Baseline Period Determination and Data

In accordance with District Rule 2201, Section 3.8, the baseline period is the two consecutive years of operation immediately prior to the submission of the complete application; **or** another period of at least two consecutive years within the five years immediately prior to the submission of the complete application if it is more representative of Normal Source Operations (NSO).

The facility has furnished production and fuel data from years 1996 - 2007. The baseline period has been determined to be the **three year period from 2003 to 2005** (see **Appendix D** for the Baseline Period Determination Calculations).

D. Historical Actual Emissions (HAE)

Historical Actual Emissions (HAE) are emissions having actually occurred during the baseline period and are calculated per Rule 2201, Section 3.22.

¹ Applicant provided CEMs data. See **Appendix E** for CEMs data.

² Rule 4354, Section 5.2 requires the use of PUC-quality natural gas, commercial propane, or LPG fuel. This EF is from sulfur mass balance calculations based on the facility's batch salt usage with zero sulfur from fuel as a conservative estimate. The value shown here is the average calculated EF during the baseline period (2003-2005). See **Appendix F** for sulfur mass balance spreadsheet.

³ Per ATC #C-598-4-8.

HAE			
Pollutant	EF1	Baseline Throughput*	HAE (lb/year)
NO _x	7.0 lb/ton	188,069 ton/year	1,316,483
SO _x	4.3 lb/ton		808,697

*See Appendix D for baseline throughput data.

E. Adjustments to HAE:

Adjustment for Rule 4354 - Glass Melting Furnaces:

The emission requirements of this rule are identified in Section V.B above for the applicable pollutants. The EF1 for each pollutant has been adjusted accordingly. No additional adjustments are needed for this rule.

Adjustment for Rule 4801 - Sulfur Compounds:

District Rule 4801 requires that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n \times R \times T}{P}$$

With:

N = moles SO₂

T (Standard Temperature) = 60 °F = 520 °R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = 10.73 psi-ft³/lb-mol-°R

Actual SO_x mass emissions during baseline period = 93.1 lb/hr (see **Appendix E**)

Actual fuel use during the baseline period = 997.7 gal/hr (see **Appendix E**)

Actual SO_x EF during baseline period =
93.1 lb-SO_x/hr × 1,000 gal/150 MMBtu × hr/997.7 gal

Actual SO_x EF during baseline period = 0.622 lb/MMBtu

EPA F-factor (adjusted to 60°F) = 9,051 dscf/MMBtu

Sulfur Concentration = 0.622 lb/MMBtu × MMBtu/9,051 dscf × lb-mol/64 lb
× 10.73 psi-ft³/lb-mol-°R × 520 °R/14.7 psi
× 1,000,000 parts/million

Sulfur Concentration = 408 parts/million < 2,000 ppmv (or 0.2%)

Since the actual sulfur emissions are less than 2,000 ppmv, no adjustment is needed for this rule.

Total Adjusted Historical Actual Emissions

Based on the discussions here in Section V.E, there are no additional adjustments made to the emission factors. All necessary adjustments were made during the EF1 determinations in Section V.B of this document.

F. Actual Emissions Reductions (AERs):

Per Rule 2201, Section 3.2, AERs are a decrease of actual emissions during the baseline period. For the proposed project:

AER = HAE - Post Project Potential to Emit (PE2)

PE2

The PE2 was calculated under project C-1051269 for ATC #C-598-4-8, as follows:

PE2			
Pollutant	EF2	Annual Throughput or Heat Input ⁴	PE2 (lb/year)
NO _x	3.25 lb/ton	255,500 ton	830,375
SO _x	1.2 lb/ton		306,600

Utilizing the HAE and PE2 calculated above, the AER for each pollutant are summarized in the table below:

AER = HAE - PE2

⁴ Per ATC #C-598-4-8.

AER			
Pollutant	HAE (lb/year)	PE2 (lb/year)	AER (lb/year)
NO _x	1,316,483	830,375	486,108
SO _x	808,697	306,600	502,097

G. Air Quality Improvement Deduction

The air quality improvement deduction (AQID), per Rule 2201, Section 3.5, is 10% of the AERs.

AQID		
Pollutant	AER (lb/year)	AQID (lb/year)
NO _x	486,108	48,611
SO _x	502,097	50,210

H. Bankable AERs

The bankable AERs presented below are determined by subtraction of the AQIDs from the AERs.

Bankable AERs				
Pollutant	Bankable AERs (lb/year)	Bankable AERs (ton/year)	Bankable AERs (lb/qtr)	Bankable AERs (ton/qtr)
NO _x	437,497	218.7	109,374	54.7
SO _x	451,887	225.9	112,972	56.5

VI. Compliance:

To comply with the definition of Actual Emissions Reductions (Rule 2201, Section 3.2.1 and Rule 2301, Sections 3.6 and 4.2.1), the reductions must be:

A. Real

The emissions reductions are real since they will be generated by the physical modifications listed below; and that the AERs were based on the difference between the HAE and PE2:

- Install Selective Catalytic Reduction (SCR)*
- Install high temperature dry scrubber*
- Replace electrostatic precipitator
- Remove fuel oil firing capabilities (to natural gas w/LPG backup)*

- Increase furnace combustion rating from 182 MMBtu/hr to 212 MMBtu/hr
- Increase potential production from 219,000 ton/year to 255,500 ton/year

*These specific modifications resulted in the real reductions of NOx and SOx emissions.

B. Enforceable

The reductions are enforceable since the PTO has been modified. Operation not according to the requirements of C-598-4-8 would subject the permittee to enforcement actions and/or require a PTO modification.

C. Quantifiable

The reductions are quantifiable since they were calculated from historic production and fuel use data, CEMs and source testing data, established EFs, permitted limits, and methods according to District Rule 2201.

D. Permanent

The reductions will be permanent since the changes are major physical changes where the facility cannot revert back to the old technology. Further, any change in operation, including an increase in emissions, would require a permit from the District. If the facility were to propose an increase in emissions in the future, offsets (as ERCs) will be required for 100% of the potential increase.

E. Surplus

The reductions are surplus of all permit and applicable rule requirements (see the sections V.B and V.E of this document).

F. Not used for the approval of an Authority to Construct or as offsets

The ERCs generated by the proposed modifications were not used for the approval of any ATC or as offsets.

G. Timely submittal

Section 5.5 of Rule 2301 states that ERC certificate applications for reductions shall be submitted within 180 days after shutdown. The application for Emission Reduction Credits (ERCs) was received by the District on November 7, 2006, prior to the shutdown of the emission unit on January 7, 2008 (see **Appendix B** for the ERC application). As such, the application was submitted in a timely fashion.

VII. Recommendation:

The District recommends that ERC Certificates be issued to Guardian for the amount indicated in Section V.H of this evaluation.

Appendices:

- Appendix A, Previous PTO #C-598-4-7
- Appendix B, ERC Application
- Appendix C, ATC #C-598-4-8
- Appendix D, Baseline Period Determination
- Appendix E, CEMs data
- Appendix F, Sulfur Mass Balance Spreadsheet
- Appendix G, Draft ERC Certificates

Appendix A

PTO #C-598-4-7

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-598-4-7

EXPIRATION DATE: 01/31/2008

EQUIPMENT DESCRIPTION:

182.0 MM BTU/HR FLOAT GLASS MANUFACTURING LINE TO INCLUDE: A MELTING FURNACE, TIN FLOAT BATH, ANNEALING LEHR, A UNITED MCGILL 3-500 MODULAR ELECTROSTATIC PRECIPITATOR, AND IS EQUIPPED WITH A CONTINUOUS EMISSIONS MONITOR.

PERMIT UNIT REQUIREMENTS

1. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
2. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (last amended 12/17/92). [District Rule 1081; PSD SJ 76-44] Federally Enforceable Through Title V Permit
3. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081; PSD SJ 76-44] Federally Enforceable Through Title V Permit
4. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
5. Source tests shall be conducted at maximum operating capacity for a given year. In no case less than 360 tons glass pulled per day or 109 MMBtu/hr. [District Rule 4354; PSD SJ 76-44] Federally Enforceable Through Title V Permit
6. The glass pull rate shall not exceed 600 tons per day. [District NSR Rule; District Rule 4354] Federally Enforceable Through Title V Permit
7. The melting furnace shall be fired only on fuel oil with grades #6 or lower. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Sulfur content of the fuel oil shall not exceed 0.6% by weight. [District NSR Rule] Federally Enforceable Through Title V Permit
9. Fuel oil consumption shall not exceed 1320 gallons per hour nor 11,563,000 gallons per year, except as otherwise provided in this document. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Records shall be maintained and shall contain: the daily glass pull rate; daily fuel oil consumption; daily raw material throughput; the amount of saltcake usage per 1000 pounds of sand; the occurrence and duration of any start-up, shutdown, malfunction, performance testing, calibrations, checks, adjustments, or any periods during which the CEM is inoperative; and the CEM emission measurements. [District Rules 1070 and Rule 1080, section 7.3] Federally Enforceable Through Title V Permit
11. A continuous emission monitoring (CEM) shall be operated and maintained in calibration. Reports of CEM data, in accordance with Rule 1080 section 8.0 (12/17/92) for NOx, SOx, O2 and opacity, shall be submitted to the District. [District Rule 1080] Federally Enforceable Through Title V Permit
12. The CEM system shall meet EPA 40 CFR Part 60, Appendix B - Performance Specifications and Appendix F - Quality Assurance Procedures. [District Rule 1080 and 4354] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: GUARDIAN INDUSTRIES CORP
Location: 11535 E MOUNTAIN VIEW AVE, KINGSBURG, CA 93631
C-598-4-7 - Jun 4 2009 10:47AM - CLEMENTE

13. A fuel oil analysis, to include sulfur content, shall be taken at the time of testing and the results of the analysis shall be submitted to the District along with the source test results. [District Rule 1081] Federally Enforceable Through Title V Permit
14. The data acquisition system must be maintained and operated to enable the District computer system to access the CEM data. [District Rule 1080] Federally Enforceable Through Title V Permit
15. Source testing to measure particulate matter including condensibles and particulate matter not including condensibles, shall be conducted using EPA Method 201A in combination with EPA Method 202, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rule 1081; PSD SJ 76-44] Federally Enforceable Through Title V Permit
16. Source testing to measure oxides of sulfur (as SO₂) shall be conducted using EPA Method 8, or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 4801 and 1081; PSD SJ 76-44] Federally Enforceable Through Title V Permit
17. Source testing to measure oxides of nitrogen (as NO₂) shall be conducted using EPA Method 7E, or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 4354 and 1081; PSD SJ 76-44] Federally Enforceable Through Title V Permit
18. Emissions shall not exceed 22 lb PM/hr including condensibles, 7.2 lb PM/hr not including condensibles, 140 lb SO_x/hr (as SO₂), 290 lb NO_x/hr (as NO₂), 5 lb CO/1000 gallons fuel, nor 1.13 lb VOC/1000 gallons fuel. [District NSR Rule; PSD SJ 76-44] Federally Enforceable Through Title V Permit
19. NO_x emissions rate shall not exceed calculated value as described in Section 5.4 of District Rule 4354 (as amended 02/21/02). [District Rule 4354] Federally Enforceable Through Title V Permit
20. Source testing for NO_x, SO_x, CO, VOC, and PM₁₀ shall be performed on an annual basis. [District Rule 4354, 6.0; District 2520, 9.3.2; PSD SJ 76-44] Federally Enforceable Through Title V Permit
21. CEMS data shall be reduced according to the procedures established in 40 CFR Part 51, Appendix P, or by other methods deemed equivalent by mutual agreement with the District, CARB, and the EPA. [District Rule 1080, 7.2] Federally Enforceable Through Title V Permit
22. Any violation of an emission standard must be reported to the APCO within 96 hours of detection. [District Rule 1080, 9.0] Federally Enforceable Through Title V Permit
23. Any breakdown in the continuous emission monitors shall be reported as soon as reasonably possible, but no later than eight hours after detection. The Owner/operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rule 1080, 10.0] Federally Enforceable Through Title V Permit
24. Fuel oil consumption shall not exceed 1228 gallons per hour on an average daily basis, until PSD SJ 76-44 Special Condition VIII is modified. [PSD SJ 76-44] Federally Enforceable Through Title V Permit
25. The facility shall not use commercial arsenic as a raw material in the production process. [40 CFR 61, Subpart N] Federally Enforceable Through Title V Permit
26. With approval from EPA, Guardian Industries Corporation may choose to conduct performance tests at production rates less than maximum operating capacity provided that actual plant production does not exceed the test rate. An increase in production levels beyond the maximum tested rate requires approval by EPA prior to such production increases. [PSD SJ 76-44] Federally Enforceable Through Title V Permit
27. The amount of saltcake (NaSO₄) in the batch formula shall not exceed 15 pounds per 1000 pounds of sand unless EPA approves a higher saltcake usage rate. [PSD SJ 76-44] Federally Enforceable Through Title V Permit
28. All emissions from the furnace shall be ducted to the electrostatic precipitator. [District NSR Rule and PSD SJ 76-44] Federally Enforceable Through Title V Permit
29. To ensure compliance with the PM emission limit, daily records of the transformers/rectifiers (T/R) primary and secondary voltage and current readings shall be maintained and made readily available for District inspection upon request. [District Rule 2520, 9.3.2, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

30. Source testing to measure VOCs shall be conducted using EPA Method 25A, expressed in terms of carbon, and in accordance with District Rule 1081, Section 6.0 (12/16/93). [District Rules 1081 and 4354, 6.5] Federally Enforceable Through Title V Permit
31. Source testing to measure CO shall be conducted using EPA Method 10 or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 4354 and 1081] Federally Enforceable Through Title V Permit
32. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (12/16/93), of 3 one-hour test runs for PM10; and the arithmetic mean of 3 forty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor to determine compliance with the emission limits. [District Rule 2520, 9.3.2; District Rule 4354, 5.5.1] Federally Enforceable Through Title V Permit
33. Permittee shall maintain an operating log for each furnace that includes: on a monthly basis, the total hours of operation; type and quantity of fuel used in each furnace; and the quantity of glass pulled. The owner shall maintain records of source tests and operating parameters established during initial source test, maintenance, repair, malfunction, idling, shutdown, and startup. This information shall be made available on site during normal business hours from Monday through Friday for a period of five years, and submitted to the APCO upon request [District Rule 4354, 6.3.1] Federally Enforceable Through Title V Permit
34. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR part 64.7. [40 CFR Part 64] Federally Enforceable Through Title V Permit
35. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR Part 64] Federally Enforceable Through Title V Permit
36. If the District or EPA determine that a Quality improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR Part 64] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

Appendix B
ERC Application

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

NOV 07 2006

APPLICATION FOR:


EMISSION REDUCTION CREDIT (ERC)
 CONSOLIDATION OF ERC CERTIFICATES

ERC WITHDRAWAL
 ERC TRANSFER OF OWNERSHIP

Permits Srvc
 SJVAPCD

1. ERC TO BE ISSUED TO: GUARDIAN INDUSTRIES CORP.						
2. MAILING ADDRESS: Street/P.O. Box: 11535 EAST MOUNTAIN VIEW AVENUE City: KINGSBURG State: CA Zip Code: 93631						
3. LOCATION OF REDUCTION: Street: 11535 EAST MOUNTAIN VIEW AVENUE City: KINGSBURG		4. DATE OF REDUCTION: Cold tank repair; Approximately: June 2008				
5. PERMIT NO(S): C - 598		EXISTING ERC NO(S): None				
6. METHOD RESULTING IN EMISSION REDUCTION: <input type="checkbox"/> SHUTDOWN <input type="checkbox"/> RETROFIT <input type="checkbox"/> PROCESS CHANGE <input checked="" type="checkbox"/> OTHER DESCRIPTION: Cold tank repair & installation of new technology pursuant to Rule 4354. (Use additional sheets if necessary)						
7. REQUESTED ERCs (In Pounds Per Calendar Quarter):						
	VOC	NOx	CO	PM10	SOx	OTHER
1ST QUARTER				TBD		
2ND QUARTER				TBD		
3RD QUARTER				TBD		
4TH QUARTER				TBD		
8. SIGNATURE OF APPLICANT: <i>J Booney</i>			TYPE OR PRINT TITLE OF APPLICANT: Plant Manager			
9. TYPE OR PRINT NAME OF APPLICANT: Jeff Booney			DATE: 11/6/06		TELEPHONE NO: (559) 896-6400	

FOR APCD USE ONLY:

DATE STAMP	FILING FEE RECEIVED: \$ 5453 650 ⁰⁰ DATE PAID: 11-7-06 PROJECT NO.: C-1063337 FACILITY ID.: C-598	
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Appendix C

ATC #C-598-4-8



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

AUTHORITY TO CONSTRUCT

PERMIT NO: C-598-4-8

ISSUANCE DATE: 06/05/2006

LEGAL OWNER OR OPERATOR: GUARDIAN INDUSTRIES CORP
MAILING ADDRESS: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631-9211

LOCATION: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631

EQUIPMENT DESCRIPTION:

MODIFICATION OF 182.0 MMBTU/HR FLOAT GLASS MANUFACTURING LINE TO INCLUDE: A MELTING FURNACE, TIN FLOAT BATH, ANNEALING LEHR, A UNITED MCGILL 3-500 MODULAR ELECTROSTATIC PRECIPITATOR, AND IS EQUIPPED WITH A CONTINUOUS EMISSIONS MONITOR: REBUILD THE FURNACE, INSTALL A HIGH TEMPERATURE (DRY) SCRUBBER (C/U1), A NEW ELECTROSTATIC PRECIPITATOR (C/U2), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (C/U3), CONVERT THE FURNACE TO FIRING ON NATURAL GAS AND LPG, INCREASE FURNACE COMBUSTION RATING FROM 182.0 MMBTU/HR TO 212.0 MMBTU/HR, AND INCREASE PRODUCTION THROUGHPUT FROM 600 TONS/DAY TO 700 TONS/DAY

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct; and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO



DAVID WARNER, Director of Permit Services

C-598-4-8 - Mar 14 2007 10:42AM - CLEMENTB - Joint Inspection Required with VILLEGAE

5. No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (11/15/01). If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and County Rules 401 (in all eight counties in the San Joaquin Valley)] Federally Enforceable Through Title V Permit
6. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with 40 CFR 60.8(e) and EPA test methods and shall be equipped with safe permanent provisions to sample stack gases. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring and Testing. [District Rule 1081; PSD SJ 76-44, X.F.4] Federally Enforceable Through Title V Permit
7. The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack gas NO_x, SO_x, and O₂ concentration and stack gas volumetric flow rate and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, Performance Specifications 2 and 3 or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 6.5 and 6.6, 2201, and 4354, 5.8 and 6.6; PSD SJ 76-44, X.C.1 and X.C.2] Federally Enforceable Through Title V Permit
8. The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rules 1080, 6.7 and 2201 and 40 CFR part 64] Federally Enforceable Through Title V Permit
9. Permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F, Procedure 1. [District Rules 1080 and 4354, 6.6.1; PSD SJ 76-44, X.C.2 and X.C.5] Federally Enforceable Through Title V Permit
10. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit
11. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit
12. Permittee shall comply with all requirements of Section 5.2.1 of District Rule 4534 (2/21/02) during startup. Startup exemption time shall not exceed 208 days, beginning from the time of primary combustion system activation. [District Rule 4354, 5.2.1.2; PSD SJ 76-44, X.E.4] Federally Enforceable Through Title V Permit
13. During startup, the stoichiometric ratio of the primary furnace combustion system shall not exceed 5% oxygen as calculated from the actual fuel and oxidant flow measurements for combustion in the furnace. [District Rule 4354, 5.2.2] Federally Enforceable Through Title V Permit
14. The emission control systems (ECS), C/Us 1, 2, and 3 shall be in operation at all times during normal operations, and whenever technologically feasible including during startup, idling and shutdown conditions. [District Rule 4354, 5.2.3, 5.3.2, 5.4.1; PSD SJ 76-44, X.E.7] Federally Enforceable Through Title V Permit
15. The furnace shall be in compliance with all requirements of District Rule 4354 (2/21/02) by the end of startup. [District Rule 4354, 7.0] Federally Enforceable Through Title V Permit
16. Furnace shutdown shall not exceed 20 days, measured from the time furnace operations drop below the idle threshold specified in Section 3.9 of District Rule 4354 (2/21/02) to when all emissions from the furnace cease. [District Rule 4354, 5.3.1] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

17. NO_x, CO and VOC emissions during idling shall not exceed the emissions limits as calculated using the following equation: NO_x, CO, or VOC (lb/day) = (Applicable Tier 1 or Tier 2 emission limit (in lbs/ton)) x (Furnace permitted production capacity (in tons/day)). [District Rule 4354, 5.4.2; PSD SJ 76-44, X.E.2] Federally Enforceable Through Title V Permit
18. All emissions from the furnace shall be ducted to the high temperature (dry) scrubber (C/U1), the electrostatic precipitator (C/U2), and the selective catalytic reduction (SCR) system (C/U3), prior to exhausting into the atmosphere. [District Rule 2201; PSD SJ 76-44, X.B.2] Federally Enforceable Through Title V Permit
19. The facility shall not use commercial arsenic as a raw material in the production process. [40 CFR 61, Subpart N] Federally Enforceable Through Title V Permit
20. The furnace shall be fired exclusively on PUC quality natural gas or LPG as a backup fuel. [District Rule 2201; PSD SJ 76-44, X.I.1] Federally Enforceable Through Title V Permit
21. The glass pull rate shall not exceed 700 tons per day. [District NSR Rule and District Rule 4354, 6.1.1.1; PSD SJ 76-44, X.D.1] Federally Enforceable Through Title V Permit
22. Start-up is defined as the period of time, after initial construction or a furnace rebuild, during which a glass melting furnace is heated to operating temperature by the primary furnace combustion system and instrumentation are brought to stabilization. Shutdown is defined as the period of time during which a glass melting furnace is purposely allowed to cool from operating temperature and molten glass is removed from the tank for the purpose of a furnace rebuild. Idling is defined as the operation of the furnace at less than 25 percent of the permitted production capacity or fuel use capacity as stated on the Permit to Operate. [District Rule 4354, 3.9, 3.21, 3.22; PSD SJ 76-44, X.E.4, X.E.5, and X.E.6] Federally Enforceable Through Title V Permit
23. NO_x emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 107.92 lb/hr or 3.70 lb/ton of glass pulled, based on a block 24-hour average; or 3.25 lb/ton of glass pulled, based on a rolling 30-day average. [District Rules 2201 and 4354, 5.1; PSD SJ 76-44, X.D.2] Federally Enforceable Through Title V Permit
24. SO_x emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed any of the following limits: 49.58 lb/hr or 1.7 lb/ton of glass pulled, based on a block 24-hour average; or 1.2 lb/ton of glass pulled, based on a rolling 30-day average. [District Rule 2201; PSD SJ 76-44, X.D.3] Federally Enforceable Through Title V Permit
25. PM₁₀ emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 20.42 lb/hr or 0.7 lb/ton of glass pulled. [District Rules 2201 and 4202; PSD SJ 76-44, X.D.4] Federally Enforceable Through Title V Permit
26. CO emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 22.05 lb/hr or 101 ppmv @ 8% O₂ (equivalent to 0.104 lb/MMBtu), based on a 3-hour rolling average. [District Rules 2201 and 4354, 5.1, 5.5.1] Federally Enforceable Through Title V Permit
27. VOC emissions from the glass melting furnace, except during periods of start-up, shutdown, and idling, shall not exceed either of the following limits: 0.83 lb/hr or 6.6 ppmv VOC @ 8% O₂ (equivalent to 0.0039 lb/MMBtu), based on a 3-hour rolling average. [District Rules 2201 and 4354, 5.1, 5.5.1] Federally Enforceable Through Title V Permit
28. CO emissions from the glass melting furnace exhaust shall not exceed 100 tons per year, based on a 12-month rolling average [District Rule 2201 and PSD SJ 76-44 X.D.5] Federally Enforceable Through Title V Permit
29. Ammonia (NH₃) emissions shall not exceed either of the following limits: 1.27 lb/hr or 10 ppmvd @ 8% O₂, based on a 24 hour rolling average. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
30. Each one hour period will commence on the hour. The three hour average will be compiled from the three most recent one-hour periods. The block 24-four hour average will be compiled of 24 one-hour periods, daily, starting from 12:00 AM to 11:59 PM, excluding periods of system calibration. [District Rules 2201 and 4354, 3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

31. Compliance with the ammonia emission limits shall be demonstrated utilizing one of the following procedures: 1) calculate the daily ammonia emissions using the following equation: $(\text{ppmvd @ 8\% O}_2) = ((a - (b \times c / 1,000,000)) \times (1,000,000 / b)) \times d$, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 8% O2 across the catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip; 2.) Utilize another District-approved calculation method using measured surrogate parameters to determine the daily ammonia emissions in ppmvd @ 8% O2. If this option is chosen, the permittee shall submit a detailed calculation protocol for District approval at least 60 days prior to commencement of operation; 3.) Alternatively, the permittee may utilize a continuous in-stack ammonia monitor to verify compliance with the ammonia emissions limit. If this option is chosen, the permittee shall submit a monitoring plan for District approval at least 60 days prior to commencement of operation. [District Rule 4102]
32. Source testing to measure the NOx, SOx, and PM10 emission rates (lb/hr and lb/ton of glass pulled) shall be conducted within 60 days after the end of the start-up exemption period and annually thereafter (within 60 days if the initial performance test anniversary). [District Rules 1081, 2520, and 4354, 6.4; PSD SJ 76-44, X.F.1] Federally Enforceable Through Title V Permit
33. Source testing to measure the CO emission rates (lb/hr and either lb/MMBtu or ppmvd @ 8% O2) shall be conducted within 60 days after the end of the start-up exemption period and annually thereafter (within 60 days if the initial performance test anniversary). [District Rules 1081, 2520, and 4354, 6.4; PSD SJ 76-44, X.F.1] Federally Enforceable Through Title V Permit
34. Source testing to measure the VOC and Ammonia emission rates (lb/hr and either lb/MMBtu or ppmvd @ 8% O2) shall be conducted within 60 days after the end of the start-up exemption period and annually thereafter (within 60 days if the initial performance test anniversary). [District Rules 1081, 2520, and 4354, 6.4] Federally Enforceable Through Title V Permit
35. Source tests shall be conducted at a minimum glass production pull rate equivalent to 90% of the maximum glass production pull rate achieved during the last year, unless otherwise approved by EPA. In no case less than 420 tons glass pulled per day or 127.2 MMBtu/hr. [District Rule 4354, 6.5.2; PSD SJ 76-44, X.F.6] Federally Enforceable Through Title V Permit
36. Upon written request from the Permittee, and adequate justification, EPA may waive a specific annual test and/or allow for testing to be done at less than 90% of maximum glass production pull rate achieved during the last year. [PSD SJ 76-44, X.F.7] Federally Enforceable Through Title V Permit
37. Compliance demonstration (source testing) shall be District witnessed or authorized and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the test methods and procedures specified in this permit. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081; PSD SJ 76-44, X.F.2 and X.F.5] Federally Enforceable Through Title V Permit
38. Source testing to measure oxides of nitrogen (as NO2) (ppmv) shall be conducted using EPA Method 7E, or ARB Method 100, or oxides of nitrogen (as NO2) (heat input basis) shall be conducted using EPA Method 19 and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 1081 and 4354, 6.5.1.1 and 6.5.1.2; PSD SJ 76-44, X.F.3.a and X.F.3.b] Federally Enforceable Through Title V Permit
39. The initial performance test conducted after furnace startup shall use the test procedures for a 'high NO2 emission site,' as specified in San Diego Test Method 100, to measure NO2 emissions. The source shall be classified as either a 'low' or 'high' NO2 emission site based on these test results. If the emission source is classified as a: a) 'high NO2 emission site,' then each subsequent performance test shall use the test procedures for a 'high NO2 emission site,' as specified in San Diego Test Method 100. b) 'low NO2 emission site,' then the test procedures for a 'high NO2 emission site,' as specified in San Diego Test Method 100, shall be performed once every five years to verify the source's classification as a 'low NO2 emission site.' [PSD SJ 76-44, X.F.3.a and X.F.3.b] Federally Enforceable Through Title V Permit
40. Source testing to measure oxides of sulfur (as SO2) shall be conducted using EPA Method 8 or EPA Method 6C, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 1081 and 4801; PSD SJ 76-44, X.F.3.c] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

41. Source testing to measure particulate matter (PM10) including condensibles, shall be conducted using EPA Method 201A in combination with EPA Method 202, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rule 1081; PSD SJ 76-44, X.F.3.d] Federally Enforceable Through Title V Permit
42. Source testing to measure Carbon Monoxide (CO) (ppmv) shall be conducted using EPA Method 10 or ARB Method 100, and in accordance with Rule 1081, section 6.0 (12/16/93). [District Rules 1081 and 4354, 6.5.1.3; PSD SJ 76-44, X.F.3.e] Federally Enforceable Through Title V Permit
43. Source testing to measure Volatile Organic Compounds (VOC) (ppmv) shall be conducted using EPA Method 25A, expressed in terms of carbon or other SIP approved Rule 4354 test methods, and in accordance with District Rule 1081, Section 6.0 (12/16/93). [District Rules 1081 and 4354, 6.5.1.4] Federally Enforceable Through Title V Permit
44. Source testing to measure stack gas oxygen shall be conducted using EPA Method 3 or 3A or ARB Method 100. [District Rules 1081 and 4354, 6.5.1.5; PSD SJ 76-44, X.F.3] Federally Enforceable Through Title V Permit
45. Source testing to measure ammonia shall be conducted using BAAQMD ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit
46. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit
47. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2 and 40 CFR 60.13; PSD SJ 76-44, X.C.4] Federally Enforceable Through Title V Permit
48. Cylinder Gas Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080 and 40 CFR 60 Appendix F; PSD SJ 76-44, X.F.8] Federally Enforceable Through Title V Permit
49. Any violation of an emission standard, as shown by the stack-monitoring system, shall be reported to the APCO within 96 hours of detection. [District Rule 1080, 9.0; PSD SJ 76-44, X.G.5] Federally Enforceable Through Title V Permit
50. Any breakdown in the continuous emission monitors shall be reported as soon as reasonably possible, but no later than eight hours after detection, unless the owner or operator demonstrates to the APCO's satisfaction that a longer reporting period was necessary, and shall initiate repairs. The Owner/operator shall inform the APCO of the intent to shut down the CEM at least 24 hours prior to the event. [District Rule 1080, 10.0] Federally Enforceable Through Title V Permit
51. Permittee shall maintain CEMS records that contain the following: the occurrence and duration of any or malfunction, performance testing, evaluations, calibrations, checks, adjustments, maintenance, duration of any periods during which a continuous monitoring system or monitoring device is inoperative, and emission measurements. [District Rule 1080, 8.0; PSD SJ 76-44, X.G.1] Federally Enforceable Through Title V Permit
52. Permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions; nature and cause of excess (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred or when the CEMS has not been inoperative, repaired, or adjusted. [District Rule 1080, 8.0; PSD SJ 76-44, X.G.2] Federally Enforceable Through Title V Permit
53. Permittee shall establish parameters for primary and secondary voltage and current, which provides a reasonable assurance of ongoing compliance with emission limitations stated in this permit. The initial parameters shall be established using at least 6 months of historical operating data and manufacturer/supplier recommendations. These parameters shall be reviewed annually and revised if necessary based on PM10 source test result data, historical operating data and manufacturer/supplier recommendations. [40 CFR part 64; PSD SJ 76-44, X.G.9] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

54. During each day of operation, the permittee shall record electrostatic precipitator voltage and current readings and compare the readings with the acceptable range of current and voltage levels established. Upon detecting any excursion from the acceptable range of current or voltage readings, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable [40 CFR part 64; PSD SJ 76-44, X.G.10] Federally Enforceable Through Title V Permit
55. Permittee shall maintain daily records of the total hours of operation, type and quantity of fuel used, and the quantity of glass pulled. The permittee shall also maintain records of all source tests, operating parameters established during source testing, all maintenance and repair performed, any periods of malfunction, and all periods of startup, idling, and shutdown. This information shall be made available on site during normal business hours from Monday through Friday, and submitted to the APCO upon request. [District Rules 1070 and 4354, 6.3.2; PSD SJ 76-44, X.E.3, X.G.7, and X.I.2] Federally Enforceable Through Title V Permit
56. Permittee shall maintain daily records of NOx and SOx emission rates in lb/ton of glass pulled to demonstrate compliance with the NOx and SOx emission limits. [District Rules 1070, 2201, and 4354; PSD SJ 76-44, X.G.8] Federally Enforceable Through Title V Permit
57. Permittee shall maintain records of NOx and SOx emission rates in lb/ton of glass pulled on a "30-day rolling average" to demonstrate compliance with the NOx and SOx emission limits. [District Rules 1070, 2201, and 4354] Federally Enforceable Through Title V Permit
58. Records shall be maintained and shall contain: the occurrence and duration of any malfunction; performance testing, calibrations, checks, adjustments, or any periods during which the CEM is inoperative; and the CEM emission measurements. [District Rule 1080, 7.3; PSD SJ 76-44, X.G.1] Federally Enforceable Through Title V Permit
59. All records required by this permit shall be maintained, retained on-site for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070, 2201, and 4354; PSD SJ 76-44, X.G.6] Federally Enforceable Through Title V Permit
60. The EPA shall be notified by facsimile or electronic mail transmission within two (2) working days following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in emissions above any allowable emission limit stated in the PSD permit. In addition, the EPA shall be notified in writing within fifteen (15) days of any such failure. The notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in the PSD permit, and the methods utilized to mitigate emissions and restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or of any law or regulation that such malfunction may cause, except as provided for in Section IV.B of the PSD permit. [PSD SJ 76-44, IV.A, IV.B, and IV.C] Federally Enforceable Through Title V Permit

Appendix D

Baseline Period Determination

Baseline Period Determination

Guardian (C-598-4)					
Season	Throughput (ton/year)	2-Year Block Differences vs NSO Average	3-Year Block Differences vs NSO Average	4-Year Block Differences vs NSO Average	5-Year Block Difference vs NSO Average
1996	183,970				
1997	191,690	This value is the smallest "difference" compared to the Normal Source Operation (NSO) average. Therefore, the 3 consecutive years associated with it (2003-2005) most closely represent NSO. As such, the baseline period is 2003-2005.			
1998	191,440				
1999	194,810				
2000	195,141				
2001	192,191				
2002	191,913				
2003	184,071				
2004	189,136	1,497			
2005	191,000	1,967	32		
2006	178,325	3,438	1,947	2,468	
2007	173,519	12,179	7,152	5,106	4,890
NSO Average	188,101				

=AVERAGE(B5:B16)

=ABS(\$B\$17-AVERAGE(B14:B16))

=ABS(\$B\$17-AVERAGE(B13:B16))

=ABS(\$B\$17-AVERAGE(B15:B16))

=ABS(\$B\$17-AVERAGE(B12:B16))

Baseline Period Average	
Glass Throughput (ton/year)	188,069

Appendix E

CEMs Data

Guardian Industries Corp. (C-598-4-7)
Summary of 2003-2005 Monthly CEM reports

Month/Year	NOx (lb/hr)	NOx (tons)	SOx (lb/hr)	SOx (tons)	Fuel (lb/hr)	Fuel (tons)	Fuel (GPH)	Fuel (Gal.)
Jan. 03	210.8	78.4	86.2	32.1	7702	2865.1	980.8	729679.3
Feb. 03	208.0	69.9	95	31.9	7902	2655.1	1006.2	676179.3
March. 03	214.8	79.9	99	36.8	7762	2887.5	988.4	735363.6
April. 03	208.3	75.0	95	34.2	7693	2769.5	979.6	705316.1
May. 03	202.4	75.3	95.7	35.6	7927	2948.8	1009.4	750995.5
June. 03	190.0	68.4	94.4	34.0	7913	2848.7	1007.6	725486.3
July. 03	210.6	78.3	97.1	36.1	7769	2890.1	989.3	736026.8
Aug. 03	182.6	67.9	101.1	37.6	7774	2891.9	989.9	736500.5
Sept. 03	184.4	66.4	92.7	33.4	7826	2817.4	996.5	717509.9
Oct. 03	187.9	69.9	83.3	31.0	7846	2918.7	999.1	743321.7
Nov. 03	187.1	67.4	98.4	35.4	7873	2834.3	1002.5	721819.0
Dec. 03	186.7	69.5	86.9	32.3	7967	2963.7	1014.5	754785.1
Average	197.8		93.7		7,829.5		997.0	
Totals		866.3		410		34,291		8,732,983
Jan. 04	197.6	73.5	87.7	32.6	8037	2989.8	1023.4	761416.8
Feb. 04	206.8	72.0	91.7	31.9	8107	2821.2	1032.3	718497.0
March. 04	208.0	77.4	95.4	35.5	8042	2991.6	1024.0	761890.5
April. 04	199.9	72.0	100.2	36.1	7992	2877.1	1017.7	732729.2
May. 04	194.3	72.3	106.1	39.5	8014	2981.2	1020.5	759237.8
June. 04	198.3	71.4	101.6	36.6	7987	2875.3	1017.0	732270.8
July. 04	206.1	76.7	99.3	36.9	7939	2953.3	1010.9	752132.4
Aug. 04	200.4	74.5	95.1	35.4	7917	2945.1	1008.1	750048.1
Sept. 04	204.0	73.4	82.4	29.7	7934	2856.2	1010.3	727411.6
Oct. 04	195.6	72.8	83	30.9	8064	2999.8	1026.8	763974.8
Nov. 04	190.1	68.4	90.5	32.6	8106	2918.2	1032.2	743181.1
Dec. 04	186.1	69.2	96	35.7	8040	2990.9	1023.8	761701.0
Average	198.9		94.1		8,014.9		1,020.6	
Totals		874		413		35,200		8,964,491
Jan. 05	182.4	67.9	94	35.0	8186	3045.2	971.1	722465.5
Feb. 05	188.7	63.4	92.5	31.1	8199	2754.9	972.6	653585.8
March. 05	193.1	71.8	95.6	35.6	8149	3031.4	966.7	719200.0
April. 05	187.3	67.4	87.7	31.6	8228	2962.1	976.0	702747.3
May. 05	198.2	73.7	87.3	32.5	8161	3035.9	968.1	720259.1
June. 05	197.5	71.1	84.2	30.3	8144	2931.8	966.1	695573.0

July 05	185.5	69.0	81.1	30.2	8087	3008.4	959.3	713728.1
Aug. 05	181.1	67.4	87.9	32.7	8127	3023.2	964.1	717258.4
Sept. 05	190.8	68.7	94.4	34.0	8218	2958.5	974.9	701893.2
Oct. 05	193.7	72.1	96.3	35.8	8369	3113.3	992.8	738616.4
Nov. 05	215.9	77.7	99.5	35.8	8401	3024.4	996.6	717523.1
Dec. 05	198.4	73.8	96.9	36.0	8427	3134.8	999.6	743735.2
Average	192.7		91.5		8,224.7		975.6	
Totals		844		401		36,024		8,546,585

Ave. 03-05: **196.5 lb-NOx/hr** **93.1 lb-SOx/hr** **997.7 gal/hr** **8,748,020 gal/year**
Ave. throughput 03-05: **188,069 ton/year**
EFs 03-05: **9.2 lb-NOx/ton** **4.3 lb-SOx/ton**

Appendix F

Sulfur Mass Balance Spreadsheet

	2003	2004	2005	2006	2007
Raw Matl (Consumed)					
Sand	89943.86	95283.23	100171.9	94812.68	87055.22
Soda Ash	22700.81	23576.05	24367.59	22918.06	21263.45
Dolomite	25832.52	26664.4	28861.74	26180.06	18750.03
Salt Cake	1157.25	1136.04	1222.61	1246.65	1188.31
Limestone	1655.82	1380.36	3338.64	5656.46	11527.28
Feldspathic Sand	0	0	0	0	1109.5
Calumite	2628.78	4091.15	1520.33	0	0
Charcoal	33.95	8.91	57.76	77.09	84.42
Rouge	21.33	27.01	31.8	47.85	34.51
EP Dust	0	29.26	18.34	17.63	14.77
Caustic 50%	4828.98	9467.01	11917.4	10876.8	10158.65
Cullet	59059.71	59840.8	53658.98	49381.48	51605.68

Pull Ton 184070.7 189135.6 191000.2 178324.5 173512.8

Oil Usage (Ton)	34402.32	35102.88	36355.67	36012.64	36354.76
SOx EF (lb/ton)	4.37	4.89	4.55	4.37	4.14
Baseline Period '03-'05 SOx EF (lb/ton)	4.60				

	2003
Raw Material	
Sand	89943.86
Soda Ash	22700.81
Dolomite	25832.52
Salt Cake	1349.158
Limestone	1655.82
Feldspathic Sand	0
Calumite	2628.78
Charcoal	33.95
Rouge	21.33
EP Dust	0
Caustic 50%	4828.98
Cullet	59059.71
Total Raw Material	148995.2
Pull Tons/Year	184070.7
Oil Usage (Ton)	34402.32

SLAG SULFUR	
SO3 %	0.26%
S %	0.87%

SALT CAKE SULFUR	
S%	22.29%

EP DUST SULFUR	
SO3 %	48.31%
S %	19.32%

GLASS SO3 %	0.213%
GLASS S %	0.0852%

FUSION LOSS %	-19.19%
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Fuel S %	0.000%
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Sulfur input per year (tons)	
From Oil	0
From Cullet	50.31887
From Salt Cake	300.7003
From EP DUST	0
From Slag	22.87039

Total Sulfur input (tons/yr)	373.8896
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Total Sulfur retained in glass (tons/yr)	156.83
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Sulfur Released to air	217.06
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Particulate (Stack)	10.55
Particulate (Before EP)	70.31
Sulfuric acid emission	0.56
SO2 emission (ton/year)	402.07
SO2 EF (lb/ton)	4.37

	2004
Raw Material	
Sand	95283.23
Soda Ash	23576.05
Dolomite	26664.4
Salt Cake	1429.248
Limestone	1380.36
Feldspathic Sand	0
Calumite	4091.15
Charcoal	8.91
Rouge	27.01
EP Dust	29.26
Caustic 50%	9467.01
Cullet	59840.8
Total Raw Material	161956.6
Pull Tons/Year	189135.6
Oil Usage (Ton)	35102.88

SLAG SULFUR	
SO3 %	0.26%
S %	0.87%

SALT CAKE SULFUR	
S%	22.29%

EP DUST SULFUR	
SO3 %	48.31%
S %	19.32%

GLASS SO3 %	0.213%
GLASS S %	0.0852%

FUSION LOSS %	-25.26%
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Fuel S %	0.000%
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Sulfur input per year (tons)	
From Oil	0
From Cullet	50.98436
From Salt Cake	318.5509
From EP DUST	5.654202
From Slag	35.59301

Total Sulfur input (tons/yr)	410.7825
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Total Sulfur retained in glass (tons/yr)	161.14
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Sulfur Released to air	249.64
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Particulate (Stack)	12.13
Particulate (Before EP)	80.87
Sulfuric acid emission	0.64
SO2 emission	462.41
SO2 EF (lb/ton)	4.89

	2005
Raw Material	
Sand	100171.9
Soda Ash	24367.59
Dolomite	28861.74
Salt Cake	1502.579
Limestone	3338.64
Feldspathic Sand	0
Calumite	1520.33
Charcoal	57.76
Rouge	31.8
EP Dust	18.34
Caustic 50%	11917.4
Cullet	53658.98
Total Raw Material	171788.1
Pull Tons/Year	191000.2
Oil Usage (Ton)	36355.67

SLAG SULFUR	
SO3 %	0.26%
S %	0.87%

SALT CAKE SULFUR	
S%	22.29%

EP DUST SULFUR	
SO3 %	48.31%
S %	19.32%

GLASS SO3 %	0.213%
GLASS S %	0.0852%

FUSION LOSS %	-25.08%
---------------	---------

Fuel S %	0.000%
----------	--------

Sulfur input per year (tons)	
From Oil	0
From Cullet	45.71745
From Salt Cake	334.8947
From EP DUST	3.544022
From Slag	13.22687

Total Sulfur input (tons/yr)	397.383
------------------------------	---------

Total Sulfur retained in glass (tons/yr)	162.73
--	--------

Sulfur Released to air	234.65
------------------------	--------

Particulate (Stack)	11.40
Particulate (Before EP)	76.01
Sulfuric acid emission	0.60
SO2 emission	434.65
SO2 EF (lb/ton)	4.55

	2006
Raw Material	
Sand	94812.68
Soda Ash	22918.06
Dolomite	26180.06
Salt Cake	1422.19
Limestone	5656.46
Feldspathic Sand	0
Calumite	0
Charcoal	77.09
Rouge	47.85
EP Dust	17.63
Caustic 50%	10876.8
Cullet	49381.48
Total Raw Material	162008.8
Pull Tons/Year	178324.5
Oil Usage (Ton)	36012.64

SLAG SULFUR	
SO3 %	0.26%
S %	0.87%

SALT CAKE SULFUR	
S%	22.29%

EP DUST SULFUR	
SO3 %	48.31%
S %	19.32%

GLASS SO3 %	0.213%
GLASS S %	0.0852%

FUSION LOSS %	-25.64%
---------------	---------

Fuel S %	0.000%
----------	--------

Sulfur input per year (tons)	
From Oil	0
From Cullet	42.07302
From Salt Cake	316.9778
From EP DUST	3.406821
From Slag	0

Total Sulfur input (tons/yr)	362.4576
------------------------------	----------

Total Sulfur retained in glass (tons/yr)	151.93
--	--------

Sulfur Released to air	210.53
------------------------	--------

Particulate (Stack)	10.23
Particulate (Before EP)	68.20
Sulfuric acid emission	0.54
SO2 emission	389.96
SO2 EF (lb/ton)	4.37

	2007
Raw Material	
Sand	87055.22
Soda Ash	21263.45
Dolomite	18750.03
Salt Cake	1322.471
Limestone	11527.28
Feldspathic Sand	1109.5
Calumite	0
Charcoal	84.42
Rouge	34.51
EP Dust	14.77
Caustic 50%	10158.65
Cullet	51605.68
Total Raw Material	151320.3
Pull Tons/Year	173512.8
Oil Usage (Ton)	36354.76

SLAG SULFUR	
SO3 %	0.26%
S %	0.87%

SALT CAKE SULFUR	
S%	22.29%

EP DUST SULFUR	
SO3 %	48.31%
S %	19.32%

GLASS SO3 %	0.213%
GLASS S %	0.0852%

FUSION LOSS %	-24.13%
---------------	---------

Fuel S %	0.000%
----------	--------

Sulfur input per year (tons)	
From Oil	0
From Cullet	43.96804
From Salt Cake	294.7523
From EP DUST	2.854155
From Slag	0

Total Sulfur input (tons/yr)	341.5745
------------------------------	----------

Total Sulfur retained in glass (tons/yr)	147.83
--	--------

Sulfur Released to air	193.74
------------------------	--------

Particulate (Stack)	9.41
Particulate (Before EP)	62.76
Sulfuric acid emission	0.50
SO2 emission	358.87
SO2 EF (lb/ton)	4.14

Appendix G

Draft ERC Certificates

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

**Emission Reduction Credit Certificate
C-1022-2**

ISSUED TO: GUARDIAN INDUSTRIES CORP
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
109,374 lbs	109,374 lbs	109,374 lbs	109,374 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Cold tank rebuild of flat glass manufacturing line (install SCR and scrubber, and convert from fuel oil to natural gas)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

**Emission Reduction Credit Certificate
C-1022-5**

ISSUED TO: GUARDIAN INDUSTRIES CORP
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: 11535 E MOUNTAIN VIEW AVE
KINGSBURG, CA 93631

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
112,972 lbs	112,972 lbs	112,972 lbs	112,972 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Cold tank rebuild of flat glass manufacturing line (install SCR and scrubber, and convert from fuel oil to natural gas)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

Attachment C-4

**ERCs S-3305-1, S-3557-1, and S3605-1 original application review
original project # 920416**

ERC APPLICATION REVIEW

6026001/101/201/401/501/601

Facility Name: FRITO-LAY, INC. **Project #:** 6026 920416
Mailing Address: 222801 Highway 58 **WP File #:** 92LE026
Bakersfield, CA 93312

Contact Name: H.C. Bradbury
Title: Group Manager, Environmental Policy & Affairs
Phone: (214) 334-4742

ERC APPLICATION REVIEW

DEEMED COMPLETE: 6/22/92
DATE START: 4/16/92
DATE FINISH: 12/16/92

ENGINEER: Lance Ericksen
TITLE: Senior AOE

6026001/101/201/401/501/601

Facility Name: FRITO-LAY, INC.
Mailing Address: 222801 Highway 58
Bakersfield, CA 93312

Project #: 6026 920416
WP File #: 92LE038

Contact Name: H.C. Bradbury
Title: Group Manager, Environmental Policy & Affairs
Phone: (214) 334-4742

I. PROPOSAL:

This review is required to in order revise the amount of NO2 credit and conditions noticed in the preliminary decision to grant ERC Banking Certificates to Frito-Lay. The previous notice was published September 19, 1992. The revisions are necessary to respond to two of the comments received from the applicant during the public comment period:

Comment 1

In the preliminary decision analysis (page 10) the permitted production rate and actual emissions were used to determine the NO2 emission factor. Frito-lay commented the actual production rate during the source test should be used to establish the emission factor. In response to this comment the NO2 emission factor calculation was revised. This results in an increase in the amount of NO2 emission reduction credits previously noticed.

Comment 2

The Banking and New Source Review Rules now in effect contain provisions for the use of shutdown credits and any reductions banked under these rules should be subject to these provisions. The applicant commented that the reductions were limited to use at their snack food facility because the rules that were in effect at the time the reductions were originally recognized did not provide for use of shutdown emissions however, the previous agreements allow the use at their facility. In response to this comment the use of these reductions will not be restricted to the Frito-lay snack food facility.

The remainder of this analysis includes all original pages from the preliminary decision ERC Application Review noticed on September 19, 1992. If a page has not been revised it is noted at the top of the page. If a page is replaced it is shown in strike out after the revised page.

I. PROPOSAL CONT.:

In response to comments from Frito-Lay the following emission reductions have been found to qualify for banking:

	Pounds per Quarter				
	PM10	SO2	NO2	VOC	CO
1st Qt	24,975	161,703	18,702	229,968	90,000
2nd Qt	25,252	163,500	18,910	232,523	91,000
3rd Qt	25,530	165,296	19,118	235,078	92,000
4th Qt	25,530	165,296	19,118	235,078	92,000

Note: only the amount of NO2 is revised.

ERC APPLICATION REVIEW

~~DEEMED COMPLETE:~~ 6/22/92 ~~ENGINEER:~~ Lance Erickson
~~DATE START:~~ 4/16/92 ~~TITLE:~~ Senior AOE
~~DATE FINISH:~~ _____
 _____ 6026001/101/201/401/501/601

~~Facility Name:~~ FRITO LAY, INC. ~~Project #:~~ 6026 920416
~~Mailing Address:~~ 222801 Highway 58 ~~WP File #:~~ 92LE026
Bakersfield, CA 93312

~~Contact Name:~~ H.C. Bradbury
~~Title:~~ Group Manager, Environmental Policy & Affairs
~~Phone:~~ (214) 334-4742

I. SUMMARY:

~~The applicant is requesting ERC Banking Certificates for reductions occurring prior to January 1, 1988. The reductions were obtained from the shutdown of Continental Carbon a carbon black production facility for use as offsets at the Frito-Lay snack food facility. These reductions were recognized in writing by the District as available for offsets prior to adoption of the Kern County banking rule. This allows the applicant to apply for ERC Banking Certificates pursuant to Rule 230.1 IV.A.1. As the offsets were previously recognized for use only at the Frito-Lay facility any credits available for banking will also be limited for use at the Frito-Lay Snack Food Facility.~~

~~A portion of the original reductions was used for approval of the current Frito-Lay Snack Food Facility in addition a portion of the reductions were donated to the KCAPGD in 1989. The reductions dedicated to previous projects and the portion donated to the District is not surplus and the applicant has not requested to bank these amounts. Of the remaining previously recognized credits the PM10, SO2, VOC and CO qualify for banking as actual emission reductions. The amount of NO2 previously recognized as available for offsets was based on the permit limitation not actual emissions. The amount of NO2 credit requested has therefore been reduced to the remaining actual emissions.~~

~~The following emission reductions have been found to qualify for banking:~~

	Pounds per Quarter				
	PM10	SO2	NO2	VOC	CO
1st Qt	24,975	161,703	3,960	229,968	90,000
2nd Qt	25,252	163,500	4,004	232,523	91,000
3rd Qt	25,530	165,296	4,048	235,078	92,000
4th Qt	25,530	165,296	4,048	235,078	92,000

II. APPLICABLE RULES:

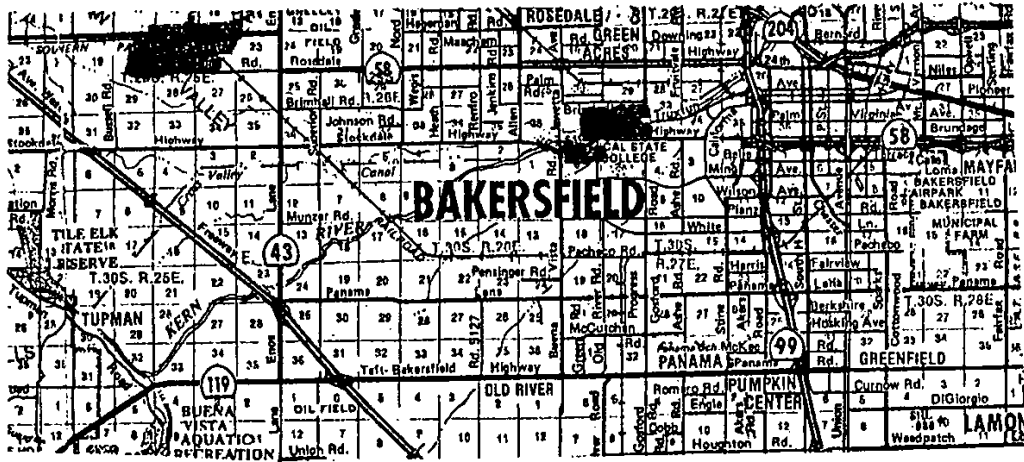
Rule 230.1 - Emission Reduction Credit Banking (March 11, 1992)

To qualify for banking the emissions reductions must comply with the requirements of subsection IV.A.2. The requirements of this subsection are summarized below:

1. Emissions reductions must have been recognized by the District pursuant to a banking rule or for counties that did not have a banking rule that were formally recognized in writing by the District as available for offsets.
2. The Control Officer determines that such emissions reductions comply with the definition of Actual Emissions Reductions, and such reductions are real, surplus, permanent, quantifiable, and enforceable.
3. The reductions have not been used for the approval of an Authority to Construct or used as offsets.
4. The reductions are included in or have been added to the 1987 emissions inventory.
5. The banking application must be filed within 180 days of the date of rule adoption.

III. LOCATION:

The carbon black facility was located 8 miles west of Bakersfield on Stockdale Highway Section 14, Township 32S, Range 23E. The Frito-Lay facility is located west of Bakersfield on highway 58 at Section 20, Township 29S, Range 25E. A map showing the relative locations of the facilities are shown on page 3. The use of these reductions as offsets at the Frito-Lay Snack Food Facility will be subject to the distance offset ratios required by the New Source Review Rule.



Location of reductions 20807 Stockdale Hwy

IV. METHOD OF GENERATING REDUCTIONS:

The applicant has applied to bank reductions which were obtained from Continental Carbon generated by the shutdown of their carbon black manufacturing operation. Frito-Lay acquired the operating permits for the facility in order to provide offsets for their snack food manufacturing facility. These reductions occurred prior to adoption of a banking rule in Kern County. In order to maintain the emissions reductions for future use as offsets Frito-Lay has maintained permits on some of the carbon black manufacturing operation. Under the provisions of Rule 230.1 adopted September 19, 1991 in order to continue to maintain these reductions for use as offsets Frito-Lay must obtain ERC Banking Certificates. These reductions have previously been recognized and quantified by the following events:

<u>Date</u>	<u>Summary</u>
9/10/79	Continental Carbon (CC) Shutdown
7/1/82	Frito-Lay (dba The Food Company) Purchases CC PTOs
9/13/82	Letter from TFC to KCAPCD Requesting Emissions Reductions be Established for Offsets
12/22/82	Letter from TFC to KCAPCD Requesting Emissions Revising 9/13/82 Request.
2/25/82	Letter from KCAPCD Recognizing Credits
4/25/83	KCAPCD Adopts Banking Rule
11/11/83	Frito-Lay Issued ATCs Using a Portion of Credits for Offsets
12/21/87	Letter from KCAPCD to Frito-Lay Describing Methods to Maintain Remaining Credits for Future Use
6/21/88	Letter from KCAPCD to Frito-Lay Recognizing Remaining Credits

The use of these credits by Frito-Lay has previously been reviewed by CARB and EPA.

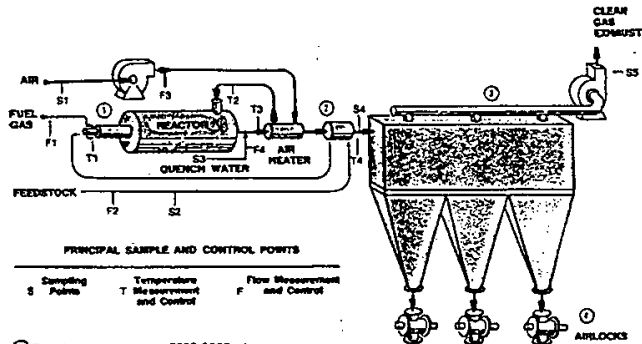
V. CALCULATIONS:

A. General

The carbon black facility was comprised of two independent carbon black production trains. Unit 1 produced a hard type or tread grade carbon black. Unit 2 produced a soft type or carcass grade carbon black. Both units used the oil furnace process for production of carbon black. Flow diagrams and a description of the process used is shown on page 5A.

Credits generated are associated with eight permits to operate for the carbon black facility the equipment associated with each permit is:

6026001	Unit 1 Reactors
6026002	Unit 1 Pulverizer/pelletizers
6026003	Unit 1 Dryer
6026004	Unit 1 Screens/separators/storage/bagging/loadout
6026005	Unit 2 Reactors
6026006	Unit 2 Pulverizer/pelletizers
6026007	Unit 2 Dryer
6026008	Unit 2 Screens/separators/storage/bagging/loadout



PRINCIPAL SAMPLE AND CONTROL POINTS

S	T	F
Sampling Points	Temperature Measurement and Control	Flow Measurement and Control
S1	T1	F1
S2	T2	F2
S3	T3	F3
S4		F4
S5		

Page 5A

- ① Reactor temperature 2300-3000 degrees F. Oil cracked principally to carbon and hydrogen.
- ② Carbon-laden gasses cooled by direct water sprays (to about 1000 degrees F.), further cooled by heat exchange with process air and feedstock.

- ③ Cooled reaction mixture (400-500 degrees F.) passes into silicone-coated glass fabric bags; closed end at top, open end inserted into cell plates at the floor.

QUALITY "BUILT IN" AT HEART OF PROCESS — THE AUTOMATIC CONTINEX BLACK REACTOR

Disassembled representation of "typical" Continex Reactor

Special design very low carbon-ash and low-ash blacks, include internal baffling and other special features, basic construction, however, extremely straightforward and amenable to proper automatic control.

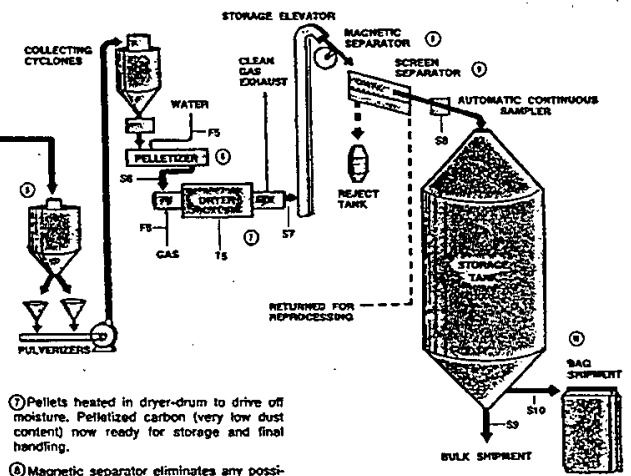
Consistent production of quality carbon black requires consistent reactor conditions — temperature, flow rates, and dimensions. Continex reactors are easily maintained to exact inside dimensions. Reaction tubes are easily changed when wear first occurs. The internal design may be altered quickly for rapid response to specific quality and product demands.

Continex-reactor design came from years of experimentation and pilot-plant testing. The critical reaction tubes are fabricated by lining pipe with high-grade castable alumina refractory. These tubes are the key to stable operations and are carefully made by the people responsible for their use.

- ④ Outlet-header damper valves close at pre-set intervals (one filter at a time). Reverse flow of clean effluent gas forces collected carbon black to fall into hopper.
- ⑤ Pulverizers break up and disperse very small quantities of agglomerates if present.
- ⑥ Pulverized black (light, fluffy product with density about 3-4 lbs/ft³) conveyed to tubular mixing box for pelletizing. Water sprayed in, black and water whipped into small pellets by revolving pins.

- ⑦ Black packaging done by specially-designed air-flow valve packer developed by Continex engineers. Filling and weighing automatic, check weighed on second scale. Operator hand closes bag when weight exact. From check weighing, bags automatically transferred to bag shaper, utilizing glue applicator, and stacked on pallets. Material being pulled into bags identified by production date marked on each pallet. Grade printed on bags.

Bulk storage uses different identification method since blending occurs during loading and unloading. Preshipment tests define and assure exact quality.



- ⑦ Pellets heated in dryer-drum to drive off moisture. Pelletized carbon (very low dust content) now ready for storage and final handling.
- ⑧ Magnetic separator eliminates any possible iron contamination.
- ⑨ In the screen separator large pellets are trapped by the top, coarse screen. Desired material is trapped by the middle, fine screen. Very fine material falls through both screens and is combined with the large material for reprocessing.



Continex, the long mileage carbon blacks.

12/17/92 14:20 S. JOHNSON V. U. HIR P.C.D. 003

V. CALCULATIONS:B. PM-10, CO and VOC Emissions Reductions

Emission reductions previously recognized by the District of PM-10, CO and VOC are based on AP-42 Table 5.3-3 emission factors and actual carbon black production for the facility. These factors were adjusted to reflect recycle of main process vent gases installed at the facility in 1978. Source testing showed recirculation reduced emissions of CO and VOC by 29.5%. Carbon black production data for the baseline period is shown on page 7.

Emission factors used for PM10, CO and VOC are:

	PM10	Pounds/Ton Product	
		CO	VOC (non-methane)
Main process vent	6.53	2,800	100
Combined dryer vent	0.45	-	-
Pneumatic system vent	0.58	-	-
Oil storage tank vent	-	-	1.44
Vacuum clean-up system	0.06	-	-
Fugitive emissions	0.20	-	-
Total	7.82	2,800	101.44
Less 29.5% (no impact TSP)	-	826	29.92
Emission Factor	7.82	1,974	71.52

(Note: as the dryer vent at this facility was uncontrolled a factor of .45 was used)

Conversion of TSP to PM-10

As noted in AP-42 page 5.3-1 Carbon Black is "... extremely fine black fluffy particulate, 10 to 500 nm diameter. Therefore although the AP-42 factor is listed as TSP it can be concluded that all emissions of particulate matter from the carbon black production facility are also 10 microns or less. Thus the TSP emissions are 100% PM-10.

Average daily emissions over the baseline period are therefore:

	<u>PM10</u>	<u>VOC</u>	<u>CO</u>
Unit 1	279.4	2555.2	70,531.0
Unit 2	280.7	2221.4	61,317.2
Total	<u>560.1</u>	<u>4776.6</u>	<u>131,848.2</u>

V. CALCULATIONS CONT.:

Production Data:

<u>YEAR</u>	<u>Pounds/Year Carbon Black</u>	
	<u>Unit #1</u>	<u>Unit #2</u>
1979	21,116,800	27,492,600
1978	20,848,100	24,922,400
1977	30,000,300	25,828,200
1976	18,703,000	21,786,500
1975	24,327,900	25,190,700
1974	32,349,100	26,538,000
1973	32,037,800	30,009,200
1972	29,294,000	27,865,100
Average (8 years)	26,084,625	26,204,087
Tons/Day (lbs/year/ 365x2000)	35.73	35.90

PAGE NOT REVISED

V. CALCULATIONS CONT.:

C. SO₂ Emissions Reductions

The quantity of SO₂ emissions reductions previously recognized by the District is based on the specific limiting condition for the facility.

$$\begin{aligned} \text{SOx specific limiting condition } & 198.9 \text{ lbs/hr} \times 24 \text{ hr/day} \\ & = 4,773.6 \text{ pounds/day} \end{aligned}$$

This previously recognized amount was compared to actual emissions over the baseline method using AP-42 emission factors and by a method (mass balance for sulfur in fuel, feedstock and carbon black) reported by I. Drogin in the Journal of the Air Pollution Control Association. These calculations of actual emissions (see pages _____) indicate actual emissions are equivalent to the specific limiting condition. Therefore the previously recognized SO₂ emissions may be considered actual emissions reductions.

V. CALCULATIONS CONT.:D. NO2 Emissions Reductions

The quantity of NO2 emissions reductions previously recognized by the District is based on the specific limiting condition for the facility. The specific limiting conditions for the permit are the maximum legal emission from an operation and therefore do not quantify real and actual emissions over the baseline period. To quantify actual emissions of NO2 source test data for the stationary source from November 1978 was used with the actual carbon black production over the baseline period. The source test data is summarized as follows:

Unit #	Stack #	Description	NO2 lb/hr	
1	1	Main Bagfilter	5.97	
1	2	Main Bagfilter	6.10	
1	3	Oil Preheater	1.30	
1	4	Firebox Stack	13.80	
1	5	Exhaust Bagfilter	1.79	Total Unit 1 <u>28.96</u>
2	6	Main Bagfilter	0.32	
2	7	Main Bagfilter	0.28	
2	8	Oil Preheater	0.72	
2	9	Firebox Stack	9.69	
2	10	Exhaust Bagfilter	2.53	Total Unit 2 <u>13.53</u>
		Boiler #1	not tested	
		Boiler #2	not tested	

V. CALCULATIONS CONT.:

Actual emissions over the baseline period are:

Basis:

Source test unit 1 NO2 emissions 28.96 lbs/hr
Source test unit 1 production rate 52.80 tons/day
Average unit 1 production rate 35.73 tons/day (see page 7)

Source test unit 2 NO2 emissions 13.53 lbs/hr
Source test unit 2 production rate 53.76 tons/day
Average unit 2 production rate 35.90 tons/day (see page 7)

Unit 1 Actual NO2 Emissions:

$$\frac{28.96 \text{ lb}}{\text{hr}} \mid \frac{24\text{hr}}{\text{day}} \mid \frac{35.73 \text{ tons/day average}}{52.80 \text{ tons/day test}} = \underline{470.34 \text{ lbs/day}}$$

Unit 2 Actual NO2 Emissions:

$$\frac{13.53 \text{ lb}}{\text{hr}} \mid \frac{24\text{hr}}{\text{day}} \mid \frac{35.90 \text{ tons/day average}}{53.76 \text{ tons/day test}} = \underline{216.84 \text{ lbs/day}}$$

Total NO2 Actual Emissions 470.34 + 216.84 = 687.2 lbs/day

* Revised per information submitted by applicant showing actual production rate see Appendix A

~~V. CALCULATIONS CONT.~~

~~Actual emissions over the baseline period are:~~

~~Basis:~~

~~Source test unit 1 NO2 emissions 28.96 lbs/hr
Source test unit 1 production rate 6381.7 lbs/hr or 76.56 tons/day
Average unit 1 production rate 35.73 tons/day (see page _____)~~

~~Source test unit 2 NO2 emissions 13.53 lbs/hr
Source test unit 2 production rate 4887.6 lbs/hr or 58.56 tons/day
Average unit 2 production rate 35.90 tons/day (see page _____)~~

~~Unit 1 Actual NO2 Emissions:~~

~~$$\frac{28.96 \text{ lb}}{\text{hr}} \times \frac{24 \text{ hr}}{\text{day}} \times \frac{35.73 \text{ tons/day average}}{76.56 \text{ tons/day test}} = \underline{\underline{324.37 \text{ lbs/day}}}$$~~

~~Unit 2 Actual NO2 Emissions:~~

~~$$\frac{13.53 \text{ lb}}{\text{hr}} \times \frac{24 \text{ hr}}{\text{day}} \times \frac{35.90 \text{ tons/day average}}{58.56 \text{ tons/day test}} = \underline{\underline{199.07 \text{ lbs/day}}}$$~~

~~Total NO2 Actual Emissions $324.37 + 199.07 = \underline{\underline{523.44 \text{ lbs/day}}}$~~

**TABLE III
SO₂/H₂S EMISSION PROJECTIONS**

Per I. Drogin, emitted Sulfur compounds = 90% of Sulfur in feedstock. Therefore,
(71.55 TPD carbon black) (394 gal feedstock/T produced) (8.98 lbs/gal) (0.0136S)
(0.90) = 3098.6 lbs/day as S

If completely oxidized, then

(3098.6 lbs/day S) (64 lbs/lbs mole SO₂) = 6200 lbs/day SO₂

32 lbs/lbs mole S



AP-42 Emission Factors

Source	AP-42 lbs/Ton SO ₂ /H ₂ S	SO ₂ /H ₂ S lbs/day
Main Process Vent	0 /60	0 /4293
Dryer Vent	0.52/0	37.2/0
Bollers	142S (lbs/10 ⁶ gal)	240 /0

If 50% of reactor exhaust (main process vent) is used as combustion air/fuel for preheaters and dryer drums, resulting in the oxidation of 50% of above H₂S emissions shown in the main process vent exhaust, then

(4293 lbs/day H₂S) (0.50) (64 lbs/lb mole SO₂) = 4040.47 lbs/day SO₂

(34 lbs/lb mole H₂S)



Continental Carbon Company

ATTACHMENT B

March 22, 1983

Mr. H. C. Bradbury
Frito-Lay, Inc.
P. O. Box 47250
Dallas, TX 75247

Dear Mr. Bradbury:

Listed are the average sulfur content of feedstock oils used at the Bakersfield plant per your letter of 3-11-83.

The Bakersfield plant started using liquid fuels in reactors during September, 1977. Before this time, natural gas was the reactor fuel.

<u>YEAR</u>	<u>FEEDSTOCK OIL</u> % sulfur by weight	<u>FUEL OIL</u> % sulfur by weight
1972	1.40%	-
1973	1.53%	-
1974	1.64%	-
1975	1.65%	-
1976	1.38%	-
1977	1.08%	0.79%
1978	Unit 1 1.22%, Unit 2 1.16% (avg 1.19)	same as feedstock (1.19)
1979	1.12%	1.12%
1980	0.80%	0.76%
1981	0.77%	0.79%

The pounds of hydrogen sulfide emissions from Bakersfield plant stacks during the years 1972-1976 are estimated to be as follows:

<u>YEAR</u>	<u>H₂S EMISSIONS</u> <u>FROM UNIT 1</u>	<u>H₂S EMISSIONS</u> <u>FROM UNIT 2</u>	<u>TOTAL</u> <u>H₂S EMISSIONS</u>
1972	234,243 lbs.	285,961 lbs.	520,204 lbs.
1973	279,972 "	336,560 "	616,532 "
1974	303,016 "	319,028 "	622,044 "
1975	215,375 "	286,213 "	501,588 "
1976	147,418 "	220,387 "	367,805 "

VI. COMPLIANCE:

- A. Emissions reductions must have been recognized by the District pursuant to a banking rule or for counties that did not have a banking rule that were formally recognized in writing by the District as available for offsets.

The emission reductions were recognized in writing by the District in February 25, 1983. A copy of this correspondence is shown Appendix B. Kern County Air Pollution Control District Rule 210.3 - Emission Reductions Banking was adopted April 25, 1983 therefore, at the time the reductions were recognized the District did not have a banking rule. The reductions therefore satisfy the requirement that they were recognized in writing in a county that did not have a banking rule.

- B. The Control Officer determines that such emissions reductions comply with the definition of Actual Emissions Reductions, and such reductions are real, surplus, permanent, quantifiable, and enforceable;

Actual Emissions Reductions

The Rule 230.1 definition of Actual Emissions Reductions states they are as defined in the District's New Source Review Rule. If the reductions are authorized by an Authority to Construct the adjustments made to the actual emissions reductions be as defined in the New and Modified Source Rule, shall be based on the rules, plans, workshop notices at the time the application for such Authority to Construct was deemed complete.

The Rule 220.1 definition of Actual Emissions Reductions states in part they are reductions of actual emissions from an emissions unit selected for emission offsets or banking, from the baseline period. Actual emission reductions shall be calculated pursuant to section V of this rule

The Rule 220.1 definition of Actual Emissions states they are measured or estimated emissions which most accurately represent the emissions from an emissions unit.

Rule 220.1 section V. - Calculations - states the following procedures shall be performed separately for each pollutant, and for each emissions unit or for a concurrent stationary source modification. All calculations shall be performed on a quarterly basis, unless specified otherwise.

For the shutdown of an emissions unit section V.E.2. of Rule 220.1 requires the actual emission reduction to be the Historic Actual Emissions prior to shutdown. Section V. also defines historic actual emissions as emissions having actually occurred based on source tests or calculated using actual fuel consumption or process weight, recognized emissions factors or other data approved by the Control Officer which most accurately represent the emissions during the baseline period.

VI. COMPLIANCE:

The emissions calculations shown in the preceding section are based on actual process weight, and for PM10, VOC and CO on recognized emissions factors (AP-42) for carbon black plants. The SO2 emissions are validated on feedstock sulfur content and a mass balance. The NO2 emissions are based on actual process weight and source test information. The emissions therefore qualify as Historic Actual Emissions.

The baseline period used in the original quantification of the emissions reductions was the eight year period 1972-1979. The use of this baseline period is not prohibited by Rules 220.1 and 230.1. These reductions were calculated on an annual daily basis. Because this type of source is not subject to seasonal variations emissions can be expected to be evenly distributed over the year. Thus the reductions may be converted to a quarterly basis by multiplying the daily reduction by the number of days in each quarter. Therefore, the following emissions reductions are actual emissions reductions calculated in conformance with Rule 220.1 and 230.1:

	<u>Daily Emissions</u>	<u>Reference Page</u>
PM10	560.1	8
SO2	2,768.3	22 <i>6</i>
NO2	687.2	26 <i>6</i> - 4775-6114
VOC	4,776.6	8 <i>iC</i>
CO	131,848.2	8 <i>6</i>

	<u>Quarterly Emissions</u>			
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Days/Qtr	90	91	92	92
PM10	50,409	50,969	51,529	51,529
SO2	249,147	251,915	254,684	254,684
NO2	61,848	62,535	63,222	63,222
VOC	429,894	434,671	439,447	439,447
CO	11,866,338	11,998,186	12,130,034	12,130,034

As these reductions were recognized prior to 8/22/89 no adjustment for the community bank is required.

VI. COMPLIANCE

The emissions calculations shown in the preceding section are based on actual process weight, and for PM10, VOC and CO on recognized emissions factors (AP-42) for carbon black plants. The SO2 emissions are validated on feedstock sulfur content and a mass balance. The NO2 emissions are based on actual process weight and source test information. The emissions therefore qualify as Historic Actual Emissions.

The baseline period used in the original quantification of the emissions reductions was the eight year period 1972-1979. The use of this baseline period is not prohibited by Rules 220.1 and 230.1. These reductions were calculated on an annual daily basis. Because this type of source is not subject to seasonal variations emissions can be expected to be evenly distributed over the year. Thus the reductions may be converted to a quarterly basis by multiplying the daily reduction by the number of days in each quarter. Therefore, the following emissions reductions are actual emissions reductions calculated in conformance with Rule 220.1 and 230.1:

Daily Emissions Reference Page

PM10	560.1	8
SO2	2,768.3	22
NO2	523.4	26
VOC	4,776.6	8
CO	131,848.2	8

Quarterly Emissions

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Days/Qtr	90	91	92	92
PM10	50,409	50,969	51,529	51,529
SO2	249,147	251,915	254,684	254,684
NO2	47,106	47,629	48,153	48,153
VOC	429,894	434,671	439,447	439,447
CO	11,866,338	11,998,186	12,130,034	12,130,034

As these reductions were recognized prior to 8/22/89 no adjustment for the community bank is required.

VI. COMPLIANCE:

Real

The emissions have, in fact, actually occurred. Production records of carbon black produced by the facility source test data demonstrate that the emissions actually occurred during the baseline period. The reductions therefore represent real emissions.

Surplus

The reductions are not required by the SIP or any rule, regulation or law. A portion of the reductions was dedicated to previous projects and a portion was donated to the District. These amounts are not surplus and cannot be banked. The initial emission reductions, the amount used for the approval of emissions increases, the amount donated to the District and the resulting surplus emissions reductions are as follows:

	PM10	Pounds/Day		VOC	CO
		SO2	NO2		
Actual Reductions	560.1	4773.6	687.2	4776.6	131,848.2
Used for Snack Food Facility Offsets	282.5	303.0	479.4	-	-
Donated to District	-	2673.9	-	2221.4	130,848.2
Balance Surplus Reductions	277.5	1796.7	207.8	2555.2	1,000.0

Permanent

All equipment associated with the carbon black plant has ceased to operate. Frito-Lay currently holds permits on some of the equipment to insure the credits are retained. Frito-Lay has agreed to surrender these permits prior to issuance of a banking certificate. Therefore the reductions are permanent.

Quantifiable

Actual production records recognized emission factors and source test data have been used to quantify the emission reductions. The reductions therefore are quantifiable.

VI. COMPLIANCE

Real

The emissions have, in fact, actually occurred. Production records of carbon black produced by the facility source test data demonstrate that the emissions actually occurred during the baseline period. The reductions therefore represent real emissions.

Surplus

The reductions are not required by the SIP or any rule, regulation or law. A portion of the reductions was dedicated to previous projects and a portion was donated to the District. These amounts are not surplus and cannot be banked. The initial emission reductions, the amount used for the approval of emissions increases, the amount donated to the District and the resulting surplus emissions reductions are as follows:

	Pounds/Day				
	PM10	SO2	NO2	VOG	CO
Actual Reductions	560.1	4773.6	523.4	4776.6	131,848.2
Used for Snack Food Facility Offsets	282.5	303.0	479.4		
Donated to District		2673.9		2221.4	130,848.2
Balance Surplus Reductions	277.5	1796.7	44.0	2555.2	1,000.0

Permanent

All equipment associated with the carbon black plant has ceased to operate. Frito-Lay currently holds permits on some of the equipment to insure the credits are retained. Frito-Lay has agreed to surrender these permits prior to issuance of a banking certificate. Therefore the reductions are permanent.

Quantifiable

Actual production records recognized emission factors and source test data have been used to quantify the emission reductions. The reductions therefore are quantifiable.

VI. COMPLIANCE:

Enforceable

The permits to operate for the carbon black facility will be surrendered any new construction or operation of existing equipment at the site will require Authority to Construct pursuant to Rule 2010 and will be subject to new source review prior to construction or operation. The reductions are therefore enforceable.

- C. The reductions have not been used for the approval of an Authority to Construct or used as offsets.

A portion of the reductions was dedicated to previous projects and a portion was donated to the District. These amounts cannot be banked. The initial emission reductions, the amount used for the approval of emissions increases, the amount donated to the District and the resulting remaining (surplus) emissions reductions are shown on page 13.

- D. The reductions are included in or have been added to the 1987 emissions inventory.

Upon original approval of these emissions reductions the District required that these emissions be included in the current NAP inventory. To insure the proper amount of emissions is included District planning staff will be informed whenever all or a portion of these emissions are used as offsets for the Frito-Lay facility.

- E. The banking application must be filed within 180 days of the date of rule adoption.

The application for emission reduction banking credits was submitted to the District March 17, 1992. This is within 180 days September 19, 1991 the date of rule adoption.

- F. Because these emission reductions can be validated as Actual Emission Reductions they qualify for ERC banking certificates that may be used in accordance with the requirements of Rule 220.1.

VII. RECOMMENDATION:

Issue ERC banking certificated to Frito-Lay, ~~subject to the conditions previously established for the use of these reductions as offsets i.e. that offsets be used only for the Frito-Lay snack foods processing plant at their present site and may not be sold or traded.~~

After public notice and review issue ERC Banking Certificates in the following amounts:

	PM10	Pounds/Day From Page <u>13</u>			CO
		SO2	NO2	VOC	
	277.5	1796.7	207.8	2555.2	1000
	PM10	Pounds/Quarter			CO
		SO2	NO2	VOC	
1st Qt	24,975	161,703	18,702	229,968	90,000
2nd Qt	25,252	163,500	18,910	232,523	91,000
3rd Qt	25,530	165,296	19,118	235,078	92,000
4th Qt	25,530	165,296	19,118	235,078	92,000

~~VII. RECOMMENDATION*~~

~~Issue ERC banking certificated to Frito-Lay subject to the conditions previously established for the used of these reductions as offsets i.e. that offsets be used only for the Frito-Lay snack foods processing plant at their present site and may not be sold or traded.~~

~~After public notice and review issue ERC Banking Certificates in the following amounts*~~

	Pounds/Day From Page _____				
	PM10	SO2	NO2	VOC	CO
	277.5	1796.7	44.0	2555.2	1000

	Pounds/Quarter				
	PM10	SO2	NO2	VOC	CO
1st Qt	24,975	161,703	3,960	229,968	90,000
2nd Qt	25,252	163,500	4,004	232,523	91,000
3rd Qt	25,530	165,296	4,048	235,078	92,000
4th Qt	25,530	165,296	4,048	235,078	92,000

APPENDIX A
PRODUCTION DATA DURING SOURCE TEST

OBJECTIVE: DETERMINE CARBON BLACK PRODUCTION RATE FOR UNIT #1 DURING 11/78 STACK TEST

- INPUTS:**
- Tests were conducted on 11/2, 11/5 and 11/6/78.
 - Unit #1 was producing N339 grade carbon black during test period. For N339, 4.365 lbs carbon black are produced for every gallon of feedstock charged to the reactors.
 - The following feedstock charge oil rates were recorded by Agency representatives. These rates represent the total charged to Reactors #1, 3, 4 & 5.

DATE	TIME	FEEDSTOCK CHARGE RATE (gph)
11/2/78	0925	1030
11/2/78	1037	1031
11/2/78	1325	1030
11/6/78	1020	1012
11/6/78	1056	1006
11/6/78	1107	1008
11/6/78	1200	1004
11/6/78	1230	1007
11/6/78	1300	1000
11/6/78	1525	984
11/6/78	1542	984
	AVG.	1008

See sample of original records

RECEIVED

OCT 29 1992

SAN JOAQUIN VALLEY UNIFIED
APCD—SOUTHERN REGION

ANALYSIS

$(4.365 \text{ lbs carbon black/gal feedstock})(1008 \text{ gph feedstock}) = 4399.9 \text{ lbs/hr or } 2.2 \text{ TPH}$

$(2.2 \text{ TPH}) (24 \text{ hrs/day}) = 52.80 \text{ TPD carbon black production (Unit #1)}$

CONCLUSION

Unit #1 Reactors were producing an average of 52.80 TPD of N339 grade carbon black during the November, 1978 test period. This is approximately 70% of the maximum production capacity for Unit #1 (6381.7 lbs/hr or 76.56 TPD).

Page 17

OBJECTIVE: DETERMINE CARBON BLACK PRODUCTION RATE FOR UNIT #2 DURING 11/78 STACK TEST

- INPUTS:**
- Tests were conducted on November 14--17, 1978.
 - N660 was the carbon black grade being produced. N660 is produced at a rate of 5.622 lbs/gal feedstock charged to the reactor (Unit #2 had only one operating reactor, designated as reactor #2).
 - The following feedstock charge oil rates were recorded by Agency representatives.

DATE	TIME	FEEDSTOCK CHARGE RATE (gph)
11/14/78	Avg.	777
11/15/78	Avg.	783
11/16/78	Avg.	810
11/17/78	Avg.	819
	AVG.	797

ANALYSIS

(5.622 lbs carbon black/gal feedstock) (797 gph feedstock) = 4480.7 lbs/hr or 2.24 TPH

(2.24 TPH) (24 hrs/day) = 53.76 TPD carbon black production (Unit #2)

CONCLUSION

Unit #2 reactor was producing an average of 53.76 TPD of N660 grade carbon black during the November, 1978 test period. This is approximately 90% of the maximum production capacity for Unit #2 (4887.6 lbs/hr or 58.56 TPD).

11-2-78
 No 9.25

By J. G. OFF
 w/ McDONALD, CLARK

REACTOR	CHARGE OIL	FUEL GAS	COMB. AIR	AXIAL AIR
1	220 gal/hr FUEL OIL	6 x 10,000 scfh/hr REACTOR QUENCH T 990°F	6.95 x 147,000 scfh/hr AIR PREHEAT T	14 x 1220 scfh DUCT QUENCH 660°F
2	273 gal/hr FUEL OIL	6.95 x 147,000 scfh/hr REACTOR QUENCH T 900°F	6.95 x 147,000 scfh/hr AIR PREHEAT T	6 x 7320 scfh/hr DUCT QUENCH 620°F
3	69.5 gal/hr CHARGE OIL	6.95 gal/hr FUEL GAS	7.0 x 148,000 scfh/hr AIR PREHEAT T	5.65 x 6780 scfh/hr DUCT QUENCH 675°F
4	285 gal/hr FUEL OIL	6.95 gal/hr FUEL GAS	7.0 x 150,000 scfh/hr AIR PREHEAT T	7.15 x 5770 scfh/hr DUCT QUENCH 645°F
5	252 gal/hr FUEL OIL	6.95 gal/hr FUEL GAS		
HEATER	RATIO (black) 0.58	COMBUSTION AIR (RED) 4.1 = 1640 scfh/hr	WASTE GAS (GREEN) 4.4 = 59,650 scfh/hr 44,000 scfh/hr	TEMP

Total Charge Oil
1030 gph

2 Devn #1
 2 Devn #2